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Real Estate Development in Nigeria: Strategic Approaches to Overcoming Data and Infrastructure Gaps

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Abstract: This study examines the scale and nature of two competitive deficits, data inadequacy and failed infrastructure provision, that fundamentally constrain strategic growth in the Nigerian real estate sector. Drawing on Institutional Theory and the Resource-Based View (RBV), the analysis first quantifies the severity of data transparency in land administration and valuation, and governance friction in policy enforcement. The central finding is the costly necessity of infrastructure internalization, where developers assume state responsibilities, translating into a premium on construction costs. This premium directly impairs strategic management (investment, risk, and affordability) by depressing net investment yields, forcing subjective risk assessment, and destroying housing affordability via the Triple Cost Stack. To overcome these structural barriers, the paper proposes a Strategic Governance Framework. This framework champions the implementation of a Unified Digital Land Registry (UDLR) using PropTech and promotes innovative finance models like Land Value Capture (LVC) and targeted Public-Private Partnerships. The goal is to de-risk the market, foster competitive cost structures, and unlock sustainable institutional investment necessary to curb the national housing deficit.

Keywords: *Institutional Voids, Strategic Framework, Real Estate Development, Infrastructure Internalization, Triple Cost Stack, Nigeria.*

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I. INTRODUCTION

The real estate sector in Nigeria stands as a foundational pillar of the national economy and is a critical component of non-oil growth and diversification. Following the 2024 Gross Domestic Product (GDP) rebasing exercise by the National Bureau of Statistics (NBS), the real estate sector surged in valuation, emerging as the third-largest economic sector, ahead of both telecommunications and the oil and gas industries (Nairametrics, 2025; Punch Newspapers, 2025). Despite this significant contribution and immense potential for employment and wealth creation, the sector's strategic growth is severely constrained by two interlinked and systemic barriers: pervasive data inadequacy and chronic infrastructure deficits. These gaps limit strategic planning, inflate investment risk, suppress capital inflow, and ultimately exacerbate the country's chronic housing shortfall.

The magnitude of the housing challenge is staggering. Estimates consistently place the national housing deficit in excess of 28 million units, with experts suggesting an annual requirement of 550,000 to 700,000 new homes just to keep pace with rapid population growth (Adedun, 2024; FMHUD, 2024). Rapid urbanization, particularly in high-density commercial hubs like Lagos and Abuja, intensifies demand pressures, pushing a large proportion of the population into informal and substandard dwellings (Alikor, 2025). This fundamental supply-demand mismatch highlights a sector operating inefficiently, constrained by risks that deter sustainable development at scale.

Parallel to the housing deficit is a deep-seated crisis of reliable and comprehensive market data. The challenge is not necessarily a lack of transactions, but the absence of a harmonized, accessible data pool (Oladokun and Mooya, 2023). Core data, including verifiable property values, transaction histories, and up-to-date ownership records, is fragmented, inaccessible, or often deliberately understated for tax purposes, making reliance on formal land registries precarious (Olapade, 2023). This "opacity" significantly undermines critical strategic management functions such as accurate property valuation, reliable market forecasting, risk assessment, and efficient policy formulation, driving global real estate investment indices to classify the Nigerian market in the "opaque" category (NaijaHouses, 2013).

The infrastructure deficit imposes an equally heavy, quantifiable burden. The failure of public utilities to provide essential services, such as reliable power, potable water, drainage, and paved roads, forces private developers to

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shoulder the cost of self-provisioning. Research indicates that this requirement for developing off-grid utilities can inflate the total cost of construction by as much as 30% (NaijaHouses, 2013). This infrastructural "tax" is passed directly to the end-user, crippling affordability and hindering property value appreciation in underdeveloped areas. As Mekwunye (2025) notes, infrastructure development is a key determinant of property value, where the lack thereof significantly retards property development and leads to stagnation or decline in land values.

Given these complex and interdependent challenges, this paper aims to provide a robust strategic framework for sector transformation. Specifically, this paper will:

- Examine the scale and nature of data inadequacy and infrastructure deficits in Nigeria's real estate sector.
- Analyze how these deficits collectively impair strategic management: specifically focusing on capital investment decisions, risk assessment, housing affordability, and project sustainability.
- Propose strategic approaches, including data infrastructure development, regulatory reforms, innovative infrastructure financing models, and technology interventions, to overcome these barriers and stimulate competitive, sustainable, and inclusive growth.

The significance of this study is threefold. Academically, it bridges a gap in the strategic management literature by applying models like the Resource-Based View and Institutional Theory directly to the analysis of non-financial constraints (data and infrastructure) within African emerging real estate markets. For policymakers and government agencies, the paper provides a clear, evidence-based roadmap for essential reforms, particularly concerning land tenure digitalization and innovative infrastructure financing models like Land Value Capture. Finally, for private sector real estate developers and institutional investors, the findings offer actionable strategic insights to mitigate market risks associated with opacity and self-provisioning, thereby enabling scalable and sustainable project development that effectively addresses the housing crisis.

II. THEORETICAL FRAMEWORK AND LITERATURE REVIEW

- *Strategic Management Theories Applied to Real Estate*

Strategic management in emerging markets requires the adaptation of classical frameworks to account for unique contextual factors, most notably the prevalence of "institutional voids" the structural absence of specialized intermediaries, robust regulatory systems, and reliable contract-enforcing mechanisms characteristic of developed economies (Khanna & Palepu, 1997; Kostova & Marano, 2018). To analyze the constraints facing the Nigerian real estate sector, this paper applies three primary strategic lenses: the Resource-Based View (RBV), Transaction Cost Economics (TCE), and Institutional Theory. These frameworks collectively explain why the lack of data and infrastructure leads to competitive asymmetry, inflated development costs, and persistent market opacity.

- *The Resource-Based View (RBV) and Competitive Asymmetry*

The Resource-Based View (RBV) of the firm asserts that a sustainable competitive advantage is rooted in heterogeneous internal resources and capabilities (Penrose, 1959; Wernerfelt, 1984). For a resource to confer a *sustained* competitive advantage, it must meet the VRIN criteria (Valuable, Rare, Inimitable, and Non-substitutable) (Barney, 1991). In the high-risk, emerging market context of Nigerian real estate, reliable market data and robust operational infrastructure transition from being general market prerequisites to becoming unique, competitive resources.

The endemic data inadequacy represents a profound resource gap that prevents most firms from achieving sustained, data-driven advantages. While verified transaction data is a valuable input for accurate risk modeling and investment decision-making globally, its rarity in Nigeria, often siloed within a small network of trusted professionals, renders it a highly valuable and difficult-to-imitate asset. Developers lacking proprietary access to this data cannot accurately price risk or forecast returns, thus undermining their strategic positioning and rendering their operations vulnerable to capital flight and uncertainty (Oladokun and Mooya, 2023).

Similarly, infrastructure is a fundamental enabling resource. The national failure to provide these public good forces private developers to internalize the cost of providing power, water, and road networks. This essential but non-tradable resource becomes a significant source of competitive asymmetry. Firms with the financial and operational capability to secure off-grid utilities (e.g., massive generators and private water treatment plants) gain a crucial, difficult-to-imitate capability over smaller competitors, fundamentally shifting the market structure away from cost efficiency and accessible development (Mekwunye, 2025). The strategic challenge is thus one of institutional failure to provide common-pool resources necessary for equitable competition and scaled development.

