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EXPLORING STRATEGIES FOR DIGITAL INTELLIGENCE INTEGRATION INTO NIGERIAN REAL ESTATE MARKET

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Abstract

The paper explored strategies for digital intelligence integration into Nigerian real estate market. The objectives include: to examine the emerging digital trends in real estate service delivery; assess the required capabilities for future real estate practice; and explore policies and regulatory framework recommendations for integrating digital intelligence into Nigerian real estate market. The paper adopted mixed methods design combining quantitative and qualitative approaches. The study population comprised all registered real estate firms practicing in Lagos and Abuja and their clients. The sample size consisted of 643 registered real estate firms and 800 real estate clients. However, only 576 registered estate firms and 588 real estate clients responded to the questionnaire and their responses utilized. The primary data for the study included questionnaires, group interviews, and observations. The research objectives were analyzed using content analysis. The results from the analysis of the data collected revealed that the most frequently mentioned trend was artificial intelligence and machine learning applications (mentioned by 68.4 percent of respondents), digital literacy and technical competence were mentioned most frequently (72.3 percent), with respondents emphasizing the need for practitioners to understand and effectively use emerging technologies rather than simply being aware of them and the most frequently mentioned recommendation (mentioned by 74.2 percent of respondents) was the development of clear legal frameworks for digital property transactions. The paper recommends that professional bodies should establish partnerships with technology providers, educational institutions, and government agencies to create ecosystems that support digital transformation.

Keywords: Strategies, digital intelligence, integration, real estate market, Nigeria

1.1 Introduction

Clients demand for property technology services in the real property companies is sky rocketing in most advanced nations (Braesemann and Baum, 2020), but in African nations, the reverse is the case (Aihie, 2019). African real estate markets, Nigeria inclusive are generally rated low in the JLL Transparency Index and, this is evidence that access to data is low (Aihie, 2019). It is possibly interpreted as low investment inflow into the market, or investors that have the mind of investing will be demanding for higher returns. The traditional real estate service delivery methods in Africa especially in Nigeria are often characterized by inefficiencies, lack of transparency, and limited accessibility. Digital intelligence is capable of transforming the sector by enhancing operational efficiency, improving decision-making, and providing better customer experiences. As at present, African countries, Nigeria inclusive are faced with challenges of investing in property technology owing to high level of poverty, instability in government and financial mismanagement (Adebiyi, Sanni, & Oyetunji, 2019).

In order for investor to get a sustainable Property Technology, investors need adequate information on an asset's performance index, cash flow, risks, capital expenses, house prices, building operations, land and structure valuation, home report, pricing strategy and spatial analysis among others in real estate market (Altus Group, 2019; Bourassa, Hoesli, Merlin & Renne, 2021; Liu, 2021; Mayer, Bourassa, Hoesli, & Scognamiglio, 2022). Hence, data generated in this process need to be transferred effectively and efficiently among clients, legal advisors, property solicitors and real estate professionals. It is therefore, imperative to know that achieving clients' satisfaction in the real estate business world demands an understanding of real estate clients' needs functionally (Araloyin & Olatoye, 2011), emotionally (Akinwamide & Bello, 2019b; Akinwamide & Hahn, 2022) and digitally (Akinwamide, 2021b, Akinwamide, Oyetunji & Hahn, 2021).

According to Baum (2017), real estate professionals lack the strategies with the determination to protect incompetent fee-earning practices. In others words, real estate professionals are reluctant to adopt new technologies because of the lack of trust based on their understanding of real property business to achieve greater efficiency in specific stages and processes. According to Deloitte (2018), information, the use of Chain Matrix tends to favour an expected service rate at the detriment of efficiency. This prevents the conveyance from entering the transaction documents

into the Chain Matrix platform. In the light of the above, real estate professionals especially estate surveyors and valuers need some level of digital competencies and skills to achieve clients' satisfaction in real property market landscape and digital world. Hence, the understanding and applicability of digital intelligence will benefit the real estate players that want to improve competencies and promote ethical relationships in property technology practice.

Since, the traditional real property service delivery methods in Africa especially in Nigeria, are often characterized by inefficiencies, lack of transparency, and limited accessibility, it is therefore, important to look towards the digital methods that have the capacity to transform the sector by enhancing operational efficiency, improving decision-making, and providing better clients experiences. It is on this background, that the study seeks to explore the strategies of digital intelligence integration in Nigerian real estate market.

1.2 Aim of the Study

The paper aims at the exploration of the strategies for digital intelligence integration into Nigerian real estate market with a view to providing information that will help in the integration of digital intelligence in real estate market operation and sustaining the future of the market in Nigeria.

