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- **Key Words:** A list of four to six keywords in alphabetical order suitable for international retrieval systems. Use of abbreviation should be avoided except standard abbreviations recognized in the subject area of research if appropriate

2. The main body of the text should contain the following sections:

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- **Paper Length:** Papers should be single line spaced and not more than 15 pages with less than 20% similarity index. IIM JOURNAL FOR DATA AND INFORMATION MA



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THE IMPACT OF GOVERNMENT POLICY ON THE GROWTH OF THE INFORMATION MANAGEMENT INDUSTRY IN NIGERIA

KINGSLEY CHINENYE AMAH

Lecturer, KCA Library (A Subsidiary of KCA Global Services Limited)

Email: kingsleyamah@gmail.com

ABSTRACT

The study explored how government policy affects the growth of the information management industry in Nigeria. This research evaluates how broadly government policies influence the investment level, infrastructural development, and technological advancement in the information management industry of Nigeria. This study adopted quantitative research with a structured questionnaire distributed to 200 stakeholders in the information management industry in Nigeria, which the researcher selected through stratified random sampling protocols. The researcher used multiple regression techniques, which included ANOVA, model summary, and correlation tests, to analyze the data collected and collated for the study. From the analysis carried out, the study revealed that hypothesis 1 was accepted, stating that government policy significantly affects the investment level in digital tools in the information management industry of Nigeria. Also, hypothesis 2 was rejected, affirming that government policy significantly affects the technological advancement of the information management industry of Nigeria, while hypothesis 3 was accepted, affirming that government policy has significant impacts on the infrastructural development of the information management industry of Nigeria. It was concluded that, by strategically focusing on clear, supportive policies, the Nigerian government can catalyze significant advancements in the information management sector, ultimately contributing to economic growth and enhanced global competitiveness.

Keywords: Government Policy, Growth, Information Management Industry, Infrastructural development, Investment level, Technological advancement

INTRODUCTION

The Nigeria information management industry is intricately linked to government policies aimed at fostering technological advancement and economy diversification (Federal Ministry of Communication & Digital Economy, 2019). Recognizing the potential of digital technologies, the government has implemented various initiatives to create an enabling

environment for the information management sector to thrive (Nigerian Communications Commission, 2021). These policies encompass a broad spectrum of interventions, including infrastructure development, regulatory frameworks, and capacity-building programs, all designed to



stimulate growth and innovation within the industry.

One of the most significant government initiatives is the National Digital Economy Policy and Strategy (NDEPS) 2020-2030, which aims to transform Nigeria into a leading digital economy by leveraging digital technologies across all sectors (Nigerian Communications Commission, 2021). This policy framework recognizes the importance of information management in driving economic growth, improving public services, and enhancing citizen participation in governance. The NDEPS is built on eight key pillars, including developmental regulation, digital literacy and skills, solid infrastructure, service infrastructure, digital services development and promotion, soft infrastructure, digital society and emerging technologies, and indigenous content development and adoption (International Trade Administration, 2025).

To support the implementation of the NDEPS, the government has also established various agencies and institutions, such as the National Information Technology Development Agency (NITDA), which plays a crucial role in regulating and promoting IT development in Nigeria (Ogunseyin, 2023). NITDA is responsible for developing standards, guidelines, and frameworks for IT practices, as well as providing advisory services to the government on IT-related matters (Felix, 2025). The agency also implements various programs aimed at enhancing digital literacy, promoting innovation, and fostering entrepreneurship in the IT sector.

In addition to these broad policy initiatives, the government has also implemented specific

measures to address key challenges facing the information management industry (Kolawole & Omotayo, 2019). One of the most pressing challenges is the inadequate infrastructure, particularly the lack of reliable internet connectivity and power supply. To address this, the government has invested in expanding broadband access and improving electricity infrastructure, which are essential for the growth of the information management industry (International Trade Administration, 2025). The Nigerian Communications Commission (NCC) (2023) has also rolled out the National Broadband Plan, which aims to deliver data download speeds of at least 25 Mbps in urban areas and 10 Mbps in rural areas by 2025.

Another challenge is the shortage of skilled human resources in the IT sector (Kolawole & Omotayo, 2019). To address this, the government has launched various training programs and initiatives aimed at developing digital skills among young Nigerians (Kolawole & Omotayo, 2019). These include the 3Million Technical Talent (3MTT) scheme, which aims to train three million Nigerians in IT and tech-related skills. The government is also encouraging collaborations between educational institutions and industry players to ensure that the curriculum is aligned with the needs of the IT sector (Telehosting, 2023).

Furthermore, the government has recognized the importance of cybersecurity in fostering trust and confidence in the digital economy (International Trade Administration, 2025). The National Cybersecurity Policy



Strategy aim to protect critical information infrastructure, promote cybersecurity awareness, and combat cybercrime. The government has also enacted the Cybercrimes (Prohibition, Prevention, etc.) Act to provide a legal framework for addressing cyber threats. These efforts are crucial for creating a secure and reliable environment for the information management industry to thrive (International Trade Administration, 2025).

Despite these efforts, the information management industry in Nigeria still faces several challenges, including bureaucratic bottlenecks, inconsistent policy implementation, and a lack of access to funding for startups (Kolawale & Omatayo, 2019). To overcome these challenges, the government needs to strengthen its regulatory frameworks, improve coordination among different agencies, and create a more conducive environment for private sector investment. The government should also promote indigenous content development and adoption to encourage local innovation and entrepreneurship.

2. LITERATURE REVIEW

Government Policy in the Information Industry

Government policy in the information industry in Nigeria encompasses a range of strategies and regulations designed to foster growth, innovation, and effective management of information and data (Felix, 2025). These policies aim to transform Nigeria into a leading digital economy by leveraging information and communication technologies (ICTs) across various sectors.

Key objectives of these policies include promoting

digital literacy, developing robust infrastructure, encouraging local content, and enhancing e-governance (Felix, 2025). The National Digital Economy Policy and Strategy (NDEPS) 2020-2030 serves as a foundational framework, emphasizing the importance of information management in driving economic progress and improving public services (Host Africa, 2025). NITDA plays a crucial role in regulating IT development, setting standards, and implementing programs to boost digital skills and entrepreneurship (Host Africa, 2025).

Government policies also address challenges such as inadequate infrastructure by investing in broadband expansion and power supply improvements (Host Africa, 2025). Initiatives like the National Broadband Plan aim to increase data download speeds across the country. Furthermore, policies focus on developing a skilled workforce through training programs like the 3Million Technical Talent (3MTT) scheme and encouraging collaboration between educational institutions and industry (Host Africa, 2025).

To foster trust and security, the government has implemented the National Cybersecurity Policy and Strategy and enacted the Cyber crimes Act to protect critical information infrastructure and combat cybercrime. These policies collectively aim to create a conducive environment for the information management industry to thrive, contribute to Nigeria's economic development, and enhance its global competitiveness



Impact of Government Policy on the technological advancement of the information management industry

Government policies significantly influence technological advancement within Nigeria's information management industry, fostering innovation and growth (International Trade Administration, 2025). The National Digital Economy Policy and Strategy (NDEPS) 2020-2030 is a pivotal framework aimed at transforming Nigeria into a leading digital economy by leveraging ICT across various sectors (Felix, 2025). This policy prioritizes digital literacy, infrastructure development, local content, and e-governance.

Several government initiatives drive this technological progress. NITDA plays a crucial role in regulating IT development, setting standards, and implementing programs to boost digital skills and entrepreneurship (Felix, 2025). The 3MTT scheme aims to train three million Nigerians in IT-related skills, addressing the skills gap that hinders technological adoption. Furthermore, government policies support research and development in areas like AI, IoT, robotics, and blockchain, positioning Nigeria at the forefront of the global digital economy (Fatima, 2025).

Recent data underscores the impact of these policies. The ICT sector contributed approximately 20% to Nigeria's GDP in Q2 2024, demonstrating its increasing economic significance (Olabode, 2025). Initiatives like the i-DICE program provide funding to support the tech and creative sectors for young entrepreneurs

Impact of Government Policy on the infrastructural development of the information management industry

Government policy significantly shapes infrastructural development within Nigeria's information management industry, influencing its growth and capacity. The National Digital Economy Policy and Strategy (NDEPS) 2020-2030 is a cornerstone, aiming to transform Nigeria into a leading digital economy by harnessing ICT across various sectors (Yahaya et al., 2019). This policy prioritizes key areas, including digital literacy, infrastructure enhancement, promotion of local content, and improvements in e-governance.

Several government initiatives drive this transformation. NITDA plays a crucial role in regulating IT development, setting standards, and implementing programs to boost digital skills and entrepreneurship (Ogunseyin, 2023). The National Broadband Plan, spearheaded by the NCC, aims to achieve data download speeds of at least 25 Mbps in urban areas and 10 Mbps in rural areas by 2025 (Nigerian Communications Commission, 2021). As of 2024, broadband penetration reached approximately 48%, with over 119 million subscribers on high-speed networks (International Trade Administration, 2025). The 3MTT scheme focuses on training three million Nigerians in IT-related skills to build a skilled workforce. Furthermore, the National Cybersecurity Policy and Strategy aim to protect critical information infrastructure and combat cybercrime, fostering a secure digital environment. Recent data underscores the ICT sector's growing importance.

In Q2 2024, the ICT sector contributed 19.78% to Nigeria's real GDP, an increase from 19.54% in the same period the previous year [7]. This growth reflects the increasing demand for digital connectivity and infrastructure (International Trade Administration, 2024). The ICT sector generated N9.44 trillion in Q3 2025, driven by broadband expansion. E-commerce spending in Nigeria is projected to reach \$75 billion in 2025, highlighting the sector's economic potential (International Trade Administration, 2024).

To fully realize the potential of the information management industry, the government must strengthen regulatory frameworks, improve coordination among agencies, and foster a conducive environment for private sector investment (Justine, 2024). Addressing challenges related to digital literacy, data accessibility costs, and cybersecurity threats is also crucial. By tackling these issues and continuing to implement strategic policies, Nigeria can unlock the full potential of its information management industry, drive economic development, and enhance global competitiveness.

Impact of Government Policy on investment level in digital tools of the information management industry

Government policies play a crucial role in shaping investment levels in digital tools within Nigeria's information management industry, influencing both the availability and adoption of these technologies (Felix, 2025). The National Digital Economy Policy and Strategy (NDEPS) 2020-2030 is a key framework, aiming to transform Nigeria into a leading digital economy

by leveraging ICT across various sectors. This policy prioritizes digital literacy, infrastructure development, local content, and e-governance, creating a foundation for increased investment in digital tools.

Several government initiatives support this objective. NITDA regulates IT development, sets standards, and implements programs to boost digital skills and entrepreneurship, fostering an environment conducive to investment (Ogunseyin, 2023). The National Broadband Plan, spearheaded by the NCC, aims to achieve data download speeds of at least 25 Mbps in urban areas and 10 Mbps in rural areas by 2025 (Federal Ministry of Communications and Digital Economy, 2021). Increased broadband penetration drives demand for digital tools and services, incentivizing investment. The 3MTT scheme, designed to train three million Nigerians in IT-related skills, addresses the skills gap hindering the effective use of digital tools (Bosun, 2025).

Recent data highlights the impact of these policies. In Q1 2024, the Communications and Digital Economy sector attracted \$191 million in foreign direct investment (FDI), a ninefold increase from \$22 million in Q1 2023 (Bosun, 2025). This surge demonstrates growing investor confidence in Nigeria's digital economy. The ICT sector contributed 19.78% to Nigeria's real GDP in Q2 2024, up from 19.54% in the same period the previous year, indicating the sector's increasing economic significance (International Trade Administration, 2024). Nigeria's e-commerce spending is projected to increase to \$75 billion in 2025, further fueling investment in digital

Despite these positive trends, challenges persist. Infrastructure deficits, including unreliable power supply and inadequate broadband connectivity, continue to impede investment (Bosun, 2024). Bureaucratic bottlenecks, inconsistent policy implementation, and a lack of access to funding for startups also hinder growth (Bosun, 2024). To overcome these obstacles, the government must strengthen regulatory frameworks, improve coordination among agencies, and create a more conducive environment for private sector investment (Felix, 2025).

1. METHODOLOGY

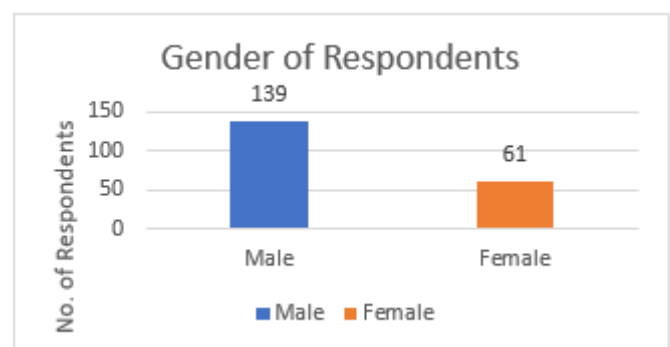
The study implemented a quantitative research design to assess how government policy affects the growth of the information management industry in Nigeria. The data analysis utilized multiple regression techniques to measure the connections between government policy and how it helped to grow the information management industry. A structured survey was distributed to 200 stakeholders in the information management industry via stratified random sampling to get a representative sample for the study. The survey tool consisted of both multiple-choice options and Likert-type scales to determine the level of understanding of the respondents on the various policies put in place to aid the development of the information management industry. The research employed SPSS 25 software for statistical testing to evaluate how these government policies enhance the development of the information management industry. The survey's validity and reliability were established through a pilot test involving 30 stakeholders in the industry who checked its clarity, and Cronbach's alpha measured the survey's internal consistency.

