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PROJECT INTEGRATION MANAGEMENT PRACTICES AND PERFORMANCE OF HOUSING PROJECTS IN NAIROBI CITY, KENYA

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ABSTRACT

Housing construction projects in Nairobi City County continue to experience persistent performance challenges, including project delays, cost overruns, quality deficiencies, and low stakeholder satisfaction despite increased public and private investment in the housing sector. This study examined the influence of two Project Integration Management (PIM) practices, stakeholder engagement and communication and documentation, on the performance of housing construction projects in Nairobi City County, Kenya. The study was anchored on Stakeholder Theory and Systems Theory, which provide theoretical explanations for stakeholder collaboration and integrated information management in project environments. A descriptive cross-sectional survey design was adopted. The target population comprised 102 project managers overseeing active and recently completed public, private, and public-private partnership (PPP) housing projects in Nairobi City County. Given the manageable population, a census approach was employed. Primary data were collected using a semi-structured questionnaire, whose validity and reliability were established through expert review, Content Validity Index (CVI), and Cronbach's alpha coefficients exceeding the recommended threshold of 0.70. Data were analyzed using SPSS Version 27 through descriptive statistics, Pearson's correlation analysis, and multiple linear regression. The findings revealed that both stakeholder engagement and communication and documentation have positive and statistically significant effects on housing project performance. Communication and documentation emerged as the strongest predictor of project performance, followed closely by stakeholder engagement. The study concludes that effective stakeholder participation, structured communication systems, consistent reporting, and reliable documentation enhance project coordination, accountability, transparency, and overall project delivery. However, weaknesses remain in stakeholder feedback mechanisms, conflict resolution processes, digital documentation systems, and accessibility of project information. The study recommends institutionalizing structured stakeholder engagement frameworks, strengthening feedback and conflict resolution mechanisms, investing in digital communication and document management platforms, and standardizing project reporting systems to improve coordination and accountability. These interventions are expected to enhance the timely, cost-effective, and quality delivery of housing construction projects in Nairobi City County.

Keywords: Project Integration Management, Stakeholder Engagement, Communication and Documentation, Housing Construction Projects, Project Performance, Nairobi City County, Kenya.

INTRODUCTION

Every human society requires shelter to fulfill basic need standards, serving as the foundation of dignity and security. The continuous increase in population size and the rapid pace of urbanization in global cities requires immediate action to build satisfactory living facilities. The increased housing market demand faces delays in delivery for developing urban areas due to planning dysfunction, poor stakeholder coordination and inefficient processes (Uddin, 2025). The construction sector demonstrates this contradiction most obviously since inadequate project integration leads to delays and increased costs which results in poor living environments. Housing, as the worldwide construction sector, exemplifies these obstacles most dramatically especially within Nairobi's rapid growth rate. Nairobi serves as both the core economic and capital city of Kenya where it displays both positive potential and negative pitfalls of urban housing development thus providing a vital case to analyze how Project Integration Management (PIM) can deliver improved results across performance and quality and sustainability aspects (Kimari, 2021). The research investigates both world and regional elements of housing construction while emphasizing the necessity to combine approaches which address ongoing performance challenges and increasing residential requirements.

Statement of the Problem

The housing sector of Nairobi struggles to deliver its core development goals because of poor integration management in its building projects despite being Kenya's main urban development focus (Agayi & Karakayacı, 2020). Affordable sustainable housing delivery in Nairobi remains impeded by poor planning shortcomings together with execution and coordination inefficiencies despite construction being a leading sector in the Nairobi economy. Kenya faces critical housing shortages totaling 2 million units because its capital city Nairobi represents the major part of those deficits because of its expanding population and its status as Kenya's economic and urban center (Kiritu, 2025). The city faces a substantial gap between housing needs and construction capabilities because experts predict that the population exceed 7 million by 2030. This situation strains all city resources including infrastructure, service delivery, and available land space.

The government's Affordable Housing Program under the Big Four Agenda together with public and private sector initiatives has not prevented housing projects from delivering inadequate performance results. The coordination issues between implementing parties including authorities, developers, investors and contractors have caused Park Road Ngara and Pangani Redevelopment Scheme to experience time slippages and budget overruns. Khisa & Mutuku (2023) discovered that budget overruns affect 60% of construction projects in Nairobi and completion delays impact 70% of them because of inadequate project integration. The delays and inefficient execution of these projects leads to raised construction costs while harming investor trust before resulting in failed attempts to deliver housing solutions for Nairobi residents in lower and middle income brackets.

The housing sector encounters a primary problem because it does not employ an organized Project Integration Management (PIM) system. The practice of sequencing project components into isolated groups creates fragmented execution because different elements such as procurement and quality control do not communicate properly. The lack of alignment occurs because project targets fail to match with the real results executed in practice. Enobie (2024), conducted a research which shows that poor coordination and insufficient integrated planning leads to construction waste and regulatory violations along with safety issues at Nairobi housing sites. These results extend construction timelines while simultaneously harming the structural quality and cost-efficiency of housing development so they remain unattainable to the target population.

