
Digitization of Land Administration and Property Rights Security in Kenya: A Policy Analysis

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Abstract

Digitization has become a central component of land administration reform in Kenya. The transition from paper-based registries towards the National Land Information Management System and its public-facing Ardhisasa platform was intended to improve the accessibility, integrity, transparency and efficiency of land information and transactions. This transformation is supported by the Constitution of Kenya 2010, the Land Registration Act 2012, the Land Registration (Electronic Transactions) Regulations 2020, the Survey (Electronic Cadastre Transactions) Regulations 2020 and the wider policy commitment to digital public-service delivery. By 2025, Kenya had made substantial progress in digital land administration, although implementation remained geographically uneven and manual processes continued to operate in several land registries. This paper examines whether the digitization of land administration had strengthened property rights security in Kenya by the end of 2025 and identifies the policy reforms required to deepen that relationship. It adopts a qualitative desktop policy-analysis design based on documentary examination of legislation, regulations, judicial decisions, government implementation records, policy materials and empirical studies on digital land governance. The analysis is guided by the United Nations Framework for Effective Land Administration and the fit-for-purpose land administration approach. The findings show that digitization has strengthened several conditions associated with property rights security through improved preservation and retrieval of records, greater transaction traceability, electronic access to official information and reduced dependence on vulnerable physical files. However, digitization does not independently resolve defective historical records, unlawful allocations, overlapping titles, cadastral inconsistencies or weak institutional accountability. Supreme Court jurisprudence on the legality and root of title further demonstrates that a current digital registration cannot by itself establish that the underlying property right was lawfully acquired. Uneven geographical coverage, weak interoperability, digital exclusion, cybersecurity and data-protection risks, and limitations in mechanisms for correcting erroneous digital records also constrain the security gains arising from digitization. The paper argues that Kenya should move beyond transaction-centred digitization towards a property-rights-security model in which legal and spatial data are verified, institutional databases are interoperable, historical title information is progressively accessible for legitimate due diligence, vulnerable users receive secure assisted access and alterations to land records remain independently auditable. Digital transformation will strengthen property rights most effectively where technology reinforces the legality, accuracy, inclusiveness and accountability of the land administration system rather than merely replacing paper transactions with electronic ones.

Keywords: *Digitization, Land administration, Property rights security, Land registration, Digital land governance, Tenure security*

1. Introduction

Land administration performs a legal and institutional function that goes considerably beyond recording the name appearing on a certificate of title. An effective land administration system should enable individuals, communities, government institutions, lenders, investors and courts to determine with reasonable confidence who holds an interest in land, the geographical extent of that interest, the rights and restrictions affecting it and the transactions through which the interest has changed over time. The quality of the information held by land-administration institutions therefore has direct implications for property rights security. Ownership may be legally recognised, yet its practical security remains weakened where official records are incomplete, inaccessible, inaccurate, vulnerable to alteration or inconsistent with the physical parcel on the ground.

Kenya's transition towards digital land administration emerged partly in response to weaknesses associated with the conventional paper-based system. Physical files were susceptible to loss, deterioration and unauthorised removal, while land information was distributed across institutions responsible for registration, survey, valuation, planning and other functions. These conditions created delays in service delivery and increased the difficulty of reconstructing the legal and spatial history of individual parcels. Transparency International Kenya (2023), in an assessment of the digitization of land governance, found that digitization had generated improvements in areas such as information retrieval and administrative efficiency while also identifying continuing challenges related to digital access, implementation and institutional capacity.

Kenya's legal framework had already anticipated the transition from paper to electronic land records before the full implementation of Ardhisa. The Land Registration Act 2012 provides the statutory foundation for maintaining land information in secure and accessible formats and recognises electronic land records within the registration system. The Land Registration (Electronic Transactions) Regulations 2020 subsequently established a more detailed framework governing the electronic registry, user accounts, electronic applications and instruments and other aspects of digital land transactions. The Survey (Electronic Cadastre Transactions) Regulations 2020 extended the transformation into the spatial dimension of land administration by providing for electronic cadastral processes. Together, these reforms demonstrate that electronic land administration is not merely a technological initiative but part of the legal infrastructure through which property interests are documented and transacted in Kenya.

Ardhisasa became the principal public interface through which citizens and professional users could interact with the National Land Information Management System. The platform allows users to engage electronically with land information and processes previously dependent on physical interaction with land offices. Its policy rationale has centred on making land services more accessible, transparent and efficient while improving the security of records and limiting opportunities for manipulation.

The reform had moved beyond its initial geographical concentration by 2025. The State Department for Lands reported in April 2025 that full digitization of land records had been achieved in Nairobi and Murang'a and that work was continuing in other counties. Isiolo was formally onboarded onto Ardhisa in July 2025, while specified blocks in Mombasa were also brought onto the platform during the same period. These developments demonstrate meaningful expansion of the system, although they also reveal that Kenya remained in a transitional phase in which electronic and manual administration operated alongside each other.

The expansion of digital land services has potentially profound implications for property rights. A well-designed electronic system can reduce dependence on vulnerable physical records, improve retrieval of official information, strengthen transaction authentication and create digital histories through which administrative actions can be traced. Such characteristics may make fraudulent alterations more difficult and increase the ability of proprietors to monitor dealings affecting their property.

