

PROJECT COMMUNICATIONS MANAGEMENT AND PERFORMANCE OF AFFORDABLE HOUSING PROGRAM IN NAIROBI CITY COUNTY, KENYA

¹Sabastian Bubiru & ²Dr. Samson Nyang'au Paul

¹Masters of Science, Jomo Kenyatta University of Agriculture and Technology, Kenya

²Lecturer, Jomo Kenyatta University of Agriculture and Technology, Kenya

ABSTRACT

Project communication management is the backbone of effective decision-making throughout the lifespan of a project. Affordable housing contributes to economic growth by improving people's standards of living while creating employment opportunities in both the formal and informal sectors. However, the performance of affordable housing programs has been constrained by several communication-related challenges. The general objective of the study was to establish the effect of project communication management on the performance of affordable housing programs in Nairobi City County, Kenya. Specifically, the study sought to examine the effect of communication channel and communication system on the performance of affordable housing programs in Nairobi City County, Kenya. The study was guided by Communication Theory and the Technology Acceptance Theory. A descriptive research design was adopted. The unit of analysis comprised 11 completed affordable housing programs within Nairobi City County, while the unit of observation consisted of 97 professionals involved in the management of the programs. Owing to the small target population, a census approach was adopted. Primary data were collected using structured questionnaires. A pilot study involving 10 project professionals was conducted to assess the validity and reliability of the research instrument. Content and construct validity were established through expert review and confirmatory factor analysis, while reliability was assessed using Cronbach's alpha. Data were analyzed using SPSS Version 28 using descriptive and inferential statistics. The results indicated that the instrument was valid ($AVE > 0.50$) and reliable (Cronbach's alpha > 0.70). The findings revealed a strong and significant positive relationship between communication channel and program performance ($r = .842$, $p = .024$) and a strong positive relationship between communication system and program performance ($r = .621$, $p = .024$). The study concludes that effective communication channels and robust communication systems are critical determinants of affordable housing program performance. The study recommends that organizations institutionalize and strengthen communication channels across all project phases and invest in integrated, user-friendly digital communication systems to enhance information sharing, coordination, stakeholder engagement, and overall program performance.

Keywords: Project communication management, communication channel, communication system, affordable housing program, program performance, Nairobi City County.

INTRODUCTION

Project communication management is one of the ten project management knowledge areas and comprises the processes required to ensure the timely generation, collection, dissemination, storage, retrieval, and distribution of project information (Senaratne & Ruwanpura, 2016). Effective project communication ensures that relevant information reaches the appropriate stakeholders in the right format and at the right time, thereby facilitating informed decision-making and successful project implementation. Among the key dimensions of project communication management are communication channel and communication system, which facilitate the exchange of information among project stakeholders. Samáková et al. (2017) identified communication channel and communication system as critical components of project communication management that influence project coordination and implementation. Similarly, Guuru (2021) found that participatory and multi-channel communication strategies positively influence programme implementation success. Gichohi, Iravo, and Muchelule (2023) further observed that effective project communication management involves the management of communication channels and feedback systems, while Oyier et al. (2018) emphasized that communication channels, reporting mechanisms, and feedback are essential for effective project coordination.

Getting the right information to the right people at the right time and in an appropriate format is fundamental to project success. Consequently, the effectiveness of project communication largely depends on the communication channels adopted and the communication systems used to facilitate information sharing among stakeholders. The challenge for project managers is to ensure that project information reaches the intended recipients promptly and in a format that supports timely decision-making regardless of geographical location or access method (Mnkandla, 2018). With increasing digitalization of project management, communication systems have become indispensable in supporting collaboration, coordination, and information exchange throughout the project lifecycle. Hysa and Spalek (2019) noted that high-quality communication is achieved when project team members have adequate opportunities to communicate formally and informally, thereby enhancing project coordination and overall performance.

Poor communication remains one of the leading causes of project failure across industries. Drączkowska (2015) reported that more than half of the financial losses experienced in projects result from ineffective communication, while approximately 75% of project failures are attributed to communication-related challenges. Conversely, organizations that establish effective communication channels and reliable communication systems are more likely to achieve superior project outcomes. Ilieva-Koleva and Kasamska (2017) observed that utilizing multiple communication channels enhances information exchange by improving feedback timeliness and enabling stakeholders to express themselves effectively. Likewise, Pivec and Maček (2019) found that digital communication systems, including social media and other online platforms, facilitate stakeholder communication, improve information dissemination, and enhance project performance. As project environments become increasingly complex, establishing effective communication channels supported by efficient communication systems remains essential for improving coordination, stakeholder engagement, and the overall performance of affordable housing programmes.

