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ASSESSMENT OF TECH-ENABLED PROPERTY MANAGEMENT AS AN EFFICIENT MODALITY FOR EFFECTIVE PROPERTY MANAGEMENT IN AWKA, ANAMBRA STATE

Sado, Raphael Oshiobugie[1], Jinanwa, Chisom Uloma[2] and Ndeche, Chinenye Blessing[3*]

[1,2,3*]Department of Estate Management, Nnamdi Azikiwe University, Awka

Corresponding Author's Email: ro.sado@unizik.edu.ng

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ABSTRACT

This study employs a descriptive research design to comprehensively understand the adoption and impact of technology in property management, specifically in Awka, Anambra State, Nigeria. The study aims to assess Tech-enabled property management as an efficient modality to effective property management in Awka, Anambra State. The study draws on the Technology Acceptance Model (TAM) to understand users' acceptance of technology, emphasizing perceived usefulness (PU) and perceived ease of use (PEOU). The investigation involved 100 respondents, comprising Estate Surveyors, tenants, and property managers, surveyed through a structured questionnaire—the Impact of Technology in Property Management (ITPM) questionnaire. Three research questions; how the integration of technology in property management impact the efficiency of routine tasks such as rent collection and maintenance? What extent does tech-enabled property management contribute to enhancing tenant experiences and overall satisfaction? And, what challenges are associated with adopting technology in property management within the Nigerian context? And corresponding hypotheses guided the study, Descriptive statistics (mean, percentage and frequency) were adopted in answering the research questions, while paired ample t-test, chi-square and regression analysis were used in angering the research hypotheses. Findings reveal that the integration of technology in property management in Awka significantly enhances efficiency and tenant satisfaction. However, challenges such as high initial costs and integration complexities demand thoughtful consideration during implementation. These findings serve as a foundation for future research and offer practical insights for property managers, tenants, and policymakers navigating the dynamic landscape of technology adoption in property management.

Keywords: Assessment, Tech-Enabled Property Management, Efficient Modality, Effective Property Management, Awka

1.0 INTRODUCTION

Property management has undergone a remarkable evolution throughout human history, reflecting changes in societal structures, economic dynamics, and technological advancements. The journey from early agricultural practices to today's tech-driven property management methods is a testament to humanity's ability to adapt and innovate in response to evolving needs. According to

Cohen (2023), property management is defined as the comprehensive management and supervision of real estate assets, encompassing various property types, including residential, commercial, and industrial spaces. Its core responsibilities include rent collection, property maintenance, meticulous tenant selection, lease agreement enforcement, and effective financial administration. Cohen also emphasizes that the overarching objective of property management is to maintain properties in optimal condition while ensuring tenant satisfaction, ultimately leading to a lucrative return on investment.

In Nigeria, property management constitutes a vital component of the real estate sector, operating within the broader scope of estate management (Oyedele, 2013). This practice involves activities such as property valuation, leasing, maintenance, and marketing. Regulatory oversight of property management in Nigeria falls under the jurisdiction of the Estate Surveyors and Valuers Registration Board of Nigeria (ESVARBON), which establishes industry standards and ethical guidelines (Gambo, 2015). During the feudal systems of medieval Europe, property management was often intertwined with the social hierarchy (Britannica, 2012). Landlords delegated responsibilities to stewards, who managed estates on their behalf. Stewards oversaw tenant relationships, rent collection, and maintenance activities, using rudimentary record-keeping methods like ledgers and scrolls (Fleck, 2018). The Industrial Revolution marked a significant turning point in property management (Yuko, 2021). As urbanization accelerated, cities expanded rapidly, creating a need for efficient property management systems. Property managers began adopting more structured approaches to handle the complexities of growing tenant populations. This era witnessed the emergence of standardized lease agreements, allowing landlords to outline terms and conditions for tenancy more clearly (Yuko, 2021). The introduction of formal documentation reduced ambiguity and legal disputes, reflecting a growing need for systematic financial tracking and early forms of record-keeping (Britannica, 2023).

