LAND ASSESSMENT REPORT

Digitization of Land Governance Processes in Kenya: Nairobi and Kwale

TRANSPARENCY INTERNATIONAL KENYA

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LIST OF ABBREVIATIONS

AFREF

CLA   Community Land Act

CIDP   County Integrated Development Plan

CSOs   Civil Society Organizations

DEM   Digital Elevation Models

GDP   Gross Domestic Product

GIS   Geographical Information Systems

KIIs   Key informant interviews

KNSDI   Kenya National Spatial Data Infrastructure

KNBS   Kenya National Bureau of Statistics

LIMS   Land Information Management System

LiDAR   Light detection and ranging (LiDAR)

MCA   Member of County Assembly

MOU   Memorandum of Understanding

MoLPP   Ministry of Lands and Physical Planning

NGO   Non-Governmental Organization

NLC   National Land Commission

OTMC   Online Transactional Mining Cadastre Portal

PEA   Political Economy Analysis

SDI   Spatial Data Infrastructure

SDGs   Sustainable Development Goals

STDM   Social Tenure Domain Model

UAV   Unmanned Aerial Vehicle

ACKNOWLEDGEMENTS

EXECUTIVE SUMMARY

Kenya has embarked on a process of digitizing its land records and transactions, with the aim of enhancing security, accessibility, transparency, and efficiency in land administration and management. The National Land Information Management System (NLIMS), also known as 'Ardhisasa', was launched in April 2021 and is expected to provide online services for land registration, administration, physical planning, survey and mapping, valuation, and adjudication and settlement.

Digitization of land process which is a key factor in land governance is a crucial driver for sustainable development in Kenya, as it affects various aspects such as poverty eradication, food security, gender equality, urban planning, climate action, and biodiversity conservation.

The assessment study commissioned by the Transparency International Kenya was aimed at evaluating the progress, challenges, and opportunities of the digitization process in two counties, Nairobi and Kwale. Nairobi is the capital city and the largest urban centre in Kenya, with a high demand for land and housing. Kwale is a coastal county with diverse land uses and tenure systems, including customary and communal lands.

The study used qualitative research methods approach, for data collection and analysis. The main sources of data included:

   i.   A review of relevant literature and documents on land governance and digitization in Kenya and other countries.
   ii. A survey of land users, service providers, and stakeholders in both counties to assess their awareness, perception, satisfaction, and challenges with the digitization process.
   iii. Key informant interviews with officials from the Ministry of Lands and Physical Planning (MoLPP), the National Land Commission (NLC), county governments, civil society organizations, private sector actors, and other relevant actors involved in the digitization process.
   iv. Focus group discussions with representatives of different groups of land users, such as women, youth, farmers, pastoralists, investors, developers, to capture their views and experiences with the digitization process.
   v.   A comparative study of the Land governance digitization process in Kenya and other jurisdictions

The assessment study reveals that while Kenya has made significant progress in digitizing land governance processes, there are still several areas that require attention. It was evident that, Kenya's conventional paper-based approaches for

managing land has been beset by several difficulties. These include inefficiencies, a lack of openness, restricted access to land data by the public and other relevant stakeholders, financial constraints in terms of budgetary allocations by the government, resistance to change from the stakeholders due to unfamiliarity, fear of losing control or scepticism on the accuracy of the digital records among others. These issues can be resolved while also enhancing overall service delivery, thanks to the digitization of land administration procedures.

Digitizing land records and procedures has the potential to make information easily accessible to the public, promoting informed decision-making and lowering the danger of corruption. However, the implementation of digitization initiatives is not without its challenges. The lack of adequate access to information and limited awareness among the general public about digital land administration systems hinder the full realization of the benefits. Additionally, the legal and policy frameworks governing the digitization process need to be robust and aligned with international best practices to ensure the effective operation of digital systems.

The report highlights the importance of addressing accountability issues tied to the digitization process. Complaints management systems within the land sector need to be established to handle grievances effectively and ensure citizens' satisfaction. Furthermore, the emerging forms of corruption observed post-digitization, particularly in comparison of Nairobi and Kwale Counties, require attention and targeted interventions.

According to the study, other recommendations to drive the digitization of Land administration in Kenya are summarised in below table:

Subject	Recommendations	Person responsible
Policy and Legal Reforms:	Review and update existing policies and legal frameworks to align with international best practices and ensure a supportive environment for digital land administration. This includes regulations on data privacy, security, access, and interoperability. Legal frameworks to align with international best practices and ensure a supportive environment for digital land administration.	- Parliament. (Senate and National assembly) - Ministry of Lands and physical planning.
Infrastructure and Technology Investment:	Invest in robust infrastructure, including reliable internet connectivity, hardware, and software systems, to support digital land administration processes effectively. Consider leveraging emerging technologies such as block chain and cloud computing for enhanced data management and security.	- Ministry of lands and physical planning. - County Governments of Nairobi and Kwale. - All stakeholders

Capacity Building:	Develop comprehensive capacity building programs to equip stakeholders, including land administrators, surveyors, community representatives, and the public, with the necessary skills and knowledge to navigate and utilize digital land administration systems effectively.	- Ministry of Lands and physical planning. - Private actors like RICMD. - CSOs
Public Awareness and Participation:	Launch targeted awareness campaigns to inform and engage the public about the benefits of digitization, access to land information, and avenues for participation in decision-making processes. Foster inclusive participation by incorporating citizen feedback mechanisms and establishing user-friendly platforms' public about the benefits of digitization, access to land information, and avenues for participation in decision-making processes. Foster inclusive participation by incorporating citizen feedback mechanisms and establishing user-friendly platforms.	- Ministry of Lands and physical planning. - Private actors like RICMD. - CSOs - General public-citizens
Data Governance and Security:	Establish robust data governance frameworks, including data standards, data protection policies, and protocols for secure data sharing and collaboration. Ensure compliance with data privacy regulations and prioritize the security and integrity of land-related data.	- Ministry of Lands and physical planning. - Private actors like RICMD. - CSOs
Monitoring and Evaluation	Implement a robust monitoring and evaluation framework to assess the effectiveness and impact of digital land administration systems. Regularly review performance indicators, collect user feedback, and make necessary improvements to enhance efficiency, transparency, and accountability.	- Ministry of Lands and physical planning. - Private actors like RICMD. - CSOs

This report indicates that by implementing these recommendations, Kenya can realize the full potential of digital land administration, leading to improved service delivery, reduced corruption, enhanced transparency, and increased public trust in the land sector.

1 INTRODUCTION

1.1. Background

The digitalization of land administration has become a significant global trend over the past decade. This transformative process, facilitated by advances in technology, is reshaping how land administration services are delivered, enhancing efficiency, and promoting transparency. In Kenya, a country where land rights have been a contentious issue, the digitalization of land administration is particularly relevant. This study titled "Analysis of the Digitalization of Land Administration in Kenya" delves into this topic, exploring its various facets and implications.

Land is the most important factor of production in Kenya. It is a critical resource that underpins economic development for an estimated 48 million people. Most livelihoods are provided by agriculture, pastoralism, water catchment, nature reserves, urban and rural settlements, industry, mining, infrastructure, tourism and recreation, forestry, fishing, energy, and cultural site preservation. Land continues to directly contribute to Kenya's Vision 2030 and the African Union's Agenda 2063. For economic expansion and the eradication of poverty, access to land is essential. It is critical to have access to trustworthy land and property records for the government, business, and the public to be able to use this resource efficiently and to reduce land conflicts.

Definition of Terms:

To comprehensively investigate land administration in Kenya, establishing a clear and precise terminology foundation is imperative. This preliminary step is essential for ensuring a focused and precise exploration of the subject matter in this study, as it involves the operationalization of key terms to be used throughout the research:

Land governance refers to the policies, processes, and institutions by which land, property, and natural resources are managed. This includes decisions on access to land, land rights, land use, and land development.

Land administration is a subset of land governance that focuses on the processes of determining, recording, and disseminating information about the ownership, value, and use of land when implementing land management policies.

Digitization is key in the efforts to modernize and improve land administration processes in Kenya. The digitization of land governance holds significant

potential to enhance efficiency, transparency, and accountability, ultimately leading to improved service delivery and effective land management.

This report presents an assessment of the digitization of land administration processes in Kenya, with a specific focus on Nairobi and Kwale counties. This report refers to the term digitization almost in consonance with digitalization as below:

The above definitions are necessitated by the fact that the terms "automation", "digitization" and "digitalization" are currently omnipresent in the discussion of land governance in Kenya. Within the Kenyan context, it is now clear that digitalization is an antecedent of digitization as will be evidenced in this study.

Digitization, in general terms, refers to the process of converting information into a digital format where the information is organized into bits. This process allows information to be easily stored, processed, and transmitted by electronic devices, such as computers. More specifically it refers to the process of converting analogue data or information into digital formats that can be easily processed, stored, and accessed electronically, the process offers numerous benefits, including improved data management, enhanced accessibility, reduced physical storage requirements, faster information retrieval, and the potential for data-driven insights. In essence, it refers solely to the conversion of data and information from analogue to digital form. On the other hand:

Digitalization specifically, involves the conversion of physical records about land ownership, boundaries, value, and use into digital formats. This includes maps, title deeds, survey data, and other related documents[2]. The process typically involves scanning physical documents, creating digital maps using GIS (Geographic Information Systems), and storing this information in a database or a cloud storage system.

Study Objectives

This study seeks to provide an in-depth analysis on the digitization of land governance processes in Kenya with specific focus on Nairobi and Kwale counties. Specifically, the objectives are:

1. **Contextual Analysis:** Conduct a comprehensive analysis of the digitalization of land administration processes in Kenya, examining the country's readiness for the digitalization process. This analysis will assess the existing infrastructure, technological capabilities, and legal frameworks, as well as the risks and challenges associated with digitization.

2. **Policy, Legal, and Institutional Frameworks:** Evaluate the policy, legal, and institutional frameworks that support the digitalization of land administration processes in Kenya. This assessment will examine the alignment of these frameworks with international best practices and identify areas for improvement to ensure effective implementation and compliance.

3. **Inclusivity and Impact:** Assess the impact of digitization on access to land services by various stakeholders, particularly women, youth, and indigenous groups. The assessment will identify any barriers to access and propose

strategies to ensure equitable participation and inclusion in the digitized land administration processes. These outputs forementioned aim to provide valuable insights and recommendations to policymakers, land administrators, civil society organizations, and other stakeholders involved in the digitization of land administration processes in Kenya.

In the following sections, this report has outlined the research methodology employed, presents the findings of the assessment, whilst providing recommendations for enhancing the digitization of land administration processes with cases from Nairobi and Kwale counties.

1.2. Rationale for the study

Land is undeniably important to Kenya's economy and provides a source of income for most Kenyans. It is recognised as Kenya's primary resource and the foundation of people's livelihoods; as such, it should be retained, used/developed, and managed in an equitable, efficient, productive, and sustainable manner. Land is a contentious political issue in Kenya, and it is viewed as critical for political stability, social cohesion, economic growth, poverty alleviation, and good governance. Furthermore, land issues are complex and dynamic, emphasising the importance of land governance frameworks and the development of effective legal, institutional, and administrative land management procedures.

Land management and administration are often marred by corruption, irregular allocations and transfers, inequality in distribution and land resource utilization due to systemic challenges that have persisted over several decades. The lack of accurate and accessible data on land poses a challenge to effective land tenure and governance. Stakeholders in the land sector require reliable information to address governance issues and ensure sustainable development but this information has always not been available neither easily accessible.

To date, relevant land administration systems seek to deliver stability through the provision of available, accurate, authoritative, assured, and unambiguous information about who holds what land, where it is located, its value, how it is used, and how it could or must be used. While these systems have made progress, there remains a lot of challenges in terms of infrastructural, legal and policy frameworks to support this process. The government while trying to roll out digitalization of land administration has made effort to put in place policy and legal frameworks upon which the digitalization process is pegged on. Given that this is an ongoing process with the pilot already being implemented in Nairobi, it is critical to assess how adequate the policy, legal and institutional frameworks are. In addition, it is expected that the process will also be rolled out in other counties and thus the

need to evaluate these policy, legal and institutional frameworks at both levels of government and how adequate they are to support the digitalization process.

The advancement of technology has shown promising results in enhancing transparency, accountability, and livelihood improvement, as well as promoting infrastructural development even from another jurisdiction. [1] Despite these advancements, corruption remains a significant impediment to the progress made and use of technology. Corrupt practices have often undermined the potential benefits of technological interventions. Kenya being in the pilot phase of using technology through digitalization offers an opportunity to assess the extent to which transparency and accountability has been enhanced. Equally related is how corruption, as previously manifested before digitization, has been dealt with by digitalization.

Effective land management remains one of the ways through which irregular practices such as nepotism, discrimination and preferentialism can gradually be rectified. Closely related to this is the place of women in land governance-women are more harshly affected by land tenure insecurity due to direct and indirect discriminatory laws and practices at the national, community and family level [2]. Overall, women own less land and have less secure rights over land than men. Women's equal rights to land and property are grounded in core human rights instruments, including the Universal Declaration on Human Rights, the International Covenant on Economic, Social and Cultural Rights, International Covenant on Civil and Political Rights and the Convention for the Elimination of All Forms of Discrimination Against Women. Women's land rights are critical to democracy, peace, justice, sustainable development and security for all. Secure land rights for women and other marginalized groupsset off powerful, continued ripple effects that go a long way toward realizing gender equality and a range of critical SDGs and human rights.[3]

Administration system which relies on paper-based record management, have always proved to be a challenge in enhancing land administration in the nation. This approach has led to the accumulation of millions of unreconciled paper records, both at the central headquarters and field offices across the country.

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1 Schreiber, Leon. "Securing Land Rights: Making Land Titling Work in Rwanda: 2012–2017." *Global Challenges Certification Innovations for Successful Societies: Woodrow Wilson School of Public and International Affairs, Princeton University: Princeton, NJ, USA* (2017).

2 "Insecure land rights for women: a threat to progress on gender ...." https://www.ohchr.org/en/special-procedures/wg-women-and-girls/insecure-land-rights-women-threat-progress-gender-equality-and-sustainable-development. Accessed 9 Aug. 2023.

3 Ibid.

Consequently, the land administration process in Kenya has become inefficient, time-consuming, unreliable, restrictive, and costly. These shortcomings undermine the efficiency and effectiveness of service delivery. The manual land administration system resulted in deteriorating service delivery and the accumulation of an overwhelming volume of paper records, creating an untenable situation in this era of reforms and demands for citizen-centred services[4].The research seeks to delve into the place of different stakeholders in the process of digitalization.

1.1.2. The roadmap to Digitization in Kenya.

Africa, as a continent, possesses enormous potential in leveraging on the vast land resources through remote sensing and unlocking vast undocumented data. However, much of this data remains siloed and fragmented among different actors, limiting its accessibility and utilization. Digitization serves as an opportunity to facilitate data democratization, emphasizing the importance of accessible data, common standards, and mechanisms for interoperability.

The technical complexity of land information and management systems persisted in a post-independent Kenya, where the land issue has continued to be a major source of governance concern. Over the years, there have been several attempts to automate the functions of the Ministry of Lands and Physical Planning (MoLPP), starting as early as 2004[5].To address these formidable challenges associated with paper-based systems, the Government of Kenya, under the Ministry of Land, initiated efforts to computerize its functions. The National Land Information Management System (NLIMS) was conceived around the year 2004 as the solution to these challenges. The system intended to increase the security of land data, increase accessibility, and lower the cost of land transactions. For the easy, secure, affordable, effective, and transparent completion of paperless transactions. Kenya's NLIMS has developed an online platform otherwise known as Ardhi Sasa. The crux of the platform being improving service delivery and get rid of the paper records that encourage and fuel fraud and corruption[6].

The actual digitization work began in 2013 to give effect to certain legislations one

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4 "CHALLENGES FACING DIGITIZATION PROJECTS IN KENYA." 4 Jun. 2012, http://repository.maseno.ac.ke/bitstream/handle/123456789/4786/768-Article%20Text-2802-1-10-20181111.pdf?sequence=1&isAllowed=y. Accessed 7 Jul. 2023.