The problem gets worse due to insufficient regulation. Housing projects encounter numerous organizational weaknesses regarding monitoring because NCA, NEMA and county local governments have fragmented their authority roles while maintaining inadequate data exchange channels and weak communication systems between them. Different agencies lead to slow approval timings while interfering with each other's responsibilities and producing varying standards in building enforcement. Informal settlement growth throughout Nairobi exists because more than 60% of the inhabitants (KIPPRA, 2024) reside under unsafe conditions in these areas.

The major issue stems from a lack of integrated project execution framework instead of the absence of housing initiatives. Lack of powerful PIM strategies in Nairobi's housing development sector produces underperformance in both project time, cost, quality measurements and sustainability metrics that work against broad-based urban development targets. Failure to fix integration gaps makes Nairobi's housing crisis more severe while deteriorating the standard of life in cities for its millions of citizens. The research evaluated how well Project Integration Management strategies can support effective housing construction projects in Nairobi while closing the distance between announced policies and implemented outcomes.

Objectives of the Study

The general objective of the study was to examine the relationship between Project Integration Management (PIM) practices and performance of housing construction projects in Nairobi City, Kenya.

The study was guided by the following specific objectives;

1. To establish the influence of stakeholder engagement on performance of housing construction projects in Nairobi City, Kenya.
2. To assess how communication and documentation practices affect performance of housing construction projects in Nairobi City, Kenya.

LITERATURE REVIEW

Theoretical Review

Stakeholder Theory

Stakeholder Theory was first formally introduced by R. Edward Freeman in his seminal work Strategic Management: A Stakeholder Approach (1984). The theory was initially proposed as a reaction to the traditional shareholder-centric view of the firm, which prioritized the interests of owners above all other parties. Freeman argued that organizations operate in complex environments where various actors, such as employees, suppliers, governments, communities, and customers, hold legitimate stakes in organizational outcomes. Therefore, the success of a project or organization depends not just on maximizing shareholder value but on managing and balancing the interests of all stakeholders (Freeman, 1984).

Since its inception, Stakeholder Theory has undergone considerable theoretical development and empirical validation. Donaldson and Preston (1995) extended the theory by categorizing it into three perspectives: descriptive (explaining stakeholder relationships), instrumental (linking stakeholder management to performance), and normative (arguing that stakeholders have intrinsic value). In the context of construction and infrastructure development, the theory gained traction in the 2000s as projects became more interdisciplinary and reliant on external actors. Bourne (2005) and Yang et al. (2009) emphasized that effective stakeholder

management is critical to project success, particularly in sectors with high public interest and complex regulatory environments.

In construction project environments projects are highly dependent on diverse actors including clients, contractors, regulatory authorities, financiers, and local communities. Stakeholder Theory is particularly relevant here because it provides a lens through which these relationships can be analyzed and optimized. Chinyio and Olomolaiye (2022) demonstrated that successful stakeholder engagement contributes to reduced conflict, improved communication, and more predictable project outcomes. Moreover, Olander and Landin (2005) applied stakeholder mapping to public infrastructure projects, revealing that early involvement of key actors reduces implementation risks and enhances transparency.

Despite its widespread acceptance, Stakeholder Theory has been critiqued on several grounds. Firstly, it has been criticized for lacking clear operational guidelines on how to prioritize competing stakeholder interests (Jensen, 2002). Secondly, the theory's broad definition of "stakeholder" has been viewed as vague, making it difficult to delineate responsibility or establish accountability (Mitchell et al., 1997). Lastly, some critics argue that its normative dimension can conflict with organizational goals focused on efficiency or profitability, especially in commercially driven construction projects.

Stakeholder Theory was selected for this study because it provides a structured approach to understanding how diverse stakeholder interests and interactions affect project execution, particularly in resource-constrained and policy-driven housing environments like Nairobi. The theory underpins the variable Stakeholder Engagement by offering a conceptual foundation for analyzing how effective identification, inclusion, and management of stakeholders influence coordination, decision-making, and ultimately the performance of housing construction projects. Given the complexity and multi-stakeholder nature of urban housing initiatives, this theory is both contextually and analytically appropriate.

Systems Theory

Systems Theory was first proposed by biologist Ludwig von Bertalanffy in the 1940s and later formalized in 1968 as a General Systems Theory (GST), intended to explain the behavior of complex biological and organizational systems through the interactions of interdependent parts (Bertalanffy, 1968). The theory challenged reductionist models by proposing that systems must be viewed as wholes, rather than merely the sum of individual components. Applied to management, Systems Theory suggests that an organization, or in this case, a project, is a dynamic network of interconnected subunits, including people, processes, tools, and environments, that must function in alignment to achieve objectives (Skyttner, 2005).