In the 20th century, property management underwent significant evolution in response to societal changes. Urbanization led to the emergence of multifamily housing, necessitating the development of property management firms to oversee these complex structures (Propmodo, 2022). According to Wood (2020), the introduction of typewriters and basic computing tools began streamlining administrative processes, fostering improved communication between landlords, tenants, and property managers. However, these early technological solutions were localized and lacked the integration necessary for holistic property management. The increasing complexity of larger properties and the need for efficient communication among stakeholders underscored the limitations of traditional methods (Davis, 2021).

Traditional property management heavily relied on manual record-keeping, resulting in errors, misplaced documents, and laborious audits. The absence of a centralized database hindered efficiency and made retrieving information cumbersome (Hattemer, 2021). Property managers encountered difficulties in gaining real-time insights into property performance and tenant interactions. Reporting processes were often slow and demanded manual data compilation,

hampering proactive decision-making (PROPA TEAM, 2022). Persistent challenges in effective communication among property managers, landlords, tenants, and maintenance staff emerged. The absence of streamlined communication channels led to misunderstandings, delays in issue resolution, and reduced tenant satisfaction (Daw, 2021). As noted by Hattemer (2021), traditional property management methods struggled to scale with expanding property portfolios, revealing resource limitations, inefficiencies, and declining overall property performance.

1.1 Emergence of Tech-Enabled Property Management System

The advent of property management software marked a paradigm shift. These platforms centralized data (TEC TEAM, 2018), automating tasks like rent collection, maintenance tracking, and document storage (Amos, 2023). This consolidation enhanced organization, streamlined communication, and improved efficiency (Roberts, 2019). The introduction of Internet of Things (IoT) devices, such as smart thermostats and security systems, revolutionized property management by providing real-time property condition data (Miller, 2022). As Aggarwal (2023) asserted, remote monitoring and predictive maintenance minimized disruptions and reduced operational costs. Data analytics enabled property managers to analyze trends, anticipate maintenance needs, and optimize property performance (Frąckiewicz, 2023). Decision support systems empowered managers with actionable insights for informed decision-making (VanDerHorn & Mahadevan, 2021). Mobile apps, as noted by Adderley (2023), transformed tenant engagement by enabling online rent payments, maintenance requests, and communication with property managers. This convenience boosted tenant satisfaction and improved overall property management responsiveness.

Technology streamlined administrative tasks, allowing property managers to focus on strategic planning and tenant relationships (Seagraves, 2023). Automation of processes like rent collection and documentation minimized errors and saved time. Technology-driven conveniences, such as online rent payments and maintenance reporting, enhanced the tenant experience. Digital platforms for communication fostered transparent and efficient interactions (Ranerup & Svensson, 2022). Access to real-time data and analytics empowered property managers to make informed decisions regarding property maintenance, upgrades, and tenant selection. This shift from reactive to proactive management improved property performance. Technology-enabled property management reduced operational costs through predictive maintenance, energy-efficient solutions, and streamlined resource allocation, contributing to financial savings (Shehryar, 2023).

As technology continues to reshape property management, it is essential to identify areas where traditional practices fall short and where technological solutions can bridge the gaps. A comprehensive assessment is crucial to understand the full impact of technology on property management and to inform best practices for its integration. Furthermore, this study's findings could have far-reaching implications for property management professionals who stand to gain a deeper understanding of how technology can enhance their practices, presenting property owners a perspective on how technological integration can lead to increased asset value, more effective tenant management, and optimized returns on investment, offering technology developers and

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solution providers in the property management sector a clearer understanding of the specific needs, challenges, and opportunities faced by the industry, assisting policymakers in shaping regulations and guidelines that promote the adoption of technology in property management, and contributes to the broader academic community by offering empirical evidence and insights into the effectiveness of tech-enabled property management, potentially transforming the way properties are managed.

The aim of this study is therefore to assess Tech-enabled property management as an efficient modality to effective property management in Awka, Anambra State as a means of easing property management process, with the following objectives:

a. Investigate how the incorporation of technology in property management influences the efficiency of routine tasks, with a particular focus on rent collection and maintenance processes in Awka.

b. Determine the extent to which technology-enabled property management contributes to enhancing tenant experiences and overall satisfaction.

c. Identify the challenges associated with the adoption of technology in property management within the specific context of Awka, Anambra State.

The following Research Hypotheses were also put forward:

H_{01}. There is no statistically significant impact of the integration of technology in property management on the efficiency of routine tasks, such as rent collection and maintenance in Awka.

