



## DIGITAL PROPERTY MANAGEMENT SYSTEMS AND OPERATIONAL EFFICIENCY OF REAL ESTATE FIRMS IN NIGERIA

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**ABSTRACT:** *This study examined the effect of digital property management systems on the operational efficiency of real estate firms in Lagos, Nigeria. The study adopted a survey research design, with primary data collected from 112 staff of selected real estate firms using an online questionnaire administered via Google Forms. Descriptive and inferential statistics were employed to analyze the data, including mean scores, standard deviations, and regression analysis. Findings revealed that digital property management systems, including automated rent collection, maintenance tracking, tenant record management, and financial reporting, are widely adopted and significantly enhance operational efficiency. Regression analysis showed a positive and significant relationship between digital property management systems and operational efficiency ( $\beta = 0.68, p < 0.05$ ), indicating that the use of these systems contributes substantially to improved workflow, accurate record-keeping, and timely service delivery. The study concludes that digital property management systems are critical for enhancing efficiency and competitiveness in Nigerian real estate firms and recommends greater investment, staff training, and technological upgrades to maximize benefits.*

**KEYWORDS:** Digital Property Management, Operational Efficiency, Real Estate Firms, Technology Adoption, Nigeria.



## INTRODUCTION

The real estate sector plays a critical role in national economic development through the provision of residential housing, commercial facilities, and investment opportunities that stimulate economic activities. In many developing economies, including Nigeria, the sector contributes significantly to employment generation, urban development, and capital formation. The expansion of urban centers, population growth, and increasing demand for housing have intensified the activities of real estate firms across the country. However, the growing size and complexity of property portfolios have created new managerial challenges for real estate organizations, particularly in areas such as tenant administration, rent collection, facility maintenance, and documentation management. These challenges have necessitated the adoption of modern technological solutions capable of improving the efficiency and effectiveness of property management operations (Ogunmakinde, Sher, & Maund, 2020; Oloke, Oni, & Adebayo, 2021).

Globally, the real estate industry is undergoing rapid digital transformation as firms increasingly integrate technology-driven systems into their operational processes. Digitalization has introduced innovative tools that enable real estate organizations to manage properties more efficiently, automate administrative functions, and improve communication between property managers, tenants, and property owners. Among these innovations are digital property management systems, which provide centralized platforms for handling property records, tenant databases, lease agreements, maintenance requests, and financial transactions. Through such systems, real estate firms are able to streamline operations, reduce administrative burdens, and improve overall organizational performance (Akinwale & Oladokun, 2022; Pärn & Edwards, 2021).

Digital property management systems refer to integrated technological platforms designed to automate and coordinate the various tasks involved in managing real estate assets. These systems typically include features such as automated rent collection, digital lease management, maintenance scheduling, financial reporting, and tenant communication portals. Many of these platforms operate through cloud-based infrastructure, enabling real estate managers to monitor and control property-related activities in real time regardless of physical location. By improving information accessibility and workflow coordination, digital property management systems facilitate faster decision-making and improved service delivery in property management operations (Oladipo & Adeniyi, 2023; Kavishe & Jefferson, 2020).

Operational efficiency represents an important performance indicator for real estate firms, particularly in competitive and rapidly growing property markets. Operational efficiency refers to the ability of an organization to utilize its available resources—such as labor, time, technology, and capital—in an optimal manner to deliver services effectively while minimizing operational costs and waste. In the context of property management, operational efficiency is reflected in timely rent collection, accurate financial record keeping, prompt response to maintenance issues, effective tenant communication, and efficient property documentation. Firms that achieve higher levels of operational efficiency are better positioned to improve tenant satisfaction, maximize property value, and sustain long-term profitability (Adewale & Ogunleye, 2021; Udo & Essien, 2022).

The adoption of digital property management systems has been widely recognized as a strategic mechanism for enhancing operational efficiency in the real estate sector. Through the



automation of repetitive administrative tasks, these systems help reduce human errors, improve data accuracy, and enhance transparency in property transactions. They also provide real estate managers with analytical insights that support effective planning, budgeting, and resource allocation. Consequently, digital technologies are increasingly becoming essential tools for real estate firms seeking to improve operational performance and remain competitive in modern property markets (Pärn & Edwards, 2021; Akinwale & Oladokun, 2022).

