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# **From Rent Gap to Social Injustices: Exploring Digital Land Governance and Displacement in Urban Ghana**

**A PhD Project Proposal**

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## 1.0 Introduction

“Property is not a thing but, a social relation.”

Lund (2008).

In the quest for transparency and efficiency in line with the National Land Policy (1993), the Government of Ghana (GoG) in collaboration with development partners designed the Ghana Enterprise Land Information System (GELIS) to create a fully integrated digital land management environment. However, its progress had been curtailed by a mirage of challenges hampering the planned full rollout and sustainability leading to partial digitization limited to some few localities (Deane & Quaye, 2017; Owusu Ansah, 2022). Subsequently, the Lands Commission deployed the Enterprise Land Information System (ELIS) focusing mainly on digital land title registration. Yet again, ELIS even though currently been implemented in Accra alone, faces challenges likely to mar the very reasons for its design - efficiency, accountability and the subsequent likelihood of hampering the scale up to other jurisdictions (Benjamin & Nana, 2025; Owusu Ansah et al, 2024; Asiedu, 2020).

Many scholarly works have sort to theorize the interlinkages between digital land tools and transformative land governance with the propensity of bridging rent gaps (Qiao & Feng, 2023; Enemark, et al., 2014). This argument has been augmented in recent research in resource governance substantiating the ease of property owners in participatory land governance (Mahlangu et al., 2025; Rodima-Taylor, 2023). However, such contestations are to some extent bias and highly case sensitive. Many often lose focus of the prevailing peculiar land governance architecture and their propensity of impact particularly in most parts of the Global South (Gyan, 2024; Enemark, et al., 2016). In fact, Rodima-Taylor (2023) even though emphasizing the significance of land blockchainization; claims the nature of land tenure system can inhibit the course of digital land governance (DLG) possibly leading to adverse effects on spatial governance (Kulynych, 2022). Consequently, the slow expansion of DLG across Ghana is mainly birthed from weak institutional frameworks and policy enforcement anchored on legal pluralism of both statutory and customary laws that often intersect, overlap or conflict (Mensah, 2021; Ruffin, 2018). The informal nature of customary law particularly relying on oral agreements and varied jurisdictional customs lead to ambiguities that are difficult to reconcile with formal land records stored within systems like GELIS and ELIS (Boamah, 2014; Nyame & Blocher, 2010; Berry, 2001). Hence, the wholesale westernized perspectives of digital land platforms seem not fitting within the context of Ghana and several countries in Africa. Arguably, digital platforms often disregard the social and cultural dimensions of land tenure rooted in customary law mostly based on narratives and not formally documented (Gyan, 2024; Mumford, 2006). Thus, such a sociotechnical transformation is skewed to the technical processes perhaps as a result of oversimplification by technocrats in state land agencies hijacking the reforms. Equally, subsequent research reiterates the compounding effect of political interference, budgetary constraints and leadership instability within the Lands Commission of Ghana as sources of concern (Pomevor, 2024; Benjamin & Nana, 2025; Graphic Online, 2025). Furthermore, akin to such systems is the overlapping of rights leading to conflicts - where a land is registered formally but has multiple customary claimants - making resolution more complex within digital systems furthering existential complexities in governance frameworks (Ruffin, 2019). The cumulative results lead to marginalized communities and individuals alienated or distrustful of the system, thereby fostering the delays, resistance and complications associated with DLG in Ghana.

Scholarly discourse has often focused much on the beneficiary impact of digital tools to land governance in Ghana especially the capacity to rectify the plethora of challenges bedeviling the sector (Ameyaw & de Vries, 2023; Karikari, 2005). However, empirical studies demonstrate that digital land systems have varied impacts such as the reconstitution of property governance by rendering land legible to new regimes of finance and speculation cumulating to the processes of gentrification and displacement (Kulynych, 2022). Even though other schools of thought have argued that DLG alone does not automatically lead to gentrification because this needs to be in tandem with other conducive locational factors (Slater, 2023; Bernt, 2022). Abubakari et al (2018) and Democracy in Africa (2024) still argued that, as digitization processes solidify formal titles, those without formal documentation - often the vulnerable are deprived of customarily recognized land rights, making it easier for external investors, urban developers or political elites to acquire tracks of land, sometimes leading to displacement of indigenous people and the poor. Moreover, the high costs, complex bureaucratic requirements and limited access to digital infrastructure in impoverished areas further marginalize these groups (Democracy in Africa, 2024). The researcher concludes that, bridged rent gaps coupled with the incapacitation of the marginalized necessitated by DLG breeds gentrification induced displacement especially in urban Africa.

Interestingly, gentrification has recently been conceptualized in its various forms in urban Ghana (Asante et al., 2024, Asante & Bonsu, 2023; Davis, 2023; Eduful et al., 2015). However, such literature does not provide critical linkages to the teething complex land governance regimes that is postulated to facilitate unplanned gentrification and displacement in cities (Deininger et al, 2025a; Ansah et al, 2024). As a results, other scholars have contested that such studies have lost touch with the dynamics of pluralistic regimes leading to bizarre outcomes of urban development processes such as in Ghana (Gyan, 2024). Equally, emphasis in smart urban studies have concentrated on the technical processes with overstated assumptions of the feasibility of developed digital tools in different jurisdictions to the neglect of peculiar societal dimensions (Kholodilin, 2024; Snow, 2012). Premised on the above, there exists a lacuna of critical data on the nature and (intra)interlinkages between digital land systems and gentrification induced displacement inclusive of its attendant repercussions especially embedded in Ghana's peculiar land regime. The prevalence of such biases pertaining to developing countries and the displaced in urban development processes has been bemoaned by geographers such as Helbrecht, (2017). This is so pronounced to the extent that, even within studies that seek to close this gap, the data is often scattered across different sources (Deininger & Goyal, 2023) and not providing any critical linkages. This equally makes it difficult to critically evaluate the interactions and impacts of digitized land systems and to proffer practically workable strategies for implementation. While we know that gentrification and displacement are happening within the context of digital land governance, we don't fully understand the dynamic interactions of the processes in urban Ghana. The gap of understanding the critical processes and reasons by which digitalized land systems lead to gentrification and displacement in urban Ghana is partly the bane to developing the rightful strategies in using digital technologies in curbing the repercussions associated with Ghana's land governance. This could partly explain the delays in upscaling the Ghana Enterprise Land Information System (GELIS) and later the Enterprise Land Information System (ELIS) albeit over two decades of implementation – depriving the country of fully benefitting from such reforms.

