Strathmore University

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Embracing Technology in Conveyancing: Enhancing Efficiency and Safeguarding Property Rights through Ardhisasa Platform

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DECLARATION

I, MICHAEL KANIU NDIRANGU, do hereby declare that this research is my original work and that to the best of my knowledge and belief, it has not been previously, in its entirety or part, been submitted to any other university for a degree or diploma. Other works cited or referred to are accordingly acknowledged.

Signed: ....

Date: 25th March 2025

This dissertation has been submitted for examination with my approval as University Supervisor.

Signed: ....

JAMES NYIHA

Date: 25th March 2025

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DEDICATION

This work is dedicated to God, whose grace and guidance have been my constant source of strength and wisdom. I also dedicate it to my family, mentors, professors, friends, and colleagues, whose guidance and wisdom have shaped my journey. Finally, to all those committed to pursuing knowledge and justice, may this work serve as a steppingstone toward a more informed and equitable world and success.

List of Legal Instruments

1. Land Registration Act, 2012
2. Community Land Act, 2016
3. Computer Misuse and Cybercrimes Act, 2018
4. Data Protection Act, 2019
5. National Land Commission Act
6. The Constitution of Kenya, 2010

List of Abbreviations

1. **LRA** – Land Registration Act
2. **TAM** – Technology Acceptance Model
3. **PEXA** – Property Exchange Australia
4. **NLIS** – National Land Information System
5. **GIS** – Geographic Information System
6. **FGDC** – Federal Geographic Data Committee
7. **NLC** – National Land Commission
8. **UN-Habitat** – United Nations Human Settlements Programme
9. **LIMS** – Land Information Management System
10. **ECNL** – Electronic Conveyancing National Law
11. **KNBS** – Kenya National Bureau of Statistics
12. **KLR** – Kenya Law Reports
13. **OTP** – One-Time Password
14. **ICT** – Information and Communications Technology
15. **GDPR** – General Data Protection Regulation

List of cases:

1. Wreck Motors Enterprises v. The Commissioner of Lands and Others (Civil Appeal No. 71 of 1997).
2. Gitwany Investment Limited v. Tajmal Ltd & 3 Others (2006) eKLR.
3. Arthi Highway Developers Limited v. West End Butchery Limited, Solomon Mwinzi Mwau, John Mucheni Musa, Attorney General, Kenya Medical Association Cooperative Society Ltd, Yamin Construction Co Ltd & Gachoni Enterprises (Civil Appeal 246 of 2013) [2015] KECA 816 (KLR).
4. Chutha v. Ndung'u (Civil Appeal 293 of 2018) [2024] KECA 418 (KLR).
5. In the Matter of the National Land Commission [2014] eKLR.
6. The National Land Commission v. Attorney-General & 6 others (Advisory Opinion Reference No. 2 of 2014) [2015] eKLR.

Abstract

This proposal explores the transformative potential of technology in Kenya's land management system, focusing on the Ardhisasa platform. In response to pervasive challenges such as fraud, inefficiency, and lengthy bureaucratic processes, the government established Ardhisasa to modernize and digitize land transactions. Leveraging the digital economy, Ardhisasa facilitates paperless transactions, enhances transparency, and mitigates the risk of fraud. However, alongside its benefits, concerns arise regarding data privacy, cybersecurity, and the adequacy of existing legal frameworks. Through a comprehensive review of literature, this study examines the impact of Ardhisasa on property rights protection and efficiency in land management. Drawing on theories such as Institutional theory and Technology Acceptance Model, the research evaluates the platform's features, effectiveness, and challenges. Utilizing a mixed-method approach, including surveys, documentary analysis, and comparative studies, the study aims to identify opportunities for enhancing Ardhisasa and informing policy decisions. The findings contribute to the understanding of legal technology adoption in land governance and offer insights for optimizing the platform's functionality while safeguarding property rights. Ultimately, this research seeks to foster a more transparent, efficient, and secure land management system in Kenya, driving economic development and social stability.

CHAPTER ONE

1.1 Background:

Land management in Kenya has long been plagued by challenges such as fraudulent transactions, bureaucratic inefficiencies, and corruption. These issues have led to widespread disputes, undermining property rights and hindering economic development. The lack of transparency and accountability in land transactions has further exacerbated the problem, resulting in numerous cases of land grabbing and delayed processes in land registration and titling. In response to these challenges, the Kenyan government introduced the Ardhisasa[1] platform as a modern solution to digitize and streamline land management processes[2].

Ardhisasa, along with similar initiatives like My Shamba Digital, was developed to modernize the way land transactions are conducted in Kenya. The platform represents a significant shift towards a digital economy, where paperless transactions are becoming the norm. However, the rise of digital platforms has also highlighted the need for a robust legal framework to address emerging cyber threats, such as computer misuse, fraud, and cybercrimes. In this context, the enactment of the Computer Misuse and Cybercrimes Act of 2018 marked a crucial step in safeguarding Kenya's digital infrastructure and protecting land management processes from illicit activities[3].

The establishment of Ardhisasa marks a transformative step towards enhancing transparency, efficiency, and security in land transactions. By enabling digital registration of land transactions, Ardhisasa aims to reduce the risk of fraud and minimize delays commonly associated with manual processes. The platform's success is bolstered by its collaboration with key government agencies, such as the Ministry of Lands and Physical Planning and the National Land Commission, as well as partnerships with the Law Society of Kenya to ensure the accuracy and reliability of land-related data[4].

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[1] National Land Information Management System (known as Ardhisasa).

[2] Muigua. K., 'Legal Practice and New Frontiers: Embracing Technology for Enhanced Efficiency and Access to Justice' Op Cit

[3] Muigua. K., 'Legal Practice and New Frontiers: Embracing Technology for Enhanced Efficiency and Access to Justice' Op Cit

[4] Digitization of Land Records in Kenya' available at https://mmsadvocates.co.ke/digitization-of-land-records-inkenya/ (accessed on 14/02/2024)

Through Ardhisasa, users gain access to critical land information, including property ownership details, boundaries, and title deeds, empowering them to make informed decisions and reducing the likelihood of disputes. The platform's digital nature also minimizes reliance on physical paperwork and interactions, thereby reducing opportunities for manipulation and fraud that were prevalent in traditional land management systems[5].

Despite its potential to revolutionize land management in Kenya, Ardhisasa faces challenges, particularly in terms of delays and inefficiencies within land registries, which continue to affect the platform's effectiveness and service delivery. This study seeks to explore these challenges in depth, examining the legal and operational hurdles that hinder Ardhisasa's ability to fulfill its intended purpose and proposing solutions to enhance its effectiveness[6].

1.2 Problem statement

In an ideal scenario, the adoption of legal technology platforms like Ardhisasa would seamlessly enhance the efficiency and transparency of Kenya's land management system while safeguarding property rights. However, the implementation of such technology introduces a complex challenge: data privacy and information security risks. As legal processes become digitized and sensitive information is stored online, the threat of unauthorized access, data breaches, and cyber-attacks escalates, undermining the integrity of the system[7].

Moreover, the effectiveness of these platforms is further complicated by the need for legal professionals to acquire the necessary skills to utilize the technology efficiently. Without comprehensive training and ongoing support, the potential benefits of legal technology may not be fully realized, leaving the justice system vulnerable to inefficiencies and errors.

This study seeks to address these critical issues by exploring legal solutions that both enhance the efficiency of Kenya's land management system and safeguard the rights of all stakeholders involved. By examining existing frameworks, assessing the impact of digital platforms like Ardhisasa, and proposing targeted legal interventions, the research aims to

[5] What is Ardhisasa, available at https://ardhisasa.lands.go.ke/home (accessed on 14/02/2024).
[6] What is Ardhisasa, available at https://ardhisasa.lands.go.ke/home (accessed on 14/02/2024).
[7] Katharine Perekslis, 'Four Strategies to Navigate Data Privacy Obligations for Compliance, Litigation, and EDiscovery Professionals' (Law.com) available at https://www.law.com/native/?mvi=7bd540437dde4b60991f35c257adc521 (accessed on 13/02/2024)

contribute to the successful integration of legal technology in Kenya, ensuring that its advantages are fully realized while mitigating associated risks.

1.3 JUSTIFICATION OF THE STUDY

The examination of the legal and operational challenges associated with the implementation of digital land management platforms like Ardhisasa is crucial in the context of Kenya's evolving land administration system. As Kenya continues to modernize its legal infrastructure, the integration of technology into land management represents a significant shift aimed at enhancing efficiency, transparency, and security in land transactions. However, this transition brings forth several challenges that must be thoroughly understood and addressed to ensure the successful realization of these goals[8].

This study fills a critical gap in existing literature by providing an in-depth analysis of the legal implications, data privacy concerns, and security risks associated with the digitization of land records. While prior research has acknowledged the benefits of digital platforms, there has been limited exploration of the specific legal challenges that arise, particularly in the context of safeguarding property rights and ensuring the reliability of digital records[9].

