



Digital Project Communication Systems and the Performance of Building Construction Projects in Nigeria

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Abstract

Communications management remains one of the core competent areas of a project manager and is increasingly an important aspect of project management needed by the construction organization for the delivery of their projects. However, construction organisation has increasingly put communication systems at levity leading to monumental consequences of project performances. This study assesses digital project communication systems and the performance of building construction projects in Nigeria. It distributed 210 semi-structured questionnaires to the selected construction professionals within the North-Central region of which 181 was properly filled and returned making a response rate of about 86 percent while the descriptive and inferential statistics were applied for data analysis. The findings showed a coefficient of determination (R^2) of 0.854 indicating that communication mechanisms play a substantial role in predicting project results in construction environments. This study concluded that the construction sector is progressively shifting from conventional communication methods to more technologically enhanced communication systems underscoring the significant importance of digital communication technologies in augmenting coordination among project stakeholders, strengthening the precision of project information, and enabling prompt decision-making throughout project execution and affirm that proficient communication management is a vital factor in the successful delivery of building projects. This study recommended that construction firms should enhance investment in digital communication infrastructure and project management systems including project management software, cloud-based collaboration systems, and mobile communication tools, can markedly enhance the efficiency of information sharing among project stakeholders.

Keywords: Building Construction Projects, Communications Management, Digital Communication Systems, Nigeria, Project Performance, Stakeholders Communication

1.0 Introduction

The construction industry is a crucial sector for national development and economic prosperity in Nigeria. The industry is crucial in facilitating socio-economic development and urban expansion by providing residential buildings, commercial infrastructure, transportation amenities, and governmental institutions (Chen and Ding, 2023). Notwithstanding its strategic significance, the Nigerian construction sector endures ongoing impediments that impede the successful execution of building projects (Owolabi et al., 2025), including project delays, budget overruns, conflicts among stakeholders, and diminished quality standards. Although other factors contribute to these issues, ineffective communication among project participants has repeatedly been recognized as a primary underlying cause (Saidu et al., 2025). Construction projects encompass various parties, including project managers, architects, engineers, contractors, subcontractors, consultants, suppliers, and governmental entities and these parties must cooperate and share substantial amounts of information throughout the project lifetime, from conception and planning to execution and completion (Muhammed et al., 2022; Umar et

al., 2025). In light of these issues, digital project communication systems have emerged as a significant breakthrough that can alter communication within project environments (Setiawan et al., 2021). Digital communication systems, including cloud-based collaboration platforms, project management software, real-time messaging applications, and mobile communication technologies, facilitate instantaneous information sharing, centralized project data storage, and the maintenance of transparent communication records throughout the project lifecycle.

While communication management is acknowledged in project management literature as a vital factor for project success, the particular influence of digital communication technologies on enhancing construction project performance has not been adequately investigated in the Nigerian context (Nwosu et al., 2023). Current research on construction project performance in Nigeria has predominantly concentrated on conventional project management elements, including contractor proficiency, procurement strategies, financial limitations, project risk, and regulatory obstacles (Owolabi et al., 2025). Although these studies offer significant insights into the structural issues impacting the construction industry, they frequently neglect the advancing technical aspect of communication management that has gained prominence in contemporary project settings (Khaldoon et al., 2024). Consequently, there is a paucity of empirical research about the impact of digital project communication systems on key performance metrics in building construction projects in Nigeria. This limitation signifies a substantial knowledge deficiency, as the swift evolution of information and communication technologies has revolutionized communication procedures across various industries globally, including the construction sector in developed economies (Daraojimba et al., 2024). In the absence of empirical inquiry, the possible impact of digital communication technologies on strengthening project coordination, minimizing inefficiencies, and improving overall project delivery in the Nigerian construction industry will remain inadequately comprehended.