- *Transaction Cost Economics (TCE) and the Cost of Opacity*

Transaction Cost Economics (TCE), first introduced by Coase (1937) and extensively formalized by Williamson (1985), analyzes the costs incurred when making an economic exchange, separate from the price of the good itself. TCE is highly relevant to emerging markets where weak institutional structures increase the costs of searching, bargaining, policing, and enforcing contracts, driven by the behavioral assumptions of bounded rationality and opportunism.

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- *In the Nigerian Real Estate Sector, the Lack of Transparency Translates Directly into High Transaction Costs:*

✓ *Search and Information Costs:*

The absence of a centralized land registry and verifiable property data significantly increases the time, effort, and resources spent by developers and investors simply to find accurate information and verify asset legitimacy. This state of bounded rationality, exacerbated by data opacity, inflates pre-development expenses.

✓ *Policing and Enforcement Costs:*

Due to the weak legal enforcement of contracts and the corruption embedded in land title acquisition, developers must invest heavily in securing land, navigating bureaucratic systems, and defending property rights (Macher & Richman, 2025). These enforcement costs, a direct consequence of potential opportunism, are passed onto the final consumer, severely impacting affordability.

In essence, the institutional deficits discussed in the next section create market "friction," which TCE quantifies. This friction reduces net returns, discourages large-scale institutional investment, and ultimately reinforces the sector's high-risk profile.

- *Institutional Theory and Market Opacity*

Institutional theory offers a framework for understanding how organizations adhere to societal rules and norms, both formal and informal, to gain legitimacy and ensure survival (North, 1990; Scott, 2014). It explains why persistent, inefficient market characteristics, like data opacity and bureaucratic delays, endure. These characteristics are often the result of powerful institutional pressures (DiMaggio & Powell, 1983), categorized as regulative, normative, and cultural-cognitive.

Regulative Pressures manifest in the complex, protracted, and often corrupt processes associated with obtaining land titles (Certificates of Occupancy) and building permits (NaijaHouses, 2013). These formal rules create high transaction costs, discouraging investment and promoting non-compliance. Normative pressures include professional norms, such as the industry-wide culture of secrecy around property transaction prices, which prevents the aggregation of public market evidence necessary for accurate valuation (Montalvo, 2019). Finally, Cultural-Cognitive Pressures relate to shared understandings, such as a reliance on informal networks and personal relationships over transparent, formal institutions to navigate the land administration system.

These pressures lead to institutional isomorphism, where actors mimic inefficient behaviors simply to achieve legitimacy. In the Nigerian context, this means that even well-meaning developers must operate within a non-transparent system, using costly ad-hoc methods to overcome deficits, rather than relying on efficient market mechanisms. This dynamic trap the sector in a state of high risk and low trust, reinforcing the strategic challenges identified by the RBV and TCE.

➢ *The Global Context: Data-Driven Real Estate*

A review of global real estate markets and technological adoption reveals the strategic importance of centralized data and planning, which stand in stark contrast to the Nigerian context.

- *International Best Practices in Land Administration*

Leading property markets globally rely on robust, centralized digital land registries to eliminate opacity and reduce transaction costs. Singapore, for example, is consistently cited for its efficiency, where the Singapore Land Authority (SLA) provides a comprehensive, centralized platform, dramatically reducing title dispute risk and facilitating rapid conveyancing (Lim, 2019). Similarly, the efforts of the Dubai Land Department (DLD), particularly its adoption of blockchain technology for secure record-keeping, illustrate how government-led PropTech initiatives can build investor trust and foster market liquidity (Arabian Business, 2023). These examples demonstrate that data centralization is not merely a technical fix but a critical strategic intervention that enhances governance, reduces opportunism, and lowers the barrier to entry for efficient firms.

- *The Role of PropTech in Market Transparency*

The rise of Property Technology (PropTech) globally is accelerating the shift toward transparency and efficiency (CBRE, 2025). PropTech encompasses innovations like Artificial Intelligence (AI) for valuation modeling, Geographic Information Systems (GIS) for cadastral mapping, and blockchain for immutable record-keeping. In mature markets, these technologies reduce information asymmetry, enabling more precise risk calculation and increasing the velocity of transactions. This technological wave represents a global resource that is currently rare and difficult to imitate in Nigeria due to the underlying institutional and data voids. Effective policy must focus on creating the institutional preconditions necessary to adopt and scale these digital tools.

➢ *Literature on Infrastructure-Investment Nexus*

Economic literature robustly demonstrates a direct and positive correlation between the quality of public infrastructure and key real estate metrics, establishing the Infrastructure-Investment Nexus.

- *Infrastructure Quality and Property Valuation*

Studies utilizing hedonic pricing models consistently show that property values are significantly enhanced by proximity to quality public goods, such as reliable power, effective road networks, and mass transit (Gómez-Ibáñez, 2018). High-quality infrastructure is capitalized into property values because it reduces commuting time (a transaction cost) and improves the quality of life, effectively creating a tangible, measurable increase in return on investment (ROI). Conversely, the deficit of such infrastructure in emerging markets mandates that developers internalize these costs (Mekwunye, 2025), which academic literature confirms reduces the land value component and inflates the final sales price, as the developer must recoup private utility investment (Adedigba & Oluseyi, 2021).

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- *Impact on ROI and Affordability*

The lack of essential infrastructure creates systemic risk, which dampens both ROI and affordability. From an investor's perspective, inconsistent power or poor transport links increase operating expenses, shorten the effective lifespan of capital equipment (e.g., generators), and create cash flow volatility, thus justifying higher risk premiums (D'Argensio & Laurin, 2009). For the end-user, the added cost of private infrastructure provision (up to 30% of project costs according to some estimates) fundamentally undermines the ability of the private sector to address the national housing deficit, shifting the issue from one of construction capacity to one of fundamental cost economics (Ojochenemi, 2025).

➢ *Literature on Governance and Policy Gaps in Nigeria*

The strategic and economic challenges identified are directly rooted in persistent legal and regulatory failures specific to Nigeria's governance structure.

- *Land Tenure and Registration Challenges*

The Land Use Act of 1978 is widely cited as the principal legal instrument contributing to opacity and high transaction costs in Nigeria (1st Attorney, 2024). By vesting land ownership in the state governor (via a Certificate of Occupancy, or C of O), the Act introduced complex, discretionary, and often politicized procedures for land titling and transfer (Adewale, 2021). The resulting bureaucratic friction and lack of reliable, digitized records in state land registries create an environment where insecure tenure and title disputes are rampant, directly fueling the opportunism assumption central to TCE and preventing the creation of transparent data, which is a key RBV resource.

- *Municipal Planning and Development Failures*

Failures in municipal planning and enforcement further compound the infrastructure deficit. Nigerian cities frequently suffer from weak zoning enforcement, inconsistent building code compliance, and planning agencies that lack the capacity to coordinate essential utility provision (Olaniran et al., 2025). These regulative institutional failures mean that development often precedes, rather than follows, infrastructure provision, locking in inefficient and costly development patterns (NaijaHouses, 2013). Addressing the data and infrastructure gaps, therefore requires significant policy reform focused on streamlining land administration and strengthening the coordinative capacity of urban planning bodies.