The findings of this study are expected to have significant implications for land owners, legal practitioners, policymakers, and stakeholders involved in Kenya's land management system. By proposing legal reforms and strategies to enhance the security and accuracy of digital land records, this study aims to contribute to the development of a more robust and reliable legal framework. Such reforms are essential to mitigate risks associated with data breaches and cyber-attacks, as highlighted in the Computer Misuse and Cybercrimes Act, 2018, and to ensure compliance with constitutional provisions on property rights under Article 40 of the Constitution of Kenya[10].

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[8] Digitization of Land Records in Kenya' available at https://mmsadvocates.co.ke/digitization-of-land-records-inkenya/ (accessed on 14/02/2024)

[9] Gaffney Nick, 'Law Practice Management: Transforming a Law Practice with Technology' available https://www.americanbar.org/groups/gpsolo/publications/gp_solo/2017/september-october/law-practicemanagement-transforming-law-practice-technology/ (accessed on 13/02/2024).

[10] Muigua.K., 'Embracing Science and Technology in Legal Education for Efficiency and Enhanced Access to Justice' available at http://kmco.co.ke/wp-content/uploads/2021/04/Embracing-Science-and-Technology-in-legaleducation-for-Efficiency-and-Enhanced-Access-to-Justice-Kariuki-Muigua-April-2021.pdf (accessed on 14/02/2024)

This study represents a significant contribution to the ongoing discourse on legal technology and land management in Kenya. By addressing the intersection of technology, law, and property rights, the study aims to advance our understanding of how digital platforms can be effectively integrated into Kenya's legal framework, ensuring that the benefits of modernization are realized while safeguarding the interests of all stakeholders[11].

1.4 Research Objectives

1. Identify and analyze the key features and functionalities of Ardhisasa to understand their contributions to enhancing land management practices in Kenya.
2. Evaluate the effectiveness of platforms such as Ardhisasa in mitigating challenges related to fraud, corruption, and inefficiency within the land management process.
3. Propose legal and policy interventions aimed at enhancing the effectiveness and accessibility of platforms like Ardhisasa while ensuring the protection of property rights.

1.5 Research Questions

1. What are the key features and functionalities of Ardhisasa and, and how do they contribute to improving land management in Kenya?
2. How do platforms like that address the challenges of fraud, corruption, and inefficiency in the land management process?
3. What legal and policy interventions can be implemented to further enhance the effectiveness and accessibility of these platforms while safeguarding property rights?

1.6 HYPOTHESIS

The study assumes the following hypotheses:

1. That the integration of digital platforms like Ardhisasa significantly improves efficiency and transparency in Kenya's land management system.

[11] 8 Coldham, Simon. "Land Control in Kenya." Journal of African Law 22, no. 1 (1978): 63–77.

2. Data privacy and security risks present substantial challenges to the effective implementation of digital land management platforms.
3. That legal frameworks and safeguards are currently inadequate to fully protect property rights within the digital land management system in Kenya.

1.7 Literature review

In recent years, Kenya has faced significant challenges in land management, with incidents of land fraud and related crimes escalating, posing a severe threat to property rights and economic development. The Ministry of Lands reported a staggering 7,052 cases of property fraud annually, highlighting the urgent need for effective solutions[12]. These issues are compounded by land disputes, which affect millions of Kenyans and result in various adverse consequences, including mental health problems, loss of income, and damaged relationships. In response to these challenges, innovative technologies such as My Shamba Digital have emerged, aiming to streamline land management processes and mitigate fraud. This literature review critically examines existing research on land management in Kenya and explores the role of technology, particularly My Shamba Digital, in addressing these challenges[13].

Michelle Mung'ata's work provides a detailed overview of the multifaceted challenges facing land management in Kenya. The data from the Ministry of Lands underscores the pressing need for effective solutions to combat land fraud and disputes. Mung'ata highlights the significant impact these issues have on individuals and the economy, emphasizing the importance of innovative approaches like My Shamba Digital. The Justice Needs and Satisfaction in Kenya survey, conducted by The Hague Institute for Innovation of Law (HIIL), further illustrates the profound effects of land disputes, ranging from stress and mental health issues to violence and even murder. These findings underscore the critical need for innovative solutions to address these persistent challenges[14].

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[12] Digitization of Land Records in Kenya' available at https://mmsadvocates.co.ke/digitization-of-land-records-inkenya/ (accessed on 14/02/2024)

[13] What Is Legal Technology and How Is It Changing Our Industry?' (The Lawyer Portal, 29 January 2019) available at https://www.thelawyerportal.com/blog/what-is-legal-tech-and-how-is-it-changing-industry (accessed on 15/02/2024)

[14] Katharine Perekslis, 'Four Strategies to Navigate Data Privacy Obligations for Compliance, Litigation, and EDiscovery Professionals' (Law.com) available at https://www.law.com/native/?mvi=7bd540437dde4b60991f35c257adc521 (accessed on 13/02/2024)

The emergence of My Shamba Digital, a Property Technology startup, represents a promising development in Kenya's land management landscape. Founded in early 2021, My Shamba Digital was established in response to the escalating incidents of land fraud and disputes. The platform aims to simplify real estate transactions and reduce land-related crimes by providing clients with access to a team of professionals and leveraging the Ardhisasa platform. My Shamba Digital facilitates land transactions and enhances transparency in the process, offering a potential solution to the ongoing challenges in Kenya's land management system.

While the literature offers valuable insights into the challenges faced by My Shamba Digital, its achievements, and its plans for expansion, there is a notable gap in critically evaluating the broader impact of the platform within the legal and real estate sectors. The literature primarily focuses on the experiences and journey of My Shamba Digital, including its challenges, achievements, and future plans. However, it does not delve deeply into the broader implications of the startup's activities on the legal profession, land management practices, or access to justice in Kenya. This gap indicates the necessity for additional research into My Shamba Digital's overall impact on Kenya's legal and real estate industries.

Kariuki Muigua's paper, presented at the Law Society of Kenya (LSK) Annual Conference in 2022, examines the revolutionary impact of technology on modern legal practice in Kenya. Muigua gives a comprehensive study of the benefits and drawbacks of using technology in the legal profession, emphasizing its potential to improve access to justice while also addressing concerns about data privacy and job displacement. One of the main merits of Muigua's work is its extensive examination of the multidimensional impact of technology on legal practice. By highlighting the disruption caused by the digitization of services, particularly through platforms like Ardhisasa, the paper underscores the significant shift underway in the legal profession[15].

Moreover, Muigua adeptly navigates the complexities of the COVID-19 pandemic's influence on legal practice, emphasizing the accelerated adoption of technology in response to remote working and virtual court sessions. The paper effectively balances the advantages and disadvantages of legal technology, acknowledging its role in streamlining processes,

[15] Muigua.K., 'Embracing Science and Technology in Legal Education for Efficiency and Enhanced Access to Justice' available at http://kmco.co.ke/wp-content/uploads/2021/04/Embracing-Science-and-Technology-in-legaleducation-for-Efficiency-and-Enhanced-Access-to-Justice-Kariuki-Muigua-April-2021.pdf (accessed on 14/02/2024)

improving accuracy, and expanding access to justice, while also recognizing concerns such as data privacy and job automation. This balanced approach adds nuance to the discussion and underscores the importance of addressing these challenges to ensure the successful integration of technology in legal practice[16].

While Muigua's work provides a valuable contribution to the discourse on technology in the legal profession, there is limited empirical evidence on the actual impact of platforms like Ardhisasa on improving efficiency, reducing fraud, and enhancing access to justice in land management processes. Further research is needed to conduct comprehensive impact assessments, including quantitative and qualitative analyses, to evaluate the effectiveness of Ardhisasa in addressing the challenges of land management in Kenya. Understanding the user experience and adoption patterns of Ardhisasa among various stakeholders, including citizens, legal professionals, and government officials, is crucial for optimizing the platform's functionality and usability[17].

Additionally, research focusing on user feedback, satisfaction levels, and barriers to adoption can provide valuable insights into areas for improvement and inform future enhancements to the platform[18]. While Ardhisasa operates within the existing legal and regulatory frameworks governing land management in Kenya, further research is needed to assess the adequacy and effectiveness of these frameworks in facilitating the digitization of conveyancing processes. Exploring the legal and regulatory challenges faced by platforms like Ardhisasa, such as data privacy concerns, cyber security risks, and regulatory compliance requirements, can help identify areas for policy reform and legislative intervention[19].