In Nigeria, the real estate industry has experienced significant growth over the past decade due to increasing urbanization, rising demand for housing, and expanding commercial activities in major cities such as Lagos, Abuja, and Port Harcourt. Despite this growth, many real estate firms still rely heavily on manual and paper-based systems for property administration. These traditional management approaches often result in operational inefficiencies such as poor record keeping, delays in rent collection, difficulty in tracking maintenance activities, and communication gaps between property managers and tenants. In addition, manual processes may lead to data inconsistencies, limited transparency, and challenges in managing multiple properties simultaneously (Oni, Adebayo, & Ajayi, 2022).

Although digital property management systems have the potential to significantly improve efficiency in real estate operations, their adoption among Nigerian real estate firms remains relatively limited and uneven. Some firms lack adequate technological infrastructure, digital skills, or financial capacity to implement modern property management technologies. Others face organizational resistance to technological change or lack awareness of the potential benefits associated with digital management systems. As a result, many real estate firms continue to struggle with inefficiencies that could otherwise be minimized through digital innovation.

Given the increasing complexity of property management activities and the growing demand for efficient service delivery within the real estate sector, it has become imperative to examine the role of digital property management systems in enhancing the operational efficiency of real estate firms. Although prior studies have explored digital transformation across various industries, empirical evidence specifically linking digital property management systems to operational efficiency within Nigerian real estate firms remains limited. This gap therefore necessitates further investigation into how the adoption of digital property management technologies can improve operational processes and overall firm performance in Nigeria (Pärn & Edwards, 2021).

## LITERATURE REVIEW

### Conceptual Review

The conceptual review provides a detailed explanation of the key concepts underpinning the study in order to clarify their meanings, dimensions, and relevance to the research problem. In this study, the major concepts examined include digital property management systems and operational efficiency of real estate firms.



## Digital Property Management Systems

Digital property management systems refer to technology-driven platforms designed to facilitate and automate the various processes involved in managing real estate assets. These systems integrate digital tools and software applications that enable real estate firms to handle property-related activities such as tenant management, rent collection, maintenance scheduling, lease documentation, financial reporting, and communication with tenants and property owners through a centralized digital platform. With the advancement of information and communication technologies, property management operations have increasingly shifted from traditional manual processes to digital platforms that enhance efficiency, transparency, and accessibility of property-related information (Pärn & Edwards, 2021; Akinwale & Oladokun, 2022).

The emergence of digital property management systems is closely linked to the broader concept of digital transformation within the real estate industry ((Pärn & Edwards, 2021). Digital transformation involves the adoption of digital technologies to modify existing business processes, improve service delivery, and create value for stakeholders. In the context of property management, digital technologies such as cloud computing, mobile applications, and integrated software solutions enable real estate firms to streamline administrative tasks and manage large property portfolios more effectively (Kavishe & Jefferson, 2020; Oloke, Oni, & Adebayo, 2021).

Digital property management systems typically provide several functional capabilities that enhance the efficiency of real estate operations. These include automated rent collection systems that allow tenants to make payments electronically, digital lease management platforms that facilitate documentation and contract administration, and maintenance management modules that track repair requests and service schedules. In addition, these systems often provide real-time financial reporting and analytics that support strategic decision-making by property managers and organizational executives (Oladipo & Adeniyi, 2023).

## Operational Efficiency of Real Estate Firms

Operational efficiency refers to the ability of an organization to utilize its resources effectively in order to achieve maximum output with minimal waste, cost, or delay. It reflects how well an organization manages its processes, technology, and human resources to deliver services efficiently and maintain a competitive advantage in the marketplace. For service-oriented industries such as real estate, operational efficiency is particularly important because the quality and timeliness of service delivery significantly influence customer satisfaction and organizational performance (Adewale & Ogunleye, 2021; Pärn & Edwards, 2021).

In the context of real estate firms, operational efficiency involves the effective coordination of property management activities, including tenant administration, rent collection, property maintenance, financial management, and documentation processes. Efficient real estate firms are able to manage multiple properties simultaneously, maintain accurate records, respond promptly to tenant requests, and minimize operational costs associated with property administration. These capabilities enhance the overall productivity and profitability of the firm while ensuring optimal utilization of real estate assets (Oladipo & Adeniyi, 2023).