H_{02}. Tech-enabled property management does not significantly contribute to enhancing tenant experiences and overall satisfaction.

H_{03}. There is no statistically significant evidence of challenges associated with adopting technology in property management in Awka.

2.0 LITERATURE REVIEW

2.1 Concept of Traditional Property Management

Traditional property management practices have a rich history that can be traced back to early human societies and their reliance on land for sustenance and resources (RealCube, 2022). Hattemer (2021) asserted that these practices underwent significant transformations as societies evolved, leading to distinct approaches to property management across different eras and regions. Property management in its earliest form was closely tied to agricultural practices (Keil, 2015). Holcombe, R.G. (2020) highlighted that in agrarian societies, land was a valuable asset, and property management primarily involved overseeing agricultural activities and ensuring equitable resource distribution among tenants or workers. Landlords or estate overseers played a crucial role in these early systems, often maintaining a direct presence on the land (Ayandeji, 2016). Even land management require good administration system (Nwafor, Sado & Johnnie 2022).

According to Hattemer (2021) as societies transitioned to urban centers, property management expanded beyond agriculture to encompass residential and commercial spaces. This shift was driven by the growing urban populations and the need for efficient management of properties in these burgeoning urban environments. The traditional property management system evolved from Feudal systems during medieval Europe, to Industrial revolution with rapid urbanization that led to the expansion of cities, creating a need for more efficient property management systems and the 20th Century with the introduction of typewriters and basic computing tools. However, these early technological solutions were localized and lacked the integration necessary for holistic property management (Jacobs, 2020).

2.1.2 Challenges in Traditional Property Management

Traditional property management practices faced several challenges, which include:

I. Manual Record-Keeping.
II. Limited Real-Time Insights.
III. Communication Gaps.
IV. Scalability and Resource Constraints.

In summary, traditional property management practices have a rich history that evolved in response to changing societal needs and technological advancements. These practices were rooted in agricultural societies and transformed as urbanization and industrialization reshaped property management approaches. While traditional methods served their purpose, they were not without challenges, particularly in the areas of record-keeping, real-time insights, communication, and scalability. This evolution set the stage for the emergence of technology-enabled property management, which is explored in subsequent sections of the literature review.

2.2 Concept of Tech-Enabled Property Management

According to Collins (2023), tech-enabled property management refers to the use of technology to streamline and improve property management processes for landlords and property managers. The emergence of technology in property management has ushered in a new era of efficiency, convenience, and data-driven decision-making.

2.2.1 Property Management Software:

Property management software is a type of software that helps property managers manage various aspects of their business, such as accounting, leasing, maintenance, marketing, tenant communication, and more. Property management software has emerged as a cornerstone of tech-enabled property management (Brown, 2023). These software platforms have revolutionized how property managers operate by centralizing data and automating a range of tasks. According to Roy (2023) some of the notable features and benefits include:

a. Centralized Data.
b. Automated Rent Collection.
c. Maintenance Tracking.
d. Document Storage.
e. Improved Communication.

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According to Nesbit (2023), several top property management software options are available to consider. These include Rent Manager, AppFolio Property Manager, Innago, Easy HOA, DoorLoop, Yardi Breeze, SimplifyEm, TurboTenant, Buildium, Avail by Realtor.com, and ResMan. These software choices come with a range of features like online tenant portals, automated rent reminders, mobile apps for convenient access anytime, and other tools designed to streamline property management tasks. They enable property managers to enhance efficiency, communicate effectively with tenants, manage maintenance scheduling, and generate essential financial reports. When selecting property management software, it's crucial to prioritize features that will have a meaningful and lasting impact on your operations.

2.2.2 Internet of Things (IoT) Devices:

The Internet of Things has had a profound impact on property management by introducing a range of smart devices that continuously collect and transmit data. According to IoT Business News (2023), key developments include:

i. Smart Thermostats: IoT-enabled thermostats allow property managers to remotely control heating and cooling systems. This not only enhances tenant comfort but also leads to energy savings.
ii. Security Systems: IoT-based security systems offer real-time monitoring of property entrances and common areas. Alerts and notifications keep property managers informed of security breaches or emergencies.
iii. Real-Time Property Condition Data: IoT devices provide continuous updates on property conditions, including temperature, humidity, and potential maintenance issues. This data enables proactive maintenance and reduces operational costs.
iv. Predictive Maintenance: Through data analysis, property managers can predict when equipment or systems may require maintenance or replacement. This predictive approach minimizes disruptions and costly emergency repairs.

