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Generative and Agentic AI in Estate Surveying and Valuation Practice in Nigeria

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ABSTRACT

Human effort and intelligence have historically been the primary forces behind the provision of estate surveying and valuation services. Nevertheless, the swift advancement of Artificial Intelligence (AI), particularly the transition from narrow, rule-based automation to generative and agentic AI, is beginning to transform the methods by which real estate professionals gather data, analyze markets, and formulate valuation opinions. Despite growing global interest in generative and agentic AI, there remains limited empirical and scholarly documentation of how these newer AI capabilities are being adopted within Estate Surveying and Valuation practice in Nigeria specifically. Adopting a narrative review methodology, this paper evaluates the incorporation and innovation of generative and agentic AI within Estate Surveying and Valuation practices in Nigeria, updating a previous analysis of AI adoption with developments observed through the first half of 2026. The study explores fundamental AI and Machine Learning (ML) concepts, the rise of Large Language Model (LLM)-powered assistants and generative content tools, as well as the emergence of autonomous, goal-oriented agentic systems capable of performing multi-step valuation, marketing, and property management workflows with minimal human intervention. It assesses applications such as Automated Valuation Models (AVMs), Customer Relationship Management (CRM) platforms, generative digital advertising, virtual and augmented reality staging, and digital twins, while also addressing the advantages and ongoing Nigeria-specific challenges of AI adoption, including infrastructure costs, internet connectivity, data readiness, skills shortages, and governance and professional accountability concerning autonomous decision-making. The study advocates for tailored and purpose-built AI tools, human-in-the-loop governance for agentic systems, capacity building, clean data infrastructure, and collaboration with AI experts and regulators to empower Nigerian Estate Surveyors and Valuers to responsibly leverage the forthcoming wave of AI for a more efficient, transparent, and sustainable practice. In doing so, the paper contributes an updated, Nigeria-specific synthesis of generative and agentic AI applications and governance considerations that extends the existing literature on AI adoption in Estate Surveying and Valuation practice beyond earlier, narrower analyses.

Keywords: Generative Artificial Intelligence, Agentic AI, Machine Learning, Large Language Models (LLMs), Digital Twins, Estate Management, Property Technology (PropTech), Estate Surveying and Valuation, Automated Valuation Models, Nigeria

1.0 Introduction

1.1 Background to the Study

Human endeavours have always been the foundation of all human accomplishments across various sectors. Nevertheless, Artificial Intelligence (AI) has emerged as a concept that permeates every facet of human activity, providing a practical means to execute tasks with reduced human effort in a seamless, efficient, rapid, and more precise manner (Adejumo, Ayodele, Oyewole, Adebara, Hassan and Adeosun, 2024). AI is rapidly evolving to perform an expanding range of human tasks, both online and offline. It can make straightforward and complex decisions about how best to achieve a given objective, simulating human intelligence through machinery. Therefore, AI can learn and instruct on any subject, with a subset known as Machine

Learning (ML), which allows computer programs to autonomously learn and adjust to new information without human intervention. AI is broadly classified into narrow (weak) and general (strong) forms, discussed in more detail in Section 2.1. AI, in its diverse forms and contexts, finds applications across various sectors or industries, including healthcare, finance, and real estate, among others (Whitefield, 2024).

Since the earlier classifications were established, the field has significantly progressed beyond systems that simply classify, score, or predict. A new generation of generative AI tools, primarily based on large language model (LLM) and diffusion-model architectures, is now capable of creating new text, images, three-dimensional renderings, and narrative reports. Additionally, a developing category of agentic AI systems can autonomously plan and execute multi-step tasks with minimal human input (Blott, 2026). Industry projections indicate that generative AI alone could generate between $110 billion and $180 billion in value for the global real estate sector (Solguruz, 2026). Furthermore, nearly all real estate professionals (approximately 97 percent) now express an active interest in using AI tools, representing a significant shift from the skepticism observed just a few years prior (Homebuying Institute, 2026).

While Adejumo et al. (2024) and Sani (2022) earlier documented Nigerian estate surveyors' broad awareness of AI without corresponding structured adoption, most existing Nigerian literature predates the recent generative and agentic AI wave; this paper distinguishes itself by extending that earlier evidence base specifically to generative content tools and autonomous, multi-step agentic systems, and by foregrounding the governance and accountability questions these newer, less human-supervised systems raise for a licensed profession.

The integration of AI into the Estate Surveying and Valuation practice has revealed so many advantages, including the enhancement of human efforts in both field and office tasks, the reduction of human errors during data collection and value computation, the ability to capture and present properties in their optimal form for property agency advertising, the timely identification of maintenance needs, and the facilitation of systematic data collection, storage, and retrieval in property management, among other functions related to estate surveying and valuation. The newer generative and agentic layer further amplifies these benefits, enabling substantial automation of routine valuation narratives, marketing content, and multi-step workflows such as tenant onboarding and lease administration (Charter Global, 2026).

In Nigeria, despite several attempts by professional Estate Surveyors and Valuers to adopt AI tools in their practice, there remains comparatively little documented evidence of widespread, structured adoption. This paper reviews the integration and innovation of generative and agentic Artificial Intelligence in Estate Surveying and Valuation practice in Nigeria by assessing the various areas of practice where these newer AI tools can be adopted and by identifying the challenges, including governance and accountability concerns unique to autonomous systems, faced thereof.

Across Sub-Saharan Africa, PropTech and AI-enabled real estate platforms have begun attracting notable investor interest and infrastructural investment; in Lagos alone, more than $86 million moved through verified digital property platforms in 2025 (Startup Genome, 2026). This regional momentum provides useful context for, but does not fully explain, the pace and pattern of adoption within Nigeria's estate surveying and valuation profession specifically.

1.2 Statement of the Problem

Despite global and African evidence that generative and agentic AI are beginning to materially reshape real estate practice, empirical documentation of their adoption within Nigerian Estate Surveying and Valuation remains scarce. Sani (2022) found that Abuja-based property valuers were broadly aware of AI but had scarcely explored its application in valuation practice. More recently, Oyetunji, Alohan, and Edionwe (2026), surveying 75 registered estate surveying and valuation firms in Benin City, found that while practitioners perceive AI as capable of improving valuation accuracy and operational efficiency, adoption remains constrained by data-poverty, cost, and capacity limitations specific to the Nigerian market. Ifediora, Chukwuma, Igwenagu, Idholo, and Makata (2025) similarly report that PropTech adoption among Nigerian Estate Surveyors and Valuers continues to lag behind global and regional counterparts. None of these studies, however, examine the more recent generative and agentic AI systems that have emerged since 2024–2025, nor the distinct governance and professional-accountability questions that autonomous, minimally-supervised systems raise for a licensed profession bound by the NIESV Code of Professional Conduct. This paper addresses that empirical and conceptual gap.

1.3 Aim of the Study

This study aims to assess the integration, innovation, and governance implications of generative and agentic Artificial Intelligence within Estate Surveying and Valuation practice in Nigeria, with a view to informing practitioners, professional bodies, and regulators on pathways for responsible adoption.