Resolving the communication difficulties that impact construction project performance necessitates a comprehensive grasp of how digital communication solutions can enhance the efficacy and efficiency of project communication procedures (Lubis, 2021). Digital project communication systems offer structured technical platforms that facilitate rapid information transmission, ensure organized communication records, and coordinate project activities among geographically distributed parties (Gamage, 2022). In contrast to conventional communication methods that frequently depend on disparate channels, digital systems consolidate several communication functions into unified platforms that enhance cooperation and information accessibility. Utilizing cloud-based project management applications, digital documentation systems, real-time messaging platforms, and mobile communication technologies, project stakeholders can efficiently share updates, access design information, monitor progress, and address issues (Daramola et al., 2024). These features markedly diminish the delays and misinterpretations typically linked to traditional communication methods. Moreover, digital communication systems augment openness and accountability by generating verifiable recordings of project discussions, hence reducing disagreements and enhancing decision-making processes.

This study aims at examining the impact of digital project communication systems on the performance of building construction projects in Nigeria. While the specific objective include the following:

1. To examine the availability of digital project communication systems utilized in the management of Nigeria's construction projects
2. To determine the level of utilization of digital project communication systems among stakeholders in Nigeria's construction projects environment
3. To assess the impact of the availability and utilization of digital project communication systems on the performance of construction projects in Nigeria.

The findings will offer significant insights into the impact of digital project communication systems on the performance of building construction projects, thereby tackling enduring issues such as delays, cost overruns, inadequate coordination, and inefficient information flow that have historically hindered construction project delivery in Nigeria. This study's findings will assist project managers, contractors, consultants, and engineers in comprehending communication technologies that can improve collaboration and mitigate communication-related inefficiencies during project execution. This study will provide a valuable reference for future researchers examining digital project management methods, communication efficacy, and performance enhancement in emerging economies.

2.0 Literature Review

2.1 Conceptual Review

2.1.1 Digital project communication systems

Communication is pivotal in the effective administration of building projects. In project settings with several stakeholders collaborating to attain shared goals, the efficacy of communication technologies profoundly impacts coordination, information dissemination, and decision-making processes (Yaser and Ismail, 2023). In construction project management, communication entails the ongoing exchange of information among architects, engineers, project managers, contractors, consultants, and clients throughout the project's lifecycle (Muhammed et al., 2022). As construction projects get increasingly intricate due to technological advancements and heightened stakeholder engagement, conventional communication methods are progressively being supplemented or supplanted by more sophisticated systems. This advancement has resulted in the introduction of digital project communication systems that employ digital technologies to enable efficient information sharing among project stakeholders. Digital project communication systems denote technology tools and platforms that facilitate the development, storage, transmission, and administration of project information in digital formats. These systems encompass project management software, cloud-based collaboration platforms, mobile communication applications, document management systems, and various information and communication technologies designed to improve communication within project settings (Abdullahi and Nasir, 2025). In contrast to traditional communication methods including in-person meetings, telephone calls, and written documents, digital communication platforms provide instantaneous engagement and centralized information management. These platforms enable project stakeholders to access information instantaneously, exchange papers, offer feedback, and coordinate activities more efficiently. Digital communication platforms offer centralized databases for the storage and retrieval of project documents by authorized users at any time (Abdulraheem et al., 2025). This mitigates the risk of information loss and guarantees that stakeholders possess access to the most up-to-date project information necessary for successful decision-making. Besides augmenting information accessibility, digital communication systems facilitate collaboration among project stakeholders. The presence of documented communication records guarantees the traceability of project decisions and the clear delineation of responsibilities. Thus, digital

communication systems enhance communication management practices in construction projects and they include Microsoft Project, Asana, Trello, Monday.com, Smartsheet, Wrike, ClickUp, and Notion. Others include Slack, Microsoft Teams, WhatsApp, Telegram, Discord, Zoom, Google Meet, Cisco, Webex, and Skype.

