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### RESEARCH ARTICLE

## DIGITISATION OF LAND REGISTRIES IN SOUTH-SOUTH NIGERIA: ASSESSING INSTITUTIONAL CAPACITY

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#### Abstract

The digitization of land administration systems (LAS) has been promoted as a means of enhancing transparency, tenure security, and efficiency in Nigeria. Yet, in the South-South region, land registries continue to exhibit institutional fragilities that threaten digital transformation. This study assesses the institutional capacity of land registries in Akwa Ibom, Bayelsa, Cross River, Delta, Edo, and Rivers States, focusing on the internal strengths and weaknesses of institutional organisations and standardized processes. A mixed methods design was adopted, combining structured surveys of registry staff ( $n = 384$ ), key informant interviews, and secondary data. Data were analysed using structural equation modelling (SEM) to evaluate the influence of institutional capacity dimensions on digitisation readiness. The results show that institutional organisations ( $\beta = 0.42$ ,  $p < 0.01$ ) and standardised processes ( $\beta = 0.51$ ,  $p < 0.001$ ) significantly shape readiness for LAS digitisation, with processes exerting the stronger influence. While some strengths were identified, such as leadership support and emerging automation practices, weaknesses remain in staff training, process harmonisation, and data standards. The study concludes that sustainable LAS digitisation in South-South Nigeria requires targeted institutional reforms, including capacity-building, standardised workflows, and accountability frameworks. Findings provide empirical benchmarks to inform policy, practice, and scholarly discourse on digital land governance.

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#### Introduction:-

Digitised land administration has been widely advocated as a solution to the endemic inefficiencies that plague traditional land governance systems in Nigeria (Akinsulore & Akinsulore, 2021; Nissi, Ewurum and Diala, 2021). Yet, across the six states of the South-South geopolitical zone, Akwa Ibom, Bayelsa, Cross River, Delta, Edo, and Rivers, the transition from paper-based registries to digital platforms remains uneven, slow, and institutionally fragile. Land registries in this zone continue to rely heavily on manual or hybrid systems characterised by procedural delays, opacity, and inconsistent workflows (Akor & Ihuah, 2024; Ewurum et al., 2019). For instance, certificate of occupancy (C-of-O) issuance still spans between three to six months in Rivers State due to bureaucratic inefficiencies, while in Bayelsa, digitisation efforts have stalled amid recurrent institutional setbacks. Despite isolated progress in states such as Cross River and Akwa Ibom, where public-private partnerships and legal

mandates have enabled limited digital rollouts, there is scant empirical evidence on the institutional readiness of land registries across the region for sustained digital transformation.

From a nationwide perspective, the institutional challenges are complex. First, human resource limitations, including a shortage of trained GIS and cadastral ICT personnel, restrict the operability of digital systems (Azie et al., 2022). Second, inter-agency fragmentation and lack of harmonised data standards impede interoperability and generate redundancies in workflows (Ewurum et al., 2020). Third, legacy data constraints, stemming from unstructured manual records and poor archival practices, complicate the migration to digital formats. Fourth, resistance to organisational change and weak administrative accountability slow the adoption of new technologies, particularly in registries that are yet to institutionalise standard operating procedures for digitised workflows (Nissi et al., 2021).

Although digitisation promises enhanced transparency, improved tenure security, and faster land transactions, these benefits are contingent upon internal institutional capacity. This includes not only technical infrastructure but also the governance culture, staff competence, policy frameworks, and organisational commitment to reform. The absence of an integrated assessment framework to evaluate these dimensions undermines effective decision-making, capacity building, and resource allocation by governments and development partners.

This study therefore fills a critical gap by conducting a systematic assessment of institutional capacity for land registry digitisation in South-South Nigeria. Using a triangulated methodology involving structured surveys, structural equation modelling, and qualitative interviews, the study interrogates the internal strengths and weaknesses that mediate readiness for digital land administration. Its findings contribute to a growing body of land governance literature by empirically situating the institutional preconditions for successful LAS digitisation in federated, resource-intensive, and administratively complex settings.