The study followed strict ethical measures that protected participants' rights and kept their data confidential. Every participant received informed consent for the study before joining, which clarified all study purposes alongside risks and withdrawal rights. All data were kept anonymous for strict confidentiality purposes to block unauthorized access and protect against misuse. Stakeholders (respondents) received no legal consequences for declining to take part, and the collected respondent information had academic research uses only.

2. RESULTS AND DISCUSSION

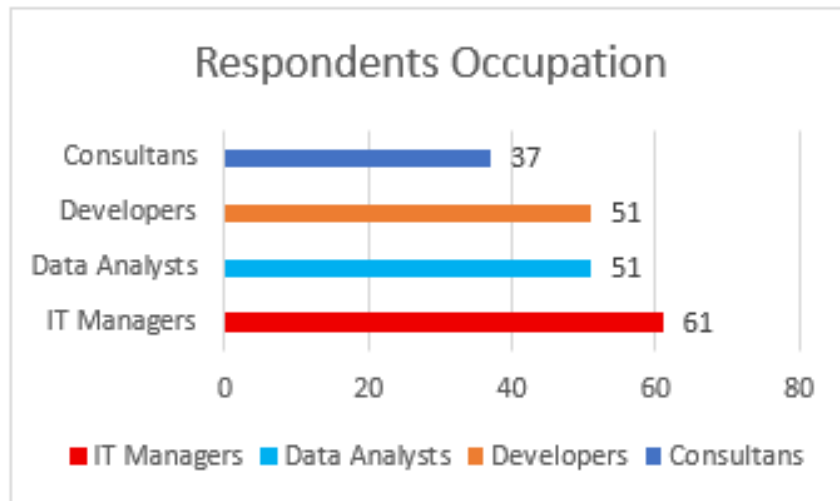
The collected data and participant demographics were analyzed using column and pie charts, as illustrated below, while variable data were analyzed using regression analysis.

Figure 1: Gender of Respondents



The chart illustrates the gender distribution of respondents, with 139 males and 61 females participating in the survey. This indicates a significant male majority, highlighting a possible gender imbalance in the sample.

Figure 2: Occupation of Respondents



The figure displayed the occupations of respondents, revealing that IT Managers represent the largest group with 61 participants, followed by Developers and Data Analysts, both at 51. Consultants are the least represented, with 37.

Figure 3: Department of Respondents

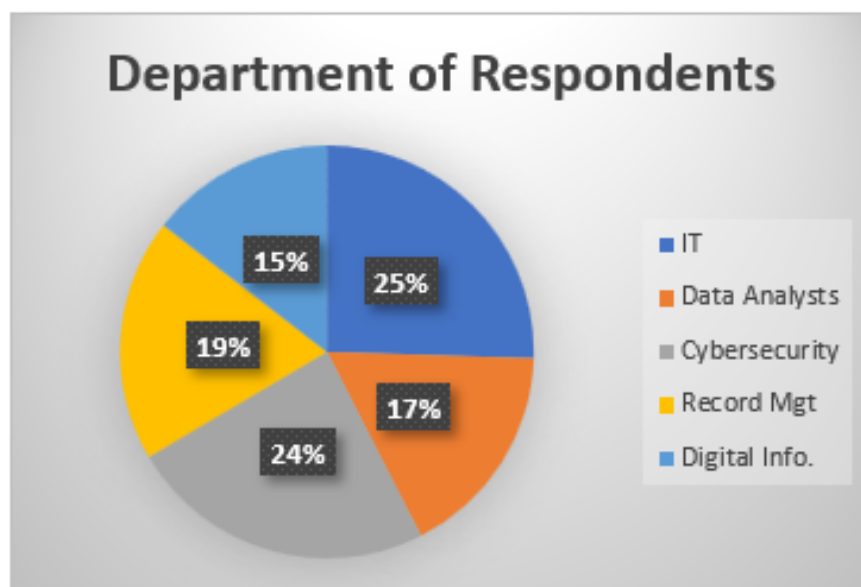


Figure 3 illustrates the distribution of respondents across departments. IT leads with 61 (25%), followed closely by cybersecurity with 48 (24%), and record management with 38 (19%). Data Analysts account for (34) 19%, while digital information contributes 29 (15%) respectively.

Figure 4: Age of Respondents

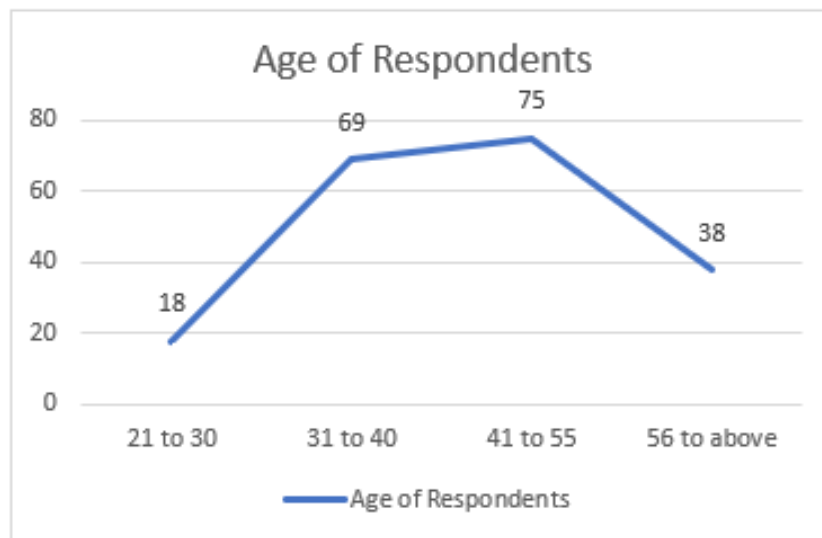


Figure 4 displayed the age distribution of respondents. The highest number is in the 31 to 40 age bracket with 75 respondents, followed by 21 to 30 with 18. A decline occurs in the 41 to 55 (69) and 56 and above (38) categories, indicating a younger respondent pool.

Hypothesis Testing

This study uses multiple regression analysis to test the formulated hypotheses through statistical evaluations. To measure the independent variables' effect on the dependent variable, the authors utilized SPSS software analysis. The analysis contains three elements, starting with a model summary, followed by ANOVA results, and concluding with regression coefficients.

H01: Government policy significantly affects the investment level in digital tools in the information management industry of Nigeria.

H02: Government policy does not significantly affect the technological advancement of the information management industry of Nigeria

H03: Government policy has a significant impact on the infrastructural development of the information management industry of Nigeria.

Table 1: Model Summary

Model	R	R Square	Adjusted Square	R- Std. Error of the Estimate	Durbin-Watson
1	.535 ^a	.269	.259	.310	1.745

Source: SPSS 25 Output (Author's Field Survey 2026).

From Table 1, this analysis revealed a moderate relationship between study variables using $R=0.535$ as the correlation value, while variable changes explain 26.9% of the growth of the Information Management Industry through independent variables. Results show that 0.259 is the adjusted R^2 value, validating the relationship among variables. The Durbin-Watson value of 1.745 indicates nearly no autocorrelation within the regression measurements.

Table 2: ANOVA Results

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	10.015	3	3.398	29.010	.000 ^b
Residual	28.001	197	.068		
Total	38.016	200			

Source: SPSS 25 Output (Author's Field Survey 2026).

The regression model in Table 2 shows statistical significance according to the results in the ANOVA table ($F=29.010$, $p<0.05$). Research indicates that company policies affect the growth of the information management industry through investment level, technological advancement, and infrastructural development.

Table 3: Regression Coefficients

Model	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t	Sig.
1 (Constant)	1.845	.175		10.543	.000
Investment Level (H1)	.312	.061	.378	5.115	.000
Technological Advancement (H2)	.274	.067	.329	4.089	.000
Infrastructural Development (H3)	.195	.059	.212	3.305	.001

Source: SPSS 25 Output (Author's Field Survey 2026).

From Table 3, a unit increase in investment levels produces a 0.312 increase in the growth of the information management industry in Nigeria, according to the analysis ($p = 0.000$). Technological advancement positively affects the growth of the industry at a significant level because its coefficient stands at 0.274 ($p = 0.000$). Infrastructural development produced a positive effect on the growth of the information management industry in Nigeria, according to coefficients which showed 0.195 ($p = 0.001$).

Discussion of Findings

The study revealed that improved investment level due to good government policy as a variable resulted in a 0.312 coefficient, which produced a 0.000 p-value, thus demonstrating its positive influence on the growth of the information management industry in Nigeria. The visual evidence of R^2 equal to 0.269 shows that investment level as a result of government policy generates substantial influences on the growth of the industry. Therefore, the hypothesis was accepted, stating that government policy significantly affects the investment level in digital tools in the information management industry of Nigeria. Supporting these findings was Okundaye et al (2019), who affirmed that government policy plays a crucial role in determining investment levels in digital tools within Nigeria's information management industry. Supportive policies, such as tax incentives and funding grants, can attract both local and foreign investors. Additionally, regulatory frameworks that ensure data security and promote innovation encourage companies to adopt advanced digital tools (Okundaye et al, 2019). Conversely, unclear or restrictive policies may deter investment, highlighting the importance of a stable and favorable policy environment to stimulate growth in digital tool adoption (Federal Ministry of Communications and Digital Economy 2021).

The study demonstrated that technological advancement as a result of good government policy created a significant impact, which was accredited by a regression coefficient value of 0.274 at a p-value of 0.000 on the growth of the information management industry in Nigeria. Thus, the hypothesis was rejected, stating that government policy significantly affects the technological advancement of the information management industry of Nigeria. This study was supported by the study of Okundaye et al (2019), who affirmed that government policy plays a crucial role in shaping the technological advancement of Nigeria's information management industry. Policies that promote research and development, as well as funding for tech startups, can stimulate innovation. Initiatives aimed at improving infrastructure, such as internet connectivity and electricity supply, create a conducive environment for technological growth. Regulatory frameworks that ensure data protection and cybersecurity foster trust among users, which is essential for the industry's expansion.

The results show that a positive and significant impact of infrastructural development (0.195) due to good government policy supported the growth of the information management industry ($p=0.001$). The analysis shows that good infrastructural development supported by government policy strongly enhances the growth of the industry through an R^2 value of 0.269. Thus, the hypothesis was accepted, affirming that government policy has a significant impact on the infrastructural development of the information management industry of Nigeria. Supporting this finding, Kolawole and Omotayo (2019) affirmed that government policy significantly influences the infrastructural development of Nigeria's information management industry.

By prioritizing investments in telecommunications, internet connectivity, and electricity supply, policies can enhance operational efficiency and accessibility. Additionally, supportive regulations can attract private investment, leading to advanced technologies. Initiatives promoting public-private partnerships also facilitate knowledge sharing and resource allocation, creating a robust infrastructure that ultimately drives growth and innovation within the information management sector.

5. CONCLUSION

In conclusion, the findings highlight the substantial influence of government policy on the growth of Nigeria's information management industry. Effective policies are essential for driving infrastructural development, as they improve the necessary frameworks like telecommunications and energy supply, which are crucial for operational efficiency. Furthermore, favorable regulations significantly enhance investment levels in digital tools, attracting both local and international investors eager to capitalize on emerging opportunities. The promotion of initiatives such as tax incentives and public-private partnerships fosters an environment where innovation can thrive. Conversely, inconsistent or restrictive policies can create barriers to investment and technological adoption, emphasizing the need for a stable regulatory landscape. By strategically focusing on clear, supportive policies, the Nigerian government can catalyze significant advancements in the information management sector, ultimately contributing to economic growth and enhanced global competitiveness. Prioritizing these elements will ensure that Nigeria harnesses the full potential of its information management industry, driving progress and improving societal outcomes.

6. RECOMMENDATIONS

It was recommended based on the findings of the study that:

- The Nigerian government formulate and implement holistic policies that will drive infrastructural development in order to improve the growth of information management industry in the country.
- Initiatives such as tax incentives and public-private partnership, be implemented in order to encourage investment in the industry.
- Government regulations needs to be consistent and clear in order to encourage innovation, creativity, and development of the sector.



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*DATA GOVERNANCE PRACTICES AND INFORMATION SECURITY PERFORMANCE
IN PUBLIC SECTOR ORGANISATIONS IN RIVERS STATE*

ADIELE, GOODLUCK CHIDI, PhD

Department of Office Technology and Management, School of Business and
Administrative Studies, Captain Elechi Amadi Polytechnic, Rumuola, Port
Harcourt, Nigeria.

goodluck.adiele@portharcourtpoly.edu.ng

ALIKORNWO, Peter Mezenye, PhD

ORCID: 0009-0008-7266-3731

WOS ResearcherID: PEV-3695-2025

(Corresponding Author)

Department of Office Technology and Management, School of Business and
Administrative Studies, Captain Elechi Amadi Polytechnic, Rumuola, Port
Harcourt, Nigeria.

peter.alikornwo@portharcourtpoly.edu.ng

ABSTRACT

This study examined the relationship between data governance practices and information security performance in public sector organisations in Rivers State, Nigeria. The study operationalised data governance practices through the dimensions of data quality management, and data access control, while information security performance had indicators of confidentiality assurance and system integrity. Grounded in the Information Governance Theory and the Resource-Based View (RBV), the study adopted a cross-sectional survey design. Data were collected from a sample of 312 administrative and ICT personnel drawn from selected ministries, departments, and agencies (MDAs) in Rivers State. Instruments were validated using the Cronbach alpha reliability test, yielding coefficients above 0.70 for all constructs. Two null hypotheses were tested at the 0.05 level of significance using Pearson Product Moment Correlation and Simple Linear Regression analyses. Results revealed that data quality management had a significant positive relationship with information security performance ($r = 0.618$, $p < 0.05$), and data access control significantly predicted information security performance (Beta = 0.514, $t = 8.76$, $p < 0.05$). The study concludes that the institutionalisation of systematic data governance frameworks meaningfully enhances information security outcomes in public sector organisations. It is recommended that Rivers State MDAs formalise data governance policies and invest in access control infrastructure and digital capacity-building programmes for administrative personnel.