5 "Lands ministry digitisation set to end in June - Business Daily." 7 Mar. 2022, https://www.businessdailyafrica.com/bd/data-hub/lands-ministry-digitisation-set-to-end-in-june-3739174. Accessed 27 Jul. 2023.

6 "National Land Information Management System (NLIMS)." https://lands.go.ke/national-land-information-management-system-nlims/. Accessed 27 Jul. 2023.

of them being Sections 9 and 10 of the Land Registration Act 2012. Section 9 of this Act mandates the Registrar of Lands to keep the register and any documents required in a secure, accessible, and dependable format, which includes, among other things, electronic files. Section 10 emphasizes, among other things, the accessibility of the register by members of the public via electronic means.

It was not until 2017 when the current National Land Information Management System (NLIMS) was implemented in the central registry in Nairobi, with a specific focus on electronic revenue collection and later formally the NLIMS, dubbed 'Ardhi Sasa' was formally launched on in 2021.

This is one among the many efforts the government is making in digitalization of its functions[7] The NLIMS introduced a semi-automated customer-facing application and back-office processing capabilities that aim at enhancing service delivery and facilitate the electronic processing of various transactions. It further incorporates modules that support valuation, lease processing, land rent calculation, and stamp duty processing. These additional modules are designed to further streamline and automate key processes within the land administration system.

The automation of land records is implemented through the digitalized National Land Information System (NLIS), which facilitates the online uploading of data from various line departments including survey, valuation, registration, physical planning, land administration, adjudication, and settlement. The system is interconnected with the companies' registry and the Registrar of Persons.

The digitization initiative is aimed at the improvement of service delivery by addressing the following issues[8]:

- The disappearance of documents.
- The file tracking system has failed.
- Land registry records are tattered.
- Poor image of the Ministry to the public.
- Long service delivery timelines.
- Bottlenecks/service delivery steps.

The Ministry of Lands in Kenya plays a pivotal role in the management and oversight

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7 "DIGITAL ECONOMY BLUEPRINT - Ministry of ICT." https://www.ict.go.ke/wp-content/uploads/2019/05/Kenya-Digital-Economy-2019.pdf. Accessed 7 Jul. 2023.

8 "Digitization of the Lands and Companies Registries in Kenya." 12 Dec. 2018, https://wamaeallen.com/digitization-of-the-lands-and-companies-registries-in-kenya-a-good-or-a-bad-move/. Accessed 31 Aug. 2023.

of land-related matters, collaborating with both state and non-state agencies. Within this ministry's framework, several departments operate cohesively to ensure the efficient delivery of services as shown in the diagram below.

The current structure of the directorates at the Ministry of Lands And Urban Planning are as per below table9. This table summarise the departments that contribute in a way or the other to digitization of land administration.
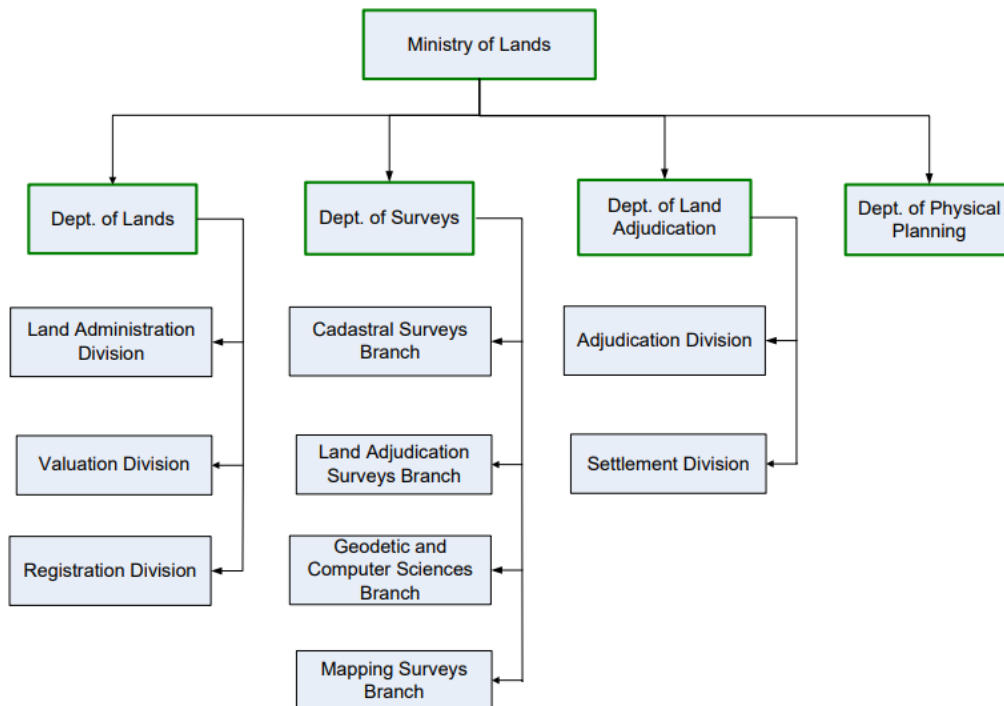
Additionally, in realising the aspiration of digitization, the Land Registration Act 20[10] and the Land Act [11] require the Cabinet Secretary and the National Land Commission to develop and implement a National Land Information System and to maintain a land register. It is in the backdrop of this legal requirement and the broader e-government strategy of modernization of government through improving access to government services that the MoLPP and the NLC are collaborating to digitize land records as a measure of improving service delivery in land management.[12]

The digitization of land registry additionally involves the development of a

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9 "Land Governance Assessment Framework - World Bank." https://www.worldbank.org/en/programs/land-governance-assessment-framework. Accessed 6 Aug. 2023.

10 See 2012 Act, the Act was later revised in some sections in 2016 via land amendment Act.

11 no. 6 of 2012, this Act equally was revised in some section via the Land Amendment Act of 2016.

12 "Regulatory Impact Assessment (RIA) On the Electronic Land ...." https://iekenya.org/downloads/Draft-RIA-Report-on-the-Electronic-Land-Transaction-Regulations-2020.pdf. Accessed 7 Jul. 2023.

Document Management System (DMS) for all approved physical development plans in the country in order to reduce time spent by County physical planners vetting and verifying plans submitted for approval, as well as time spent by officers, professionals, and members of the public accessing and retrieving any authenticated survey plan; provide easy storage; provide security and backup in the event of loss, and to prevent fraud.

It also includes the creation of a Document Managing System for Land Title Documents Records, which includes the scanning, indexing, and archiving of deed files, land rent cards, and green cards. There is also the creation of a Land rent information database system that is aimed at handling land rent payment and demand notices. It also includes the creation of digital topographical maps, the establishment of the Kenya National Spatial Data Infrastructure, that seeks to create a platform for spatial information discovery and access to facilitate data sharing via the internet, and the creation of a land information for informal settlements, which aims to map out informal settlements.

Digitizing Land Governance: Examining Kenya's Ardhi Sasa Platform

An effective land administration system includes the functionalities of land valuation and land development for the delivery of sustainable development. Land management encompasses various components such as land policy, information, infrastructure, and administration, all of which are crucial for sustainable development. Land administration is an essential subset of land management, focusing specifically on securing land rights. Universally, a National Land Information System is typically established to implement land policies and management strategies tailored to promote sustainable development.

The quest for a digitalized land administration in Kenya stems from the fact that, now, the Kenyan government utilizes electronic systems in an array of state departments and other state-owned organizations, including the national tax systems, the integrated financial management system, the legal information system, and the education system [13]. In additional there are legal provisions within the Land laws providing for embracing and use of technology. Through government portals like the Kenyan government's e-Citizen gateway to government services, these systems offer electronic services to citizens and companies. The e-Citizen is a Kenyan Government to Citizen (G2C) portal that offers services like business name search and registration, marriage notice and registration, driving licenses, land searches and clearances, passport and visa

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13 "DIGITAL ECONOMY BLUEPRINT - Ministry of ICT." https://www.ict.go.ke/wp-content/uploads/2019/05/Kenya-Digital-Economy-2019.pdf. Accessed 7 Jul. 2023.

applications, as well as business name search and registration.

The Ministry of Lands and Physical Planning (MoLPP) spearheaded a significant advancement in Kenya's land information system with the development of a web-based national land information management system, commonly known as Ardhisasa.
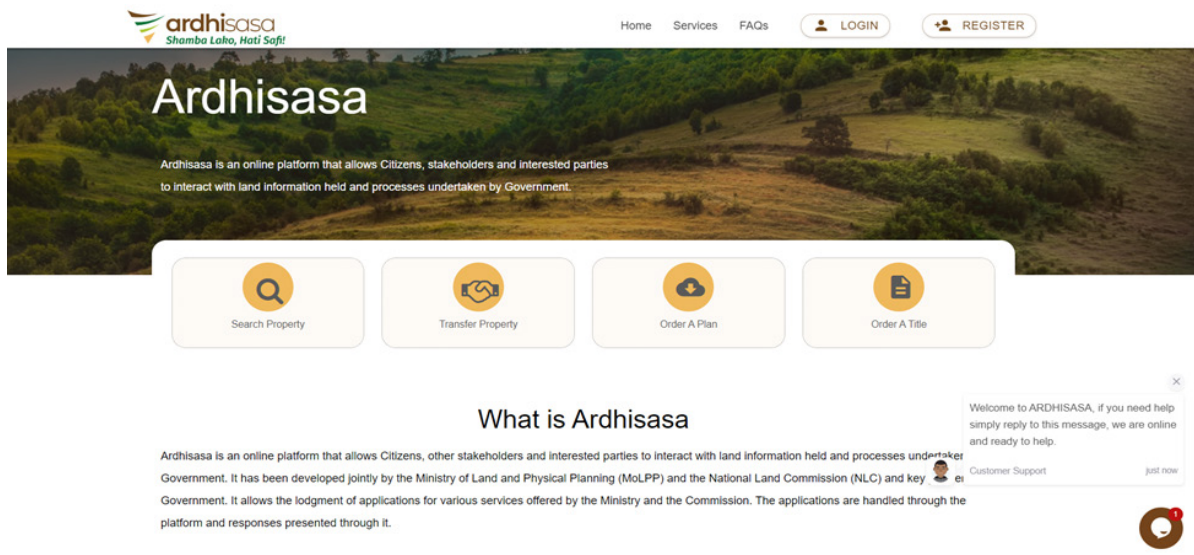
Below is picture of how the Adhi Sasa's Front end login page looks like.
Figure 2: The front end to the Ardhi Sasa website
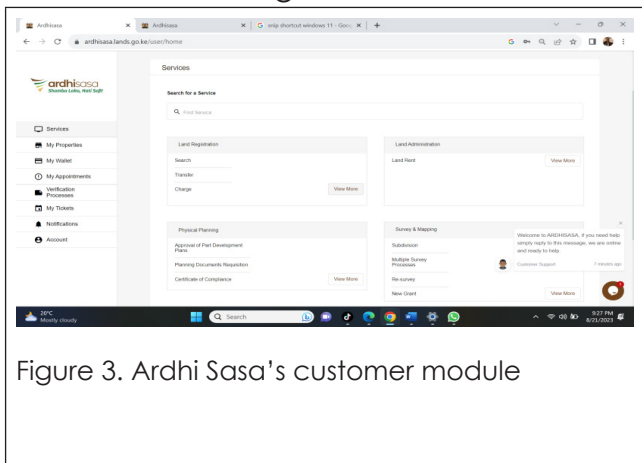
Figure 3. Ardhi Sasa's customer module
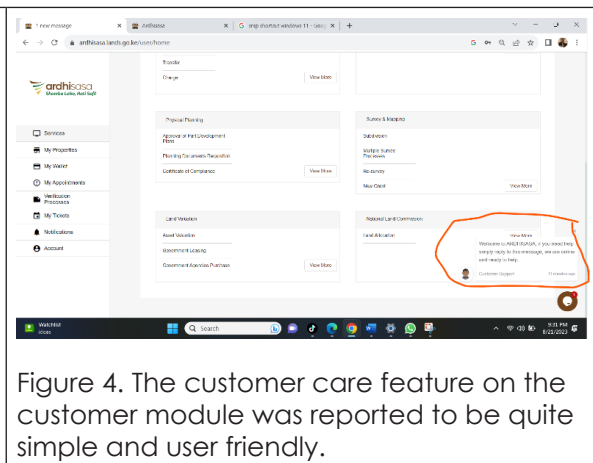
Figure 4. The customer care feature on the customer module was reported to be quite simple and user friendly.

This assessment report seeks to delve deeper into this digitalization journey and assess the user experiences in Nairobi and Kwale Counties for those who have used and/or look forward to use of the system especially in Kwale where the same has not been rolled. The report aims to provide a comprehensive analysis of the current state, challenges, and opportunities for digitization in land governance and administration and its impact with a focus on improving transparency, efficiency, and inclusivity. The report also does this while recognizing the imperatives of policy, legal, and institutional frameworks, to delve into a holistic examination of the digitization paradigm that extends beyond technological transformation for Kenya.

1.1.3. A comparative analysis of digitization of land processes. A case study of India, Uganda, Cameroon, Sweden.

As the world increasingly embraces digital transformation, the modernization of land processes has become a critical element in many countries' efforts to enhance transparency, efficiency, and accessibility within their land administration systems. In the Kenyan context, where land management is of paramount importance, understanding the experiences and lessons learnt from other nations can provide invaluable insights. This section gives brief preview of digitization efforts in the land sectors of Uganda, Cameroon, and Sweden, with the aim of evaluating the impact, challenges, and best practices associated with these initiatives. By examining these diverse case studies, we seek to shed light on how Kenya can navigate its own journey toward digitizing land processes to improve governance, streamline operations, and ultimately, serve its citizens more effectively.

Uganda. According to a journal on the digitization of the land registry in the Ugandan Ministry of Lands, Housing and Urban Development (MoLHUD)[14] The Government of Uganda (GoU), through the Department of Land Registration, the office mandated to register land ownership and transactions as guided by the Registration of Titles Act (Cap 230) and the Land Act (Cap 227) (NPA, 2009)[15]embarked on the digitization of its land registry operations since 2013. The primary aim was to eradicate fraud and land rights disputes[16]. Inefficiencies which arose from using a manual-based system for land records management characterized the operations in the land registry. As a result, the land registry failed to meet its mandate to provide accurate and timely information on land ownership and usage (NPA, 2009). The registry continued to report delays in processing land titles, difficulty in accessing land information, and the falsification of survey information on land titles (Office of the Auditor General, 2013). It is under this premise that, The GoU undertook to digitize the land registry as an intervention to provide reliable and quality services through an efficient and effective service mechanism. Despite efforts towards the digitization of the land registry in Uganda, success that is visible to the users of the registry has not yet been achieved (Rutasikwa, 2012). This is attributed[17]records show the bulk of

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14 file:///C:/Users/Administrator/Downloads/ajol-file journals_471_articles_100086_submission_proof_100086-5557-264544-1-10-20140123.pdf. Accessed on 9/3/2023.

15 ADF Magazine, "Uganda Unveils Digital Land Registry System," last modified December 2020, https://adf-magazine.com/2020/12/uganda-unveils-digital-land-registry-system/.

16

17 My Coordinates, "Modernization of Land Administration Services in Uganda," accessed August 30, 2023, https://mycoordinates.org/modernization-of-land-administration-services-in-uganda/.

the records still exist in paper format among other challenges[18]. However, the adoption of blockchain technology promises a more secure and incorruptible system[19].There is some progress but there are stil challenges experienced in the context of digitalization in Uganda.