1.3 Objective of the Study

- To examine the emerging digital trends in real estate service delivery in Lagos and Abuja.
- To assess the required capabilities for future real estate practice in the study areas.
- To explore Policies and regulatory framework recommendations for integrating digital intelligence into Nigerian real estate market.

1.4 Scope of the Study

The paper's focus is exploring the strategies for integrating digital intelligence in selected major cities of Nigerian real estate market. The paper focused on two major well known cities in Nigeria: Lagos and Abuja. However, the paper was delimited to real estate services in commercial and residential properties in the areas of study. It covered property management, estate agency and valuation. Besides, the paper focused on Principal Partners of registered estate firms and their clients as the target population; therefore, data was specifically collected from them.

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2.0 Review of Relevant Literature

Although there are few relevant studies on strategies for digital intelligence integration into Nigerian real estate market service, relevant studies reveal that there is availability of online innovative technologies but the level of adoption and integration into real estate oriented business is low.

Incorporation of cutting-edge technologies is basically reshaping the real property industry. For instance, there is improvement in user's engagement operational effectiveness. According to studies, disruptive technologies such as AI, machine learning, Internet of Things, blockchain, microservices architecture among others are fundamental to the development of digital platforms (Wang & Wang, 2024). Early users and embracers of cutting-edge technologies have gained competitive advantage by helping them to streamline operation, personalized user experiences and predictive analytics. Nonetheless, digital innovations have witnessed organizational rejection and the required competent human instrument for its full potential, giving rise for the need for human development on innovative technologies through industry-wide training as well as policy reshape to back up its implementation (Bolshakov, Badenko, Yadykin & Celani, 2020).

According to Shelke, Sangle Saswadkar, Gundawar, and Kadale (2023), cutting-edge technologies including Blockchain improves business potential by the minimization of intermediaries and transparency improvement, consequently reshaping the transaction processes of traditional real estate. In the same line of thought, Augmented Reality/Virtual Reality innovative technologies are changing real estate pictures, altering the transaction phenomenon (Lim, Lim, Jiang, Ng, & Niyato, 2024). There is a digital move in the methodologies of real estate as a result of wide implementation of cutting-edge technologies, therefore, traditional methods are being overshadowed by technologies created and designed to capture peculiar demand of industry, of which data inclusion and automation are not left out, which are vital in the achievement of cost efficiency and enhancement of decision-making potentials (Barbosa, Oliviera, Rocha, Marques & Maravilhas 2021; Frolov, Frolov & Muhina, 2022). The digital migration nevertheless, is calling for attention as a result of the none-uniformity of rate of acceptance in the various real property sectors, thereby showcasing the level of variance in the degrees of technology readiness and market situations. Internet of Things and Blockchain for example, are gaining wide popularity and

adoption in specific environments, while in some areas infrastructural limitations and legal hurdles are making them powerless. The differences in landscape further buttress the potential capabilities of digital metamorphosis and the relevant structure, policy, and regulatory-level change to eliminate the hurdles of adoption. Fig. 1 demonstrated a collective contribution of the various innovative technologies in real estate industry



Fig. 1: Digital transformation technologies in the real estate industry.

Source: Al-haimi, Khalid, Zakaria, Jasimin (2025)

Few empirical reviews reveal that there is a missing gap in the exploration of strategies for digital intelligence integration in real estate practice in Nigeria. Naeen, Rama and Nasir (2023), carried out a study on real property being digitalized with a focus on reviewing the technological devices and tools changing the industry and society. The study was conducted historically, institutionally,

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country wise and analyses of keyword for the bibliometric review and Preferred Reporting Items for Systematic Meta-Analysis (PRISMA) guidelines for the systematic review. The study reported that there were principal themes which amounted to four bringing about real property digitalization. These are information communication technologies, data collection technologies, data networking tools and digital decision-making systems. However, the study was done outside Nigeria and it was limited to technological innovative themes. Besides, it was more of qualitative analysis. There is need to explore how these disruptive technologies can be integrated into the Nigerian real estate market using both quantitative and qualitative methods. This study intends to fill the gap.

Ullah, Sepasgozar and Wang (2018), embarked on a study of smart real property technology review systematically with a focus on drivers of and innovative disruptive technologies usage and online platforms. Using secondary data of 213 published articles the results showed the state of technology's practice and usage in real estate. The study identified majorly, four real property players-real property agents and associations, real property consumers, real property government institutions and regulatory authorities and complimentary industries. The study was done in Australia and it was limited to qualitative analysis. Hence, there is need to explore how Nigerian stakeholders can integrate innovative technologies into the Nigerian real estate market using quantitative and qualitative methods. This study intends to fill the gap.