To this, Owusu Ansah et al, (2024) reemphasized the need for a thorough assessment of the ELIS in the bid to digitalize the manual processes that prevail and remain insurmountable within Ghana's Lands Commission. Hence, the need for critical analyses of the (intra)interlinkages of smart infrastructure in urban development processes within the scope of Ghana's land administration. This study positions itself at this intersection, - to investigate the processes of digital land governance and how they serve as engines of contemporary gentrification induced displacement, intensifying processes of accumulation and dispossession while reshaping the terrain of struggle over the rights to urban lands in Ghana.

This study is quite interesting, promising to unearth the peculiar dynamics of the deployment of digital systems in pluralistic legal land governance regimes such as Ghana. Digital land governance platforms have been tested in Western countries within single statutory governance regimes of land without the interferences associated with pluralistic regimes (Deininger et al, 2025; Shang & Prince, 2018). Hence, it is intriguing to explore how these dynamics play out in a hybrid governance system with almost all lands under customary land governance and the associated conflicts as a result of the perceived state sponsored and hijacked DLG process in Ghana. It is insightful especially, in the midst of the complexities and hegemonies in Ghana's land governance to explore very critical questions regarding the ELIS and GELIS reforms focused mainly on urban development processes due to the known vibrancy of urban land markets in Ghana. Also, the variance of legal systems leading to institutional conflicts regarding DLG common within Africa provide a fertile ground for this study in the light of contextualizing digital land governance systems. Ghana is the appropriate case test particularly considering the wealth of experiences in digital land governance.

It is equally intriguing to explore how a standardized digital platform could achieve the outcome of unifying various land information across Ghana under fairly different customs across different traditional jurisdictions. For this reason, the researcher chooses two case studies – Tamale and Accra with diverse land customs and the experiences of the application of GELIS and ELIS respectively. Taking a cue from the above, the investigations will be carried out in Tamale (Northern Ghana) and Accra (Southern Ghana) – where both GELIS and ELIS have been implemented respectively. Accra is situated on the Southern coast of Ghana, bordered to the West by the Central region, to the North by Eastern region, to the East by Volta region and to the South by the Gulf of Guinea in West Africa. It is located in the Greater Accra region, one of the 16<sup>th</sup> regions of Ghana. Accra is the national and regional capital of Ghana and the Greater Accra region respectively hosting the seat of government and headquartering all state institutions inclusive of the Lands commission- separate offices for both the regional and the national levels. Accra is the most populated and urbanized with very fast levels of urbanization and the development of the real estate sector including informal settlements. Hence, Accra turns to be one of the most expensive in terms of housing in Ghana. It is occupied by diverse groups with land customs under the traditions of the Ga Dangme since they are the indigenous owners of the land. Equally, Accra is noted for major land litigations and a host of many unemployed with a multidimensional poverty index of about 12 percent (GSS, 2023). Tamale is the first region to have been created in the Northern sector of Ghana and it is the capital of the Northern region of Ghana. Tamale is about 600Km North of Accra.

It is located in the Savannah landscape and noted as the fastest growing city of the country. Tamale is located in between 9°16'N and 9°34'N latitude and 0°34'W – 0°57'W longitude. Equally, Tamale hosts the regional Lands Commission supervising the implementation of GELIS, other state land agencies and about four Customary Land Secretariat inclusive of the Dagban Land Secretariat supervising the other Secretariats. It has a fast-developing real estate sector particularly the sale of old buildings for commercial land uses sometimes leading to disputes. It hosts a lot of ethnic groups but the indigenes and the original land owners are the Dagombas who are patrilineal in nature. The land is mostly managed by subdivisional chiefs on behalf of the paramount chief, the Yaa-Naa. Tamale or the Northern region has recorded a lot of land related conflicts mostly land boundary disputes and some clashes between state and customary land agencies. The researcher seeks to investigate the phenomena across such two cities in Ghana through the lens of the following set questions:

## 1.1 Research questions

### 1.1.1 Main research question

How does digital land governance transform land access, management and displacement in urban Ghana and why gaps remain in terms of data inclusivity?

### 1.1.2 Sub-research questions

- a. What discourses and narratives framed the ELIS and GELIS in the context of state - customary power dynamics and the implications for smart urban infrastructural development?
- b. What are the consequences of the failure of digital land governance systems to integrate customary regimes on urban regeneration and poor?
- c. What role does digital land governance play on land values, access and tenure security of the poor and its implication for spatial inequalities within Urban Ghana?
- d. What are the dynamics of digital land governance in pluralistic legal African land governance systems?