The relationship between digitization and property rights security is nevertheless more complex than the replacement of paper files with electronic records. Digital technology can preserve information more securely without establishing that the information itself is legally correct. An unlawful allocation does not become lawful because its title has been digitized. An inaccurate cadastral boundary does not become correct merely because its coordinates are entered into a sophisticated database. Where several historical records relate to the same parcel, migration of all of them into a digital environment may reproduce an existing conflict rather than resolve it.

This distinction has become increasingly significant in Kenyan land jurisprudence. In *Dina Management Limited v County Government of Mombasa & 5 Others* [2023] KESC 30 (KLR), the Supreme Court emphasised the legality of the process through which the root of a registered title was acquired. The Court's reasoning confirmed that subsequent registration does not necessarily validate an interest derived from an unlawful or procedurally defective original allocation. Commentary on the decision has similarly observed that ordinary official searches may not reveal the information required to investigate the historical root of a title.

The Supreme Court revisited related issues in *Sehmi & another v Tarabana Company Limited & 5 Others* [2025] KESC 21 (KLR). The Court clarified the requirements of the bona fide purchaser doctrine and reinforced the importance of a valid legal estate capable of being transferred. The decision strengthened the proposition that good faith acquisition cannot by itself cure an invalid legal foundation.

These judicial developments create a critical policy question for digital land administration. Where purchasers and other persons dealing with land may be required to investigate more than the current entry in the register, the digital land information system should progressively make legally relevant historical information capable of verification. A system that provides rapid access to a current proprietorship record but leaves the legal origin of the title dispersed across inaccessible physical archives may improve administrative efficiency without fully addressing the contemporary requirements of property due diligence.

The issue becomes more important because implementation remained uneven in 2025. The State Department for Lands acknowledged continuing reliance on manual procedures in several land offices and identified low digital literacy among landowners as an ongoing challenge. Transparency International Kenya (2023) similarly identified the digital divide and limited digital literacy as constraints affecting access to electronic land services, particularly among groups with lower levels of technological access.

The policy question is therefore no longer whether Kenya should digitize its land administration system. That direction has already been established by legislation and implementation practice. The more consequential question is whether the emerging digital system is capable of producing greater property rights security, rather than merely more efficient electronic transactions.

This paper examines that relationship using the legal and policy position that had developed by 31 December 2025. Its central argument is that digitization can substantially strengthen property rights, but its capacity to do so depends on the reliability of underlying records, the integration of registration and cadastral information, institutional interoperability, inclusive access, cybersecurity, legal accountability and the availability of mechanisms for verifying and correcting records.

2. Land Administration and Property Rights Security in Kenya

2.1 Property Rights Security as a Legal and Institutional Outcome

Property rights security describes the degree of confidence with which a lawful holder can possess, use, transfer, lease, charge, inherit or otherwise enjoy an interest in land without arbitrary interference and with reasonable access to mechanisms for protecting that interest. It is therefore wider than possession of a title document. A proprietor may hold a certificate of title while remaining exposed to competing claims, administrative errors, fraud, boundary uncertainty or defects in the historical acquisition of the property.

The Constitution of Kenya 2010 provides the foundational legal protection for property. Article 40 recognises the right to acquire and own property and restricts arbitrary deprivation, while Article 40(6) makes clear that constitutional protection does not extend to property found to have been unlawfully acquired. This qualification is fundamental to understanding the relationship between registration and security because constitutional protection attaches to lawful property rights rather than to documentation in isolation.

The Land Registration Act gives registration substantial legal effect. Registration vests the relevant interests in the registered proprietor and protects those interests subject to limitations recognised by law. A certificate of title provides strong evidence of proprietorship, but section 26 permits challenge where fraud, misrepresentation, illegality, procedural impropriety or a corrupt scheme affected acquisition. The register is therefore authoritative but not incapable of legal scrutiny.

Property rights security consequently depends upon the quality of the process through which land enters and remains within the register. The name recorded as proprietor should correspond with the person or entity lawfully entitled to the interest. The spatial description contained in the registration system should correspond with the parcel existing on the ground. Charges, restrictions, leases and other registrable interests should be accurately recorded, while the historical process through which the current registration arose should be capable of examination where its legality becomes material.

Digitization can strengthen each of these dimensions, but it cannot independently create their underlying validity. The quality of the electronic register ultimately depends upon the quality of the legal, spatial and administrative information from which it is constructed.

2.2 Weaknesses Associated with Paper-Based Land Administration

The transition towards electronic land administration must be understood against the administrative limitations that preceded it. Conventional land registries depended heavily on physical files and manually processed instruments. The physical organisation of records created vulnerability to loss, deterioration and unauthorised access, while retrieval of information could become slow where documentation had been misplaced or poorly indexed.

The fragmentation of land information presented an additional problem. A transaction affecting one parcel could require information held by separate units dealing with registration, survey, valuation, planning or public-land administration. Where those records were not easily cross-referenced, a person could encounter apparently valid registration information while material inconsistencies remained in another institutional record.

Transparency International Kenya's assessment found that the digitization programme had improved aspects of record retrieval and archiving and was intended to address delays, double allocations, loss of documents and other weaknesses associated with the manual system. The same assessment, however, classified several land-governance functions as only partially digitized at the national level during its period of study, demonstrating that the transition was gradual rather than instantaneous (Transparency International Kenya, 2023).

These weaknesses matter because property rights are only as useful as the institutional capacity to recognise and protect them. A lawful proprietor whose file cannot be retrieved may encounter difficulty transferring, charging or defending the property. A purchaser

relying on incomplete institutional information may acquire a disputed interest despite having undertaken what appears to be an ordinary registry search.