1.4 Objectives of the Study

The specific objectives of this study are to: a. examine the conceptual foundations of Artificial Intelligence, Machine Learning, generative AI, and agentic AI relevant to real estate practice; b. assess the areas of Estate Surveying and Valuation practice in which generative and agentic AI technologies are currently being integrated, including valuation, customer relationship management, digital advertising, market analysis, and digital twins; c. identify the technological, institutional, legal, financial, and human-capacity challenges constraining the adoption of generative and agentic AI in Nigerian Estate Surveying and Valuation practice; d. evaluate the governance and professional-accountability implications of autonomous, agentic AI systems for licensed Estate Surveyors and Valuers in Nigeria; and e. recommend strategies for the responsible and effective adoption of generative and agentic AI within Nigerian Estate Surveying and Valuation practice.

1.5 Research Questions

In line with the specific objectives, this study addresses the following research questions: a. What are the conceptual foundations of generative and agentic Artificial Intelligence relevant to real estate practice? b. In which areas of Estate Surveying and Valuation practice are generative and agentic AI technologies currently being integrated in Nigeria? c. What technological, institutional, legal, financial, and human-capacity challenges constrain the adoption of generative and agentic AI in Nigerian Estate Surveying and Valuation practice? d. What governance and professional-accountability implications arise from the use of autonomous, agentic AI systems by licensed Estate Surveyors and Valuers in Nigeria? e. What strategies can support the responsible and effective adoption of generative and agentic AI within Nigerian Estate Surveying and Valuation practice?

1.6 Research Hypothesis

This study is a narrative review rather than a hypothesis-testing empirical study; accordingly, no research hypotheses are formulated. The study instead pursues the research questions set out in Section 1.5 through a structured review

and synthesis of the literature, as described in the Methodology (Section 3.0).

1.7 Organization of the Paper

The remainder of this paper is organized as follows. Section 2.0 reviews the literature on Artificial Intelligence, Machine Learning, generative AI, and agentic AI in real estate practice, and presents the study's theoretical framework, conceptual framework, and research gap. Section 3.0 describes the review methodology. Section 4.0 examines the integration of generative and agentic AI across specific areas of Estate Surveying and Valuation practice. Section 5.0 discusses the technological, institutional, legal, financial, and human-capacity challenges to adoption in Nigeria. Section 6.0 presents recommendations, and Section 7.0 concludes the paper, including its contributions, limitations, and directions for future research.

2.0 Literature Review

2.1 Concept of Artificial Intelligence (AI)

Definitions of AI in the literature converge on the idea of machines performing tasks that emulate human cognition, though they differ in emphasis. Adelusola (2024) foregrounds the functional side, defining AI as computer systems capable of reasoning, decision-making, problem-solving, and learning from experience, while Dimopoulos and Bakas (2019) foreground the mathematical mechanism, characterizing AI as machine intelligence that uses mathematical models to rival human capabilities in specific tasks. Read together, these definitions agree that AI is fundamentally about replicating human-like task performance, but Dimopoulos and Bakas's (2019) more technical framing is better suited to explaining how AI-driven valuation models (Section 4.2) actually function, whereas Adelusola's (2024) functional framing better supports the professional-practice discussion that follows in Sections 4.1–4.5. The primary objective of AI is to develop machines that can undertake activities typically requiring human intelligence, ranging from speech recognition and image processing to autonomous decision-making.

Given the multitude of virtual scenarios that have associated Artificial Intelligence (AI) with robotics, many individuals tend to equate AI solely with robots (Adejumo et al., 2024). However, it is important to recognize that AI encompasses a broader spectrum of applications, and in recent years, there has been a growing awareness of its relevance across various industries. AI systems commence their operations by collecting and analyzing vast datasets from diverse sources, including text, images, audio, video, and sensor data. This amassed data serves as the fundamental foundation for training AI models.

The algorithms used in AI employ a variety of methodologies, including:

a. **Supervised Learning:** This method involves training the AI with labeled data, where each instance in the training set is paired with the correct output. The model learns to correlate inputs with the corresponding outputs by systematically reducing errors.
b. **Unsupervised Learning:** In this approach, the AI is given data without explicit instructions on how to interpret it. The model seeks to identify the underlying patterns or structures within the data, such as clustering similar items.
c. **Reinforcement Learning:** This technique involves the AI acquiring knowledge through its interactions with the environment, receiving feedback in the form of rewards or penalties. The goal is to maximize the cumulative

reward over time by identifying the best actions to take in various situations.

Upon completion of training, the AI model is assessed using new, previously unseen data to evaluate its performance. Generally, AI can be defined as the concept that human intelligence is comprehended in such a way that enables technological devices to imitate humans and perform any assigned tasks, regardless of their simplicity or complexity (Adejumo, et al., 2024). Recently, the field has progressed even further, evolving from systems that classify and predict to generative systems that create new content and agentic systems that autonomously plan and execute multi-step tasks (Blott, 2026)

The integration of Artificial Intelligence (AI) with human efforts in logical reasoning and expertise has been pursued since the 1990s (Moshkovich, Gomes, and Mechitov, 2011). Over the years, the lack of availability and the inadequacies of data sources from vulnerable markets, where uncertainties are common, have underscored the necessity for a swift transformation in the handling of statistical data analysis within the real estate industry. AI proves beneficial in this context for real estate professionals, enhancing productivity, optimizing processes, and improving user experiences. This has resulted in the creation of updated AI property valuation models, including Automated Valuation Models (AVM) and Automated Property Valuation (APV), as well as, more recently, generative assistants built upon these frameworks.

2.2 Machine Learning (ML) as an AI Integration Process

Machine Learning (ML), as noted by Adelusola (2024), is a specific subset of AI that concentrates on empowering machines to learn from data. In contrast to conventional software programs that depend on explicit programming for each individual task, ML systems are engineered to autonomously identify patterns from extensive datasets and processes, thereby enhancing their performance over time. This characteristic renders ML particularly effective in scenarios where intricate patterns or relationships need to be uncovered from substantial volumes of data. A notable application of ML within real estate practice is found in the analysis of the Hedonic Pricing Model (HPM), which assesses the price value of assets through regression analysis (Chan and Abidoye, 2019). Regression analysis can manifest as simple regression, which involves one dependent and one independent variable, such as property price and location or neighborhood characteristics, distance, or pollution levels, or it can take a more complex form with one dependent variable and multiple independent variables; the latter is deemed more reliable for ascertaining real estate values as it incorporates a broader range of real estate attributes.

According to Investa (2021), AI is generally classified into two categories: Narrow (or weak) AI and Artificial General Intelligence (AGI), also referred to as strong AI. However, AI can be defined by four fundamental approaches:

a. Thinking humanly
b. Thinking rationally
c. Acting humanly
d. Acting rationally

The first two approaches centre around thought processes and reasoning; the latter two focus on behaviour.

These two classification schemes are not competing but complementary: Investa's (2021) narrow/general distinction describes the scope of a system's competence, while the four approaches above describe the design objective pursued within that scope. Read together, narrow (weak) AI systems, including the machine learning and automated valuation tools discussed later in this paper, are almost universally designed to the "acting rationally"

standard, optimizing a specific task's output rather than replicating human thought processes; Artificial General Intelligence (AGI), by contrast, aspires to the more demanding "thinking humanly" and "acting humanly" standards across an open-ended range of tasks. This distinction matters for the argument that follows: the generative and agentic AI tools examined later in this paper (Sections 2.3 and 2.4) remain narrow, rational-acting systems however sophisticated, and the professional-accountability questions raised in Section 5.0 concern the deployment of task-bounded rational agents, not any movement toward AGI.