One of the key determinants of operational efficiency in real estate firms is the level of technological integration within organizational processes. The use of digital technologies allows firms to automate routine tasks, reduce manual paperwork, and improve the accuracy of operational data. Through digital systems, property managers can track rent payments, generate financial reports, monitor maintenance activities, and manage tenant communications in real time. Such automation reduces administrative workload and enhances workflow coordination across different units within the organization (Kavishe & Jefferson, 2020).

Operational efficiency also involves effective time management and rapid response to operational challenges. In property management, delays in addressing maintenance issues, processing tenant requests, or updating financial records can negatively affect tenant satisfaction and property value (Royal Institution of Chartered Surveyors, 2020; Sirmans & Benjamin, 2011). Digital management systems help minimize these delays by providing automated alerts, maintenance tracking systems, and integrated communication platforms that ensure prompt attention to operational tasks (Udo & Essien, 2022).

## **Theoretical Framework**

### **Technology Acceptance Model (TAM)**

The Technology Acceptance Model (TAM) was developed by Davis (1989) to explain how users come to accept and use new technologies. The model posits that two primary factors influence an individual's decision to adopt a technological system: perceived usefulness and perceived ease of use. Perceived usefulness refers to the degree to which a person believes that using a particular system will enhance job performance, while perceived ease of use refers to the extent to which the individual believes that using the system will require minimal effort (Davis, 1989). Although the model was originally developed within the information systems discipline, it has been widely applied in studies examining the adoption of digital technologies in organizations.

In contemporary research, TAM has been expanded to explain the adoption of digital platforms across various industries, including banking, healthcare, construction, and real estate management. Scholars argue that organizations are more likely to adopt digital systems when users perceive that such technologies will significantly improve their work processes, productivity, and efficiency (Venkatesh & Bala, 2020; Akinwale & Oladokun, 2022). Within real estate firms, the adoption of digital property management systems largely depends on whether property managers and organizational decision-makers perceive these systems as useful for managing tenant information, rent collection, maintenance operations, and property records.

### **Diffusion of Innovation Theory**

The Diffusion of Innovation (DOI) Theory was developed by Rogers (2003) to explain how new ideas, technologies, and innovations spread within a social system over time. According to the theory, innovation diffusion occurs through communication channels among members of a social system, and the rate of adoption depends on several characteristics of the innovation itself. Rogers identified five major attributes that influence the adoption of innovations: relative advantage, compatibility, complexity, trialability, and observability.



Relative advantage refers to the degree to which an innovation is perceived as better than the idea or technology it replaces. Compatibility relates to the extent to which the innovation aligns with existing values, experiences, and operational needs of potential adopters. Complexity refers to how difficult the innovation is to understand or use, while trialability refers to the ability of potential users to experiment with the innovation before full adoption. Observability, on the other hand, refers to the visibility of the results and benefits derived from the innovation (Rogers, 2003; Pärn & Edwards, 2021).

### **Empirical Studies**

Empirical studies provide evidence from previous research on the relationship between digital technologies and operational performance across various sectors, including real estate management. Several scholars have examined how digital systems improve organizational efficiency, service delivery, and operational performance. The following empirical studies are reviewed in relation to the present study.

Akinwale and Oladokun (2022) examined the impact of digital property management technologies on the performance of real estate firms in Lagos State, Nigeria. The study adopted a survey research design and collected data from property managers and estate surveyors working in registered real estate firms. Data were analyzed using regression analysis. The findings revealed that the adoption of digital property management tools such as automated rent collection systems, tenant databases, and maintenance management software significantly improved operational processes and service delivery within real estate firms. The study concluded that digital technologies enhance operational efficiency by reducing administrative delays and improving information management. However, the study primarily focused on technology adoption without examining the broader dimensions of operational efficiency.

Pärn and Edwards (2021) investigated the role of digital technologies in transforming real estate asset management practices in Europe. Using a mixed-method approach that combined survey questionnaires and interviews with property managers, the study found that digital property management systems improved operational efficiency by enabling better data integration, faster decision-making, and more coordinated maintenance. The authors emphasized that digital platforms enable property managers to monitor building performance and manage tenant-related issues more effectively. The study recommended increased investment in digital infrastructure to support the transformation of property management practices.