2.1.2 Performance of building construction projects

The performance of building construction projects pertains to the degree to which project objectives are accomplished within established constraints. In construction management literature, project performance is typically evaluated based on several key indicators that measure the effectiveness and efficiency of project execution. The principal indicators of project performance are time, cost, and quality, commonly known as the "triple constraint" or "iron triangle" of project management. These indicators serve as essential benchmarks for evaluating the successful delivery of a construction project. Time performance denotes the capacity of a construction project to be finalized within the designated timeline. Timely completion of construction projects is essential because delays can lead to increased costs, contractual disputes, and reduced stakeholder confidence (Muhammed et al., 2022). In many developing countries, including Nigeria, construction projects frequently experience delays due to factors such as poor coordination among project teams, ineffective communication, and inadequate information flow (Olowe et al., 2025). Improving communication systems within construction projects can therefore play a critical role in ensuring that project activities are completed according to schedule.

Cost performance relates to the ability of a project to be delivered within the approved budget. Construction projects involve substantial financial investments, and effective cost management is necessary to prevent budget overruns (Nnadi and Najjobyo, 2025). Cost overruns may occur when project resources are not efficiently managed or when project activities are poorly coordinated due to communication failures. Effective communication systems help guarantee that project stakeholders have correct information regarding project expenses, resource allocation, and financial planning and this transparency enables improved financial control and helps project managers make educated decisions on project resource management (Igwe et al., 2025). Quality performance refers to the degree to which a completed construction project fulfills the specified technical requirements, safety regulations, and customer expectations (Abdullahi & Nasir, 2025). Maintaining quality standards is vital for maintaining the durability, functionality, and safety of building structures. Communication plays a critical role in quality management since accurate information regarding design specifications, construction procedures, and technical needs must be shared among project participants. When communication channels are ineffective, the chance of construction errors, design misinterpretations, and quality faults increases and digital communication solutions can assist address these difficulties by ensuring that project stakeholders have access to accurate and up-to-date project information (Abdulraheem et al., 2025).

2.2 Theoretical Framework

The Technology Acceptance Model (TAM) established by Fred D. Davis in 1989, elucidates the determinants affecting individuals' acceptance and utilization of novel technology. The concept was created in the field of information systems to elucidate the reasons behind users' adoption or rejection of technological advancements in organizational contexts (Okoro et al., 2023). The TAM posits that two primary elements influence an individual's willingness to adopt and utilize new technology which are perceived usefulness and perceived ease of use. Perceived

usefulness denotes the extent to which an individual believes that utilizing a specific technology would improve job performance, whereas, perceived ease of use signifies the extent to which an individual believes that the technology will require minimal effort (Nnaji et al., 2023). The TAM asserts that when users regard a technology as beneficial and user-friendly, they are more inclined to cultivate a favorable attitude towards it, resulting in its acceptance and sustained utilization. The usage of TAM in this study is in its capacity to elucidate the determinants that affect the use of digital communication technologies in building projects (Oke et al., 2024). In numerous developing nations, including Nigeria, the implementation of digital project management technology is frequently hindered by factors such as insufficient technological proficiency, reluctance to embrace organizational change, and poor digital infrastructure (Yaser et al., 2019). These factors affect construction professionals' perceptions of digital communication technologies and their willingness to incorporate them into project management methods. The model indicates that construction professionals are more inclined to utilize digital communication technologies when they recognize its utility in improving coordination, minimizing project delays, and enhancing communication efficiency. Thus, the heightened adoption and exploitation of digital communication technologies might result in improved project communication processes, enhanced coordination among stakeholders, and superior performance of building construction projects in Nigeria.

2.3 Empirical Review of Related Studies

Saidu et al. (2025), explore the use of social media for successful communication in building project delivery in the Maiduguri city. Data were analyzed with a statistical program for social science (SPSS version 24.0) tool for frequencies, percentages, and regression. The data reveal that, the most used social media tools for communication during construction project delivery in the research area are: The most often used social media tool was WhatsApp with 39%, followed by infrequently used application; Snap chart (40.7%), Twitter (52.5%), Facebook (35.6%), Telegram (39%), Youtube (25.4%) and Facebook messenger with 18.6% respectively. The data likewise demonstrated that, the deployment of social media will have a very high impact of 54.2%, 42.4% and 44.1% on timely completion, budgeted cost, and completion of project within the anticipated quality requirements in the study area.