Digital reform therefore has value not simply because computers process information faster, but because an integrated electronic environment creates the possibility of establishing a more reliable relationship among ownership information, the history of transactions and the spatial identity of a parcel.

3. Evolution of Digital Land Administration in Kenya

3.1 Legal Foundation for Electronic Land Administration

The Land Registration Act 2012 provided an early statutory basis for modernising land records. Its provisions on the maintenance and accessibility of the register anticipated the use of electronic records and public access through electronic means. This statutory framework established an important principle: modernization of the register should preserve the legal functions of registration while changing the medium through which information is maintained and accessed.

The Land Registration (Electronic Transactions) Regulations 2020 subsequently provided a more detailed structure for electronic land-registration processes. The Regulations define and regulate electronic user accounts and support the operation of an electronic land registry through which authorised users can initiate and process transactions. Their importance lies not merely in permitting documents to be uploaded electronically but in creating a regulated environment within which the identity and authority of participants can be linked to transactions.

Electronic cadastral reform is equally important. The Survey (Electronic Cadastre Transactions) Regulations 2020 establish a framework for handling cadastral transactions electronically. This recognises that a modern land information system cannot secure property solely by digitizing ownership records. The legal parcel must also be supported by reliable spatial information defining where the registered interest exists.

The combined legal framework therefore points towards a broader transformation than document scanning. Digitization concerns conversion of information from physical to electronic form. Digitalization concerns the redesign of administrative processes through the use of digital systems. Digital transformation of land administration goes further by altering how institutions interact, how decisions are recorded, how information is shared and how users experience land services. A mature land-information policy requires attention to all three levels.

3.2 Ardhisasa and the National Land Information Management System

Ardhisasa functions as the principal public interface for Kenya's National Land Information Management System. It enables citizens, professionals and other authorised users to interact with land information and processes electronically rather than relying solely on physical visits to registries.

The platform offers a different administrative model from the conventional registry environment. Applications can move through digital workflows, users can interact with land information remotely and electronic processing can create records of when particular actions occurred and which authorised account initiated them. Such functionality can reduce some opportunities for physical-file manipulation and make institutional activity more traceable.

The transformation has proceeded incrementally. Government reporting in April 2025 indicated that Nairobi and Murang'a had reached full digitization of land records through Ardhisasa, with implementation progressing in additional counties. By July 2025, specified blocks in Mombasa were live on the platform and Isiolo had begun operating through Ardhisasa.

This expansion is important because it shows that digital land administration had become an established direction of national policy rather than a Nairobi-specific experiment. It also

exposes the scale of the remaining transition. The State Department acknowledged in May 2025 that manual processes continued in many land offices and that digital literacy remained a challenge among some landowners. Kenya was therefore operating a hybrid land-administration system by the end of 2025. The policy implications of that hybridity are significant because the security, accessibility and traceability of land transactions could differ depending on the registry in which a property was located.

4. Policy Problem and Research Gap

Kenya's digitization programme has commonly been justified through objectives relating to efficiency, transparency, accessibility, record security and reduction of corruption. These objectives respond to genuine weaknesses within the traditional land administration system. Electronic records can be easier to preserve and retrieve, while automated workflows can reduce unnecessary physical contact between users and public officers. The availability of online searches and electronic transactions can also lower the time and logistical cost of obtaining some land services.

The policy difficulty arises when administrative modernization is treated as equivalent to greater property rights security. The concepts overlap but are not identical. A digital system may securely preserve a registration that originated through an unlawful allocation. It may accurately reproduce a boundary that was incorrectly surveyed. It may allow rapid retrieval of a current proprietor's details without revealing a competing historical claim that exists within another institutional record. The technological integrity of a database therefore cannot substitute for the legal integrity of the rights entered into it.

This distinction has become particularly important following *Dina Management*. The Supreme Court's treatment of the root of title demonstrated that current registration may not be sufficient where the legality of the original acquisition is challenged. Commentary on the decision has observed that ordinary registry searches may not disclose all the historical material required to undertake the type of inquiry contemplated by the judgment.

The issue gained further relevance in *Sehmi*, where the Supreme Court considered the limits of protection afforded to an innocent purchaser and emphasised the existence of a valid legal estate as part of the inquiry. The decision reinforced the principle that good faith and payment of value cannot create a lawful interest where the person transferring the property did not possess the legal estate claimed.

The jurisprudential direction creates a potential mismatch between the information infrastructure available to land purchasers and the level of legal inquiry increasingly expected of them. If a purchaser is expected, in appropriate circumstances, to examine the root of title, a land-information system focused mainly on the current register may improve the speed of due diligence without necessarily improving its depth.

The problem is accompanied by institutional and social constraints. Geographic rollout remained incomplete in 2025, leaving different registries at different levels of digital maturity. Government itself acknowledged continuing manual processing and digital-literacy limitations. Transparency International Kenya (2023) further identified digital exclusion and data-protection concerns as areas requiring attention in the expansion of Ardhisa.

Existing policy and research discussions have contributed significantly to understanding Ardhisa by examining administrative efficiency, accessibility, transparency, corruption risks and user experiences. Transparency International Kenya's assessment, for example, provides extensive evidence concerning the progress, benefits and constraints associated with digitization. The broader international land-administration literature similarly demonstrates the importance of fit-for-purpose, interoperable and inclusive systems.