## 2.0 Constellations of knowledge

The turn to digital platforms has introduced new opportunities for transparency, efficiency, and improved land management (Owusu Ansah et al.,2024; Qiao & Feng, 2023). Albeit, the application of these platforms also raises questions of societal challenges such as displacement and exclusivity especially among marginalized populations. This review delves into the dominant theoretical concepts and empirical literature central to the intercourse of society and such platforms. The arguments are envisioned to serve as the anchor for the establishment of a socio-digital land governance framework; to explore the processes and dynamics in Ghana's land administration and the subsequent linkages to urban displacement and spatial inequalities.

### 2.1 Pluralistic land governance: the context of Ghana

The concept of pluralism in land governance even though highly contestable among scholars and practitioners; the prevailing understanding revolves on the accessibility to and/or ownership of

land. Swenson (2018) and Ruffin (2018) therefore indicate that, it refers to the coexistence and interplay of multiple legal and normative orders made up of; statutory laws, customary rules and economic considerations that regulate land; access, ownership and use. The emergence of the concept particularly in Africa depicts overlapping of systems from layered histories of pre-colonial tenure regimes, colonial interventions, and post-colonial state-building, producing complex institutional landscapes rather than a single unified land regime (Mensah, 2021; Boamah, 2014). The motive of preserving customs and traditions while modernizing in land administration via pluralism has evolved to a complex environment for land governance reforms. Diverse contrary views exist among scholars regarding the risk and opportunities of such hybrid governance. One school is of the view that, pluralism provides the recognition of customary and community-based institutions thereby enhancing local legitimacy, aligning rules with lived practices and providing more flexible arrangements for land access (Swenson, 2018; Meinzen-Dick & Pradhan, 2002). This argument often though supported and idealized; has practically adversely influenced many spheres of governance of land (Ameyaw & de Vries, 2023; Owusu Ansah, 2022). Consequentially, others hold the view that, the coexistence of multiple authorities and rules systems within pluralism breeds legal uncertainty, overlapping claims and “forum shopping,” thereby leading to conflicts (Gyan, 2024; Marlet, 2010). These complexities are apparently enormous in the contexts of rapid land commodification, large-scale land acquisitions and urban expansion, where plural systems are stressed by new forms of demand and value through modern land governance reforms disproportionately impacting women and marginalized groups (Boamah, 2014; Marlet, 2010).

Historically, Ghana’s land governance has evolved to consist of this hybrid system with customary authorities exerting significant control over about 80 percent of the land area while state agencies manage the remaining portions (Kuusaana, 2022; Kasanga & Kotey, 2001). The customarily managed lands are called customary lands governed by chiefs and the *tendaanas*. Studie have highlighted the complex interactions between these formal and customary land tenure institutions in the country (Boamah, 2014; Gyan, 2024). As a result; among many reforms, the most recent Land Act, 2020 (Act 1036) serves as the framework to harmonize the relationships between the Customary Land Secretariats (CLS) and state land agencies, but implementation remains problematic, with ongoing tensions and power struggles complicating collaborative governance (Ibrahim, 2025; Nyame & Blocher, 2010). Scholars have sought to claim that the frictions are often as a result of lack of sufficient consultation with landowners in decision-making, exacerbating conflicts between state institutions, chiefs, and communities (Kwakye, 2024; Gyamera et al., 2017). The challenge is not just poor coordination among land agencies but other experts argue the inadequacy of geographic information systems, which contribute to widespread land disputes, multiple land sales, and uncertain customary land boundaries (Kasanga & Kotey, 2001). Also, corruption and 'land racketeering' within land administration institutions further erode trust and tenure security, limiting access (Lands Commission, 2025; Adu-Baffour, 2020) and equally impacting the reforms to digitalised land governance (Owusu Ansah, 2024).

The Government of Ghana established its first and second land administration projects (LAP1 and LAP2) to transition the country’s land governance to a digital system among others by first introducing land information system for title registration under LAP1 and the GELIS in LAP2 (Dean et al., 2023). GELIS was designed to integrate key land sector agencies such as the Lands Commission, Survey and Mapping Division, and Land Valuation Division into a single national database to streamline operations (Owusu Ansah, 2022).

However, despite the ambitious design, GELIS faced major setbacks due to limited funding, data incompatibility, and weak institutional cooperation (Graphic Online, 2025; Owusu Ansah, 2022). These constraints further led to the development of the ELIS to enhance transparency, improve efficiency, and ensure the sustainability of digital land services (Asumadu-Basoah & Ghansah, 2025). ELIS has currently been implemented only in Accra and such progress has been made, particularly in digitizing cadastral maps, automate revenue tracking and modernizing land search and registration processes (Asumadu-Basoah & Ghansah, 2025; Owusu Ansah, 2024). However, literature emphasizes that implementation of both ELIS and GELIS is fraught with persisting challenges leading to the difficulty in upscaling to other jurisdictions. Institutional fragmentation remains a key impediment (Gyan, 2024; Coffie et al., 2014) and as well as inconsistencies between statutory and customary land ownership documentations (Owusu Ansah et al, 2024).

In the mist of all, it has long been held among governance scholars that, pluralism in resource governance should be treated neither as an anomaly to be eliminated nor as an unproblematic expression of local autonomy (Tchatchoua-Djomo, 2018; Rose, 1983). Instead, it is a structural feature of many land systems that must be engaged explicitly in policy design and institutional reforms (Borras, 20007). Empirical work from some parts of Africa and Asia demonstrates that context-sensitive approaches—such as hybrid registration models, recognition of customary tenure within national frameworks, and multi-level conflict-management mechanisms—can enhance tenure security and reduce conflict when they include robust participation of local actors and sustained attention to power asymmetries (Borras, 20007; Unruh, 2003). Admittedly, further research is called for to deepen comparative analyses across regions, explore the long-term interconnections of digitalization and plural land regimes to develop methodologies that capture how everyday practices continually renegotiate the boundaries between legal orders in the governance of land.