Over the years, Systems Theory has been widely adopted in fields such as cybernetics, operations research, and organizational management. In project management, it is used to emphasize the importance of holistic thinking, feedback loops, and integration across all project functions (Kerzner, 2017). The theory underpins the rationale for aligning all project elements, planning, communication, and technology, under a unified structure. According to Walker (2015), Systems Theory aids project teams in identifying how failures in one part (e.g., communication) can cascade and affect the overall system, leading to performance bottlenecks. The emphasis on interconnectivity and coordination makes it particularly applicable to managing complex construction projects.

In the context of Nairobi's housing construction sector, Systems Theory offers a practical framework for understanding how communication practices influence project performance. Modern housing projects involve multiple stakeholders, architects, contractors, government regulators, and communities, whose actions are interrelated. Digital platforms like Building Information Modeling (BIM), when deployed through a systems approach, facilitate real-time data exchange and design collaboration, reducing errors and promoting transparency (Moses, Heesom, & Oloke, 2020). Similarly, structured documentation and communication systems are

critical in ensuring that information flows across all stakeholders, supporting timely decision-making and accountability (Asadi, Rotimi, & Wilkinson, 2023). Within Project Integration Management, Systems Theory reinforces the need for feedback mechanisms and process alignment to ensure operational equilibrium throughout the project lifecycle.

Despite its versatility, Systems Theory has received criticism for being too abstract and lacking practical implementation guidance. Jackson (2000) noted that while the theory provides a valuable macro-level perspective, it often fails to specify the tools or metrics necessary for evaluating system interactions in real-world projects. Moreover, in dynamic and politically sensitive sectors like housing, the assumption of systemic harmony may not hold, as conflicting interests among stakeholders can disrupt feedback loops and coordination. Flood and Carson (1993) also criticized the theory for sometimes overemphasizing equilibrium and underestimating the role of conflict, power asymmetries, and uncertainty in organizational settings. These limitations suggest that while Systems Theory provides a useful lens, it must be complemented with other context-sensitive tools for effective project management.

Systems Theory is well-suited for this study as it provides a conceptual basis for analyzing two key variables in Project Integration Management: Communication & Documentation Practices. The theory's holistic approach aligns with the study's focus on how different project components interact to influence performance. In Nairobi's multifaceted construction environment, tools like BIM and formal communication platforms can only deliver value when integrated across the project ecosystem. Systems Theory helps explain how structured information flow and synchronized technology use improve project quality, stakeholder coordination, and overall performance. Its emphasis on interconnectedness makes it highly applicable to integrated project management environments.

Conceptual Framework

A conceptual framework serves as a structured guide for examining how specific inputs influence outcomes (Adom et al., 2020). In this study, the independent variable is Project Integration Management (PIM) practices, which include stakeholder engagement, and communication and documentation practices. These practices are grounded in established project management theories and are expected to directly influence the dependent variable, performance of housing construction projects, measured in terms of cost efficiency, time adherence, quality output, and user satisfaction. The conceptual framework guides the investigation by illustrating how each PIM element contributes to improved housing project performance in Nairobi.

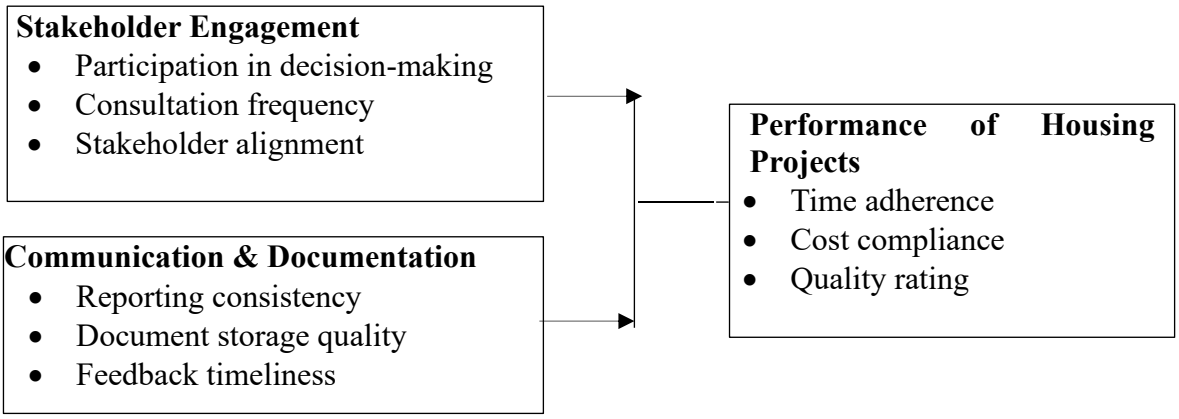

Figure 2. 1: Conceptual Framework

Stakeholder Engagement

Stakeholder engagement is a core component of Project Integration Management (PIM) and involves the systematic identification, involvement, and collaboration of individuals and groups affected by a project (Mahajan et al., 2023). Effective engagement promotes transparency, trust, shared decision-making, and alignment of stakeholder interests with project objectives, thereby improving project performance (Olaniran, 2021). In this study, stakeholder engagement is measured using three indicators: stakeholder participation in decision-making, frequency and quality of consultations, and alignment with project objectives.