Keywords: Data Governance, Information Security, Public Sector, Data Quality Management, Data Access Control



INTRODUCTION

The escalating volume of organisational data in contemporary public sector institutions has rendered the governance of information an urgent strategic imperative. Across sub-Saharan Africa and particularly within Nigeria, government ministries, departments, and agencies (MDAs) generate and process substantial quantities of sensitive data pertaining to citizens, public finances, and administrative operations. However, the persistent occurrence of data breaches, unauthorised disclosures, and systemic information leakages in Nigerian public institutions suggests that data governance frameworks remain inadequate or poorly institutionalised. In Rivers State, where the public sector is a primary employer and service delivery anchor, the alignment of data governance practices with information security performance remains a critical concern for administrative scholars and practitioners alike.

Data governance, as a structured discipline, encompasses the policies, processes, standards, and accountabilities by which organisations manage their informational assets across the data lifecycle (Ladley, 2012). It provides the institutional scaffolding through which data quality is maintained, access is controlled, and information assets are protected from unauthorised exploitation. From the perspective of office and information management, data governance constitutes a foundational competence that bridges administrative science and information technology, ensuring that the management of information serves both operational and strategic ends. Studies have consistently demonstrated that organisations with mature governance practices are better

positioned to prevent security incidents, maintain data integrity, and respond to information-related threats (Wende, 2007; Zeb-Obipi, 2022).

In Rivers State, empirical evidence linking data governance practices to specific information security outcomes in the public sector remains thin. Existing studies have predominantly addressed related constructs such as information governance strategy and administrative accountability (Orisah-Godfrey & Alikornwo, 2026), e-governance and democratic accountability (Kalagbor & Adiele, 2026), and enterprise content collaboration management and administrative efficiency (Nwinyokpugi & Alikornwo, 2022). These studies collectively illuminate the significance of structured information management practices for organisational performance, yet none has specifically examined the nexus between data governance practices and information security performance within the Rivers State public sector. This gap constitutes the motivation for the present investigation.

The significance of this study is underscored by the Nigerian Data Protection Act (NDPA) 2023, which imposes explicit obligations on public institutions to implement data governance mechanisms including access controls, data quality standards, and lifecycle management protocols. Non-compliance with these obligations not only exposes public institutions to legal and reputational risk but also compromises the confidentiality and integrity of information assets that underpin service delivery. Against this

background, the current study seeks to establish the empirical relationship between data governance practices and information security performance in public sector organisations in Rivers State, Nigeria, thereby contributing to the scholarly discourse on data and information management and providing actionable insights for policy and practice.

Statement of the Problem

Notwithstanding growing global recognition of data governance as an essential pillar of organisational information management, public sector institutions in Rivers State continue to exhibit significant deficiencies in the governance of their data assets. Incidents of data breaches, unauthorised system access, loss of administrative records, and manipulation of electronic files have been recurrently reported across several MDAs in the state, pointing to systemic gaps in data access control and data quality management. These challenges not only undermine administrative transparency and institutional trust, but also compromise the confidentiality and integrity of sensitive public information. Nwinyokpugi (2020) observed that structural deficiencies in administrative management practices within Rivers State public institutions significantly impair compliance and operational effectiveness, a finding consistent with the data security vulnerabilities evident in the present context.

Furthermore, while federal and state regulatory frameworks such as the NDPA 2023 and the National Information Technology Development Agency (NITDA) guidelines mandate the implementation of data protection and information security standards, many Rivers State MDAs lack the technical infrastructure, policy frameworks, and skilled personnel necessary to give effect to these requirements. The resultant institutional vulnerability has practical consequences for service delivery, citizen data protection, and the integrity of governmental decision-making. This study is therefore motivated by the need to generate empirical evidence on the extent to which data governance practices, specifically data quality management, data access control, and data lifecycle management, predict information security performance, with indicants of confidentiality assurance and system integrity, in public sector organisations in Rivers State.

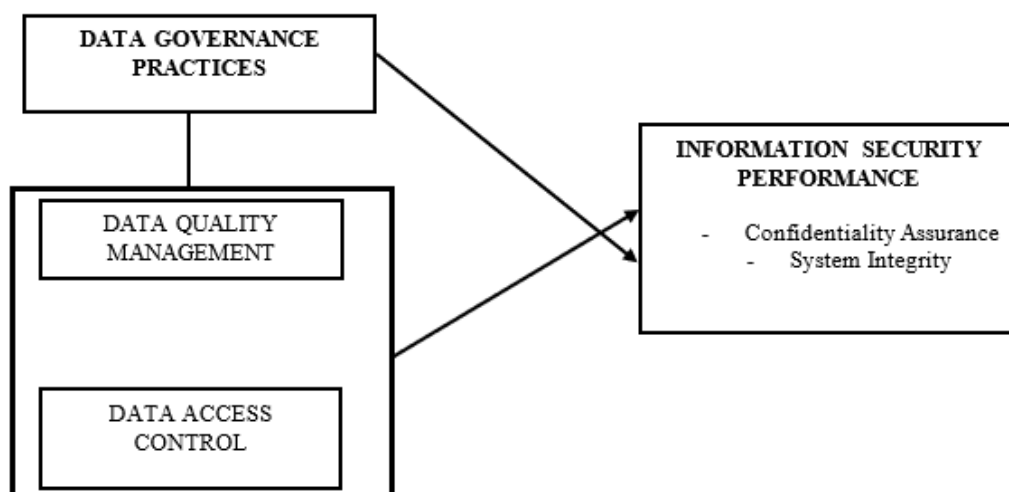


Figure 1: Conceptual framework of data governance practices and information security performance in public sector organisations in Rivers State, Nigeria

LITERATURE REVIEW

Conceptual Review

Data Governance Practices

Data governance refers to the exercise of authority, control, and shared decision-making over the management of data assets (The Data Governance Institute, 2004). It encompasses the full range of policies, procedures, and practices through which organisations define accountability for data quality, establish rules for data access and use, and manage data across its lifecycle from creation through disposition. Ladley (2012) conceptualises data governance as the system by which data-related decisions are made in organisations, encompassing strategy, ownership, quality, stewardship, and compliance. In the context of public sector organisations, data governance takes on heightened significance because government agencies are custodians of public information whose mismanagement can produce wide-ranging social and civic harm.

Two dimensions of data governance are central to this study. Data quality management refers to the processes and standards by which organisations ensure the accuracy, completeness, consistency, and timeliness of their data (Wang & Strong, 1996). Data access control refers to the mechanisms, policies, and technologies that regulate who may access organisational data, under what conditions, and to what extent; it encompasses authentication protocols, role-based

access management, and permission governance (Ferraiolo & Kuhn, 1992). Together, these dimensions constitute the governance framework through which information security outcomes are shaped.

Information Security Performance

Information security performance refers to the degree to which an organisation successfully protects its information assets from unauthorised access, disclosure, alteration, or destruction (ISO/IEC 27001, 2013). In the scholarly literature, information security performance is typically operationalised through the CIA triad: Confidentiality, Integrity, and Availability (Whitman & Mattord, 2017). For the purposes of this study, information security performance is measured through two key indicators: confidentiality assurance and system integrity. Confidentiality assurance refers to the extent to which an organisation ensures that sensitive information is accessible only to authorised parties, while system integrity refers to the degree to which information systems maintain the accuracy and completeness of stored data, preventing unauthorised modification (Anderson, 2008). These dimensions are particularly relevant to public sector contexts, where administrative information must be simultaneously accessible to legitimate users and shielded from unauthorised actors.

Theoretical Review

This study is anchored in two theoretical frameworks: the **Information Governance Theory** and the **Resource-Based View (RBV)**.



The Information Governance Theory, advanced by the Data Governance Institute (2004) and elaborated by Ladley (2012), posits that structured governance of information assets is a prerequisite for organisational effectiveness, legal compliance, and strategic information use. The theory holds that organisations that institutionalise clear accountabilities, standards, and controls over their information assets are better positioned to achieve information security and operational excellence than those that govern information informally or inconsistently. This theoretical lens directly informs the study's proposition that systematic data governance practices will produce superior information security outcomes in public sector institutions.

The Resource-Based View (RBV), originally formulated by Barney (1991) and extended to information management contexts by Wade and Hulland (2004), provides a complementary theoretical grounding by treating data governance capabilities as strategic organisational resources. RBV holds that sustained competitive advantage accrues to organisations that possess valuable, rare, inimitable, and non-substitutable (VRIN) resources and capabilities. When applied to public sector information management, RBV suggests that data governance capabilities, including skilled data stewards, robust access control systems, and quality management protocols, constitute institutional resources that generate superior information security performance. The dual theoretical grounding of the study enables both a normative governance perspective and a capability-oriented strategic perspective on the data governance-information security relationship.

Empirical Review

A growing body of empirical literature supports the relationship between data governance practices and information security outcomes. Wende (2007) examined data governance maturity in large European organisations and found that institutions with higher data governance maturity scores reported significantly fewer data security incidents and better data quality outcomes. Similarly, Otto (2011) investigated data governance in the context of enterprise data management and established that formal governance structures, including defined data ownership and access control policies, were the strongest predictors of information integrity and security compliance. These international studies provide a foundational empirical context for the present investigation.

Within the African scholarly context, Mosweu and Rakemane (2020) examined the role of records management in ensuring good governance in Africa and found that the absence of structured records and information governance was strongly associated with data breaches and loss of institutional memory in public sector organisations. In Nigeria, Orisah-Godfrey and Alikornwo (2026) established a significant positive correlation between information governance strategy, operationalised through process automation, data integration, and information ethics, and administrative accountability in Rivers State public institutions, with multiple regression results indicating that data integration accounted for the strongest variance in accountability outcomes.

This study builds directly on these findings by extending the analysis to the specific domain of information security performance.

Kalagbor and Adiele (2026), in a cross-sectional survey of 210 administrative officers across ten Rivers State ministries, found that information management systems significantly mediated the relationship between e-governance adoption and democratic accountability, accounting for 52% of the variance in accountability outcomes. Their results underscore the importance of information management infrastructure, of which data governance is a constituent element, for institutional performance outcomes in the Rivers State public sector. At the level of individual governance dimensions, Nwinyokpugi (2020) demonstrated that value communication, organisational justice, and consistency as dimensions of discipline management strategy had significant relationships with compliance success in Rivers State civil service institutions, findings that are conceptually relevant to the present study insofar as data access control and data quality management similarly depend on organisational justice and consistency for their effectiveness. Nwinyokpugi and Alikornwo (2022) further established a significant positive relationship between enterprise content collaboration management and administrative efficiency in manufacturing firms, with digitalization and intelligent information management emerging as the strongest predictors. The current study extends this scholarly trajectory to the public sector and focuses specifically on the security dimension of information performance.

Research Hypotheses

Ho1: There is no significant relationship between data quality management and information security performance in public sector organisations in Rivers State.

Ho2: Data access control does not significantly predict information security performance in public sector organisations in Rivers State.

METHODOLOGY

This study adopted a cross-sectional survey research design, which is appropriate for collecting data on variables at a single point in time from a defined population with the aim of establishing relationships between constructs (Creswell, 2014). The population of this study comprised administrative officers, ICT personnel, and records management staff across selected Ministries, Departments, and Agencies (MDAs) in Rivers State, totalling an estimated 1,840 personnel from ten major MDAs. Using the Taro Yamane (1967) formula at a 95% confidence level and 0.05 margin of error, a sample size of 330 was determined, and 312 valid questionnaires were retrieved and used for analysis, representing a retrieval rate of 94.5%. The instrument, a structured Likert-scale questionnaire rated from Strongly Agree (5) to Strongly Disagree (1), was validated by three experts in Office and Information Management and Office Technology and Management, and the internal consistency reliability of each construct was assessed using Cronbach's alpha, yielding coefficients ranging from 0.74 to 0.83, which are above the 0.70 threshold recommended

by Nunnally (1978). Data were analysed using Pearson Product Moment Correlation (for Ho1) and Simple Linear Regression (for Ho2) via SPSS version 25.0, with hypotheses tested at the 0.05 level of significance.

RESULTS AND DISCUSSION

Test of Hypothesis One

Ho1: There is no significant relationship between data quality management and information security performance in public sector organisations in Rivers State.

Table 1: Pearson Product Moment Correlation between Data quality management and information security performance

Variables	N	Mean	SD	r	Sig.
Data Quality Management	312	3.84	0.621	0.618**	0.000
Information Security Performance	312	3.71	0.589		

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

The results presented in Table 1 indicate that there is a strong, statistically significant positive correlation between data quality management and information security performance in public sector organisations in Rivers State ($r = 0.618$, $p = 0.000 < 0.05$). The null hypothesis, which states that there is no significant relationship between data quality management and information security performance, is therefore rejected. This finding implies that improvements in data quality management, including the accuracy, completeness, and consistency of data in government systems, are associated with corresponding improvements in the Information Security Performance in the Rivers State public sector.

Test of Hypothesis two

Ho2: Data access control does not significantly predict information security performance in public sector organisations in Rivers State.