### **Objectives of the Study:-**

This study seeks to evaluate the internal institutional capacity of land registries across the South-South geopolitical zone of Nigeria in the context of digitisation. Specifically, it aims to:

1. Assess the strengths and weaknesses that influence readiness for digitised land administration system (LAS) adoption in the South-South region of Nigeria.
2. Examine the institutional capacities affecting the deployment of technology for standardising LAS procedures across land registries in the study area.
3. Identify the internal issues that shape the implementation of digitised information distribution within the land administration workflow.
4. Determine the strengths and weaknesses that underpin the technological capability of LAS digitisation efforts across the six state land registries in the region.

### **Justification of the Study:**

While digitisation is widely recognised as a transformative pathway for modernising land administration systems, its success is ultimately dependent on institutional capacity within implementing agencies. In the South-South region of Nigeria, existing LAS infrastructures are still predominantly manual or only partially digital, raising critical concerns about whether registry institutions possess the requisite internal capacities to sustain a transition toward full digitisation.

Empirical evidence remains sparse on the specific strengths, such as skilled personnel, policy clarity, or operational frameworks, and the institutional weaknesses, including bureaucratic inertia, poor record-keeping practices, and limited ICT expertise, that shape digitisation outcomes in this region. Most studies adopt either a generic national lens or focus on external factors such as policy environment or infrastructure deficits, thereby leaving the internal dynamics of land registries underexplored.

This study is therefore justified on two grounds. First, it seeks to offer a registry-level diagnostic of institutional enablers and constraints, thereby responding to the urgent need for empirical benchmarks to inform sub-national LAS reforms. Second, by isolating the strengths and weaknesses that condition digitisation success or failure, the study provides a focused basis for targeted capacity-building, strategic planning, and institutional reform across state land registries. Thus, the study's insights are expected to inform evidence-based policy and operational interventions that strengthen institutional capacity for digital transformation in Nigeria's land administration sector, beginning with the South-South zone.

**Review:****Conceptual Perspectives:****Land Administration as an Institutional Construct:**

The conceptualisation of land administration has evolved beyond a narrow technical apparatus of cadastres and registries to a broader institutional infrastructure encompassing legal, administrative, and governance systems that operationalise land rights, valuation, use, and development (UNECE, 2005; Enemark, 2005). Yet, within the Nigerian context, and especially in the South-South geopolitical zone, this institutional ideal remains aspirational. What persists are fragmented bureaucracies, inconsistent data practices, and human resource inadequacies that undermine the operational coherence required for land administration digitisation.

While land is often valorised as an economic and social asset, the institutional machinery charged with its administration in Nigeria exhibits systemic inertia. This inertia is not simply an absence of technology, but a manifestation of institutional weakness: misaligned organograms, poor staff training, opaque workflows, and rigid hierarchies (Azie et al., 2022; Ewurum et al., 2020). Thus, the capacity question is not “what technologies exist?” but “what internal capabilities govern their integration, management, and sustainability?”

**Digitisation:**

The digitisation of land registries is globally promoted for its potential to address tenure insecurity, corruption, and inefficiencies (McLaren & Stanley, 2017). Yet, the framing of digitisation as a technical fix obscures its institutional embeddedness. A digital land administration system (LAS) is not a neutral platform, it encodes within it the values, competencies, and organisational logics of the institutions that deploy it (Zulkifli et al., 2023). In South-South Nigeria, where registry processes are still defined by manual handling, the deployment of GIS platforms, QR-coded C-of-Os, and blockchain-based titles has proven uneven (Akor et al., 2024; Nissi et al., 2021), not because the technologies are unavailable, but because the institutional readiness to absorb them is variable.

Critically, where LAS digitisation has occurred, it is often donor-driven, elite-mediated, or implemented as isolated pilots lacking systemic integration. For instance, AKWAGIS and EDOGIS illustrate that limited success is possible where political will, staff competence, and internal coordination coalesce (Ahiakwo, 2023). However, in states where staff training is inconsistent, archiving is manual, and reform culture is weak, digital reforms routinely stall or regress. This reflects a structural weakness in institutional absorptive capacity, which this study foregrounds as a decisive factor in reform outcomes.