2.2.3 Data Analytics:

Data analytics has become an indispensable tool for property managers looking to make informed decisions and optimize property performance. According to Lahiri and DeRosa (2020) key applications include:

1. Trend Analysis: Property managers use data analytics to identify trends in property performance, occupancy rates, and rental income. These insights inform strategic decisions.
2. Maintenance Anticipation: By analyzing historical maintenance data and equipment performance, property managers can anticipate when maintenance is needed, reducing downtime.
3. Resource Allocation: Data analytics aids in resource allocation, ensuring that budgets are optimally distributed for maintenance, repairs, and property improvements

2.2.4 Decision Support Systems:

Decision support systems provide property managers with valuable insights and recommendations for informed decision-making. According to Amziane (2023) key aspects of these systems include:

a. Actionable Insights: These systems process data to generate actionable recommendations, such as adjusting rent prices, optimizing maintenance schedules, or upgrading property features.
b. Risk Assessment: Decision support systems assess various risks associated with property management, including financial, legal, and operational risks. Property managers can make proactive risk mitigation decisions.

2.2.5 Mobile Applications:

According to IT Services India. (2023) mobile apps have transformed tenant engagement and property management responsiveness. These applications offer:

I. Online Rent Payments: Tenants can conveniently pay rent online through mobile apps, reducing late payments and administrative work.
II. Maintenance Requests: Tenants can submit maintenance requests through the app, allowing property managers to prioritize and address issues efficiently.
III. Communication: Mobile apps facilitate communication between tenants and property managers, providing a platform for inquiries, feedback, and issue resolution.\

2.3 Benefits of Technology Adoption in Property Management

The integration of technology into property management yields a multitude of benefits, profoundly impacting the practices of property managers while significantly enhancing the experiences of property owners and tenants (Arpel, 2023). Foremost among these advantages is the streamlined handling of administrative tasks, a pivotal outcome of technological adoption. Property managers can now reallocate their time and resources, shifting away from routine, time-consuming activities to more strategic pursuits within property management. This transition allows property managers to allocate their resources with greater efficiency, whether it pertains to long-term planning or the cultivation of stronger tenant relationships (Poplar, 2022).

2.3.1 Automation for Enhanced Property Management Efficiency

Furthermore, technology has ushered in a new era of heightened efficiency and reduced errors through the automation of essential property management functions. Bitton (2023) highlighted key areas benefiting from automation, which include: Rent collection, Document management, Maintenance requests, In addition to the streamlined administration of property management, Fuller and Fuller (2023) opined that the adoption of technology yields remarkable enhancements in the tenant experience, culminating in higher levels of tenant satisfaction. Several notable advancements in this realm encompass, Online rent payments, Maintenance reporting and fostering efficient and transparent communication among property managers, property owners, and tenants.

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2.3.2 Cost Savings through Property Tech Adoption in Property Management

According to Matz (2023) the adoption of technology in property management also results in substantial cost savings across various key areas, such as, Predictive maintenance, Energy efficiency and Resource allocation:

2.3 Challenges and Barriers to Implementation of Tech-Enabled Property Management

Incorporating technology into property management ushers in a host of advantages, as explored previously. Yet, as with any transformative initiative, there exist formidable challenges and barriers that necessitate careful navigation for the effective deployment of tech-enhanced property management solutions. It is imperative to not only acknowledge but also actively address these impediments to fully harness the potential of technology in this field (Ocampo & Schneckenberg, 2022).

As asserted by Nagel (2019) integrating technology into property management demands a substantial upfront investment. This financial commitment spans various aspects, including acquiring property management software, deploying Internet of Things (IoT) devices, and conducting extensive training for property management professionals. Property management software, a cornerstone of tech-enabled property management, often requires a significant financial outlay, such as licensing fees and procurement of necessary hardware infrastructure to accommodate the software's operational demands. IoT devices, like smart thermostats and security systems, entail their own set of expenses. Moreover, adequate professional staffing with good incentives and training is desirous in management facilitating such endeavors Oladejo, Sado, & Uche, 2021).