Table 2: Simple Linear Regression of Data Access Control on System Integrity

Model	B	Std. Error	Beta	t	Sig.
(Constant)	1.342	0.198	-	6.78	0.000
Data Access Control	0.471	0.054	0.514	8.76	0.000

Dependent Variable: Information Security Performance $R = 0.591$ $R^2 = 0.349$ Adjusted $R^2 = 0.347$ $F = 76.68$ $p = 0.000$

The regression results in Table 2 reveal that data access control is a significant positive predictor of information security performance in public sector organisations in Rivers State ($Beta = 0.514$, $t = 8.76$, $p = 0.000 < 0.05$). The R^2 value of 0.349 indicates that data access control accounts for approximately 34.9% of the variance in information security performance. The overall regression model is statistically significant ($F = 76.68$, $p = 0.000$). Accordingly, the null hypothesis, which states that Data access control does not significantly predict information security performance, is rejected. This finding establishes that the implementation of access control mechanisms, such as role-based permissions, authentication protocols, and access audits, significantly enhances information security performance in the Rivers State public sector.

DISCUSSION OF FINDINGS

The finding that data quality management has a significant positive relationship with information security performance ($r = 0.618$, $p < 0.05$) aligns with the theoretical position of Information Governance Theory, which holds that the systematic management of data quality is a precondition for the security and reliability of organisational information assets (Ladley, 2012). When data is accurate, complete, and consistently managed, the risk of misclassification, mislabelling, or unauthorised exposure of sensitive records is reduced, thereby enhancing confidentiality assurance. This result is consistent with the findings of Orisah-Godfrey and Alikornwo (2026), who established that information governance strategy, which encompasses data integration as a key dimension, significantly predicted transparency in Rivers State public institutions. It also resonates with the empirical findings of Wende (2007), who demonstrated that data governance maturity was inversely related to security incident frequency in European organisations. Taken together, these findings suggest that the governance of data quality is not merely an administrative housekeeping exercise but a substantive information security intervention.

The finding that data access control significantly predicts information security performance ($Beta = 0.514$, $p < 0.05$) is equally consistent with established theoretical and empirical positions. Barney's (1991) RBV would locate robust access control capabilities as strategic organisational assets that prevent the inimitable security breakdowns arising from

unauthorised data modification. From an empirical standpoint, Otto (2011) demonstrated in a large-scale European study that formal access control policies were the strongest governance predictors of information integrity. Within the Nigerian context, Kalagbor and Adiele (2026) showed that information management systems, which inherently incorporate access governance mechanisms, mediated 52% of the variance in accountability outcomes, implying that the effectiveness of information systems in generating institutional outcomes is substantially mediated by governance architecture. The current finding contributes to this body of evidence by demonstrating a direct, statistically significant pathway from access control to system integrity in the Rivers State public sector, thereby strengthening the empirical case for access governance investment in Nigerian government institutions.

CONCLUSION AND RECOMMENDATIONS

This study has demonstrated empirically that data governance practices, specifically data quality management and data access control, are significantly related to information security performance outcomes, namely confidentiality assurance and system integrity, in public sector organisations in Rivers State, Nigeria. These findings establish data governance not merely as a compliance obligation but as a strategic capability with measurable implications for the security of governmental information assets. The study contributes to the growing body of empirical literature on data and information management in Nigerian public institutions, and provides a theoretically grounded framework for understanding how governance practices produce security outcomes at the institutional level.

Based on the findings, the following recommendations are made:

1. Rivers State MDAs should formalise comprehensive data governance policies that define clear roles and accountabilities for data quality management, including the designation of data stewards responsible for maintaining the accuracy, completeness, and consistency of institutional data assets.
2. Government agencies should invest in role-based access control (RBAC) systems and implement regular access audits to ensure that personnel access only the data assets relevant to their official functions, thereby reducing the risk of unauthorised data modification and system compromise.
3. The Rivers State government should integrate data governance capacity-building into the training and development programmes of administrative and ICT personnel, particularly with respect to the requirements of the NDPA 2023, to ensure that institutional governance practices meet the minimum standards of legal compliance and information security best practice.

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*SMART OFFICE SYSTEMS UTILIZATION AND DATA INTEGRITY ASSURANCE IN TERTIARY INSTITUTIONS
IN RIVERS STATE, NIGERIA*

Prof. Joy A. Mekuri-Ndimele

1* Department of Office and Information Management
Ignatius Ajuru University of Education, Rumuolumeni Port Harcourt, Nigeria.
jayndimele@gmail.com, 08033589169

Dr. Erien-naikachep Maurice Ikuru

2* Department of Office and Information Management
Ignatius Ajuru University of Education, Rumuolumeni Port Harcourt, Nigeria
eriennaikacap.ikuru@iaue.edu.ng; 08064345396

ABSTRACT

The issue of data integrity has gained more significance in tertiary institutions whereby high amounts of academic and administrative data are created, processed, and stored using digital platforms. This paper has explored the connection between the use of smart office systems and the assurance of data integrity in tertiary institutions in Rivers State, Nigeria, and digital competence as a moderating variable. The study was conceptualized based on the Information Systems Success Model (ISSM) and the use of automation tools, cloud-based systems, and document management systems as the conceptualization of smart office systems usage, and data integrity was assessed with the help of data accuracy, data consistency, and data reliability. A cross-sectional survey research design was adopted. A total of 138 administrative personnel and ICT personnel were sampled in 138 tertiary institutions in Rivers State, and 128 valid responses were received, which is a 91% response rate. The instrument had good reliability with a Cronbachs Alpha coefficient of 0.80. Pearson Product Moment Correlation (PPMC) was used to analyze the data at a level of significance of 0.05. The results showed that there was a moderate positive correlation between automation tools and data accuracy ($r = 0.522$, $p = 0.002$), weak positive correlation between cloud-based systems and data consistency ($r = 0.339$, $p = 0.000$), and strong positive correlation between document management systems and data reliability ($r = 0.668$, $p = 0.000$). The research concludes that the use of smart office systems can greatly improve the assurance of data integrity in tertiary institutions. Among others, it suggests that tertiary institutions ought to enhance the application of automation tools, cloud-based systems, and document management systems to enhance data accuracy, consistency, and reliability.

Keywords: Smart Office Systems Utilization; Data Integrity Assurance; Automation Tools; Digital Competence; Tertiary Institutions.

INTRODUCTION

The growing adoption of digital technologies to store and manage academic, administrative, financial, and research information has made data integrity assurance a significant issue



in tertiary institutions. Universities rely on precise and dependable information in admitting students, examination history, personnel management, financial activities, and reporting to the institution. Nevertheless, inaccurate student records, inconsistent information within departments, loss of data, unauthorized modifications, and poor cybersecurity are some of the challenges that many institutions have to deal with. These issues may influence decision-making, decrease institutional efficiency, and undermine trust in information systems.

A number of studies have highlighted the significance of good data management practices in higher education. Ukeje et al. (2025) observed that tertiary institutions need robust data management systems to promote accountability and efficiency in their operations as a result of digital transformation. Adebayo and Adekunle (2025) claimed that data accuracy is required to minimize administrative errors and enhance institutional performance. On the same note, Olatunbosun et al. (2025) discovered that the consistency of data on various platforms assists institutions to prevent duplication, fragmentation, and information conflicts. Adamu and Sarjiyus (2025) also noted that effective data systems are critical in safeguarding long-term records, avoiding data loss, and ensuring institutional credibility.

Although there is increasing awareness of the importance of data integrity assurance, most tertiary institutions continue to grapple with the challenge of ensuring accurate, consistent, and reliable information systems. Current digital platforms are not well integrated and it is hard to coordinate data between departments. This paper

thus hypothesizes that tertiary institutions need to enhance their data integrity assurance practices by enhancing their data accuracy, consistency, and reliability. The research is warranted as it will offer information on how institutions can enhance information management, minimize errors, and improve the quality of decision-making and service delivery.

LITERATURE REVIEW

Concept of Smart Office Systems Utilization

Smart office systems use can be defined as the use and efficient utilization of combined digital technologies to automate, control, and improve administrative and operational procedures in organizations. Smart office systems have become a necessity in modern institutions especially tertiary institutions to enhance efficiency, minimize manual workload, and effective data management. These systems integrate different digital technologies like automation tools, cloud computing, and document management systems to form a smooth and smart working environment.

Student registration, record management, scheduling, and communication in tertiary institutions are becoming more and more dependent on digital platforms. These processes can be implemented faster, more accurately, and more coordinated with the help of smart office systems. Research on digital transformation has shown that organizations that successfully implement smart office systems have better operational performance and fewer human errors (Mohammed & Amoah, 2025).



These systems not only enhance productivity but also play a crucial role in ensuring the integrity of institutional data.

Moreover, intelligent office systems are aimed at facilitating real-time data processing, centralized information storage, and automated workflows. This integration enables institutions to handle huge amounts of data effectively and ensure consistency across platforms. The success of such systems however, lies in the extent to which they are used by the staff and the extent to which they are incorporated into the institutional processes. Inefficient use can cause inefficiencies in the system and inconsistency of data. Thus, the use of smart office systems is a key element in ensuring data integrity in tertiary institutions.

Automation Tools

Automation tools are computer applications and software programs that are used to carry out routine tasks with little human intervention. These applications are common in administrative tasks like data entry, report creation, scheduling, and workflow management. Automation tools are used in tertiary institutions to minimize manual errors, enhance efficiency, and provide consistency in data processing.

Automation tools increase the accuracy of the data because they reduce the number of human interventions in repetitive activities that are likely to be inaccurate. As an illustration, automated student registration systems minimize the chances of entering wrong data and make sure that records are handled correctly. Studies have shown that automation enhances efficiency and quality of data in organizations (Adebayo and Adekunle, 2025). Nevertheless, automation can

only be effective when the system is configured appropriately and the user is competent. Automation tools can play a significant role in ensuring data integrity when implemented appropriately.

Cloud-Based Systems

Cloud-based systems are online platforms that offer remote storage, processing, and access of data using internet-based services. Such systems allow organizations to save huge amounts of data in central servers and also enable users to access information at various locations in real time. Cloud-based systems in tertiary institutions facilitate data sharing, collaboration, and system integration.

Cloud systems improve data consistency by making sure that information is updated and synchronized on various platforms. This minimizes duplication and all users get the same version of data. Research has indicated that cloud computing enhances efficiency in data management and facilitates real-time decision-making (Olatunbosun et al., 2025). Also, cloud systems offer backup and recovery services that ensure that data is not lost. Nevertheless, their effectiveness can be influenced by such issues as internet connectivity and security concerns. In general, cloud-based systems are important in ensuring data consistency and integrity.

Document Management Systems

Document management systems are computer-based tools that are used to store, organize, retrieve and manage electronic documents in an organization. These systems have features like version



control, access control and audit trails that make sure that documents are managed and secured appropriately. In tertiary institutions, document management systems are used to handle academic records, administrative documents, and institutional reports.

Such systems improve the reliability of data by making sure that documents are properly stored and can be easily accessed without loss or distortion. The version control systems enable users to monitor the changes and keep proper records as time goes by. Studies have shown that efficient document management systems enhance data security and reliability within organizational settings (Adamu & Sarjiyus, 2025). These systems help in data integrity assurance by minimizing the risk of data loss and proper documentation.

Data Integrity Assurance

Data integrity assurance is the procedures, controls and mechanisms established to make sure that data is accurate, consistent, reliable and unaltered during its lifecycle. Data integrity is important in tertiary institutions since academic and administrative data, including student records, examination results, financial data, and institutional reports, are constantly being generated and processed in large volumes. Ensuring the integrity of this data is essential for effective decision-making, transparency, and institutional credibility.

Data integrity assurance in digital environments entails ensuring that data is not altered, corrupted, or lost by unauthorized parties during storage, processing, and transmission. It also makes sure that the data is valid and reliable to be used in the future.

Research on information systems shows that high data integrity improves operational efficiency and minimizes errors in institutional processes (Olatunbosun et al., 2025). On the other hand, low data integrity can lead to inconsistencies, inaccuracies, and system failures that compromise institutional performance.

Moreover, the effectiveness of digital systems implemented in organizations is closely associated with data integrity assurance. The implementation of smart office systems in tertiary institutions has had a great impact on the management and protection of data. The success of these systems however, lies in the way they are implemented and the competence of the user. Thus, the issue of data integrity assurance is both a technological and managerial one that needs to be addressed in a coordinated manner to deliver the best results.

Data Accuracy

Data accuracy is the degree to which data is accurate in reflecting real-world information without errors or distortions. In higher education, precision is critical in ensuring credible student records, examination scores, and administrative information. Correct data will make sure that the decisions made are informed with the right information hence enhancing institutional effectiveness. Smart office systems, especially automation tools, improve the accuracy of data by minimizing the number of errors in data entry and providing accurate data processing. Studies have shown that automated systems can greatly reduce errors and enhance the quality of organizational data



(Adebayo and Adekunle, 2025). Nevertheless, errors can still be made when systems are not configured properly or abused. Thus, data accuracy can be ensured only through efficient use of the system and appropriate management.

Data Consistency

Data consistency is the consistency and coherence of data in various systems and platforms. In higher institutions, there are usually several information systems that are utilized in admissions, academic records and financial management. Consistency guarantees that data is the same and synchronized in these systems and eliminates discrepancies and duplication. Cloud-based systems are also important in improving the consistency of data by allowing real-time updates and synchronization of data. Research has revealed that uniform data enhances system integration and facilitates effective information management (Olatunbosun et al., 2025). Nevertheless, system fragmentation or absence of integration can lead to inconsistencies. Thus, data consistency is critical in ensuring the integrity of institutional data.

Data Reliability

Data reliability is the stability and dependability of data. It makes sure that data is accessible, retrievable and usable without errors or loss. In tertiary institutions, reliable data is critical for long-term record keeping, such as transcripts, certificates, and institutional reports. Document management systems increase the reliability of data by offering secure storage, version control, and backup systems. Such systems make sure that data is not lost and can be accessed even when the system fails or is disrupted. Studies

have shown that trust in organizations is enhanced by good data systems and facilitates good decision-making (Adamu & Sarjiyus, 2025). Reliability can however be affected in case systems are not maintained. Thus, data reliability is critical in maintaining data integrity in tertiary institutions.