Narrow or Weak AI

This type of AI functions within specific constraints and simulates human intelligence. It typically excels at performing a single, well-defined task. Much of narrow AI is driven by machine learning and deep learning techniques. This form of AI can frequently surpass human performance in particular niche tasks, especially those that depend on historical data and knowledge. Examples of narrow AI encompass widely utilized technologies such as Google Search, Siri, Alexa, self-driving vehicles, chatbots, translation services, and social media recommendations, with IBM's Watson being a notable early example.

Artificial General Intelligence (AGI) or Strong AI

Artificial General Intelligence refers to the development of machines that possess human-like intelligence applicable across various tasks. Its goal is to emulate the cognitive functions of the human brain. When faced with an unfamiliar task, a strong AI system should be capable of leveraging knowledge from different domains or tasks to autonomously devise a solution. Strong AI systems are generally more complex and often feature in science fiction narratives; where they are implemented, they are primarily found in robotics, which has not yet seen widespread adoption in many business sectors, including real estate, although emerging 'physical AI' robotic systems are starting to make their presence felt in property construction and inspection (The Site, 2026).

2.3 Generative Artificial Intelligence and Large Language Models in Real Estate Practice

While previous AI applications in the real estate sector primarily focused on predictive or classificatory tasks, a significant investment of $2.9 billion is anticipated by 2030 (Innovative AI Solutions, 2026).

General-purpose LLM-based assistants, such as ChatGPT, Gemini, and Claude, have emerged as the most prevalent AI tools utilized by real estate professionals; according to the National Association of Realtors' 2025 membership survey, ChatGPT was identified as the most frequently used AI tool, with 58 percent of respondents reporting its adoption (NAR, 2025, in Instinctools, 2026). In estate surveying and valuation, specialized generative tools have begun to surface. For example, CanaryAI has been recognized as one of the pioneering generative AI assistants specifically tailored for property valuation and forecasting, integrating natural-language interaction and narrative report generation with the outputs of underlying Automated Valuation Models (Discount Property Investor, 2026). Beyond valuation, a new wave driven by generative Artificial Intelligence has emerged. Generative AI encompasses models, typically based on large language model (LLM) or diffusion-model architectures, that create new content, including text, images, three-dimensional renderings, or code, rather than merely classifying or scoring existing data. Three market-size estimates for generative AI in real estate, cumulative investment reaching $2.9 billion by 2030 (Innovative AI Solutions, 2026), a global value-creation potential of $110-180 billion (Solguruz, 2026), and a generative AI real estate software market of $0.77 billion in 2025 growing at

roughly 30 percent annually, measure different things rather than competing with one another: the first tracks capital flowing into the sector, the second estimates the total economic value generative AI could unlock across real estate transactions and operations, and the third sizes the software market specifically built to deliver those tools. Read together, they converge on the same underlying story: generative AI is moving from a niche capability to a significant and fast-growing segment of real estate technology spend, with the software market's roughly 30 percent CAGR outpacing most other PropTech categories. Generative AI is now employed to draft property descriptions and marketing materials, reconstruct immersive three-dimensional walkthroughs from standard photographs using platforms like Matterport and Zillow 3D Home, visualize potential renovations, and enhance image classification and explainability in valuation reports (Solguruz, 2026; GrowthFactor.ai, 2026).

2.4 Agentic AI: From Automation to Autonomous Workflows

A significant distinction that has emerged in contemporary discussions is the differentiation between generative AI, which reacts to specific prompts, and agentic AI, which autonomously pursues a defined objective through multiple steps with minimal human oversight (Blott, 2026). Agentic systems are capable of managing workflows such as tenant onboarding, lease negotiations, maintenance scheduling, deal-pipeline triage, and portfolio-level market analysis, primarily consulting a human principal for the approval of high-value or high-risk decisions (Homebuying Institute, 2026; Charter Global, 2026). In their Emerging Trends in Real Estate 2026 report, PwC and the Urban Land Institute characterize the industry as navigating a 'two-speed' AI landscape: content-generating tools have become firmly established in the mainstream, while continuously operating, autonomous agentic systems represent the cutting edge that is just beginning to penetrate the wider market (Discount Property Investor, 2026).

Analysts anticipate that agentic AI may achieve mainstream status in real estate between 2026 and 2027, potentially automating up to 70 percent of the tasks currently undertaken by junior real estate and valuation personnel (Blott, 2026). This shift has not been without its controversies: commercial real estate stocks reportedly experienced a decline of tens of billions of dollars in value in February 2026 due to investor apprehensions regarding AI-driven disintermediation of traditional real estate advisory roles (Blott, 2026). Importantly, even staunch advocates of agentic AI in real estate warn that these systems are reliant on the quality of the data upon which they are constructed; when the underlying property, market, and transactional data is incomplete or inadequately governed, an autonomous agent will operate at scale on flawed information, a risk that is particularly significant in data-scarce environments like Nigeria (Innovative AI Solutions, 2026).

2.5 Theoretical Framework

This study is underpinned by the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh, Morris, Davis, and Davis, 2003), which explains technology adoption through four core constructs: performance expectancy, effort expectancy, social influence, and facilitating conditions. Performance expectancy, the degree to which a technology is believed to improve job performance, is reflected in the efficiency and accuracy gains reported for AI-driven valuation and market analysis tools discussed in Sections 4.2 and 4.4. Effort expectancy, the perceived ease of use of a technology, bears directly on the skills shortage identified in Section 5.0, which constrains

Nigerian practitioners' willingness to adopt generative and agentic tools regardless of their demonstrated benefits. Social influence, the degree to which practitioners perceive that important others (professional bodies, peers, clients) expect them to adopt a technology, is relevant to the muted response of NIESV and ESVARBON to AI trends noted in Section 4.5, which weakens the professional-normative pressure to adopt. Facilitating conditions, the organizational and technical infrastructure that supports use, map onto the infrastructure, connectivity, and data-readiness barriers detailed in Section 5.0. UTAUT therefore offers a coherent lens for interpreting why Nigerian Estate Surveyors and Valuers report awareness of AI's benefits (Sani, 2022; Oyetunji, Alohan, and Edionwe, 2026) without a corresponding level of structured adoption, and it is used in this paper to organize the discussion of challenges and recommendations in Sections 5.0 and 6.0 around these four constructs.

2.6 Conceptual Framework

Building on the theoretical framework above, this paper proposes a conceptual model linking three sets of variables: (i) Antecedent Conditions, comprising infrastructure quality, data readiness, practitioner skills, and professional-body posture (drawing on the UTAUT facilitating-conditions and social-influence constructs); (ii) AI Technology Layers, comprising foundational AI/ML techniques, generative AI/LLM tools, and agentic (autonomous, multi-step) systems, applied across the practice areas of valuation, CRM, digital advertising, market analysis, and digital twins; and (iii) Practice Outcomes, comprising efficiency, accuracy, transparency, and client satisfaction gains, moderated by governance and accountability mechanisms (human-in-the-loop review, data governance, and regulatory clarity) that determine whether technology-layer gains translate into sustainable, professionally-accountable outcomes. In this model, antecedent conditions determine the depth and safety of AI-technology-layer adoption, while the governance-and-accountability moderator determines whether that adoption translates into responsible practice outcomes rather than unmanaged risk. This framework, illustrated in Figure 2, is used to structure the discussion of applications (Section 4.0), challenges (Section 5.0), and recommendations (Section 6.0).