**SWOT Analysis:**

The application of a SWOT framework, traditionally used for organisational strategy, is here retooled as a diagnostic mechanism for interrogating institutional capacity. Importantly, this study isolates only the internal dimensions, comprising the strengths, such as trained personnel (Azie et al., 2022; Nissi et al., 2021), ICT deployment (Ahiakwo, 2023; Edo State GIS, 2025), and legal mandate (Ewurum et al., 2020; AkwaGIS, 2025); and the weaknesses consisting of resistance to change (Ewurum, Egolum and Ogbuefi, 2019), fragmented data systems (Okolo et al., 2024; Ugonabo et al., 2023), and procedural opacity (Akor&Ihuah, 2024; Adjekophori et al., 2020). This internal focus is analytically significant.

First, it shifts the emphasis from infrastructure to governance. Second, it avoids the false optimism of technology determinism, recognising that technology layered over dysfunctional institutions rarely yields reform. Third, it captures registry-level variability, often masked in national averages. As Gharachorloo et al. (2021) and Alaqlobi et al. (2025) argue, a disaggregated, empirically grounded understanding of institutional capacity is essential to avoid generalisations that gloss over context-specific constraints and capabilities.

However, this framing is not without critique. Traditional SWOT models have been dismissed for being static and overly simplistic (Karadzhev, 2025; Nygaard, 2024). In response, this study adapts the framework into a contextualised and empirical institutional audit, moving beyond perception-based checklists toward measurable dimensions of internal functionality. This innovation allows the SWOT to function not as a descriptive summary, but as a conceptual bridge between organisational theory and digital governance reform.

**Institutional Strengths and Weaknesses:**

Drawing from the literature, four domains of institutional capacity emerge as especially critical in land registry digitisation. These are Human Resources, Administrative Processes, Data Systems, and Internal Governance Culture.

**a) Human Resources:**

The availability of trained personnel in cadastral ICT, GIS, and digital archiving is a cornerstone of LAS digitisation. Studies in Anambra and Enugu have shown that where staff are equipped with relevant skills, digital transformation accelerates (Azie et al., 2022). Yet, in most South-South states, capacity development is ad hoc and donor-dependent.

**b) Administrative Processes:**

Weaknesses here include inconsistent standard operating procedures, lack of workflow automation, and absence of internal audit systems. These inefficiencies reduce the reliability of registry outputs and frustrate digital integration (Ewurum et al., 2019).

**c) Data Systems:**

The shift from manual to digital records is not merely technical, but requires robust metadata standards, digitisation protocols, and archival integrity. Fragmented or illegible data, still prevalent in many registries, impede system interoperability and legal enforceability (Ugonabo et al., 2023).

**d) Internal Governance Culture:**

Reform readiness is shaped by an organisation's willingness to abandon entrenched routines, embrace transparency, and align incentives with performance. Resistance to change, whether due to job security fears, patronage networks, or lack of digital literacy, remains an under-acknowledged institutional constraint.

Critically, these domains interact. For instance, the presence of strong ICT infrastructure cannot compensate for poor staff capacity or weak inter-departmental coordination. Therefore, institutional capacity must be understood as a system of co-dependent strengths and weaknesses, not isolated variables. The literature reflects a consensus that without strengthening internal organisational capabilities, digital reforms risk becoming performative rather than transformative (Nissi et al., 2021; Ameyaw & de Vries, 2023). Moreover, existing national studies often adopt a macro-analytical approach that overlooks sub-national realities and registry-specific heterogeneity. Thus, this study contributes a necessary corrective to the technocratic optimism in LAS digitisation literature.

**Theoretical Framework:**

Land administration digitisation, while often perceived through the lens of technological innovation, is ultimately an institutional transformation process. The underlying theory guiding this study is therefore not a technical adoption model per se, but one that focuses on the organisational structures, capacities, and internal processes through which digital reforms are absorbed, resisted, or operationalised. This study is conceptually anchored in Institutional Theory, supported by the Bathurst Declaration Framework on land administration for sustainable development, and practically operationalised through the SWOT institutional diagnostic model.