Digital Competence

Digital competence is the knowledge, skills, and ability of people to use digital technologies effectively to complete tasks and address problems. It includes the skills to work with digital systems, handle information, and adjust to technological shifts. Digital competence is especially relevant in tertiary institutions where administrative personnel have to deal with smart office systems on a daily basis.

Digital competence determines the effectiveness of smart office systems use and data management in institutional settings. Highly digitally competent individuals will be more efficient in using automation tools, managing cloud systems, and using document management systems with accuracy. This improves the accuracy, consistency and reliability of data. On the other hand, low digital competence can result in mistakes, misuse of systems, and ineffectiveness of digital systems.

As a moderating variable, digital competence affects the strength of the relationship between smart office systems utilization and data integrity assurance. When digital competence is high, the positive impact of smart office systems on data integrity is strengthened. Nevertheless,



in the case of low competence, these systems might not be effective. Research has revealed that digital skills play a significant role in determining the success of technology adoption and data management outcomes in organizations (Ukeje et al., 2025). Therefore, digital competence plays a crucial role in determining the effectiveness of smart office systems in ensuring data integrity.

Empirical Review

Adebayo and Adekunle (2025) carried out a survey research study on digital transformation and administrative efficiency in tertiary institutions in Nigeria. The aim of the research was to investigate the effectiveness of digital administrative tools in enhancing institutional operations and data management outcomes. The information was gathered among employees of the chosen higher institutions and was processed with the help of descriptive and inferential statistics. The results showed that administrative systems that were based on automation greatly minimized manual errors, increased the speed of workflow, and the accuracy of institutional records. The research found that automated systems enhance operational efficiency and enhance data quality in higher education administration. This paper will complement the current study by showing that automation tools can greatly enhance the accuracy of data in tertiary institutions.

Olatunbosun et al., (2025) examined the adoption and effectiveness of cloud computing in institutions of higher learning in data management. The study employed a quantitative methodology to gather the responses of administrative and academic staff in the sampled institutions and analyzed the data through

correlation and regression analyses. The results indicated that cloud-based systems enhanced the synchronization of information, remote accessibility, and record consistency across various platforms significantly. The research found that the adoption of clouds improves the management of institutional data by minimizing data duplication and inconsistencies in data management. This observation is relevant to the present research as it validates the fact that cloud-based systems play a significant role in ensuring data consistency in tertiary institutions.

Adamu and Sarjiyus (2025) investigated the practices of cybersecurity and data protection in higher education institutions in Nigeria through a review-based analytical design with institutional case evidence. The research was aimed at the impact of digital document handling systems, access controls, and data protection measures on the security and reliability of records. The results showed that the institutions with organized document management systems had improved record maintenance, effective retrieval procedures, and enhanced protection against data loss and manipulation. The researchers concluded that digitization of documents and secure records management enhance institutional data reliability. This research is applicable to the current work since it helps to argue that document management systems can greatly improve data reliability.

Mohammed and Amoah (2025) carried out an empirical review of the literature on technology integration in decision-making in university facilities management. Though the



research was conducted in a general way on the topic of higher education administration, it particularly emphasized the use of automation-based tools, data-driven systems, and intelligent digital platforms to enhance institutional coordination and information reliability. The results showed that intelligent technological systems help in making decisions faster, less administrative inefficiency, and better quality of information. The research found that digital integration is critical in improving the reliability of institutional systems. This helps the current research by strengthening the applicability of smart office systems use in enhancing data integrity assurance results.

METHODOLOGY

The research design used was a cross-sectional survey research design to investigate the correlation between the use of smart office systems and data integrity assurance in tertiary institutions in Rivers State, Nigeria. The study population was administrative staff and ICT personnel in the selected universities, polytechnics, and colleges of education in the state. The total population of 140 staff members was determined and since the population was manageable, a census sampling method was employed to encompass all the staff in the study. The data were gathered using a structured questionnaire that was developed based on a five-point Likert scale with Strongly Agree (5) to Strongly Disagree (1). The variables measured in the questionnaire were associated with the use of smart office systems, such as automation tools, cloud-based systems, and document management systems. It also evaluated data integrity assurance through data accuracy, data consistency, and data reliability indicators and variable. In order to achieve validity, the instrument was checked by two information systems and educational management experts who verified its content and face validity. Cronbachs Alpha was used to establish the reliability of the questionnaire and the coefficient of 0.80 was obtained, which is a high degree of internal consistency. Among the 140 questionnaires that were sent, 128 were retrieved, which is a response rate of 91.4 percent, which was deemed sufficient to analyze. The Pearson Product Moment Correlation Coefficient (PPMC) was used to analyze the data collected with the help of SPSS version 25.0. The level of significance used to test the hypotheses was 0.05 and the null hypothesis was rejected when the p-value was below 0.05.



Table 1: Names of Tertiary Institutions in Rivers State and Respondent Categories

S/N	Institution Name	Admin Officer	Secretary	ICT Staff	Total
1	University of Port Harcourt (UNIPORT)	2	2	2	6
2	Rivers State University (RSU)	2	3	2	6
3	Ignatius Ajuru University of Education	2	2	3	6
4	Ken Saro-Wiwa Polytechnic	2	2	2	6
5	Captain Elechi Amadi Polytechnic	2	2	2	6
6	Federal College of Education (Technical), Omoku	2	2	2	6
7	Eastern Polytechnic	2	2	2	6
8	Rhema University	2	2	2	6
9	PAMO University of Medical Sciences	2	2	2	6
10	Wigwe University	2	2	2	6
11	Rivers State College of Health Science	2	2	2	6
12	School of Nursing, Port Harcourt	2	2	2	6
13	School of Health Technology	2	2	2	6
14	College of Education, Rumuolumeni	2	2	2	6
15	Institute of Management and Technology (Study Centre)	2	2	2	6
16	National Open University (PH Study Centre)	2	2	2	6
17	Federal Polytechnic (Outreach Centre)	2	2	2	6
18	Rivers State ICT Training Institute	2	2	2	6
19	Maritime Academy (PH Annex)	2	2	2	6
20	Oil and Gas Training Institute	2	2	2	6
21	Technical Skills Development Centre	2	2	2	6
22	Rivers State School of Basic Studies	2	2	2	6
23	Community College, Eleme	2	2	2	6
TOTAL		46	47	47	140

Source: Researchers' Fieldwork (2026)

RESULTS

Hypothesis One

H₀₁: There is no significant relationship between automation tools and data accuracy in tertiary institutions in Rivers State, Nigeria.

	Automation Tools	Data Accuracy
Automation Tools	Pearson Correlation	1
	Sig. (2-tailed)	
	N	128
Data Accuracy	Pearson Correlation	.522**
	Sig. (2-tailed)	.002
	N	128

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

Source: SPSS Version 25 Output

Decision: The result reveals a significant positive relationship ($r = 0.522$, $p = 0.002$). Since $p < 0.05$, the null hypothesis is rejected. Therefore, there is a significant relationship between automation tools and data accuracy in tertiary institutions in Rivers State, Nigeria.

Hypothesis Two

H₀₂: There is no significant relationship between cloud-based systems and data consistency in tertiary institutions in Rivers State, Nigeria.

	Cloud-Based Systems	Data Consistency
Cloud-Based Systems	Pearson Correlation	1
	Sig. (2-tailed)	
	N	128
Data Consistency	Pearson Correlation	.339**
	Sig. (2-tailed)	.000
	N	128

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

Source: SPSS Version 25 Output

Decision: The result reveals a significant relationship ($r = 0.339$, $p = 0.000$). Since $p < 0.05$, the null hypothesis is rejected. Therefore, there is a significant relationship between cloud-based systems and data consistency in tertiary institutions in Rivers State, Nigeria.



Hypothesis Three

H₀₃: There is no significant relationship between document management systems and data reliability in tertiary institutions in Rivers State, Nigeria.

	Document Management Systems	Data Reliability
Document Management Systems	Pearson Correlation	1
	Sig. (2-tailed)	
	N	128
Data Reliability	Pearson Correlation	.668**
	Sig. (2-tailed)	.000
	N	128

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

Source: SPSS Version 25 Output

Decision: The result reveals a significant positive relationship ($r = 0.668$, $p = 0.000$). Since $p < 0.05$, the null hypothesis is rejected. Therefore, there is a significant relationship between document management systems and data reliability in tertiary institutions in Rivers State, Nigeria.

Discussion of Findings

The research shows that there is a moderate relationship between automation tools and data accuracy in tertiary institutions in Rivers State ($r = 0.522$, $p = 0.002$). This implies that automation tools like automated data entry systems, workflow software, and reporting tools can greatly enhance the accuracy of institutional data. Automation lowers the number of errors and provides accurate data processing by minimizing human participation in repetitive administrative duties. This improves the quality of academic and administrative records in tertiary institutions. This observation is consistent with Adebayo and Adekunle (2025), who found that automation systems enhance data accuracy and minimize administrative errors in schools. It also endorses Eze Blessing and Olayia (2025), who discovered that automated information systems are very effective in improving the accuracy of data and record management.

Another important finding of the study is that there is a strong positive correlation between cloud-based systems and data consistency ($r = 0.339$, $p = 0.000$), which shows a weak yet statistically significant correlation. The strength of the relationship is not very high, but the outcome indicates that cloud-based systems help to ensure the consistency and alignment of data in various platforms. These systems allow real-time updates and centralized data storage, which can minimize duplication and inconsistencies in institutional records. The weaker relationship can however be explained by factors like network limitations or poor system integration. This finding is consistent with Olatunbosun et al. (2025), who reported that cloud computing enhances data

consistency and synchronization in higher education institutions. It is also consistent with the findings of Ogba and Lasisi (2025), who highlighted that cloud-based technologies enhance uniformity and reliability of data in organizational systems.

Moreover, the research finds that there is a positive correlation between document management systems and data reliability ($r = 0.668$, $p = 0.000$). This close connection means that digital document management systems contribute greatly to the reliability and stability of institutional data. The version control, audit trails, and secure storage are features that guarantee that records are maintained correctly and can be accessed without mistakes. This enhances the availability of data in the long term and minimizes the chances of data loss. Document management systems enhance institutional confidence in institutional data in tertiary institutions where record keeping is paramount. This finding corroborates Adamu and Sarjiyus (2025), who found that structured document management systems improve data reliability and security. It also justifies Osuji and Arannilewa (2025), who highlighted that digital records management improves the reliability and integrity of institutional data systems.

CONCLUSION

The research found that the use of smart office systems has a great positive impact on the assurance of data integrity in tertiary institutions in Rivers State, Nigeria. In particular, the results revealed that automation tools enhance the accuracy of data by minimizing human errors and enhancing efficiency in data processing. Cloud-based systems were also found to enhance data consistency through centralized storage and synchronization of information across departments. Moreover, document management systems enhanced reliability of data by providing secure storage, easy retrieval and traceability of records.

Of the dimensions of smart office systems studied, document management systems had the most significant impact on data integrity, whereas cloud-based systems had the least, but still significant, impact. The study based on these findings concluded that the successful adoption and use of smart office technologies are critical in ensuring that data in tertiary institutions is accurate, consistent, and reliable. Thus, tertiary institutions need to invest in smarter office systems to enhance data management practices and overall institutional performance.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations are proposed:

1. Rivers State tertiary institutions need to embrace and intensify the use of automation tools like automated data entry and workflow systems to enhance data accuracy and minimize manual errors.
2. Institutions ought to invest in trusted cloud-based systems that facilitate real-time data synchronization and centralized storage to improve data consistency across various platforms.



3. Tertiary institutions: To enhance the reliability of data and long-term preservation of records, tertiary institutions should adopt advanced document management systems that have features like version control, audit trails, and secure storage.

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*RESOURCE MANAGEMENT EFFICIENCY: THE ADMINISTRATIVE CONTROL
COROLLARY*

Prof. NWINYOKPUGI, Nkiinebari Patrick

Department of Office and Information Management, Faculty of Administration and Management
Rivers State University, Port Harcourt
nwinyokpugi.prtrick@ust.edu.ng

STEWART, Christiana Nkechinyere

Rivers State University Microfinance Bank, Port Harcourt

ABSTRACT

This study examined the relationship between administrative control and resource management efficiency in the construction industry of Rivers State, Nigeria. Using a cross-sectional survey design, the research investigated seven construction companies with 150 employees, analyzing administrative control through four dimensions: policy direction, discipline, goal direction, and accessibility. Resource management efficiency was measured using cost reduction and accountability indicators. The theoretical framework was grounded in bureaucratic management theory and resource allocation theory. The study employed Pearson Product Moment Correlation Coefficient statistics via SPSS to test nine research hypotheses. Results demonstrated strong significant positive correlations between all dimensions of administrative control and resource management efficiency measures. Notably, discipline showed the strongest correlation with cost reduction, while policy direction exhibited robust relationships with both cost reduction and accountability. Goal direction and accessibility also demonstrated significant positive associations with both efficiency measures. A critical finding revealed organizational culture as a significant moderating variable, reducing the correlation coefficient and accounting for approximately 4.4% of the variance in the administrative control-resource management efficiency relationship. This underscores the contextual importance of organizational culture in determining the effectiveness of administrative control mechanisms. The study provides empirical validation for the multidimensional nature of administrative control and its positive impact on resource management efficiency in construction organizations, recommending the need for comprehensive policy frameworks, disciplinary systems, goal-setting mechanisms, and accessibility enhancement initiatives within culturally supportive organizational environments.