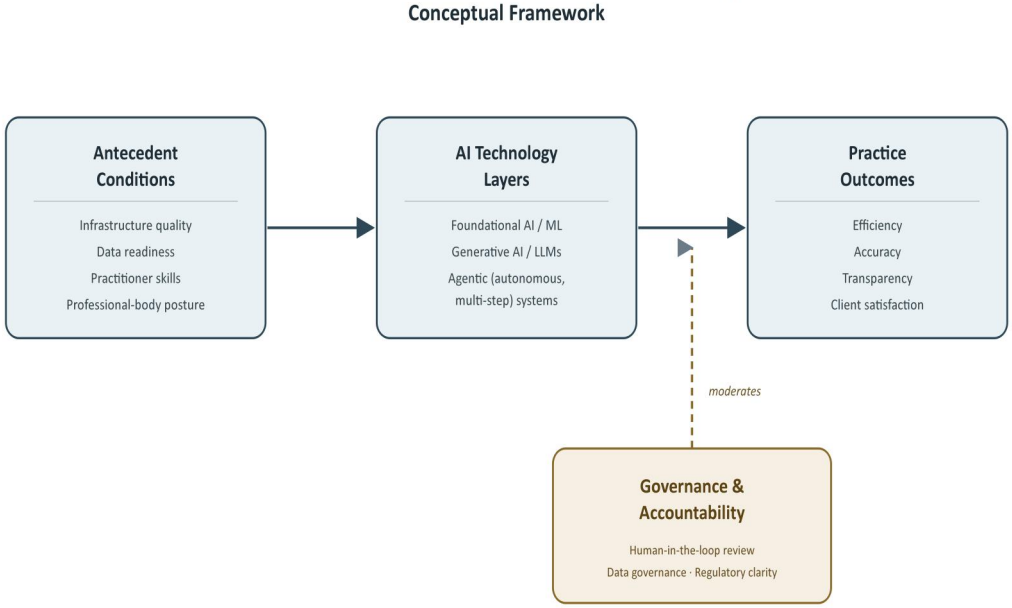


Fig. 1: Conceptual Framework
Source: *Researchers' Illustration*

2.7 Research Gap

The literature reviewed in Sections 2.1–2.4 establishes that (i) AI adoption in real estate is well documented globally, with generative and agentic AI now moving from early experimentation into established use in developed markets (Blott, 2026; Charter Global, 2026); and (ii) Nigerian-specific studies (Sani, 2022; Adejumo et al., 2024; Oyetunji, Alohan, and Edionwe, 2026; Ifediora et al., 2025) consistently report awareness without structured adoption, constrained chiefly by infrastructure, cost, data, and skills barriers. However, none of the Nigerian-specific studies examine generative and agentic AI as distinct from earlier, narrower AI/ML applications, and none address the governance and professional-accountability questions raised specifically by autonomous, minimally-supervised agentic systems operating within a licensed profession. This paper addresses that gap by providing an updated, Nigeria-focused review that treats generative and agentic AI as a distinct technological layer and explicitly foregrounds governance and accountability alongside the more familiar infrastructure and capacity barriers.

3.0 Methodology

This paper adopts a narrative review methodology, appropriate for synthesizing a rapidly evolving, cross-disciplinary body of literature and industry evidence where the aim is conceptual and thematic integration rather than exhaustive, protocol-driven coverage of the kind expected of a systematic or scoping review. Sources were identified through searches of Google Scholar, ResearchGate, Emerald, ScienceDirect, and MDPI, using search terms including "generative AI real estate", "agentic AI property", "AI adoption Nigeria estate surveying", "automated valuation model", "PropTech Nigeria", and "AI real estate governance", supplemented by industry and professional-body reports (including PwC, Microsoft and Lagos Business School, 2025) where peer-reviewed coverage of fast-moving generative and agentic AI developments was not yet available. The review prioritized sources published between 2019 and the first half of 2026, with earlier foundational sources (e.g., Venkatesh et al., 2003) included where they underpin the theoretical framework. Sources were included where they addressed AI, machine learning, generative AI, agentic AI, or PropTech in the context of real estate, valuation, or property/facilities management, with priority given to peer-reviewed journal articles and conference proceedings; industry and commercial sources were retained only where they provided the most current data on fast-moving generative and agentic AI developments not yet reflected in peer-reviewed literature.

4.0 AI Technologies Integration in Real Estate Practice

AI is a system developed to extract and analyze large data sets to determine the best actions for achieving specific goals, particularly in real estate practices. Certain AI platforms, like Homebot, have used these techniques to create daily contact lists for agents, thereby enhancing engagement with the most promising prospects based on data stored in a Customer Relationship Management (CRM) system, among other sources. Also, there are AI-driven digital marketing platforms that use property advertising to effectively target and convert leads for real estate professionals, providing services that encompass events, training, and various other products.

4.1 AI Integration and Innovation in Customer Relationship Management (CRM)

This integration of AI aids loan officers and real estate agents in identifying property owners and sellers who are likely to engage in transactions in the near future, allowing them to maintain communication with potential investors and facilitate informed decision-making regarding significant financial commitments. Due to its

training, AI technology processes large amounts of information, typically gathered from diverse channels, and organizes it in a way that improves searchability compared to traditional search methods and manual assessments. These platforms merge CRM data with market information, offering agents predictive insights for appraisal leads by utilizing relationship data, social metrics, listing trends, stock variations, and overall market activity related to a property. Furthermore, the system enables machines to use feedback for self-enhancement; Artificial Intelligence can improve the customer experience for investors by adjusting to their property preferences. Rather than waiting for investors to start searches, a machine could proactively identify suitable properties, similar to how Amazon suggests books and how 'recommended' content appears in social media feeds.

Personal AI systems, including Siri and Google Assistant, can effectively integrate with Agent AI platforms like RiTA to facilitate the scheduling of property viewing appointments. These digital agents are capable of exchanging information in various languages and can be connected to CRM data, enabling agents to provide a highly personalized and relevant experience during open house events. EliseAI's platform includes an AI assistant tailored for property managers, allowing them to engage with both prospective tenants and current residents through various communication channels such as email, text, web chat, and phone calls. This assistant can handle tasks such as responding to inquiries, organizing property tours, and overseeing maintenance requests.

The aforementioned CRM layer is progressively being restructured around agentic orchestration, where a singular autonomous system manages lead follow-up, appointment scheduling, and personalized communication across multiple channels, rather than simply providing recommendations for human agents to implement (Charter Global, 2026). Companies utilizing generative AI for lead generation and follow-up have reported increases in lead volume of up to 300 percent, along with conversion rate improvements of approximately 40 percent (Homebuying Institute, 2026).