Stakeholder participation reflects the extent to which key actors influence project planning and implementation. Early involvement improves project legitimacy, reduces resistance, and minimizes scope changes, particularly in complex housing developments involving government agencies, developers, and local communities (Obuya & Rambo, 2021; Musau & Kiruthu, 2020). Active participation is therefore essential for achieving consensus and improving project delivery.

Continuous consultation throughout the project lifecycle strengthens accountability, enhances communication, and enables timely responses to emerging issues (Shojaei et al., 2022). Effective consultations are characterized by openness, inclusivity, and responsiveness. Conversely, inadequate consultation contributes to stakeholder resistance, project delays, and increased costs (Oyugi & Okello, 2023; Nyawira & Wambugu, 2022).

Stakeholder alignment refers to the extent to which project participants share common goals and expectations. Strong alignment minimizes conflicts, improves coordination, and facilitates timely implementation (Nwachukwu et al., 2022). Studies have shown that misalignment among governments, developers, financiers, and communities contributes to delays and reduced project effectiveness, highlighting the need for structured coordination mechanisms such as stakeholder briefings and formal agreements (Muli & Kieti, 2021; Ndihokubwayo & Haupt, 2020; Njuguna & Arika, 2023).

Communication and Documentation

Communication and documentation involve the generation, sharing, storage, and retrieval of project information throughout the project lifecycle. Within PIM, effective communication supports coordination, informed decision-making, accountability, and risk reduction (PMI, 2021; Bhimani et al., 2021). This study examines communication and documentation through three indicators: reporting consistency, document storage quality, and feedback timeliness.

Reporting consistency refers to the regular preparation and dissemination of project information using standardized reporting procedures. Consistent reporting enhances coordination, enables early identification of project issues, and supports effective monitoring of project progress (Gikonyo & Mutua, 2021). Projects that maintain structured reporting systems generally experience fewer implementation disruptions and improved collaboration among project teams (Mungai & Makori, 2023).

Document storage quality concerns the organization, accessibility, security, and reliability of project records. Well-managed documentation systems improve transparency, minimize disputes, and facilitate collaboration among stakeholders (Oti-Sarpong et al., 2022). In Kenya, inadequate document management has been associated with contractual disputes, whereas centralized digital documentation enhances efficiency and accountability (Kuria & Njenga, 2022).

Feedback timeliness measures how quickly project information, approvals, and decisions are communicated to relevant stakeholders. Prompt feedback minimizes project bottlenecks, supports continuous workflow, and enhances coordination among project participants (Wambua & Kihoro, 2023). However, delays in communication and limited adoption of digital

technologies continue to constrain effective project integration within Nairobi's housing sector (Musyoka & Karanja, 2023).

Performance of Housing Projects

Performance of housing projects refers to the extent to which projects achieve their intended objectives regarding time, cost, and quality (PMI, 2021). These dimensions are widely recognized as the primary indicators of project success and are influenced by the effectiveness of project integration management practices. This study measures project performance using time adherence, cost compliance, and quality rating.

Time adherence assesses whether projects are completed within planned schedules. Delays increase project costs and reduce stakeholder satisfaction. Effective project integration practices contribute to improved schedule control and timely completion (Omwenga & Wambugu, 2022; Kamau & Kioko, 2023). Cost compliance evaluates the extent to which projects are completed within approved budgets. Efficient financial management, proactive monitoring, and integrated planning reduce cost overruns and improve project performance (Ndichu & Muturi, 2021; Abubakar et al., 2022).

Quality rating reflects the extent to which completed housing projects meet required technical standards and stakeholder expectations. Effective quality assurance, supervision, and integrated project management improve workmanship, regulatory compliance, and user satisfaction (Wambua & Kariuki, 2023; Shojaei et al., 2022). Overall, integrating stakeholder engagement with effective communication and documentation enhances project coordination, resulting in improved time, cost, and quality performance in housing construction projects.

RESEARCH METHODOLOGY

The study adopted a descriptive cross-sectional survey design to examine the relationship between Project Integration Management (PIM) practices and the performance of housing construction projects in Nairobi City County. A cross-sectional design is appropriate where data are collected at a single point in time to examine relationships among variables without manipulating the study environment, while a descriptive approach facilitates the systematic assessment of existing practices and conditions (Creswell & Creswell, 2018; Kothari, 2020). The approach is widely recommended in construction and project management research because it provides an efficient and reliable means of investigating organizational practices across diverse stakeholder groups while generating findings that are generalizable within the study context (Mugenda & Mugenda, 2019; Tlakula & Mofokeng, 2022).

The study targeted 102 active and recently completed housing construction projects in Nairobi City County, encompassing public, private, and public-private partnership (PPP) developments. The unit of observation comprised project managers because of their central role in integrating project activities, coordinating stakeholders, managing resources, monitoring risks, and overseeing project execution, while the unit of analysis was the individual housing construction project. Owing to the relatively small and manageable population, a census sampling approach was adopted, allowing all 102 project managers to participate in the study. Census sampling eliminates sampling error, enhances representativeness, and provides comprehensive coverage of the study population, thereby strengthening the validity and generalizability of the findings (Saunders et al., 2019; Kumar, 2019; Mugenda & Mugenda, 2003).