Statement of the Problem

Affordable housing boosts economic growth through upgrading peoples' standards of living and also creates employment in both formal and informal sector. Housing is part of the real estate sector that accounts for 9.1% of Kenya's GDP. Affordable housing is part of the Big Four transformative agenda which identified four priority initiatives that were to be implemented during the 2018-2022 plan period. These initiatives included; food security and nutrition; universal healthcare; affordable housing and manufacturing.

Performance of Affordable Housing program has been impeded by several challenges; budgetary allocation to affordable housing has been low which has limited the supply of housing units. The timely delivery of the Affordable Housing program has been impeded by several bottlenecks. The AHP aimed to build 250,000 affordable housing units and create one million jobs in the current financial year, ending June 2024. However, only 40,000 housing units and 120,000 jobs were created within the same period. This means the program had only realized 16% of its housing units target and 12% for job. Delays have plagued several affordable housing projects (Cyttonn, 2023). The Pangani Affordable Housing Project, experienced a 26-month stall due to financial constraints faced by the developer, Tecnofin Kenya Ltd. Although the government claims that 4,888 houses have been completed in the past two years, a recent report by the Architectural Association of Kenya suggests that only 1,189 houses have been finished since the current administration took office (Ngari, 2023).

Budget overruns and slow progress are issues with Kenya's Affordable Housing Programme (AHP), with concerns raised about shaky funding and the failure to meet targets, despite billions levied from workers. Between July and September 2024, the State Department for Housing spent Sh7.9 billion on construction, half the expected expenditure of Sh15.8 billion (25% of the annual budget of Sh63.22 billion). Concerns have arisen regarding the allocation and ownership of housing units in Nairobi. Reports indicate that private investors own the majority of units in projects like Jevanjee and Pangani, leaving a limited number for public allocation. The Pangani project, out of 1,562 units, only 333 are publicly owned. This disparity raises questions about the accessibility of affordable housing for Nairobi's low-income residents. Further, although 822 houses were completed in Soweto Kibera, the people had to pay Ksh 4500- Ksh 7500 for one bedroom and two bedrooms, respectively. However, most of the slum dwellers moved in but later moved out due to lack of money to pay for houses (Thuo & Odera, 2024).

Several researchers have conducted studies on project communication management; Abraham (2019) study on practices of project communication management in water project found that the practice of project communication management, communication method, and communication channel had statistically positive significant influence on project performance. Katerega and Sebunya (2017) on the relationship between project communication and project performance in Public Universities revealed a positive significant relationship between project communication and project performance. Guuru (2021) on effect of communication strategies on the successful implementation of programmes at the International Livestock Research Institute, Kenya found that participatory communication strategy, results-driven communication strategy and multi-channeled communication strategy had positive effect on the success of implementation of programmes at ILRI. Mugo, and Moronge, M (2018) on the influence of organizational communication on the implementation of building projects within Nairobi County revealed that appropriate communication channel ensured that information was relayed to right audience and improves team coordination and increase synergy and trust. However, there is study limitation on project communications management and performance of affordable housing program. The study hence seeks to fill the research gap by examining the effect of project communications management and performance of affordable housing program in Nairobi City County, Kenya.

General Objective

The general objective of the study was to establish effect of project communications management on performance of affordable housing program in Nairobi City County, Kenya.

Specific Objectives

- i. To assess effect of communication channel on performance of affordable housing program in Nairobi City County, Kenya.

- ii. To establish effect of communication system, on performance of affordable housing program in Nairobi City County, Kenya.

LITERATURE REVIEW

Theoretical Framework

Communication Theory

Communication Theory was developed by Shannon's and Weaver (1949). Communication theory explains the process of communication. According to Communication theory, a message begins at an information source, which is relayed through a transmitter, and then sent via a signal towards the receiver. But before it reaches the receiver, the message must go through noise (sources of interference). The receiver must convey the message to its destination. Today, communication is being regarded as an important factor in business, and that the ability of the company to communicate can determine its success. This theory is specially designed to develop the effective communication between sender and receiver. Shannon and Weaver's explain that while one person is speaking, the other is listening. How this listening is done constitutes information for the sender (Bryant & Heath, 2000). This theory is relevant in study since effective communication in an organization can only be achieved if both the receiver and the sender are capable of interpreting meanings out of the information being communicated.

Technology Acceptance Theory

Technology Acceptance theory was developed by Davis (1989). This theory shows how users come to accept and use technology. The theory states that when users experience a new technology, their decision is influenced by various factors. The theory suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it. This is an information systems theory that models how users come to accept and use technology. The theory suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it (preparedness), notably: Perceived usefulness (PU) defined by Fred Davis (1989) as the degree to which a person believes that using a particular system would enhance his or her job performance. Perceived ease of use defined by Davis (1989) as the degree to which a person believes that using a particular system would be free from effort. The theory is strong for forecasting user acceptance of information technologies.