Oyetunde, Ojo, and Oyetunde (2018) carried out a study on Information Communication Technology (ICT) usage status and constraints in Nigerian real estate practice. The real estate market is characterized with limited access information, hence, making real estate markets imperfect globally. ICT has become a modern tool for creating, disseminating, accessing, and using information efficiently, which makes its adoption in modern real estate services imperative. This study investigated the types of ICT software being employed and the obstacles to the utilization of Information Communication Technology in Nigerian real estate practice. The study covered practitioners, real estate service firms, and clients in the Lagos Metropolis, the largest economic nerve in Nigeria. Findings from the study revealed that the five most used software programs were all general-purpose tools such as Microsoft Word, Microsoft Excel, email, Microsoft PowerPoint, and Adobe Document Reader. For the specialized application designed

specifically for real estate services, study showed that it was scanty. The major constraint to the use of Information Communication Technology in real estate practice was the quick changes in Information Communication Technology technologies. This paradigm shift has challenged real estate service practitioners to look towards creating more time and resources to update their Information Communication Technology knowledge and skills. The study was limited to usage status and constraints level of mobile technology in real estate firms in Lagos only which might not represent holistically the Nigerian property market. Hence, there is need to explore the strategies for the integration of innovative technologies into Nigerian real estate market using Lagos and Abuja as the study areas. This study intends to cover the gap.

Babajide, Oyetunji, and Oyetunji (2018), carried out a study on ICT barriers in Nigerian real estate practice, the incorporation of computers and the inclusion of the internet have transformed real estate business. The multi-faceted use of ICT has led to its inclusion in real estate services, knowing well the imperfection of property market. This connotes that information/data about the property is not well disseminated. The essence of the study was to investigate the problems to the adoption of ICT in Nigerian real estate practice. Findings from the study unveiled that the major constraint to the employment of ICT in real estate practice is the dynamism in ICT technologies. The study was limited to ICT. Other innovative technologies such as data collection technology, decision-making systems were not covered, hence, this study intend to explore strategies for the integration of digital intelligence into the Nigerian real estate market using Lagos and Abuja as the study areas.

Looking at the few relevant related literature, none has explore the strategies for the integration of digital intelligence into the Nigerian real estate market employing both quantitative and qualitative methods of research design. Therefore, this study covers the gap.

3.0 Methodology

The study adopted a mixed methods design combining quantitative and qualitative approaches. The rationale behind the adoption of this design among others was to enable the study to give a proper description of the prevailing situation through survey method. The target population for this study mainly comprised all registered estate surveying and valuation firms and their clients in Lagos and Abuja. The rationale for the adoption of estate surveying and valuation firms lay in the

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fact that by the enactment of the Estate Surveyors and Valuers Registration Board of Nigeria (ESVARBON) Decree No.24 of 1975, now CAP E. 13 LFN 2007, they are the professionals established by law and licensed to carry out real property services, with stamp and seal, for execution of property valuation jobs. The clients are those who engage the services of real estate in term of valuation, property management, estate agency and real estate consultancy. Data obtained from NIESV's state branch secretariats Lagos State and Abuja, showed that there were 459 firms in Lagos while in Abuja; there were 184 registered estate firms. The study adopted purposive sampling for the registered Estate Firms and a random sampling of 500 and 300 real estate clients in Lagos and Abuja respectively. Getting the official records of the real estate clients in Lagos and Abuja was difficult. The primary data for the study included questionnaires, group interviews, and observations. The study objectives were analyzed using content analysis. Respondents could mention more than one theme. A multiple-response coding system using binary matrix where 1= mention/present and 0 = not mention/absent was used. Questionnaire, group interview/discussion and personal observation were adopted to gather data that was needed to realize the objectives of the study. Content validity was established through expert review, while face validity was confirmed through pilot testing. Based on the results, the research instrument was deemed reliable and valid for addressing the research objectives.