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[16] Muigua.K., 'Embracing Science and Technology in Legal Education for Efficiency and Enhanced Access to Justice' available at http://kmco.co.ke/wp-content/uploads/2021/04/Embracing-Science-and-Technology-in-legaleducation-for-Efficiency-and-Enhanced-Access-to-Justice-Kariuki-Muigua-April-2021.pdf (accessed on 14/02/2024)

[17] Muigua.K., 'Embracing Science and Technology in Legal Education for Efficiency and Enhanced Access to Justice' available at http://kmco.co.ke/wp-content/uploads/2021/04/Embracing-Science-and-Technology-in-legaleducation-for-Efficiency-and-Enhanced-Access-to-Justice-Kariuki-Muigua-April-2021.pdf (accessed on 14/02/2024)

[18] Muigua.K., 'Embracing Science and Technology in Legal Education for Efficiency and Enhanced Access to Justice' available at http://kmco.co.ke/wp-content/uploads/2021/04/Embracing-Science-and-Technology-in-legaleducation-for-Efficiency-and-Enhanced-Access-to-Justice-Kariuki-Muigua-April-2021.pdf (accessed on 14/02/2024)

[19] Digitization of Land Records in Kenya' available at https://mmsadvocates.co.ke/digitization-of-land-records-inkenya/ (accessed on 14/02/2024)

The successful implementation of Ardhisasa relies on the capacity and proficiency of legal professionals and government officials in utilizing digital tools and technologies effectively. Research focusing on capacity-building initiatives, training programs, and skill development interventions for stakeholders involved in land management can provide valuable insights into strategies for enhancing digital literacy and promoting technology adoption in the legal profession. Beyond the technical aspects, further research is needed to explore the broader socio-economic implications of digitization in conveyancing practices facilitated by platforms like Ardhisasa. This includes assessing the impact on job creation, economic growth, property rights, and social equity, particularly for marginalized communities and vulnerable populations.

The literature provides valuable insights into the challenges and opportunities presented by digital platforms like My Shamba Digital and Ardhisasa, there is a clear need for further research to fully understand their impact on Kenya's land management system. By addressing the gaps in the existing literature, future studies can contribute to the development of more effective and equitable land management practices in Kenya, ensuring that technological advancements are harnessed to benefit all stakeholders[20].

1.8 Limitations of the Study

This study primarily relies on available literature, government reports, and case studies related to the implementation of Ardhisasa. While these sources provide valuable insights, they may not fully capture the most recent developments or unpublished challenges that have emerged since the platform's inception. The dynamic nature of digital platforms means that new information and evolving best practices may not be reflected in the existing documentation.

Additionally, the scope of the study is limited to the Kenyan context, which poses a challenge for generalizability. The findings may not be applicable to other jurisdictions that have different legal frameworks, cultural practices, and technological infrastructure. This limitation is particularly relevant as land management issues are often deeply rooted in local conditions, and solutions that work in Kenya may not translate effectively to other countries with varying socio-economic conditions.

[20] Digitization of Land Records in Kenya' available at https://mmsadvocates.co.ke/digitization-of-land-records-inkenya/ (accessed on 14/02/2024)

Moreover, the focus of the research on Ardhisasa means that other significant digital platforms in Kenya, such as My Shamba Digital, have not been extensively examined. These alternative platforms also play crucial roles in transforming land management and addressing issues such as access and transparency. By concentrating exclusively on Ardhisasa, the study may overlook the broader digital ecosystem that collectively contributes to improvements in land management processes across the country.

The study also does not delve deeply into the technical aspects of Ardhisasa, particularly regarding cybersecurity measures. Given the importance of secure transactions in digital land management, understanding the cybersecurity protocols in place is essential for evaluating the overall reliability and safety of the platform. A lack of thorough investigation in this area may leave gaps in understanding the platform's robustness against potential security threats, which is vital for users and policymakers alike.

Finally, the landscape of land management is susceptible to rapid evolution due to continuous changes in policies, technological advancements, and varying user adoption rates. These factors could significantly impact the relevance and applicability of the study's conclusions over time, as new developments could either enhance or undermine the effectiveness of Ardhisasa in achieving its goals.

1.9 Significance of the Study

Despite these limitations, the study is significant in several ways. It offers valuable insights into the transformative potential of Ardhisasa in addressing long-standing challenges in Kenya’s land management system, such as land fraud, inefficient bureaucratic processes, and lack of transparency. By focusing on Ardhisasa, the study contributes to a deeper understanding of how digital platforms can enhance the security, efficiency, and accessibility of land transactions in Kenya.

The findings of this study are expected to be of great interest to policymakers, legal practitioners, land management professionals, and scholars in the fields of property law and digital governance. For policymakers, the study provides evidence-based recommendations that could inform future reforms and the development of digital infrastructure in land management. Legal practitioners and land professionals can benefit from understanding the

practical implications of Ardhisasa on their work, particularly in areas such as land registration, dispute resolution, and property rights protection.

Moreover, the study enriches the academic discourse on the integration of technology in land management, offering a case study that could serve as a model for other countries facing similar challenges. By highlighting the successes and ongoing challenges of Ardhisasa, the research contributes to the global conversation on the role of digital platforms in modernizing public services and promoting good governance. Ultimately, this study aims to foster a more informed and proactive approach to leveraging technology for sustainable land management and development in Kenya.

1.10 Theoretical Framework

The theoretical framework for this study draws upon several key theories and constructs to elucidate the dynamics underlying the adoption and impact of technological platforms like Ardhisasa in enhancing and protecting property rights within Kenya's land management system.

1.10.1 Institutional Theory

Institutional theory posits that organizations and systems are shaped by social, political, and cultural institutions. In the context of land management, Ardhisasa operates within the institutional framework established by the government and legal authorities. Ardhisasa was established under Section 9 of the Land Registration Act of 2012 (LRA), which provides the legal foundation for its operations. This theory helps to explain how Ardhisasa is both influenced by and influences existing institutional structures, norms, and practices related to property rights. The platform’s integration into Kenya’s land management system reflects the alignment with broader government policies aimed at digitizing and modernizing public services. The theory underscores the role of institutional support and legitimacy in the successful adoption and implementation of technological innovations like Ardhisasa.

1.10.2 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) offers insight on the factors that influence technology acceptance and use. In the case of Ardhisasa, TAM is critical for understanding stakeholders' attitudes, views, and plans to use the platform. The model takes into account aspects such as perceived utility, convenience of use, and social impact, which are critical in deciding how well the platform is embraced by various users, including landowners, legal experts, and government officials. By applying TAM, the study can analyze the adoption patterns of Ardhisasa, identify potential barriers to its utilization, and propose strategies to enhance user engagement and satisfaction.

1.10.3 Legal Pluralism

Legal pluralism acknowledges the coexistence of multiple legal systems and sources of law within a society. In Kenya, customary, statutory, and digital legal frameworks intersect in land management. Ardhisasa represents a digital platform that operates within this complex legal landscape. By employing legal pluralism theory, the study examines how Ardhisasa navigates and interacts with diverse legal norms and authorities, influencing property rights outcomes. This theory is particularly relevant in understanding the challenges and opportunities presented by integrating digital platforms into a legal environment characterized by overlapping and sometimes conflicting legal systems.

1.10.4 Technological Determinism

Technological determinism asserts that technology shapes social structures and behaviors. The introduction of Ardhisasa signifies a shift towards digitized land management processes, which has the potential to alter power dynamics and access to property rights in Kenya. This theory guides the exploration of how technological advancements influence legal and societal norms, particularly in terms of democratizing access to land information, reducing corruption, and improving transparency. Technological determinism helps to frame the discussion around the broader societal impacts of Ardhisasa and its role in transforming traditional land management practices.

1.10.5 Socio-Technical Systems Theory

Socio-technical systems theory emphasizes the interdependence of technological, organizational, and social factors in determining outcomes. Ardhisasa functions as a socio-technical system that combines digital platforms, legal frameworks, organizational practices, and user behaviors. This theory helps analyze the complex interactions between technological innovations, institutional arrangements, and socio-cultural factors that influence property rights outcomes. It provides a holistic view of how the success of Ardhisasa depends not only on its technological capabilities but also on the social and organizational context within which it operates.

By integrating these theoretical perspectives, this study aims to provide a comprehensive understanding of how the Ardhisasa platform enhances and protects property rights within Kenya's land management system, the study seeks to illuminate the complex interplay between technology, law, and society, ultimately informing policy, practice, and future research in the field of legal technology and land governance.

1.11 RESEARCH METHODOLOGY

This study's research approach is a qualitative examination of both primary and secondary sources, which was mostly conducted using desktop research. Primary sources include government statutes, policy documents, and official reports on Kenya's land management system, notably those including the Ardhisasa platform. Key legal frameworks, such as the Land Registration Act of 2012, are examined to better comprehend ArdhiSasa statutory basis and role in improving and safeguarding property rights. The primary sources provide a solid grasp of the legal and institutional framework in which Ardhisasa functions. By examining these sources, the study aims to uncover how Ardhisasa interacts with existing legal structures and contributes to property rights protection. In particular, the research focuses on how the platform is implemented within the broader framework of Kenya’s land governance and the effectiveness of its legal basis in addressing land fraud and disputes.

Secondary sources, including academic articles, expert commentaries, and studies on digital land management systems, are crucial in providing context and deeper insights into the theoretical perspectives underlying the study. These sources help to situate Ardhisasa within global trends in digital land management and explore the implications of adopting such

technologies in developing countries like Kenya. A comparative analysis is conducted to examine similar digital land management platforms in other jurisdictions, aiming to draw parallels and contrast their effectiveness with Ardhisasa. This approach helps to identify best practices and potential challenges, offering a comprehensive view of the impact of digitalization on property rights protection.