Technology enabled change processes are different, purely because the technology, organizational and business processes need to be integrated to realize the anticipated benefits of implementing the technology. Information systems play an essential role in organisations with the power to change how business is conducted. Technology adoption for instance in communication will enhance effective communication in project management. It will also promote easier and faster communication to the project team and project stakeholders. Therefore in case of project changes, less time would be taken to agree on whether or not to implement the changes and any other issue arising regarding project implementation.

Conceptual Framework

Project communications management in this study is operationalized using four dimensions, namely communication channels and communication system. These dimensions represent the key communication management practices that influence the performance of affordable housing programmes.

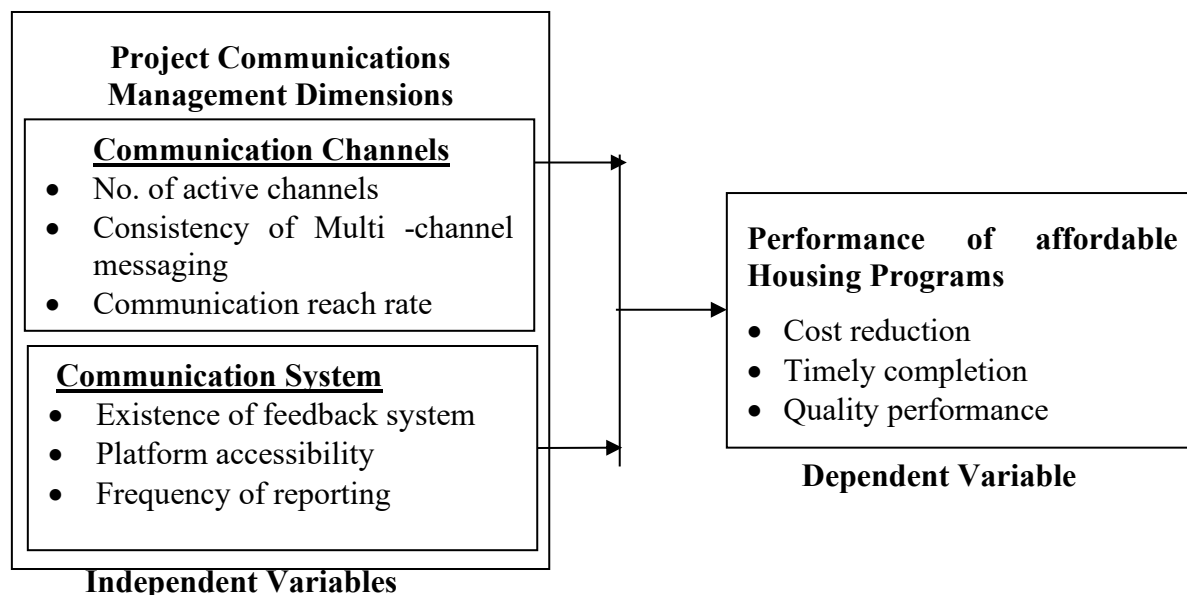


Figure 2. 1: Conceptual Framework

Communication Channel

Communication channel is a path that transports the message between the sender and the receiver (Ribeiro, Lopes, & Silva 2023). Communication channels can be categorized into three principal channels: verbal, written, and non-verbal. Each of these communications channels have different strengths and weaknesses, and several channels can be used at the same (Ge, Sun, Zheng & Nan, 2021). With the shift to digital communication channels, various criteria for channel choice are present. Since face-to-face interaction is restricted, online communication channels with high social presence can contribute to effective relationships as it inhibits dialogues in communication (Zhou & Xu, 2022).

Antunes et al (2022) asserted that among the factors to be taken into consideration in establishing a communication choice plan is the effectiveness of communication messages. Digital communication eases the spread of information just through an active Internet connection. Speed in disseminating messages is also among the major factors in effective disaster-management communication (Mamat et al., 2020). Koval et al (2022) asserted that when communicating information, it is important to understand people of different cultures and their diverse linguistic backgrounds as non-verbal communication can be a more effective channel. Options for communication channels are also based on the combined factors of human touchpoints, knowledge, and perceptions. Communication channels play a crucial role in project communication as they determine how information is shared, exchanged, and disseminated among project team members and stakeholders. Effective communication channels ensure that everyone involved in the project stays informed, aligned, and engaged (Galli, 2021).