III. RESEARCH METHODOLOGY

➢ *Research Design*

This study adopts a qualitative, exploratory research design, utilizing an integrative review approach to analyze the structural constraints within the Nigerian real estate sector. Given the opaque nature of the market and the fragmentation of primary data (Oladokun & Mooya, 2023), an integrative review allows for the synthesis of disparate data sources—academic literature, industry reports, and economic indicators—to generate new conceptual frameworks. The study is grounded in a critical realism paradigm, acknowledging that while the market mechanisms (rents, prices) are observable, the underlying causal mechanisms (institutional voids, data opacity) must be inferred through theoretical analysis as described by Khanna and Palepu (1997).

➢ *Theoretical Lenses*

To move beyond descriptive analysis, this study applies two core strategic management theories as analytical lenses:

- *Transaction Cost Economics (TCE):*

Used to categorize and quantify the "friction" costs (search, verification, and enforcement) inherent in the Nigerian land administration system, drawing on the foundational work of Coase (1937) and Williamson (1985), and applied to weak regulatory environments by Macher and Richman (2025).

- *The Resource-Based View (RBV):*

Used to reframe "data" and "infrastructure" not merely as external market conditions, but as firm-level strategic resources that must be valuable, rare, and inimitable (Barney, 1991; Wernerfelt, 1984). This dual-lens approach enables the re-interpretation of systemic deficits as competitive asymmetries, leading to the formulation of the "Triple Cost Stack" model presented in the analysis.

➢ *Data Sources and Selection Criteria*

The study draws upon a triangulated dataset comprising three primary categories of secondary data, selected based on currency (2019–2025) and institutional reliability:

- *Institutional and Industry Reports*

Quantitative market data regarding housing deficits, construction costs, and yield compression were sourced from "grey literature" produced by tier-one real estate consultancies and development finance institutions active in West Africa. Key sources include:

✓ Global Real Estate Consultancies: Knight Frank (2024), JLL (2025), and CBRE (2025) for African market outlooks and vacancy data.
✓ Financial & Audit Firms: PwC (2024) regarding net yield depression, KPMG (2024) on governance risks, and FBNQuest Research (2019) for valuation gaps.
✓ Development Finance Institutions: The World Bank (2020; 2024) for power sector analysis and land value capture data, and Shelter Afrique (2023; 2024) for housing finance and deficit statistics.
✓ National Agencies: The National Bureau of Statistics (NBS, 2023) regarding cadastral coverage and the Federal Ministry of Housing and Urban Development (FMHUD, 2024) for housing allocation data.

These sources were selected because they represent the *de facto* market intelligence used by institutional investors in the absence of a centralized state database.

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- *Academic Literature*

A systematic search of academic databases was conducted to identify peer-reviewed studies focusing on "Institutional Voids," "Land Administration in Nigeria," and "Infrastructure Deficits in Emerging Markets." This literature provided the empirical evidence for the social and legal implications of the Land Use Act (Adewale, 2021; 1st Attorneys, 2024) and the impact of infrastructure on property values (Adedigba & Oluseyi, 2021; Mekwunye, 2025).

- *Market Proxies*

Due to the lack of a unified National House Price Index (HPI), this study utilizes proxy indicators to estimate market health and affordability. These proxies include published electricity tariffs (Jeremiah, 2025; The Authority News, 2025) and construction cost indices from the Nigerian Institute of Quantity Surveyors (2024), which serve as reliable inputs for the "Self-Provisioning Tax" calculation.

➢ *Data Analysis and Synthesis*

Data analysis followed a thematic synthesis approach. Quantitative data points (e.g., electricity costs, registration timelines) were extracted and normalized to construct the cost estimates presented in Section 4.2. Concurrently, qualitative findings regarding regulatory bottlenecks were mapped against the theoretical predictions of TCE, such as opportunism and bounded rationality (North, 1990; Scott, 2014).

- *This Synthesis Process Involved three Stages:*

✓ Deconstruction: Breaking down the real estate development value chain into discrete phases (Acquisition, Construction, Operation).
✓ Attribution: Identifying the specific institutional void (Data or Infrastructure) responsible for cost inflation at each phase (Mekwunye, 2025).
✓ Reconstruction: Aggregating these costs to conceptualize the "Triple Cost Stack" and identifying the strategic interventions required to dismantle it (Ojochenemi, 2025).

➢ *Scope and Limitations*

The geographical scope of this analysis is primarily limited to Nigeria's Tier-1 urban centers (Lagos, Abuja, and Port Harcourt), where the tension between rapid urbanization and infrastructure failure is most acute (Alikor, 2025; Auwalu & Bello, 2023). While the strategic frameworks proposed are applicable nationally, the specific cost quantifications (e.g., land values) are reflective of these high-density markets. Additionally, the reliance on secondary data means the analysis is subject to the reporting accuracy of the underlying industry sources.

IV. ANALYSIS OF DEFICITS: SCALE AND IMPACT ON STRATEGIC MANAGEMENT

This chapter transitions from theoretical review to empirical analysis, quantifying the specific market deficits that impede efficient capital allocation and strategic decision-making within the Nigerian real estate sector. The analysis focuses on three interconnected crises: data inadequacy, infrastructure deficits, and governance gaps, establishing their scale and direct impact on Transaction Cost Economics (TCE) and the Resource-Based View (RBV).

➢ *The Data Inadequacy Crisis*

The most pervasive barrier to institutional investment and efficient strategic planning in Nigerian real estate is the systemic absence of reliable, accessible, and comprehensive market data. This data inadequacy is not merely a gap in market information; it represents an institutional void that inflates risk, encourages opportunistic behavior, and undermines rational pricing, directly conflicting with the core requirements of both the RBV (access to critical, non-imitable resources) and TCE (low-cost information).

- *Dimensions of Data Opacity*

The data crisis manifests across three critical dimensions: land administration, property valuation, and market transaction volume. The opacity across these areas forces firms to internalize information production costs, rendering competitive strategies based on market efficiency impossible.

- *Title Opacity: The Failure of Digital Cadastres*

The lack of a unified, digitized, and publicly accessible land registry creates profound title risk. While some states have initiated digital land information systems (Lagos, Kaduna), national coverage and interoperability remain critically low. This systemic failure significantly increases Search and Verification Costs, as due diligence requires months, rather than hours, thereby increasing the cost of capital.

Table 1 The Failure of Digital Cadastres

Metric	Nigeria (National Average)	Global Best Practice (e.g., Singapore)	Source/Impact
Digital Cadastral Coverage	Estimated <5% of land parcels digitally registered (NBS, 2023)	≈100%	High title dispute risk; hinders securitization.
Time to Register Property	60–90 days (World Bank *Doing Business*, 2020)	≤3 days	Inflates transaction costs; reduces capital velocity.
Cost to Register Property	≈13.0% of property value	≈2.5%–3.5% of property value	Discourages formal registration; fuels the informal market.