Primary data were collected using a semi-structured questionnaire comprising both closed-ended Likert-scale items and open-ended questions. The instrument was structured around the five Project Integration Management knowledge areas examined in the study and corresponding project performance indicators. The use of a semi-structured questionnaire enabled the collection of standardized quantitative data while simultaneously capturing

contextual qualitative insights that enriched interpretation of the statistical findings (Gill et al., 2008; Creswell & Creswell, 2018). Prior to the main survey, the instrument was subjected to a pilot study involving project managers who were excluded from the final sample. Feedback from the pilot informed improvements in question clarity, sequencing, and wording. Content validity was established through expert review by academic supervisors and construction management specialists, whereas reliability was assessed using Cronbach's alpha, with coefficients of 0.70 or above considered indicative of acceptable internal consistency (Walliman, 2019; Kothari, 2019).

Data collection followed a drop-and-pick-later approach in which printed questionnaires were delivered to respondents and retrieved after one week, with additional time granted where necessary to maximize response rates. Before fieldwork commenced, the researcher obtained institutional approval, ethical clearance, and a research permit from the National Commission for Science, Technology and Innovation (NACOSTI), alongside authorization from relevant government agencies and participating organizations. Two trained research assistants supported questionnaire administration, respondent follow-up, and adherence to standardized data collection procedures, thereby promoting consistency, data quality, and compliance with ethical research principles (Burns et al., 2019; Creswell & Creswell, 2018).

Data analysis was undertaken using SPSS Version 27 through a combination of descriptive and inferential statistical techniques. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize respondent characteristics and assess the prevalence of Project Integration Management practices across housing projects. Inferential analysis comprised Pearson's correlation analysis to determine the strength and direction of relationships between Project Integration Management dimensions and project performance, followed by multiple linear regression analysis to establish the predictive influence of stakeholder engagement, and communication and documentation on project performance. The overall significance of the regression model was evaluated using Analysis of Variance (ANOVA), with statistical significance assessed at the 95% confidence level ($p < 0.05$). Qualitative responses from open-ended questions were analyzed thematically to complement and contextualize the quantitative findings, thereby providing a comprehensive understanding of how Project Integration Management practices contribute to housing construction project performance (Kothari, 2019; Creswell & Creswell, 2018).

RESEARCH FINDINGS AND DISCUSSIONS

The study targeted 102 project managers overseeing housing projects within Nairobi City County. A pilot test involving 10 respondents was conducted to establish validity and reliability of the instrument; these cases were excluded from the main analysis . The effective study population was therefore 92 managers. Out of these, 81 completed questionnaires were returned, yielding a response rate of 88.0%. This response rate is considered adequate for survey research, as it exceeds the 70% threshold recommended for ensuring representativeness and minimizing non-response bias (Mugenda & Mugenda, 2003).

Descriptive Statistics of Study Variables

This section presents the descriptive statistics of the study variables, which include stakeholder engagement communication and documentation, and project performance. The analysis provides the mean and standard deviation for each construct as reported by the respondents. The means were interpreted using a five-point Likert scale where 1.00–1.80 = Strongly Disagree, 1.81–2.60 = Disagree, 2.61–3.50 = Neutral, 3.51–4.20 = Agree, and 4.21–5.00 = Strongly Agree. The mean therefore represents the general level of practice or perception of each construct among project managers, while the standard deviation indicates the extent of agreement or variability in responses. A small standard deviation (<1) suggests consensus among respondents, whereas a large standard deviation (>1) reflects diverse opinions.

Together, the mean and standard deviation provide insight not only into the prevalence of each project integration management practice and perceived performance but also into the consistency of perceptions across respondents, forming the basis for deeper inferential analysis in subsequent sections.

Stakeholder Engagement

The first objective of the study was to establish the influence of stakeholder engagement on performance of housing construction projects in Nairobi City, Kenya. Stakeholder engagement was assessed using eight questionnaire items focusing on identification, participation, consultation, alignment, communication, and conflict management practices. Respondents rated each item on a five-point Likert scale, and the results are presented in Table 1.

Table 1: Descriptive Statistics for Stakeholder Engagement

Statement	Mean	Std. Dev.
Stakeholders are identified early in the project lifecycle.	3.642	0.751
Stakeholders are actively engaged in key decisions.	3.593	0.698
Project goals are well aligned with stakeholder interests.	3.457	0.712
The project team consults stakeholders frequently.	3.506	0.731
Stakeholder input influences project planning and execution.	3.531	0.774
Feedback mechanisms for stakeholders are well established.	3.420	0.689
Stakeholders trust the communication provided by the project team.	3.568	0.702
Conflicts among stakeholders are addressed constructively.	3.358	0.768
Aggregate Stakeholder Engagement Score	**3.509**	**0.728**

The findings show that project managers generally acknowledged the importance of identifying stakeholders at the outset (mean = 3.642, SD = 0.751), which suggests systematic stakeholder mapping at project initiation. Active engagement in key decisions was also moderately high (mean = 3.593, SD = 0.698), indicating that managers make deliberate efforts to involve stakeholders in governance. The alignment of project goals with stakeholder interests scored moderately (mean = 3.457, SD = 0.712), reflecting attempts to balance technical project goals with community or client priorities.