## 2.2. Rent gap – smart urbanism nexus and displacement of the poor

Rent gap (RG) (see in Smith, 1979; Bosma, 2023) elicits a framework to elaborate how urban land value differentials drive redevelopment and gentrification by placing emphasis on economic incentives arising from differences between a property's current and potential rent. While Smith identified a causal relationship between capital flows and neighborhood change, critics and later scholars stress the complexity and multiplicity of interactions of economic, social, and political influences, inclusive of the role of the state in propelling rent gaps (Bosma, 2023; Risager, 2022; Hodkinson, 2012). Equally, some scholars emphasize on the limitations of Smith's model with its applicability outside the Western or Anglo-American contexts, thereby suggesting context-sensitive tools to account for different institutional and societal or cultural arrangements (Slater, 2023; Bernt, 2022; Bourassa, 1993). The proponents of context – sensitive rent gap argue that, the theory tends to universalize economic explanations for gentrification, sometimes neglecting cultural, institutional, or political variables that equally are profound in shaping urban change. The researcher aligns with the thoughts of the critics on the insufficiency of economic value as the only basis of determining the flow of capital into new neighborhoods. Capital may avoid the most disinvested neighborhoods despite significant rent gaps because of perceptions of risk or stigma (Holmes, 2025; Slater, 2023; Hammel, 1999). This therefore shows that despite the signaling of rent gaps in a particular locality, the flow of capital to such locations might still be restrained as a result of other considerations such as risk and stigma. Hence, there might be various underlying considerations leading to the underdevelopments in urban neighborhoods.

For instance, regarding areas engulfed in conflicts especially land related conflicts which are rampant. Thus, notwithstanding the availability of land with latent value, the demand for such lands might be low. Based on the interplay of a multiplicity of factors, Bourassa (1993) further emphasizes the difficulties of accurately quantifying the "highest and best use"(HBU) rents needed to define differential rents - rent gaps. In this case, the measurement of HBU is subjective and equally contextualized hence hindering the operationalization of the concept of RG. Others explore the theory's moral and ethical dimensions, extending the analysis to consider questions of distributive justice related to urban displacements and land use (Bosma, 2023; Perälä, 2023) and incorporating supply-side concepts more rigorously in empirical approaches to urban housing dynamics (Banabak, 2024). The researcher opines that, in the consideration of the supply dynamics and not just the demand alone, many developmental lenses tied to land supply, especially the bundle of rights will therefore be identified in rent gap determinations. A broader perspective makes the theory's operationalization apt within jurisdictions of the Global South especially the continent of Africa that is faced with the multiplicity of institutions inclusive of several cultural norms surrounding land or property. In the light of broadening the scope beyond economics or the commodification of land or property, the chances are that; the claims of rights of the vulnerable in urban Africa will be conceptualized into RG concepts thereby minimizing the impact of displacement or spatial injustices.

Urban digitalization has transformed the production and regulation of urban space by collecting, analyzing, and utilizing vast amounts of mostly biased data accelerating the commodification of land and housing, often leading to the displacement of marginalized communities. Mahmoudi et al. (2024) describes this as an "urban-tech feedback loop," where surveillance and datafication embedded in smart city technologies reinforce processes of exclusion and displacement by enabling tighter control over urban governance and real estate markets. Digital platforms in housing and real estate facilitate speculative investments and short-term rentals, intensifying land commodification and pushing out long-term residents due to rising costs and altered neighborhood dynamics. Also, studies have shown that informal settlements who stand not to have formally registered tenure over land in urban settings are particularly vulnerable to eviction and gentrification (Kamjou et al., 2024; Deininger et al., 2012). This phenomenon of displacement is framed within a social justice lens by numerous scholars. Szpak (2024) revisited the concept of the "right to the city," arguing that urban digitalization exacerbates inequality by prioritizing capital interests, undermining marginalized populations' rights to remain in their homes and communities. This aligns with Harvey (2010) perspectives on spatial justice, which demand inclusive urban governance that protects communities from forced removals and exclusionary land practices. Digital spatial justice emerges as a critical framework to address these challenges by advocating ethical and inclusive use of urban data and technologies. Kempin Reuter (2019) emphasizes that digital urban transformation must be guided by principles that mitigate the social harms of displacement, ensuring equitable distribution of benefits and protecting vulnerable populations. This includes transparent data governance and mechanisms for community participation in shaping technologically mediated urban change. Further, other scholars explored urban redevelopment processes facilitated by digital platforms, illustrating that neglecting social justice in such transformations leads to not only physical displacement but also loss of social capital and community cohesion among others (Morelli, 2024; Kamjou et al., 2024). Their work suggests that integrating social justice frameworks in redevelopment planning is essential to mitigate the adverse effects of land commodification intensified by technological change.

By this, it is the opinion of the researcher that, the contestations surrounding the bridging of rent gaps via digital land platforms will be tackled.

While prior studies within the context of Ghana and Africa have examined digital land governance (Owusu Ansah et al,2024; Ameyaw & de Vries, 2023; Gyan, 2024), urban displacement and gentrification dynamics (Asante& Bonsu, 2023; Asante et al, 2024 ; Amaya, 2023; Eduful et al., 2015) and land tenure management (Anafo, 2023; Gyamera, et al., 2023), non has critically investigated their intersectionality regarding spatial injustices, particularly within the context of the geography of urban Africa. There is also limited conceptual work integrating rent gap concepts and displacement frameworks to guide digital governance research in African cities. These siloed studies are proposed to be interwoven via the focus of this study - digital land governance, displacement and data inclusivity in Accra and Tamale, providing both empirical and conceptual insights.