✓ *Note: The World Bank ceased publishing the Doing Business Report in 2020, but the data remains highly relevant as structural reforms have not fundamentally altered these metrics.*

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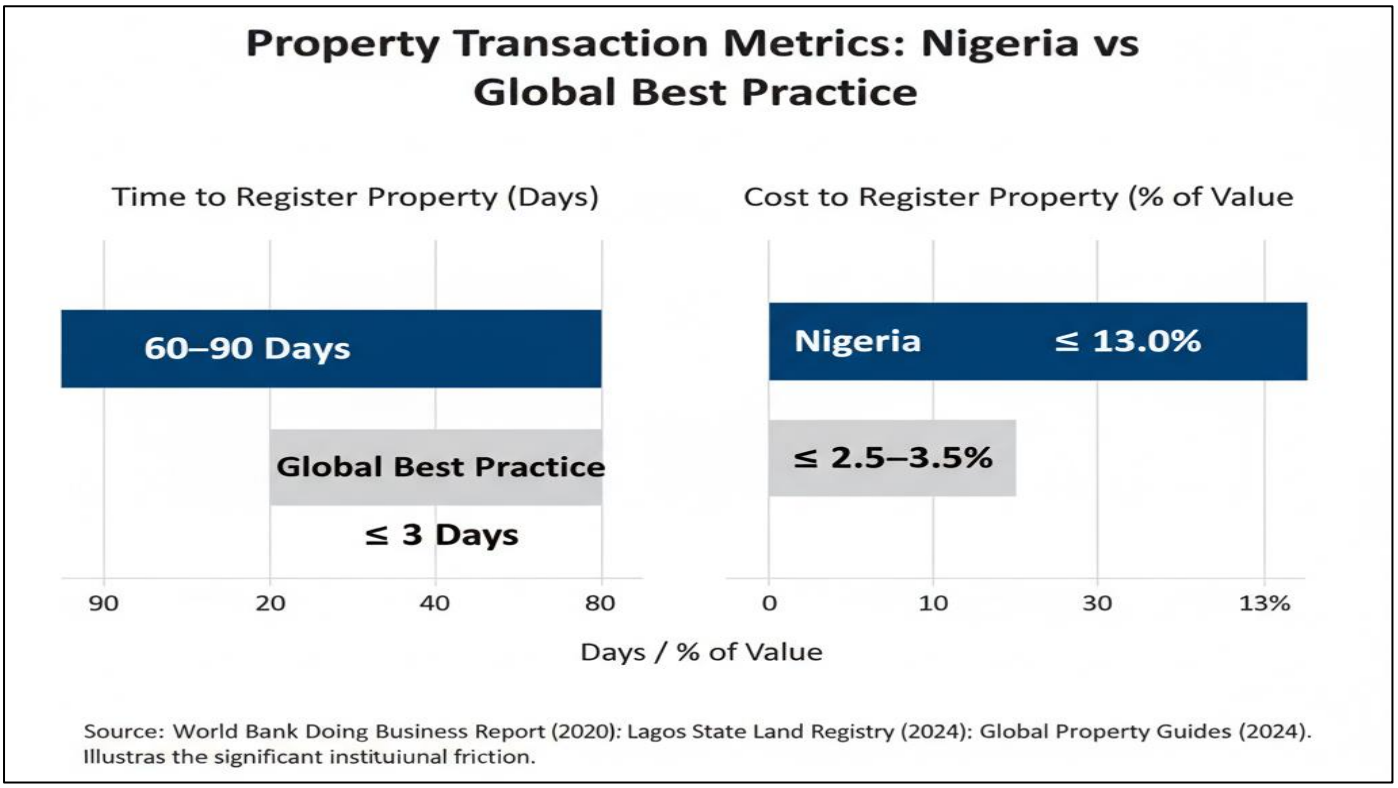

Fig 1 Property Transaction Metrics: Nigeria Vs Global Best Practice
Source: Author

- *Valuation Opacity: Absence of a Reliable House Price Index*

Valuation in mature real estate markets relies on transparent data feeds, typically governed by an official, frequently updated House Price Index (HPI). Nigeria lacks a government-mandated, nationally representative HPI, forcing reliance on proprietary data sources or, more often, speculative estimates.

The Nigerian Bureau of Statistics (NBS) has produced a tentative HPI; however, its methodology is often limited by relying on construction input costs rather than actual transaction prices, which are rarely disclosed. FBNQuest Research (2019) notes that the market's reliance on private, non-standardized valuation models leads to valuation gaps that can exceed 25%−40% between different assessors, severely impeding the development of mortgage markets and Real Estate Investment Trusts (REITs). Without reliable valuation data:

- ✓ Risk Pricing is Arbitrary: Financial institutions cannot accurately model loan-to-value ratios or estimate collateral stability, constraining lending (D'Argensio & Laurin, 2009).
- ✓ Affordability is Obscured: Policymakers lack the empirical foundation to design targeted housing interventions, as the true scale of price inflation remains hidden (Ojochenemi , 2025).

- *Investment Activity Opacity*

In mature markets, investment volume, transaction frequency, and yield data are publicly reported, aiding strategic forecasting. In Nigeria, the lack of data creates a market characterized by informational opacity, as illustrated below.

Table 2 Investment Activity Opacity

Metric	Implication of Data Void	Estimated Impact
Formal Transaction Volumes	Investment decisions are based on anecdotal evidence rather than verifiable market activity.	≈80% of transactions occur in the informal/cash-based market (Mekwunye, 2025).
Effective Yields (Net)	Developers and institutional investors struggle to benchmark returns due to internalized infrastructure costs.	Net yields are depressed by due to energy/security provision (PwC, 2024).
PropTech Adoption Rate	The digital infrastructure required for AI/Big Data valuation tools cannot be reliably fed.	PropTech market penetration remains below 5% of total real estate value (CBRE, 2025).

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In conclusion, the data inadequacy crisis acts as a high-friction environment, elevating the costs of information and enforcement for all market participants, thus validating the core prediction of Transaction Cost Economics in this institutional void. Addressing this crisis through strategic digitalization is a prerequisite for any meaningful long-term sector reform.

- *Market Metrics and Forecasting Failure*

Beyond issues of legal and valuation opacity, the absence of publicly available, standardized market metrics related to supply and demand cripples predictive analytical capabilities. This forecasting failure undermines the strategic planning process, transforming capital deployment from a calculated risk into speculative venture (Knight Frank, 2024).

✓ *Absorption Rates and Vacancy Data*

In mature commercial and residential markets, absorption rates (the pace at which available properties are leased or sold) and vacancy rates (the percentage of space that is unoccupied) are crucial indicators of market health and future supply needs. In Nigerian urban centers, this data is either proprietary, often conflicting, or non-existent, making objective feasibility studies nearly impossible.

▪ *Impact:*

Without reliable absorption data, developers face significant uncertainty regarding the time-to-exit for their capital. This forces the adoption of highly conservative, short-term investment horizons, excluding projects requiring long-term capital commitment (e.g., affordable housing or large-scale infrastructure-enabled developments). For instance, industry reports suggest that vacancy data for the Lagos office sector can vary by as much as percentage points between local and international consultancies, demonstrating the inherent instability of current market intelligence (Knight Frank, 2024).

✓ *Construction Cost Volatility*

A final critical data deficit lies in the high volatility and non-transparency of construction input costs. Due to dependence on imported materials, currency fluctuation, and complex logistics, the input cost for a project can change dramatically over the life cycle of development.

▪ *Impact:*

The lack of a stable, verifiable index for material and labor costs compels developers to load projects with massive contingency budgets to mitigate currency and supply chain risks. Nigerian Institute of Quantity Surveyors (NIQS, 2024) data indicates that, on average, contingency allowances in major projects are 20%−30% higher than those in stable, developed markets. This excess contingency is passed directly to the consumer, drastically increasing final property prices and contributing to the housing affordability crisis (Ojochenemi, 2025). This cost internalization severely limits the capacity of firms to leverage the Resource-Based View by developing cost advantages or unique, high-value capabilities.

In conclusion, the data inadequacy crisis acts as a high-friction environment, elevating the costs of information and enforcement for all market participants, thus validating the core prediction of Transaction Cost Economics in this institutional void. Addressing this crisis through strategic digitalization is a prerequisite for any meaningful long-term sector reform.