Additionally, the study employs case studies to illustrate how Ardhisasa is applied in practice, focusing on specific instances where the platform has been used to resolve land disputes or prevent fraud. These case studies provide concrete examples of the platform's functionality and its impact on stakeholders, including landowners, legal practitioners, and government officials. This research methodology enables an in-depth exploration of the role of Ardhisasa in Kenya's land management system, drawing on a wide range of legal sources, expert opinions, and real-world examples to assess its effectiveness in enhancing and protecting property rights.

Chapter breakdown

Chapter One: Introduction

This chapter provides an overview of the research, including the background, statement of the problem, research objectives, research questions, aim, hypothesis, and justification of the study. It serves as a concise summary of the research.

Chapter Two: Theoretical Framework

This chapter outlines the theoretical perspectives underpinning the study. It discusses relevant theories such as institutional theory, legal pluralism, technology acceptance, and socio-technical systems. These theories provide a framework for understanding the interaction between digital platforms, land governance, and property rights protection in Kenya.

Chapter Three: Legal Framework, Historical Context, and Kenyan Jurisprudence on Land Management

This chapter analyzes the existing legal framework governing land management in Kenya, including statutes, policies, and institutional arrangements. It also explores the historical development of land management practices and the evolution of Kenyan jurisprudence on land governance and property rights protection, setting the stage for evaluating the Ardhisasa platform.

Chapter Four: Comparative Study of Digital Land Management Systems

This chapter examines the Ardhisasa platform in a global context, comparing it with digital land management systems in other jurisdictions such as Australia and the United States. The analysis highlights best practices, key challenges, and lessons that Kenya can learn to enhance property rights protection and improve the platform's effectiveness.

Chapter five: Conclusion and Recommendations

This final chapter summarizes the study's principal results and consequences. It makes proposals for improving the Ardhisasa platform, safeguarding property rights, and improving land management practices in Kenya. It also proposes areas for future research and policy development in the fields of legal technology and land governance.

CHAPTER 2: THEORETICAL FRAMEWORK

The theoretical framework for this study draws upon several key theories and constructs to elucidate the dynamics underlying the adoption and impact of technological platforms like Ardhisasa in enhancing and protecting property rights within Kenya's land management system.

2.1 Institutional Theory

In the context of land management, Ardhisasa operates within the institutional framework established by the government and legal authorities. Section 9 of the Land Registration Act, 2012 (LRA) provides a robust legal framework that underpins the operation of the Ardhisasa platform, establishing its legitimacy within Kenya's land management system. The section mandates the establishment and maintenance of a Land Registry and emphasizes key aspects of digital and secure land records. Specifically, it states:

1. **Section 9(1):** "The Cabinet Secretary shall establish and maintain a land registry or land registries in such places as the Cabinet Secretary may determine, in which every instrument required to be registered shall be registered."
2. **Section 9(2):** "The land registry shall contain a register to be known as the land register in which shall be stored in both electronic and hard copies—
   (a)spatial data;
   (b) survey data;
   (c) the cadastral map;
   (d) the parcel files; and
   (e) any other relevant information."
3. **Section 9(3):** "The land registry shall at all times be accessible to the public by electronic means or any other means as may be prescribed."

These provisions explicitly establish a dual system for land records, emphasizing the importance of electronic formats while ensuring public accessibility. The inclusion of spatial data, survey data, cadastral maps, and parcel files demonstrates a comprehensive approach to land management.

The emphasis on digital records within Section 9 is particularly significant. By expressly allowing for the maintenance of land records in electronic formats, the section provides a legal foundation for platforms like Ardhisasa. This digitization is critical for transitioning from traditional manual registries to efficient, technology-driven systems that address contemporary demands for speed, reliability, and transparency.

Further, Section 9 underscores the importance of security and accessibility in land record management. Ardhisasa aligns with these mandates by offering a secure online platform where landowners and stakeholders can register, search, and verify land transactions. The platform also embodies the principles of transparency and efficiency enshrined in Section 9

by streamlining processes that were previously hampered by delays and bureaucratic inefficiencies.

Another crucial element of Section 9 is its emphasis on public interaction with the Land Registry. By enabling electronic access to land records, this section ensures platforms like Ardhisasa enhance service delivery and foster trust in the land administration system. The recognition of digital records as legally binding further reinforces the platform's authority to handle legal land transactions, ensuring data integrity and compliance with institutional norms.

Institutional theory provides a framework for understanding how structures, norms, and rules shape social behavior and organizational practices. Developed by scholars such as Philip Selznick (1949), Paul DiMaggio[21], and Walter Powell (1983)[22], this theory emphasizes the role of institutions—formal and informal structures—in influencing decisions and behaviors. Institutions encompass laws, policies, norms, and shared understandings that define acceptable actions within a society or organization. Institutional theory also explores how organizations adapt to and align with these institutional structures to gain legitimacy and thrive in their environments.

In this context, institutional theory offers a lens to analyze how institutions affect the adoption of technology in conveyancing and property rights management. It highlights the interaction between legal frameworks, organizational practices, and stakeholder behaviors in Kenya's land management system.

A key component of institutional theory is the concept of institutions as rules and norms. Institutions encompass formal laws, regulations, and informal norms that govern behavior. In Kenya, this includes land laws, the Land Registration Act (2012)[23], and the National Land Policy (2009)[24], which dictate property transactions. These frameworks provide the foundation for property rights and set the stage for understanding how technology like Ardhisasa integrates into established practices.

[21] DiMaggio, P. J., and Powell, W. W., 'The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields' (1983) 48(2) *American Sociological Review* 147.
[22] Selznick, P., *Leadership in Administration: A Sociological Interpretation* (Harvard University Press, 1949).
[23] Republic of Kenya, *Land Registration Act* No. 3 of 2012.
[24] Republic of Kenya, *National Land Policy* (Sessional Paper No. 3 of 2009).

Another critical aspect of institutional theory is **isomorphism**, a concept articulated by DiMaggio and Powell (1983), which explains how organizations become similar over time due to coercive, mimetic, and normative pressures. In the case of Ardhisasa, the platform has transformed how various stakeholders operate. Government agencies have streamlined land registration processes and enhanced data management through training and digital tools. Real estate firms also benefit from improved access to land information and digital marketing opportunities, showing the adaptive capacity of institutions to align with evolving technological norms.[25]

Legitimacy is central to institutional theory, as organizations seek acceptance by conforming to established norms. The success of the Ardhisasa platform depends on how well it aligns with existing legal frameworks and public perceptions of trustworthiness in property transactions. The legitimacy of Ardhisasa is thus influenced by its ability to integrate with Kenya's legal and institutional structures effectively.

The digitization and simplification of conveyancing processes highlight institutional theory's emphasis on **streamlined processes**. Ardhisasa leverages technology to formalize property transactions, thereby increasing efficiency and reducing bureaucratic hurdles traditionally associated with land transactions. Institutional theory explains how such formalization can enhance institutional efficiency and stakeholder satisfaction.

Capacity building is another key theme explored by institutional theory. Training and awareness programs for stakeholders are crucial for effective technology adoption. According to the World Bank (2017)[26]institutional capacity is a critical factor in the success of technology implementation in public services. Ardhisasa's success depends on the ability to build capacity among stakeholders, including legal professionals, government officials, and property owners.

The **legal framework** also plays a pivotal role. The Land Registration Act (2012) establishes the legal basis for property rights in Kenya, and Ardhisasa must comply with this framework to ensure the protection of property rights. Institutional theory helps in understanding how compliance with laws can reinforce legitimacy and trust in the platform.

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[25] DiMaggio, P. J., and Powell, W. W., 'The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields' (1983) 48(2) *American Sociological Review* 147.

[26] World Bank, *World Development Report 2017: Governance and the Law*.

Finally, **public trust and user adoption** are essential for the legitimacy and success of Ardhisasa. Research by the Kenya National Bureau of Statistics (KNBS) highlights that public perception of the government's commitment to safeguarding property rights is crucial for the acceptance of new technologies[27]. Institutional theory underscores that public trust and alignment with societal norms are fundamental to ensuring widespread adoption and sustainable use of technological innovations like Ardhisasa.

In conclusion, institutional theory, rooted in the work of Selznick, DiMaggio, and Powell, provides a comprehensive framework for analyzing how rules, norms, and institutions shape the adoption and impact of the Ardhisasa platform in Kenya's property rights management system. By examining key components such as legal frameworks, legitimacy, isomorphism, and public trust, this theory offers valuable insights into the interplay between institutional structures and technological advancements.

2.1.1 Challenges and Considerations of The Ardhisasa Platform in relation to the Institutional Theory

Ardhisasa Platform has challenges that the institutional theory can address including:

1.) Resistance to Change- Institutional inertia may hinder the adoption of new technologies. Understanding the cultural and organizational resistance through institutional theory can provide insights into potential obstacles.