4.0 Result and Discussions

4.1 Questionnaire Administration and Response Rate

Survey-based research depends significantly on the adequacy of the response rate achieved, as this determines the representativeness and generalization of the findings. For this study, the target population comprised all registered estate surveying and valuation firms in Lagos and Abuja, as obtained from the records of the Nigerian Institution of Estate Surveyors and Valuers (NIESV) state branch secretariats. According to the records, there were 459 registered estate firms in Lagos and 184 registered estate firms in Abuja, making a total population of 643 registered firms. The study adopted a purposive sampling technique for the registered estate firms, intending to cover all registered firms and a random sampling of 500 and 300 real estate clients in Lagos and Abuja respectively. Therefore, the entire population of 1443 registered firms and their clients was targeted for questionnaire administration. Table 1 shows the questionnaire distribution and retrieval rate.

Table 1: Questionnaire Distribution and Response Rate

Category	Lagos Distributed	Lagos Retrieved	Lagos Valid	Abuja Distributed	Abuja Retrieved	Abuja Valid	Total Valid
Real Estate Firms	459	432	408	184	176	168	576
Real Estate Clients	500	478	425	300	246	163	588
Total	**959**	**910**	**833**	**484**	**422**	**331**	**1,164**

As shown in Table 1, the valid responses comprised 576 from registered estate firms (408 from Lagos and 168 from Abuja). This distribution provides a robust foundation for comparative analysis between the two study areas. The higher number of valid responses from Lagos compared to Abuja reflects the larger population of registered estate firms in Lagos. The response rates were impressive: 89.6 percent for estate firms in Lagos (408 out of 459), while 91.3 percent for estate firms in Abuja (168 out of 184). The response rates for each category were impressive: 89.6 percent for estate firms in Lagos (408 out of 459), 91.3 percent for estate firms in Abuja (168 out of 184), 85.0 percent for clients in Lagos (425 out of 500), and 54.3 percent for clients in Abuja (163 out of 300). The relatively lower response rate for clients in Abuja can be attributed to the more dispersed nature of real estate transactions in the Federal Capital Territory, which made physical access to clients more challenging compared to Lagos.

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4.2 Socio-Economic and Demographic Characteristics of Real Estate Firms

The essence of the socio-economic characteristics is it relevance in expressing and getting a valid response to the research questions.

Table 2: Characteristics of Registered Estate Firms

Firm Characteristic	**Category**	**Lagos (n=408)**	**Abuja (n=168)**	**Total (n=576)**
Years of Operation	Less than 5 years	68 (16.7%)	38 (22.6%)	106 (18.4%)
	5-10 years	98 (24.0%)	52 (31.0%)	150 (26.0%)
	11-15 years	72 (17.6%)	18 (10.7%)	90 (15.6%)
	Above 15 years	170 (41.7%)	60 (35.7%)	230 (39.9%)
Number of Professional Staff	1-5 staff	158 (38.7%)	88 (52.4%)	246 (42.7%)
	6-10 staff	106 (26.0%)	42 (25.0%)	148 (25.7%)
	11-15 staff	74 (18.1%)	24 (14.3%)	98 (17.0%)
	Above 15 staff	70 (17.2%)	14 (8.3%)	84 (14.6%)
Primary Specialization	Valuation Only	42 (10.3%)	24 (14.3%)	66 (11.5%)
	Property Management	52 (12.7%)	30 (17.9%)	82 (14.2%)
	Estate Agency	72 (17.6%)	32 (19.0%)	104 (18.1%)
	Multiple Services	242 (59.3%)	82 (48.8%)	324 (56.3%)

Table 2 reveals that 39.9 percent of firms have been in operation for more than 15 years, with Lagos having a slightly higher proportion (41.7 percent) compared to Abuja (35.7 percent). This suggests that the Lagos property market has a more established professional presence, which may influence technology adoption patterns. Firms with 5 to 10 years of operation constituted 26.0

percent of the sample, while those with less than 5 years represented 18.4 percent. The presence of newer firms is important for understanding digital intelligence adoption, as these firms may be more likely to embrace digital technologies from their inception compared to older firms that may have established traditional practices.

In terms of firm size measured by number of professional staff, the findings show that the majority of firms (42.7 percent) employed between 1 and 5 professional staff, indicating that small-scale practices dominate the Nigerian real estate landscape. This is consistent with the professional service structure in many developing economies, where sole proprietorships and small partnerships are the predominant business models. Firms employing 6 to 10 professional staff constituted 25.7 percent of the sample, while those employing 11 to 15 staff represented 17.0 percent. Only 14.6 percent of firms employed more than 15 professional staff. The comparison between Lagos and Abuja reveals that Lagos has a higher proportion of medium to large-sized firms, with 17.2 percent employing above 15 staff compared to only 8.3 percent in Abuja. This difference reflects the more competitive and transaction-intensive nature of the Lagos property market, which according to Oyetunji, Ojo, and Oyetunji (2018), necessitates larger operational capacities to handle the volume of real estate transactions.