Communication System

Communication system is a network communication system where communication between all team members is direct and cross-divisional. In such a system, the key role of a project manager is to build an effective communication framework in addition to developing mutual trust within the team (Zahid, Qinghe, & Sohail, 2021). During project implementation, stakeholder perceptions and acceptance of change are monitored and potential improvements and modifications are implemented. Another extremely important aspect is to “listen” to the stakeholders, their view on the system implementation, perceived problems, comments, recommendations and fears about change. This means that appropriate communication

channels and tools that enable collecting of such information from the stakeholders should be established (Dixit, 2018).

Compatibility in a communication system refers to the ability of its components to work together and respond to controls. Components of a communication system are considered compatible if they: use common procedures, serve a common purpose, operate in union, and are technically compatible. Apart from channel, the other factors that need to be taken into account in order to make the communication system worthwhile are, language and methods. When communication takes place among individuals, the language needs to be common, which is understandable to both senders and receivers (Kapur, 2020).

The communication system has essential parts which are, transmitter, transmission, channel and receiver. Each part has to render an important and useful contribution in the enrichment of communication. The transmitter processes the input signal to produce the transmitted signal that is suitable to the characteristics of the transmission signal. Signal processing for transmission in most cases involves modulation and may also include, coding. The transmission channel is the electrical medium that bridges the distance from the source to the destination. It may be a pair of wires, coaxial cable or a radio wave or laser beam. Every channel introduces some amount of transmission, loss or attenuation. In this manner the signal power, in general, progressively decreases with an increase in distance (Carlson & Crilly, 2021).

Communication taking place under real-time conditions requires sufficient transmission of bandwidth to accommodate the signal spectrum. Otherwise, severe distortion will be the ultimate outcome. Sender needs feedback in order to determine the success or failure of the communication. Feedback is important in every part of communication as it helps to know about the thoughts of the other person to whom the message is being send, and it creates an effective way of communication. Feedback is necessary because it completes the communication as two-way communication requires feedback from the receiver (Zahid, Qinghe, & Sohail, 2021).

Empirical Review

Communication Channel and Project Performance

Illieva-Kolevai and Kasamskai (2017) examined effect of communication management on project performance in European Union. The study focused on national projects funded by European Commission. The study noted that since projects have several internal and external stakeholders, there is need to convey diverse kinds of information in diverse ways. It was crucial for implementing agencies to exploit various communication channels. Conclusion was that different channels differ in the number of cues they could convey in their timeliness of feedback, and their capacity of parties involved to express themselves. Great efficiency in communication was attained when multiple channels were considered.

Akintelu, Oyebola, Tihamiyu, and Olateju (2023) studied the impact of project communication management on successful project delivery in the construction industry in Lagos, Nigeria. The study used a survey research design. The study sample was 133 respondents. Data was collected using questionnaires. The findings showed that communication plans and communication medium have significant effect on successful project delivery. The study further revealed that the significant effect ranges from low to average. Yakubu, Ogunsanmi and Yakubu (2019) assessed communication problems in construction projects from the perspective of construction contractors. The study adopted a quantitative approach. Questionnaires were used to collect data. The findings showed that a positive relationship exist between non-effective communication and project performance. The use of face-to-face communication ensured that problems are resolved faster.

Akpilaanya-Ajongbah (2020) studied effect of project communications management in the Ghana Land Administration Project Phase II (LAP II). The study sample was 65 respondents. Primary data was collected using questionnaires. Results showed that various communication channels were employed in LAP II. These included meetings, seminars/workshops, daily team briefings, reports, e-mails, focus group discussions, social media (WhatsApp, Facebook, Twitter, Instagram, etc), panel discussion, notices/posters, presentations, advertisement, brochures/newsletters, town hall meetings, newspaper and video conferencing. The challenges encountered in the management of the communication channels were: lack of free flow of information; difficulties in accessing information on the internet; delays in receiving information; and ineffective reporting system.

Nyandongo and Maralise (2024) investigated the relationship between communication and project management performance. The study used a survey research design. The study sample size included project professionals; project managers, consultants, senior and line business unit managers, project team members, and technical experts. The study showed that the project communication tools included email, telephones, videoconferencing, VOIP and face to face. Results showed that efficient and effective communication fosters a successful project environment.

Abdikani and Ouma (2024) sought to determine the influence of communication on performance of project within Non-Governmental Organizations in Mogadishu, Somalia. The study employed a descriptive research design. The study target included 78 managers and 390 senior employees in the NGOs. Data was collected using questionnaires. Findings showed that managers and other higher-level staff are aware of the communication process. There was a written and well-articulated communication process. The managers communicated effectively with employees. Communication within the NGO had an influence on organizational performance. The relationship between communication and project performance was significant.