Cameroon According to a study report by African Development Bank Group[20], In Cameroon, the challenge of guaranteeing land rights is still particularly topical in view of population pressure on land resources. This pressure fans conflicts, corruption and exclusion of the poor from the right to land ownership. The cancellation of many land certificates observed in recent years is proof of a form of land insecurity which is detrimental to the development of the private sector, though recognized as one of the engines of growth. Furthermore, the fact that land rights are not guaranteed hampers the access of households to asset ownership. The stakes of land ownership in terms of contribution to social peace, land, cadastral and property revenue mobilization, private sector development and good governance is significant and explain the reforms undertaken in many sub-Saharan African countries to promote more efficient and transparent land management through land securitization projects. In Cameroon, like in many sub-Saharan African countries, the issue of land is complex because of its numerous political, economic, social and even religious stakes. Its growing role in economic activities makes these stakes even more important and places land at the center of great interests, some of which are for the maintenance of the status quo. Any questioning of the existing management system, any reform, even if it is necessary, therefore becomes a challenge[21]. In that regard, in 2010, the government of Cameroon initiated Projet d'appui à la modernisation du cadastre et au climat des affaires (Pamocca), articulated around three axes. These are namely elaboration of a national geodetic network and digital cartography as well as the realization of communes' digital land registry plans. To date, 2,974 geodetic plans have been elaborated and 198,510 land registries digitalized. In addition, there are ongoing processes to digitalize 130,000 land certificates and 480,000 public lands in pilot cities (Douala, Yaoundé, Garoua and Maroua).[22] Despite the

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18 The state of digitisation of the land registry operations in Uganda, David Luyombya, Dennis Fred Obbo, Makerere University, Department of Records and Archives Management, Uganda.
19 AJOL, "Securing Tenure through Frontier Technologies: The Case of Kenya," accessed August 30, 2023, https://www.ajol.info/index.php/jsasa/article/view/100086/89342.
20 DIAGNOSTIC STUDY FOR MODERNIZATION OF THE LANDS AND SURVEYS SEC-TORS,2009
21 https://www.businessincameroon.com/public-management/2607-9384-cameroon-about-to digitalize-480-000-public-land titles#:~:text=To%20date%2C%202%2C974%20geodetic%20 plans,Yaound%C3%A9%2C%20Garoua%20 nd%20Maroua). Accessed on 9/3/2023
22 https://www.digitalbusiness.africa/en/cameroon-pm-joseph-dion-ngute-asks-henri-eye-

digitization progress, there is an equal share of challenges facing the process; Digitization initiatives often face resistance from stakeholders accustomed to traditional land record systems. Resistance to change, cultural factors, and distrust in new technologies pose challenges in the adoption and acceptance of digital land records. Implementing land record digitization requires significant financial resources for infrastructure development, technology deployment, data digitization, and capacity building. Financial constraints and competing priorities can slow down the pace of digitization efforts, particularly in resource-constrained regions. Finally, Digitizing land records requires a skilled workforce that understands the technology and processes involved. However, there is a need for capacity building and training programs to equip land administration officials with the necessary skills to manage and utilize digital land records effectively. The lack of trained personnel can hinder the successful implementation and maintenance of digitized land records.

Sweden

The European County is known for its advanced digital infrastructure and is one of the leading countries in terms of digitization. The Swedish land registry system, Lantmäteriet, has been fully digitized and is considered one of the most efficient in the world. Sweden has also been testing the use of blockchain technology for real estate transactions, which could increase transparency and reduce fraud. The system has brought about a lot of efficiency when dealing with land issues as well as minimized human interruption with the process therefore enhance service delivery and governance across the different government agencies that deal with matters land.

India

The Indian government undertook significant efforts to digitize land records across the country as part of its broader digital transformation initiatives. These endeavours aimed to modernize land administration systems, promote transparency, reduce corruption, and ensure secure land rights for citizens. The National Land Records Modernisation Programme (NLRMP), launched in 2008 and subsequently renamed the Digital India Land Records Modernisation Programme (DILRMP), has been a key initiative in this regard. It focuses on computerizing land records, digitizing cadastral maps, establishing land information management systems, and improving service delivery through e-governance platforms.[23]

be-ayissi-to-accelerate-the-digitization-of-130000-land-titles/. Accessed on 9/3/2023.
23 https://www.drishtiias.com/daily-updates/daily-news-editorials/digitisation-of-land-records. Accessed on 9/3/2023.

One notable aspect of the government's efforts is the emphasis on the standardization and interoperability of land data. Recognizing the need for seamless integration and sharing of land-related information across different systems and states, steps were taken to establish uniform data formats and protocols. This ensured that digitized land records can be easily exchanged and accessed, fostering greater efficiency and transparency. To modernize land record management agencies at the state level, the government encouraged the adoption of advanced technologies such as Geographic Information Systems (GIS), satellite imagery, and remote sensing. These technologies enable accurate capturing, updating, and visualization of land records, ensuring that the digital records are current and reliable.

Furthermore, the integration of Aadhaar, the unique identification number, with land records was a significant focus. By linking Aadhaar with land records, the government aimed to enhance authentication, prevent identity-related fraud, and streamline property transactions. This integration helped in establishing a robust digital identity ecosystem and strengthened the overall integrity of land records. So far, several states have also developed online portals to provide citizens with easy access to digitized land records and related services. These portals allow individuals to view and download land records, apply for land-related certificates, track land mutation status, and make online payments. Such initiatives enhance convenience, reduce bureaucratic hurdles, and improve service delivery to the public.

In parallel, the government emphasizes capacity-building and training programmes for land administration officials. Workshops, seminars, and training sessions are conducted to enhance their skills and knowledge in managing and utilizing digital land records effectively. By empowering officials with the necessary expertise, the government aims to ensure the successful implementation and maintenance of digitized land records.[24]

The Indian government's efforts towards the digitization of land records reflect its commitment to leveraging technology and data integration for transparent, efficient, and citizen-centric land administration. While progress may vary across states, these initiatives contribute to streamlining land-related processes, reducing disputes, and protecting the rights of landowners. The digitization of land records serves as a cornerstone for effective governance, economic development, and inclusive growth.

24 An Open publication on DIGITALIZATION OF LAND RECORDS IN INDIA; Shreevardhan Khemka & Ayush Jain.

Kenya

In Kenya, the Ministry of Lands implemented the National Land Information Management System to improve efficiency and reduce land conflicts. The transition from manual to digital land records has been documented, highlighting the importance of securing tenure through frontier technologies. However, challenges in digitization projects have been identified, including legal and ethical dimensions[25].

Comparative Analysis

In comparing these countries, it's clear that each is at a different stage of digitization, with Sweden being the most advanced followed by India, Kenya, Uganda, and then Cameroon. The level of transparency and effectiveness of the systems in place also vary, with the developed countries having more robust systems. Cultural, educational, geographic, and technological factors also play a role in the success of these initiatives. For instance, literacy levels and internet access can impact the effectiveness of digitization efforts[26].

2.1 RESEARCH METHODOLOGY

This study adopted a qualitative research methodology, focusing solely on qualitative data collection and analysis approaches. The research aimed to delve deeply into the subject matter, using qualitative methods to address research questions and hypotheses effectively. By employing a qualitative approach, the study sought to uncover nuanced insights and rich narratives to provide a comprehensive understanding of the research topic.

The findings presented in this report are derived from a combination of secondary and primary sources of data. The information generated emanated from a comprehensive review of existing literature on land administration digitization in Kenya. This included, but was not limited to, examining the sector's regulatory and policy frameworks, reports from governmental and non-governmental organizations (NGOs), media reports, online sources, and relevant journal articles. These sources provided valuable background information and insights into the current state of digitization in land administration as per below table:

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25 World Bank, "Land Administration Reforms Cut the Red Tape," last modified April 20, 2018, https://www.worldbank.org/en/news/feature/2018/04/20/land-administration-reforms-cut-the-red-tape.

26 Makerere University, "Ethical and Legal Dimensions of Land Digitization Projects in Uganda," accessed August 30, 2023, http://dissertations.mak.ac.ug/handle/20.500.12281/14809.

Method	Tools[27]	Participants	Topics
Desk research	Primary and secondary sources	N/A	Mapping. Digitization. Land Governance. Land reforms.
Focus group discussion	Protocol Open-ended questionnaire	State Actors Non-State Actors	Mapping. Digitization. Land Governance. Land reforms.
	Protocol Open-ended questionnaire	Representatives of organizations working with vulnerable groups	Knowledge, capacity, engagement with Ardhi Sasa, Potential methods/tools/ mechanisms to monitor and evaluate impacts on end users.
Key informant interview	Open-ended questionnaire	African intergovernmental institutions, UN agencies, private sector institutions, continental NGOs, academics/ researchers	Knowledge, engagement with Ardhi Sasa Integration of human rights (Gendered) into the governance of land digitization Key actors for addressing human rights concerns. Information on relevant research studies
Online survey	Microsoft online Forms	Diverse stakeholders including government, intergovernmental organizations, private sector, civil society, academic institutions, think tanks	Level of various stakeholders' knowledge, capacity, and engagement with Mapping. Digitization. Land Governance. Land reforms

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In addition to the secondary sources, primary data was collected through a series of online key informant interviews (KIIs) conducted between July and August 2023. A total of 30 KIIs were conducted with a diverse range of participants, including political elites, representatives of local civil society organizations (CSOs), state land officials drawn from the Ministry of Land and the National Land Commission, County Governments, and professional bodies. The interviews were essentially conducted online via phone, zoom and online sheets to respondents

27 It is important to note that the tool was all administered remotely via phone, zoom and online tools, however the researcher went further to break this down into details.

from various locations within the counties of Kwale and Nairobi to ensure representation from different contexts and perspectives.

The primary data collected from the KIIs was analysed using a grounded theory approach. This approach involved an iterative process where evidence collected from the interviews raised new sub-questions for further exploration. The data analysis was conducted concurrently with data collection, allowing for ongoing refinement of the research questions and the exploration of emerging themes and patterns. This approach facilitated a deeper understanding of the complexities and dynamics surrounding digitization of land administration processes in Kenya.

To ensure the robustness and validity of the findings, the primary sources of data were triangulated with the secondary sources mentioned earlier. This triangulation involved continuously evaluating and comparing the primary and secondary data to corroborate and validate the available evidence. The iterative nature of the analysis process and the triangulation of data sources helped ensure a comprehensive and well-rounded assessment of the digitization of land administration processes in Nairobi and Kwale.

It is important to acknowledge that this study had certain limitations, which, while not undermining its significance, do prompt a considered interpretation of its findings. The sample size for the Key Informant Interviews (KIIs) was small, a circumstance that arises from the intricacies of accessing specialized experts in the subject matter. Moreover, the composition of the participants leaned towards individuals with a technocratic background, reflecting the expertise required to engage meaningfully with the research topic.

Given the unique nature of the subject matter and the inherent constraints in recruiting individuals possessing both the requisite knowledge and willingness to participate, it is important to recognize that the study's findings may not be fully generalizable to the entirety of the target population. The insights gained from this study provide a valuable foundation for understanding nuanced perspectives and generating hypotheses for further interogation. While the findings offer valuable qualitative insights that enrich the discourse on digitization of land governance, caution was exercised when extrapolating these outcomes to broader contexts. The participants' specialized expertise was anticipated to have led to a concentration of viewpoints that could differ from those of the wider populace. This however was evened out both by ensuring that voices of grassroots as well as highlights on the need for future research endeavors with larger and more diverse participant groups to ensure a more comprehensive understanding of the subject's multifaceted dimensions.

The limitations inherent in the sample size and participant composition are not unexpected given the intricacies of the research topic. While the findings hold significant value for shedding light on specific perspectives, this study's outcomes should be considered as part of a broader body of research rather than as definitive statements. By acknowledging these limitations and embracing a balanced interpretation, researchers can pave the way for further investigations that strive to encapsulate a wider array of viewpoints and enhance the robustness of future findings."

Additionally, the research was conducted within a specific timeframe and focused on specific geographic areas. These factors were taken into consideration when interpreting the findings and applying them to the broader context of land administration digitization in Kenya.

Furthermore, to ensure inclusivity, particular attention was given to engaging participants from both Nairobi and Kwale, acknowledging the significance of urban and rural differences in the digitization of land governance processes. By incorporating views from both regions, the research aimed to provide a more holistic understanding of the potential impact and challenges associated with digitization.

In terms of impact, the research assessed not only the technological advancements but also the socio-economic implications of digitizing land governance processes. By consulting a variety of stakeholders, including CSOs, state actors, and community end users, the study sought to delineate the multifaceted consequences of digitization, both positive and negative. This inclusive approach allowed for a comprehensive examination of the potential benefits, risks, and disparities that could arise from the digitization efforts, contributing to a more nuanced evaluation of the overall impact.

2.1.1. Data Analysis

In the context of this study, the data analysis process, as defined by Brewer, entailed the transformation of raw data into coherent patterns, categories, and descriptive units, revealing inherent relationships among them. The quantitative data underwent a meticulou s organizational phase, followed by a systematic and thematic coding process, ensuring the extraction of meaningful insights. Subsequently, the analysis and interpretation were dissected and categorized in a deliberate manner: encompassing the entirety of participants, those affiliated with state entities exclusively, those affiliated with non-state entities exclusively, and participants hailing from organizations or businesses engaged with vulnerable demographics.

Within the ambit of the latter category, it is pertinent to note that both state and non-state actors articulated their involvement with the digitization of land governance either individually or as corporate entities, who constituted the primary beneficiaries of the endeavors under scrutiny. The disaggregation of the analysis facilitated a focused extraction of specific findings and insights inherent to each category. This strategic approach illuminated nuanced perspectives, enabling the formulation of targeted and tailored recommendations based on the distinctive dynamics within each segment.

The data analysis process undertaken in this study adhered to the outlined methodology. By organizing, coding, and categorizing the data, the research aimed to unveil comprehensive insights and actionable recommendations that underscored the multifaceted landscape of the digitization of land governance processes in Kenya.

2.1.2. Considerations for ethics

Four ethical principles—respect, competence, responsibility, and integrity—were the foundation for these decisions. The analysts made every effort to ensure that the evaluation was planned and carried out with due consideration for and protection of the rights and welfare of the affected individuals and communities. Additionally, the researchers made sure that the PEA was carried out in an open and objective manner, was technically accurate, legitimate, and dependable, and contributed to organizational learning and responsibility. Considering evaluation ethics for images and/or recorded stories, participants whose photos, stories, and quotes were utilized in this study provided informed/written.

2.1.3. Limitations

The main limitations of the study are detailed below.

- **Exclusively virtual modality** – this limited participation by individuals and groups with internet connectivity challenges, especially for grassroots end users. To avoid this the research team recognized potential internet connectivity challenges that could hinder participation from grassroots individuals.

- **Diversity –** insufficient representation from some vulnerable groups such as older persons, women albinism, and pastoralists, among others. This research, in Acknowledging the importance of diverse perspectives, the researchers partnered with NGOs and community associations to identify representatives from marginalized groups within the land governance ecosystem. Focused interviews and were conducted to ensure inclusive representation.

- **Less representation of certain stakeholder groups –** there was less representation of private sector actors than government and civil society actors. There was also limited participation of representatives, however in Recognizing the imbalance in representation, the researchers acknowledged the limitation of private sector involvement. They chose to focus on the unique insights provided by government and civil society actors, analysing the interactions and dynamics between these sectors.

3.1. POLICY, LEGAL AND INSTITUTIONAL FRAMEWORKS FOR THE DIGITALIZATION OF LAND ADMINISTRATION PROCESS IN KENYA

Kenya hosts a robust list of legal and policy frameworks at both the national and local levels towards the digital land governance in Kenya. This ranges from the Constitution to several subsequent legislations and policies that give effect to the constitutional provisions on the land sector's governance. . This section gives an in-depth analysis of the policy and legal institutional frameworks that support digitalization in the context of land administration and governance.

3.1.1. Constitution of Kenya 2010

Kenya's constitutional provisions on land governance aim to establish a framework for the country's land governance, management, and administration. These provisions are outlined in the constitution and are intended to ensure equitable access to land, land rights security, sustainable and productive land resource management, and transparent and cost-effective land administration. The Kenyan Constitution and the call to digitise land can be found in several specific constitutional provisions.

Article 60(1) of the Kenyan Constitution states that land is a public resource and divides land into public, community, and private land. This provision recognises the significance of efficient and equitable land resource management. Second, Article 62(1) of the Constitution requires the State to establish a system of land rights registration. This necessitates the creation of a structured and organised system for recording and digitising land rights to ensure the accuracy, transparency, and ease of access to land records.

Furthermore, the right to own property, including land, is guaranteed by Article 40(2) of the Constitution. This provision emphasises the importance of protecting property rights, which can be made easier by digitising land records to ensure secure and efficient land transactions.