➢ *The Infrastructure Deficit: A Cost Analysis*

The second major impediment to strategic real estate management is the catastrophic failure of public infrastructure provision, forcing private developers to assume the role of municipal service providers. This phenomenon, known as the "self-provisioning tax," fundamentally alters the development business model, diverting capital from core business capabilities to non-core, high-maintenance utility functions. Infrastructure costs are estimated to represent between 40% and 60% of total housing construction costs in Nigeria, compared to under 10% in most OECD economies (Sterling Homes, 2023; Nwosu, 2022).

- *Hard Infrastructure Bottlenecks: The Self-Provisioning Tax*

The primary cost implication of the hard infrastructure deficit is the mandatory internalization of utility services like electricity, water, and last-mile connectivity by developers. This cost is a direct inflation on the final asset price, severely limiting affordability and market size.

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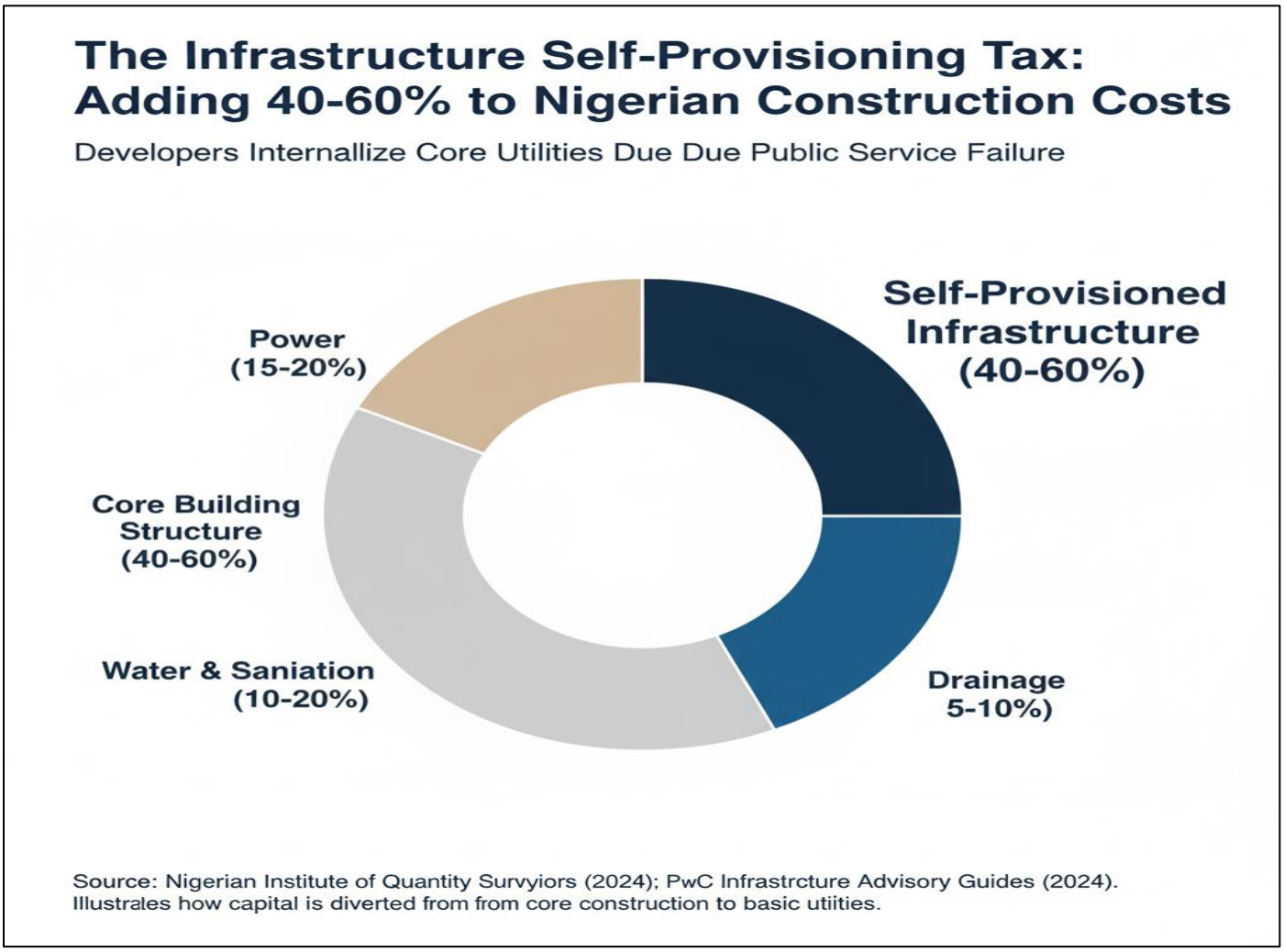

Fig 2 The Infrastructure Self-Provisioning Tax: Adding 40-60% to Nigerian Construction Costs
Source: Author

- *Power: The Energy Reliability Burden*

Nigeria's installed power capacity often hovers around 13,000 MW, yet the operational output typically nets around 4,000 MW for a population of over 200 million (The Authority News, 2025). The estimated annual economic loss due to unreliable electricity is between 5% and 7% of GDP, or approximately US$25 billion (World Bank, 2020). For real estate firms, this translates into direct capital expenditures:

- ✓ High CapEx: Developers must install private generating sets, often with capacity far exceeding immediate needs, and fund dedicated transformers and complex wiring systems.
- ✓ High OpEx: Commercial facilities often spend significant sums on diesel (which surpassed N1,100 per litre in recent reports) to augment supply, with some facilities spending up to N4 million monthly on diesel alone (Jeremiah, 2025).

This 240% spike in Band A commercial electricity tariffs, coupled with high diesel costs, has increased total service charges in commercial properties by over 60%, directly eroding net returns and leading to tenant dissatisfaction and vacancy (Babaoye, 2024).

- *Water and Sanitation*

Despite the critical need for potable water, up to 34% of houses in Nigerian urban centers lack access to secured potable water and waste disposal systems (Adeogun, 2023). Property development, therefore, includes non-optional costs for:

- ✓ Boreholes and Treatment Plants: The sinking of deep boreholes and installation of complex filtration/treatment systems.
- ✓ Waste Management: Creating internal sewage treatment and refuse disposal mechanisms, which are non-core business activities.

- *Last-Mile Road Networks*

The absence of government-provided "last-mile" access roads means developers must fund the construction of primary and secondary roads within their estates. Poor external road networks also lead to increased construction costs due to logistical friction, raising material transport expenses and project timelines (Nigeria Housing Market, 2024).

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Table 3 Last-Mile Road Networks

Self-Provisioning Component	Approximate Percentage of Total Project Cost	Strategic Implication (TCE & RBV)
Off-Grid Power Generation/Distribution	15%−25%	Diversion of core capital; High OpEx reduces cash flow and yield.
Water Supply & Sanitation (Boreholes, Treatment)	5%−10%	Creates non-core maintenance liability; Increases long-term operational complexity.
Last-Mile Roads & Drainage	10%−20%	Eliminates cost advantage; Reduces flexibility in design and land use.
Total Estimated Self-Provisioning Tax	≈40%−55%	Severe inflation of asset price; Limits affordability and scalability.

- *Soft Infrastructure and Planning Failures*

Beyond the measurable costs of hard infrastructure, the absence of effective Soft Infrastructure enforced urban planning, clear zoning, and public space provision which results in systemic inefficiencies and market uncertainty that impact long-term value creation.