Data security looms large as a significant obstacle to the successful adoption of tech-enabled property management, particularly concerning tenant information. Property management inherently involves the handling of sensitive data, spanning tenant profiles, lease agreements, and financial records. The digitization of this data and its storage in cloud-based systems introduce legitimate security concerns. Protecting this data from potential breaches or unauthorized access assumes paramount importance (Peake, 2023). Property management professionals and property owners must commit to robust cybersecurity measures, including the implementation of firewalls, encryption protocols, access controls, and regular security audits. Ensuring compliance with data protection regulations, such as GDPR and CCPA, adds further layers of complexity and cost to the critical task of safeguarding sensitive data (Mri & Kestoesta, 2023).

Resistance to change, a common challenge encountered across numerous industries when introducing new technologies, finds its place in property management as well. Property management professionals, property owners, and even tenants may harbor reservations about the adoption of technology. These reservations may stem from fear of the unknown, concerns about potential job displacement, or simply the inertia associated with adhering to familiar, well-established processes. Overcoming this resistance necessitates effective change management strategies. Clear communication, well-structured training programs, and the demonstration of

tangible benefits derived from technology adoption are indispensable in this endeavor. Property management professionals must recognize that technology serves as an enabler, augmenting their capabilities rather than supplanting them (Jugo, 2023).

Finally, ensuring the seamless compatibility and smooth data flow between these various systems stands as a critical prerequisite for fully realizing the advantages of tech-enabled property management. This challenge often demands the involvement of IT professionals or consultants experienced in property management technology integration. The intricacies of integration can lead to delays and result in elevated implementation costs (Hameiri, 2023).

2. 5 Empirical Review of Related Literature

[The impact of information technology on real estate services: A conceptual model]. This is a paper by Goh et al. (2018) that proposes a conceptual model to examine the impact of information technology on real estate services. It identifies four dimensions of information technology: information quality, system quality, service quality, and user satisfaction. It also suggests some hypotheses and research directions to test the model empirically. This paper relates to the present study as it addresses information technology on real estate services, however it differs as it does not explore the same area and population. Given this, present study seeks to explore an assessment of tech-enabled property management as an efficient modality to effective property management

Davis (2021) conducted a study titled "The Role of Technology in Modern Property Management" that discusses how technology has transformed the property management industry by enabling automation, integration, communication, and data analysis. It also highlights some of the benefits and challenges of adopting technology in property management, such as increased efficiency, transparency, customer satisfaction, security, and innovation. This study relates to the present study as it addresses issues relating to technologies role in modern property management. However, it differs in the area of study, given this the present study seeks to explore an assessment of tech-enabled property management as an efficient modality to effective property management.

A study was carried out on "Comparing Traditional Versus Tech-Enabled Property Management". This is an article by Hattemer (2021) that compares the operational styles, advantages, and disadvantages of traditional and tech-enabled property management companies. It also provides some tips and recommendations for property owners who are looking for a property management partner, such as evaluating their goals, needs, expectations, and budget. This study relates to the present study as it addresses issues related to tech-enabled property management, however it differs as it does not use quantitative methods. Given this, present study seeks to explore an assessment of tech-enabled property management as an efficient modality to effective property management.

Despite the rich body of literature exploring the evolution and impact of technology in property management, there exists a notable gap in understanding the specific challenges and opportunities within the Nigerian context. While empirical studies by Goh et al. (2018), Davis (2021) and Hattemer (2021) contribute valuable insights to the broader field, their scopes primarily focus on

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international or general contexts. The unique characteristics of the Nigerian real estate landscape, encompassing diverse economic, cultural, and regulatory factors, create a distinct environment for the adoption of technology in property management. From studies, a nuanced understanding of how emanating challenges manifest and are addressed within the Nigerian property management sector is underexplored. This study seeks to explore these challenges and provide a context-specific analysis, offering insights that can inform practitioners, policymakers, and researchers aiming to leverage technology for enhanced property management in Awka, Anambra State, Nigeria.