All public land is vested in the county and national governments, depending on their classification in clauses (1)(a), (c), (d) or (e); and 1(b) and (1)(f) to (m), respectively of Article 62. The Article also vests the administration of such lands in the National Land Commission, on behalf of the national and county governments. Such responsibilities are reiterated in Article 67, which also entrusts the commission to, inter alia: 'recommend a national land policy to the national government and advise the national government on a comprehensive programme for the registration of title in land throughout Kenya. The commission is also supposed to conduct research related to land and the use of national resources, and make recommendation to appropriate authorities, initiate investigations, on its own initiation or on a complaint, into present or historical land injustice, and recommend appropriate redress and monitor and have oversight responsibilities over land use planning throughout the country. This puts into perspective the role of National Land commission on land administration.

Article 69 (1) states that the state shall, inter alia: 'ensure sustainable exploitation, utilisation, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits. These are in addition to the state's roles in: protecting and enhancing intellectual property in, and indigenous knowledge of, biodiversity and the genetic resources of the communities; encouraging public participation in the management, protection and conservation of the environment; protecting genetic resources and biological diversity; establishing systems of environmental impact assessment, environmental audit and monitoring of the environment; eliminating processes and activities that are likely to endanger the environment; and utilising the environment and natural resources for the benefit of the people of Kenya.'

Article 232(1) of the Constitution establishes public service values and principles such as transparency, accountability, and integrity. By reducing corruption and increasing transparency in land transactions, digitising land records can help promote these values which have been missing for a very long time in that land's ministry. In summary, the Kenyan Constitution provides a foundation for the call to digitise land by emphasising the importance of efficient land management, the establishment of a land rights registration system, property rights protection, and the promotion of transparency and accountability in land administration.

3.1.2. The National Land Commission

Article 67 of Kenya's 2010 Constitution establishes the National Land Commission (NLC). The administration of public lands is one of its duties. The NLC Act, 2012 in Kenya contains specific provisions under section 5 and 6 regarding the digitization

of land records. All public land records must be digitalized, according to the Land Act No. 6 of 2012, the substantive law governing land matters in Kenya. This mandate aims to ensure effective administration, prevent manipulation, and guarantee easy access to land records. The NLC is essential to the execution of this clause. It oversees supervising and making sure that the digitization of land records on public property is done correctly. This entails carrying out the Cabinet Secretary's directive to create and maintain the National Land Information Management System (NLIMS). In Kenya, the NLIMS acts as a central database for land data.

The NLC also has a responsibility to educate the public and county governments on the NLC's role in land administration to achieve effective management of public land through which is better achieved through digitization as an imperative. Through this educational outreach, it is made sure that all relevant parties are aware of the significance, advantages, and role of the NLC in facilitating the digitization of land records. The NLC should also maintain its independence in the face of any attempts by the executive to usurp its authority and mandate for the management of public lands through legislative forays. To ensure that the NLC can effectively manage Kenya's public lands and digitise land records, this is crucial.

The Land Act 2012

At the heart o f this framework is the National Government, represented by the Ministry of Lands, Housing & Urban Development. This ministry stands as a linchpin, overseeing critical departments such as Physical Planning, Survey, and Land Administration, which notably includes the domain of land registration. The ministry's organizational fabric has been bolstered to accommodate specialized units like the Land Reform Technical Unit (LRTU), the National Lands Information Management Systems (NLIMS) Unit, and the National Titling Centre. These specialized units underscore a concerted effort toward modernizing land management practices.

The institutional landscape further encompasses the National Land Commission—an autonomous entity entrusted with the task of ensuring fair and transparent access to land resources while safeguarding their sustainable management.

The Cabinet Secretary is mandated by Section 6 of the Land Act to develop land policies and to facilitate the digitization and management of land information. This means that the government is in charge of developing policies and systems that facilitate the digital transfer and management of land-related documents and information. The functions and powers of the National Land Commission

(NLC) are outlined in Section 127 of the Land Act. It states that the NLC shall evaluate all parcels of public land for land use planning based on land capability classification, land resource mapping consideration, overall potential for use, and resource evaluation data. This provision ensures that comprehensive information about public land is considered during the digitization process.

This section also states that the NLC must share data with the public and relevant institutions for them to carry out their respective functions and powers under the Act. During the digitization process, this provision promotes transparency and accessibility of land-related information. The Digitization and Mapping Unit is established within the Ministry responsible for Land Affairs by Section 171 of the Land Act. This unit oversees digitising land records and producing digital maps. . In summary, the Land Act provisions on land digitization in Kenya include ensuring due diligence, formal taking of possession, surrendering of documents of title, land evaluation by the National Land Commission, data sharing, and specific land use.

County Governments

The County Governments Act, 2012 gives effect to Chapter Eleven of the Constitution that establishes objects and principles of devolution as set out in Articles 174 and 175 of the Constitution and Article 176(2) that emphasize on decentralization and all the other functions under the Act that establish functions of the counties and how the two levels of government operate guided by Schedule Four of the Constitution.

County Governments, through their mechanisms of County Land Management Boards and Land Control Boards, contribute a localized dimension to the governance structure. This enables the alignment of land policies with regional contexts and requirements, acknowledging the diversity of land-related issues across Kenya's counties.

In the realm of legal adjudication, the Environment and Land Court assumes a pivotal role. Specialized in environmental and land matters, this court system provides a dedicated platform for resolving disputes, interpreting laws, and administering legal remedies in matters pertaining to land governance.

Crucially, the framework underscores the indispensable role of landowners, recognizing their rights and responsibilities as integral components of the governance structure. Their rights are enshrined within the constitutional and legal framework, ensuring their voice in matters related to land.

The intricate tapestry of land governance is further enriched by the involvement of professionals and their respective organizations. Surveyors, planners, and legal experts lend their specialized expertise to ensure precision, legality, and adherence to established standards.

The dynamics are further enriched by the active participation of civil society organizations, whose advocacy efforts champion transparent, equitable, and ecologically responsible land practices.

Naturally, the private sector occupies a pivotal position in this ecosystem. Through engagements in land transactions, development initiatives, and investments, private entities contribute to the economic growth and innovative advancements within the land sector.

As Kenya strides confidently into an era of digitized land governance, this multi-faceted framework remains instrumental. Collaboratively, these entities forge ahead, reinforcing the implementation of laws and policies that facilitate streamlined land administration, just land distribution, and sustainable land utilization within the dynamic landscape of digital transformation.

3.1.5. Registration (Electronic Transactions) Regulations, 2020

In Line with the laws, the Ministry of Lands and Physical Planning initiated the development of the Land Registration (Electronic Transactions) Regulations, 2020, through Legal Notice 101 issued in June 2019 and took effect on July 14, 2020 . The regulations have now established a comprehensive framework for the implementation of electronic land transactions. Additionally, the Business Laws (Amendments) Act of 2020 has now introduced modifications to existing legislation to facilitate the electronic registration of land transactions.

The introduction of digitization aligns with the provisions outlined in Section 9 and 10 of the Land Registration Act, 2012. Section 9 empowers the Registrar of Lands to maintain the register and all required documents in a secure, accessible, and reliable format, including electronic files. Section 10 emphasizes the importance of enabling public access to land information through electronic means.

Henceforth, these legal and regulatory measures provide the foundation for the digitization process, aiming to enhance the efficiency, security, and accessibility of land administration in Kenya. By transitioning from traditional paper-based systems to electronic platforms, the government seeks to modernize and streamline land transactions, making them more transparent and convenient for both the public and land administration authorities.

Given the fact that the Land Registration Act No. 3 of 2012, has obligated land registrars to maintain land registers and related documents in a secure, accessible, and reliable format, including electronic files, observable efforts have been noted in the process of digitizing their records in line with the Electronic Transactions) Regulations 2020 Nairobi stands out as having digitized its registry entirely but not all other functions within the land administration ecosystem.

Building upon the legal foundation, the National Land Information System, known as Ardhisasa, was officially launched in April 2021. The platform has so far served as a comprehensive online platform that has essentially replaced the traditional manual processes of land transactions. It offers a range of services, including online land registration for transfers and charges, as well as land administration tasks such as payment of land rent, physical planning applications, valuation, surveying, and mapping. The launch of Ardhisasa marked a significant milestone in the digitization of land records in Kenya, introducing a transformative approach to land administration.

By implementing Ardhisasa and embracing digital technologies, the Ministry of Lands now aims to enhance the efficiency, transparency, and accessibility of land transactions and administration. The platform has a user-friendly interface and has so far been reported to provide individuals and businesses with an avenue to carry out land-related activities conveniently and securely. It has streamlined processes, reduced paperwork, and facilitated faster turnaround times for land transactions, ultimately contributing to improved land governance and service delivery. In addition to that, there are a number of policies that have been critical in supporting the call for embracing technological advancements, digitalization and more investments in the digital transformation within the land sector including the Sustainable Development Goals (SDGs) , Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests (VGGTs) (FAO, 2022), endorsed by the Committee on World Food Security (CFS), Integrated Geospatial Information Framework (IGIF), (UN-GGIM, 2019), endorsed by UN-GGIM, Framework for Effective Land Administration (FELA), (UN-GGIM, 2020), endorsed by UN-GGIM and Land Tenure Series of FAO

3.1.1 County Government and Digitization of Administration

Nairobi County

In Kenya most counties have allocated their own budgets towards creation of online cadastres in line with county spatial planning which is a county government mandate. Ideally, the cadastres within the counties are supposed to mirror the national land information management system at national level.

Nairobi county has full automated its revenue collection of land rates, which has reduced bureaucracy and enhanced rates. The process of paying land rent now takes a maximum of 20 minutes in total to make the payments on which is the like Ardhi Sasa. However the system has the challenge of going offline, slow response limit for illiterate users.. Further to this the county assembly of Nairobi has developed the Nairobi City County Finance act of 2013, and more specifically the Rating Act, government Sections 3, 4, 5, 6, 9, 10, 11, 13, 14, 15, 16, 17, 19, 20, 21 and Valuation for Rating Act Section 7.

In accordance with the Constitution, the counties have the responsibility for planning at both the county and local levels, which includes the development of 10-year county Physical and Land Use Development Plans (PLUDPs) and 5-year local PLUDPs. As outlined in the 2010 Constitution, the allocation of national funds to county-level public budgeting should be justified based on spatial plans. Therefore, spatial planning plays a crucial role in the overall Kenyan devolution process.

However, after more than a decade, it came out that the despite the resources available, both staff and public reported that they feel that the Nairobi County government still lacks effective plans and the establishment of local institutional frameworks to implement these plans. The county government of Nairobi has made progress in preparing their county spatial plans, but most urban settlements still lack up-to-date plans. This highlights the complexity and obstacles that county governments face in effectively carrying out spatial planning within their jurisdictions.

Kwale County

Kwale County's proactive embrace of the digitization movement is notable within the context of modern land governance. The county has taken significant steps towards digital transformation, contributing to the broader initiative of modernizing nationwide records. One noteworthy advancement is the partial digitization of land rent payment, a pivotal measure in curbing corruption and aligning with the national government's digitization agenda.

This progressive approach is particularly evident in Kwale County's commitment to enhancing transparency and efficiency through the digitization of its spatial plan. While the county has initiated this process, its successful completion awaits the approval and financial support from the county assembly. Notably, the ongoing efforts toward digitizing the spatial plan signify a forward-looking perspective that aligns with contemporary trends in land governance.

Moreover, the partial digitization of the land rent payment process further underscores Kwale County's dedication to modernizing administrative procedures. By leveraging digital platforms, the county is not only streamlining operations but also fostering an environment conducive to reducing bureaucratic hurdles.

In summary, Kwale County's endeavours in the realm of digitizing land governance are commendable. From the initial steps taken to digitize land rent payments to the ongoing efforts to digitize the spatial plan, the county is positioning itself at the forefront of the digitization movement. This not only contributes to the county's own development but also supports the overarching objectives of the national government in its pursuit of a comprehensive digital record-keeping system.

The county level digitization initiatives aim to enhance service delivery and facilitate a more business-friendly environment by tackling the numerous challenges faced in the land sector. These challenges include issues related to the accuracy and consistency of land records and ownership documents, the prevalence of land disputes resulting from the lack of transparency in record-keeping, a rise in cases of fraud, forgery, and corruption, as well as lengthy and uncertain transaction processing times.

Ideal land information management system is supposed to mirror an accurate representation of land information that is both on the ground with AV that which is partially. Captured and documented within the land administration systems.

The 2010 Constitution of Kenya, along with the existing land laws, emphasizes the need for a comprehensive transformation in land administration, coordination, and the provision of improved services to the people of Kenya. These legal frameworks call for the modernization and digitization of land management systems to ensure greater efficiency, transparency, and accessibility in land-related processes.

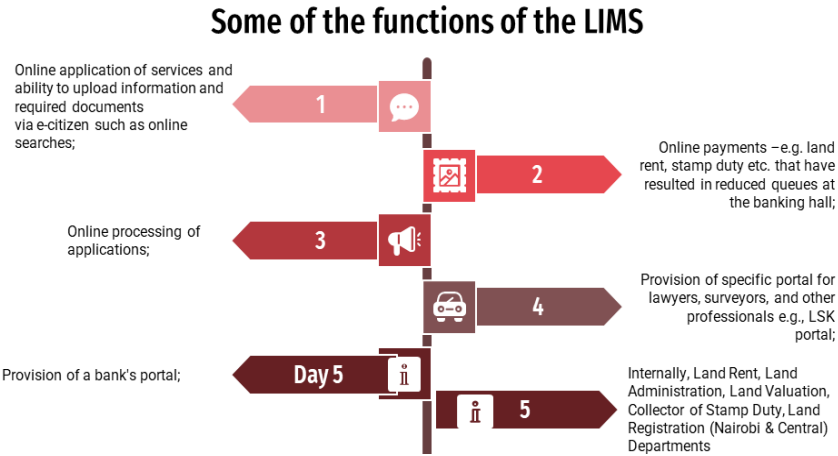Through the digitization initiative, the government is committed to addressing these challenges and aligning the land sector with constitutional provisions and statutory requirements. By leveraging technology and digital solutions, the aim is to streamline processes, minimize errors, enhance data integrity, and ultimately provide better services to the citizens of Kenya. This transformative approach

to land administration reflects the government's commitment to promoting good governance, accountability, and sustainable development in the country .

3.1.2 The National Land Information Management System (The Journey)

From 2018, the state embarked on a comprehensive programme to digitize all the land records in the country and establish the land management system. Ardhisasa; an online platform that allows Citizens, other stakeholders and interested parties to interact with land information held and processes undertaken by the Government was developed jointly by the Ministry of Land and Physical Planning (MoLPP) and the National Land Commission (NLC) and key partners in Government. It allows the lodgement of applications for various services offered by the Ministry and the Commission. The applications are handled through the platform and responses presented through it.

The main components of the programme are digitization of all land records including mutations, digitization of maps and integration of textual and spatial data, survey/ re-survey and updating of all survey and settlement

Some of the functions of the LIMS

Online application of services and ability to upload information and required documents via e-citizen such as online searches;

1

2 Online payments – e.g. land rent, stamp duty etc. that have resulted in reduced queues at the banking hall;

Online processing of applications; 3

4 Provision of specific portal for lawyers, surveyors, and other professionals e.g., LSK portal;

Provision of a bank's portal; Day 5

5 Internally, Land Rent, Land Administration, Land Valuation, Collector of Stamp Duty, Land Registration (Nairobi & Central) Departments

records including creation of original cadastral records where necessary, digitization of registration and its integration with the land records maintenance system as well as development of core Geospatial Information System (GIS) and capacity building.

The researchers were able to establish that the process of digitalizing records at the Ministry of Lands is quite elaborate. However, what stood out is that all the stakeholders from the Ministry of Lands confirmed that for an effective digitalization process, it must include the following components: Needs assessment programs, digitization of all the service provisions that the departmental level, Adaptation by various stakeholders, roll out plants geared towards success factors of their strategy and finally its implementation. The respondents also confirmed that for the digitization process to be a success, it must engender robust civic education. To

ensure public confidence and effectiveness, it is crucial to have clear expectations and ensure public participation in the digitization process. Members of the private sector also emphasized the importance of a comprehensive digitization process undertaken by the government. Overall, the respondents expressed strong support for the technological advancements implemented by the Ministry of Lands, particularly in the digitization of land records. These advancements have not only improved service delivery but have also enhanced trust in the services provided by the ministry. The respondents were impressed with the use of ICT in land management, highlighting a consensus on its positive impact.