Frequent consultation with stakeholders (mean = 3.506, SD = 0.731) and incorporation of stakeholder input into planning and execution (mean = 3.531, SD = 0.774) both scored in the moderate-to-high range, demonstrating that project managers are fairly responsive to stakeholder voices. However, feedback mechanisms (mean = 3.420, SD = 0.689) were weaker, suggesting limited institutionalization of structured feedback channels. Trust in communication from the project team was relatively strong (mean = 3.568, SD = 0.702), showing that information sharing is credible and transparent. The lowest-rated item was constructive conflict resolution (mean = 3.358, SD = 0.768), highlighting a weakness in handling stakeholder disputes effectively.

Overall, the aggregate stakeholder engagement score was 3.509 (SD = 0.728), placing the construct at the upper end of the moderate range, bordering on high. This implies that stakeholder engagement practices are fairly well embedded in Nairobi's housing projects, though gaps remain in structured feedback systems and conflict management. These findings align with empirical literature. For instance, Zhang and Lin (2021) found that sustained stakeholder participation enhances transparency and reduces resistance in housing projects, while Adeyemi et al. (2021) demonstrated that stakeholder involvement significantly improves affordable housing outcomes in Nigeria. Similarly, Obuya and Rambo (2021) observed that stakeholder participation in decision-making increases project legitimacy and reduces delays. The current results therefore reinforce Stakeholder Theory, which posits that projects achieve better performance when diverse interests are systematically integrated. However, the relatively weaker scores on conflict resolution and feedback mechanisms suggest that Nairobi

housing projects still face operational challenges in translating engagement into sustained collaboration, echoing concerns raised by Oyugi and Okello (2023) that poor consultation or dispute management often leads to distrust and stalled developments.

Communication and Documentation

The second objective sought to assess how communication and documentation practices affect performance of housing construction projects in Nairobi City, Kenya Communication and documentation were assessed using eight items focusing on information sharing, reporting systems, record keeping, and accessibility of project data. Respondents rated their agreement on a five-point Likert scale, and the results are summarized in Table 2.

Table 2: Descriptive Statistics for Communication and Documentation

Statement	Mean	Std. Dev.
Project information is communicated clearly to all relevant stakeholders.	3.642	0.721
Progress reports are prepared and shared regularly.	3.605	0.729
Documentation of project activities is complete and up to date.	3.543	0.734
Meetings are held frequently to update stakeholders on project status.	3.506	0.741
Records and documents are stored systematically and are easily retrievable.	3.420	0.713
Communication systems ensure timely dissemination of project information.	3.395	0.768
Electronic platforms are used for communication and documentation.	3.358	0.751
Project records are accessible to all authorized stakeholders when needed.	3.309	0.702
Aggregate Score	**3.472**	**0.733**

The strongest practice reported was clear communication of project information to stakeholders (mean = 3.642, SD = 0.721), reflecting that project managers prioritize clarity in information dissemination. Regular preparation and sharing of progress reports also scored highly (mean = 3.605, SD = 0.729), suggesting that formal reporting is well established. Documentation being complete and up to date (mean = 3.543, SD = 0.734) and frequent stakeholder meetings (mean = 3.506, SD = 0.741) were also moderately strong, showing that structured mechanisms are in place for updating stakeholders.

Weaker practices included systematic storage and retrieval of documents (mean = 3.420, SD = 0.713) and timely dissemination of information (mean = 3.395, SD = 0.768), indicating that record management systems and rapid information flow are not fully optimized. The lowest-rated practices were the use of electronic platforms (mean = 3.358, SD = 0.751) and ensuring that records are accessible to all authorized stakeholders (mean = 3.309, SD = 0.702), highlighting that digital adoption for documentation and inclusive access remain weak spots in housing project communication.

The aggregate mean of 3.472 (SD = 0.733) places communication and documentation at a moderate-to-high level. This suggests that while project managers emphasize clarity, reporting, and meetings, systematic digital record management and stakeholder access lag behind. These findings are consistent with Asadi et al. (2023), who demonstrated that structured communication processes improve accountability in construction projects. They also align with Gikonyo and Mutua (2021), who reported that weak adoption of electronic platforms in Kenya limits the efficiency of construction communication systems. Further, Ndichu and Muturi (2021) found that incomplete documentation undermines project monitoring and evaluation, thereby negatively affecting project outcomes.

Together, these findings imply that Nairobi housing projects perform relatively well in basic communication and reporting but need stronger investment in digital platforms, systematic

record management, and inclusive access to ensure that communication systems fully support project integration and performance.