Onan (2022) examined the effect of communication channels used in NonGovernmental Organizations in Kabale district, Uganda. The study adopted a descriptive survey design. The study sample was 90 respondents. Interview guides and questionnaires were used to collect data. Results showed that the main communication channels in projects included emails, websites, TV west in Western Uganda, letters, telephone, meetings, Newspapers, financial reports, brochures, posters, notice board and memos. The results further showed that communication had an effect on delivery of project activities in Non-Governmental Organizations. The study findings indicated findings communication can be improved for effective delivery of project activities in Non-Governmental organizations through use of multiple channels, regular reports, assumptions, body languages, team work, feedback, establishing relevancy, open door policy, getting message across and handling communication problems. Achar, Chebii, and Mugo (2021) examined the role of communication channels on implementation of housing construction projects in n Nairobi City County Government, Kenya. Target included 256 respondents. Results showed a significant relationship communication channel and project implementation.

Communication System and Project Performance

Kumar, Suresh, and Nithya (2023) studied impact of communication systems in organization performance and project success in construction industry. The study was based on past studies related to construction communication, their rankings and related communication management models. Results showed that the three communication skills, namely verbal, written and contractual have almost the same importance in the construction industry. In addition, time delays and increased costs in construction projects was traced back to poor coordination caused by inadequate, insufficient, inappropriate, inaccurate, inconsistent, and late information. Gamil and Rahman (2023) studied effects of poor communication on construct projects. Data was

collected using a questionnaire survey. The target was construction practitioners in the Malaysian construction industry. Findings showed that reliability and efficiency of the communication enhances effective communication and performance of construction projects.

Afridi and Turi (2024) studied effect of digital communication tools on project efficiency non-profit organisations (INGOs), UN agencies, and local non-profit organisations (NGOs) in Pakistan. The study used a cross-sectional quantitative-based approach. The target respondents were 400 project staff and employees of humanitarian organisations comprising international. The results showed that the user behaviour towards adopting digital communication tools is high; digital communication tools have an impact on project performance, while ease of use significantly moderates the relationship between digital communications tools and project performance compared to top management support.

Nyangena and Mungai (2024) sought to establish effect of project communications management on sustainability of affordable housing programs in Nairobi City County, Kenya. The study will used a descriptive research design. The target population was 11 affordable housing programs in Nairobi City County. The study used primary data collected using questionnaires. Results showed a strong significant relationship between communication system and program sustainability. Findings also showed that availability of information and transparency to all participants during the project, improves team coordination improved project performance.

RESEARCH FINDINGS AND DISCUSSIONS

The study adopted a descriptive research design to examine the influence of communication channel and communication system on program performance in affordable housing programs in Nairobi City County. A descriptive design was considered appropriate because it describes phenomena as they exist and facilitates the examination of characteristics and relationships among variables (Kothari, 2014; Cooper & Schindler, 2011). The target population comprised 97 project management professionals drawn from 11 completed affordable housing projects, with the housing projects serving as the unit of analysis and the project management team as the unit of observation. Owing to the relatively small population, the study employed a census survey, whereby all the 97 respondents were included in the study (Yin, 2013).

Primary data were collected using a structured questionnaire consisting of both closed- and open-ended questions. The questionnaire included sections measuring the independent variables, including communication channel and communication system, using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The instrument was selected because it enables standardized data collection and facilitates quantitative analysis (Bell et al., 2022; Saunders et al., 2023). Questionnaires were administered using the drop-and-pick-later method after obtaining the necessary research authorization and permits, while ethical principles of voluntary participation, confidentiality, and anonymity were observed throughout the study.

To ensure the quality of the instrument, a pilot study involving 10 respondents (10% of the sample) was conducted (O'Connor & Kleyner, 2012). Content and construct validity were established through expert review and confirmatory factor analysis, with an Average Variance Extracted (AVE) threshold of 0.50 adopted to confirm construct validity (Hair et al., 2010). Reliability was assessed using Cronbach's alpha, where coefficients of 0.60 or higher were considered acceptable (Sekaran & Bougie, 2016; Theodosiou et al., 2012).

The collected data were coded, edited, and analyzed using SPSS Version 28. Descriptive statistics, including frequencies, means, and standard deviations, were used to summarize the data, while inferential statistics comprising Pearson correlation and multiple regression analysis were employed to determine the influence of communication channel and communication system on program performance.