Nwosu et al. (2024), investigate the many factors impacting the adoption and exploitation of ICT in real estate project management in the South-East Nigeria. The acquired data were examined using acceptable statistical procedures for the quantitative survey. The study revealed a beneficial association between the usage of ICT and some features of its execution. For instance, the adoption of ICT technologies considerably boosted the data collection process undertaken by field officers in real estate management. This inquiry added to the corpus of information regarding ICT adoption in real estate project management. The findings inform policymakers, practitioners, and academics on the specific aspects influencing the deployment and utilization of ICT in the South East, Nigeria context.

Akintelu et al. (2023), analyses the effect of project communication management on effective project delivery in the construction industry. The study used a survey research design and data were provided to one hundred and thirty-three (133) respondents working at different places along Mile Two - Badagry expressway of Lagos state. Simple linear regression was utilized to assess the hypotheses of the investigation. The studies revealed that communication plans and communication medium had considerable effect on effective project delivery. The study further found that the significant effect ranged from low to average. It was consequently recommended

that the communication plan should be handled and effectively controlled. To maximize the odds of successful project delivery, the communication channel should be functional and efficient.

3.0 Research Methodology

The study utilized cross-sectional survey design by eliciting quantitative response from the participants through a semi-structured questionnaire.

3.1 Population

A study population is normally a large group of individuals or objects which is the foremost focus of a scientific inquiry (Islam et al., 2022). In consonance, Mishra and Alok (2022), sees population to be a group of people having similar features required by a researcher. This means that for the purpose of this study, the targeted population is comprised of 443 Project Managers, Engineers, Quantity Surveyors, Builders, Architects and Procurement Officers, domiciled within the Clients, Consultants and Contractors Organizations in the North-Central region of Nigeria.

3.2 Sampling Size and Sampling Technique

The sample size refers to the number of participants chosen from the population to be a representative of the whole (Nwabuko, 2024). It is important that the sample have attributes which are consistent with the target population which will be of a particular interest to this study. For the purpose of this study, owing to the aforementioned factors, the sample size for this study is determined using Yamane (1973), simplified formula for sample size calculation.

$$n = \frac{N}{1 + N(e)^2}$$

Where;

n = sample size,

N = population, 443

e² = Margin of error (assumed 5% or 0.05),

1 = unity or constant value

$$\begin{aligned} \text{Thus, } n &= \frac{N}{1 + N(e)^2} \\ n &= \frac{443}{1 + 443(0.05)^2} = 210 \end{aligned}$$

The sample were selected through the simple random sampling method. Taherdoost (2022) asserts that this process allows the researcher to select each respondent with equal probability. This study applies non-probability sampling method of convenience sampling to select the requisite construction professionals for this study.

3.3 Method of Data Collection and Analysis

Data collection plays a crucial role in any study, all of which fall into two categories, for instance primary and secondary data (Daniel et al., 2024). As the name suggests, primary data was employed for this study and gotten from the administration of well-structured questionnaires. Respondents are made up of construction practitioners such as Project Managers, Engineers, Quantity Surveyors, Builders and Architects. This study employs a 5-point Likert scale ranging from 1 to 5 as suggested by Enshassi et al. (2009) and applied by Muhammed et al. (2022). These are “5 = Extremely Significant”, “4 = Very Significant”, “3 = Moderately Significant”, “2 = Slightly Significant” and “1 = Not Significant”. The method of

analysis includes Mean Index Score (MIS) and regression analysis. The model is appropriate because it enables the researcher to determine the predictive relationship between the independent variable (DPCS and LUCS) and the dependent variable (PBCP). Consequently, the model is mathematically expressed as;

$$\text{Functional Model: PBCP} = f(\text{DPCS} + \text{LUCS}) \dots\dots\dots \text{equa (1)}$$