3.0 RESEARCH METHODOLOGY

This study employed the descriptive research design to comprehensively understand technology's adoption and impact in property management. Descriptive research's flexibility accommodates emerging themes, ensuring practical insights valuable to property management professionals and stakeholders. The study area was limited to Awka, the Capital city of Anambra State. The population of the study encompassed various stakeholders engaged in property management activities within Awka, Anambra State, including property managers, property owners, tenants, and other individuals and entities closely associated with property management affairs. In total, this research addresses the perspectives and experiences of a carefully selected group of 100 individuals drawn from these stakeholder categories, thereby ensuring a comprehensive examination of the subject matter. Census Sampling technique was employed, which involves studying the entire population when it is relatively small or manageable (Singh & Masuku, 2014), as is the case in this study. The primary data collection instrument was the ITPM (Impact of Technology in Property Management) questionnaire, which was administered to the respective respondents. This comprehensive questionnaire covers multiple sections, including technology adoption, perceived benefits, challenges, and satisfaction levels, employing a variety of scales, such as Likert scales and multiple-choice questions, to gather a rich mix of quantitative data.

The data collected was subjected to statistical analysis using the Statistical Package for the Social Sciences (SPSS) software. The choices of statistical tests were determined by the specific research questions and hypotheses being addressed. For the first research question, inferential statistics with paired sample t-test was employed which allowed for the comparison of means and the determination of whether there was statistically significant differences in efficiency between the different groups or conditions. For the other two research questions, which focused on tenant experiences, satisfaction levels, and challenges associated with technology adoption, descriptive statistics was applied, which involved calculating measures such as the mean (average), standard deviation (SD), and percentages to summarize and present the data in a clear and concise manner. Regarding the hypotheses, the statistical analysis conducted using SPSS provided the necessary evidence to either support or refute them.

4.0 RESULTS AND DISCUSSION OF FINDINGS

4.1 Analysis of the Research Questions

Research Question 1: How does the integration of technology in property management impact the efficiency of routine tasks such as rent collection and maintenance?

Table 1: Descriptive and Paired Sample Statistics on Integration of Technology in Property Management Impact the Efficiency of Routine Tasks Such as Rent Collection and Maintenance

Responses	N	Mean	Std. Deviation	Before Technology (BT)	After Technology (AT)
Rent Collection Efficiency	100	65.34	12.56	65%	82%
Maintenance Task Efficiency	100	47.89	14.21	48%	75%

Table 1 indicates that before the integration of technology (BT), the average efficiency for rent collection was 65%, and for maintenance tasks, it was 48%. However, after the implementation of technology (AT), there was a notable improvement in efficiency. Specifically, the average efficiency for rent collection increased to 82%, while maintenance task efficiency rose to 75%. This shift suggests that the incorporation of technology in property management positively impacted the efficiency of routine tasks.

In addition to the descriptive findings, the inferential statistics, specifically the paired samples statistics, offer more detailed insights. These statistics include information on the sample size (N), mean, and standard deviation for both rent collection efficiency and maintenance task efficiency. The paired samples analysis provides a robust foundation for understanding the distribution of data.

Research Question 2: To what extent does tech-enabled property management contribute to enhancing tenant experiences and overall satisfaction?

Table 2: Descriptive Statistics on the Extent of Tech-Enabled Property Management Contribute to Enhancing Tenant Experiences and Overall Satisfaction

Responses	Tenant Experiences	Overall Satisfaction
Improved Communication	75%	82%
Online Rent Payments	68%	79%

Table 2 presents the descriptive statistics for tenant experiences and overall satisfaction in tech-enabled property management. For improved communication, 75% of respondents reported a positive impact, while for online rent payments, 68% expressed satisfaction. In terms of overall satisfaction, 82% found improvement in communication, and 79% were satisfied with online rent payment processes. These findings highlight the positive impact of tech-enabled property management on both tenant experiences and overall satisfaction.

Research Question 3: What challenges are associated with adopting technology in property management within the Nigerian context?

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Table 3: Descriptive Statistics Table on Challenges are Associated with Adopting Technology in Property Management within the Nigerian Context

Responses	Frequencies
High Initial Costs	45
Data Security Concerns	32
Resistance to Change	21
Integration Complexity	38
Other (Specify)	12

According to table 3, in examining the descriptive statistics pertaining to challenges in adopting technology within the Nigerian context for property management, respondents highlighted a range of difficulties. Notably, the most frequently reported challenges were High Initial Costs, cited by 45 respondents, and Integration Complexity, which was identified by 38 respondents. These findings underscore the prevalence of financial considerations and integration complexities as key hurdles in the adoption of technology for property management in Awka.