RESEARCH FINDINGS AND DISCUSSIONS

The response rate for the study was based on the distribution and collection of 87 questionnaires, out of which 71 were returned, representing a response rate of 80.4%. This response rate is considered satisfactory and aligns with the recommendations by Mugenda and Mugenda (2023), who suggest that a response rate of above 70% is excellent for survey-based research. The high response rate indicates a strong engagement from the participants, which enhances the reliability and validity of the study findings

Descriptive Analysis

This section presents the findings from the Likert scale questions where respondents indicated their level of agreement with various statements regarding project communications management and performance of affordable housing program in Nairobi City County, Kenya. A 5-point Likert scale was used, with mean values and standard deviations calculated to interpret the findings. A mean value of 1.0-1.80 was strongly disagree, 1.80-2.60 disagree, 2.61-3.20 neutral, 3.21-4.20 agree and 4.21-5.00 strongly agree. On the other hand, a standard deviation less than 2.0, suggests that the responses had a close range of scores across the participants.

Communication Channel

The first objective sought to assess the effect of communication channel on performance of affordable housing program in Nairobi City County, Kenya. Respondents were asked to tick on the extent to which they agree/disagree with statements related to communication channel. Findings are shown in Table 1.

Table 1: Communication Channel

Statements	Mean	Std. Dev.
Different communication channels are used by the project manager to communicate with project team and project stakeholders.	4.00	0.90
There is consistency in the channel of project communication	3.70	0.91
The project team is consistently reminded of their tasks through short messages	4.30	0.46
Short messages ensures efficiency and convenience in project communication	4.10	0.30
Email has made drafting letters to project stakeholders easier	4.70	0.46
Project changes are communicated to project team members on time	3.70	0.64
Use of email as a channel of communication enhances sending and receiving of mails	3.90	0.70
Social networking has created platforms for communication and correspondences among the project team members.	4.60	0.50
Aggregate Score	4.12	0.61

N=70

The results show that the respondents strongly agreed that; Email has made drafting letters to project stakeholders easier (M= 4.70, Std.= 0.46), social networking has created platforms for communication and correspondences among the project team members (M= 4.60, Std.= 0.50), and the project team is consistently reminded of their tasks through short messages (M= 4.30, Std.= 0.46). The respondents also agreed that different communication channels are used by the project manager to communicate with project team and project stakeholders (M= 4.00, Std.= 0.90), short messages ensures efficiency and convenience in project communication (M= 4.10, Std.= 0.30), use of email as a channel of communication enhances sending and receiving of mails (M= 3.90, Std.= 0.70), there is consistency in the channel of project

communication (M= 3.70, Std.= 0.91, and project changes are communicated to project team members on time (M= 3.70, Std.= 0.64).

The results imply the choice and effectiveness of communication channels influence the performance of the housing programs as evidence by the aggregate mean of 4.12 and a low standard deviation of 0.61 indicating high agreement among the respondents. Respondents agreed that email has transformed formal communication by making drafting, sending, and receiving official letters faster, reliable, and less costly. This item was rated highly showing that email still the backbone of documented, auditable project communication in the housing program. The results show successful adoption of WhatsApp groups, Microsoft Teams, or similar tools for real-time communication. These platforms have created unofficial but highly effective spaces for fast updates, file sharing, and team cohesion which are essential in a large scale multi-stakeholder project like the affordable housing project.

Short messages are show high scores and low standard deviation implying that the project staff and management have widely accepted use of short messages for project activities reminders, time limits, and urgent alerts. The low variation shows that all respondents perceive SMS are efficient and convenient. Respondents further confirmed that the project managers intentionally use various channels (face-to-face, email, SMS, and social media platforms) depending on the type of message and target recipients. This multi-channel approach aligns with best practices in modern project management. The results show that effective selection and application of communication channels particularly email, social networks, and SMS are perceived to notably enhance decision-making speed, task compliance, and accountability, stakeholder engagement, and general project organization. Results are in agreement with Illieva-Kolevai and Kasamskai (2017) that since projects have several internal and external stakeholders, there is need to convey diverse kinds of information in diverse ways. It was crucial for implementing agencies to exploit various communication channels. Akpilaanya-Ajongbah (2020) also showed that various communication channels including meetings, seminars/workshops, daily team briefings, reports, e-mails, focus group discussions, social media are employed in projects. Nyandongo and Maralise (2024) showed that the project communication tools included email, telephones, videoconferencing, and face to face are efficient and effective communication channels that fosters a successful project environment.

Communication System

The second objective sought to establish the effect of communication system, on performance of affordable housing program in Nairobi City County, Kenya. Respondents were asked to tick on the extent to which they agree/disagree with statements related to communication system. Findings are shown in Table 2.