Keywords: Resource Management, Discipline, Policy Direction, Goal Direction, Accessibility, Administrative Control

INTRODUCTION

The construction industry operates within a complex ecosystem characterized by project uniqueness, resource variability, and operational uncertainty (Demirkesen & Ozorhon, 2017). Within this challenging environment, administrative control and resource management efficiency have emerged as critical components for organizational success and sustainability.



Construction firms that effectively implement these practices can significantly enhance their operational performance, financial outcomes, and competitive advantage (Hwang, Zhao, & Yang, 2019). Administrative control in construction firms refers to the systematic processes, policies, and mechanisms implemented to direct, monitor, and evaluate organizational activities to ensure alignment with established objectives and standards (Elbanna, 2016). According to Meng (2019), administrative control encompasses both formal and informal systems designed to regulate behaviour, allocate resources, and coordinate operations across multiple projects and functional units. These control systems typically include planning procedures, performance measurement frameworks, reporting structures, and decision-making protocols that collectively enable management to maintain organizational coherence and accountability. Oyewobi, Jimoh, Ganiyu, and Shittu, (2021) conceptualize administrative control in construction as a multi-dimensional construct that integrates strategic, operational, and financial oversight mechanisms. The strategic dimension focuses on long-term organizational direction and resource allocation, while the operational dimension addresses day-to-day project execution and coordination. The financial dimension monitors budgetary compliance and economic performance across the organizational portfolio (Demirkesen & Ozorhon, 2017).

Resource management efficiency refers to the optimal utilization of organizational assets including human capital, materials, equipment, technologies, and financial resources to maximize output while minimizing waste and unnecessary expenditure (Hwang, et al., 2019). In construction firms, where resources are often deployed across

multiple projects with varying requirements and timelines, efficiency encompasses both the allocation and utilization dimensions of resource management (Deng & Smyth, 2018). According to Jin, Zou, Piroozfar, Wood, Yang, Yan, and Han, (2020) resource management efficiency in construction can be evaluated through multiple metrics, including resource productivity, utilization rates, turnover cycles, and value-to-cost ratios. These indicators provide quantitative measures for assessing how effectively firms convert their resource inputs into project outputs and organizational outcomes. Additionally, Liu, Zhao, and Yan, (2018) emphasize that resource management efficiency extends beyond pure economic considerations to include sustainability dimensions such as environmental impact minimization and social value creation. In a complex environment as the construction company, where individuals of different inclinations seeking to achieve their goals while in the organization dominates, it can be found to have certain recalcitrant elements that oppose the order or policy of authority. Since the construction company depends largely on its workforce, in relation with other factors as physical resources, financial resources, technology, plant and equipment etc. to function, as well as relating among themselves and subject to threats occurring that unfavourably impacts the industry and affects asset loss; from innocent but costly mistakes, to fraudulent manipulations, regardless of why it transpires, administrative control, been the blueprint for organizational behavior, is important to ensure maximum efficiency in the operation of the industry to avoid or minimize loss to the industry. Administrative control is an internal strategy, adopted by the



management of an organization to curb behavioural excesses and guard its resources through implementation of principles, guidelines, rules, regulations, standard of procedures which it embeds in its policy direction, disciplinary measures, goal direction and others to provide guidance, consistency, accountability, efficiency and clarity on its operation for members. As every industry thrives in the competitive market to make headway with its available but scarce resources, the absence of administrative control breeds inefficiency over its resources and workforce.

The integration of effective administrative control and resource management efficiency plays a pivotal role in determining construction firm performance across several dimensions. First, as Meng (2019) argues, robust administrative control systems provide the governance structure and decision framework necessary for optimal resource allocation and utilization. By establishing clear accountability mechanisms and performance standards, administrative control creates the organizational context for resource efficiency initiatives to flourish. Second, the volatile and project-based nature of construction operations demands sophisticated resource management approaches to balance competing demands and priorities. Construction firms must simultaneously manage resources across multiple projects with different timelines, requirements, and risk profiles. Administrative control systems provide the coordination mechanisms needed to navigate this complexity while maintaining operational coherence (Demirkesen & Ozorhon, 2017). Third, in an industry characterized by thin profit margins and intense competition, resource management efficiency represents a critical source of competitive advantage (Hwang et al., 2019). Construction firms that optimize their

resource utilization can deliver projects more economically while maintaining quality standards, thereby enhancing their market position and financial sustainability. Administrative control systems support this objective by monitoring resource consumption patterns and identifying opportunities for improvement.

The relationship between administrative control and resource management efficiency is synergistic and bidirectional. Effective administrative control establishes the organizational framework for resource optimization by providing planning processes, monitoring mechanisms, and feedback systems that guide resource allocation and utilization decisions (Jin et al., 2020). Simultaneously, improved resource management efficiency enhances the effectiveness of administrative control by providing accurate performance data and operational insights that inform control system design and implementation. Deng and Smyth (2018) identify several interaction points between these two constructs in construction firms. Administrative planning processes inform resource forecasting and allocation, while control mechanisms guide resource deployment and utilization. Performance measurement systems evaluate resource efficiency outcomes, providing feedback for continuous improvement. This integrated perspective recognizes the complementary nature of administrative control and resource management efficiency in driving organizational performance. However, Liu et al. (2018) caution that this relationship is contingent upon organizational context factors such as firm size, project portfolio characteristics, and market environment. Large construction firms with diverse



portfolios may require more formalized administrative control systems and sophisticated resource management approaches compared to smaller firms with more homogeneous operations. Additionally, market conditions such as resource availability, cost structures, and competitive intensity moderate the performance impact of both administrative control and resource efficiency initiatives.

LITERATURE REVIEW

Theoretical Framework

The bureaucratic theory as a pioneer administrative tool was originally introduced by Max Weber (1864 – 1920), a reputed German Sociologist and a Political Economist, lies his thinking in the concept of bureaucracy as an ideal, intentionally, rational and very efficient form of organization, founded on the principles of logic, order and legitimate authority. Considered the architect of modern sociology, the German Sociologist Max Weber, recommended bureaucracy as the best way for large organizations to maintain order and maximize efficiency. In his book "Economy and Society" in 1922, Weber argued that bureaucracy's hierarchal structure and consistent processes represented the ideal way to organize all human activity. Accordingly, he defined the concept as a rational way to organize a complex business. Weber's theory also has two essential elements. First, it entails structuring an organization into a hierarchy. Second, the organization and its members are governed by clearly defined, rational, legal decision making rules, which element helps an organization to achieve its goals. In bureaucratic management, imposing rules is the sole authority of the management which demands that bureaucrats be highly disciplined and abide by the rules. In a study by

the Corporate Finance Institute, bureaucracy is indispensable in administering rules and regulations in government or large organizations. The structure is designed to administer large-scale and systematic coordination between many people working at different levels to achieve a common goal. As further noted by the institute's study, it was related to a political organization earlier but in modern times, it is associated with the administrative system governing any large institution. The term bureaucracy as explained by Simon et al (ND) reflects a rationally organized hierarchical structure and administrative process, composed of professional individuals, working in and communicating from well defined positions placed within a coordinated formal structure, intentionally designed to achieve complex goals with maximum effectiveness and efficiency. In lending support to the procedures embedded in the theory of bureaucracy as an instrument to resources management, Hewege (2012) stated that the processes of developing rules, assures that resources are obtained and used effectively and efficiently in the accomplishment of an organization's objective, as well as regulating behavior of organizational members so that goals are accomplished with minimum use of resources. More so, some advantages derived from the theory on Administrative control and resource management efficiency as outlined by corporate finance institutes includes:

- **Ease of administration:** the organization been rationally arranged in a structural hierarchy easily maintains control of the management, making necessary adjustments as and when required, and introduces a new set of rules, as per requirements from time to



time, owing to the large size of the organization.

- **Rules and Regulations:** The set of rules and regulations that are clearly stated in most cases makes obedience a prerequisite in the bureaucratic structure, thereby reducing the scope of non-adherence to the framework of rules and protocols.
- **Efficiency:** Competency increases; work is efficiently performed under the supervision of immediate managers in the hierarchy.
- **Accountability and answerability:** officials can be held accountable for actions performed by them in the course of their daily operations.

This study found its locus from the Resource Allocation theory which is a framework for assigning and managing assets in a manner that supports an organization's strategic goals. It involves balancing competing needs, priorities and determining the most effective course of action in order to maximize the effective use of limited resources to gain the best return on investment (Margaret, 2014). The theory comes from a research conducted by Joseph L. Bower (born 1938), and published in his book managing the Resource Allocation Process. Bower, is an American organizational theorist and Emeritus Professor of Business administration at Harvard University. In Bower's concept, resource allocation arises as an issue because the resources of an organization are in limited supply, whereas human wants are usually unlimited and because any given resource can have many alternative uses. Bower further stated that periodic review and adjustment of resource allocations to construction projects is critical for subcontractors to maintain profitability under traditional unit price or lump sum contracts. Efficient resource management is an essential task that ensures the optimal use of allocated resources for resource utilization, waste

reduction and higher factor productivity (Jhingan, 2016).

Since construction companies face the challenge of delivering often complex projects to a schedule within a budget, and hopefully with a reasonable profit margin, resource allocation diligently deploys scarce resources onto tasks and projects where they can produce the highest rate of returns (Kurt, 2018). In administering control for resource efficiency, resource allocation remains the fundamental economic task of a corporate management for the unseen system of decisions made inside an organization to determine what gets done and what does not. All the critical responsibilities of the top management – crafting strategy, building the organization, controlling operations, building and motivating the executive cohorts and managing succession are involved. Therefore, resource allocation theory proposes an illustration in managing resources amongst personnel consisting of subcontractors, contractors, consultants, architects, owners and all others that support the firm's strategies in allocation of resources to projects in construction industry

Administrative Control

In managing a business or a company as diverse as the construction industry, the need to have strategies specific to actualizing the objectives of the organization is the function of administrative control. This measure corrects individual and organizational performance and ensures that events conform to plans and objectives of companies. Administrative control is a component of internal control systems which ensure the policies and



procedures a business follows in its operations. It coordinates plans for company facilities, equipment as well as energy usage. Internal control as defined by Gamage et. al, (2014) is the process designed and affected by those charged with management, governance, and other personnel to provide reasonable assurance about the attainment of an entity's objectives, efficiency and effectiveness of operations and compliance with applicable laws. The definition of internal control by COSO extends to all objectives of an entity from financial reporting to proficiency and effectiveness of operations and compliance with applicable laws and regulations (COSO, 2013). Anthony (2014), further defined internal control as a process affected by an organizations structure, work and authority flows, people and management information systems designed to help the organization accomplish specific goals or objectives. This view by Anthony, illustrates a means by which the organizations resources are directed, monitored and measured. In further emphasis, Anthony affirmed that there is need to put in place circumstances, ensuring that procedures will be performed as intended with the right attitudes, integrity and competence, and monitoring by managers. These concepts explain that internal control continues processing from series of procedures and rules.

The basis for administrative control which functions as a management process involving planning, directing, control and serves an integral part of its performance in the private and government sectors (Hamdan, 2009), is a guard to internal control. These factors facilitate the organization towards achieving its objective and ensure attaining effectiveness and adoption of an organization competent to face competition (Bloom, 2013). The success of this development process is also linked to the elimination of

corruption, financial and administrative reform; good use of available resources and policy development, management and efficiency, which are objectives to be achieved. Be it internal or external challenges, a good management enables the organization to face the problems and the hassles based on the significant functions and administrative processes; poor internal controls often cause fraudulent activities to go unchecked and inevitably result in the downfall of the organization. Certainly, without appropriate practice of an administrative control and enforcement, organizations will face numerous risks and problems.

So many interpretations have been given in definition to administrative control due to its relatedness to other disciplines. In the definition of Oxfordreference.com, administrative control is the direction or exercise of authority over subordinate or other organizations in respect to administration and support including organization of service forces, control of resources and equipment, personnel management, unit logistics, individual and unit training, readiness, mobilization, demobilization, discipline, and other matters not included in the operational missions of the subordinate or other organizations. Also, the business dictionary defined administrative controls as procedures used to maximize coordination and to ensure reliability and predictability of behavior in the organization. In another definition by COSO (2004), administrative controls are safeguards designed to provide operational efficiency and adherence to policies and procedures. In support of the above view, Grimsley (2015) asserts that administrative control procedures are implemented as a set of rules

for making decisions regarding key management functions. A perfect example of a set of administrative procedures is the rules, policies and procedures outlined in the typical employee handbook or manual. These rules are objective and usually written in order to ensure consistency and fairness. As explained by COSO (2004), objective setting is a precondition to internal controls. By setting objectives, management can then identify risks to the achievement of those objectives. To address these risks, management of organization may implement specific internal controls; the effectiveness of those internal controls can then be measured by how well the objective are achieved and how effectively the risks are managed.

According to Wiersma (2017), administrative controls assume two forms. One is activity control – the degree to which members of the organization use procedures or resources specified by their superiors. The other is visibility of consequences – the ability and willingness to measure the consequence of organization programs in terms of organizational goals. The administrative control system is aimed at checking on the optimal and proper utilization of resources towards achieving the mission of the organization (Bahi, 2013). This is because its procedures are important and provides an objective set of rules by which an organization is governed; establish the legitimacy of management action ensuring the application of management rules and decisions is done in an objective, fair and consistent manner. Finally, it ensures that managers are held accountable for decisions that deviate from the procedures.

Policy Direction

Every business has a way in which it operates and does things. Businesses without clear policies often have subordinates making decisions that do not mesh with what the organization wants to see. Clear, concise and written policy plans help any business maintain consistency in operations and relieve management from the need to micromanage. Policies can be guidelines, rules, regulations, laws, principles, or directions developed by the organization to govern its actions. They say what is to be done and what to do. They define the limits within which decisions must be made; thus specify strategies to guide decision-making. Policies also deal with the acquisition of resources with which organizational goals can be achieved. As noted by Leonard (2018), some policies are defined by regulations, such as Federal privacy laws, while others are designed by corporate leadership to make sure that things are done by certain standards.