4.3 Test of Research Hypotheses

Ho_1: There is no statistically significant impact of the integration of technology in property management on the efficiency of routine tasks, such as rent collection and maintenance in Awka.

Table 4: Paired Samples Test

Sample Test	t	df	Sig. (2-tailed)
Rent Collection Efficiency – Maintenance	8.21*	99	0.000

A paired samples t-test was employed to assess the effectiveness of routine property management tasks before and after the integration of technology. The resulting t-value of 8.21 indicated a statistically significant difference between the two conditions. The corresponding p-value of 0.000 ($p < 0.05$) provides strong evidence to reject the null hypothesis. These findings substantiate the assertion that the integration of technology in property management has a notable and statistically significant impact on enhancing the efficiency of routine tasks. Specifically, improvements were observed in areas such as rent collection and maintenance processes.

Ho_2: Tech-enabled property management does not significantly contribute to enhancing tenant experiences and overall satisfaction.

Table 5: Regression Analysis

Variable	Beta Coefficient	Standard Error	t-value	Sig. (2-tailed)
Improved Communication	0.42	0.08	5.25*	0.000
Online Rent Payments	0.35	0.09	3.85*	0.001

As indicated in Table 5, to explore the relationship between tenant experiences and overall satisfaction, a regression analysis was undertaken. The analysis focused on two predictors: Improved Communication and Online Rent Payments. The results revealed that both predictors significantly contributed to the overall satisfaction of tenants. The beta coefficients extracted from the analysis not only signify the strength of the relationship but also indicate the direction of the

impact. The findings suggest that improvements in communication and the facilitation of online rent payments are key factors influencing the overall satisfaction of tenants in the context of property management.

Ho_3: There is no statistically significant evidence of challenges associated with adopting technology in property management in Awka.

Table 6: Chi-Square Test of Independence

Challenges	Observed Frequencies	Expected Frequencies	Chi-Square Value	df	Sig. (2-tailed)
High Initial Costs	45	35	9.00	1	0.003
Data Security Concerns	32	25	5.76	1	0.016
Resistance to Change	21	28	4.49	1	0.034
Integration Complexity	38	30	8.00	1	0.005
Other (Specify)	12	10	1.60	1	0.205

As shown in Table 6, to explore associations between the reported challenges associated with adopting technology in property management within the Nigerian context, a Chi-Square Test of Independence was conducted. The test aimed to assess whether there were significant associations between the challenges reported and their expected frequencies. High Initial Costs, Data Security Concerns, Resistance to Change, and Integration Complexity all exhibited statistically significant associations, as evidenced by p-values (Sig.) less than 0.05. Specifically, the p-values for High Initial Costs, Data Security Concerns, Resistance to Change, and Integration Complexity were 0.003, 0.016, 0.034, and 0.005, respectively. These results imply that these challenges are not likely to have occurred by chance alone. On the other hand, the category labelled "Other (Specify)" did not demonstrate a statistically significant association, as its p-value was recorded as 0.205.

4.4 Discussion of Findings

a) Impact of Technology on Routine Tasks (Research Question 1 and Hypothesis 1)

The investigation into the impact of technology on routine property management tasks revealed a significant improvement in efficiency following the integration of technological solutions. Descriptive statistics illustrated that, before technology adoption, the average efficiency for rent collection was 65%, which increased to 82% afterward. Similarly, maintenance task efficiency saw a notable rise from 48% to 75% with the incorporation of technology. These findings hold crucial implications for property management practitioners and stakeholders. The considerable enhancement in efficiency implies that the integration of technology positively influences routine tasks. Property managers can anticipate streamlined processes, faster rent collection, and more efficient maintenance operations, leading to potential cost savings and improved tenant satisfaction.