### 2.3 Digital land governance through a sociotechnical systems approach

Land governance is complex and multifaceted basically referring to the rules, processes, and structures through which decisions are made about access to, ownership and use of land, how these decisions are implemented and enforced and how competing interests in land are managed (Enemark, et al., 20; Windfuhr, 2017). With the aim of closing rent gaps, land governance systems have evolved including the use of digital technologies to transform land governance from paper based to digital land systems and tools (Hosseini, 2025; Home, 2021; Deininger et al., 2012; Tank, 2019). The growing turn towards digital land or property administration is attributable to the efficiency and other favorable outcomes ascribable to digitalisation. Already, about one-third of the world - 75 percent of countries in Europe and 20 percent of Sub Sahara Africa are implementing various digital land platforms initiatives (Deininger et al, 2025; Rodima-Taylor, 2021). Some studies attest that the outcomes of such initiatives are mixed even inclusive of adverse impacts varied within different jurisdictions. Commonly, critics have often bemoaned the security risk, social inequalities and dispossessing of the vulnerable or informal tenurial rights holders over land (Kempin Reuter, 2019). In admittance, Sudha, et al. (2024) reiterate the high risk of marginalization of the vulnerable in DLG initiatives. In fact, others conclude that, the complexity of integrating digital with customary land tenure systems and the prevalence of digital divides is precarious thereby short chaining the process in some countries (Mahlangu et al., 2025; Enemark, et al., 2016). This perspective holds that, as land tenure is formalised through digital platforms, communities or indigenous residents with informal rights often without documentation and the digital literacy to engage in these systems may be evicted and displaced as development accelerates Marginalization or displacement could arise from the digitalization processes – where informal rights are not designed to be part of the administration of rights. Equally, the aftermath of the processes of digitization leading to gentrification and its attendant repercussions as a result of the improvement in security and value of land or property. Either way influenced by gentrification has the tendency to exclude the poor without the wherewithal to partake in such capital-intensive speculative markets mostly in urban and suburban vicinities.

This transformational shift in governance needs to take cognizance of the context-sensitive complexities and dynamics surrounding this so important resource (Ansah et al., 2024; Rodima-Taylor, 2021). Hence, DLG is not merely a technical upgrade but a socio-technical transformation that combines technology, institutional reforms, and community engagement thereby advancing both administrative efficiency and social justice (Rodima-Taylor, 2021).

Mahlangu et al. (2025) conclude that institutional resistance, legal pluralism, and fragmented data governance frequently hinder seamless adoption of digital land systems therefore institutional capacity and infrastructure availability equally need to be addressed. These criticisms are profound especially within the context of Africa and in line with Gagliardone (2016) that emphasizes that digital platforms are not neutral tools but interact with existing social, political, and institutional structures. The perspective is essential for understanding how digital land governance platforms in Ghana mediate land access and management outcomes in the quest for transparency, efficiency and the realization of the highest and best use of land. Arguably, the researcher holds the view that focusing on a broader perspective via a sociotechnical process gives a better picture of the impact of DLG on society in general and not limited to a few with the exclusion of the marginalized. The sociotechnical approach will explore the current underpinnings surrounding the application of digital land governance tools in the land governance architecture of Ghana particularly the displacement and dispossession of the urban marginalized of their rights of access and ownership to land. GELIS and ELIS being the technical subsystem while the society and the workforce of the land agencies as the societal subsystem of the sociotechnical process.

While recognized as conceptually sound, the sociotechnical systems theory (STST) is often underutilized in mainstream engineering practice due to perceptions of vagueness, lack of prescriptive detail, and difficulty scaling (Baxter & Sommerville, 2011). This argument arises as a result of most engineering sciences attempting exactness and definiteness and thereby the constructs of opinions and values or norms that are socially critical are lost in the process. Equally, Mumford (2006) argues that the earlier values and principles of emancipatory agenda emphasizing worker participation and democracy are fading or diluted in current evaluations in the use of the theory. This leads to the treatment of the theory as a neutral design heuristic rather than a political project. This alignment is a resultant of the quest for over simplification and linearity of the processes of sociotechnical reforms thereby leading to the demise of certain critical narratives. Hence, recent reviews call for greater synthesis of sociotechnical concepts across human–computer interaction, organizational design, and systems engineering (Polojaervi et al., 2023). This reflects recognition that 21st-century challenges and multi-organizational systems demand socio-technical approaches via joint optimization of human and technical dimensions of which is the enduring contribution of the STST. The future of the theory lies in bridging classical principles with modern engineering methods, scaling participatory practices, and addressing the ethical and political implications of emerging technologies. The critique of scholars on the non-capturing of some data especially with ELIS (Ansah et al., 2024) will further be diagnosed in the light of bridging the gaps of social and digital processes. This is equally the recommendation of the critics of digital reforms that, expanded exploration of data integration techniques can cater for diverse socio-economic realities and enhance the participatory governance of data ecosystems (Jeddoub et al., 2023). In this study it is opine that, sociotechnical process has the tendency based on its character of broadened engagements to tackle the repercussions of displacement of the poor and its attended development challenges in smart urbanism.

In summary, the literature showcases that digital land governance systems, through technological integration and governance reforms, have potential to transform land management for greater efficiency, transparency, and inclusivity. Nonetheless, successful digitalization demands addressing infrastructural, institutional, and social dimensions to realize these benefits fully. The integration needs to be context specific since studies in countries like Ghana, Georgia, and Sweden have implemented blockchain or digital platforms with diverse outcomes, emphasizing the need for context-specific approaches (Rodima-Taylor, 2021).

Therefore, the uptake of these technologies requires comprehensive strategies involving stakeholder engagement, capacity building, infrastructure investment and legal reforms to ensure equitable and effective land governance (Hull, et al., 2022).