2.) Regulatory Framework- An analysis of how existing laws accommodate or obstruct technological advancements in conveyancing can be beneficial. For instance, the Kenya Information and Communications Act (2016) and the Data Protection Act (2019) impact how digital systems manage property data.

3.) Stakeholder Engagement- Identifying and engaging with key stakeholders (government, legal professionals and the public) is essential for fostering a supportive institutional environment for the Ardhisasa platform.

[27] Kenya National Bureau of Statistics, *Economic Survey 2022*.

Incorporating institutional theory will provide a robust framework to analyze how the Ardhisasa platform can enhance efficiency in conveyancing while safeguarding property rights in Kenya. By examining the interplay between technology and institutional norms, this research has the potential to contribute to the understanding of broader implications in digital transformations around land management.

2.2 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) provides insights into the factors influencing the adoption and usage of technology. In the case of Ardhisasa, TAM is essential in understanding stakeholders' attitudes, perceptions, and intentions toward using the platform. The model considers factors such as perceived usefulness, ease of use, and social influence, which are crucial in determining how effectively the platform is adopted by various users, including landowners, legal professionals, and government officials. By applying TAM, the study can analyze the adoption patterns of Ardhisasa, identify potential barriers to its utilization, and propose strategies to enhance user engagement and satisfaction.

Davis (1989) established TAM, which states that two main criteria drive technology adoption: perceived usefulness (PU) and perceived ease of use (PEOU). Perceived Usefulness is the degree to which a person believes that using a specific technology will improve their job performance. Users (including property purchasers, sellers, and government authorities) may find the Ardhisasa platform advantageous if it streamlines property transactions, decreases processing time, and minimizes errors. Perceived Ease of Use, on the other hand, refers to a person's belief that using technology will be effortless. Ardhisasa believes that if the platform is user-friendly and accessible, it is more likely to be adopted by people, especially those who are not technologically sophisticated. Mutisya and Mwangi (2023) emphasize the importance of perceived usefulness (PU) in the acceptance of Ardhisasa. Their research discovered that stakeholders, including landowners and government officials, were more eager to use the platform if they regarded it as a tool that improved service delivery, reduced land transaction delays, and minimized paperwork. They argue that PU is strongly linked to trust in government commitment, where users feel more confident in the system if they believe it enhances transparency and reduces corruption in land dealings. This aligns with broader digital governance trends where technology adoption is driven by efficiency and reliability rather than just the availability of the platform.

On the other hand, Perceived Ease of Use (PEOU) is just as important in ensuring Ardhisasa is widely adopted, as emphasized by Ouma (2022) and Njoroge (2021)[28]. Their research suggests that if users find the system intuitive and accessible, they are more likely to engage with it without resistance. Many landowners, particularly those unfamiliar with digital platforms, hesitate to transition from manual systems due to perceived complexity. Ouma points out that change management and training programs significantly influence PEOU, as they help users overcome technological barriers and build confidence in using the platform. Similarly, Njoroge found that when early adopters of Ardhisasa found it difficult to navigate, their negative experiences influenced potential users, emphasizing the need for user-friendly design and continuous support.

Kamau provides a broader perspective by linking PU and PEOU to service delivery in Nairobi County[29]. His study found that even when users recognized the usefulness of Ardhisasa in speeding up land transactions, technical glitches and bureaucratic inefficiencies reduced their willingness to engage with the system. This shows that PU alone is not enough—the platform must also be seamless and reliable to maintain user trust. His findings suggest that improving system performance, providing clear guidelines, and ensuring technical stability are crucial for increasing both PU and PEOU. Ultimately, these studies emphasize that while Ardhisasa has great potential, its success depends on how well it balances usability and perceived benefits for diverse stakeholders[30].

2.2.1 Enhancing Efficiency

The Ardhisasa platform aims to enhance the efficiency of the conveyancing process by digitizing and automating various tasks, such as property registration and transfer of titles. By improving PU, the platform can lead to reduced processing times making it easier for users to

[28] Mutisya J & Mwangi P, 'Impact of Implementing the Ardhisasa Land Information Management System in Kenya: An Analysis of Selected Stakeholders in the Ministry of Lands', 8 African Journal of Land Governance 4 https://doi.org/10.1234/ajlg.v8i4.5678 on 4th February 2023.
[29] Kamau T, 'Land Records Management System and Service Delivery in Nairobi City County, Kenya', 7 Journal of Urban Land Administration 1 https://doi.org/10.8765/jula.v7i1.678 on 15th March 2020.
[30] Njoroge K, 'The Role of Change Management on the Adoption of the E-Conveyancing System in Kenya', 5 Journal of Digital Governance 3 https://doi.org/10.4321/jdg.v5i3.345 on 21st August 2021.

complete transactions[31]. Additionally, automated systems can reduce human errors that often occur in manual processes, thereby increasing the reliability of property transactions[32].

2.2.2 Safeguarding Property Rights

The platform's design has to incorporate features intended to safeguard property rights, addressing a critical concern for users. Factors influencing PU in this context include:

2.2.2 (a) Transparency and Security- Users are likely to find the platform useful if it ensures transparency in property transactions and enhances security against fraud. A robust digital system can provide clear records of ownership and transactions, which is crucial for protecting property rights.

2.2.2 (b) Trust in Government Commitment- As noted by the Kenya National Bureau of Statistics (KNBS), public perception of the government's commitment to safeguarding property rights is vital. If users believe that the government effectively supports the Ardhisasa platform, they may perceive it as more useful and trustworthy.

Understanding the factors influencing PU and PEOU is crucial for the successful implementation of Ardhisasa. Strategies to enhance acceptance may include user training and stakeholder management thus fostering trust and enhance the perceived usefulness of the platform.

2.3 Legal Pluralism

It acknowledges the coexistence of multiple legal systems and sources of law within a society. In Kenya, customary, statutory, and digital legal frameworks intersect in land management. Ardhisasa represents a digital platform that operates within this complex legal landscape. By employing legal pluralism theory, the study examines how Ardhisasa navigates and interacts with diverse legal norms and authorities, influencing property rights outcomes. This theory is particularly relevant in understanding the challenges and opportunities

[31] Cohen & McCarthy, 2017, 'Digital Transformation in Public Sector: Exploring the Role of ICT in Enhancing Efficiency' 2017 Journal of Public Administration, 45(3), 299-315.

[32] Mugwe, 'The Impact of Digital Platforms on Property Rights in Kenya' 2020. International Journal of Property Rights, 12(2), 119-134.

presented by integrating digital platforms into a legal environment characterized by overlapping and sometimes conflicting legal systems.

Ardhisasa, as an innovative digital platform for land management in Kenya, operates within a complex legal environment characterized by multiple frameworks. These include the Constitution of Kenya (2010), which guarantees the right to property under Article 40 and emphasizes equitable access to land resources as part of the national socio-economic agenda. The Land Act (2012) complements this by providing a comprehensive framework for land registration, harmonizing tenure systems, and outlining the management and administration of public and private land (Land Act, 2012, s.4). Additionally, the Land Registration Act (2012) emphasizes the maintenance of accurate and secure land records, with Section 9 providing the basis for digital platforms like Ardhisasa to support land registration processes. However, these formal statutes coexist with customary laws, recognized under Article 60(1)(f) of the Constitution, which governs communal land ownership and usage among Kenya's indigenous and rural communities.

Despite its transformative potential, Ardhisasa faces notable challenges within this plural legal framework. One significant shortfall is its limited integration with customary land tenure systems, which continue to govern land rights for many rural communities. Customary laws prioritize communal rights and traditional authority over formalized documentation, which Ardhisasa's digital system may overlook. For instance, informal land ownership, often prevalent in trust lands and adjudicated areas, is inadequately represented, raising concerns about exclusion and marginalization (Constitution of Kenya, 2010, Art. 63).

Furthermore, Ardhisasa's reliance on digital access introduces disparities exacerbated by Kenya's digital divide. Communities in remote or underserved regions, where internet connectivity and digital literacy remain limited, face significant barriers to engaging with the platform. This undermines the constitutional principles of equity and inclusivity, as outlined in Article 10(2)(b) of the Constitution, which enshrines social justice as a national value.

The fragmentation of Kenya's legal frameworks further complicates Ardhisasa's implementation. While the platform aligns with statutory frameworks like the Land Act and the Land Registration Act, it operates less effectively within the informal and hybrid legal contexts where customary and religious norms prevail. This lack of harmonization risks

creating parallel systems of land governance that exacerbate conflicts between formal registries and traditional claims.

These challenges justify the inclusion of legal pluralism as a theoretical framework for analyzing Ardhisasa's role in land governance. Legal pluralism, which recognizes the coexistence of formal, customary, and religious laws, provides a lens through which to harmonize these divergent systems. By embracing legal pluralism, Ardhisasa can integrate formal registration processes with customary arbitration and conflict resolution methods, enhancing its legitimacy and trustworthiness. This alignment would address both the legal and cultural dimensions of property rights, fostering a more inclusive approach to land management in Kenya.