In terms of accountability and transparency in the management of land records at the Ministry of Lands, respondents highlighted several benefits. These included ease of access to information, enhanced revenue collection, increased efficiency in government operations, reduced duplication, cost savings, expedited decision-making, and overall improved efficiency. These benefits contribute to a more accountable and transparent land administration system within the ministry. The digitalization process involved the establishment of a standardized and integrated online platform that enabled customers to access land services seamlessly. This digital transformation embraced efficient, timely, and cost-effective land management processes, leading to improved public service delivery, elimination of fraud, and reduction in the need for paper records and storage space. Additionally, it greatly contributed to the ongoing national titling program, which aimed to secure land rights through the issuance of titles.

The implementation of the digital system significantly enhanced the ease of doing business by streamlining the property registration process. Previously, this process involved nine steps and required a lengthy duration of seventy-three working days. With the digitalization initiative, the property registration process was simplified to just three steps, reducing the processing time to a mere twelve days.

In conclusion, the digitization of land administration in Kenya is a result of ongoing legal reforms aimed at improving the management and governance of land. These reforms, which started with the constitutional classification of land, were followed by the enactment of the Land Act of 2012 and the Land Registration Act of 2013. The Physical and Land Use Planning Act of 2019 further supported the devolution of planning functions, while the Land Value (Amendment) Act of 2019 addressed the assessment of land values for compulsory land acquisition. These legal changes provided the necessary framework for the implementation of digital systems and technologies in land administration, paving the way for improved efficiency, transparency, and accountability in the sector.

4.0 FINDINGS

This section presents the key findings derived from the assessment of the digitization of land administration processes in Kenya. Through a combination of secondary research and primary data collection, this report provides valuable insights into the current state of digitization efforts, their impact on stakeholders, and the challenges and opportunities associated with the process.

The findings shed light on the progress made in digitizing land administration in Kenya, highlighting the benefits, limitations, and lessons learned from various initiatives. Additionally, the section explores the implications of digitization on stakeholders, including government agencies, landowners, and citizens, with a particular focus on gender perspectives and inclusivity.

By analysing the findings, this report aims to inform policymakers, practitioners, and stakeholders involved in land administration about the effectiveness of digitization efforts and provide actionable recommendations for enhancing the process. These insights will contribute to the ongoing discourse on improving land governance, tenure security, and decision-making processes through the utilization of digital technologies.

ICT AND LAND MANAGEMENT

Developed a land information management system in respect to public land
(Public land information management system (plims)

Ministry commenced on a programme of automation and digitization of the land registries across the country

NLC

MOLpp- 2019

MoLPP-2020

MoLPP- 2021

Commenced by reorganizing and Scanning of land records at the nairobi and central registries.

Regulatory Impact Assessment (RIA)
On
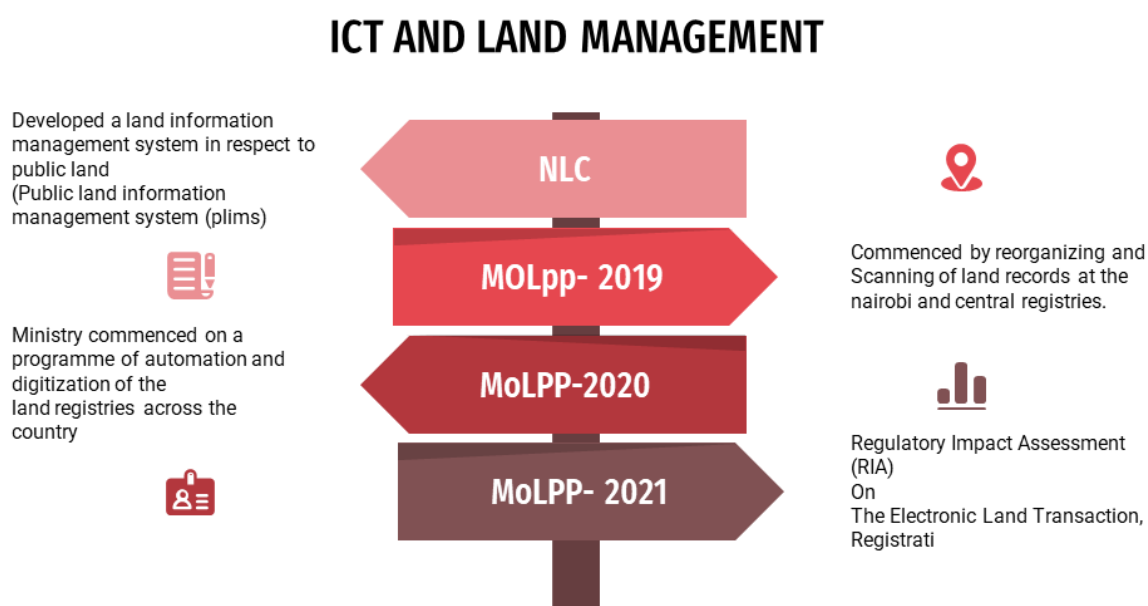The Electronic Land Transaction, Registrati

Figure 6 : Historical look into the Land Management in Kenya

4.1. Progress on Digitization of Land Administration in Kenya

The Ministry of Lands in Kenya has made significant strides in the digitization of land records over the past five years. One notable achievement is the development of the National Land Information Management System (NLIMS) - Ardhisasa, which was launched in April 2021. Ardhisasa has proven to be a comprehensive platform for capturing, managing, and analysing spatially referenced data to generate land information crucial for land administration and management decision-making processes.

On the aegis of its design the Ardhisasa platform has so far offered observable solutions to challenges that previously characterized land ownership in Kenya by providing an updated and verified database of land records. Equally, the platform has created an avenue through which some of the historical issues such as the loss of documentation, duplication of titles, record destruction, and missing records have been decisively dealt with. One of its primary objectives which was to enhance the security of land ownership by requiring landowners to approve all applications related to their properties is also reporting commendable results. Additionally, this platform is now streamlining the process of land transactions, which has resulted in reduced time and costs associated with such transactions and shorter queues at the Ministry of Lands offices both for individuals and corporate entities that interact with the platform.[28]

It emerged that the process of transiting from a paper-based land administration system to a digital one involves several considerations, including the legal framework, technological capabilities, and human and social factors. For any land registry, launching a fully digital database is indeed now proven as a crucial step in increasing the reliability of its records and services; a first step toward greater connectivity with other agencies involved in property transfers, such as the cadastre and tax authority.[29]

Ardhisasa has further streamlined and integrated the various operations of the Ministry, providing a centralized platform for conducting end-to-end transactions related to land. The system is accessible 24/7 through online channels, including web, mobile, and desktop platforms, catering to both internal and external users.

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28   "Why digitising land records is vital - DLA Piper Africa in Kenya - IKM." 29 Nov. 2022, https://www.dlapiperafrica.com/en/kenya/insights/2022/why-digitising-land-records-is-vital.html. Accessed 7 Jul. 2023.

29 From Manual to Digital; Digitization of Land Records in Kenya." https://www.academia.edu/41701028/From_Manual_to_Digital_Digitization_of_Land_Records_in_Kenya. Accessed 7 Jul. 2023.

4.2 Benefits of Digitization: How can data and digital transformation improve land governance processes.

4.2.1 Digitization of Land Governance Processes in Kenya:

The report was able to establish the following regarding digitization of land governance:

Table 1: Nationwide Progress in Digitization of Land Governance Processes in Kenya

Land Governance Process	Progress Status	Department Responsible
Land Title Registration	Partially Digitized	Ministry of Lands
Land Surveying	Partially Digitized	Ministry of Lands
Land Ownership Records	Partially Digitized	Ministry of Lands
Land Transactions	Partially Digitized	Ministry of Lands
Land Records Management	Partially Digitized	Ministry of Lands
Land Dispute Resolution	Partially Digitized	Ministry of Lands
Land Use Planning	Partially Digitized	Ministry of Lands
Land Taxation	Partially Digitized	Ministry of Lands

Table 2: Nairobi County Progress in Digitization of Land Governance Processes

Land Governance Process	Progress Status	Department Responsible
Payment of Land Rent	Fully Digitized	Nairobi County Land Registry
Digitization Land Parcels in the County (In support of Ardhi Sasa.	Fully Digitized	Nairobi County Land Registry
County Spatial Plan	Fully Digitized	Nairobi County Land Registry
Land Valuation Roll	Fully Digitized	Nairobi County Land Registry

Table 3: Kwale County Progress in Digitization of Land Governance Processes

Land Governance Process	Progress Status	Department Responsible
Payment of Land Rent	Fully Digitized	Kwale County Land Registry
Digitization Land Parcels in the County (In support of Ardhi Sasa_	Fully Digitized	Kwale County Land Registry
County Spatial Plan	Fully Digitized	Kwale County Land Registry
Land Valuation Roll	Fully Digitized	Kwale County Land Registry

4.2.3 The benefits of digitization of land Governance.

> " Kenyans are known for very good documents and initiatives, but the problem is the implementation. We want to this this Ardhi Sasa implemented fully not only in Nairobi but also in other counties and also to deal with issue of community land in the long term.
>
> **Mr. Omondi Fred (Landowner in Ruraka Nairobi.**

Overall, the digitization of land administration in Kenya has brought about significant success and positive outcomes. One notable achievement is the increased efficiency in data retrieval and archiving, enabling the provision of actionable reports with ease. Respondents in the study also highlighted some positive changes in system responsiveness and uptime at the Ministry of Lands, demonstrating successful implementation of digitization efforts. These achievements have positively impacted the overall seamlessness of operations and service delivery within the ministry, marking a significant milestone in the digitization process. Improved Productivity:

According to the respondents, the implementation of the new digital system was intended to minimize delays, double allocations, loss of legal land documents, and other inconveniences. Given that the Registry Index Maps (RIMS) was introduced as the new registration instruments for land, replacing deed plans. This transition towards uniformity of land ownership has enhanced productivity by increasing transaction rates and ensuring efficient processes.

The gradual regularization of the online system provides a platform for users to conduct property searches, stamp documents with duty, and register transfers, charges, and other land transaction instruments. Accessing data becomes effortless, as users can retrieve information with just a click of a button.

More Effective Planning and Decision-Making:

The digitization of land records streamlines land transactions and ownership, reducing the frustrations faced by property owners and buyers, such as long queues at land offices nationwide. The integration of service numbers simplifies services, while minimizing overcrowding in land offices, allowing individuals to carry out their due diligence more efficiently.

Improved Data Quality:

The Ardhisasa system eliminates duplicative processes and ensures integral validation during data capture, resulting in more accurate and complete records. The digital platform was initiated to address malpractices at the Lands Registries and facilitates other land transactions, including the payment of Land Rent.

Accelerated Information Flows:

By removing redundant and disconnected processes, the new digital system reduces latency in enterprise records, enabling faster and seamless work processing. It aims to minimize the need for human interactions, prevent delays, and eliminate fraud, which were significant challenges in the previous manual system.

Less Paper Records - Information Stored in Digital Format:

The transition to the digital platform benefits all landowners and potential landowners by providing accurate information required to support the commercialization of land in a convenient and timely manner. Satellite imagery will also be available, providing insights into the surrounding developments, such as hospitals, roads, and rivers.

Ability to Generate Quick Reports:

The system, aligned with the Kenya e-Government Strategy 2004, ensures cost-effectiveness, timely delivery of public services, and enhances the ease of doing business in the country. The digital platform prevents files from being misplaced, as there is an audit trail. Additionally, various clearance levels have specific rights within the system.

Ease of Integration with Other Systems:

Digitalization of land records enables improved integration with other public sector authorities, judicial organs, the financial sector, investigative agencies, tax administration regimes like that the Kenya Revenue Authority, and other key institutions involved in land matters. This integration enhances certainty of land ownership, security of tenure, reduces land disputes, and improves land conveyancing processes. It smoothens government operations by linking it with external service providers such as the Kenya Revenue Authority (KRA) and the National Lands Commission, as well as banks and other relevant institutions.

For the longest time, Kenya relied on paper-based system of keeping land records. With this came poor records management at various registries in the country. This system of keeping land records proved to be inefficient and unsatisfactory in-service delivery due to the long bureaucratic processes, procedures and practices.

The digitization of land administration processes in Kenya brings forth numerous benefits that have the potential to transform the sector and improve overall land governance. Digital transformation delivers financial efficiencies, generating potential revenue streams while reducing administrative costs. It also improves service delivery experiences, allowing citizens to access land information and own land without discrimination, fostering transparency and expediting transactions.

One of the significant advantages of digitization is the enhanced tenure security it offers, particularly for women, youth, and vulnerable groups. By digitizing land records and ensuring proper documentation, individuals from these marginalized groups can assert and defend their land rights more effectively, contributing to gender equality, social inclusion, and the protection of vulnerable communities' interests.

> *"We acknowledge that the Ardhi Sasa system, like any other, faces several challenges. However, a remarkable aspect of this system is that it was entirely developed and is hosted locally, within our county, without any external involvement from Western nations or the use of offshore servers abroad.*
>
> Adhi Sasa Staff

Digitization also plays a crucial role in reducing land conflicts by enabling the demarcation of boundaries within and between communities. Accurate and well-defined boundaries, supported by digital data and mapping systems, provide clarity and mitigate disputes arising from overlapping claims, fostering peaceful coexistence and social cohesion.

Furthermore, the establishment of clear regulations on sustainable land use and management is facilitated through digitization. By integrating environmental considerations and land governance principles into digital systems, the government can enforce sustainable practices, encourage responsible land utilization, and attract investments that promote improved productivity and livelihoods for communities.

Ardhisasa has also seen the production of Kenya's first topographical map which has enabled the Ministry of Lands and Physical Planning to embark on the process of digital migration. Also, it has seen the production of a cadastral map for Nairobi County.

Overall, the benefits of digitization in land administration are manifold. It brings financial efficiencies, improves service delivery experiences, enhances tenure security for marginalized groups, reduces land conflicts through boundary demarcation, and establishes clear regulations for sustainable land management. By harnessing these advantages, Kenya can unlock the full potential of its land resources and create an enabling environment for equitable and sustainable development.

4.3 Emerging forms of corruption witnessed post-digitization; challenges & gaps that perpetuate land corruption.

Ardhisasa Challenges

1. Unwarranted Delayed Verification of Properties:

Digital processes have brought about unwarranted delays in property verification, particularly under the Nairobi Block Registry, raising concerns about inefficiency and potential opportunities for corruption. In the context of the Ardhi Sasa system, it has meant that when a user requests information about a particular plot of land or property, the system takes longer than expected or necessary to provide this information. This could be due to various reasons such as system inefficiencies, data entry errors, or even intentional delays.

2. Non-Compliance with Land Regulations:

Findings have revealed instances where signature and attestation requirements, as stipulated in the Land Regulations (General) Regulations, 2017, are not being adhered to. This discovery underscores a significant compliance gap within the system, raising questions about the extent to which established legal frameworks are followed in the digitized land administration process.

This research finding highlights a critical area where the NLIMS system may not fully align with the existing legal landscape, potentially exposing vulnerabilities in the validation and authentication of digital land transactions. It necessitates further examination and corrective action to ensure the system's compliance with established land regulations and, consequently, the safeguarding of legal integrity within Kenya's land administration framework.

3. Absence of an Advanced Electronic Signature Framework:

The absence of a comprehensive framework for advanced electronic signatures has created vulnerabilities in the authentication of digital documents and transactions.

"An advanced electronic signature framework is a system for creating, managing, and verifying digital signatures. These digital signatures are crucial for ensuring the authenticity and integrity of electronic documents and transactions. Without such a framework in place, the Ardhi Sasa system might be vulnerable to fraud and other security risks."

Ms. Yvonne Conveyancing Lawyer and LSK member

4. Incomplete Prescribed Forms and Amendments:

Some prescribed forms have not been fully implemented, and mechanisms for the amendment of these forms are in place, contributing to regulatory ambiguity and potential misuse. Some are incomplete or lack necessary fields, making it difficult for users to provide all the required information. Additionally, if there aren't clear procedures for amending submitted forms, it could lead to inaccuracies in the land registry.