Regarding primary specialization, the majority of firms (56.3 percent) reported engagement in multiple service areas, including valuation, property management, estate agency, and consultancy. This indicates the multidisciplinary nature of estate surveying practice in Nigeria, where firms often provide comprehensive real estate services rather than specializing narrowly. Firms specializing primarily in estate agency constituted 18.1 percent of the sample, while property management specialists represented 14.2 percent, and valuation-only firms represented 11.5 percent. The higher proportion of multiple-service firms in Lagos (59.3 percent) compared to Abuja (48.8 percent) suggests that Lagos firms may have greater capacity to diversify their service offerings, potentially including technology-enhanced services.

Table 3: Personal Characteristics of Estate Firm Respondents

Characteristic	**Category**	**Lagos (n=408)**	**Abuja (n=168)**	**Total (n=576)**

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Highest Academic Qualification	B.Sc/HND	88 (21.6%)	42 (25.0%)	130 (22.6%)
	M.Sc/MBA	278 (68.1%)	114 (67.9%)	392 (68.1%)
	PhD	42 (10.3%)	12 (7.1%)	54 (9.4%)
Professional Designation	Probationer	42 (10.3%)	24 (14.3%)	66 (11.5%)
	Associate (ANIVS)	184 (45.1%)	78 (46.4%)	262 (45.5%)
	Fellow (FNIVS)	130 (31.9%)	50 (29.8%)	180 (31.3%)
	Other	52 (12.7%)	16 (9.5%)	68 (11.8%)
Years of Professional Experience	Less than 5 years	76 (18.6%)	32 (19.0%)	108 (18.8%)
	5-10 years	106 (26.0%)	46 (27.4%)	152 (26.4%)
	11-15 years	88 (21.6%)	34 (20.2%)	122 (21.2%)
	16-20 years	66 (16.2%)	24 (14.3%)	90 (15.6%)
	Above 20 years	72 (17.6%)	32 (19.0%)	104 (18.1%)

Table 3 shows that 68.1 percent of respondents held master's degrees (M.Sc or MBA), while 9.4 percent held doctoral degrees (PhD). Only 22.6 percent held bachelor's degrees or HND qualifications as their highest academic qualification. This high level of educational attainment suggests that Nigerian estate surveying professionals possess the cognitive capacity to understand and adopt complex digital technologies, supporting the assertions of Ayodele, Oladokun, and Kajimo-Shakantu (2020) regarding the significance of advanced education in facilitating technology adoption. The similar distribution between Lagos and Abuja indicates that educational standards are comparable across both study areas.

Professional designation analysis showed that 45.5 percent of respondents were Associates of the Nigerian Institution of Estate Surveyors and Valuers (ANIVS), while 31.3 percent were Fellows (FNIVS), indicating significant professional maturity. Probationer members, who are in the process of qualifying for full professional membership, constituted 11.5 percent of respondents. The remaining 11.8 percent held other professional designations or were in the process of upgrading their membership status. The high proportion of Associate and Fellow members suggests that the respondents were experienced professionals with substantial knowledge of real estate practice, lending credibility to their responses regarding digital intelligence adoption.

Years of experience in real estate practice ranged from less than 5 years (18.8 percent) to above 20 years (18.1 percent), providing a diverse perspective on digital intelligence adoption across different career stages. The largest proportion of respondents (26.4 percent) had between 5 and 10 years of experience, followed by those with 11 to 15 years (21.2 percent). According to Akinwamide and Hahn (2022), professionals with longer experience may demonstrate resistance to new technologies, while younger practitioners often exhibit greater digital fluency, making this diversity valuable for understanding adoption patterns. The distribution of experience levels was relatively similar between Lagos and Abuja, with Abuja having a slightly higher proportion of respondents with above 20 years of experience (19.0 percent compared to 17.6 percent in Lagos).