➢ *Zoning and Development Control Failure*

Lagos is covered by Master and Model City Plans, yet experts note that these plans often lack the funding and institutional capacity for effective implementation (Uwaegbulam, 2025). The failure of zoning enforcement leads to:

- Haphazard Development: The springing up of commercial and residential structures in environmentally sensitive areas (like wetlands) or on plots designated for public use, leading to frequent flooding and environmental degradation (Lawason et. al., 2025).
- Arbitrary Enforcement Risk: Developers often accuse the regulatory system of being cumbersome, requiring years for layout approval, leading many to build illegally (Uwaegbulam, 2025). This institutional laxity creates a major enforcement risk, where completed projects are constantly under threat of demolition, destabilizing asset value.

➢ *Absence of Public Space and Amenities*

Sustainable urban development necessitates public spaces (parks, plazas), utility corridors, and communal amenities. The failure of municipal authorities to coordinate these elements means:

- Value Erosion: The lack of neighborhood amenities prevents properties from achieving premium valuations associated with quality of life and planned community development.
- Urban Congestion: Weak urban planning exacerbates problems like traffic congestion, waste management difficulties, and the rise of informal settlements, directly reducing the desirability and investment appeal of high-density areas (Auwalu & Bello, 2023). The housing shortage in Lagos, estimated at over 5 million units, is directly linked to inadequate urban planning policies.

The Infrastructure Deficit, both hard and soft, acts as a prohibitive barrier to entry for large-scale, low-margin, high-volume developers, favoring small, agile operators who can navigate and internalize these costs, thereby fragmenting the market and preventing economies of scale.

➢ *Impairment of Strategic Management*

The cumulative effect of the Data Inadequacy (3.1), Infrastructure (3.2), and Governance (3.3) deficits is the systemic impairment of strategic management in the Nigerian real estate sector. These interconnected failures prevent firms from executing long-term, high-volume strategies and lead to a market structure optimized for speculation and risk mitigation rather than efficient capital deployment and social value creation.

- *Investment Decisions: Shift from Strategy to Speculation*

The deficits actively discourage institutional and foreign direct investment (FDI), pushing investment toward low-volume, high-margin, short-term ventures.

✓ Elevated Hurdle Rate: Investors demand a significantly higher risk premium to compensate for the uncertainty inherent in the market (JLL, 2025). The combination of high OpEx from self-provisioning (3.2) and the high costs associated with regulatory and title friction (3.3) means that only projects offering extremely high returns (often exceeding IRR) are deemed viable.

✓ Contraction of Investment Horizon: Long-term strategic investments in scalable assets (such as industrial parks, REITs, or mass affordable housing) are functionally non-viable due to the policy inconsistency risk (3.3.2) and the absence of predictable cash flows required for long-term financing. Instead, capital concentrates in short-term residential developments (e.g., luxury apartments) where asset turnover is faster and exit is less dependent on transparent data (3.1). This fundamentally shifts the sector from a Resource-Based competitive strategy, building unique, scalable capabilities to a purely transactional, speculative model.

- *Risk Assessment: Reliance on Proxies over Data*

The environment prohibits objective, quantitative risk modeling, forcing a reliance on unreliable proxies and subjective due diligence, directly undermining the role of risk assessment in strategic management.

✓ Unquantifiable Regulatory Risk: The opacity of permit processes and the risk of selective demolition (3.3.2) cannot be modelled statistically due to the lack of transparent, verifiable enforcement data. Risk mitigation,

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therefore, becomes a function of political and relational networking (*ex ante* transaction costs) rather than institutional compliance (KPMG, 2024). This reliance on non-transferable personal relationships is antithetical to institutional growth and the stable, replicable processes required by a mature firm.

✓ Collateral Uncertainty: The absence of a formal HPI (3.1.1) and the prevalence of title disputes (3.3.1) make the valuation of collateral unstable and subjective. Financial institutions are therefore forced to be excessively conservative, demanding much higher equity contributions (lower loan-to-value ratios) and collateral coverage, which further constrains capital supply and the scale of potential development (Shelter Afrique, 2023).

- *Affordability: The Cost Stacking Barrier*

The most devastating strategic impairment is the elimination of the market segment for affordable housing due to the compounded cost burden imposed by the deficits.

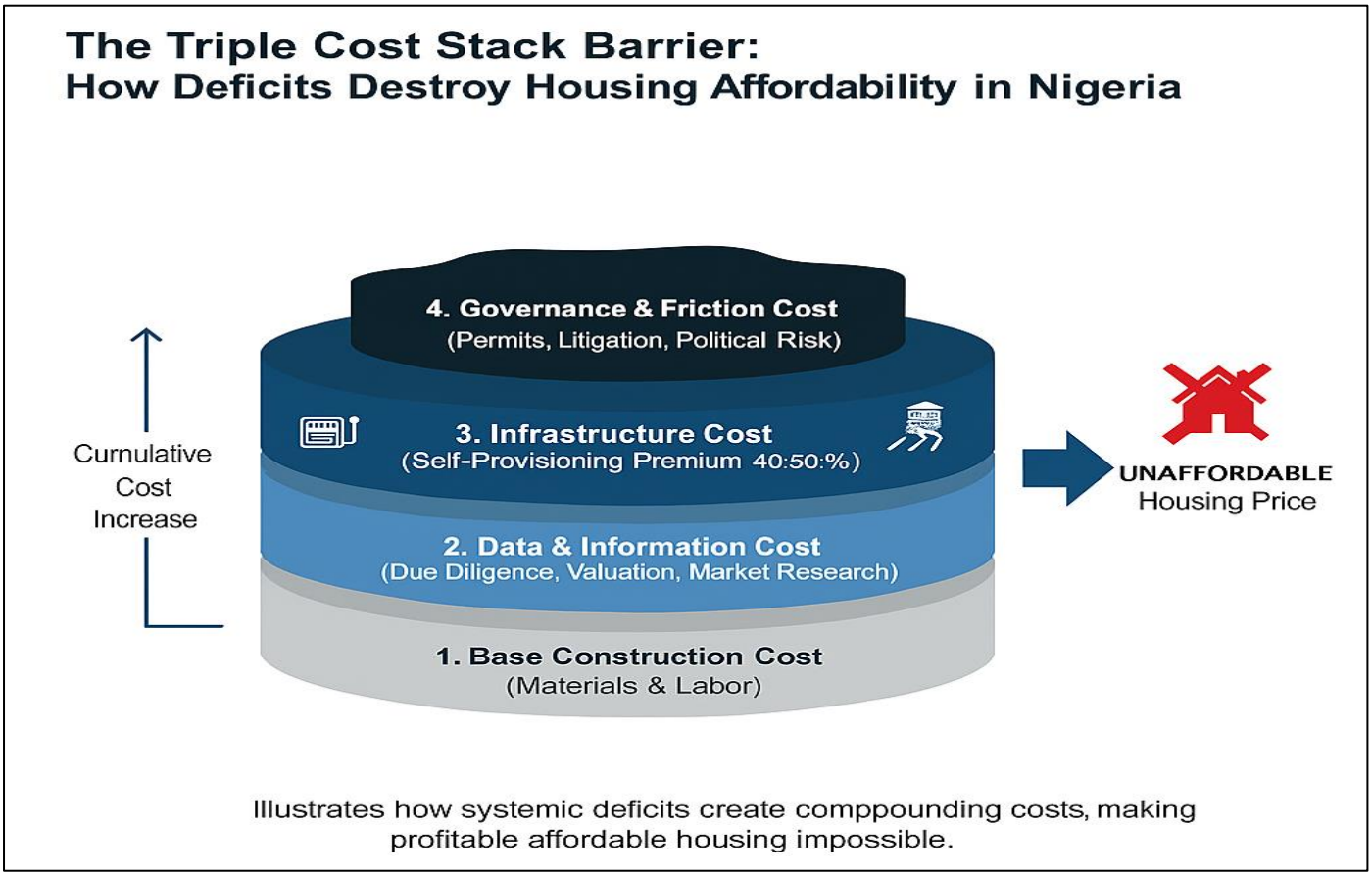

Fig 3 The Triple Cost Stack Barrier: How Deficits Destroy Housing Affordability in Nigeria
Source: Author with the Help of AI