5. Incomplete Mechanisms for Transaction Responses:

An initial concern had been raised regarding mechanisms for providing timely responses to specific transactions, leaving room for uncertainty and irregularities. This refers to the lack of systems or processes for responding to transactions made by users. For instance, if a user submits a form or request on the Ardhi Sasa system, they should receive a confirmation or response indicating that their submission has been received and is being processed. If these response mechanisms are lacking or incomplete, it could leave users uncertain about the status of their transactions.

6. National Social Security Funds (NSSF) Transactions:

NSSF transactions have stalled due to the trustees' failure to set up their accounts and complete verification, resulting in disruptions and opportunities for corruption. This calls for interagency cooperation but also a probe into other state agencies whose action or inaction could pose a risk to the integrity of transactions emanating from the NLIM or that have direct bearing on its integrity.

CENTRAL REGISTRY ISSUES:

The Central Registry is the main database of land records in Kenya. Issues here could include delays or failures in searching for land records, missing deed files, irregular rejection of documents, and more. These issues could severely impact the functionality of the Ardhi Sasa system and the accuracy of its data. More specifically:

Issue	Details
1. Delayed or Unavailable Searches:	The Central Registry has faced issues of delayed or complete unavailability of searches, affecting the efficiency of land transactions.
2. Missing Deed Files:	The unavailability of service due to missing deed files has created inconsistencies and disruptions in the land registration process.
3. Delayed Transactions:	Files being held under safe custody for scanning purposes have led to transaction delays, impacting stakeholders' operations.
4. Irregular Rejection of Documents:	The irregular rejection of documents at various stages, from valuation to assessment, stamping, and booking for registration, has raised concerns, particularly regarding the conversion process. Title Conversion Challenges

TITLE CONVERSION CHALLENGES

Title conversion refers to the process of changing the type of land title for a property. This could involve converting a leasehold title to a freehold title, or vice versa. Challenges in this area could include non-compliance with regulations, delays in receiving replacement titles, and difficulties in initiating applications for title conversion.

Issue	Details
1. Non-Compliance with Land Registration (Registration Units) Order, 2017:	Non-compliance with the Land Registration (Registration Units) Order, 2017, due to pending notices, has created uncertainties in the conversion process.
2. Delays in Receiving Replacement Titles:	Failure to comply with the Ministry's directive regarding the receipt of replacement titles within 7 days has caused administrative delays and potential issues.
3. Difficulty in Initiating Applications:	Some members have faced difficulties in initiating applications on the platform for certain properties, leading to inefficiencies.

LONG-TERM LEASES AND SECTIONAL TITLES UNDER THE SECTIONAL TITLES ACT, 2020.

Long-term leases and sectional titles are specific types of land ownership arrangements. Issues in this area could include a freeze on manual transactions for registered long-term leases, issuance of titles under repealed acts, and challenges with unique identification numbers for converting long-term leases to sectional titles.

1. Freeze on Manual Transactions:

A freeze on manual transactions for registered long-term leases has created complications in property dealings.

2. Issuance of Titles under Repealed Act:

The issuance of titles under the repealed Sectional Properties Act, 1987, after the repeal of the act, has raised questions about adherence to current legal frameworks.

3. Challenges with Unique Identification Numbers:

Challenges have emerged concerning unique identification numbers for the conversion of long-term leases to sectional titles under the Sectional Properties Act.

This analysis established that digitization of land governance has the potential to reveal the roles and acts of each actor within the structural framework of the land sector. This in turn is able to ease monitoring of the land administration processes, where services are also digitally notified on each step across the system. This reduces the risks and attempts of soliciting bribes and corrupting land administration officials to speed up services or to be given undue services. Use of technology helps improve land administration. This can be possible when viewed into two angles namely; transactional reforms seeking to control and automate land administration processes, restrict discretion of officials and increase detection of corruption ,transparency reforms that focus on opening up the state and increase the flow of information from the authority to citizens, making actions of the public institutions and its agents/ staffs more visible, answerable and accessible to citizens, civil society and private sector without any difficulty.

Despite the notable success of the digitization of land governance in the nation, this report highlights several drawbacks and challenges that could clawback on the fight against corruption. Firstly, it was observed that the system is not fully developed even though it has been launched, which presents a significant hurdle for stakeholders expected to utilize it. Professionals using the platforms have sited

the long period of time they have had to wait for the system to have simple tasks concluded. They have been forced to engage the same officials at the land offices to help deal with the delays thus creating opportunities for corruption to thrive, For example, even with digitized land records, cases of double registration and land grabbing are still reported due to manipulation of digital system. Additionally, the limited availability of Ardhisasa only in Nairobi restricts its reach and compromises its effectiveness in serving a wider population. Furthermore, the incomplete uploading of properties into the system undermines its ability to provide comprehensive coverage of land records. Another significant challenge is the aspect of title conversion, property verification, and the implementation of the Sectional Properties Act, 2020. These aspects present complexities and require further attention for seamless integration into the digitization process. Moreover, an overarching drawback is the attempt to digitize all operations of the Ministry simultaneously, instead of adopting an incremental approach, which could have facilitated a smoother transition. Early this year in January,2023 professional bodies lend by the Law Society of Kenya and the Institute of Surveyors of Kenya organised a Peaceful Protest March dubbed "Ardhi Sasa, Ardhi Tasa" to Ardhi House expressing their concerns on the system and how to support the digitization process and help improve on service provision. Some of the raised concerns were delays, inefficiencies, and service collapse with; Ardhi Sasa, Central Registry Conversion of titles and Long-term leases and sectional titles under the Sectional Titles Act, 2020.

> As an advocate, one of the primary frustrations with Ardhi Sasa is its inefficiency in processing approvals from the backend. I can attest to this issue based a case where I have current lodged a claim for a lease approval for on the Ardhi Sasa platform for Nairobi County. Regrettably, the query has not progressed beyond its initial stage, remaining stagnant since I initiated the process more than a years ago. This sluggishness is deeply frustrating for both the client and reflects poorly on my practice.

LSK Nairobi Member

OTHER CHALLENGES:

a) **Lack of Political Goodwill:** One of the major challenges is the lack of sufficient political goodwill to drive and sustain the digitization efforts. Without strong support from political leaders and decision-makers, the implementation of digitization initiatives may face resistance, inadequate resource allocation, and limited commitment to overcoming the associated challenges.

b) *Financial Constraints:* Digitization requires significant financial investments in technology infrastructure, capacity building, and system maintenance. However, limited financial resources allocated to land administration can hinder the effective implementation and scaling-up of digitization initiatives. Financial constraints can lead to delays, incomplete system development, and inadequate support for ongoing operations. According to research by Kenya Land Alliance, it was established that for the four-year period funding to the ministry of land has been chequered and vastly inadequate for the optimal delivery of services. This necessitate partnership with entities that the FAO who have been an ally to the state.

c) **Inadequate Technological Infrastructure:** The successful digitization of land administration processes relies on robust and reliable technological infrastructure, including internet connectivity, hardware, and software systems. Insufficient technological infrastructure, particularly in rural areas, poses challenges in accessing and utilizing digital platforms effectively. This limitation can hinder the widespread adoption of digitization and limit its impact.

d) **Low Level of Involvement of Stakeholders:** Effective stakeholder engagement is crucial for the success of digitization initiatives. However, the assessment identified a low level of involvement and collaboration among key stakeholders, including government agencies, land administrators, community representatives, and technology providers. Insufficient engagement can result in limited input, inadequate feedback mechanisms, and suboptimal alignment between digital systems and user needs.

e) **Lack of and Poor Quality of Data:** The availability and quality of data are fundamental to the success of digitization. However, the assessment revealed challenges related to the lack of comprehensive and up-to-date data, as well as issues with data integrity and accuracy. Incomplete or unreliable data can undermine the effectiveness of digital systems and compromise the reliability of land information.

f) Change Management: Digitization brings about significant changes in processes, roles, and responsibilities within the land administration sector. Managing this transformation effectively is crucial but can be challenging. Resistance to change, lack of awareness and understanding, and inadequate change management strategies can impede the successful implementation and adoption of digital systems.

These challenges and limitations underscore the complexity and multifaceted nature of digitizing land administration processes in Kenya. Addressing these obstacles requires concerted efforts, collaboration among stakeholders, adequate resource allocation, and effective change management strategies.

In addition to the challenges previously identified, another significant obstacle in the digitization of land administration is the lack of actionable and high-quality data within the land sector. This poses a hindrance to effective decision-making and hampers the ability of stakeholders to address governance issues adequately.

Many property owners lack familiarity with the functionality of the Ardhisasa platform. Furthermore, the system still faces some operational challenges, such as the inability to perform multiple dispositions simultaneously (e.g., a discharge, transfer, and charge) as previously done under manual registration. Additionally, the current configuration of Ardhisasa poses difficulties for foreigners creating accounts, as their information is not included in the IPRS and BRS databases like that of Kenyan citizens. As a result, foreigners must first submit a letter to the Ministry to request the setup of their accounts, which can be a time-consuming process.

To overcome this challenge, collaborative efforts should be pursued, particularly in partnering with state-funded research institutions such as the Kenya National Bureau of Statistics (KNBS). KNBS possesses modern tools and methodologies for data collection, which can be leveraged to gather comprehensive and accurate data pertaining to land ownership, access, and use. By incorporating these variables into the data collection process, a more holistic and nuanced understanding of the land sector can be achieved.

Collaboration with KNBS and other relevant institutions would not only ensure the availability of reliable data but also promote standardized data collection practices across the land administration sector. This would enable stakeholders to make informed decisions based on robust evidence and support evidence-based policy formulation and implementation.

Furthermore, the integration of modern data collection tools and techniques, such as geospatial technologies and remote sensing, can enhance the accuracy and efficiency of data collection processes. These technologies offer opportunities

for capturing detailed information on land boundaries, land use patterns, and other relevant spatial data, which are vital for effective land administration and management.

By embracing collaborations and leveraging modern data collection methods, the land sector in Kenya can overcome the challenges associated with data quality and availability. This would contribute to a more comprehensive understanding of land dynamics and facilitate evidence-based decision-making for sustainable land governance and management.

The following figure illustrates the comprehensive digitization efforts undertaken thus far at the Ministry of Lands, encompassing a range of critical components and processes[30]:

DIGITALIZED NATIONAL LAND INFORMATION SYSTEM (NLIS)

Survey,

6

Physical planning,

5

Valuation,

4

Land administration

3

Registration

2

1

Adjudication and settlement.

The system serves the MoLPP, county governments, National Land Commission, Kenya Revenue Authority (KRA), Banks, Judiciary, EACC, Lawyers, Surveyors, Valuers, Physical Planners and the public
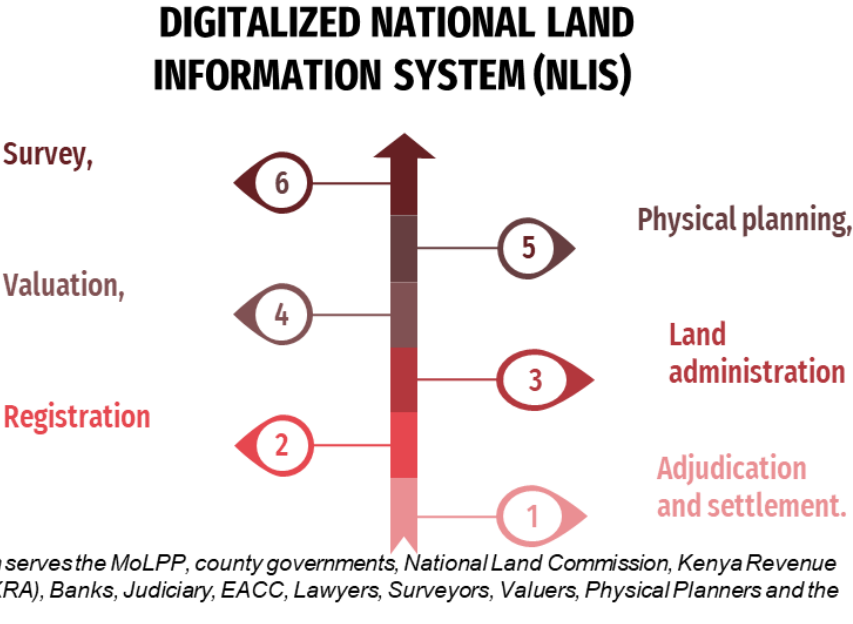
Figure 7: An integrated look into how the NLIMS is working in Kenya.

4.3.1 Mapping out Complaints Management Systems in the Context of Digitization of Land Governance in Kenya and Addressing Grievances

Within the dynamic landscape of digitizing land governance in Kenya, a critical facet revolves around effectively managing grievances that surface during the process. In this section, we delve into the evaluation of existing complaints management mechanisms within the context of digitized land governance and explore how these complaints have been tackled. This analysis provides insights into the efficacy of the mechanisms in place to handle issues arising from the transition to digital systems, shedding light on areas of progress and room for enhancement.

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30 The visual representation presented in this figure is derived from an insightful online interview conducted with a dedicated member of the Ministry of Lands, situated in Nairobi, Kenya

Assessing Complaints Management

The journey toward digitized land governance has engendered a spectrum of complaints, echoing concerns such as data inaccuracies, navigational difficulties, and apprehensions about the integrity of digital records. These grievances, while natural during a transformative shift, highlight the necessity of robust complaints management.

Fostering an Open Dialogue

At the forefront of acknowledging and addressing concerns is the Ministry of Lands, which has initiated an open-door policy. Under this policy, key stakeholders, including the Law Society of Kenya (LSK) and the Institution of Surveyors of Kenya (ISK), are empowered to engage proactively. This open channel of communication allows officials to express their grievances, enabling timely interventions and problem-solving.

Empowering through Customer Care Centres and Online Platforms

The Ministry of Lands has significantly fortified its complaints management infrastructure. A dedicated customer care centre at Ardhi House serves as a hub for resolving concerns related to digitization. Additionally, the Ardhi Sasa online platform, pivotal in the digitization drive, boasts a 24-hour customer service support system. This continuous assistance has streamlined the process of addressing complaints, offering users assistance at any time of day.

Navigating Complaints

The approach to handling complaints within the digitization of land governance showcases marked progress. Instances of prompt grievance resolution underscore the commitment to a seamless transition. Furthermore, the collaborative atmosphere nurtured between the Ministry of Lands and stakeholders fosters an environment conducive to addressing concerns.

Successful Instances

Notable achievements have emerged from this synergy. Collaborations between the Ministry of Lands and professional associations like LSK and ISK have led to the identification and rectification of digitization-related issues. The Ardhi Sasa platform's provision of customer support services have proven pivotal in addressing user concerns effectively, reinforcing the notion of responsive management.

Recommendations for Augmentation

Based on the positive trajectory, recommendations to elevate the complaints management paradigm within digitized land governance should encompass:

Sustained Collaboration: Strengthen partnerships with entities such as LSK and ISK to cultivate an ongoing dialogue, ensuring timely identification and resolution of challenges.

Awareness Initiatives: Initiate focused awareness campaigns to acquaint users with available complaints management avenues, empowering them to voice concerns.

Continuous Enhancement: Leverage insights from resolved complaints to enhance the digitization process, fostering ongoing improvement and innovation.

Transparency in Reporting: Incorporate mechanisms for transparent reporting of complaint resolution outcomes, fostering accountability and bolstering trust.

4. Impact of the Digitalization Process on Access to Services by Women, Youth and Indigenous Groups

Benefits of Ardhi Sasa

Women's Access to Services

Women in Kenya have traditionally faced barriers in accessing land-related services due to cultural norms and bureaucratic complexities. However, the digitization process through Ardhi Sasa has facilitated their access to these services. Given that women are less likely to travel to the registry and to physically follow up on land issues that are viewed as complex and at times tiring, this role is normally left to male relatives who may take advantage and disinherit or corrupt files. Ardhi Sasa offers a user-friendly digital platform where individuals can access land records, ownership details, and historical data with ease. This newfound accessibility equips marginalized groups with valuable information necessary for land-related decisions, reducing information disparities.