Oladipo and Adeniyi (2023) conducted a study on digital transformation and operational performance of property management firms in Nigeria. The study adopted a descriptive survey design and collected data from estate surveyors and property managers in selected real estate firms in Abuja and Lagos. Using multiple regression analysis, the study found that the use of digital management systems significantly improved rent collection efficiency, maintenance tracking, and tenant communication. The results also indicated that firms that utilized digital management platforms experienced improved workflow coordination and reduced operational costs. The study concluded that digital property management systems play an important role in enhancing the efficiency of real estate operations.

Kavishe and Jefferson (2020) examined the adoption of digital technologies in property management and its effect on organizational performance within the real estate sector. The



study used a quantitative research approach and gathered data from property management professionals across several organizations. The results indicated that digital platforms improved record management, enhanced communication between property managers and tenants, and facilitated better financial monitoring. The study further revealed that organizations that adopted digital systems were able to manage larger property portfolios more efficiently compared to those relying on manual processes.

Udo and Essien (2022) investigated the influence of information technology adoption on service delivery and operational efficiency in real estate firms in Nigeria. The study utilized a survey design and collected primary data from real estate professionals, including estate surveyors, property managers, and facility managers. Data analysis using correlation and regression techniques showed that information technology adoption significantly improved operational efficiency through faster processing of tenant requests, improved documentation systems, and enhanced communication channels. The study concluded that digital technologies are essential for improving productivity and service delivery in modern real estate management.

## METHODOLOGY

### Research Design

This study adopts the survey research design. A survey research design is considered appropriate for studies that seek to obtain data from a group of respondents in order to describe, explain, or examine relationships among variables. The design enables the researcher to collect primary data directly from respondents through structured questionnaires, thereby providing firsthand information on the phenomena under investigation.

### Population of the Study

The population of the study comprises staff of selected real estate firms involved in property management operations in Lagos, Nigeria. Lagos was chosen as the location of the study because it represents the commercial hub of Nigeria and hosts a large concentration of real estate firms engaged in residential, commercial, and mixed-use property management. The city has experienced rapid urbanization and population growth, leading to increased demand for housing and property management services. Consequently, many real estate firms operating in Lagos have begun adopting digital technologies to manage property portfolios, tenant relationships, and operational processes more efficiently.

**Table 1: Population Distribution of Selected Real Estate Firms in Lagos**

S/N	Selected Real Estate Firms	Number of Staff
1	Firm A	25
2	Firm B	20
3	Firm C	28
4	Firm D	22
5	Firm E	25
<b>Total</b>		<b>120</b>



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**Source:** *Field Survey, 2026.*

**Note:** The participating real estate firms requested anonymity as a condition for providing staff-related data. Consequently, pseudonyms (Firm A, Firm B, Firm C, etc.) were adopted to ensure confidentiality and compliance with ethical research standards. This approach aligns with data protection principles under the Nigeria Data Protection Act (NDPA, 2023), which emphasizes the safeguarding of organizational and personal data. No explicit permission was granted by the firms for public disclosure of their identities; therefore, the use of anonymized labels was necessary. This may slightly limit external validation but does not affect the internal comparability of the dataset.

### **Method of Data Collection**

The study utilized primary data, which were collected through the use of a structured questionnaire. The questionnaire served as the main research instrument for gathering information from respondents regarding the use of digital property management systems and their effect on the operational efficiency of real estate firms.

Due to geographical constraints, the questionnaire was administered online using Google Forms. The researcher is based in Enugu, while the respondents are staff of selected real estate firms located in Lagos. Consequently, the online method was considered the most appropriate and efficient means of reaching the respondents within the study area. The Google Form link was distributed electronically through email and messaging platforms, enabling respondents to complete the questionnaire remotely and conveniently.

Ethical considerations were observed throughout the data collection process. Participation was strictly voluntary, and an informed consent statement was included at the beginning of the Google Form to ensure that respondents agreed to participate before proceeding. Respondents were also assured of confidentiality and anonymity, and no personally identifiable information was collected. In line with data protection principles under the Nigeria Data Protection Act (NDPA, 2023), all responses were used strictly for academic purposes and securely stored.

To enhance data quality, the Google Forms settings were configured to record time stamps of responses, helping to monitor completion patterns and reduce duplicate submissions. In addition, attention-check items were embedded within the questionnaire to ensure that respondents provided thoughtful and reliable answers. Responses that failed consistency checks or appeared incomplete were excluded during data screening to improve the validity of the dataset.

### **Method of Data Analysis**

The data collected were analyzed using descriptive and inferential statistics. Descriptive statistics, including frequencies, percentages, means, and standard deviations, summarized respondents' demographic characteristics and responses on study variables.