According to Schermerhorn (2010), policies should focus attention on matters of special organizational importance and guide people on how they are expected to behave in respect to them. Take the issue of equipment in mobilization for a project or task. The response is communicated in the policy thus:



“The release of any equipment in execution of a task without record is a violation of the company’s policy. Underutilization of material resources will not be tolerated in any form, whether committed by supervisors, personnel, sub-contractors etc. Any individual found violating this policy can be subject to disciplinary action up to and including termination, and possibly prosecution by the victim”.

Policies such as this are essential to organizations as it identifies policies along with the other framework. The essence of policy is discretion strategy on one hand, concerns the direction in which human and material resources will be applied in order to increase the chance of achieving selected objectives. Policy directions therefore provide the overall framework in which personnel carry out the mission of the organization. Notably, information and communication component covers understanding of policies and procedures, validation of information and evaluation of employee performance.

Discipline

Discipline is an important and indispensable phenomenon for individuals and businesses. Every organization wants its member’s behavior to be in conformity with the required system which it has prescribed in order to achieve the organizational goals; without discipline, members would not only misbehave but also do whatever they want to do, mismanagement and abuse of the system will becloud the environment and this, could imply chaos for its resources. However, while management ensures discipline is put in place in its administrative control process, there should be considerations on the fact that the construction industry is not set up in a vacuum

but made up of people who have aspiration, and ambitions which they would want to achieve while in the organization. Abubakar (2013) posit that when things are put in place, the people will have no reason not to put in their best for the achievement of the set goals and objectives of the organization; the behavior of every human being is function of his certain needs, and motives. Discipline is understood differently by people. While some view it as a punitive measure or chastisement, which generates fear, reproach when one is involved in a wrongful act, others may regard this as compliance and regularity with rules and regulations (Idris and Alegbeleye, 2015:91). In corroboration, Katz and Kahn (2012), states that discipline includes to control, regulate loyal, moral, dutiful, and company conscience. In another definition, discipline is an ability to control based on not performing actions that do not correspond to and support a structure to which the individual actually depends (Mangkunegara and Octorend, 2015:320). The purpose of discipline is to encourage members within the framework of the organization to behave sensibly, that is adhere to rules and regulations, correct the erred employees, re-directing of staff to the set objectives and to prevent future occurrence of misdeed by either the affected staff or the prospective victim. It serves as a preventive and deterrent measure against diversion of attention and goals. Disciplinary measures are guided by basic principles so as to accomplish its desired purposes. The principles should be spelt out in writing and properly communicated to all employees. Organization is expected to stipulate the standard of performance attainable, and the rules employees are expected to conform to (Muhammad, 2013). Therefore, in an industry such as the



construction, where many individuals come together for a common purpose, the phenomenon of discipline provides extremely important benefits both in achieving order and achieving success. As it binds the members and also motivates them to respect their organization, discipline is considered the lifeline of an organization. Discipline can be seen from different perspectives:

Punitive discipline applies force on workers to obey rules and regulations by instilling penalties or punishments in disobedience. The objective as Neeraj stated is to ensure that employees do not violate the rules and regulations. Its techniques involve fines, reprimand, demotion, layoff, transfer etc. Other types of discipline according to a management Journal review includes: Preventive discipline, corrective discipline and progressive discipline.

Preventive Discipline: this refers to the organization design which put in place programmes or measures that discourage or dissuade organizational members from disciplinary problems such as coming late, absenteeism, redundancy, disobedience to superior officer, insubordination among others. The aim of this discipline is to establish a system that employees willingly abide by the rules of the organization, to develop and to prevent crime before it occurs. These rules and regulations are communicated to all employees and explained individually if necessary. This type of discipline provides a more effective discipline policy (Idris and Alegbeleye, 2015:93-94). Preventive discipline is meant to prevent violation or deviation.

Corrective Discipline: This form of discipline is an act against violators and nonconformist.

It emanates because of organizational member flagrant disobedience to what the management frowns at in their rules and regulations or violating standards. While preventive discipline is preemptive in nature, corrective discipline serves two purposes which are (i) to reform or discourage further violation by sanctioning the violator and (ii) to prevent future or forestall future reoccurrence of the undesirable behavior among other employees (to serve as a deterrent). The tool of corrective discipline is penalty or sanction while the preventive discipline can be regarded as threat.

Progressive Discipline: It is a disciplinary system that employs the use of higher or stronger penalties for offences that are repeatedly committed. The penalty graduated from the minor to the major. As the offender repeats the same offence, the subsequent penalty increases in severity until it gets to the most severe. The number of times an employee can commit an offence and the number of level and nature of reprimand vary from one organization to the other. Most organizations do spell out what constitutes indiscipline and the procedure for penalizing erring employee. It is the specific function discipline performs that determines its type. The goal however with these types of discipline is not to punish but to maintain a positive and productive work culture.

Goal Direction: Goals are strategically set objectives that outline expected results and guide efforts of organizational members. It is critical to organizational effectiveness as they serve as an objective which they work to achieve. The purposes of goals are the desired outcome for individuals, groups, or entire organizations. They represent not



only the endpoint of planning but also the end toward which all other managerial functions are aimed. Organizational objectives: Organizational objectives reflect and flow naturally from the purpose of the organization and this purpose is expressed in its mission statement. Woodruff (2019) stated that setting objectives requires making tough choices and addressing realities. Objectives are the mileposts to guide you and your employees on the way to building the business. Objectives are important because they convert visions into clear-cut measurable targets. Some importance of objectives as explained by Woodruff (2019) are:

- **Create direction and guidance:** Every business needs guidelines. Objectives direct the company's activities toward achieving the goals and visions of the owners.
- **Form the basis to set budgets:** Once the path for the company's development has been defined, objectives help allocate the funds needed to achieve the goals. Budgets set specific amounts for departments that employees can use for guidance.
- **Develop structure of project plans:** Objectives form the structure for project development and measurement of performance along the way. Applying objectives to a project defines the timeline of activities needed to complete the plan.

A business that does not have defined objective is wandering, lost in the woods. The likelihood of success is remote, since people in the business are not certain as to where they should be going.

Accessibility: Organizations mandate an efficient allocation of resources to its various users, each entitled to access a designated set of resources only. Prevention of unauthorized access to

resources therefore is fundamental to administrative control requirement. According to Webster Dictionary, accessibility is the degree to which a product, device, service or environment is available to as many people as possible. In another definition by vocabulary.com, the term was defined as the quality of being available when needed. Not having access to the right people, tools, or materials will lead to delayed tasks, missed deadlines, and failed projects; thus having the right resource at the right time is critical to project success. The construction industry is a business entity. As such, their job requires the availability of resources in providing services. To ensure accessibility, a systematic resource allocation process is required to make resources available when needed. Pre-planned resources allocation helps identify gaps in resource availability. That way, plans can be made around the unavailability of key resources (Elliot, 2020).

Resource Management Efficiency

Companies need a few essential elements to ensure a smooth operation which needs to be integrated in order to meet the goals of the organizations, of which the construction industry is not an exception. In any organization, there is the need to utilize available resources for better performance, been that the organization is where resources come together. In defining resources, Gantt (2020) in a study, explained that resources can be anything from people to machinery to facilities. They are whatever is needed to facilitate a task. For a construction industry, a resource can include a special piece of equipment or tools. Though organizations use different resources to accomplish



goals, it has a goal to survive and must decide how to accomplish that goal. In a study by Grantham University, the concept, resources was defined as any factor that is necessary to accomplish a goal or carry out an activity. In fact, they are the components that a business needs in order to drive its activities; thus, the resources of a business will either solve or cause problems during the daily operation of the company. In other words, losing track of these key resources can cause the business to encounter previously unforeseen road bumps or lose a significant amount of capital.

Management on the other hand, refers to a set of activities including planning and decision making, organizing, leading, and controlling directed at an organization's resources i.e. human, financial, physical, and information, etc. with the aim of achieving organizational goals in an efficient and effective manner (Ahmad, 2015). Many organizations fail to reach their set targets due to lack of proper management of these resources. Hence, without proper management of resources, projects can fall behind schedule or can become unprofitable.

According to Hansen (2018), resources management is the process of pre-planning, scheduling, and allocating resources to maximize efficiency, which is centered on optimization and efficiency. To maximize the efficient and effective use of resources, there must be classification in order to share them, eliminate unwanted redundancy, controlled to receive, store and distribute them properly. Resources are re-usable source of supply to produce something. Examples include human, finance, material, and information resources, etc. (Ahmad, 2015). In the constant search for efficiency and competitiveness, confronting the modern

industry with new and greater challenges, the construction industry is not immune. The allocation of resources of different types to a construction project is a difficult managerial problem, particularly when construction equipment has to be shared. In order to control costs, equipment and labour should be utilized in the most efficient way possible. So, the most important ingredients and a necessity for any business that wants to remain competitive with its rivals is the resource management index (Adiele & Alikornwo, 2024; Nwinyokpugi & Alikornwo, 2022).

3. *METHODOLOGY*

As a macro level study adopting a quasi-experimental research design with a cross-sectional survey approach, 150 managerial staff of seven (7) construction firms operating in Port Harcourt, Rivers State in Rivers State were surveyed. The focus on these groups is due to their positions which bequeath them with the authority to enforce the requisite control in line with its administrative procedures geared towards the management of the organization's resources. The reliability of the structured instrument questionnaire was ascertained through Test-retest in which a pilot questionnaire was made on a portion of the chosen sample and administered afterwards and relationship between the two results was determined by correlation coefficient with Cronbach Alpha value of 0.70. The Pearson Product Moment Correction Coefficient was employed in the bivariate analyses.



Table 1: Reliability Coefficients of variable measures

S/N	Dimensions/Measures of study variable	Numbers of items	Numbers of cases	Cronbach Alpha
1.	Policy Direction	4	130	.992
2.	Discipline	4	130	.991
3.	Goal Direction	4	130	.993
4.	Accessibility	4	130	.991
5.	Cost Reduction	4	130	.991
6.	Accountability	4	130	.992
7.	Organizational Culture	4	130	.993

4. RESULTS AND DISCUSSION

Table 2: Questionnaire Distribution and Retrieval Response Rate

SN	Telecommunication Service Firms	Questionnaire Distributed	Questionnaire Retrieved	Questionnaire Not Retrieved	Usable Copies
	Setraco Nigeria Ltd	17	14	3	14
	LCC	20	15	5	15
	MCC	20	18	2	18
	Julius Berger	27	20	7	20
	CCECC	23	22	1	22
	RCC	22	20	2	20
	Rivigo	21	21	-	21
		150 (100%)	130(87%)	20(13%)	130(87%)

Source: Field Data Survey, 2026

Analysis on administrative control

For the purpose of this study, the study adopted four point Likert Scale in our questionnaire, having response categories in the order of Very High Extent (VHE), High Extent (HE), Low Extent (LE) Very Low Extent (VLE).

Table 3: Showing descriptive statistics for administrative control

Statistic	N	Minimum	Maximum	Mean	Std. Deviation
Policy direction	130	1.00	4.00	3.388	.29391
Discipline	130	1.00	4.00	3.470	.56934
Goal direction	130	1.00	4.00	3.603	.43291
Accessibility	130	1.00	4.00	3.615	.59150

SPSS output version 20.0; Source: Research Data 2026

Table 3 is the illustration of the descriptive statistics for the dimensions of the independent variable: administrative control =Policy Direction, Discipline, Goal Direction and accessibility. All four dimensions carry high mean scores ($x > 2.0$) based on the 4-point Likert scaling adopted.

Bivariate Analysis

In determining the statistical technique to suit our purpose, we considered Kothari & Garg, (2004) who argued that when there exists association or correlation between two variables, correlation technique should be used and when there exists cause and effect relationship between two variables in the case of bivariate population or between one variable on one side and two or more variable on the other side in case of multivariate population, partial correlation technique is appropriate. This was the basis for our choice of the Pearson Moment Correlation Coefficient to test our hypothesized relationship in the study. In a bid to determine the existence and trend of this relationship, we plotted a scatter diagram as presented in the figure below administrative control as a predictor variable is plotted on the X axis whereas resources management efficiency as the criterion variable is on the Y axis.

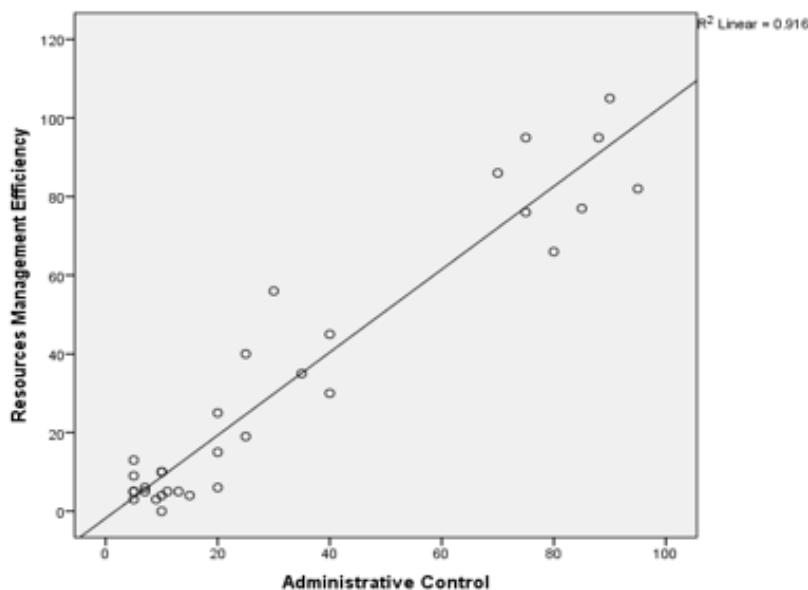


Figure 1: Scatter plot showing influence of administrative control on resources management efficiency

The figure 2 above shows a strong relationship between administrative control (independent variable) and resource management efficiency (dependent variable). The scatter plot graph shows at R^2 linear value of (0.916) depicting a strong viable and positive relationship between the two constructs. The implication is that an increase in administrative control simultaneously brings about an increase in the level of resources management efficiency.