**Institutional Theory:**

At its core, Institutional Theory explains how organisational behaviour is shaped by enduring rules, routines, norms, and structural forces internal to institutions. Scott (2004) distinguishes three pillars of institutional structure, regulative, normative, and cognitive, which collectively determine how institutions adapt or resist change. In the context of land registries, these dimensions manifest in standard operating procedures (regulative), professional values and attitudes (normative), and implicit organisational routines or culture (cognitive).

Digitisation introduces new artefacts, such as digital cadastral systems, GIS interfaces, metadata standards. However, these can only be sustained where the institutional environment has absorptive capacity. As demonstrated in earlier studies (Ewurum et al., 2019; Azie et al., 2022), even well-funded digitisation initiatives fail when they confront weak human resources, fragmented processes, and bureaucratic resistance. Thus, institutional theory provides a critical lens for interrogating internal strengths, like trained personnel, workflow standardisation. and institutional weaknesses, like procedural inertia, inadequate ICT literacy as predictors of LAS digitisation readiness.

This theory supports the study's objectives by conceptualising each registry's performance not simply as a function of resources, but as an expression of its internal institutional logic, how policies, technologies, and reforms are embedded, resisted, or routinised.

**The Bathurst Declaration:**

The digital transformation of land administration systems (LAS) is increasingly framed not merely as a technological upgrade, but as a governance paradigm shift that requires deep institutional re-engineering. In this study, we adopt the Bathurst Declaration on Land Administration for Sustainable Development (UN-FIG, 1999) as the foundational theoretical lens for conceptualising and evaluating institutional capacity for LAS digitisation across the South-South geopolitical zone of Nigeria.

The Bathurst Declaration identifies four interdependent pillars for assessing land administration systems:

- (a) Institutional Organisations,
- (b) Standardised Processes,
- (c) Information Dissemination Systems, and
- (d) Enabling Technologies.

These pillars are treated not merely as operational components, but as the conceptual scaffolding through which the strengths and weaknesses of land registries can be empirically evaluated. In this study, each of the four objectives directly maps onto one of these theoretical domains, thereby enabling a coherent linkage between the study's conceptual structure and its diagnostic focus.

**Institutional Organisations:**

This pillar speaks to the internal governance architecture of land registries, encompassing leadership structures, human capital, inter-agency coordination, and staff competencies. Institutional Theory (Scott, 2004) reinforces the idea that public sector innovation is often constrained or enabled by these internal organisational logics. Within the South-South region, registries remain heavily reliant on manual systems and suffer from staff shortages, fragmented responsibilities, and a lack of cross-functional coordination (Azie et al., 2022; Ewurum et al., 2019). Conversely, states such as Edo and Akwa Ibom demonstrate institutional strength where trained digital personnel, reform-oriented leadership, and supportive legal frameworks are present. The first objective of this study, assessing the institutional strengths and weaknesses that influence readiness for digitised LAS adoption, is directly grounded in this domain.

**Standardised Processes:**

Standardisation refers to the predictability, transparency, and automation of land administration procedures such as title registration, surveying protocols, and C-of-O issuance. From a theoretical standpoint, this aligns with principles of new institutionalism, which posit that formalised procedures are crucial for minimising discretionary power and increasing system accountability. The absence of harmonised protocols across land registries in the region has led to inconsistent workflows, opacity in service delivery, and susceptibility to rent-seeking (Nissi et al., 2021). States with clearer protocols and digitised processing chains exhibit more resilient LAS systems. Accordingly, the second objective, examining internal capacities affecting the deployment of technology for standardising LAS procedures, maps onto this theoretical pillar.

**Information Dissemination Systems:**

Transparent and inclusive dissemination of land-related information is a key condition for sustainable land governance. Drawing on the Bathurst Declaration, this includes the internal ability to digitise, structure, and communicate cadastral and land tenure data in accessible formats for both institutional users and the public. While platforms such as AKWAGIS have attempted to integrate digital interfaces for information access, the broader region still suffers from weak digital archiving, poor metadata standards, and limited staff capacity in digital data management (Ugonabo et al., 2023). Theoretical perspectives from information system governance suggest that dissemination is not merely a technical function but a reflection of internal transparency culture. Thus, the third objective is directly rooted in this theoretical domain.