Where:

PBCP = Performance of Building Construction Projects

DPCS = Digital Project Communication Systems

LUCS = Level of Utilization of Communication Systems

f = Functional relationship between the variables

$$\text{Explicit Regression Model: PBCP} = \beta_0 + \beta_1\text{DPCS} + \beta_2\text{LUCS} + \mu \dots\dots\dots \text{equa (2)}$$

Where:

PBCP = Performance of Building Construction Projects

β_0 = Intercept (constant term)

$\beta_1 - \beta_2$ = Coefficient representing the effect of digital communication systems

DPCS = Digital Project Communication Systems

LUCS = Level of Utilization of Communication Systems

μ = Error term representing unexplained variation in project performance

3.4 Validity and Reliability

The validity of the study observes whether the quality and instruments of the study are accurate, correct, true, and meaningful and right (Taherdoost, 20222). To ensure validity, the questionnaire was pre-tested to ensure its functionality. Reliability means consistency and stability of information and that if research is conducted under the same circumstances' findings were replicated (Kafes and Yildirim, 2021). Reliability was analyzed using Cronbach's alpha (α) as it predicts the variables (Schrepp, 2020) as stated in table 1. Also, a pilot survey which is a pre-test mechanism was conducted where 10 questionnaires were administered to the construction professionals to enable the researcher to familiar with research and its administration procedure as well as identifying items that require modification.

Table 1: Reliability Statistics

Cronbach's Alpha	No of Items
.892	35

Source: Author's Field Survey, (2026)

4.0 Results and Analysis of Findings

4.1 Descriptive Statistics

4.1.1 Response rate

In line with the 443 construction professionals surveyed, 210 questionnaires were distributed to the requisite respondents within the North-Central region including Project Managers, Engineers, Quantity Surveyors, Builders, Architects and Procurement Officers which was gotten through the application of Tari Yamane methods, only 181 responses were properly filled and returned making a response rate of about 86 percent. Consequently, as stated in Table 2, the number of employees in the organization shows 1-10 (110), 11 – 20 (40) and 21 – 30 (31)

at a response rate of 61.2, 21.7 and 17.1 percent respectively. The organizations of the respondents show client organizations (54), consultant organization (49) and contractors' organization (78) depicting a response rate of 29.8, 26.8 and 43.5 percent correspondingly. Respondents' profession denotes Project Managers (77), Engineers (50), Architects (25), Builders (10) and Quantity Surveyors (19) at a response rate of 42.8, 27.8, 13.7, 5.7 and 10.1 percent correspondingly.

Table 2: Respondents Demography

Factors	Frequency	Valid Percent	Cumulative Percent
Numbers of Employee			
1-10	110	61.2	61.2
11-20	40	21.7	82.9
21-30	31	17.1	100.0
Total	181	100.0	
Experience in Digital Communications			
Yes	181	181	100.0
No	0	0	0.00
Total	181	100.0	
Type of Organization			
Clients Organization	54	29.8	29.8
Consultants Organization	49	26.8	56.5
Contractors Organization	78	43.5	100.0
Total	181	100.0	
Profession of Respondents			
Project Managers	77	42.8	70.6
Engineers	50	27.8	27.8
Architects	25	13.7	84.3
Builders	10	5.7	92.6
Quantity Surveyors	19	10.1	100.0
Total	181	100.0	

Source: Author's Survey (2026)