Presentation of Results on the Test of Hypotheses

The study proposed nine research hypotheses to seek explanation to the relationship between administrative control and resource management efficiency as well as the moderating influence of organizational culture in such relationship. The Pearson Product Moment Correlation Coefficient statistics was calculated using the SPSS version 20.0 to establish the relationship among the empirical referents of the predictor variable and the measures of the criterion variable. Correlation coefficients can range from -1.00 to +1.00. The value of -1.00 represents a perfect negative correlation while +1.00 represents a perfect positive correlation. A value 0.00 represents a lack of correlation. In testing hypothesis 1 – 9, the following rules were upheld in accepting or rejecting the null hypotheses. All the coefficient values that indicate levels of significance (* or **) as calculated using SPSS were accepted and therefore, our null hypotheses rejected; when no significance is indicated in the coefficient (r) value, we accept our null hypotheses. Our confidence interval was set at the 0.05 (two tailed) level of significance to test the statistical significance of the data in this study.

Table 4: Correlation Matrix for Policy Direction and Resource management control

		Policy Direction	Cost Reduction	Accountability
Policy Direction	Pearson	1	.964**	.945**
	Correlation			
	Sig. (2- tailed)		.000	.000
Cost Reduction	N	130	130	130
	Pearson	.964**	1	.965**
	Correlation			
Accountability	Sig. (2- tailed)	.000		.000
	N	130	130	130
	Pearson	.945**	.965**	1
	Correlation			
	Sig. (2- tailed)	.000	.000	
	N	130	130	130

**. Correlation is significant at the 0.01 level (2-tailed); Source: Field Data Result, 2026

The table 4 is the correlation of hypotheses one and two; the hypothesis one shows a significant correlation at $r = .964^{**}$ where $P\text{-value} = .000$ ($P < 0.001$). This implies a strong and significant relationship between both variables at 95% level of confidence. We therefore reject the null hypothesis ($H_{0:1}$), and restated, thus, there is a significance relationship between policy direction and cost reduction in the construction sector in Rivers State, Nigeria. The hypothesis two show a significant correlation at $r = .945^{**}$ where $P\text{-value} = .000$ ($P < 0.001$). This implies a strong and significant relationship between both variables at 95% level of confidence. We therefore reject the null hypothesis ($H_{0:2}$), and restated, thus, there is a significance relationship between policy direction and accountability in the construction sector in Rivers State, Nigeria.

Table 5: Correlation Matrix for Discipline and Resource Management Efficiency

		Discipline	Cost Reduction	Accountability
Discipline	Pearson	1	.989**	.957**
	Correlation			
	Sig. (2-tailed)		.000	.000
Cost Reduction	N	130	130	130
	Pearson	.989**	1	.965**
	Correlation			
Accountability	Sig. (2-tailed)	.000	.000	.000
	N	130	130	130
	Pearson	.957**	.965**	1
	Correlation			
	Sig. (2-tailed)	.000	.000	
	N	130	130	130

**. Correlation is significant at the 0.01 level (2-tailed); Source: Field Data Result 2026

The table 5 is the correlation of hypotheses three and four; the hypothesis three show a significant correlation at $r = .989^{**}$ where $P\text{-value} = .000$ ($P < 0.001$). This implies a strong and significant relationship between both variables at 95% level of confidence. We therefore reject the null hypothesis ($H_{0:3}$), and restated, thus, there is a significance relationship between discipline and cost reduction in the construction sector in Rivers State, Nigeria.

The hypothesis four shows a significant correlation at $r = .957^{**}$ where $P\text{-value} = .000$ ($P < 0.001$). This implies a strong and significant relationship between both variables at 95% level of confidence. We therefore reject the null hypothesis ($H_{0:4}$), and restated, thus, there is a significance relationship between discipline and accountability in the construction sector in Rivers State, Nigeria.

Table 6: Correlation Matrix for Goal Direction and Resource Management Efficiency

		Goal Direction	Cost Reduction	Accountability
Goal Direction	Pearson	1	.932**	.881**
	Correlation			
	Sig. (2-tailed)		.000	.000
	N	130	130	130
Cost Reduction	Pearson	.932**	1	.965**
	Correlation			
	Sig. (2-tailed)	.000		.000
	N	130	130	130
Accountability	Pearson	.881**	.965**	1
	Correlation			
	Sig. (2-tailed)	.000	.000	
	N	130	130	130

** Correlation is significant at the 0.01 level (2-tailed); Source: Field Data Result 2026

The table 6 is the correlation of hypotheses five and six; the hypothesis five show a significant correlation at $r = .932^{**}$ where $P\text{-value} = .000$ ($P < 0.001$). This implies a strong and significant relationship between both variables at 95% level of confidence. We therefore reject the null hypothesis ($H_{0:5}$), and restated, thus, there is a significance relationship between goal direction and cost reduction in the construction sector in Rivers State, Nigeria. The hypothesis six show a significant correlation at $r = .881^{**}$ where $P\text{-value} = .000$ ($P < 0.001$). This implies a strong and significant relationship between both variables at 95% level of confidence. We therefore reject the null hypothesis ($H_{0:6}$), and restated, thus, there is a significance relationship between goal direction and accountability in the construction sector in Rivers State, Nigeria.

Table 7: Correlation Matrix for Accessibility and Resource Management Efficiency

		Accessibility	Cost Reduction	Accountability
Accessibility	Pearson	1	.979**	.946**
	Correlation			
	Sig. (2-tailed)		.000	.000
	N	130	130	130
Cost Reduction	Pearson	.979**	1	.965**
	Correlation			
	Sig. (2-tailed)	.000		.000
	N	130	130	130
Accountability	Pearson	.946**	.965**	1
	Correlation			
	Sig. (2-tailed)	.000	.000	
	N	130	130	130

** Correlation is significant at the 0.01 level (2-tailed).; Source: Field Data Result 2026

The table 7: Correlation of hypotheses seven and eight; the hypothesis seven show a significant correlation at $r = .979^{**}$ where $P\text{-value} = .000$ ($P < 0.001$). This implies a strong and significant relationship between both variables at 95% level of confidence. We therefore reject the null hypothesis ($H_{0:7}$), and restated, thus, there is a significance relationship between accessibility and cost reduction in the construction sector in Rivers State, Nigeria. The hypothesis eight shows a significant correlation at $r = .946^{**}$ where $P\text{-value} = .000$ ($P < 0.001$). This implies a strong and significant relationship between both variables at 95% level of confidence. We therefore reject the null hypothesis ($H_{0:8}$), and restated, thus, there is a significance relationship between accessibility and accountability in the construction sector in Rivers State, Nigeria.

Multivariate variable

For the multivariate analysis, the partial correlation technique was used in testing the moderating effects of organizational culture on administrative control and resource management efficiency.

Table 8: Partial correlation for the moderating role of organizational culture

Control Variables			Administrative control	Resource management efficiency	Organizational Culture
-none- ^a	Administrative control	Correlation	1.000	.990	.931
		Significance (2-tailed)	.	.000	.000
		Df	0	128	128
	Resource management efficiency	Correlation	.990	1.000	.900
		Significance (2-tailed)	.000	.	.000
		Df	128	0	128
	Organizational Culture	Correlation	.931	.900	1.000
		Significance (2-tailed)	.000	.000	.
		Df	128	128	0
Organizational Culture	Administrative control	Correlation	1.000	.956	
		Significance (2-tailed)	.	.000	
		df	0	127	
	Resource management efficiency	Correlation	.856	1.000	
		Significance (2-tailed)	.000	.	
df		127	0		

a. Cells contain zero-order (Pearson) correlations.; source: Field Data Report, 2025

In table 8, the zero-order partial correlation between administrative control and resource management efficiency shows the correlation coefficient where organizational culture moderating the relationship; and this is, indeed, both very high (.931) and statistically significant ($p\text{-value} (=0.000) < 0.05$). The partial correlation controlling for organizational culture however is (.856) and statistically significant ($p\text{-value} (= 0.000) < 0.05$). The observed positive "relationship" between administrative control and resource management efficiency is due to underlying relationship between each of those variables and organizational culture. Looking at the zero correlation, we find that both administrative control and resource management efficiency are highly positively correlated with organizational culture, the control variable. Removing the effect of this control variable decreases the correlation between the other two variables to be .856 and it is significant at $\alpha = 0.05$, therefore we reject the null hypothesis and conclude that: organizational culture significantly moderates the relationship between administrative control and resource management efficiency of the construction sector in Port Harcourt, Rivers State.

Discussion of Findings

The study empirical findings showed that, there is a strong significant positive relationship between administrative control and resource management efficiency of the construction firms operating in Rivers State, Nigeria with all dimensions and measures also showing significant positive correlation. The analysis further showed that, organizational culture moderates the relationship between administrative control and resource management efficiency in Rivers State, Nigeria.

- i. Policy direction demonstrated statistically significant positive correlations with cost reduction ($r > 0.964, p < 0.001$)
- ii. Policy direction exhibited statistically significant positive relationships with accountability ($r > 0.945, p < 0.001$).
- iii. Discipline manifested statistically significant positive associations with cost reduction ($r > 0.989, p < 0.001$).
- iv. Discipline indicated statistically significant positive correlations with accountability ($r > 0.957, p < 0.001$).
- v. Goal direction demonstrated statistically significant positive relationships with cost reduction ($r > 0.932, p < 0.001$).
- vi. Goal direction exhibited statistically significant positive associations with accountability ($r > 0.881, p < 0.001$).
- vii. Accessibility manifested statistically significant positive correlations with cost reduction ($r > 0.979, p < 0.001$).
- viii. Accessibility demonstrated statistically significant positive relationships with accountability ($r > 0.946, p < 0.001$).
- ix. The investigation revealed that organizational culture functions as a significant

moderating variable in the relationship between administrative control and resource management efficiency. This finding suggests that organizational cultural characteristics exert considerable effect on both the magnitude and directionality of the relationships between administrative control and resource management efficiency in construction firms operating in Rivers State, Nigeria, highlighting the contextual dependencies inherent in effective management of organizational resources in the work environment.

5. CONCLUSION

The empirical investigation into the relationship between administrative control and resource management efficiency of construction industry in Rivers State, Nigeria, has yielded substantive evidence supporting the theoretical propositions advanced in this study. The findings demonstrate unequivocally that administrative control, operationalized through its four cardinal dimensions: policy direction, discipline, goal direction, and accessibility, exhibits a robust and statistically significant positive correlation with resource management efficiency, as measured by cost reduction and accountability indices. The correlation coefficients across all dimensional relationships exceeded the threshold of statistical significance at the 95% confidence interval, thereby substantiating the hypothesized relationships within the theoretical framework. The investigation's most salient contribution lies in its empirical validation of organizational culture as a significant moderating variable in the administrative control-resource management efficiency nexus. The moderating effect of organizational culture, while maintaining statistical significance at $\alpha = 0.05$, reduced the correlation coefficient to 0.856, indicating that approximately 4.4% of the variance in the relationship can be attributed to organizational cultural factors. This finding underscores the critical importance of contextual organizational variables in determining the efficacy of administrative control mechanisms within the construction sector.

6. RECOMMENDATION

Based on the empirical findings of this study, the following recommendations are put forward:

- Construction organizations in Rivers State should prioritize the development and implementation of comprehensive policy frameworks that explicitly delineate resource allocation protocols, cost management procedures, and accountability mechanisms. The significant correlation between policy direction and resource management efficiency necessitates the establishment of clear, unambiguous policy directives that provide structured guidance for resource utilization decisions. Organizations should implement formal policy review mechanisms to ensure continuous alignment with evolving operational requirements and regulatory frameworks.

- The empirical evidence supporting the significant relationship between workplace discipline and both cost reduction and accountability dimensions mandates the implementation of robust disciplinary frameworks within construction organizations. Management should establish clear disciplinary protocols that reinforce adherence to resource management procedures while fostering a culture of accountability. This includes the development of performance monitoring systems, regular compliance audits, and structured feedback mechanisms that ensure consistent application of resource management standards across all organizational levels.
- Given the significant correlations between goal direction and both measures of resource management efficiency, construction organizations should implement comprehensive goal-setting frameworks that align individual and departmental objectives with overarching resource efficiency targets. This necessitates the establishment of SMART (Specific, Measurable, Achievable, Relevant, Time-bound) goals related to cost reduction and accountability measures, supported by regular performance assessment mechanisms and adaptive goal modification processes.
- The significant relationship between accessibility and resource management efficiency dimensions underscores the imperative need for construction organizations to develop comprehensive accessibility frameworks that facilitate efficient resource utilization. This includes the implementation of integrated information systems, streamlined communication channels, and user-friendly resource management platforms that enhance organizational accessibility to critical resources and information.
- The moderating effect of organizational culture necessitates deliberate efforts to cultivate organizational cultures that support and reinforce administrative control mechanisms. Construction organizations should implement culture-building initiatives that emphasize accountability, transparency, cost consciousness, and systematic resource management practices. This includes leadership development programs, cultural assessment mechanisms, and change management initiatives that align organizational culture with resource efficiency objectives.



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