Indigenous Groups and Land Rights

For indigenous groups in Kenya, the digital transformation brought about by Ardhi Sasa has had a profound impact on their land rights. indigenous groups often encounter bureaucratic hurdles when seeking to acquire or formalize land rights. Ardhi Sasa's streamlined procedures and reduced paperwork make property registration more accessible. This, in turn, bolsters land tenure security, especially for women, who historically have faced challenges in land ownership due to

traditional customs and norms. The recognition and protection of the land rights of the Nubians community in Kiberas is one example of a land right that will be better protected with digitization.

Reduction in Land-Related Corruption

Ardhi Sasa's emphasis on transparency and accountability has contributed to a decrease in land-related corruption. Women, youth, and indigenous groups, who are often the most vulnerable to corrupt practices, benefit from the system's reduced opportunities for bribery and manipulation. As land transactions become more transparent and digitally recorded, the likelihood of fraudulent activities decreases, protecting the rights of these marginalized groups.

Inclusivity and Participation

The digital platform offers an opportunity for increased inclusivity and participation in decision-making processes related to land matters. Women, youth, and indigenous communities can engage more actively in land governance through online platforms. This engagement enhances their capacity to voice concerns, advocate for their rights, and participate in land-use planning and resource management, fostering more equitable outcomes.

Challenges and Drawbacks

Despite its benefits, the digitalization process also presents challenges. These include the digital divide, where rural and marginalized communities lack the necessary digital infrastructure and literacy to fully benefit from Ardhi Sasa. There is also a risk of data misuse or breaches, underscoring the need for robust data protection measures.

While Ardhi Sasa holds great promise, there are challenges and potential drawbacks that require attention:

Digital Divide

A digital divide exists within Kenya, with marginalized populations having limited access to technology and the internet. Ensuring equitable access to Ardhi Sasa for all segments of society remains a challenge.

Limited Digital Literacy

Many women, youth, and indigenous groups may lack digital literacy skills required to navigate the system effectively. Investments in digital literacy programs are necessary to bridge this gap.

Privacy and Security Concerns

Digital platforms can raise concerns about data privacy and security, particularly for vulnerable groups. Robust data protection measures and awareness campaigns are needed.

Evaluation of Net Positive Impact

Despite challenges, Ardhi Sasa's net positive impact on access to services by women, youth, and indigenous groups is evident. Improved access to information, streamlined processes, reduced corruption, and enhanced inclusivity outweigh the challenges.

4.4.1. Budgetary allocation for Digitization of Land Governance.

The land sector generally has suffered from underfunding from the exchequer over the years. During the implementation period of NLIMS which was essentially one of the most robust efforts toward digitization of land records. The period from 2017sn to 2022 can be split into ?? of three budget cycles upon which the budgetary allocation to land governance was queried. Over the last four years, the Ministry of Lands and Physical Planning under the development vote has been allocated a total of Ksh 12.87 billion or Ksh 3.22 billion annually. The Ministry was allocated Ksh 2.80 billion in 2017/18 which shrunk by 1.2% to Ksh 2.76 billion in 2018/19. It then increased by 63.4% in 2019/20 to Ksh 4.51 billion and dropped by 38% to Ksh 2.80 billion in 2021/21[31].

The chart below provides a summary of the allocation that has been granted to the Ministry of Lands from

Chart 2: Ministry of Lands and Physical Planning Development Vote (2017/18-2020/21)
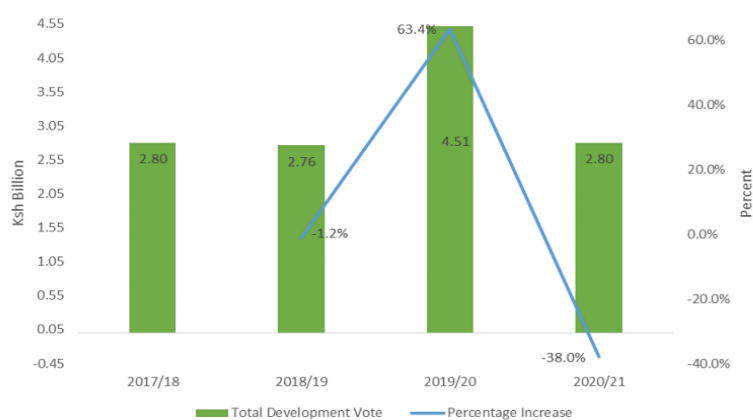
2017-2021.   Source: National Treasury[3]

31

The budgetary allocation to land governance for the Ministry of Lands and Physical Planning plays a significant role in the implementation of the National Land Information Management System (NLIMS) project. The NLIMS is instrumental in digitizing land records, streamlining land transactions, and enhancing transparency and accountability in land administration.

Analysing the budgetary fluctuations over the last four years highlights some of the challenges faced by the sector. Inadequate funding from the Ministry of Finance, especially during the period of robust digitization efforts under the NLIMS project, has created hurdles in achieving the project's objectives at the desired pace.

This underfunding has several implications:

1. Slowed Progress: Insufficient financial resources can slow down the digitization process, leading to delays in achieving the project's milestones. This can prolong the period during which landowners and other stakeholders need to rely on outdated or inefficient systems.

2. Quality Concerns: Budget constraints can also impact the quality of the digitization effort. It can lead to compromises in the technology used, the scope of records digitized, or the accuracy of the data entered into the system.

3. Operational Challenges: The day-to-day operations of the NLIMS project can be affected by inadequate funding. This could include staffing shortages, lack of necessary training, and limited technical support.

4. Limited Access: A lack of sufficient funds could limit the reach of the NLIMS project, making it inaccessible to those in remote or underserved areas. This could perpetuate inequalities in access to land information and services.

In a broader context, these challenges have implications for land governance in the country. The successful implementation of the NLIMS project is key to improving land administration, reducing land disputes, and promoting equitable land use and planning. If the project is delayed or its effectiveness is limited due to funding issues, it could hinder progress towards these goals.

Hence, the budgetary allocation to the Ministry of Lands and Physical Planning and specifically to the NLIMS project is not just a matter of funding a single project. It is about investing in a more transparent, efficient, and equitable land governance system.

5.1 CONCLUSION AND RECOMMENDATIONS

Drawing from the findings of the assessment in Kwale and Nairobi counties, the following recommendations are proposed to address the challenges and enhance the digitization of land administration in Kenya.

Table on recommendation for reported instances of corruption.

The table below presents recommendations in regard to issues related to Access to information by the general public with regard to digital land administration in Kenya at national and subnational levers.

Access to information by the general public with regard to digital land administration in Kenya					
Responsible Entity	Role / mandate	Potential for corruption	Influence	Gaps & issues	Possible Interventions
Sub- National Level.					
Nairobi County					
County Assembly	Formulation of county laws & policies	High	High	Potential misuse of legislative powers	Implement transparency measures and public consultations
Lands Revenue Department	Collection of land Rents	Low	Low	Unauthorized fee collection and underreporting	Implement online payment system with real-time tracking
County Surveyors and Planners	Spatial mapping and urban planning	Low	Low	Lack of standardized mapping and planning data	Harmonized county plans with the National Spatial Data Infrastructure and Guidelines
Kwale County Government.					
County Land Boards	Local land governance and allocation	High	High	Lack of transparency in land allocation processes	Need to Implement digital land allocation system with transparent audit trail.
County Assembly	Formulation of county laws & policies	High	High	Potential misuse of legislative powers	Implement transparency measures and public consultations
Lands Revenue Department	Collection of land Rents	Low	Low	Unauthorized fee collection and underreporting	Implement online payment system with real-time tracking

Actor	Role	Capacity	Integrity	Challenge	Recommendation
County Surveyors and Planners	Spatial mapping and urban planning	Low	Low	Lack of standardized mapping and planning data	Harmonized county plans with the National Spatial Data Infrastructure and Guidelines
County Land Boards	Local land governance and allocation	High	High	Lack of transparency in land allocation processes	Need to Implement digital land allocation system with transparent audit trail.
National Government:					
Ministry of Lands and Physical planning (MoLPP)	National land governance and administration	Low	High	Manual record-keeping leading to data loss and tampering	Digitize land records and introduce blockchain for data integrity
National Land Commission	Overseeing land management and policy	Low	High	Lengthy and complex land dispute resolution	Streamline dispute resolution procedures and provide legal aid
Surveyors and Planners	Spatial mapping and urban planning	Low	Low	Lack of standardized mapping and planning data	Develop national spatial data infrastructure and guidelines
NLC[32]	Registration & Resolution of land disputes	High	Low	Many land issues remain unresolved in TTC	Need to fast track claims & disputes
NEMA	Environmental regulation and protection	High	High	Lack of integration between land and environment policies	Integrate land and environmental policies for sustainable development
The Senate	Representation of county interests at national level	Low	High	Insufficient representation and influence	Enhance role in land-related matters through active engagement
Judiciary- Land and environment courts &	Interpretation and enforcement of land laws	Low	High	Lengthy legal processes and bribery in court cases	Streamline legal procedures and enhance anti-corruption measures
Non-State Actors (NSAs)					

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32 National Land Commission

Financial Institutions e.g., Kenya Bankers Association (KBA) and Kenya Private sector Association (KEPSA).	Land-related transactions and financing	Low	High	Inaccurate collateral valuation and mortgage fraud	Implement standardized property valuation and risk assessment
NGOs & human rights groups	Sensitization, awareness creation, tracking policy changes, social audits & conflict management.	High	High	Weak coordination & negative competition	Build synergies through a structured network
Institution of Surveyors of Kenya	Professional surveyors' association	Low	Low	Lack of standardized surveying practices	Develop industry standards and best practices
Law Society of Kenya (LSK)	Professional lawyers' association	Low	High	Slow legal processes and corruption in legal proceedings	Advocate for legal reforms and ethics enforcement
Kenya Valuers Association	Professional valuers' association	Low	Low	Inconsistent property valuation practices	Establish standardized valuation methodologies and guidelines
Planners Association	Professional planners' association	Low	Low	Limited incorporation of planning into policy	Advocate for stronger planning integration in development decisions

Figure 8 Instances of Corruption at National and Subnational levels.

National Government:

The responsibility for land management and administration primarily rests with the national government. The governing body, empowered by its legal mandate from the electorate, is tasked with regulating and overseeing various aspects of growth and development, among other matters. Legislative land laws outline the processes for handling land-related issues, closely aligned with county governments.

For effective implementation, Kenya's online system's technical infrastructure should be adapted to local contexts. Presently, there is limited awareness among Kenyan citizens, even within Nairobi, about the online system. Furthermore, a significant portion of the population remains uninformed about the procedure

for updating their title deeds and leases to adhere to the Land Registration Act, which entails modifying the original land reference numbers.

The online system, "Ardhi sasa" exclusively recognizes the new reference numbers. To address this, designers should consider incorporating flexibility into the system, enabling it to accept either the new or the old reference numbers, as practiced by certain banks.

Additionally, the system mandates landowners to register and upload their land parcels before conducting transactions. However, in a country where digital literacy and internet access are limited for many landowners, this requirement could hinder the uploading process onto the system.

As the repository of land ownership records, the Ministry could pre-populate all registered parcels into the system, forming a comprehensive database. This approach would enable system users to log in and perform transactions without individual landowners having to register their parcels separately. Notable instances like the motor vehicle and company registries, along with the Kenya Revenue Authority system, exemplify such comprehensive databases.

Moreover, the existing constraint that necessitates owner approval for an official search of any parcel within the system has curtailed the adoption of Ardhi sasa. This limitation poses challenges for legal practitioners, developers, valuers, auctioneers, banks, and infrastructure developers, all of whom require official searches for routine operations.

In its inaugural year, Ardhi sasa experienced low user traffic. It is imperative for management to acknowledge this reality and institute requisite system modifications, followed by rigorous testing to ensure enhanced performance and usability.

Respondents corroborated the fact that investing in a digital land registration system bestows numerous benefits on economies. A notable advantage lies in the heightened efficiency it offers. The digitalization of land records in Kenya has revolutionized public service delivery in land transactions. By making information conveniently accessible online, it has conserved time for individuals availing services while upholding the delivery of high-calibre assistance. These streamlined procedures have curtailed the time needed for property rights transfers and accelerated mortgage applications, proving advantageous to both the land registry and applicants. Furthermore, digitalization has eradicated redundancy in information storage and enabled the integration of extensive data into a singular database.

Previously, the conventional paper-based system of maintaining land records proved problematic. Land registries were burdened with stacks of files consuming significant spaces, encompassing extensive land records. With population growth and escalated business transactions, the proliferation of land subdivisions and consequent paperwork at the land registries surged. This posed challenges in consolidating the data from these files. However, through the digitalization of these records, land registries managed to evade information duplication, economize office space, and mitigate risks like fire damage. Moreover, digitalization facilitated the implementation of tracking mechanisms by land registries, enabling performance assessment and the enhancement of customer services.

a) Enhanced Political Will and Leadership:

A cornerstone for the seamless transition towards digitization lies in the cultivation of robust political will and strategic leadership at both the national and county levels. This entails a resolute commitment to not only allocate necessary resources but to also facilitate optimal resource utilization. Both the National Land Commission (NLC) and the Ministry of Lands should leverage their budgetary allocations for the years 2021 and 2022, channeled specifically towards digitization efforts, as a catalyst for transformation. These funds should be diligently directed towards establishing a comprehensive digitization framework and bolstering the digital infrastructure, ensuring its scalability and longevity.

A key facet of this recommendation is a synchronized approach in resource management. The NLC and the Ministry of Lands should collaboratively institute a task force, comprising experts in technology, governance, and project management. This task force would be entrusted with formulating an overarching strategy for the prudent allocation of the allocated budget across the digitization spectrum. By conducting thorough needs assessments and feasibility studies, this joint initiative can identify and prioritize crucial areas within land governance that require immediate digitization. This collaborative approach would amplify the impact of the allocated resources, circumventing duplication of efforts and fostering an environment of knowledge exchange and collective learning.

Furthermore, the importance of establishing clear policies cannot be overstated. To this end, the NLC and the Ministry of Lands should expedite the creation of comprehensive digitization policies that provide a robust roadmap for the digitization journey. These policies should incorporate contingency plans, risk assessment mechanisms, and guidelines for continuous evaluation and improvement.

In tandem with allocating resources, sustainable support mechanisms must be instated. The NLC and the Ministry of Lands should invest in capacity building initiatives aimed at training personnel to proficiently operate and maintain digital systems. This investment in human capital will ensure that the digitization initiatives are not only effectively implemented but also upheld over the long term.

In conclusion, amplifying the digital transformation of land governance necessitates a fortified commitment from the NLC and the Ministry of Lands. By judiciously utilizing the budgetary allocations of 2021 and 2022, these entities can coalesce their efforts, strategically allocate resources, and erect a resilient digital infrastructure. A collaborative approach, underpinned by clear policies and continuous support, will undoubtedly pave the

b) Improve Technological Infrastructure:

Rectifying the existing technological infrastructure gap mandates a concerted endeavor towards augmenting internet connectivity, especially in rural regions, and fortifying the reliability of hardware and software systems to facilitate seamless digitization processes in Kenya. The country has already embarked on commendable strides, exemplified by the introduction of the 5G network. However, the journey toward comprehensive digital transformation necessitates a more targeted approach.

To this end, a multifaceted collaboration is indispensable. The synergy between the government, telecommunications providers, technology specialists, and pertinent agencies should be harnessed to blueprint an all-encompassing strategy for the enhancement and perpetual sustenance of the requisite infrastructure. A central facet of this endeavor is the expansion of internet connectivity, with particular emphasis on underserved rural areas. Kenya's geographic diversity demands tailored solutions that encompass satellite, fiber-optic, and wireless technologies to cater to varied landscapes and demographics.

Simultaneously, close collaboration with telecommunications providers is pivotal. The government should forge strategic partnerships, incentivizing private sector involvement in the expansion of internet coverage. This can include regulatory incentives, subsidies, or tax breaks, fostering a favorable environment for investments in infrastructure development.

Moreover, the reliability of both hardware and software systems is paramount. This necessitates a stringent focus on quality assurance, regular maintenance, and updates. Collaborative efforts between technology experts, government bodies, and relevant agencies are indispensable for establishing standardized protocols for equipment procurement, installation, and system upkeep.