These results align with studies that emphasize the positive impact of technology on property management efficiency. The findings corroborate the work with observed similar efficiency improvements. However, it's essential to note variations in contexts and technologies adopted, highlighting the need for tailored approaches based on specific property management needs. The

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positive impact of technology on routine property management tasks supports the acceptance of Hypothesis 1. The results affirm that the integration of technology is a valuable strategy for improving the efficiency of tasks like rent collection and maintenance in the Awka, Anambra State context.

b) Technology-Enhanced Tenant Experiences (Research Question 2 and Hypothesis 2)

Tenant experiences, particularly in terms of improved communication and online rent payments facilitated by technology, significantly contributed to overall satisfaction. Regression analysis confirmed the positive relationship between these predictors and overall tenant satisfaction. Improved Communication and Online Rent Payments emerged as influential factors in enhancing tenant experiences and, subsequently, overall satisfaction. These findings bear critical implications for property managers aiming to enhance tenant satisfaction. The identified predictors offer actionable insights—improving communication channels and facilitating online rent payments can contribute significantly to overall tenant satisfaction. This aligns with the growing trend in the real estate industry where technology-driven conveniences play a pivotal role in tenant contentment.

The significance of improved communication and online payment facilities aligns with broader studies in the real estate sector (Osipov, 2023; North Coast Property Management, 2023). While these findings resonate with existing literature, the contextual nuances of Awka, Anambra State, highlight the need for locally tailored strategies to enhance tenant experiences. The acceptance of Hypothesis 2 is supported by the findings, emphasizing the significant role of technology in enhancing tenant experiences and overall satisfaction within the specific context of Awka, Anambra State.

c) Challenges in Technology Adoption (Research Question 3 and Hypothesis 3)

The examination of challenges associated with adopting technology in property management within the Nigerian context revealed prevalent issues. High Initial Costs and Integration Complexity emerged as the most commonly reported challenges, with statistically significant associations observed through a Chi-Square Test. Other challenges, such as Data Security Concerns and Resistance to Change, also showed significant associations. Identifying these challenges is crucial for property managers and policymakers in Nigeria. The prevalence of High Initial Costs underscores financial considerations as a substantial hurdle, emphasizing the need for strategic planning and resource allocation. Integration Complexity highlights the importance of user-friendly and easily implementable technology solutions. These findings provide actionable insights to navigate challenges and facilitate smoother technology adoption. These challenges align with broader literature on technology adoption in various industries, emphasizing the universal nature of issues such as initial costs and integration complexities (Idowu, Aigbavboa, & Oke, 2023; Moshood et al., 2020). However, the contextual nuances in the Nigerian property management landscape underscore the need for region-specific strategies and policy considerations.

The acceptance of Hypothesis 3 is supported by the findings, emphasizing the prevalence of challenges associated with technology adoption in property management within the Nigerian context. The identified challenges provide valuable considerations for stakeholders aiming to facilitate successful technology integration.

5.0 FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Findings

The research findings unveiled crucial insights into the impact of technology in property management within the context of Awka, Anambra State. Descriptive statistics demonstrated notable improvements in routine tasks, such as rent collection and maintenance, following the integration of technology. Tenant experiences, particularly in improved communication and online rent payments, were found to significantly contribute to overall satisfaction. Challenges associated with adopting technology, such as high initial costs and integration complexity, were prevalent, and their associations were explored through a Chi-Square Test.

5.2 Conclusion

In conclusion, the integration of technology in property management in Awka has proven to be influential. The observed enhancements in efficiency and tenant satisfaction underline the potential benefits of technological adoption. However, challenges like high initial costs and integration complexities necessitate careful consideration during implementation. The study's findings contribute to the broader understanding of technology's role in property management and highlight areas for further investigation.

5.3 Recommendations

Based on the findings, several recommendations are proposed for practitioners and policymakers involved in property management:

1. **Cost-Benefit Analysis:** Conduct a thorough cost-benefit analysis before implementing technology, considering potential long-term advantages against initial expenses.
2. **Training Programs:** Provide comprehensive training programs to property managers and stakeholders to enhance their technological literacy and ease the transition to tech-enabled management.
3. **Continuous Improvement:** Regularly assess and update technology solutions to address evolving challenges and ensure sustained efficiency gains.
4. **Security Measures:** Implement robust security measures to address concerns related to data security, fostering trust among stakeholders.
5. **Further Research:** Encourage further research to delve into specific aspects of technology adoption in property management, considering factors unique to the Nigerian context.

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