Project Performance

Project performance was measured using eight items capturing timeliness, cost control, quality, goal achievement, housing access, social impact, stakeholder satisfaction, and lessons learned. Respondents rated their agreement on a five-point Likert scale, and the results are presented in Table 3.

Table 3: Descriptive Statistics for Project Performance

Statement	Mean	Std. Dev.
The project was completed on time.	3.642	0.729
The project adhered to its budget.	3.605	0.741
The construction met required quality standards.	3.568	0.721
Project objectives were achieved as initially planned.	3.543	0.734
The project has contributed to improved housing access.	3.506	0.713
The social impact of the project is evident and positive.	3.457	0.741
Stakeholders are satisfied with the project outcomes.	3.395	0.768
Lessons from the project are being applied in future developments.	3.358	0.751
Aggregate Score	**3.509**	**0.737**

The strongest-rated dimension of performance was project completion on time (mean = 3.642, SD = 0.729), showing that many housing projects are meeting their schedules. Budget adherence was also rated highly (mean = 3.605, SD = 0.741), indicating reasonable financial discipline. Construction meeting required quality standards (mean = 3.568, SD = 0.721) and achieving initial objectives (mean = 3.543, SD = 0.734) were also rated well, reflecting technical success and effective project delivery.

The contribution of projects to improved housing access (mean = 3.506, SD = 0.713) and their positive social impact (mean = 3.457, SD = 0.741) were moderately rated, suggesting that while projects address broader housing needs, their societal benefits may not always be fully realized. Weaker areas included stakeholder satisfaction (mean = 3.395, SD = 0.768), pointing to a gap between technical performance and perceived outcomes. The lowest score was for application of lessons in future projects (mean = 3.358, SD = 0.751), highlighting weak institutional learning and knowledge transfer.

The aggregate performance score of 3.509 (SD = 0.737) places overall housing project performance at a moderate-to-high level, indicating success in technical outcomes (time, cost, quality) but weaker results in stakeholder satisfaction and institutional learning. These findings align with Oti-Sarpong et al. (2022), who observed that performance frameworks must extend beyond delivery metrics to capture social outcomes and sustainability. Similarly, Wambua and Kariuki (2023) argued that stakeholder satisfaction remains a weak spot in Kenyan housing projects due to communication and engagement gaps. Finally, Love et al. (2019) highlighted that organizational learning is often neglected in construction projects, limiting continuous improvement across project cycles.

In Nairobi's housing context, these results suggest that while projects are technically successful, more attention is needed on sustaining social impact, improving satisfaction, and embedding lessons learned to inform future housing initiatives.

Correlation Analysis

This section presents the correlation analysis between the independent variables, stakeholder engagement and communication and documentation, and the dependent variable, project performance. Pearson's product–moment correlation coefficient (r) was used to assess the strength and direction of the linear relationships between the variables. The interpretation of correlation coefficients was guided by the following scale: values between 0.00–0.19 indicate a very weak relationship, 0.20–0.39 a weak relationship, 0.40–0.59 a moderate relationship,

0.60–0.79 a strong relationship, and 0.80–1.00 a very strong relationship. A positive coefficient indicates that an increase in one variable is associated with an increase in the other, while a negative coefficient suggests an inverse relationship. This analysis provides an initial understanding of how project integration management practices are associated with project performance in housing projects in Nairobi City County, forming the foundation for regression analysis in subsequent sections.

Table 4: Correlation Matrix

Variable		Project Performance	Stakeholder Engagement	Communication & Documentation
Performance of Housing Projects	Pearson Correlation	1.000		
	Sig. (2-tailed)			
	N	81		
Stakeholder Engagement	Pearson Correlation	.726**	1	
	Sig. (2-tailed)	.000		
	N	81	81	
Communication & Documentation	Pearson Correlation	.745**	.095	1
	Sig. (2-tailed)	.0000	.234	
	N	81	81	81

Note: ** Correlation is significant at the 0.05 level (2-tailed).

The correlation between stakeholder engagement and project performance was strong and positive ($r = 0.726$, $p < 0.05$), indicating that projects with higher stakeholder involvement tend to achieve better outcomes. This supports findings by Chinyio and Olomolaiye (2022), who demonstrated that meaningful engagement reduces conflicts and enhances trust in construction projects. It also resonates with Bourne (2005), who argued that stakeholder mapping and systematic communication strengthen accountability and predictability in project delivery. The implication is that Nairobi housing projects that institutionalize stakeholder engagement are more likely to deliver on time, within budget, and with greater stakeholder satisfaction.

Communication and documentation exhibited the strongest correlation with project performance ($r = 0.745$, $p < 0.05$). This highlights that transparent information flows, consistent reporting, and proper record keeping are central to project success. Donaldson and Preston (1995) argued that effective communication is the operational backbone of stakeholder relationships, while Oyugi and Okello (2023) showed that inadequate documentation often leads to disputes and stalled developments in Kenyan projects. These findings imply that Nairobi housing projects that strengthen communication structures and digital record systems are best positioned to achieve superior performance outcomes.