What remains insufficiently developed is a property-rights-security evaluation of digitization that brings together technological modernization, the legal quality of title, cadastral integrity, access to historical information, institutional interoperability and contemporary judicial

expectations concerning the legality of property acquisition. This paper addresses that policy gap. Rather than asking only whether digitization makes land services faster or more transparent, it examines whether digital transformation increases justified confidence that the rights represented by Kenya's land-information system are lawful, accurate, accessible and capable of effective protection.

5. Study Objective

The general objective of the paper was to examine the influence of digitization of land administration on property rights security in Kenya and to identify the policy reforms necessary to strengthen the contribution of digital land administration to secure, reliable and accessible land rights.

The specific objectives were to:

1. Examine the legal and policy framework governing the digitization of land administration in Kenya;
2. Assess the contribution of digitized land administration to the reliability, accessibility, transparency and security of property rights;
3. Examine the legal, institutional and technological challenges affecting the capacity of digital land administration to strengthen property rights security;
4. Analyse the implications of digitized land records for title verification and purchaser due diligence within Kenya's evolving land jurisprudence; and
5. Propose policy measures for strengthening an inclusive, interoperable, accountable and rights-secure digital land administration system in Kenya.

6. Analytical Framework

6.1 Framework for Effective Land Administration

The paper is principally guided by the United Nations Framework for Effective Land Administration. The Framework conceptualises land administration as the institutional system through which relationships between people and land are recorded and managed. It emphasises that effective land administration should be appropriate, interoperable, sustainable, flexible and inclusive and should improve access to and security of land and property rights.

The relevance of this framework to Kenya lies in its rejection of a purely technological understanding of land reform. FELA identifies governance, institutions and accountability, policy and law, financial arrangements, data, innovation, standards, partnerships, capacity and advocacy as interconnected dimensions of effective administration. Technology is therefore one element of institutional transformation rather than its sole determinant.

This perspective provides an appropriate basis for assessing Ardhisa. The question is not merely whether the platform enables electronic transactions but whether the wider system improves the reliability of the relationship among people, rights and land. An electronic transfer processed in a matter of hours constitutes administrative efficiency. It contributes to effective land administration only where the underlying interest, parcel, authority and transaction are also legally and spatially reliable.

FELA is equally relevant to inclusion. The Framework emphasises recognition of people-to-land relationships in diverse forms and links effective administration with tenure security, confidence and trust. This is particularly important in Kenya, where digital land administration must accommodate private, public and community land rather than assuming that every property relationship resembles an individually registered urban parcel.

6.2 Fit-for-Purpose Land Administration

The fit-for-purpose land administration approach complements FELA by emphasising that land systems should be designed around the social and institutional purposes they are expected to serve. Enemark et al. (2014) argue for land administration that is flexible,

inclusive, participatory and capable of incremental improvement rather than excessively dependent on technically elaborate systems that cannot accommodate local realities.

This approach has particular value in the Kenyan context. The land administration system has to manage highly formalised urban property alongside rural holdings, community tenure, informal settlements and areas in which cadastral and registration information may be incomplete. A technological model developed around highly documented urban transactions may therefore perform poorly where the rights themselves are collectively held, historically undocumented or socially complex.

The fit-for-purpose perspective does not imply lower standards of property security. It instead requires the technological and administrative approach to correspond with the type of right being secured. A community landholding may require a system capable of distinguishing ownership by the community from authority granted to particular representatives. An informal settlement may require progressive recognition of occupation and spatial interests that are not captured through conventional individual titling. Digital transformation should accommodate those realities rather than make the absence of a conventional title equivalent to invisibility.

The two analytical perspectives used in this paper therefore converge around a common proposition: the effectiveness of digital land administration should be judged by the quality of the rights and relationships it secures, not by the sophistication of the technology alone.

7. Methodology

The paper adopted a qualitative desktop policy-analysis design combining legal, institutional and implementation evidence available up to 31 December 2025. The approach was appropriate because the study sought to evaluate both the formal framework governing digital land administration and the policy consequences emerging from its implementation.

The legal analysis examined the Constitution of Kenya 2010, the Land Registration Act 2012, the Land Act 2012, the Land Registration (Electronic Transactions) Regulations 2020, the Survey (Electronic Cadastre Transactions) Regulations 2020 and the Data Protection Act 2019. Judicial decisions were included where they materially affected the legal meaning of registration, validity of title and due diligence in land transactions. Particular attention was given to *Dina Management Limited v County Government of Mombasa & 5 Others* [2023] KESC 30 (KLR) and *Sehmi & another v Tarabana Company Limited & 5 Others* [2025] KESC 21 (KLR) because both decisions carry direct implications for reliance on registered title.

The empirical documentary component drew on official records of Ardhisa implementation and government reporting on the geographical expansion of digitized land services. The analysis also incorporated the Transparency International Kenya (2023) assessment of digital land governance, which examined progress, user experience, benefits and implementation challenges within Kenya's digitization programme.

The United Nations Framework for Effective Land Administration and the fit-for-purpose land administration approach provided external policy benchmarks. They were used to assess whether digitization was improving the wider governance conditions necessary for secure property rights rather than simply increasing the number of electronic transactions.