In the Nigerian context specifically, Oyetunji, Alohan, and Edionwe (2026) found that estate surveying and valuation firms in Benin City perceived AI-enabled tools, including CRM-adjacent applications, as capable of enhancing customer service experience and reducing fraud in property transactions, even though structured CRM-AI integration of the kind described above remains largely at an exploratory stage locally.

These accuracy gains, however, are contingent on the depth and quality of the underlying data, a condition rarely met in data-poor markets such as Nigeria. Oyetunji, Alohan, and Edionwe (2026) note that Nigerian estate surveying and valuation firms operate within a market characterized by limited public transaction records, inconsistent title documentation, and fragmented listing data, all of which constrain the reliability of AVM outputs relative to the developed-market benchmarks reported above. In practice, this means AVMs deployed in Nigeria typically require substantially more manual data curation and local calibration before they can approach the 2.8 percent error rates reported in mature markets, and their outputs are best treated as a decision-support input to, rather than a replacement for, professional valuation judgement, particularly for the comparable-sales-scarce and title-uncertain property types common in much of the Nigerian market.

4.2 AI Integration and Innovation in Valuation (Automated Property Valuation (APV))

While property valuation may appear straightforward (Adejumo et al., 2024), it faces

real challenges, including market volatility, inconsistent data availability, human error, and conflicts of interest, any of which can produce inaccurate or misleading valuations. Also, compliance issues, criteria for categorizing specialized properties, extensive paperwork, and economic factors such as inflation and market fluctuations, particularly in an unstable economy like Nigeria, further complicate the process. To mitigate these challenges, the integration of AI in property valuation, as well as in all facets of estate surveying and valuation practices, is crucial.

The application of AI in property valuation encompasses the use of machine learning and automated valuation models, facilitating the analysis of extensive datasets to derive precise and realistic property values (Mwanpanga, 2024, in Adejumo, et al., 2024). As noted by Kurby (2023), the integration of AI models within estate surveying and valuation practices results in a quicker, more economical, and less time-intensive process, while simultaneously minimizing the likelihood of human errors and compliance challenges, thereby enhancing client satisfaction. The implementation of AI in estate surveying and valuation has become standard practice in developed nations and in certain developing countries with relatively stable economies.

The conventional valuation method tends to be subjective, labour-intensive, and susceptible to human error. According to Adejumo et al. (2024), the introduction of the Automated Property Valuation (APV) method has improved the property valuation process, yielding superior results and seemingly providing property owners, managers, and other real estate professionals with more precise valuation outcomes. This method allows for the analysis of substantial amounts of recent and historical data through AI-driven algorithms and machine learning models to conduct property assessments, which include, among other factors, location analysis, market trends, and comparative property transactions. The Automated Valuation Model (AVM) is recognized as the first AI valuation tool capable of being replicated on a large scale for this purpose. It is a computational algorithm designed to ascertain property values; by aggregating information from various sources, such as public records, real estate listings, and recent comparable sales data, it evaluates and determines a property's estimated worth (Patel, 2024). AVMs combine human expertise with data inputs to anticipate trends, project market fluctuations, and assess risks in value determination, thereby conserving time, costs, and other resources.

Recent estimates indicate that AI-driven valuation models now achieve error rates as low as 2.8 percent, a significant improvement from the 10 to 15 percent range observed five years ago. This advancement is attributed to enhancements in the foundational machine learning algorithms, such as Random Forest and XGBoost, as well as the expanded array of data sources that Automated Valuation Models (AVMs) can now analyze, including Multiple Listing Service records, public tax data, foot-traffic analytics, and macroeconomic indicators (Homebuying Institute, 2026; GrowthFactor.ai, 2026). Furthermore, Generative AI is increasingly being integrated with these AVMs to convert numerical outputs into narrative valuation reports and to enhance the interpretability of otherwise opaque, 'black box' model results (GrowthFactor.ai, 2026). This integration addresses one of the most enduring professional criticisms of algorithmic valuation. The incorporation of AI and innovation within property valuation practices can streamline and enhance the process in various ways, improving efficiency, transparency, and accuracy, while also facilitating data collection and reporting (Yarotska, 2024).

4.3 AI Integration and Innovation in Digital Advertising

As noted by Odoh (2024), Nigeria's real estate market is highly fragmented and faces challenges such as persistent traffic congestion, poor road conditions, and security concerns, which deter potential buyers or renters from viewing properties prior to finalizing a deal. This situation has significantly impeded realtors' ability to showcase their lands and properties to prospective buyers and investors for potential sales and leasing transactions. The current and future clientele of the property market predominantly consists of the Generation Z demographic, often referred to as digital natives (Rahilly, 2020), who favour accessing products through virtual communication and connection methods. Therefore, mobile technologies are being increasingly utilized in the marketing of real estate.

AI-driven Technologies in Real Estate Advertising

According to Li (2019), the integration of AI into advertising is referred to as 'Intelligent Advertising', which is a consumer-focused approach that utilizes big data and algorithms to promote a brand's products and services. This indicates that AI is capable of creating advertisements tailored to specific customers and assessing their effectiveness. Furthermore, AI and machine learning (ML) can employ predictive learning algorithms to evaluate customer preferences over time, based on their online activities, thereby providing more personalized advertisements through access to consumer data (Odoh, 2024), facilitating easier access to target audiences. Generative AI takes this a step further by creating listing descriptions and marketing content directly from property data and images, reducing tasks that previously required hours to mere minutes (Solguruz, 2026).

a. **Advertising with ML:** Machine learning analyzes extensive data regarding customer opinions and recommendations shared on social media platforms, displaying them on friends' profile pages and leveraging the concept of 'groupthink', as seen on TikTok, Instagram, Facebook, and YouTube (Komakech, Liu, Omo, and Basua, 2021), where 360-degree views of products can be presented in captivating ways. However, this raises certain privacy and security issues.

b. **Advertising with 3D:** Three-dimensional (3D) visualization or rendering offers an interactive, virtual graphical representation of a physical object through 3D software. Virtual 3D images can be uploaded to websites and accessed via smartphones. This technology is increasingly utilized in digital advertising to provide customers with a realistic preview of a product prior to purchase or rental. In the real estate sector, it enhances marketing efforts for builders and realtors by allowing potential buyers to experience a 3D representation of upcoming or completed properties (Odoh, 2024). Customers can customize properties by adding or removing features according to their preferences and view corresponding price estimates for each selection, while the platform owner gathers usage data for analysis and future targeting (Zhang and Patil, 2019; Van Kerrebroeck, Brengman, and Willems, 2017). Generative AI tools now facilitate much of this reconstruction directly from standard photographs, as demonstrated by platforms like Matterport and Zillow 3D Home (Solguruz, 2026); customers can also simulate virtual inspections of the properties they wish to buy or rent.

c. **Advertising with VR and AR:** Virtual Reality (VR) serves as another AI tool

that has effectively bridged the gap of time and distance for potential buyers or renters of properties in Nigeria. VR tools can provide consumers with a comprehensive tour of a property that closely mimics a physical inspection, allowing them to visualize and hear the environment in real time, thus creating a realistic experience (Van Kerrebroeck, Brengman and Willems, 2017). Augmented Reality (AR) enhances real objects by overlaying virtual content, although it does not permit users to fully interact with a 3D environment. While VR delivers a superior customer experience, it necessitates VR headsets that are not widely accessible in many developing nations, including Nigeria. AR is favored for enhancing classified advertisements in real estate marketing and can be easily utilized with a smartphone (Naeem, Rana and Nasir, 2023).