Kenya's forward-looking posture can be amplified by creating a dedicated task force comprising telecommunications experts, technology gurus, and representatives from government agencies. This task force would be entrusted with formulating a comprehensive and time-bound action plan for technological infrastructure enhancement, accounting for geographical variations and socio-economic factors.

In conclusion, Kenya's pursuit of a digitally empowered future requires unwavering commitment to technologically driven progress. By leveraging its recent strides, such as the introduction of 5G, and aligning efforts across governmental, private, and expert sectors, Kenya can usher in a new era of connectivity and digitization. This integrated approach will serve as a cornerstone for robust, inclusive, and sustainable technological advancement across the nation.

c) Foster Stakeholder Engagement:

Navigating the landscape of land digitization necessitates a deliberate commitment to inclusive stakeholder engagement. It is imperative to transcend mere implementation and consider a comprehensive approach that brings into the fold an array of pivotal stakeholders. This approach will seamlessly harmonize the diverse interests and requirements that revolve around land governance and its digital transformation in Kenya.

To actualize this, a collaborative framework must be woven, comprising not only government agencies and land administrators, but also extending to professional's integral to the land ecosystem. This constellation includes bankers reliant on land as collateral, surveyors responsible for accurate mapping, planners charting spatial progress, valuers appraising property worth, the National Land Commission (NLC) as the vanguard of land governance, and county governments spearheading local governance. By actively integrating these stakeholders from the outset, a comprehensive and user-centered digitization strategy can emerge.

Furthermore, technology providers should be closely engaged, contributing their expertise to the dialogue. Civil society organizations, serving as watchdogs for equitable land practices, should also be consulted. Community representatives, as the backbone of land governance at the grassroots, must be integral to the discourse, ensuring that local nuances are accounted for.

A tripartite mechanism of regular consultations, systematic feedback loops, and collaborative platforms must be implemented. These mechanisms will serve as conduits for effective participation, enabling stakeholders to voice their needs, concerns, and suggestions. Regular dialogues will establish a collective

understanding of evolving requirements and facilitate iterative improvements to the digital systems.

Moreover, a robust capacity-building initiative should be formulated to empower stakeholders with the skills needed to seamlessly navigate and utilize digitized land administration systems. This empowerment not only ensures effective engagement but also aligns with the goal of promoting digital literacy among various stakeholders.

In summary, Kenya's journey towards holistic land digitization hinges on fostering dynamic stakeholder engagement. By embedding the voices of government entities, professionals, technology providers, civil society, and communities into the digitization fabric, the country will undoubtedly construct a digital ecosystem that is not only technologically sound but also responsive to the multifaceted needs of its users. This collaborative ethos will forge the path to a more transparent, efficient, and equitable land governance landscape.

d) Improve Data Availability and Quality:

The foundation of effective digitization rests upon the caliber of data feeding into the system, echoing the integrity of officials and the veracity of follow-up documents. The prevailing challenges, particularly the specters of corruption in registries and the rampant cases of missing or tampered land records, mandate an uncompromising commitment to elevating data quality and bolstering its authenticity.

This endeavour necessitates an orchestration of multifaceted actions. To stem the tide of inadequate and outdated data, a multi-pronged approach should be adopted. First, the establishment of rigorous data collection mechanisms, underpinned by standardized procedures, is imperative. This entails meticulously capturing pertinent land information at its inception and subjecting it to a stringent verification process.

Crucially, promoting data sharing and integration among relevant agencies is paramount. The siloed nature of data across different entities has been a historic challenge in land administration. By breaking down these barriers and fostering an environment of cross-agency collaboration, a cohesive data ecosystem can be nurtured. This not only mitigates redundancy but also enriches the dataset with multiple layers of insight.

To ensure data reliability, robust validation mechanisms must be integrated into the process. Data verification should be employed at multiple junctures, with a focus on cross-referencing information against authoritative sources and historical

records. Additionally, investing in advanced technologies, such as blockchain or distributed ledger systems, can provide an immutable audit trail, curtailing the prospects of data manipulation.

Incorporating stringent data management practices is pivotal. This encompasses fortified data storage, encryption, and cybersecurity protocols. Rigorous access controls and audit trails should be implemented to not only safeguard data from unauthorized access but also to facilitate traceability and accountability.

A concerted effort towards digital literacy and awareness among officials is equally crucial. This will sensitize them to the significance of maintaining data integrity and the legal ramifications of data tampering. Furthermore, instituting punitive measures for any malfeasance detected within the system will serve as a deterrent against corruption.

Finally, the struggle for complete and trustworthy digital land information is dependent on tackling existing data quality concerns with steadfast resolution. Kenya can establish a strong digital library that matches the real landscape of land transactions by promoting an atmosphere of transparency, accountability, and technical innovation. As a result, the land administration ecosystem will gain trust, efficiency, and fairness.

e) Promote Seamless Transition through Strategic Change Management:

Achieving successful land digitization demands an intricate dance of change management strategies that deftly address resistance, galvanize awareness, and facilitate seamless transitions. The transformation from entrenched manual registries and systems to progressive digitization may encounter challenges, including apprehension, resistance, and misgivings among land officials, intermediaries, and even some professionals. This calls for a well-orchestrated approach that assures comprehensive stakeholder engagement, sustains momentum, and fosters collective buy-in.

The trajectory towards embracing digitization involves multifaceted tactics tailored to the unique landscape of land governance. Commencing with comprehensive communication plans, a unified message must be disseminated, articulating the manifold advantages of digitization, including transparency, efficiency, and reduced corruption vulnerabilities. This entails fostering a shared understanding of how digitization elevates the efficiency and accuracy of land records, simplifies administrative processes, and ensures equitable access.

To allay reservations and ensure harmonious adaptation, capacity-building programs should be at the forefront. This proactive strategy should encompass training sessions targeting diverse stakeholders, particularly older staff members and officials who might be less technologically inclined. Customized training modules should be designed to cater to various skill levels, cultivating digital fluency and fostering confidence in navigating digital systems.

In tandem with training, a comprehensive knowledge-sharing platform should be established, encouraging a continuous learning culture. Workshops, seminars, and interactive forums could provide a space for stakeholders to share experiences, challenges, and best practices, ensuring that knowledge is disseminated evenly and progressively.

Furthermore, meticulous monitoring and evaluation mechanisms should underpin the implementation process. Regular checkpoints should be established to gauge the effectiveness of change management strategies, address any unanticipated hurdles, and fine-tune the approach as necessary. Feedback loops should be actively maintained, allowing stakeholders to voice concerns and propose improvements.

In conclusion, Kenya's journey towards successful land digitization is inherently a process of evolution, involving a transformation in culture, practices, and perspectives. By skilfully orchestrating change management strategies, the Ministry of Lands, the National Land Commission, and county governments can mitigate resistance, ensure awareness, and foster a gradual yet steadfast transition towards digitization. This concerted approach not only guarantees the attainment of a resilient and efficient digitization framework but also solidifies Kenya's stride towards a modernized, transparent, and accountable land governance paradigm.

Recommendations for National Government

a) Ministry of Lands and Physical Planning identified gap in manual record keeping leading to data loss and tampering will be mitigated through digitizing land records and introducing blockchain for data integrity.

b) The National Land Commission lengthy and complex land dispute resolution will need to acquire streamlined dispute resolution procedures and provide legal aid as well. Additionally, the many land issues remaining unresolved will be resolved by fast tracking claims and disputes.

c) Surveyors and Planners lack of standardized mapping and planning data will be resolved by developing national spatial data infrastructure and guidelines.

d) NEMA lack of integration between land and environment policies will be mitigated by integrating land and environmental policies for sustainable development.

e) The Senate insufficient representation and influence in Kwale County should be addressed by enhancing role in land-related matters through active engagements with the county representation at national level.

f) Judiciary-land and environment courts lengthy legal processes and bribery in court cases will be solved by streamlining legal procedures and enhancing anti-corruption measures.

Recommendations for Nairobi County

a) The Nairobi County Assembly potential misuse of legislative powers in formulation of county laws and policies will need to implement transparency measures and public consultations.

b) The Lands Revenue Department role in collection of land rents with issues arising from unauthorized fee collection and underreporting will need to implement online payment system with real-time tracking.

c) County Surveyors and Planners lack of standardized mapping and planning data shall be solved by harmonized county plans with the National Spatial Data Infrastructure and Guidelines.

Recommendations for Kwale County Government

a) The Kwale County Land Boards persistent lack of transparency in land allocation processes shall be addressed by implementing digital land allocation system with transparent audit trail.

b) The County Assembly potential misuse of legislative powers will need to implement transparency measures and public consultations.

c) The Lands Revenue Department unauthorized fee collection and underreporting shall be corrected by implementing online payment system with real-time tracking.

d) The County Surveyors and Planners lack of standardized mapping and planning data will be resolved through harmonized county plans with the National Spatial Data Infrastructure and Guidelines.

Recommendations for Non-State Actors (NSAs)

a) Financial Institutions for example Kenya Bankers Association (KBA) and Kenya Private Sector Association (KEPSA) will solve inaccurate collateral valuation and mortgage fraud by implementing standardized property valuation and risk assessment.

b) Non-Governmental Organizations and rights groups will mitigate weak coordination and negative competition by building synergies through a structured network.

c) Institution of Surveyors of Kenya lack of standardized surveying practices will be resolved by developing industry standards and best practices.

d) Law Society of Kenya slow legal processes and corruption in legal proceedings will be settled by advocating for legal reforms and ethics enforcement.

e) Kenya Valuers Association inconsistent property valuation practices will be resolved by establishing standardized valuation methodologies and guidelines.

f) Planners Association gaps on limited incorporation of planning into policy shall be actioned by advocating for stronger planning integration in development decisions.

Recommendation in regard to Women and indigenous communities' issues.

Kenya has a diverse cultural landscape with 42 ethnic communities, each having unique customs and traditions related to land ownership. To effectively integrate these communities into a digital land administration system, it's crucial to understand and respect these cultural intricacies.

Firstly, we need to consider Kenya's legal framework. The Kenyan Constitution, under Article 60, guarantees equal rights for women in land ownership. However, cultural practices often contradict this, particularly in rural and indigenous communities. Advocacy efforts should emphasize the enforcement of constitutional provisions and challenge discriminatory cultural practices.

The digitization process should be designed to accommodate Kenya's linguistic diversity. The system should be accessible in local languages including Kikuyu, Luo, Kalenjin, Luhya, and Kiswahili, among others. This will ensure that non-English speakers, who are often the most marginalized, can interact with the system efficiently.

Training programs should also be tailored to the Kenyan context. For example, many rural areas in Kenya have low rates of digital literacy. Training should, therefore, focus not only on how to use the digital system but also on basic computer skills.

Promoting awareness is another key step. In Kenya, radio remains a powerful tool for reaching rural and remote communities. Utilizing community radio stations to disseminate information about the digital land administration system and land rights could be highly effective.

In terms of legislation, the Kenyan government has made significant strides with the Land Act of 2012 and the Community Land Act of 2016. However, implementation remains a challenge. Advocacy should push for effective enforcement of these laws.

Finally, the development of the digital land administration system should actively involve women and indigenous communities. This will ensure that the system is tailored to their needs and respects their rights. By adopting a participatory approach, we can build a system that truly serves all Kenyans.

In conclusion this assessment report has provided valuable insights into the impact of digitization on land governance processes in both Nairobi and Kwale, Kenya. While the benefits of digitization, particularly through initiatives like the Ardhi Sasa platform, are evident in terms of improved transparency, efficiency, and access to land-related services, challenges remain. The report has highlighted the persistence of certain challenges, including digital literacy gaps, the risk of data breaches, and the digital divide, which may hinder equitable access to these benefits. Moreover, the report has identified potential avenues for corruption within the digital landscape, underscoring the importance of robust data security and anti-corruption measures. To harness the full potential of digitization, stakeholders must focus on continuous improvements in digital literacy, technology infrastructure, and data protection. This report not only provides a foundation for addressing these challenges but also serves as a roadmap for enhancing the digitization of land governance processes in Kenya while mitigating the risks associated with corruption.

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ANNEXES.

Annex 1 RESEARCH QUESTIONS.

1. What is the current status of digitization of land governance processes in Kenya, specifically in Nairobi and Kwale, and what are the factors that influence this status?

2. What are the benefits and challenges of digitalization of land administration processes in Kenya, and how do they compare to traditional paper-based processes?

3. What is the readiness level of the Kenyan government, institutions, and stakeholders for digitalization of land governance processes, and what are the factors that determine this readiness level?

4. What are the policy, legal and institutional frameworks that govern digitalization of land administration processes in Kenya, and how effective are they in promoting transparency, accountability, and efficiency?

5. What are the financial costs and benefits of digitalization of land administration processes in Kenya, and how do they vary across diverse types of land transactions and stakeholders?

These above research questions will guide in collecting data and information to generate a comprehensive assessment report on the digitization of land governance processes in Nairobi and Kwale.

Annex 2: QUESTIONAIRES. Questionnaire for State Actors

NO.	QUESTION
	QUESTIONNAIRE FOR STATE ACTORS
1	What is the current status of digitization of land governance processes in your organization?
2	What are the key benefits and challenges of digitization of land administration processes in your organization?
3	How does your organization ensure data security and privacy in the digitalization of land governance processes?
4	What is the readiness level of your organization for digitalization of land governance processes, and why?
5	What are the policy, legal and institutional frameworks that govern the digitalization of land governance processes in your organization?
6	How effective are these frameworks in promoting transparency, accountability, and efficiency in your organization?
7	What are the estimated financial costs and benefits of digitalization of land administration processes in your organization?
8	What are the major challenges your organization faces in the digitalization of land governance processes, and how can these challenges be addressed?
9	What are the lessons learned from the digitalization of land governance processes in your organization, and how can these lessons be shared with other stakeholders?

Annex 3. Questionnaire for Non-State Actors

No.	Question
1	What is your organization's experience with the digitalization of land governance processes in Kenya?
2	What are the benefits and challenges of digitalization of land administration processes from your organization's perspective?
3	How do you ensure data security and privacy in the digitalization of land governance processes?
4	What is your organization's readiness level for digitalization of land governance processes, and why?
5	What are the policy, legal and institutional frameworks that govern the digitalization of land governance processes in Kenya, from your organization's perspective?
6	How effective are these frameworks in promoting transparency, accountability, and efficiency in the digitalization of land governance processes?
7	What are the estimated financial costs and benefits of digitalization of land administration processes, from your organization's perspective?
8	What are the major challenges your organization faces in the digitalization of land governance processes, and how can these challenges be addressed?
9	What are the lessons learned from the digitalization of land governance processes, from your organization's perspective, and how can these lessons be shared with other stakeholders?

Annex 4: Link to responses.

1. DIGITALIZATION OF LAND ADMINISTRATION IN KENYA. (State Actors) (office.com)

2. https://forms.office.com/r/JKF28SHivg

TRANSPARENCY INTERNATIONAL

KENYA

HEAD OFFICE

Kindaruma Road, Off Ring Road, Kilimani,
Gate No. 713; Suite No. 4
P.O. Box 198 – 00200, City Square, Nairobi, Kenya
Tel +254 (0) 202 727 763/5, +254 722 296 589
Email: transparency@tikenya.org

ALAC ELDORET

Catholic Diocese of Eldoret, Uganda Road, Eldoret
Tel: +254 53 2033100 Mobile: 0704 899 887
Email: alaceldoret@tikenya.org

ALAC NAIROBI

Kindaruma Road, Off Ring Road, Kilimani, Gate No. 713;
Suite No. 4
P.O Box 198 – 00200, City Square, Nairobi, Kenya
Tel: +254 (0) 202 727 763/5, +254 722 296 589
Fax: +254 20 272 9530 Email: transparency@tikenya.org

ALAC MOMBASA

2nd floor, KNCHR offices Panel Freighters Lane
Off Haile Selasie Avenue, Behind Pride Inn Hotel, Mombasa
CBD
Tel: 072 841 88 22 Hotline: 0800 720 721
Email: alacmombasa@tikenya.org

ALAC WESTERN

P.O. Box 3560-40100. RIAT along Kisumu-Kakamega Road,
Kisumu
Mobile: 0716 900 227
Email: alacwestern@tikenya.org