The documentary materials were analysed thematically around legal validity, record reliability, cadastral integrity, transparency, accessibility, transaction traceability, fraud prevention, institutional interoperability, digital inclusion, privacy, cybersecurity, accountability and access to corrective mechanisms. The analysis did not assign numerical scores to Ardhisa because the evidence base was not sufficiently uniform for a defensible quantitative ranking. Policy effectiveness was instead evaluated according to the extent to which digital administration increased justified confidence in the legality, accuracy and enforceability of land rights.

8. Policy Analysis and Findings

8.1 Digitization Has Improved the Security and Retrievability of Land Records

One of the strongest contributions of digital land administration is the reduced dependence on individual physical files. Paper documents are vulnerable not only because they deteriorate but also because they can be misplaced, removed or deliberately interfered with. Where the evidence necessary to verify an interest exists only in a particular physical file, loss of that documentation can materially affect the proprietor's ability to transact upon or defend the property.

Digitization changes this risk environment. Electronic information can be replicated across secure storage systems, backed up and retrieved without repeated physical handling of original records. Appropriate system architecture can also preserve transaction histories that identify when information was entered, amended or accessed. Transparency International Kenya's assessment associated digitization with improvements in data retrieval and archiving and reported expectations that the system would reduce problems such as document loss and administrative delays (Transparency International Kenya, 2023).

The improvement contributes directly to property rights security because a right that cannot reliably be evidenced is difficult to protect. The gain is nevertheless conditional upon strong digital preservation practices. Electronic information remains vulnerable to system failures, cybersecurity incidents and unauthorised internal activity. Record security therefore requires redundant backups, disaster-recovery arrangements, strict user permissions and immutable or independently verifiable audit histories.

Digitization should consequently be understood as changing the nature of record risk rather than eliminating it. Kenya's policy framework must address digital resilience with the same seriousness historically directed towards the physical security of registry files.

8.2 Electronic Authentication Can Reduce Fraud but Also Creates New Vulnerabilities

Electronic land administration has the potential to reduce forms of fraud that depend on forged physical documents, impersonation at registries or unauthorised handling of paper instruments. User-account requirements and authenticated electronic processes create opportunities to connect a transaction to identifiable participants. The Land Registration (Electronic Transactions) Regulations establish the legal basis for such controlled electronic participation.

The ability to trace the account through which a transaction was initiated can strengthen accountability and make some fraudulent activity easier to investigate. Electronic notifications can similarly provide owners with earlier awareness that a dealing affecting their property has entered the administrative system.

Fraud, however, can migrate from physical to digital environments. A system that depends on email, mobile phones and electronic credentials creates opportunities for account compromise, identity theft, fraudulent SIM replacement, social engineering or misuse of authorised professional accounts. The integrity of the digital system therefore depends not merely on having passwords but on ensuring that consequential dealings are supported by sufficiently robust identity authentication.

A property-rights-security model should consequently adopt layered authentication according to transaction risk. Routine access to information does not necessarily require the same safeguards as a transfer of ownership, registration of a charge or alteration affecting proprietorship. Higher-risk transactions should trigger stronger verification and timely notification to affected proprietors.

The system should also permit a proprietor to flag unexpected activity rapidly. A digital platform capable of processing transactions quickly must contain an equally responsive mechanism for suspending suspicious dealings before the speed of automation converts fraud into a completed registration.

8.3 Electronic Searches Have Improved Accessibility but Do Not Resolve the Root-of-Title Problem

Electronic access to searches is one of the clearest improvements arising from digital administration. Users no longer need to rely exclusively on physical attendance at a registry to obtain basic information about registered interests. This can reduce transaction costs and make preliminary due diligence significantly faster.

A current search, however, performs a particular function: it provides information contained in the present register. It does not necessarily establish whether every historical transaction through which the current title arose was lawful.

The significance of this limitation became clearer after *Dina Management*. The Supreme Court's reasoning confirmed that where the root of title is challenged, the legality of the original acquisition becomes material. A later purchaser cannot necessarily rely solely upon the existence of a registered title where no lawful interest existed at the beginning of the chain.

The *Sehmi* decision strengthened the importance of this inquiry. Its consideration of the bona fide purchaser doctrine confirmed that the claimant must be dealing with a legal estate and must satisfy requirements associated with good faith and due diligence.

These cases expose a structural policy challenge. Digital land administration may enable a purchaser to obtain the current register almost immediately while the legally significant historical documents remain scattered among physical archives or different government departments.

The logical policy response is not to abandon electronic searches but to deepen the information infrastructure that supports them. Ardhisasa should progressively move from current-title visibility towards controlled chain-of-title verifiability.

This does not require every historical document to become publicly accessible without restriction. Some information may legitimately require authenticated professional access or evidence of a lawful interest. The underlying principle is that where Kenyan law expects a reasonable purchaser to investigate the legality of the root of title, public land-information architecture should make compliance with that expectation reasonably practicable.

8.4 Digitization Cannot Cure Defective Historical Records

The most fundamental limitation of land digitization is that conversion of information does not constitute legal validation.

Kenya's registration legislation itself recognises that a registered title can be challenged where illegality, procedural impropriety, fraud or corruption affected acquisition. The Supreme Court's reasoning in *Dina Management* confirms that an unlawful beginning cannot be cured merely through later transactions.

This produces a significant risk during large-scale data migration. Where legacy records contain discrepancies and are transferred into the electronic system without adequate verification, the digital environment can give an appearance of certainty to an unresolved legal problem.

The problem can be described as digital certainty over legal uncertainty. A record may become technologically stable and visually authoritative while its legal foundation remains contested.