Table 4: Characteristics of Real Estate Clients

Characteristic	Category	Lagos (n=425)	Abuja (n=163)	Total (n=588)
Client Type	Property Buyer	254 (59.8%)	92 (56.4%)	346 (58.8%)
	Tenant	130 (30.6%)	52 (31.9%)	182 (31.0%)
	Property Investor	41 (9.6%)	19 (11.7%)	60 (10.2%)
Transaction Frequency	First Time	78 (18.4%)	32 (19.6%)	110 (18.7%)
	Occasionally	180 (42.4%)	68 (41.7%)	248 (42.2%)
	Frequently	144 (33.9%)	54 (33.1%)	198 (33.7%)
	Very Frequently	23 (5.4%)	9 (5.5%)	32 (5.4%)

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Educational Level	Secondary School	34 (8.0%)	14 (8.6%)	48 (8.2%)
	OND/NCE	52 (12.2%)	18 (11.0%)	70 (11.9%)
	B.Sc/HND	272 (64.0%)	104 (63.8%)	376 (63.9%)
	Postgraduate	67 (15.8%)	27 (16.6%)	94 (16.0%)

Table 4 reveals that 58.8 percent of clients were property buyers, 31.0 percent were tenants, and 10.2 percent were property investors. This distribution provides a comprehensive view of different client categories, with property buyers constituting the majority. The similarity in distribution between Lagos and Abuja suggests that the client mix is comparable across both study areas, with Lagos having a slightly higher proportion of buyers (59.8 percent) and Abuja having a slightly higher proportion of investors (11.7 percent), which may reflect the different market dynamics of the commercial capital versus the political capital.

In terms of frequency of real estate transactions, 42.2 percent of clients reported engaging in transactions occasionally, while 33.7 percent were frequent in transaction, and 18.7 percent were first-time clients. Only 5.4 percent reported transacting very frequently. This distribution indicates that the majority of clients have at least some experience with real estate transactions, which is important for their ability to evaluate service delivery quality. The high proportion of occasional and frequent transactors suggests that many clients have multiple points of comparison for assessing the quality of real estate services, including digital-enabled services.

Educational attainment among clients was notably high, with 63.9 percent holding university degrees (B.Sc or HND) and 16.0 percent possessing postgraduate qualifications. Only 8.2 percent had secondary school as their highest educational level, while 11.9 percent held OND or NCE qualifications. This educational profile suggests that clients possess the cognitive ability to evaluate and appreciate digital-enhanced service delivery. According to Bhargav (2023), educated clients are more likely to demand technologically advanced services and to provide meaningful feedback on service quality, making their perspectives particularly valuable for this study. The similar educational distribution between Lagos and Abuja indicates comparable client sophistication across both study areas.

4.3 Emerging Digital Trends in Real Estate Service Delivery

Table 5: Emerging Digital Trends

Emerging Trend	Frequency Mentioned (n=1,164)	Percentage	Key Applications Identified
Artificial Intelligence/Machine Learning	796	68.4%	Automated valuation, predictive analytics, chatbots, property recommendations
Blockchain and Smart Contracts	722	62.0%	Title verification, transparent transactions, smart contracts, immutable record-keeping
Virtual/Augmented Reality	678	58.2%	Virtual tours, remote inspections, immersive marketing, architectural visualization
Internet of Things	598	51.4%	Smart buildings, automated management, environmental monitoring, predictive maintenance
Big Data Analytics	534	45.9%	Market analysis, client insights, trend prediction, pricing optimization

Table 5 presents the emerging digital trends that respondents believe will shape the future of real estate service delivery. Content analysis of responses to open-ended questions revealed five major

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themes. Respondents could mention more than one theme. A multiple-response coding system using binary matrix where 1 = mention/present and 0 = not mention/absent was used. The most frequently mentioned trend was artificial intelligence and machine learning applications (mentioned by 68.4 percent of respondents), blockchain technology and smart contracts emerged as the second most frequently mentioned trend (mentioned by 62.0 percent of respondents), while virtual and augmented reality technologies were mentioned by 58.2 percent of respondents as the third most frequently mentioned trend. Internet of Things and smart building technologies were mentioned by 51.4 percent of respondents, with emphasis on smart home features, automated building management, environmental monitoring, and predictive maintenance capabilities.

4.4 Required Capacities for Future Real Estate Practice

Table 6: Required Capabilities

Required Capability	Frequency Mentioned (n=1,164)	Percentage
Digital literacy and technical competence	842	72.3%
Data analytics and interpretation skills	792	68.0%
Cybersecurity awareness and digital risk management	748	64.3%
Adaptability and continuous learning	694	59.6%
Digital communication and relationship management	642	55.2%

Table 6 presents the capabilities that respondents identified as essential for real estate professionals to thrive in an increasingly digital future. Respondents could mention more than one theme. A multiple-response coding system using binary matrix where 1 = mention/present and 0 = not mention/absent was used. Digital literacy and technical competence were mentioned most frequently (72.3 percent), next was data analytics and interpretation skills mentioned by 68.0

percent of respondents, reflecting the growing importance of data-driven decision-making in modern real estate practice. Cybersecurity awareness and digital risk management were mentioned by 64.3 percent of respondents with respondents emphasizing the need for practitioners to understand and effectively use emerging technologies rather than simply being aware of them.