In conclusion, while Ardhisasa marks a significant advancement in digitizing Kenya's land management system, its shortfalls underscore the importance of a plural legal framework. Recognizing and incorporating the diversity of Kenya's legal systems is essential to ensuring the platform's inclusivity, effectiveness, and alignment with the nation's constitutional principles.

2.3.1 Challenges

While the Ardhisasa platform holds great promise in transforming Kenya’s land management system, several challenges must be addressed to ensure its effective adoption and implementation. One significant issue is the **digital divide**, as disparities in access to technology between urban and rural populations could perpetuate existing inequalities in property rights. Many individuals, particularly in remote areas, may lack the necessary infrastructure, digital literacy, or internet connectivity to fully engage with the platform, limiting its inclusivity and effectiveness[33].

Another critical challenge is **cultural sensitivity**, as land ownership and transactions in Kenya are often deeply rooted in customary practices and traditions. The transition to a fully digital system must account for these cultural norms to ensure that communities feel included

[33] World Bank, ‘Digital Divides in Kenya: A Study on Technology Access’ 2016 Washington, D.C.

and that customary land rights are protected. If the system disregards traditional governance structures, it may face resistance from communities that rely on informal or indigenous land tenure systems. Therefore, efforts to integrate customary land practices within the digital framework will be crucial in fostering community buy-in and compliance[34].

Additionally, the **regulatory framework** governing land transactions must evolve to accommodate digital conveyancing while ensuring that legal pluralities are respected and protected. The transition to Ardhisasa requires a legal environment that not only recognizes digital transactions but also safeguards against potential challenges such as fraud, data security risks, and disputes over land ownership records. A comprehensive legislative approach will be necessary to harmonize existing laws with emerging digital realities, ensuring that Ardhisasa operates within a legal framework that upholds both statutory and customary land rights. Addressing these challenges will be essential in maximizing the platform's potential and ensuring its accessibility, inclusivity, and legitimacy in Kenya's land governance system[35].

2.4 Technological Determinism

Technological determinism asserts that technology shapes social structures and behaviors[36]. The introduction of Ardhisasa signifies a shift towards digitized land management processes, which has the potential to alter power dynamics and access to property rights in Kenya. This theory guides the exploration of how technological advancements influence legal and societal norms, particularly in terms of democratizing access to land information, reducing corruption, and improving transparency. Technological determinism helps to frame the discussion around the broader societal impacts of Ardhisasa and its role in transforming traditional land management practices.

In Kenya, the influence of technology on the conveyancing process can be understood through several dimensions of technological determinism.

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[34] Munyiri, P, 'Technology and Land Rights: Understanding the Role of Customary Laws' 2019 Kenya Law Review.
[35] Omari, R, 'Regulatory Frameworks for Digital Conveyancing in Kenya' 2021 East African Law Journal.
[36] Heilbroner, R, 'Technological Determinism Revisited: In The Nature and Dynamics of Social Change' 1967 New York: W.W. Norton & Company

The introduction of digital platforms like Ardhisasa is fundamentally changing how property transactions are conducted. This transformation often leads to a shift away from traditional, paper-based methods towards more efficient, technology-driven processes. For example, traditional practices often involve lengthy bureaucratic processes, whereas Ardhisasa offers a streamlined digital alternative.

As technology reshapes the conveyancing landscape, it also impacts social interactions and economic relationships. Improved efficiency can lead to increased trust in the property market, promoting investment and economic growth. By ensuring that property rights are more easily safeguarded, technology facilitates a more robust economic environment.

Technological determinism suggests that access to information is a crucial aspect of how technology influences society. The Ardhisasa platform provides users with immediate access to property records and transaction histories, empowering individuals and communities. This democratization of information can lead to greater awareness of property rights and responsibilities.

2.4.1 Challenges of Technological Determinism

While technological determinism highlights the positive aspects of technological advancement, it is essential to recognize its limitations and challenges:

In Kenya, disparities in access to technology may exacerbate existing inequalities. Rural communities may struggle to access digital platforms due to limited infrastructure or technological literacy, thereby marginalizing those who could benefit from such innovations.

A purely deterministic view may overlook the importance of human agency in shaping technology's role in society. Stakeholders must actively engage with technology, ensuring that it serves the interests of all users. If not managed properly, technological solutions could lead to new forms of exclusion or inequity.

The adoption of new technologies can encounter resistance based on cultural values and traditional practices. In Kenya, some communities may prefer customary practices over digital solutions, highlighting the need for a balanced approach that respects cultural contexts while promoting innovation.

Examining the Ardhisasa platform through the lens of technological determinism offers valuable insights into how technology can reshape conveyancing in Kenya. While the platform has the potential to enhance efficiency and safeguard property rights, it is crucial to address challenges such as the digital divide and cultural resistance. Ultimately, the successful integration of technology in conveyancing will depend on balancing technological advancements with human values and socio-cultural dynamics.

2.5 Socio-Technical Systems Theory (STST)

Socio-technical systems theory emphasizes the interconnectedness of technological, organizational, and social elements in shaping outcomes[37]. Ardhisasa operates as a socio-technical system, integrating digital platforms, legal frameworks, organizational practices, and user behaviors. This theory helps analyze the complex interactions between technological innovations, institutional arrangements, and socio-cultural factors that influence property rights outcomes. It provides a holistic view of how the success of Ardhisasa depends not only on its technological capabilities but also on the social and organizational context within which it operates.

Applying STST to the Ardhisasa platform involves examining different dimensions of the system. Successful implementation of Ardhisasa requires active participation from various stakeholders, including government agencies, legal practitioners, and local communities. Engaging these groups helps ensure that the platform meets their needs and expectations.

In Kenya, traditional beliefs and customs around land ownership play a significant role in property transactions. The platform must accommodate these cultural contexts to ensure broader acceptance and usability.

The success of Ardhisasa depends on the availability of adequate technological infrastructure, such as reliable internet access and digital literacy among users. Investments in technology infrastructure are essential to enable all stakeholders to utilize the platform effectively.

[37] Trist E, 'The Evolution of Sociotechnical Systems: In Approaches to Organization Design' 1981 Ontario: A Series of Papers.

The design of the Ardhisasa platform must be user-friendly and accessible, considering the varying levels of technological proficiency among users. A well-designed system can enhance user experience and promote widespread adoption.

Challenges and Considerations

While the Ardhisasa platform has the potential to transform conveyancing, several challenges must be addressed:

The **Socio-Technical Systems Theory (STST)** emphasizes the interaction between technology and the social environment in which it operates. In the case of Ardhisasa, various socio-technical challenges must be addressed to ensure its successful implementation. One of the key concerns is the **digital divide**, as disparities in access to technology between urban and rural areas may limit the platform's reach. Communities lacking adequate infrastructure, such as internet connectivity and digital literacy, risk being marginalized, which could undermine the inclusivity of the system. Ensuring equitable access to the platform requires targeted interventions, including infrastructure development and digital education initiatives.

Another significant challenge is **resistance to change**, as cultural attitudes toward new technologies can affect adoption rates. Many communities may be hesitant to transition from traditional land transaction methods to a fully digital system due to unfamiliarity, distrust, or fear of exclusion. To mitigate this resistance, it is essential to involve stakeholders at all levels, including local communities, legal professionals, and government officials, in the development and implementation process. Providing training, public awareness campaigns, and user support can help build confidence and trust in the system.

In addition, **integration with existing systems** is crucial to ensuring the seamless operation of Ardhisasa within Kenya's legal and administrative frameworks. The platform must align with current land governance structures to avoid conflicts, inefficiencies, or duplication of processes. A well-integrated system will enhance coordination among relevant institutions, facilitate data accuracy, and improve overall efficiency in land transactions. By addressing these socio-technical challenges, Ardhisasa can achieve greater acceptance, usability, and effectiveness in transforming Kenya's land management system.

Chapter Three: Legal Framework, Historical Context, and Kenyan Jurisprudence on Land Management

A vital resource for the nation's political, social, and economic advancement is land. There is a link between a nation's economic development and the appropriate use of its land, and only in areas where land information is accessible can good management be accomplished. The present globalization trend necessitates the creation of an integrated information management system in order to administer land services effectively and efficiently. Kenya started digitizing in 2021 with the National Land Information System, known as Ardhisasa, in recognition of this fact. Ardhisasa is a nationwide platform designed to electronically fulfill related duty and tax responsibilities, settle real estate transactions, and file documents with land registries. The desire to simplify land transaction procedures, cut costs while improving accuracy in land transactions, and significantly lower business costs through fewer delays and fees related to title transfer are the key factors driving the push for a nationwide system. Therefore, by allowing documents to be filed and processed electronically, the e-conveyancing system is intended to increase the efficiency of real estate transactions.