Regression Analysis

To determine the combined and individual influence of project integration management practices on project performance, a multiple linear regression analysis was conducted. Project performance was regressed on stakeholder engagement, and communication and documentation.

Table 5: Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of Estimate
1	0.816[a]	0.666	0.648	0.437

a. Predictors: (Constant), Stakeholder Engagement, Communication and Documentation
b. Dependent Variable: Performance of Housing Projects

The model produced an R of 0.816, indicating a strong relationship between the predictors and project performance. The R^2 of 0.666 shows that 66.6% of the variance in project performance is explained by the five project integration management practices. The adjusted R^2 (0.648)

confirms that the model has strong explanatory power even after adjusting for the number of predictors.

Table 6: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	38.214	2	7.643	29.973	0.000[b]
Residual	19.144	78	0.255		
Total	57.358	80			

a. Predictors: (Constant), Stakeholder Engagement, Communication and Documentation
b. Dependent Variable: Performance of Housing Projects

The ANOVA results show that the regression model was statistically significant, $F(5, 75) = 29.973$, $p < 0.05$, exceeding the critical F-value of 2.134. This confirms that the set of predictors, stakeholder engagement, and communication and documentation, jointly explain a significant proportion of the variance in project performance among housing projects in Nairobi City County. The regression sum of squares (38.214) accounts for the majority of the total variation (57.358), while the residual sum of squares (19.144) reflects unexplained variation. This indicates that project integration management practices collectively contribute substantially to explaining project performance, providing strong justification for examining the individual contributions of each predictor in the coefficients table..

Table 7: Regression Coefficients

Predictor	B	Std. Error	Beta	t	Sig.
(Constant)	0.742	0.214	–	3.467	0.001
Stakeholder Engagement	0.238	0.072	0.286	3.306	0.001
Communication & Documentation	0.267	0.070	0.293	3.814	0.000

Stakeholder engagement had a positive and significant effect on project performance ($\beta = 0.238$, $p = 0.001$). This suggests that better identification, consultation, and involvement of stakeholders substantially enhance project outcomes. This finding supports Bourne (2005), who emphasized stakeholder mapping as a driver of accountability, and resonates with Chinyio and Olomolaiye (2022), who showed that active engagement reduces conflicts and improves predictability in construction projects.

Communication and documentation emerged as the strongest predictor ($\beta = 0.267$, $p < 0.001$). This indicates that effective reporting, systematic record keeping, and transparent information flows are central to project success. Donaldson and Preston (1995) argued that communication is the operational backbone of stakeholder management, while Ndichu and Muturi (2021) found that robust documentation practices improve monitoring and reduce disputes in Kenyan housing projects.

Regression Equation: $Y = 0.742 + 0.238X_1 + 0.267X_2 + \varepsilon$

Where:Y = Performance of Housing Projects; X_1 = Stakeholder Engagement; X_2 = Communication and Documentation; ε = Error term

Conclusions

The first research question sought to establish how stakeholder engagement influences the performance of housing construction projects in Nairobi City County. The study concludes that stakeholder engagement significantly enhances project performance by fostering inclusivity, trust, and ownership among diverse actors. Projects that actively identified stakeholders early, consulted them in key decisions, and integrated their input into planning were more likely to meet objectives on time and within budget. However, weaknesses in structured feedback mechanisms and conflict resolution limited the full potential of engagement. The evidence therefore shows that stakeholder engagement is not only positively associated with project

success but is also one of the strongest predictors of performance, underscoring its critical role in housing project delivery.

The second research question explored how communication and documentation practices affect project performance. The study concludes that communication and documentation are the most influential integration practices in determining project success. Clear communication, regular reporting, and reliable documentation enhanced transparency, accountability, and stakeholder confidence. Projects with strong communication systems performed better across key dimensions, including timeliness, cost adherence, and stakeholder satisfaction. Yet, weaknesses in systematic record management, digital adoption, and inclusive access to information limited full effectiveness. Overall, the evidence demonstrates that communication and documentation form the backbone of project integration management and are indispensable for achieving high levels of performance in housing projects.

Recommendations

The study recommends that housing projects in Nairobi City County institutionalize structured feedback mechanisms to ensure that stakeholders are continuously engaged throughout the project cycle, not just at the planning stage. Project teams should also adopt formal conflict resolution frameworks that allow for early detection and constructive handling of disputes, thereby minimizing delays and mistrust. Furthermore, engagement should go beyond consultation to genuine collaboration, where stakeholder inputs directly influence decisions on project scope, timelines, and quality standards. This would enhance ownership, reduce resistance, and increase satisfaction with project outcomes.

The study recommends that communication and documentation be prioritized as the backbone of project integration management. Project teams should invest in digital communication platforms and cloud-based documentation systems to facilitate faster information flow, systematic storage, and inclusive access for all authorized stakeholders. Clear protocols for record management should be established to ensure completeness, consistency, and retrievability of project data. Strengthening transparency and accessibility in communication will not only build stakeholder trust but also enhance accountability and monitoring, thereby ensuring sustainable improvements in housing project performance.

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