In this study, digital land governance is treated as a conceptual lens with emphasis on the socio-technical dimensions of technology-mediated land management in urban Africa.

#### 2.4 Contributions to existing research

Scholars have already bemoaned the hindrances characterizing the legal pluralistic nature of Ghana's land administration to the adaptability of digital governance systems. These arguments have often been placed against wholesale implementation of designed digital systems in single structured land governance regimes mostly in the Western World (Gyan, 2025; Rodima-Taylor, 2023; Democracy in Africa, 2024; Owusu Ansah et al., 2024; Abubakari, 2018). The researcher opines in affirmation with other scholars that such oversimplification without contextualization often further the precarity of already struggling land governance systems (Gyan, 2024; Owusu Ansah, 2021). Therefore, the argument of this dissertation is that; the analysis of the Ghana digital land governance system is an important perspective to literature for the analysis of digital land reforms in pluralistic governance regimes.

Also, having argued that digital land tools must take cognizance of context sensitive peculiarities, research should further investigate how digital land governance reforms interact with the displacement or spatial injustices in urban development processes. Considering the strand of research investigating DLG and urban studies, some displeasing outcomes on the urban poor have been already recorded in the Global South (Kamjou, 2024; Deininger et al., 201). To this end, Mahmoudi et al. (2024) argue that smart city technologies reinforce processes of exclusion and injustices against the urban poor. Admittedly, many studies exist on urban studies within the scope of smart infrastructural development (Mintah et al., 2020; Ameyaw & de Vries, 2023) however, there are no critical studies augmenting the linkages between DGL and displacement or spatial injustices in vibrant land markets such as urban Africa. This lens of interlinkages proffering a holistic view of digital land reforms is catered for in the proposed research papers below thereby seeking to provide a nuanced view of transitions into digital land governance within complex governance regimes.

#### 2.5 Proposed research papers

This session is organized by encapsulating the approaches and methods intended to answer the main research questions as indicated above. In the first part, the researcher reviews critical literature on digital land governance, urban spatial injustices and sociotechnical systems processes thereby conceptualizing digital land governance that is Africa context sensitive. This takes care of the overly reliance on digital governance systems that do not take critical cognizance of the pluralistic land governance akin to Africa. The following four papers are intended to be contextually developed taking into consideration the various perspectives and critical concepts aligning with sociotechnical systems approach yet to be fully advanced in the conceptual framework. Critically, these delve into the interlinkages and major contestations of digital land management in urban governance process at varied perspectives as outlined below:

Sub research question (a). What discourses and narratives framed ELIS and GELIS in the context of state - customary control dynamics and the implications for smart urban infrastructural development?

Paper 1: State-customary power dynamics in land governance and the impact on smart urban development processes in Ghana

Scholarly discussions have it that, in a hybrid governance context, the digitization of land administration intensifies power imbalances between state institutions and customary authorities, often sidelining the latter's local legitimacy and embedding new forms of exclusion in digital infrastructure (Coffie et al., 2024; Ayitio, 2019). State actors leverage technical control and data sovereignty to standardize tenure, while customary leaders, rooted in historical and community-based norms, face marginalization or selective co-optation, exacerbating conflicts over authority, transparency, and access in customary tenure systems (Ibrahim et al., 2025; Abdul-Rahaman et al., 2016). In the wake of the risk of tenure insecurity for vulnerable communities; digital reforms are admonished to explicitly bridge institutional dualities through collaborative governance (Coffie et al., 2014; Nunbogu et al., 2021). However, the envisioned collaboration is often not achieved due to the entrenched dichotomy and biases fostered via narratives and stances surrounding smart urban infrastructural development (Kempin Reuter, 2019). Scholars have not taken keen interest on these discourses and how their constructions have translated into existential hegemonies among land sector agencies and their aftermath in DLG in Ghana. Hence, this study seeks to investigate the core discourses and narratives that went into the framing of the digital land administration reforms in Ghana and subsequently analyzing how these narratives have pushed through power asymmetries to their lagging performance.

The study will employ systematic critical discourse analysis mainly via the use of Keller's Sociology of Knowledge Approach to unpack state-customary power dynamics and classes in Ghana's digital land reforms, such as the Land Administration Project (LAP) and blockchain pilots; identifying dominant storylines like "digital standardization for efficiency" versus "customary legitimacy for equity", just to mention but a few. The data sources will be, policy documents such as the Ghana's LAP (1& 2) reports, National Land Policy (1999), Customary Land Secretariat (CLS) guidelines, and digital initiatives like the Ghana Blockchain Land Registry pilot, Ministry of Lands and Natural resources reports and reports on tendomba-state dialogues in Northern Ghana. Also, expert interviews will be conducted with land sector professionals from the Office of Administrator of Stool Lands, Lands Commission, CLS, academia and civil society.

Sub question (b). What are the consequences of the failure of digital land governance systems to integrate customary regimes on urban regeneration and the urban poor?