A more secure migration policy should therefore distinguish between ordinary records and records requiring enhanced verification. A title with a complete and consistent documentary and cadastral history does not necessarily require the same level of scrutiny as a parcel associated with conflicting identifiers, overlapping survey information, incomplete allocation documentation or unresolved restrictions.

A risk-based approach would allow digitization to continue without requiring exhaustive historical investigation of every parcel. The electronic system itself can support the process by identifying anomalies that warrant human review.

8.5 Cadastral Integrity Is Fundamental to Digital Property Security

Land rights concern identifiable geographical space. An electronic register can therefore be trustworthy only where the ownership information corresponds with reliable spatial information.

Digitization of proprietorship records without equivalent modernization of cadastral information would leave a major part of property-rights security unresolved. A person may be correctly identified as owner while the actual extent of the parcel remains uncertain or overlaps another registered interest.

The Survey (Electronic Cadastre Transactions) Regulations provide an important legal foundation for digital cadastral processes. FELA similarly treats data, standards and interoperability as interconnected dimensions of effective land administration rather than separate technical functions.

Kenya's long-term digital architecture should therefore establish an authoritative relationship among the parcel identifier, survey records, cadastral representation and proprietorship information. A material discrepancy among these records should generate an exception requiring investigation rather than allowing a transaction to proceed automatically.

The security value would be substantial. Spatial validation can identify overlapping parcels, unusual subdivisions or mismatches between legal descriptions and cadastral information before they become disputes involving purchasers who relied on the register.

8.6 Institutional Interoperability Should Become a Verification Mechanism

Land administration involves more than the land registry. Depending on the property and transaction, relevant information may be held by survey institutions, county planning departments, valuation authorities, the National Land Commission, tax authorities, companies registries and identity-management systems.

Digitization without interoperability risks replacing physical institutional fragmentation with digital institutional fragmentation. Each department may operate an electronic system while users continue manually reconciling inconsistent records.

FELA identifies interoperability and institutional coordination as core requirements of effective land administration. Kenya's own implementation experience confirms the multi-institutional nature of digital land reform, particularly where national and county institutions participate in the preparation and onboarding of land information.

Interoperability should consequently be designed as a verification architecture rather than merely a convenience. A transaction affecting a parcel whose survey information conflicts with the registration record should be identified automatically. A dealing involving land that another authoritative database classifies as public land should generate a verification requirement. A corporate transferor should be capable of verification against current information concerning the company and the authority of its representatives.

Automated checks cannot determine every legal question, but they can prevent obvious contradictions from proceeding silently through the system.

Interoperability must nevertheless be governed carefully. More extensive data sharing increases the risk that inaccurate information in one database contaminates another. Every integrated data source should therefore have a clearly identified legal authority, defined update responsibility and mechanism through which errors can be corrected at source.

8.7 Uneven Geographic Rollout Produces Uneven Levels of Digital Protection

The geographical expansion of Ardhisasa had progressed significantly by 2025 but remained incomplete. Nairobi and Murang'a had achieved full digitization according to government

reporting, while implementation continued in other counties. Mombasa and Isiolo were being progressively onboarded during 2025.

This produces a temporary but important inequality within the national land administration environment. A proprietor whose land falls within a fully digital registry may benefit from electronic monitoring, easier searches and more traceable transactions. A proprietor in another registry may remain dependent on the very physical records and manual processes that digitization was designed to replace.

The State Department's acknowledgment that manual processing continued in many offices confirms that this was not simply a theoretical concern by the end of the study period.

National rollout should therefore be treated as a property-rights issue as well as an implementation objective. Prioritisation should not depend exclusively on transaction volume. Registries serving areas with deteriorating records, significant land disputes, rapid development pressure or major infrastructure and investment projects may require accelerated digitization even where transaction volumes are comparatively lower.

National digital transformation will only deliver broadly comparable security benefits when the quality of the underlying administration becomes less dependent on geographical location.

8.8 Digital Exclusion Can Create New Property Vulnerabilities

Digital systems are often described as inherently more accessible because users can interact with them remotely. This is accurate for users who possess appropriate devices, connectivity, identification documentation and sufficient digital literacy. It is less accurate for individuals who depend on other people to navigate electronic processes on their behalf.

Transparency International Kenya identified the digital divide and limited digital literacy among the challenges facing equitable use of digitized land services. Its assessment noted particular concerns for groups that may have limited technological access or skills. The State Department similarly acknowledged low digital literacy among landowners as a continuing challenge in 2025.

The issue has direct implications for ownership security. A landowner who must disclose passwords, authentication codes or email access to an informal intermediary simply to use Ardhisa may surrender control over the very credentials designed to protect the property.

Kenya therefore requires a structured assisted digital land-service model. Citizens who cannot independently navigate digital systems should be able to receive assistance at land registries or authorised public service points without disclosing credentials to unregulated third parties.

The design should ensure that the owner remains personally involved in authentication and that the identity of any officer assisting with the transaction is captured within the audit trail.

Digital inclusion should be understood as a component of security rather than as a separate social-policy concern.

8.9 Data Protection and Cybersecurity Are Property-Rights Issues

A digital land system contains personal and economically sensitive information. Registration data identify proprietors and connect them to valuable assets. Greater interoperability may also connect land information with identity, corporate, tax or financial data.

The Data Protection Act 2019 establishes obligations concerning lawful processing, accuracy, security and accountability in the handling of personal information. These requirements apply with particular force where data breaches can expose not merely private information but the ownership and transaction history of valuable property.