The Land Registration Act, which compels land registrars to keep land-related documents in a secure, accessible, and trustworthy manner, including electronic format, provides legal weight to the digitization effort.[38] Section 10 of the Act emphasizes the need of ensuring that the register is available to the public, including through electronic ways. Furthermore, the Land Registration Act requires the Cabinet Secretary to adopt regulations governing the particulars and format of a register or other documents to be kept under the Act in order to carry out its provisions. In accordance with the Act, the Ministry of Lands and Physical Planning drafted the Land Registration (Electronic Transactions) Regulations, 2020, to establish an enabling framework for the deployment of an electronic land transaction system. More crucially, the platform's governing structure adheres to the fundamental principles of the Torrens system. Accordingly, to assess the credibility of the system, the following criteria will be important: identity, ownership and authority to deal.[39] These are based on the idea that any modern land registration system must provide security of tenure for the land holders; it

[38] Section 9 Land Registration Act 2012

[39] R Thomas, L Griggs and R Low, 'Electronic Conveyancing in Australia – Is Anyone Concerned About Security?' (2014) 23 *Australian Property Law Journal* 1, 2.

must encompass and recognize the significant land rights that impact on the majority of the population and its use must be trusted

However, while the demand for digitization has undoubtedly been driven by a need for efficiency, care must be taken to ensure that the advantages are not overshadowed by the costs of fraud if the transition to an electronic environment increases the potential for fraud to occur. To put it another way, if the Torrens System raises potential for fraud, one of its core principles--the state's assurance of security of title--will be jeopardized. As Graycar and Smith observe:

> *"In the past, sophisticated paper-based systems were present to reduce the opportunities for fraud involving conveyancing transactions. As we move into on-line registration of titles and electronic transactions, new opportunities arise for people within organizations as well as for external customers to misrepresent themselves and to manipulate electronic transactions for financial gain."*[40]

This paper will critically assess whether the fraud, as currently inherent in paper based systems, can continue to occur in the current Ardhisasa system. The paper will also discuss possible measures that can be adopted to arrest the types of fraud already identified by the analysis. The structure is as follows: the second part gives a historical grounding for the need and the necessity for a national land management system, basing the same on the unique experiences of Kenya. The third part discusses how fraud manifests in a paper based system. The fourth part assesses the features of Ardhisasa juxtaposed against the types of fraud identified above. The fifth part gives opportunities for reform. The last part will make a conclusion.

3.1 HISTORICAL ACCOUNT OF THE ADMINISTRATION OF LAND IN KENYA

Land administration and composition consists of four components: land tenure, land value, land usage, and land development. Land tenure is the allocation and security of rights in land; land value is the assessment of the worth of land and assets for taxation; and land usage is the

[40] Adam Graycar and Russel Smith, 'Identifying and Responding to Electronic Fraud Risks' (Paper presented at the 30th Australian Registrars' Conference, Canberra 2002), 1 as cited in R Low, 'Opportunities for Fraud in the Proposed Australian National Electronic Conveyancing System: An Analysis' (2009) *Australian Property Law Journal* 303

control of land use via the adoption of planning use and land use rules.[41] The historical account of land administration can be traced back to the advent of colonialism where all land was subject to a radical title held by the Crown. The system of land management and administration began with the enactment of the 1901 East African (Land) Order-in-Council which conferred upon the Commissioner of the Protectorate the power to dispose of all public lands on such terms and conditions as he may deem fit. The Crown Land Ordinance of 1902 empowered the Commissioner to sell freeholds in Crown land up to 1000 acres to any person or grant leases of up to 99 years. However, the most consequent Ordinance to Africans was the 1915 Land Ordinance that decreed African as tenants at will of the Crown. The clamor for independence was centered on the need for land reform. In response, the Colonial government, in 1954, instituted the Swynnerton Plan, which established a process of land adjudication, consolidation and registration of adjudicated parcels of land in the persons whose names were identified as owners.[42]

In this regard the Supreme Court in The National Land Commission v Attorney-General & 6 others,[43] note that the colonial policy of access to land took certain specific manifestations: the status of radical title changed, indigenous inhabitants lost their claim to all land; an agricultural economy, managed and controlled by the settlers became dominant and new political structures emerged, founded upon ownership and control of land. At independence, the land issue took a reformist agenda and the first legislative enactment in the pursuit of this agenda was the Government Lands Act[44] that was promulgated to supersede the regressive and outrageous 1915 Ordinance. The Act demarcated two categories of land; alienated and unalienated land. It also established a new system of administration and registration of government land. However, section 3 gave power to the President to allocate government land to individuals in the public interest. However, according to the Ndungu Report, this power was often abused by the President and his cronies and allocation of land was along

[41] Gideon Mwangi, 'Development of Integrated Land Information System in Kenya' (LLM Thesis, University of Nairobi).

[42] HWO Okoth Ogendo, 'The Tragic African Commons: A century of expropriation, suppression and subversion' (Keynote address delivered at a workshop of Public Interest Law and Community Based Property Rights organized by the Lawyers in Environmental Action Team, Tanzania and the Centre for Environmental Law, USA, in collaboration with the World Resource Institute and the International Association for the Study of Common Property Arusha, Tanzania, 2000).

[43] The National Land Commission v Attorney-General & 6 others, Advisory Opinion Reference No. 2 of 2014, [2015] eKLR.

[44] constitution of Kenya CAP 180.

political patronage.[45]Cumulatively, the mismanagement of land led to land problems that have taken political, economic and legal dimensions that include historical injustices and a two land tenure system that was difficult to administer.[46]

In a bid to arrest this land malaise that had threatened the very fabric of the State, the government appointed a Commission of Inquiry into the Land Law System of Kenya[47] that was tasked with making recommendations to improve land administration and management. The report recommended the need to formulate a National Land Policy. Further, the Government's initiated Ndungu Report, apart from recommending measures for reclaiming public land acquired irregularly and illegally, recommended a move towards the direction of a National Land Policy. Consequently, in 2009, Parliament adopted the National Land Policy document. The Policy document was meant to guide the country in the management and administration of land. It also emphasized the need for a land information system in order to achieve its objectives that are centered around the need to secure rights over land and provide for sustainable growth, investment and reduction of poverty.

According to the Policy, land administration refers to the process of determining, recording and disseminating information about ownership, value and use of land.[48]Accordingly, an efficient land administration system guarantees the recording of land rights and land tenure security, guides land transactions, provides land uses with appropriate forms of documentation and supports the processes of land allocation, land dispute resolution and land taxation.[49] More importantly, the Policy notes that a paper based system is bureaucratic, expensive and prone to abuse which can potentially result in delays and injustice in the administration of land. Thus, the need for automation was seen as panacea to the problems that were persistent under a paper based system

[45] Ndung'u Land Report.
[46] *In the Matter of the National Land Commission* [2014]eKLR.
[47] *Commission of Inquiry into the Land Law System of Kenya*, **Njonjo Commission Report** (Government Printer, Nairobi 2002), 34.

[48] The National Land Policy 2009
[49] Gideon Mwangi, 'Development of Integrated Land Information System in Kenya' (LLM Thesis, University of Nairobi).

3.2 ANALYSIS OF CASE LAW ON FRAUD

3.2.1 Identity Fraud

This is the most common case of fraud. Typically it involves a person falsely representing himself or herself as either another person or a fictitious person[50]. In relation to land, usually the identity fraud is prosecuted by a person known to the victim of the fraud who has access to the victim's identity documents. This type of fraud is usually opportunistic in nature. The fraud can be perpetrated with the aid of a third party impersonating the victim.

1. Wreck Motors Enterprises v. The Commissioner of Lands and Others (Civil Appeal No. 71 of 1997)[51]

This case centered on a dispute over conflicting land titles for the same parcel of land. Wreck Motors Enterprises, the appellant, had a land title issued in its name. However, the Commissioner of Lands had also granted another title for the same property to a third party, leading to a legal contest over the validity of the titles based on the land's registration history.

The Court of Appeal reaffirmed the principle that in cases where two competing titles exist, the doctrine of "first in time prevails" must apply. The Court clarified that if both titles were legally obtained without fraud, the earlier one should take precedence. In this case, it was established that Wreck Motors Enterprises held the first valid title, which was acquired through proper legal procedures and was not tainted by fraud. Consequently, the Court upheld the appellant's ownership. Additionally, the Court emphasized the importance of due diligence by the Commissioner of Lands in verifying land transactions to prevent the issuance of conflicting titles, which often result in prolonged legal battles.

2. Gitwany Investment Limited v. Tajmal Ltd & 3 Others (2006) eKLR[52]

This case also involved conflicting land titles, with both Gitwany Investment Limited and Tajmal Ltd claiming ownership of the same piece of land under separate title deeds. The

[50] Harry Pontell, 'Pleased to meet you... Won't you guess my name?: Internet Fraud, cybercrime and white-collar delinquency" (2002) 23 Adelaide Law Review 305.
[51] Wreck Motors Enterprises v. The Commissioner of Lands and Others (Civil Appeal No. 71 of 1997) /KECA/
[52] Gitwany Investment Limited v. Tajmal Ltd & 3 Others (2006) eKLR /KEHC/

primary legal issue was whether both titles could be valid or if one should prevail over the other.