Despite the availability of these various digital advertising channels, many developing countries, such as Nigeria, still encounter difficulties in adopting them within their estate surveying and valuation practices.

4.4 AI Integration and Innovation in Real Estate Market Analysis and Forecasting

AI and ML can also be used in estate surveying and valuation practices in areas related to market analysis, including real estate agency, real estate transactions, property management and maintenance, and smart home integration (Adelusola, 2024):

a. **AI in Estate Agency:** AI technologies are capable of processing and analyzing extensive market data, including property sales history, economic indicators, and local market conditions, to predict market trends and rental yields. This assists property investors in their decision-making by utilizing predictive analytics driven by machine learning, which identifies potential investment opportunities through the examination of market patterns.
b. **Conversational and Agentic AI in Real Estate Transactions:** AI-driven chatbots and virtual assistants, such as ChatGPT, Perplexity, and Gemini, have transformed customer service within the real estate industry. They address inquiries, offer property suggestions, arrange viewings, and assist clients throughout the buying or renting journey. Unlike earlier chatbots that merely responded to single prompts, the latest generation of agentic assistants can guide clients through complex transactions, managing document verification, viewing schedules, and follow-up communications with minimal human intervention (Blott, 2026). This advancement enables real estate professionals to concentrate on more valuable interactions.
c. **AI in Property Management and Maintenance:** AI and machine learning have significantly improved property management practices by developing maintenance schedules and forecasting maintenance needs. AI-driven systems monitor building infrastructures, such as HVAC, plumbing, and electrical systems, to identify potential issues before they escalate into expensive problems. These tools analyze data from sensors and historical maintenance records to anticipate system failures, allowing property managers to conduct proactive maintenance, thus minimizing downtime, repair expenses, and tenant disruption.
d. **Smart Homes and IoT Integration:** The combination of artificial intelligence (AI) and the Internet of Things (IoT) has resulted in the rise of smart homes,

which are increasingly appealing in the real estate sector. Homeowners can remotely manage devices such as AI-enhanced thermostats, lighting, and security systems, leading to greater convenience and improved energy efficiency. Real estate developers are incorporating these intelligent technologies into new constructions to attract tech-oriented buyers who value automation and sustainability. Furthermore, AI-enabled smart home solutions can enhance property security, reduce energy consumption, and improve the overall living experience for residents.

The predictive analytics capabilities described above raise ethical questions that the literature on AI in real estate has only recently begun to address. Algorithms trained on historical market and transaction data can inadvertently encode and perpetuate existing patterns of neighbourhood-level disinvestment or valuation disparity, a risk documented in developed-market algorithmic-bias research and plausibly transferable to Nigerian contexts where historical property data is itself uneven across regions and property classes. The 'black box' nature of many machine learning models compounds this concern: where a predictive model's investment recommendation or market forecast cannot be explained in terms a client or regulator can interrogate, practitioners relying on such outputs may struggle to justify their professional advice or demonstrate compliance with fiduciary and disclosure obligations. Explainable AI (XAI) approaches, and the narrative-report generation capabilities noted in Section 4.2, offer a partial technical response, but responsibility for interpreting and standing behind a model's output ultimately rests with the licensed Estate Surveyor and Valuer, reinforcing the human-in-the-loop governance position advanced in Recommendation (i) of Section 6.0.

4.5 Digital Twins and Predictive Property Intelligence

Digital twins, which are virtual representations of physical assets that are continuously updated with real-time sensor data, are becoming an additional layer of AI integration pertinent to property valuation and management. Merging IoT sensor data regarding energy performance, occupancy, and building conditions with AI-based analytics, digital twins facilitate near real-time valuations that adapt dynamically to fluctuating market and building conditions. This shift moves valuation practices from periodic assessments to continuously updated digital property intelligence (GrowthFactor.ai, 2026). Also, 'Physical AI', which includes robotic systems utilized in construction and building inspections, is emerging as a complementary frontier, extending automation from data analysis into the physical processes that inform property condition evaluations (The Site, 2026). According to Sani (2022), property valuers recognize the existence of Artificial Intelligence (AI), yet there is limited exploration into its application in valuation and other facets of real estate practice. The poor adoption of AI approaches in real estate practice in Nigeria can partly be attributed to the response of professional bodies, such as the Nigerian Institution of Estate Surveyors and Valuers (NIESV) and the Estate Surveyors and Valuers Registration Board of Nigeria (ESVARBON), to current trends in the technical field. Therefore, there remains a need to look further into integrating generative and agentic AI into estate surveying and valuation practice, alongside the professional governance structures needed to support it.

Beyond the conceptual promise outlined above, implementing digital twins in the Nigerian property context carries specific practical

requirements. A functioning digital twin depends on a continuous stream of IoT sensor data (energy meters, occupancy sensors, structural monitors) feeding into a cloud-hosted or on-premises analytics platform, which in turn presupposes reliable power and broadband infrastructure; intermittent connectivity risks producing stale or gapped twins that misrepresent current building conditions rather than the real-time picture the technology promises. For Nigerian property managers, the most immediately practical entry point is likely to be facilities-management-focused digital twins for large, professionally managed commercial assets (shopping centres, office towers, purpose-built convention or conference facilities) where sensor retrofitting costs can be justified by measurable maintenance and energy savings, rather than residential-scale deployment, which remains cost-prohibitive for the great majority of the Nigerian housing stock in the near term.

5.0 Challenges Associated with AI Integration and Innovation in Estate Surveying and Valuation in Nigeria

In 2025, a joint publication by PwC, Microsoft, and Lagos Business School provided an extensive overview of the challenges associated with the adoption of AI in Nigeria, particularly in relation to the estate surveying and valuation sector. Artificial Intelligence (AI) presents a multitude of new opportunities alongside significant challenges. The benefits of AI are evident in the increasing utilization of AI technologies, the surge in investments in AI start-ups, and the positive outcomes observed by organizations that have integrated AI into their operations. Despite AI's potential to revolutionize various facets of daily life, Nigeria, especially within the estate surveying and valuation field, encounters unique hurdles that must be addressed to enhance its AI capabilities. The emergence of generative and agentic AI has, in fact, intensified some of these challenges while also introducing additional ones. The following sections illustrate and discuss these difficulties.