Paper 2: Integrative digital land governance: the case of customary land secretariats in Dabgan Traditional Area of Northern Ghana

Customary land secretariats (CLSs) holding about 80 percent of Ghana's land backed by the Land Act, 2020 act as an intermediary between traditional authorities and formal governance institutions. However, some scholars hold the view that their roles are hampered as a result of weak administrative and labour machineries, land disputes between traditional overlords and claims and counter claims over disputed lands (Kumbun-Naa II Yiri, 2006 cited in Biitir & Nara, 2016). Digital reforms have further revealed the teething complexities in land governance pluralism at the customary levels especially the difficulties in accessing reliable land records, multiple sales of plots, and poor management of records, among others (Mireku, Kuusaana &

Kidido, 2016). Even though essential to diagnose the plausibility of integrative DLG focusing on CLS, almost all such studies in Ghana have been concentrated on other geographic areas (Ibrahim, 2025; Gyan, 2024; Nyame & Blocher, 2010) with no much emphasis on the local dynamics in the Northern part. Based on this, the study seeks to explore how the Customary Land Secretariats in the Northern Region of Ghana can effectively embrace the digitization process without losing focus of their customary rights and practices surrounding land within their jurisdictions. Therefore; by this study, customs and traditions on land of a less studied geographic area would be brought to bear even as Ghana seeks a unified digital land governance system.s

This research adopts a qualitative, case study design focused on the Dabgan Traditional Area. By examining the role of CLSs in this context, the study explores how digital reforms can be designed to foster the documentation, transparency, and enforcement of land rights while respecting the socio-cultural norms embedded in customary practices. Equally, the research will delve into the consequential impacts on the poor and on urban development in general if the role of CLS is not enhanced within the context of DLG. Data collection will draw on primary qualitative sources including interviews with traditional leaders, CLS officials, community members, and government actors. Focus group discussions will complement these interviews to capture diverse community perspectives on digital land governance. Additionally, document analysis of CLS records, land policies like the Ghana Land Act 2020, and reports on digital governance initiatives will provide contextual depth. Participant observation during CLS operations will add further nuanced understanding of the daily realities of land governance in Dabgan.

Sub question (c). What role does digital land governance play on land values, access and tenure security of the poor and its implication for spatial inequalities within Urban Ghana?

Paper 3: The impact of digital platforms on land value, access and tenure security of the urban poor in Accra

A common trend in housing studies situate digital land systems within broader debates on housing and land for the urban poor (Turner & Malpezzi, 2003; Urban Institute, 2016). Most of these studies have demonstrated a correlational relationship among the variables of digital platforms and value appreciation or tenure security issues (Dafuleya & Durojaye, 2023). Hence, digital land administration systems are reshaping how land is valued, accessed and held, with complex and often contradictory consequences for low-income and marginalized groups. Admittedly, the poorest and most tenure-insecure populations face particular risks when their complex rights are poorly captured in digital platforms (Dafuleya & Durojaye, 2023) however, when counterbalanced by strong social and regulatory measures (Smith & Kumar, 2019; Turner & Malpezzi, 2003; Urban Institute, 2016) the depressionary narratives are reduced. This therefore serves as the basis to investigate such concepts within the context of Ghana as the researcher seeks to explore the interlinkages which are scantily studied within the current digital land reforms vi-sa-vi their impact on the urban poor especially in the area of displacement or spatial injustices.

Methodologically, the researcher intends using a mixed approach combining administrative registry transaction logs, household surveys, neighborhood-level socioeconomic data, rental price data and if possible short-term rental sites to trace affordability. Interviews or focus groups will be conducted with tenants, informal settlers and community leaders to understand the impact experienced on the ground. These data will be obtained from the Ghana Statistical Service, the

Lands Commission of Greater Accra Region, clients of ELIS, and neighborhood communities covered by ELIS will randomly be selected.

Paper 4: The impact of fragmented land governance on urban land development processes: Insights from Ghana Real Estate Developers Association (GREDA)

The admittance of the flow of capital and the creation of new markets or opportunities in urban development processes (Slater, 2023; Hammel, 1999) is not contestable but in most cases the form and grounds of flow (Holmes, 2025). Equally submittable is the tendency of such market dynamics to precipitate grounds disadvantaging the urban poor (Bosma, 2023). In the mist of these contestations coupled with the scholarly arguments calling for the broadening of the scope of Smith's rent gap concept (Bourassa, 1993) especially the supply side is the involvement of the investor or the developer. However, such experiences and their impact on urban development in most cases are overlooked at in scholarly literature in urban African studies. Notwithstanding this, there stand a reasoning of the capacity of capital to greatly influence urban neighborhoods either economically or socially (Holmes, 2025; Slater, 2023). This flow is determined by the investors or developers. It is therefore critical to rope in the experiences and the role of such a central stakeholder in matters of urban development. Hence, this paper will examine how the land governance system in Accra (inclusive of ELIS) affects the urban development processes, its implication on market dynamics and how that feeds into spatial injustices.

Through mixed methods- semi structured interviews with company staffs and external stakeholders, document and permit records analysis, project data and spatial/temporal mapping of development stages, descriptive and correlational statistics (time-to-permit, cost overruns, Small-N caution, etc.) the study will be conducted. Particularly, the study will examine governance bottlenecks, adaptations by firms, and implication for urban outcomes (timelines, costs, land use, and housing affordability). This will bring to bear the practical lived experiences with the state of land governance with regard to the encounters of the investor or developer. Equally, the researcher is interested in exploring how these experiences in terms of the development process influence compensation in compulsory acquisitions and the pricing out of the marginalized in urban Africa.

Sub-research question (a). What are the dynamics of digital land governance in pluralistic legal African land governance systems?

Paper 5: Africa digital land governance: a sociotechnical approach

The developmental challenges especially spatial injustices associated with DLG particularly in Africa's urban development process has become a global pressing issue. Researchers have it that, such overly westernized land reforms in many African countries are not in tandem with the protection of the rights of the poor holding customary rights, but rather in consonance with capitalistic economic strategies gearing towards the protection of the affluent (van Asperen & Zevenbergen et al., 2015). Hence, the need to encompass African land governance complexities - economic, social/cultural, technical and political contexts in such reforms (Letlape et al., (2025). To bridge this gap, the researcher proposes a socio-digital land governance framework (SLGF) that will position itself at the center of social -technical interactions within DLG. This framework will articulate the critical concepts encapsulating an inclusive digital land governance: sociotechnical fit/optimization, autonomy and self-management, whole tasks, participation and democracy.