Digital land policy must therefore balance legitimate transparency with data minimisation. The public needs sufficient information to verify proprietorship and conduct lawful transactions, but digitization should not make unnecessary personal information universally accessible merely because it can technically be displayed.

Tiered access provides a more defensible approach. Basic searches can disclose information necessary to establish relevant registered interests, while more detailed historical or personal information may require authenticated access and a legitimate legal purpose.

Internal access requires the same scrutiny. Cybersecurity is sometimes discussed principally in terms of external attackers, yet misuse of privileged administrative access can be equally damaging. Every material alteration to a proprietorship record should therefore identify the authenticated officer responsible, the authority supporting the alteration, the date of the action and the previous state of the record.

An accountable digital register should make silent alteration considerably more difficult than it was within the manual system.

8.10 Community Land Requires a Distinct Digital Architecture

Kenya's digital land transformation should not assume that every property interest is individually held. The Constitution recognises public, private and community land, each with different governance implications.

Expansion of Ardhisasa into counties containing significant community land therefore requires careful system design. A community's ownership interest should not be conflated with the authority of an individual official, committee member or representative who happens to possess access credentials.

The broader principle is supported by FELA, which emphasises recognition of diverse people-to-land relationships rather than restricting effective administration to conventional individual titles. Fit-for-purpose land administration similarly supports flexibility in recognising different forms of tenure.

A secure digital community-land transaction should therefore capture not only the account initiating an action but the legal authority through which that person is entitled to act for the community. Where the law requires community approval, the digital record should preserve evidence that the necessary institutional decision occurred.

Without such safeguards, digitization could unintentionally concentrate control over collectively owned property in individuals who possess technical control of the electronic interface.

8.11 Digital Administration Requires Effective Correction and Redress

No information system is entirely free from error. The security of a land-information system therefore depends partly on what happens when information is wrong.

Large-scale data migration may produce incorrect names, mismatched identifiers, missing restrictions, inaccurate parcel links or other errors that do not necessarily involve fraud. A proprietor should have an accessible process through which such discrepancies can be reported, investigated and corrected.

The distinction between administrative error and substantive ownership dispute is crucial. A registry can correct an obvious migration mistake where reliable source records establish the correct information. It should not use an administrative correction process to determine contested proprietary rights that require adjudication.

Every correction should create an audit record showing what was altered, the documentary authority supporting the change and the officer responsible. The previous information should remain recoverable for audit purposes rather than disappearing from the digital history.

A transparent correction mechanism would also strengthen confidence in the digitization programme. Citizens are more likely to trust a system where errors can be acknowledged and corrected through predictable procedures than one that presents digital information as infallible.

9. Evaluation of Policy Options

9.1 Transaction-Centred Expansion

A transaction-centred approach would continue rapidly onboarding registries and increasing the number of services available electronically. Its principal strength lies in speed. Wider national coverage would reduce dependence on manual processes and allow a larger proportion of the population to benefit from electronic searches, applications and transactions. It could also accelerate standardisation across land offices.

The approach is comparatively attractive from an implementation perspective because progress can be demonstrated through measurable indicators such as records converted, registries onboarded and transactions processed. Its weakness is that these indicators reveal little about the quality of the rights contained in the system.

Rapid migration may reproduce defective legacy records if conversion targets are pursued without adequate validation. The approach could therefore deliver administrative efficiency while leaving important problems of title legality, cadastral consistency and historical record quality unresolved.

Transaction-centred expansion remains necessary as part of national rollout, but it provides an inadequate long-term definition of successful digital land reform.

9.2 Verification-Centred Digitization

A verification-centred model would place greater emphasis on validating the information being migrated into the electronic system. Records presenting inconsistencies could be separated from ordinary transactions and subjected to additional legal or cadastral review before being treated as fully verified.

This approach would strengthen confidence in the electronic register and reduce the risk that digitization institutionalises existing errors. It is particularly responsive to the legal implications arising from *Dina Management* and *Sehmi*, because it recognises that formal registration and lawful title cannot always be treated as synonymous.

The principal constraint is administrative cost. Historical verification can require retrieval of old instruments, cadastral material and records held by other agencies. Applying the same intensive process to every parcel could significantly slow national digitization.

The policy value of the approach therefore lies in risk-based verification rather than universal retrospective investigation. Parcels with consistent legal and spatial histories can proceed through ordinary migration, while records presenting material anomalies receive greater scrutiny.

9.3 Property-Rights-Security Digital Land Administration

The strongest policy option combines expansion and verification within a broader rights-security model. Under this approach, digitization remains a national objective, but its success is assessed according to the reliability, legality, accessibility and resilience of the resulting property-rights system.

The model incorporates risk-based verification, cadastral integration, institutional interoperability, traceable transactions, secure assisted access, data protection and effective correction mechanisms. It also recognises that due diligence requirements have changed as courts increasingly scrutinise the legality of the chain through which registered rights were acquired.

This approach requires more institutional coordination than simple automation, but it most closely reflects the FELA conception of effective land administration. The United Nations framework treats governance, law, institutions, data, standards, innovation and capacity as interconnected pathways, reinforcing the proposition that technology cannot deliver secure land rights in isolation.

The property-rights-security model is therefore the preferred policy direction because it preserves the administrative gains of digitization while addressing the legal and institutional weaknesses that determine whether the resulting records can actually be trusted.