**Enabling Technologies:**

This final pillar recognises that digital reform must be embedded in enabling technological ecosystems, such as integrated GIS systems, cadastral servers, interoperable platforms, and cybersecurity protocols. From a theoretical

perspective, the ability of an institution to integrate enabling technologies is a function of its absorptive capacity, its internal preparedness to adopt, customise, and institutionalise innovations (Cohen & Levinthal, 1990). In the South-South region, enabling technologies are inconsistently deployed due to legacy data constraints, poor interconnectivity, and a lack of ICT staff. Enabling technology is not a stand-alone solution; it is filtered through the institutional readiness to harness its full functionality. The fourth objective on determining the strengths and weaknesses that underpin the technological capability of LAS digitisation efforts is aligned with this pillar.

The study departs from narrow interpretations of LAS reform as merely a matter of digital hardware or policy prescriptions. Instead, it positions institutional capacity as a multi-pillar system of interlocking internal functions, governance structures, workflow formalisation, information management, and technological readiness. This enables a disaggregated, and empirically testable understanding of what facilitates or impedes digitisation at the land registry level.

The theoretical framework not only underpins the empirical investigation but also offers broader relevance for federated land governance systems attempting to transition from fragmented analog registries to digitised, interoperable, and citizen-oriented land administration platforms. In essence, the Bathurst framework acts as a domain-specific institutional performance model and provides the evaluative basis for assessing internal readiness for LAS digitisation. It bridges the macro-objectives of reform with micro-institutional realities.

### **Empirical Review:**

The digitisation of land administration systems (LAS) has been a focal area of empirical research in recent years, particularly in developing countries grappling with tenure insecurity, inefficient record systems, and weak governance structures. While global literature has explored diverse facets of LAS reform, ranging from technological applications to socio-political impacts, the empirical discourse in Nigeria remains relatively underdeveloped, especially with respect to sub-national institutional capacity. This review critically evaluates empirical findings from recent studies, with an explicit focus on four dimensions: institutional organisations, standardised processes, information dissemination systems, and enabling technologies. These dimensions are reviewed as discrete but interconnected internal capacity pillars, consistent with the structure of this study.

### **Institutional Readiness:**

Several empirical studies have confirmed that human capital and organisational structure are key determinants of LAS digitisation outcomes. Azie et al. (2022) highlight how the absence of trained personnel in digital cadastral systems, coupled with a lack of institutional accountability, continues to stall registry reform across several Nigerian states. In the South-South zone, registry staff shortages, unclear role allocations, and lack of reform orientation have been identified as institutional weaknesses impeding digital transformation. Conversely, Edo and Akwa Ibom states demonstrate how committed leadership and staff upskilling can yield modest success in GIS integration and e-C-of-O issuance (Ahiakwo, 2023).

Furthermore, studies by Azie et al. (2022) buttress the importance of aligning digital reforms with the internal knowledge systems of registry institutions. Even where technology is introduced, weak inter-departmental communication and fragmented reporting structures undermine coordination and implementation. These findings substantiate the present study's first objective: to assess the institutional strengths and weaknesses influencing readiness for digitised LAS adoption.

### **Standardised Processes:**

The standardisation of registry processes, title registration, survey validation, and data capture, has been shown to significantly impact the efficiency of LAS digitisation. Nissi et al. (2021) argue that without clear workflows and harmonised protocols, digital tools become absorbed into existing bureaucratic dysfunctions rather than transforming them. This is particularly relevant in South-South Nigeria, where most registries still operate using manual or hybrid systems lacking uniform procedures. In Rivers and Bayelsa, for instance, certificate issuance timelines range between three to six months, and informal discretionary practices remain widespread (Akor&Ihuah, 2024).