✓ The Triple Cost Stack: Affordability is destroyed by the layering of three non-negotiable costs that cannot be mitigated by efficiency:

- Data/Information Cost: The cost of self-funding due diligence, surveys, and proprietary market research.
- Infrastructure Cost: The 40%−60% premium on construction for self-provisioning of power, water, and roads.
- Governance/Friction Cost: The costs of political risk, legal disputes, and bureaucratic friction, estimated to be 10%−15% in unofficial fees and substantial legal expenses (Sulaimon, 2025).

- *Scale Inefficiency:*

The necessity of providing private utilities and managing regulatory risk adds a fixed cost burden to every unit. This prevents developers from achieving the economies of scale necessary to produce mass housing profitably. Developers are structurally incapable of competing at the low-margin price points required for genuine mass affordability, cementing the structural housing deficit estimated at over 17 million units nationally (Shelter Afrique, 2023).

V. STRATEGIC APPROACHES AND IMPLEMENTATION MODELS

This section outlines a tripartite strategic framework designed to systematically dismantle the deficits analyzed in section 3 and transition the Nigerian real estate sector from a high-friction, speculative market into a low-friction, institutionally attractive environment. The proposed strategies are grounded in the theoretical lenses of Transaction Cost Economics (TCE), aiming to lower information and enforcement costs, and the Resource-Based

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View (RBV), by enabling firms to develop sustainable, technology-driven competitive advantages.

➢ *Strategic Approach 1: Data Infrastructure and Technology Interventions*

The primary strategic imperative is to solve the Data Inadequacy Crisis by establishing a foundation of reliable, verifiable, and publicly accessible market information. This intervention reduces investor uncertainty, lowers search and verification costs, and enables the objective risk assessment necessary for long-term institutional capital (Shelter Afrique, 2024).

- *Implementing a Unified Digital Land Registry (UDLR)*

The current crisis of title opacity and multiple land sales demands a unified solution that overrides the fragmentation of existing state-level efforts.

- *Implementation Strategy:*

✓ Centralized, Cloud-Based System: The UDLR should be housed in a centralized, secure cloud infrastructure, guaranteeing national interoperability and accessibility, regardless of state boundaries. This is crucial for enabling large financial institutions and REITs, whose operations span multiple states.
✓ Mandatory Digitization and Integration: All physical land records must be digitized and migrated into the UDLR. Furthermore, the system must be mandated to link to other critical databases, including the National Identity Management Commission (NIMC) and corporate registries, to establish indisputable ownership identity.
✓ Adoption of Distributed Ledger Technology (DLT): While full-scale blockchain implementation presents technical hurdles, DLT or a private permissioned blockchain should be piloted for the immutability and auditability of key title transfer events (Paavo et al., 2025). This guarantees that once a title transfer is recorded, it cannot be retroactively altered without a consensus mechanism, eliminating the primary risk of political intervention and fraud. The UDLR reduces Search and Verification Costs from months to mere seconds, instantly de-risking collateral and unlocking the mortgage market.
✓ Phased Rollout: Following a successful pilot in major commercial hubs (Lagos, Abuja, Port Harcourt), the Federal Government must enforce a phased national mandate, setting clear deadlines for states to comply and providing technical assistance for the transition.

- *PropTech Ecosystem Development for Valuation and Monitoring*

To overcome Valuation Opacity and Forecasting Failure, the market must transition from speculative valuation to data-driven risk modeling.

- *Implementation Strategy:*

✓ Mandatory Transaction Data Disclosure: Regulatory bodies (e.g., the Federal Inland Revenue Service, FIRS, and State Land Registries) must enforce the mandatory, public, anonymized disclosure of all formal real estate transaction data (price, date, location, property type) as a condition of property registration. This data pool is the feedstock for the next critical tool.
✓ Creation of a National House Price Index (HPI): The Nigerian Bureau of Statistics (NBS), in partnership with key financial institutions and the Central Bank of Nigeria (CBN), must be mandated and funded to develop and maintain a transparent, algorithm-driven National HPI. This HPI, based on actual transaction data, provides the stable valuation benchmark required for mortgage underwriting and the accurate pricing of financial instruments like REITs, directly addressing Collateral Uncertainty.
✓ GIS Mapping and Satellite Imagery Integration: Utilising Geographic Information Systems (GIS) and high-resolution satellite imagery enables authorities to map, track, and monitor urban expansion and development permits in real-time. This technology serves three functions: it ensures planning compliance, verifies asset existence for valuation, and helps combat the development of Lagos' illegal estates (Anthony, 2025), thereby lowering enforcement costs.
✓ Incentivizing PropTech Start-ups: The government should offer tax incentives and fast-tracked licensing to start-ups specializing in automated valuation models (AVM) and land management software, fostering the emergence of non-imitable, technology-enabled resources within the private sector.

➢ *Strategic Approach 2: Innovative Infrastructure Financing and Delivery*

To address the Infrastructure Deficit and eliminate the Self-Provisioning Tax that destroys affordability, developers must be released from the burden of providing core utilities. The strategic focus must shift from developers paying for infrastructure to infrastructure paying for itself by capturing value.

- *Leveraging Public-Private Partnerships (PPP)*

The financial scale of the infrastructure gap necessitates the mobilization of private sector capital and expertise, specifically through well-structured PPP models that transfer risk appropriately.

- *Implementation Strategy:*

✓ Model Selection: BOT for Utilities: For large-scale housing projects and industrial parks, the Build-Operate-Transfer (BOT) model is the most effective. The private partner designs, builds, operates (and collects tariffs for) a utility (e.g., a mini-grid power plant or water treatment facility) for a specified concession period before transferring ownership back to the government. This model:
✓ Mitigates Developer CapEx: Removes the CapEx associated with off-grid power generation from the developer's balance sheet.
✓ Ensures Service Quality: Private operation introduces efficiency, lowering the OpEx associated with diesel and maintenance, thereby reducing service charges and increasing property yield (PwC, 2024).

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- ✓ Guaranteed Off-take/Sovereign Guarantees: To attract high-caliber international partners, government entities must offer reliable mechanisms, such as minimum revenue guarantees or sovereign backstops, to mitigate political and demand risk, thereby lowering the Elevated Hurdle Rate required by investors (JLL, 2025).
- ✓ Sector-Specific PPP Units: Dedicated, independent PPP units should be established within state housing and infrastructure ministries, insulated from political cycles and staffed by technical experts to ensure project stability and continuous contract enforcement, directly addressing Policy Inconsistency.