4.1.2 Multiple Response

4.1.2.1 Digital Project Communication Systems (DPCS)

According to Table 3, the topmost factors include 'our construction projects employ digital channels for communication among project stakeholders (M = 4.5114)', 'project data is maintained and disseminated using centralized digital platforms (M = 4.2694)', 'digital resources are accessible for disseminating project documentation and drawings (M = 3.7306)' and 'digital resources are accessible for disseminating project documentation and drawings (M = 4.0306)' positioned 1st, 2nd and 3rd respectively. The medium ranked factors entails 'communication technology is incorporated into project coordination operations (M = 3.5274)', 'construction teams utilize digital communication platforms throughout project execution (M = 3.3233)', 'project updates are disseminated using digital communication platforms (M = 3.1122)' and 'digital communication technologies are available to project team members (M = digital communication technologies are available to project team members)' positioned 4th, 5th, 6th and 7th correspondingly. The lowest ranked factors encompass 'construction firms offer

digital communication platforms for project collaboration (M = 3.0959)', 'project documentation is administered by digital information systems (2.1689)' and 'digital communication platforms facilitate collaboration among project parties (M = 1.9689)' positioned 8th, 9th and 10th congruently.

Table 3: Descriptive Statistics for DPCS

DPCS	Mean (M)	SD	Rank
Our construction projects employ digital channels for communication among project stakeholders	4.5114	.50101	1
Project data is maintained and disseminated using centralized digital platforms	4.2694	1.29059	2
Digital resources are accessible for disseminating project documentation and drawings	4.0306	.96523	3
Communication technology is incorporated into project coordination operations	3.5274	.74301	4
Construction teams utilize digital communication platforms throughout project execution	3.3233	1.25558	5
Project updates are disseminated using digital communication platforms	3.1122	1.14447	6
Digital communication technologies are available to project team members	3.0959	1.33674	7
Construction firms offer digital communication platforms for project collaboration	3.0959	1.44785	8
Project documentation is administered by digital information systems	2.1689	1.82333	9
Digital communication platforms facilitate collaboration among project parties	1.9689	1.51222	10

Source: Author's Construct (2026)

4.1.2.2 Level of Utilization of Communication Systems (LUCS)

According to Table 4, the topmost factors include 'digital communication technologies are commonly employed to disseminate project information among stakeholders (M = 4.6225)', 'digital communication technologies are commonly employed to disseminate project information among stakeholders (M = 4.5114)', 'construction teams depend on digital tools for the coordination of project activities (M = 4.3425)' and 'digital communication channels facilitate the dissemination of project directives and updates (M = 4.1425)' positioned 1st, 2nd, 3rd and 4th respectively. The medium ranked factors entail 'project progress reports are disseminated via digital communication technologies (M = 3.7306)', 'digital platforms enhance communication between contractors and consultants (M = 3.5425)', 'construction experts consistently utilize project management software for communication (M = 3.1959)' and 'digital communication solutions are employed to swiftly address project-related challenges (M = 3.0848)' positioned 5th, 6th and 7th correspondingly. The lowest ranked factors encompass 'stakeholders utilize digital communication channels to disseminate project information (M = 2.1689)', and 'digital communication technologies facilitate collaboration across interdisciplinary project teams (M = 1.1689)' positioned 9th and 10th congruently.

Table 4: Descriptive Statistics for LUCS

LUCS	Mean (M)	SD	Rank
Digital communication technologies are commonly employed to disseminate project information among stakeholders	4.6225	.62323	
Digital communication technologies are commonly employed to disseminate project information among stakeholders	4.5114	.50101	

Construction teams depend on digital tools for the coordination of project activities	4.3425	1.30158
Digital communication channels facilitate the dissemination of project directives and updates	4.1425	1.41269
Project progress reports are disseminated via digital communication technologies	3.7306	.96523
Digital platforms enhance communication between contractors and consultants	3.5425	1.30158
Construction experts consistently utilize project management software for communication	3.1959	1.44785
Digital communication solutions are employed to swiftly address project-related challenges	3.0848	1.33676
Stakeholders utilize digital communication channels to disseminate project information	2.1689	1.01331
Digital communication technologies facilitate collaboration across interdisciplinary project teams	1.1689	1.71212

Source: Author's Construct (2026)