By contrast, EDOGIS in Edo and AKWAGIS in Akwa Ibom exhibit relative procedural strengths, including defined service timelines, digital application portals, and integrated payment systems. Yet, even these registries confront inconsistencies in backend automation and metadata protocols. These studies confirm the analytical salience of the

present study's second objective: to examine institutional capacities affecting the deployment of technology for standardising LAS procedures.

### **Information Dissemination Systems:**

Digital land governance is premised not only on data storage but also on the transparent dissemination of land information. However, empirical studies indicate that registries in South-South Nigeria face acute challenges in this area. Ugonabo, Egolum, and Sado (2023) report that digitised land records are often inaccessible to external stakeholders due to poorly maintained archives, lack of metadata standards, and untrained staff. This impedes public trust, investor confidence, and inter-agency collaboration. Platforms that do exist (Cross River's QR-based C-of-O system) are frequently underutilised due to user-interface constraints and backend fragmentation.

Ewurum et al. (2020) and Okoro&Ogbuefi (2021) further argue that information opacity is not only a technical issue but also an institutional one, linked to a reluctance among registry staff to adopt transparency-oriented practices. These findings underscore the study's third objective: to identify internal strengths and weaknesses that shape the implementation of digitised information dissemination systems.

### **Enabling Technologies:**

While the technological infrastructure for LAS digitisation is advancing globally, its absorption at the registry level in Nigeria remains uneven and institutionally constrained. Azie et al. (2022) highlight a lack of integration between digital surveying tools and registry systems due to poor backend compatibility, legacy data formats, and ICT skill gaps. Even where GIS platforms are installed, as in Enugu and Lagos, low staff proficiency and inconsistent power supply impair usage. In the South-South context, states like Bayelsa and Rivers lag in deploying enabling technologies not because of absolute scarcity, but due to internal weaknesses in digital infrastructure planning and maintenance.

Ameyaw (2024) reports that Nigeria's reliance on tools like SOLA Registry and mLocGov remains donor-dependent and pilot-based, with minimal long-term institutionalisation. These empirical trends validate the study's fourth objective: to determine institutional strengths and weaknesses underpinning the technological viability of LAS digitisation.

A recurring theme across the literature is that LAS digitisation efforts in Nigeria suffer not from a lack of ambition, but from institutional weaknesses that obstruct continuity, scale, and integration. While scattered case studies exist, there is no systematic, comparative diagnostic of internal institutional capacity across the federated land registries of the South-South region. Most studies offer national overviews or focus on external challenges such as legal frameworks and funding constraints, thereby leaving unexamined the nuanced institutional dynamics that vary across sub-national entities.

This study addresses this empirical gap by conducting a registry-level SWOT analysis confined to internal strengths and weaknesses, guided by the Bathurst Declaration's four-pillar framework. Its mixed-methods approach, integrating structural equation modelling with qualitative thematic analysis, offers a granular institutional assessment that is both theoretically anchored and practically actionable.

### **Methodology:-**

The study employed a mixed-methods design that integrates quantitative and qualitative approaches. The quantitative arm relied on a structured questionnaire administered to staff of state land registries across the South-South, while the qualitative arm involved semi-structured interviews with senior registry officials. This design was chosen to provide both measurable evidence of institutional strengths and weaknesses, as well as rich contextual explanations of capacity gaps affecting LAS digitisation.

The study was carried out in the six states of Nigeria's South-South geopolitical zone: Akwa Ibom, Bayelsa, Cross River, Delta, Edo, and Rivers. These states were selected because they represent the core Niger Delta, a region where the pressure for secure land tenure, rapid urbanisation, and natural resource contestations makes efficient land administration particularly critical.

The study population comprised staff and administrators of State Land Registries, including surveyors, ICT/GIS staff, records officers, legal officers, and directors of land services. The sample size was determined using Freund

&Williams sample size determination formula, providing a sample of 291 respondents. Quota sampling was used to ensure proportionate representation of registry personnel in each state. Additionally, 12 purposively selected key informant interviews were conducted with registry directors and senior technical officers to enrich the quantitative findings.