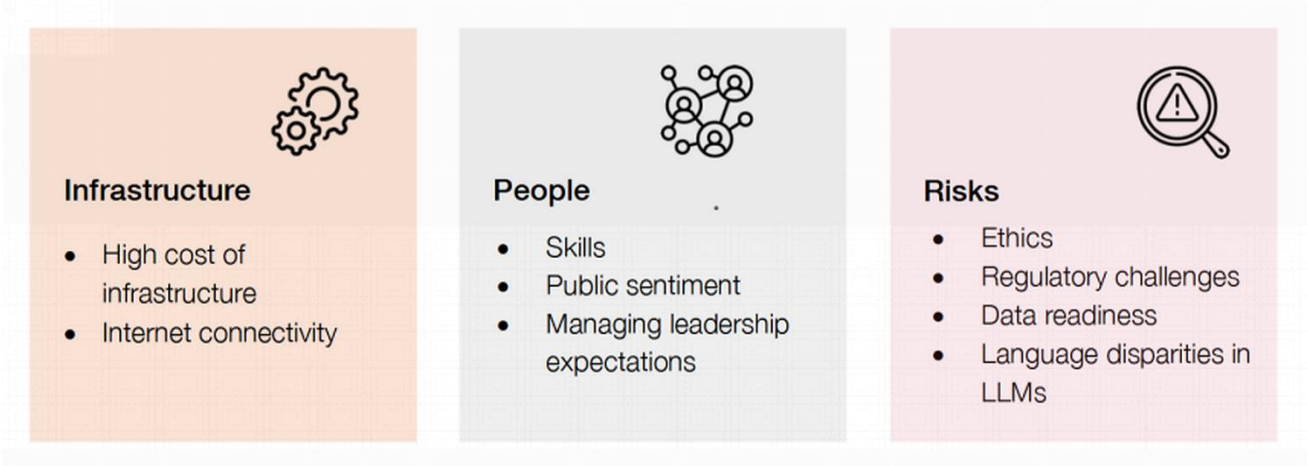


Fig. 2: Challenges of Adopting AI in Nigeria
Source: *PwC, Microsoft and Lagos Business School (2025)*

5.1 Financial

The High Cost of AI Infrastructure: The adoption of artificial intelligence necessitates a substantial financial commitment towards both computational hardware and data storage systems. High-performance Graphics Processing Units (GPUs) are crucial for training sophisticated AI models and executing the larger frameworks that support generative and agentic tools, as they deliver the computational

capacity required to analyze extensive datasets and conduct complex calculations. The high expense of these GPUs poses a challenge for numerous organizations, particularly in developing regions such as Nigeria. Furthermore, the need for comprehensive storage solutions to accommodate the vast quantities of data essential for AI applications exacerbates the financial burden. These economic obstacles may hinder the broad implementation of AI in Nigeria, as many entities could find it challenging to obtain the necessary resources for effective deployment and maintenance of AI technologies.

5.2 Technological

a. Internet Connectivity: Nigeria has made notable advancements in broadband connectivity since this issue was initially highlighted. As of April 2026, the Nigerian Communications Commission (NCC) reported that the nation had achieved 154.72 million internet subscriptions and a broadband penetration rate of 55.67 percent, an increase from 48.81 percent just a year prior, with monthly data consumption reaching approximately 1.4 million terabytes, partly fueled by the rising use of AI-enabled applications (PM News, 2026; Brandspur, 2026). However, the fixed, high-capacity connectivity that is typically required for data-intensive generative and agentic AI workloads remains limited: the country had only around 265,000 active Fibre-to-the-Home (FTTH) subscriptions as of mid-2026, and infrastructure vandalism, with over 27,000 fibre cuts documented in 2025 alone, continues to disrupt services (Broadcast Media Africa, 2026). These deficiencies particularly impact rural and peri-urban regions where much of Nigeria's land is situated, restricting the reliable deployment of cloud-hosted generative and agentic AI tools across the entire geographic area of Estate Surveying and Valuation.

b. Linguistic Disparities in LLMs: Most Large Language Models (LLMs) are predominantly trained on English-language data, leading to inconsistent performance across different languages, socio-cultural contexts, and application areas. There may be a necessity to adapt to the specific terminology of a particular profession and region, as exemplified by the estate surveying and valuation practice in Nigeria.

c. Data Readiness: AI systems depend significantly on high-quality data for effective operation; however, so many organizations in Nigeria, including those in the estate surveying and valuation sector, face challenges with incomplete, outdated, unstructured, or inaccurate data, or even data sourced from other countries, which can lead to biased models when applied in a local context. Poor data quality can result in unreliable AI models, yielding flawed insights and decisions.

In essence, these challenges manifest at various dimensions and levels within the estate surveying and valuation practice in Nigeria, especially as a developing nation with a vulnerable and fluctuating socio-economic environment. Addressing these issues requires focused efforts to improve the integration and innovation of generative and agentic AI within the real estate profession in Nigeria.

5.3 Human Capacity

Skills: A significant obstacle to the adoption of AI in Nigeria is the lack of skilled professionals capable of navigating its technical intricacies. The integration and innovation of AI systems, including the latest generative and agentic tools, necessitate expertise in fields such as machine learning algorithms, data engineering, prompt and workflow design, and model optimization, which are skills that are currently scarce in the local market. This shortage is exacerbated by the emigration of trained professionals, resulting in a talent deficit, while emerging professionals

struggle to find quality training resources and opportunities.

5.4 Institutional

i. Public Sentiment and Trust: It may be argued that prioritizing AI adoption in Nigeria is unwarranted, considering the more urgent challenges in managing business operations. Nevertheless, the significant advantages offered by AI cannot be ignored in today's environment, where speed, accuracy, and adaptability are crucial competitive edges in product and service delivery, including in the field of estate surveying and valuation. The emergence of agentic AI has intensified concerns regarding the potential disintermediation of professional advisory roles; for instance, commercial real estate stocks reportedly experienced a loss of tens of billions of dollars in value in February 2026 due to investor apprehension over AI-induced displacement of traditional advisory functions (Blott, 2026). This sentiment is likely to resonate with Nigerian practitioners as awareness of agentic tools increases.

ii. Managing Leadership Expectations: The implementation of AI necessitates considerable data input and time for development and model updates, which can pose challenges for business leaders who seek immediate results from operational activities. This situation may lead to friction regarding budget approvals, as executives may exhibit impatience and anticipate rapid returns on their investments.

5.5 Legal

a. Ethics and Governance: A significant ethical issue in the establishment and execution of AI systems is the potential for human error and bias, which can lead to performance discrepancies. It is essential to ensure transparency in AI decision-making processes, along with safeguarding data protection and privacy, as this allows stakeholders to comprehend how AI-generated conclusions are formulated, thereby fostering trust and accountability. This principle is upheld in Nigeria through the Nigeria Data Protection Regulation (NDPR).

b. Regulatory Challenges: The AI landscape in Nigeria is marked by a deficiency of comprehensive regulation, which exposes society to potential misuse risks. Currently, AI regulation is dispersed among various regulatory entities, resulting in confusion, redundancy, and a lack of coherence.

c. Governance and Accountability for Autonomous (Agentic) Systems: The transition from generative to agentic AI presents a unique governance challenge. Unlike a chatbot that merely responds to a single prompt, an autonomous agent is capable of executing a series of actions, such as modifying a listing price, generating a valuation narrative, or approving a maintenance work order, all with minimal real-time human oversight. Since agentic systems are unable to obtain a professional license, assume fiduciary duties, or be held accountable under the NIESV Code of Professional Conduct in the same manner as a registered Estate Surveyor and Valuer, issues surrounding accountability, liability, and professional endorsement for AI-generated valuation opinions remain largely unaddressed within the Nigerian regulatory landscape (Instinctools, 2026). Furthermore, industry-wide surveys indicate that only approximately 25% of real estate firms currently identify as 'AI leaders', in contrast to about 40% in other sectors. This disparity is often attributed more to organizational risk aversion and the lack of governance frameworks for autonomous decision-making than to the technology itself (Innovative AI Solutions, 2026).