➢ *Tax Increment Financing (TIF) and Land Value Capture (LVC)*

These mechanisms allow public infrastructure to be funded sustainably without relying solely on strained municipal budgets, directly addressing the last-mile road deficit.

- *Implementation Strategy:*

- ✓ Tax Increment Financing (TIF): State governments should designate specific development zones (e.g., new urban extensions) as TIF districts. The base value of property taxes is frozen, and any *incremental* revenue generated from increased property values, which results directly from new public infrastructure (e.g., new access roads, improved drainage), is dedicated to repaying the debt used to finance that initial infrastructure.
- ✓ Benefit: This uses the wealth created by the infrastructure itself to pay for the infrastructure, linking capital deployment directly to value creation.
- ✓ Land Value Capture (LVC) Mechanism: A formal legal framework must be introduced to enable the imposition of a one-time betterment levy or special assessment fee on land parcels that experience a demonstrable, quantifiable increase in value due to public infrastructure investment (e.g., proximity to a new light rail station).
- ✓ Benefit: This prevents speculative hoarding of land that benefits from public spending and ensures that landowners contribute a fair share of the 'unearned' value increase toward future infrastructure projects. Successful LVC can cover up to 50% of transit infrastructure costs (World Bank, 2024).
- ✓ Affordability Mandate Integration: TIF and LVC models must be explicitly linked to an affordability mandate, ensuring that a portion of the captured value is specifically channeled toward subsidizing the infrastructure costs of mass affordable housing projects, thereby mitigating the Cost Stacking Barrier.

➢ *Strategic Approach 3: Policy, Governance, and Capacity Building*

Ultimately, technology and financing models cannot succeed without a fundamental reform of the governance structure. This strategic approach targets the institutional framework to lower bureaucratic friction and eliminate regulatory arbitrariness, restoring the rule of law as a foundation for long-term investment.

- *Regulatory Streamlining and Permit Enforcement*

To combat the delays, opacity, and associated corruption, the entire regulatory approval process must be digitally simplified and time-bound.

- *Implementation Strategy:*

- ✓ Unified Digital Permit Portal: States must establish a single, mandatory digital platform for *all* development approvals (zoning, building plans, environmental impact assessments). This portal enforces a checklist-based submission, eliminating the subjective demands and multiple stops that fuel corruption.
- ✓ Enforced Service Level Agreements (SLAs): Every regulatory approval stage must be assigned a maximum, legally binding SLA (e.g., Title Search: 3 days; Building Plan Approval: 15 days). Crucially, the system must include a Deemed Approval clause: if the government agency fails to provide a decision (approval or rejection) within the SLA period, the application is automatically approved, shifting the cost of bureaucratic failure onto the state (Sulaimom, 2025). This directly tackles Permit Opacity and the resulting unofficial costs.
- ✓ Public Disclosure of Enforcement Actions: All major regulatory actions (e.g., demolition notices, sanctions, permit denials) must be publicly logged on the digital portal with clear, verifiable reasons (Lagos State Survey, 2024). This transparency reduces the risk of selective demolition/sanction and allows firms to conduct objective risk assessment.

➢ *Human Capital and Professionalization*

The enforcement deficit is a direct result of capacity gaps and institutional opacity within municipal and planning authorities.

- *Implementation Strategy:*

- ✓ Mandatory Technical Re-training: A national program, in partnership with professional bodies (e.g., Nigerian Institute of Town Planners, NIQS), must be instituted for all municipal planning, valuation, and land registry staff. The training must prioritize technical skills in digital cadastral management, GIS, data governance, and automated valuation modeling (AVM). This ensures that staff possess the core competencies to manage the new digital infrastructure.
- ✓ Performance-Based Remuneration and Rotation: Compensation packages must be restructured to reward staff based on verifiable metrics (e.g., adherence to permit SLAs, reduction in title dispute cases, and HPI data submission quality). Furthermore, strict personnel rotation policies should be implemented for high-friction roles (e.g., land registry, permit issuance) to prevent the long-term formation of corrupt networks and mitigate political risk (KPMG, 2024).
- ✓ Open Data Governance Mandate: To ensure the sustainability of the data interventions, all relevant government agencies must adopt an Open Data Policy, making non-sensitive, aggregated planning and transaction data publicly available. This institutional

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commitment to transparency is the ultimate weapon against the opaque and arbitrary governance that deters FDI.

The implementation of these three strategic approaches; digitalizing data, innovatively financing infrastructure, and enforcing transparent governance, will collectively lower transaction costs, enable scalable operations, and transform the Nigerian real estate sector into a market compatible with long-term institutional investment.

VI. CONCLUSION AND POLICY IMPLICATIONS

➢ *Summary of Findings*

The analysis of the Nigerian real estate sector confirms that the primary constraint on institutional investment, scalability, and affordability is not a lack of capital or demand, but the systemic failure of the foundational institutions. Section 3 identified three interdependent deficits that collectively create a high-friction market environment: Data Inadequacy, resulting in valuation opacity and collateral uncertainty; the Infrastructure Deficit, imposing a prohibitive "self-provisioning tax" on development costs; and the Governance and Enforcement Deficit, introducing regulatory arbitrariness that elevates the political risk premium. The cumulative effect, detailed in Section 3.4, is the Impairment of Strategic Management, forcing investment decisions toward high-margin speculation and eliminating the viable market segment for affordable housing. Long-term, large-scale strategic operations remain non-viable due to elevated hurdle rates and unquantifiable collateral risk (JLL, 2025; Shelter Afrique, 2023).

➢ *Policy and Sectoral Recommendations*

To transition the sector from a high-cost, speculative environment to an institutionally attractive market, a concerted effort focusing on the three strategic approaches outlined in Section 4 is necessary:

- Digitalize and Unify Data (Government Bodies): The immediate implementation of a Unified Digital Land Registry (UDLR) and mandatory transaction data disclosure is critical. This intervention, leveraging cloud and DLT technologies (Paavo et. al., 2025), establishes clear title, enables objective risk assessment, and reduces title-related transaction costs (World Bank, 2024).
- Decentralize Infrastructure Financing (Developers & Financial Institutions): Core infrastructure deficits must be addressed through innovative financing. Government bodies should leverage Land Value Capture (LVC) and structured BOT-model Public-Private Partnerships (PPPs) to fund utilities and roads, thereby removing the "self-provisioning tax" from the developer's balance sheet (PwC, 2024). Developers must actively participate in these schemes to achieve the economies of scale needed for mass housing production.
- Enforce and Streamline Governance (Regulatory Agencies): Regulatory agencies must enforce Service Level Agreements (SLAs) for permits via a single digital portal with a "Deemed Approval" clause (Sulaimon, 2025). This streamlining, supported by the professionalization and digital re-training of municipal staff (KPMG, 2024), is essential to eliminate bureaucratic friction and restore the rule of law.

LIMITATIONS AND FUTURE RESEARCH

The primary limitation of this study is its focus on the most developed urban real estate markets (Lagos, Abuja), where the scale of deficits and capital concentration is most pronounced. While the findings on data and governance are applicable nationally, regional variations in land tenure (e.g., in Northern states) and customary law necessitate further specialized study.

Future research should focus on two key areas: First, developing a Standardized National Housing Price Index (HPI) methodology based on anonymized transaction data, providing the empirical foundation for market forecasting. Second, quantifying the Net Economic Benefit of adopting DLT/Blockchain in land administration to provide a concrete, persuasive investment case for necessary political and fiscal buy-in at the state level.

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