Data were collected from primary sources using a Likert-scale questionnaire and interview schedule. Quantitative data analysis employed Structural Equation Modelling (SEM) implemented in AMOS. SEM was employed because it allows the simultaneous testing of latent constructs (institutional organisations, standardised processes) and their observed indicators. The SEM models were specified as follows:

**1. Measurement Model (Confirmatory Factor Analysis) (Equation I):**

$$X = \Lambda_x \xi + \delta$$

Where  $X$  = observed indicators (questionnaire items),  $\Lambda_x$  = factor loadings of observed variables on latent constructs,  $\xi$  = latent constructs (institutional organisations, standardised processes), and  $\delta$  = measurement errors.

**2. Structural Model (Equation II):**

$$\eta = B\eta + \Gamma\xi + \zeta$$

Where  $\eta$  = endogenous latent variable (institutional capacity for digitisation),  $B$  = coefficients among endogenous variables,  $\Gamma$  = effects of exogenous constructs ( $\xi$ ) on  $\eta$ , and  $\zeta$  = error terms. Model fit was evaluated using indices such as Chi-square/df, CFI, TLI, RMSEA, and SRMR.

Interview data were analysed thematically. Narratives were coded into themes reflecting strengths and weaknesses. These were further triangulated with the quantitative SEM results to validate findings. In terms of ethical considerations, the study complied with institutional research ethics. Participants were briefed about the study objectives and approved informed consent forms. Anonymity and confidentiality were assured by coding responses, and participation was entirely voluntary.

**Results:-**

**Measurement Model (Confirmatory Factor Analysis – CFA):**

The CFA was conducted to validate the latent constructs of Institutional Organisations and Standardised Processes. Results are presented in Table 1.

**Table 1: CFA Results for Institutional Capacity Constructs**

Latent Construct	Indicator	Factor Loading ( $\lambda$ )	p-value	Decision
Institutional Organisations	Availability of trained ICT/GIS staff	0.78	<0.001	Significant
	Leadership support for digitisation	0.74	<0.001	Significant
	Role clarity & coordination mechanisms	0.69	<0.001	Significant
	Staff capacity development (training)	0.63	<0.001	Significant
Standardised Processes	Clear title registration protocols	0.81	<0.001	Significant
	Digitised workflows (automation)	0.76	<0.001	Significant
	Service delivery timelines	0.71	<0.001	Significant
	Uniform data standards across registries	0.68	<0.001	Significant

Model fit indices:  $\chi^2/df$  = 2.06; CFI = 0.962; TLI = 0.951; RMSEA = 0.048; SRMR = 0.043.

The values in Table 1 fall within acceptable thresholds, thereby confirming construct validity. This implies that institutional organisations and standardised processes were measured reliably. The strongest loading was clear title registration protocols ( $\lambda = 0.81$ ), highlighting the centrality of process clarity. However, staff training scored lowest ( $\lambda = 0.63$ ), pointing to persistent weakness in human capacity.

The structural model, arising from Equation II, examined how the two constructs (Institutional Organisations, Standardised Processes) predict Institutional Capacity for Digitisation. Results are presented in Table 2.

**Table 2: SEM Path Estimates for Institutional Capacity**

Path Relationship	Std. Estimate ( $\beta$ )	SE	CR	p-value	Decision	Influence
Institutional Organisations → Institutional Capacity	0.42	0.07	6.00	<0.001	Significant	Positive
Standardised Processes → Institutional Capacity	0.51	0.08	6.38	<0.001	Significant	Positive

Model fit indices:  $\chi^2/df = 2.12$ ; CFI = 0.957; TLI = 0.946; RMSEA = 0.050; SRMR = 0.045.

Table 2 demonstrates that both institutional organisations ( $\beta = 0.42$ ) and standardised processes ( $\beta = 0.51$ ) exert significant positive effects on institutional capacity for LAS digitisation. However, standardised processes had a slightly stronger influence, emphasising the importance of predictable, replicable, and automated systems over organisational structure alone.

For Objective 1 (Assess the strengths and weaknesses that influence readiness for digitised LAS adoption), these results posit the following:

- i) **Strengths:** Leadership support ( $\lambda = 0.74$ ) and trained ICT/GIS personnel ( $\lambda = 0.78$ ).
- ii) **Weaknesses:** Limited staff training systems ( $\lambda = 0.63$ ) and fragmented coordination.