4.1.2.3 Performance of Building Construction Projects (PBCP)

According to Table 5, the topmost factors include 'digital communication technologies enhance the efficiency of decision-making in building projects (M = 4.6225)', 'digital communication systems mitigate project expenses related to misinterpretation (M = 4.5114)', 'digital communication technologies enhance the precision of project information (M = 4.3425)', 'the utilization of digital communication tools mitigates delays in project implementation (M = 4.1425)' and 'project resources are more effectively controlled via digital communication systems (M = 4.0306)' positioned 1st, 2nd, 3rd, 4th and 5th respectively. The medium ranked factors encompass 'the utilization of modern communication systems diminishes construction faults (M = 3.7306)', 'project schedules are more effectively coordinated through the utilization of digital communication tools (M = 3.6575)', (the utilization of digital communication tools reduces financial losses resulting from information delays (M = 3.5425), 'digital communication platforms enhance the coordination of technical project tasks (M = 3.2694)' and 'digital communication support enhances the efficiency of construction processes (M = 3.1959)' positioned 6th, 7th, 8th, 9th and 10th respectively. The least ranked factors entail 'digital communication technologies facilitate the management of superfluous project expenditures (M = 2.9959)', 'the quality of a project enhances when information is disseminated using digital communication networks (M = 2.8767)', 'project task information is promptly transmitted via digital communication methods (M = 2.5114)', 'effective communication via digital platforms enhances cost management in construction projects (M = 1.8767)' and 'digital communication tools enhance the efficacy of maintaining construction standards (M = 1.5114)' positioned 11th, 12th, 13th, 14th and 15th correspondingly.

Table 5: Descriptive Statistics for PBCP

PBCP	Mean (M)	SD	Rank
Digital communication technologies enhance the efficiency of decision-making in building projects	4.6225	.60571	1
Digital communication systems mitigate project expenses related to misinterpretation	4.5114	.49732	2
Digital communication technologies enhance the precision of project information	4.3425	1.42016	3
The utilization of digital communication tools mitigates delays in project implementation	4.1425	.90187	4
Project resources are more effectively controlled via digital communication systems	4.0306	1.30158	5
The utilization of modern communication systems diminishes construction faults	3.7306	.50101	6

Project schedules are more effectively coordinated through the utilization of digital communication tools	3.6575	.91167	7
The utilization of digital communication tools reduces financial losses resulting from information delays	3.5425	1.23241	8
Digital communication platforms enhance the coordination of technical project tasks	3.2694	1.36750	9
Digital communication support enhances the efficiency of construction processes	3.1959	1.65855	10
Digital communication technologies facilitate the management of superfluous project expenditures	2.9959	1.06348	11
The quality of a project enhances when information is disseminated using digital communication networks	2.8767	1.42016	12
Project task information is promptly transmitted via digital communication methods	2.5114	.96523	13
Effective communication via digital platforms enhances cost management in construction projects	1.8767	1.37288	14
Digital communication tools enhance the efficacy of maintaining construction standards	1.5114	1.66299	15

Source: Author's Construct (2026)

4.2 Inferential Statistics

H₀₁: There is no significant statistical impact of the availability and utilization of digital project communication systems on the performance of construction projects in Nigeria.

According to the Table 6, the variable entered into the system are DPSC, LUCS (independent variables) and PBCP (dependent variable) of the study. Similarly, table 7 shows that R² of this study's model is .854 denoting about 85% impact of DPSC and LUSC on PBCP while the rest comprise of error terms not accounted for in this study.

Table 6: Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	DPSC, LUCS ^b	.	Enter

a. Dependent Variable: PBCP

b. All requested variables entered.

Source: Author's Field Survey, (2026)

Table 7: Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.877 ^a	.854	.813	.11726

a. Predictors: (Constant), DPSC, LUCS

b. Dependent Variable: PBCP

Source: Author's Field Survey, (2026)

Consequently, the ANOVA statistics indicated in Table 8, the regression model indicates sum of squares value of 47.846, df of 4, Mean Square of 11.962, F = (869.917) with a Sig. = (.000) while the residual for the same criterion except for F and Sig includes 2.296, and 176 respectively.