10. Recommended Policy Direction

Kenya should adopt a property-rights-security model of digital land administration in which the principal measure of success is not the proportion of services conducted electronically but the degree of justified confidence citizens and institutions can place in the legal and spatial information contained within the system.

National rollout should continue because prolonged coexistence of fragmented manual and digital registries would sustain geographical inequalities in administrative security. Expansion should, however, incorporate a formal risk-based data-validation protocol. Legacy records presenting material inconsistencies should be identified during migration and directed to an exception-management process rather than being converted automatically into apparently authoritative digital records.

The electronic system should progressively support controlled verification of the historical chain of title. *Dina Management* and *Sehmi* have increased the importance of the legal origin of registered interests. Where relevant historical documentation remains exclusively in dispersed physical archives, the State effectively imposes a due diligence expectation that its own information architecture makes difficult to satisfy. Historical access should therefore be expanded for legitimate users while remaining subject to appropriate privacy and security controls.

Registration and cadastral modernization should proceed as an integrated programme. Proprietorship data, parcel identifiers, survey records and spatial representations should operate within a common verification environment. Material discrepancies should trigger review before transactions capable of transferring or encumbering ownership are completed.

Institutional interoperability should also be strengthened. The objective should not be indiscriminate collection of government data within a single platform but reliable cross-validation of information material to land rights. Each integrated source should have clearly defined authority, responsibility for maintaining accurate information and a transparent mechanism for correcting errors.

The State Department for Lands should formalise assisted digital access for users who cannot independently navigate electronic land systems. The continuing digital-literacy challenges acknowledged by both government and independent assessment demonstrate that electronic-only delivery can expose some proprietors to new risks. Secure assistance should therefore remain an integral public function during and after national digital transition.

Cybersecurity controls should reflect the economic significance of the rights administered through the system. Material changes to proprietorship should require stronger authentication than routine information access. Owners should receive timely notification of significant activity affecting their land, and an accessible mechanism should permit suspicious transactions to be flagged before completion.

Internal accountability should be strengthened through permanent audit histories. Every material alteration should identify the authenticated user responsible, the authority supporting the decision and the previous state of the record. Administrative overrides should be subject to enhanced supervision because a secure digital system must protect property not only from external attacks but also from misuse of legitimate institutional access.

Performance measurement should also change. Government reporting on digitization should continue recording transaction volumes, registry coverage and processing times, but these indicators should be complemented by measures that reveal the quality of property security. Relevant indicators would include the number of legacy conflicts detected and resolved during migration, cadastral inconsistencies corrected, suspected fraudulent transactions

intercepted, digital-record complaints resolved, correction processing times, system availability and use of assisted-access services.

Such indicators would allow policy makers to determine whether digitization is improving the reliability of Kenya's land-rights infrastructure rather than merely expanding the use of technology within land offices.

11. Conclusion

The digitization of land administration represents one of the most significant transformations of Kenya's contemporary property system. The Land Registration Act and subsequent electronic-transactions and cadastral regulations established a legal basis for moving beyond paper-based administration, while Ardhisasa translated this policy direction into an operational platform through which users increasingly interact with land information and services. By 2025, implementation had extended beyond Nairobi, with full digitization reported in Nairobi and Murang'a and progressive rollout taking place in counties including Mombasa and Isiolo.

The transformation has generated genuine security benefits. Electronic records reduce dependence on vulnerable physical files, digital retrieval can improve access to official information, authenticated transactions can make some forms of impersonation more difficult and digital workflows provide opportunities for greater administrative traceability. These gains address real weaknesses that had historically affected Kenya's land administration system.

The analysis nevertheless demonstrates that digitization and property rights security are not synonymous. Technology can secure the storage of information without establishing the legal validity of the interest represented by that information. A defective allocation remains legally vulnerable after digitization. An inaccurate cadastral record does not become correct because it is displayed electronically. A current digital search may identify the registered proprietor without establishing the legality of the historical process through which that proprietor's title arose.

The distinction has become particularly significant following *Dina Management* and *Sehmi*. These decisions reinforce the importance of the lawful root of title and demonstrate the limits of relying on registration alone. The implications extend directly into digital-land policy. A system intended to support contemporary conveyancing should progressively provide legitimate users with the information necessary to undertake the due diligence contemporary property jurisprudence requires.

Kenya's next phase of land digitization should consequently move beyond the objective of a paperless registry towards digital assurance of property rights. That transformation requires verified source data, an integrated relationship between legal and cadastral records, institutional interoperability, inclusive user access, traceable administrative actions, strong privacy and cybersecurity protections and effective procedures for identifying and correcting errors.

The Framework for Effective Land Administration provides an appropriate policy orientation because it treats technology, institutions, law, governance and people as interconnected components of land administration rather than separate concerns. The fit-for-purpose approach similarly demonstrates that an effective system must accommodate the range of land relationships existing within society rather than designing administration around one technologically convenient form of tenure.

The long-term measure of Ardhisasa's success should therefore not be whether every Kenyan land transaction can eventually be completed online. Success will be achieved when a person dealing with land can rely, with justified confidence, on a public system that connects the registered proprietor, the lawful origin of the right and the physical parcel on the ground while providing accessible means of correcting errors and challenging unauthorised dealings.

A digital land record becomes meaningful to property-rights security not simply because it is electronic, but because the right it represents is lawful, accurate, verifiable, accessible and institutionally protected.

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