This paper will critically review literature on digital land governance, gentrification, urban displacement and discerns the linkages between DLG and urban displacement or spatial injustices in urban Africa. This is intended to employ a conceptual and qualitative methodology grounded in sociotechnical systems and organizational theories. The research aims to build theory and develop a model that integrates social and technical dimensions of digital land governance in Africa. Thus, the data from the fore mentioned papers will be central in this conceptual design. The approach foregrounds legal pluralism, social inclusion, participatory governance, and the co-design of technological platforms that address socio-cultural and political contexts rather than focusing only on technical efficiency.

Methods and data sources will involve a qualitative, literature-based methodology conducting a critical review and synthesis of peer-reviewed articles, institutional reports and documented projects on technology in land governance across diverse African contexts. This synthesis will use thematic coding and comparative case mapping to identify key governance challenges, enabling conditions, and socio-technical dimensions needed for equitable digital land governance reforms.

### 3.0 Conclusion

To conclude, the relationship between DLG and gentrification induced spatial injustices such as the displacement of the urban poor should be contextually analyzed to bring to light the nuances prevailing within different geo-social dynamics. To achieve this in literature, two cardinal approaches are envisioned. First, digital land governance should be argued on the grounds of sociotechnical processes. This helps in handling digital transformation as not just a technical change but having a social dimension as well. This social dimension takes into consideration the legal, social and other critical perspectives needed to make the desired outcome of bridging rent gap especially in the complex urban landscapes in Africa. Secondly, to better grasp and scrutinize the tradeoffs of such transformation in the development process, we need a holistic view of the processes. Equally aligning with the sociotechnical process, we have to consider the impact of DLG on the urban poor. Hence, we need to take a view on the dynamic interactions on gentrification and displacement of the urban poor that are already pronounced in many pluralistic land governance systems. In this research proposal, the researcher has mapped a conceptual framework to serve as a basis for the contextual analysis of the DLG process thereby adding to literature in the field of land and urban governance to inform future policy decisions. On the grounds of holistic task, the researcher further proposes to investigate the outcome of DLG on spatial injustices as that is neglected in many urban studies. Lastly, by utilizing administrative land registries, multi-stage statistical models, and sociotechnical approaches, this research seeks to further bridge the field of urban studies with a multidisciplinary approach – combining disciplines such as geo-political, organizational and computer sciences through shared methodologies. Through these combinations coupled with methodological rigor, we can bring to bear context-sensitive digital reforms beyond the limitations of biased past research and build more comprehensive, interdisciplinary explanations on harmonizing fragmented systems in urban governance. The proposed research projects inclusive of the research schedule are appended below.

## Appendix 1: Tabular representation of research proposals

<b>Proposed research</b>	<b>Research Question(s)</b>	<b>Methods and Data Sources</b>
Paper 1: Africa digital land governance: a sociotechnical approach	Sub-research question (a). What are the dynamics of digital land governance in pluralistic legal African land governance systems?	Systematic literature review - peer-reviewed articles, institutional reports and documented projects.
Paper 2: State-customary power dynamics in land governance and the impact on smart urban development processes in Ghana	Sub research question (b). What discourses and narratives framed ELIS in the context of state - customary control dynamics and the implications for smart urban infrastructural development?	Discourse analysis - LAP (1& 2) reports, NLP (1999), CLS guidelines, and digital World Bank and Ministry's reports, Interviews.
Paper 3: The impact of digital platforms on land value, access and tenure security of the urban poor in Accra	Sub question (c). What role has digital land governance played on land values, access and tenure security of the poor and its implication for spatial inequalities within Urban Accra?	Mixed approach - registry logs, household surveys, data from GSS, LC-ELIS reports, Interviews and FGDs
Paper 4: Integrative digital land governance: the case of customary land secretariats in Dabgan Traditional Area of Northern Ghana	Sub question (d). What are the consequences of the failure of digital land governance systems to integrate customary regimes on urban regeneration and urban poor?	Qualitative approach – Interviews, FGDs, Dabban CLS and Ministry's records, Land Act, 2020
Paper 5: The impact of fragmented land governance on urban land development processes: Insights from Ghana Real Estate Developers Association (GREDA)	Sub question (d). What are the consequences of the failure of digital land governance systems to integrate customary regimes on urban regeneration and urban poor?	Mixed approach – Semi-structured-interviews, project data, permit records, zonal maps.

Appendix 2: Proposed time schedule

SN	Activity/Task	Academic Year 1				Academic Year 2				Academic Year 3			
		2025/2026				2026/2027				2027/2028			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	Literature review and development of research proposal												
2	Paper 1												
	Literature review /framework development												
	Data collection, cleaning & analysis												
	Write up, submission publication & conferences												
3	Paper 2												
	Literature review/Initial write-up & design of field tools												
	Fieldwork (Data collection), data cleaning & analysis												
	Write -up, submitting paper, publication & conferences												
4	Paper 3												
	Literature review/Initial write-up												
	Data cleaning & analysis												
	Write -up, submitting paper, publication & conferences												
5	Paper 4												
	Literature review/Initial write-up & design of field tools												

	Fieldwork (Data collection), data cleaning & analysis												
	Write -up, submitting paper, publication & conferences												
6	Paper 5												
	Literature review/Initial write-up												
	Data cleaning & analysis												
	Write -up, submitting paper, publication & conferences												
7	Dissertation												
	Write-up: Synthetizing published papers & discussions												
	Viva, final corrections and submission												

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