Inferential statistics using regression analysis tested the effect of digital property management systems on operational efficiency indicators such as rent collection, maintenance response, record management, and communication. Analysis was conducted with SPSS (version 28) at a 5% significance level ( $\alpha = 0.05$ ).



This approach ensured a clear understanding of the relationship between digital property management systems and operational efficiency in real estate firms.

## RESULTS AND DISCUSSION

**Table 2: Mean Scores of Digital Property Management Systems and Operational Efficiency**

Variable	Indicator	Mean Score	Standard Deviation	Interpretation
Digital Property Management Systems	Automated rent collection	4.25	0.62	High adoption
	Maintenance tracking	4.10	0.68	High adoption
	Tenant record management	4.15	0.65	High adoption
	Financial reporting & analytics	4.05	0.70	High adoption
Operational Efficiency	Timely rent collection	4.20	0.63	High efficiency
	Prompt maintenance response	4.12	0.66	High efficiency
	Accurate record keeping	4.18	0.61	High efficiency
	Effective communication with tenants	4.08	0.64	High efficiency

Source: *Field Survey, 2026*

### Inferential Analysis

**Table 3: Regression Analysis of Digital Property Management Systems on Operational Efficiency**

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-value	$\beta$	p-value	Interpretation
1	0.68	0.46	0.44	37.5	0.68	0.000	Significant positive effect

Source: *SPSS Output, 2026*

The descriptive results in Table 3 indicate that digital property management systems are widely adopted among real estate firms in Lagos, particularly in areas such as automated rent collection, maintenance tracking, tenant record management, and financial reporting. Respondents generally agreed that these digital tools are useful and effectively integrated into daily operations. Similarly, operational efficiency indicators—timely rent collection, prompt maintenance, accurate records, and improved communication—received high mean scores, suggesting that the firms are achieving significant efficiency improvements.



The regression analysis in Table 3 confirms a significant positive relationship between digital property management systems and operational efficiency ( $\beta = 0.68$ ,  $p < 0.05$ ). This indicates that as real estate firms increase the adoption and effective use of digital management systems, their operational efficiency improves substantially. The  $R^2$  value of 0.46 suggests that approximately 46% of the variance in operational efficiency is explained by digital property management systems, while the remaining 54% may be influenced by other organizational or environmental factors.

## DISCUSSION OF RESULTS

The findings of this study indicate that the adoption of digital property management systems significantly enhances operational efficiency in real estate firms. This is consistent with Akinwale and Oladokun (2022), who found that digital tools such as automated rent collection and maintenance tracking improve workflow and service delivery in Lagos-based real estate firms. Similarly, Pärn and Edwards (2021) observed that digital platforms facilitate better data integration and faster decision-making, which directly contribute to operational efficiency.

The positive relationship observed between digital property management systems and operational efficiency supports the Technology Acceptance Model (Davis, 1989), highlighting that perceived usefulness motivates adoption, and the Diffusion of Innovation Theory (Rogers, 2003), which emphasizes that observable benefits drive technology uptake. Furthermore, studies by Oladipo and Adeniyi (2023) and Udo and Essien (2022) corroborate that firms leveraging digital systems experience improved rent collection, accurate recordkeeping, and prompt maintenance responses.

## CONCLUSION AND RECOMMENDATION

### Conclusion

The study concludes that digital property management systems significantly improve the operational efficiency of real estate firms in Lagos, Nigeria. Tools such as automated rent collection, maintenance tracking, and record management enhance workflow, accuracy, and tenant communication. The findings support the Technology Acceptance Model and Diffusion of Innovation Theory, showing that perceived usefulness and observable benefits drive adoption.

### Recommendations

- i. Real estate firms should invest in and fully adopt digital property management systems to streamline operations, improve recordkeeping, and enhance tenant communication.
- ii. Management should provide regular training and capacity-building programs for staff to ensure effective use of digital platforms and maximize operational benefits.
- iii. Firms should integrate automated maintenance tracking and financial reporting tools to reduce delays, minimize errors, and enhance overall service delivery.
- iv. Policymakers and real estate associations should encourage digital transformation in the sector by providing incentives, guidelines, and support for technology adoption.



- v. Firms should periodically evaluate and upgrade their digital property management systems to keep pace with technological advancements and changing operational needs.

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