Table 8: ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	47.846	4	11.962	869.917	.000b
	Residual	2.296	176	.014		
	Total	50.143	180			

a. Dependent Variable: PBCP

b. Predictors: (Constant), DPSC, LUCS

Source: Author's Field Survey, (2026)

Furthermore, as stated in table 9, the regression outcome for this study entails that $PBCP = -0.579 - .220(DPSC) + .155(LUCS)$ with a Sig. of ($<.05$) indicating that the rejection of the null hypothesis (H_{01}). As a result, the outcomes show that both DPSC and LUCS are positive predictors of PBCP and increase project time, cost and scope performance.

Table 9: Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
	B	Std. Error			
(Constant)	-.579	.120		-4.831	.000
1 DPSC	.220	.012	-.030	-1.653	.002
LUCS	.155	.037	1.151	47.062	.000

a. Dependent Variable: PBCP

Source: Author's Field Survey, (2026)

4.3 Discussion of Findings

The high explanatory power of the regression model ($R^2 = 0.854$) shows that the majority of project performance variances are related to communication variables while other performance elements may include contractor skill, project financing, procurement techniques, regulatory limits, and technical capabilities. Although digital communication systems could potentially enhance project performance, their actual efficacy may rely on organizational preparedness, technological infrastructure, and the digital skills of construction workers (Owolabi et al., 2025). When project stakeholders possess insufficient technological capabilities or when digital platforms are inadequately incorporated into project management procedures, the potential advantages of digital communication technologies may remain unexploited (Saidu et al., 2025). Moreover, opposition to technology advancement and insufficient investment in digital project management tools may hinder the efficacy of digital communication systems inside certain construction enterprises (Akintelu et al., 2023). Notwithstanding these constraints, the inferential statistical findings offer robust empirical evidence that digital communication systems significantly enhance the performance of building construction projects. In agreement, Nwosu et al. (2023), posit that when digital communication channels are available and actively employed, project stakeholders are able to share information more efficiently, track project progress in real time, and handle emergent project difficulties swiftly, which means that, the chance of project delays, cost overruns, and coordination failures is reduced (Shehu, 2024). These findings corroborate the concept that communication technology serve as important enablers of good project management methods within complex construction contexts. The findings underscore the necessity of incorporating digital communication systems into construction project management as a strategic method to enhance project coordination, information dissemination, and overall project execution in the Nigerian construction sector.

5.0 Conclusion and Recommendations

This study that assesses digital project communication systems and the performance of building construction projects in Nigeria concludes that the construction sector is progressively shifting from conventional communication methods to more technologically enhanced communication systems signifying that that digital communication methods account for a considerable share of the variability in project performance outcomes. This underscores the significant importance of digital communication technologies in augmenting coordination among project stakeholders, strengthening the precision of project information, and enabling prompt decision-

making throughout project execution and affirm that proficient communication management is a vital factor in the successful delivery of building projects.

The following are recommendations inherent from this study's conclusion;

1. Construction firms should enhance investment in digital communication infrastructure and project management systems including project management software, cloud-based collaboration systems, and mobile communication tools, can markedly enhance the efficiency of information sharing among project stakeholders. Organizations that implement these technologies are more likely to achieve superior coordination and enhanced project outcomes.

2. Training and capacity-building initiatives should be implemented for construction professionals to augment their digital competencies. A significant obstacle to the successful use of digital communication technologies is the inadequate technological skill of certain project participants. Training on digital project management platforms and communication tools can enhance construction professionals' proficiency in efficiently utilizing these systems during project execution.

3. Construction firms must establish explicit communication management policies that promote the utilization of digital platforms for project coordination and documentation. Implementing organized digital communication protocols can facilitate the accurate documentation, accessibility, and effective dissemination of project information among stakeholders. This will enhance transparency in project communication and diminish the probability of disagreements stemming from miscommunication.

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