Table 2: Communication System

Statements	Mean	Std. Dev.
There is a system that allows project team members and stakeholders to give suggestions on project performance	3.70	0.64
There project communication systems are easy to use	3.60	0.67
The housing ministry accommodate suggestions from stakeholders	4.00	0.90
The department has reliable and fast internet connectivity	4.20	0.40
The existing ICT infrastructure enhances service delivery	3.80	0.94
Existing infrastructure supports future system upgrade (scalability)	3.70	0.64
The staff can access websites to search for information by through of mobile or other internet connections	3.90	0.70
The department offers training to project staff to upgrade their IT skills	3.90	0.83
Aggregate Score	3.85	0.71

The results show that the respondents agreed that; the department has reliable and fast internet connectivity (M= 4.20, Std.= 0.40), the housing ministry accommodate suggestions from stakeholders (M= 4.00, Std.= 0.90), the staff can access websites to search for information by through of mobile or other internet connections (M= 3.90, Std.= 0.70), the department offers training to project staff to upgrade their IT skills (M= 3.90, Std.= 0.83), the existing ICT infrastructure enhances service delivery (M= 3.80, Std.= 0.94), existing infrastructure supports future system upgrade (scalability) (M= 3.70, Std.= 0.64), there is a system that allows project team members and stakeholders to give suggestions on project performance (M= 3.70, Std.= 0.64), and there project communication systems are easy to use (M= 3.60, Std.= 0.67).

The respondents rate the communication system as characterized by ICT infrastructure, internet reliability, usability, scalability, and feedback mechanisms as suitable with an aggregate mean of 3.85 and standard deviation of 0.71 showing high agreement with the items on communication system. The results imply that the communication system is a key enabler of performance. The ICT support and feedback mechanisms are perceived to support timely decision-making, stakeholder participation, and service delivery. This is a notable strength for a mega project like the affordable housing project. The results also imply that the Ministry has successfully invested in a strong, stable connectivity that is a critical success factor that many public projects in Kenya struggle with. The results further indicate functional communication systems that the staff and stakeholders can use to enhance project success.

Reliable internet and mobile accessibility are the notably support project success while stakeholders perceptions and IT training are well acknowledged. However, improving user-friendliness, facilitating two-way feedback loops, and planning for scalability show clear opportunities to improve the current good systems to an excellent communication system to enhance program delivery. Findings support Kumar, Suresh, and Nithya (2023) that sufficient, appropriate, accurate, consistent, and late information delivery causes project delays and increased costs in construction project. Gamil and Rahman (2023) showed that reliability and efficiency of the communication enhances effective communication and performance of construction projects.

Project Performance

The respondents were asked to tick on the extent to which they agree/disagree with statements related to performance of affordable housing program in Nairobi City County, Kenya. Findings are shown in Table 3.

Table 3: Project Performance

Statements	Mean	Std. Dev.
Projects are completed within set budgets	1.90	0.90
Projects are completed on time	1.50	0.50
The customers' feedback on project performance is positive	4.20	0.64
Aggregate Score	2.50	0.68

Results show that the respondents agreed that the customers' feedback on project performance is positive (M= 4.20, Std.= 0.64). They however disagreed that the projects are completed within set budgets (M= 1.90, Std.= 0.90), and that the projects are completed on time (M= 1.50, Std.= 0.50). The results show that although the housing program have effective communication tools, policies, and structure, the projects experience delays and cost overruns. The beneficiaries of the projects are however satisfied with the project outcomes. The results hence imply that the housing programs generally experience time and budget overruns. Findings supports the reports from Cytoon (2023) that the performance of Affordable Housing program has been impeded by several challenges; budgetary allocation to affordable housing has been low which has limited the supply of housing units. The timely delivery of the

Affordable Housing program has been impeded by several bottlenecks. Budget overruns and slow progress are issues with Kenya's Affordable Housing Programme (AHP), with concerns raised about shaky funding and the failure to meet targets, despite billions levied from workers.

Correlation Analysis

The study computed Correlation analysis to determine the strength and the direction of the relationship between the variables being studied. The Pearson correlation analysis was conducted to determine the relationships between project communication management strategies (communication channel and communication system) and performance of affordable housing program in Nairobi City County, Kenya. If the correlation values are $r = \pm 0.1$ to ± 0.29 then the relationship between the two variables is small, if it is $r = \pm 0.3$ to ± 0.49 the relationship is medium, and when $r = \pm 0.5$ and above there is a strong relationship between the two variables under consideration. Table 4.10 presents the finding.