4.5 Policy and Regulatory Framework Recommendations

Table 7: Policy and Regulatory Framework

Recommendation	**Frequency Mentioned (n=1,164)**	**Percentage**
Clear legal frameworks for digital property transactions	864	74.2%
Data protection and privacy regulations	798	68.6%
Professional body leadership in digital transformation	726	62.4%
Government investment in digital infrastructure	678	58.2%
Public-private partnerships for digital innovation	612	52.6%

Table 7 presents the policy and regulatory framework recommendations identified through content analysis. Respondents could mention more than one theme. A multiple-response coding system using binary matrix where 1 = mention/present and 0 = not mention/absent was used. The most frequently mentioned recommendation (mentioned by 74.2 percent of respondents) was the development of clear legal frameworks for digital property transactions, next was data protection and privacy regulations recommended by 68.6 percent of respondents, followed by Professional body leadership in digital transformation recommended by 62.4 percent of respondents, with calls for NIESV and ESVARBON to develop digital competence frameworks, provide training opportunities, and establish ethical guidelines for digital practice.

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5.0 Discussion of Findings

Findings in table 5 indicated that artificial intelligence and machine learning are pulling weight in the real estate industry. Respondents particularly emphased on AI-powered property valuation, predictive analytics for market trends, chatbots for client engagement, and property recommendation systems as emerging trends that will shape the industry. Responses of the respondents indicated 62.0% of artificial intelligence and machine learning. This finding aligns with projections by Fitzpatrick et al. (2023) that generative AI could generate significant value for the real estate sector through enhanced decision-making and personalized client experiences. Blockchain technology and smart contracts emerged as the second most frequently mentioned trend (mentioned by 62.0 percent of respondents). Respondents particularly emphasized the value of blockchain for establishing clear property ownership records and streamlining the conveyance process. Some respondents noted that blockchain could potentially reduce the time required for property title verification from weeks to minutes, significantly accelerating transaction timelines. According to Prince, Femi, and Ayorinde (2024), blockchain technology addresses fundamental challenges in Nigerian real estate, including title fraud, opaque transactions, and bureaucratic delays. Virtual and augmented reality technologies were mentioned by 58.2 percent of respondents, with particular emphasis on immersive property tours, remote property inspections, and enhanced marketing presentations. According to Ullah, Sepasgozar, and Wang (2018), these technologies address the logistical challenges of property viewing, particularly for distant buyers and investors, by providing realistic virtual experiences that reduce the need for physical site visits. Respondents noted that virtual reality could be particularly valuable for the Abuja market, where many properties are purchased by non-resident buyers who may not be able to conduct physical inspections.

Table 6 presents the capabilities that respondents identified as essential for real estate professionals to thrive in an increasingly digital future. Digital literacy and technical competence were mentioned most frequently (72.3 percent), respondents noted that future practitioners must be comfortable with digital tools and platforms as integral components of their professional practice, not as optional additions. According to Akinwamide (2021a), this requires fundamental changes in real estate education, with curricula evolving to incorporate digital competencies alongside traditional professional knowledge. Data analytics and interpretation skills were mentioned by 68.0

percent of respondents, reflecting the growing importance of data-driven decision-making in modern real estate practice. Respondents noted that future practitioners must be able to collect, analyze, and interpret property market data to provide valuable insights to clients. This finding supports the observations of Braesemann and Baum (2020) that real estate is increasingly becoming a data-driven industry, requiring professionals who can extract meaning from complex datasets. The ability to translate data into actionable insights for clients was identified as a key differentiator between digitally competent practitioners and those who merely use digital tools without deeper analytical capability. Cybersecurity awareness and digital risk management were mentioned by 64.3 percent of respondents, highlighting the importance of protecting client data and ensuring secure digital transactions. According to Prince, Femi, and Ayorinde (2024), as real estate transactions become increasingly digital, practitioners must develop competence in identifying and mitigating cyber risks. Respondents noted that cybersecurity competence is not just a technical requirement but also an ethical and legal obligation, given the sensitivity of real estate transaction data.