These imply that readiness is constrained more by weak human capacity development than leadership commitment.

For Objective 2 (Examine institutional capacities affecting deployment of technology for standardising LAS procedures), we extricate the following from the results:

- i) **Strengths:** Title registration protocols ( $\lambda = 0.81$ ) and automated workflows ( $\lambda = 0.76$ ).
- ii) **Weaknesses:** Inconsistent data standards ( $\lambda = 0.68$ ) across registries.

By implication, standardisation requires not just automation but also harmonisation of data formats.

Data concerning objectives three and four were obtained using interview schedule on key personnels in the ministries. This was as a result of the managerial complexion of the objectives which focus on implementation monitoring and technological infrastructure development. Consequently, the following insights emanate from the thematic coding of interview results.

**Objective 3:** Identify internal issues shaping the implementation of digitised information distribution.

While not modelled as a separate latent construct, information dissemination was probed in interviews. Registries cited fragmented databases and limited staff ability to manage web-based dissemination systems. Staff attitudes and lack of role clarity emerged as weaknesses.

**Objective 4:** Determine the strengths and weaknesses underpinning technological capability of LAS digitisation.

Key personnel interviewed by the study opine that weak ICT training pipelines undermine technology absorptive capacity, arising from what they described as chronic underfunding of ICT infrastructure in the states. This view implies that enabling technologies are only as effective as institutional bureaucracies.

### Conclusion and Implications of the Study:-

#### Conclusion:-

This study set out to assess the institutional capacity of land registries in South-South Nigeria for the digitisation of land administration systems, with a particular focus on the internal dimensions of institutional organisations and standardised processes. The findings demonstrate that while progress has been made in areas such as leadership support, title registration protocols, and the introduction of automated workflows, substantial weaknesses persist. These include inadequate staff training systems, inconsistent data standards across registries, and weak coordination mechanisms.

The SEM results confirm that both institutional organisations ( $\beta = 0.42$ ) and standardised processes ( $\beta = 0.51$ ) significantly influence institutional readiness for digitisation, with the latter exerting a stronger effect. This indicates that predictable, replicable, and automated processes are more decisive than governance structures alone in enabling

effective digital transformation. However, without strengthening internal human capacity and harmonising procedural standards, digitisation initiatives risk becoming fragmented and unsustainable.

In essence, the study concludes that digitisation success in South-South Nigeria is less constrained by infrastructural deficits and more by internal institutional weaknesses, particularly in human capacity development and process harmonisation. This reinforces the argument that sustainable LAS digitisation must begin with strengthening the internal institutional foundations of land registries.

### **Implications of the Study**

#### **1. Policy Implications:**

- i) Policymakers should prioritise capacity-building programmes for registry staff, particularly in ICT and GIS competencies, to address persistent weaknesses in technical absorptive capacity.
- ii) There is a need for state-level harmonisation frameworks to standardise title registration protocols and data formats across registries, thereby reducing fragmentation and redundancy.
- iii) LAS reform policies should move beyond infrastructure provision to embed institutional reforms that strengthen accountability, role clarity, and workflow integration.

#### **2. Practical/Operational Implications:**

- i) Land registries should institutionalise continuous training pipelines, enabling staff to adapt to evolving digital tools and minimise process disruptions.
- ii) Registry leadership should implement process automation benchmarks, such as maximum service delivery timelines for C-of-O issuance, to ensure predictability and improve public trust.
- iii) Investments in enabling technologies (database platforms, workflow management software) should be accompanied by process audits to ensure they are integrated into standardised, transparent workflows.

#### **3. Scholarly Implications:**

- i) The study enriches land administration scholarship by empirically demonstrating that the Bathurst Declaration's first two pillars, institutional organisations and standardised processes, remain critical yet underdeveloped dimensions in LAS reform.
- ii) The study provides a diagnostic model for evaluating digitisation readiness in federated contexts by isolating internal strengths and weaknesses, which can be replicated in other resource-dependent developing regions.

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