6.0 Recommendations

Artificial Intelligence (AI), encompassing both its generative and agentic forms as well as earlier machine learning applications, has the potential to significantly enhance performance and service delivery among Estate Surveying

and Valuation professionals in Nigeria. The following are recommended strategies to achieve and maximize this potential:

1. **Tailoring AI Tools for Local Application:** In response to the data-readiness and infrastructure-cost challenges identified in Section 5.0, AI software, including generative and agentic tools, can be developed or adapted in a way that aligns with the unique characteristics of the Nigerian real estate market. This should take into account factors such as ease of integration, scalability, cost, and customer feedback, thereby ensuring a closer match to client preferences.
2. **Using Virtual Tours and Staging:** To address the public trust and client-experience concerns noted in Section 5.0, the integration of virtual property tours and generative virtual-staging technologies into real estate practices in Nigeria is essential for enhancing client experiences and minimizing the necessity for physical site visits.
3. **Engaging Necessary Expertise for AI Integration:** In response to the skills shortage identified in Section 5.0, different AI tools cater should specific areas of practice. It is crucial to exercise diligence and employ the best expertise to identify and implement the most suitable AI tool for each specific practice. Firms lacking in-house AI expertise should consider hiring external specialists.
4. **Careful Data Collection and Utilization:** Artificial Intelligence, through machine learning and its foundational protocols, is heavily dependent on data; thus, in response to the data-readiness challenge identified in Section 5.0, it is essential to meticulously gather and organize relevant information regarding properties, market trends, and customer data, ensuring that the information is accurate, well-structured, and organized for algorithms, including autonomous agents, to interpret effectively.
5. **Tailoring AI for Different Aspects of Real Estate Operations:** This entails, for example, the implementation of AI systems that monitor leases, tenant inquiries, and compliance with regulations to enhance property management and maintenance, as well as employing AI to assess various factors influencing property values for more accurate asset valuation and forecasting. This addresses the data-readiness and skills challenges identified in Section 5.0
6. **Streamlining Due Diligence Procedures:** In response to the ethics and governance concerns identified in Section 5.0, AI should be utilized to verify documents and identify discrepancies in contracts and financial records, thereby minimizing errors and fraud during real estate transactions.
7. **Assessing and Monitoring AI Effectiveness:** To help manage the leadership-expectations challenge identified in Section 5.0, it is crucial to allow for the assessment and monitoring of AI integration, evaluating its effects on real estate practices through metrics such as cost reductions, efficiency gains, customer satisfaction, and return on investment. This is vital for future enhancements, modifications, and improvements in AI implementation, processes, and decision-making.
8. **Investing in Ongoing AI Training:** In response to the skills shortage identified in Section 5.0**,** **i**t is essential for Professional Estate Surveyors and Valuers, along with their staff, to stay

updated on advancements in AI and trends resulting from the swift evolution of AI technology, including generative and agentic tools. Professional organizations should facilitate seminars, training sessions, and conferences on this topic, partnering with other AI communities to fully leverage emerging opportunities.

9. **Implementing Human-in-the-Loop Governance for Agentic Systems:** Since autonomous agents cannot assume professional or fiduciary responsibilities, firms, along with their supervising Estate Surveyors and Valuers, should establish clear checkpoints where a licensed professional is required to review and endorse AI-generated valuation opinions, marketing assertions, or contractual actions prior to their implementation. This would respond to the governance and accountability challenge for autonomous systems identified in Section 5.0
10. **Emphasizing Data Governance Prior to Agentic Deployment:** Given that agentic systems operate at scale based on the data provided, firms should prioritize investments in clean, well-organized, and locally representative property and market data infrastructure before integrating autonomous agents, rather than considering data quality as a secondary concern. This builds on the data-readiness and governance challenges identified in Section 5.0

7.0 Conclusion

Artificial Intelligence (AI), particularly in its evolving generative and agentic forms, holds significant potential to revolutionize the real estate sector in Nigeria by improving accuracy, efficiency, and client satisfaction. AI technologies, including automated property valuation, generative digital advertising, customer relationship management, digital twins, and smart home integration, provide promising solutions for estate surveying and valuation practices.

This paper's contribution is threefold. Theoretically, it extends UTAUT-based technology-adoption analysis, previously applied largely to earlier-generation AI/ML tools in real estate, to the distinct case of generative and agentic AI, and proposes a conceptual model linking antecedent conditions, AI technology layers, and governance-moderated practice outcomes (Section 2.6) that future empirical studies can test. Practically, it provides Nigerian Estate Surveyors and Valuers with a structured inventory of generative and agentic AI applications across valuation, CRM, marketing, market analysis, and digital twins, together with challenge-linked recommendations (Section 6.0) they can act on directly. In terms of policy, it surfaces governance and professional-accountability questions specific to agentic AI that NIESV, ESVARBON, and Nigerian data-protection regulators have not yet substantively addressed, offering an evidence base for future regulatory guidance.

However, several challenges hinder the realization of this potential, such as high infrastructure costs, underdeveloped internet connectivity, a shortage of skilled professionals, gaps in data readiness, and growing concerns regarding governance and professional accountability in autonomous decision-making. To overcome these obstacles, it is essential to implement tailored AI tools, establish human-in-the-loop governance, invest in capacity building, engage in strategic planning, and collaborate with AI experts and regulators.

Ultimately, the responsible integration and innovation of generative and agentic AI will enable Nigerian Estate Surveyors and Valuers to enhance service delivery, minimize human error,

and promote sustainable growth in the real estate industry.

7.1 Limitations of the Study

As a narrative review, this study's conclusions are shaped by the literature and industry reports available at the time of writing and do not derive from new primary data collection; its findings on adoption levels and challenges are therefore indicative rather than statistically representative of the full population of Nigerian Estate Surveyors and Valuers. Generative and agentic AI technologies, and the market and regulatory conditions surrounding them, are evolving rapidly, meaning some of the tools, market figures, and adoption statistics cited may age quickly relative to the pace of the underlying field. Finally, the literature base specific to Nigeria remains comparatively thin, particularly regarding agentic AI, requiring the paper to draw inferences from a combination of Nigerian-specific studies, global industry reports, and adjacent-market evidence rather than a uniformly peer-reviewed, Nigeria-specific evidence base.

7.2 Future Research Directions

Building on the gaps identified in this review, future research should pursue: (i) empirical, survey- or interview-based studies quantifying actual (rather than perceived) generative and agentic AI adoption rates among Nigerian Estate Surveyors and Valuers, extending the Benin City evidence from Oyetunji, Alohan, and Edionwe (2026) to other regions; (ii) research on AI ethics and algorithmic bias as they apply specifically to Nigerian property valuation data; (iii) studies examining explainable AI (XAI) techniques for narrative valuation reporting in data-poor markets; (iv) research on digital twin implementation costs and returns for Nigerian commercial property portfolios; and (v) policy-oriented research on agentic AI governance frameworks appropriate for developing-country professional regulatory environments, to inform NIESV and ESVARBON policy development.

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