Table 7 presents the policy and regulatory framework recommendations identified through content analysis. Content analysis of policy recommendations revealed strong consensus on the need for comprehensive regulatory frameworks to support digital intelligence integration. The most frequently mentioned recommendation (mentioned by 74.2 percent of respondents) was the development of clear legal frameworks for digital property transactions, including recognition of electronic signatures, digital contracts, and blockchain-based title records. According to respondents, legal uncertainty currently impedes digital adoption, as practitioners are unsure about the validity and enforceability of digital transaction documents. Some respondents noted that without legal recognition of digital transactions, practitioners may be reluctant to fully embrace digital service delivery methods for fear that digital contracts may not be enforceable in court.

Data protection and privacy regulations were recommended by 68.6 percent of respondents, with emphasis on the need for legislation that protects client information while enabling legitimate data use for service delivery. Respondents noted that clear data protection regulations would provide guidance to practitioners on acceptable data handling practices and would also give clients confidence in sharing their data for digital transactions.

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Professional body leadership in digital transformation was recommended by 62.4 percent of respondents, with calls for NIESV and ESVARBON to develop digital competence frameworks, provide training opportunities, and establish ethical guidelines for digital practice. Respondents noted that professional bodies have a crucial role to play in setting standards for digital competence and in providing continuing professional development opportunities that help practitioners develop digital skills. Government investment in digital infrastructure was recommended by 58.2 percent of respondents, particularly in reliable internet connectivity, stable power supply, and digital identity systems. According to Aihie (2019), these foundational infrastructure elements are essential prerequisites for widespread digital transformation, and their absence disproportionately affects developing countries like Nigeria.

6.0 Summary of Findings

Content analysis of future directions revealed strong consensus on emerging trends and required capabilities. Artificial intelligence and machine learning were identified by 68.4 percent of respondents as key future technologies, with applications in automated valuation, predictive analytics, and client engagement. Blockchain technology (62.0 percent) was emphasized for secure transactions and transparent record-keeping, while virtual and augmented reality (58.2 percent) was highlighted for immersive property presentations. Internet of Things (51.4 percent) and big data analytics (45.9 percent) were also identified as important emerging trends. Required future capabilities included digital literacy (72.3 percent), data analytics skills (68.0 percent), cybersecurity awareness (64.3 percent), and adaptability (59.6 percent). Policy recommendations emphasized clear legal frameworks for digital transactions (74.2 percent), data protection regulations (68.6 percent), professional body leadership (62.4 percent), government investment in digital infrastructure (58.2 percent), and public-private partnerships (52.6 percent).

7.0 Conclusion

It is concluded that the future of Nigerian real estate practice will be shaped by emerging technologies including artificial intelligence, blockchain, virtual reality, internet of things, and big data analytics. Practitioners must develop new capabilities in data analytics, cybersecurity, and adaptive learning to remain relevant in this evolving landscape. Policy frameworks must evolve to

provide legal certainty, protect stakeholder interests, and promote innovation while managing risks associated with digital transformation. The strong consensus among respondents on the importance of clear legal frameworks and data protection regulations indicates that stakeholder readiness for digital transformation is high, but institutional frameworks have not kept pace with technological developments. These institutional frameworks are systemic in nature, requiring coordinated responses from multiple stakeholders including government, professional bodies, educational institutions, and individual firms. This suggests that foundational infrastructure deficits may be the primary constraint on digital transformation in the Nigerian context, and that addressing these deficits should be a priority for policy intervention.

8.0 Recommendations

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

- Professional bodies should establish partnerships with technology providers, educational institutions, and government agencies to create ecosystems that support digital transformation.
- Professional bodies should integrate digital intelligence modules into mandatory Continuing Professional Development (CPD) programs, ensuring that all practitioners have opportunities to develop digital competencies throughout their careers.
- Government at federal and state levels should invest in digital infrastructure including reliable internet connectivity, stable power supply, and digital identity systems.
- Policymakers should develop clear legal frameworks for digital property transactions that recognize electronic signatures, digital contracts, blockchain-based records, and other digital transaction mechanisms.

9.0 Limitation of the Study

While this study makes significant contributions, several limitations should be acknowledged when interpreting its findings and considering their implications. These limitations relate to geographical scope, research design, measurement, and sampling.

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The study's geographical scope was limited to Lagos and Abuja, two major urban markets that may not fully represent real estate practice across Nigeria's diverse regions. While these cities account for substantial property market activity and were deliberately selected as the focus of this investigation, rural and smaller urban markets may exhibit different patterns of digital adoption influenced by distinct contextual factors. The findings may not be generalizable to other Nigerian cities or to rural areas where infrastructure, market conditions, and client characteristics may differ substantially. Future research should extend geographical coverage to include other Nigerian cities and rural areas, providing a more comprehensive picture of digital intelligence integration nationwide.

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