Table 3: Correlation Results

Variables		Project performance	Channel	System
Project performance	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	70		
Channel	Pearson Correlation	.842**	1	
	Sig. (2-tailed)	.024		
	N	70	70	
System	Pearson Correlation	.621**	.244	1
	Sig. (2-tailed)	.000	.042	
	N	70	70	70

The correlation between communication channel and project performance is significant and strong ($r = .842$, $p = .024$). This is a very strong positive correlation between effectiveness of communication channel usage and project performance. When the project managements effectively used and manages the communication channels, performance significantly improves. The high significance value shows that communication channel is the strongest predictor of project performance among the four variables. The findings concur with Akintelu, Oyebola, Tihamiyu, and Olateju (2023) that communication plans and communication medium have significant effect on successful project delivery.

The correlation between communication system and project performance is significant and strong ($r = .621$, $p = .000$). This shows that systematic aspects of communication like defined processes, tools, and technology enhances project performance. This confirms that having a reliable and formal communication is important for project performance. Findings are in agreement with Nyangena and Mungai (2024) that there is a strong significant relationship between communication system and program sustainability.

Multiple Regression Analysis

Multiple regression analysis was conducted to determine the effect of communication channel and communication system on the performance of affordable housing programs in Nairobi City County, Kenya.

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.859	0.738	0.722	0.478

Predictors: (Constant), communication channel, communication system,

The results show an R-squared (R^2) value of 0.738, indicating that 73.8% of the variability in the performance of affordable housing programs can be explained by communication channel and communication system. The remaining 26.2% of the variation was attributed to other factors not included in the model. The findings support Katerega and Sebunya (2017), who found a positive and significant relationship between project communication and project performance.

Table 5: Analysis of Variance (ANOVA)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	41.857	2	10.464	45.826	0.000
Residual	14.843	67	0.228		
Total	56.700	69			

Dependent Variable: Performance of affordable housing program.

The ANOVA results reveal that the regression model was statistically significant ($F(4, 69) = 45.826, p = 0.000$), indicating that the communication variables collectively had a significant effect on the performance of affordable housing programs. The findings agree with Guuru (2021), who reported that communication strategies positively influence programme implementation success.

Table 6: Regression Coefficients

Variable	Unstandardized Coefficient (B)	Standard Error	Standardized Beta	t	Sig.
Constant	3.343	0.842	–	3.970	0.000
Communication Channel	0.836	0.167	0.528	6.201	0.000
Communication System	0.583	0.075	0.507	5.197	0.000

Communication channel showed a statistically significant positive coefficient ($B = 0.836, \beta = 0.528, p = 0.000$), indicating that improvements in communication channels resulted in increased performance of affordable housing programs in Nairobi City County. Communication channel accounted for 52.8% of the changes in program performance (standardized $\beta = 0.528$). The findings support Yakubu et al. (2019), who found a positive relationship between communication and project performance, and Onan (2022), who reported that communication significantly influenced the delivery of project activities.

Communication system also showed a statistically significant positive coefficient ($B = 0.583, \beta = 0.507, p = 0.000$), indicating that improvements in communication systems resulted in increased performance of affordable housing programs. Communication system accounted for 50.7% of the changes in program performance (standardized $\beta = 0.507$). The findings are consistent with Afridi and Turi (2024), who found that adoption of digital communication tools positively influences project performance, and Gamil and Rahman (2023), who reported that communication reliability and efficiency enhance effective communication and project performance.

Conclusion

Communication channels have a very strong positive and significant effect on performance of the affordable housing program in Nairobi City County. The effective use of different communication channels like email, social media platforms, and short messaging serves were the strongest drivers of project success. The communication channels in the housing projects enhance speed, convenience, tack compliance, and stakeholder collaboration. The deliberate

adoption of multiple digital communication channels is a notable strength of the program and a key enabler of timely delivery of affordable housing program.

The communication system; ICT infrastructure, internet connectivity, feedback mechanisms, and IT training have a positive effect on project performance. Reliable and fast internet connectivity as well the ministry's stakeholders' openness are the main strengths that enable suitable collaboration and participative decision-making. However, usability, structured feedback systems, and scalability had relatively lower scores indicating that although the communication system is good and supportive, the feedback systems limit the effectiveness of the communication channels.

Recommendations

The Ministry of Housing should institutionalized and expand the current communication channels by designating official WhatsApp/SMS contacts for urgent reminders, email for official recording, and Microsoft Teams/social platforms for daily coordination of project activities. The ministry should as well roll out a mobile-first communication policy with subsidized data bundles for site supervisors and field officers to ensure real-time connectivity and strengthen the existing communication channels.

The Ministry should conduct an all-inclusive user-experience audit of all ICT platforms and establish a centralized digital feedback system with a suitable response time. This will encourage the project stakeholders including the project staff to share feedback regarding the projects. There should also be an ICT scalability plan that includes cloud-based project dashboards, GIS integration for site monitoring, and mobile apps for contractors and beneficiaries to enhance the communication system.

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