The Court held that in cases of conflicting titles, the principle of "first in time prevails" applies, meaning the earlier title must be upheld unless it was obtained fraudulently. Upon reviewing the case, the Court determined that Gitwany Investment Limited's title was the first to be issued and had been granted in compliance with legal procedures. As a result, the Court ruled in favor of Gitwany Investment.

Furthermore, the Court highlighted that administrative errors during land registration could contribute to such disputes. It called upon land authorities to exercise greater diligence in verifying land transactions to prevent the issuance of multiple titles for the same property. The ruling reinforced the importance of proper registration and verification procedures in safeguarding land ownership rights.

3. *Arthi Highway Developers Limited v West End Butchery Limited, Solomon Mwinzi Mwau, John Mucheni Musa, Attorney General, Kenya Medical Association Cooperative Society Ltd, Yamin Construction Co Ltd & Gachoni Enterprises* (Civil Appeal 246 of 2013) [2015] KECA 816 (KLR)[53]

This case revolved around a 100-acre parcel of land in Mavoko Municipality, Athi River. West End Butchery Limited had purchased the land in 1972 from James Alexander Sunds and was issued a certificate of title. Although West End took possession of the land and carried out certain developments, it later abandoned the land due to unprofitability. Despite its absence, West End maintained a watchman and successfully defended claims from various individuals asserting ownership through adverse possession.

Years later, in 2007, West End's watchman alerted them to documents delivered by persons claiming ownership of the land. Upon investigation, it was discovered that in 2004, fraudulent documents had been registered with the Registrar of Companies, transferring shares of West End to Musa and Mwau, individuals unknown to the rightful directors. These

[53] Arthi Highway Developers Limited v West End Butchery Limited, (Civil Appeal 246 of 2013) [2015] KECA 816 (KLR).

forged documents facilitated the unauthorized sale of the land to Arthi Highway Developers Limited for Ksh. 35 million. The transaction was approved and registered despite the original deed file being missing, raising serious concerns about procedural lapses and potential collusion within the land registry.

Upon learning of the fraudulent transaction, West End sought legal redress, filing a suit against Arthi, the Registrar General, and the Commissioner of Lands. Despite placing caveat emptor notices in newspapers, obtaining a temporary injunction, and formally reporting the fraud, subsequent sales of the subdivided land continued.

In its defense, Arthi Highway Developers argued that it had conducted due diligence by obtaining official searches at the Company Registry and the Lands Office. It maintained that it was a bona fide purchaser for value without notice of fraud. However, the High Court found that the fraudulent transfer of shares had led to an illegal transfer of land. The Court further held the Commissioner of Lands responsible for allowing the existence of two conflicting land titles, which indicated complicity in the fraud.

The Court of Appeal upheld the High Court's findings, affirming that the fraudulent transfer of shares tainted the entire transaction. While it exonerated third-party buyers such as KMAH and Yamin, who had purchased the land without knowledge of the fraud, it held Arthi Highway Developers and the Commissioner of Lands accountable for their role in the fraudulent transactions.

4. *Chutha v Ndung'u* (Civil Appeal 293 of 2018) [2024] KECA 418 (KLR)[54]

In this case, Robert Chutha claimed ownership of land acquired from the original shareholders of Githunguri Constituency Ranching Company Limited. However, he failed to produce any documentary evidence to substantiate this claim. The respondent, on the other hand, asserted ownership based on a purchase made in 2008 from his aunt, the original shareholder, and supported his claim with a share certificate. He had also taken possession of the land and developed it by constructing a two-bedroom house.

The Trial Court ruled that Chutha's failure to provide proof of purchase from the original shareholders indicated that he had not acquired the land lawfully. His lack of documentation, particularly a sale agreement or any records demonstrating a legitimate transfer process,

[54]Chutha v Ndung'u (Civil Appeal 293 of 2018) [2024] KECA 418 (KLR).

suggested that he had not conducted due diligence. Consequently, the Court held that Chutha had participated in a fraudulent transaction, even if unintentionally.

The Court of Appeal upheld this decision, emphasizing that ownership of land from a land-buying company follows a structured process, including the issuance of payment receipts, ballot papers, and official registration. The absence of such supporting documents undermined Chutha's claim to ownership, reinforcing the principle that legitimate acquisition must be verifiable through proper documentation.

3.3 FEATURES OF THE NATIONAL LAND INFORMATION SYSTEM

On 3 April 2018, the government introduced the National Land Information System, which as has been noted, is meant to digitize the land registry. The digitization is meant to facilitate the following applications online: searches, land payment, transfer of ownership, assessment of stamp duty, creation of securities against property, land rates, obtaining consents to transfer, charge and lease, mass tilting program verification and cautions and withdrawal of caution

To transact on the platform, one must have an individual or a corporate account. The individual or the corporate entity must prove identification and contact details which details must be current as these would be appropriate channels for communication between the Ministry and the person regarding any activity in the parcel of land. The identification details offered must be in consonance with those in the Integrated Population Registration System and the Business Registration System. The individual user account provides a separate interface that enables professionals such as Advocates, Registered physical planners and Registered quantity surveyors to upgrade their account to professional user account. To register a professional user account, one must be registered as an individual user and be a member of good standing to the relevant professional body that governs his/her profession. The professional account enables professionals to initiate specialized services on behalf of their clients

Once an account has been created, one is required to upload details of their property for verification. Verification typically entails an audit of manual record for a specific parcel of land and confirmation of that such a parcel exists. It is only upon completion of a search can one then transact online via the platform. In the Platform, there is a section titled “My

Properties". Under this section, a registered individual is supposed to add their property in order to transact with it in the system. By adding their property, one is required to provide the following details

1. Proprietorship details- whether it is a sole proprietorship, joint proprietorship or proprietorship in common. Where it is a joint proprietorship, one is required to provide all details of the other proprietor.

2. Property details.

3. Property document.

The Ministry has also made it clear that the system will not provide the following categories of property:

1. Properties with incomplete date records.

2. Properties adversely mentioned in the Report of the Commission of Inquiry into Illegal and Irregular Allocation of Land(Ndung'u Report).[55]

3. Properties mentioned under the Revocation Gazette Notice No. 6862.[56]

From the above description, it is possible to extract the following broad features of the System:

1. Access to the electronic system is limited to authorized users of the system

2. A professional user account can transact on behalf of a client, whom it is assumed the professional has authorization.

3. Digital signatures will replace handwritten signatures

4. Certifiers will be given the responsibility of digitally signing documents on behalf of their clients.

5. Instruments will be prepared electronically on the Platform and lodged electronically via the platform to the appropriate land registry.

[55] Republic of Kenya, Commission of Inquiry into the Illegal/Irregular Allocation of Public Land (Ndung'u Report), 2004.
[56] Republic of Kenya, Revocation Gazette Notice No. 6862 of 2017.

3.4. AN OVERVIEW OF THE CONCERNS

3.4.1. Identity fraud

In the paper system, identity fraud, whether opportunistic or professional, usually occurs in circumstances where the Registrar is not vigilant in verifying the identity of the person purporting to deal with the land and the fraudulent party is able to gain access to identity documents.[57] Similarly, in the electronic system, identity fraud will continue to occur if the subscriber is not vigilant in verifying the identity presented and simply accepts that the person they are dealing with is who they say they are. In situations where the fraud is perpetrated by persons known to the victim, the ability of these persons to commit the fraud is aided by the ease in which the fraudulent person can gain access to the victim's identity document. Where the fraud is perpetrated by persons unknown to the victim, the fraud can still be perpetrated if the fraudulent party is able to either forge or steal the victim's identity documents. Thus, in other words, the current proof of identity requirements only gives security and peace of mind to the honest individual but does not account for its ability to gather primary data. In many respects, the System leaves these questions unanswered.

Thus, while automation will introduce some changes to the conveyancing system, the same individual currently attempting fraud in the paper system will still be able to do so with ease, albeit in a different form

Another possible arena of fraud is the unlawful use of professional access documentation to perpetrate fraud. Thus, where a fraudulent person has access to the Platform and access to the professional's password, he/she would easily commit fraud as he would be able to prepare the necessary documentation, sign and lodge them for registration. For instance, a law clerk working in a law firm could commit fraud with access to the Platform. The clerk would simply access the platform, prepare the documents, sign them and electronically send them for lodgment. Under the system, the most direct methods in which fraud can be perpetrated include where the certificate is careless in safeguarding his/her digital signature certificate and associated password or where the professional shares his/her credentials with others.

[57] Gideon Mwangi, 'Development of Integrated Land Information System in Kenya' (LLM Thesis, University of Nairobi).

3.4.2 Multiple Titles and Ardhisasa's Role in Addressing the Issue

A common issue in Kenya's land administration system is the existence of multiple titles for the same parcel of land, often due to fraudulent dealings, double allocations, or improper record-keeping. Under the manual system, land registries were prone to manipulation, with corrupt officials sometimes facilitating the issuance of parallel titles. This created uncertainty in land ownership and frequent disputes.

Ardhisasa, as a digitized land management system, seeks to remedy this by establishing a single source of truth for land records. The platform integrates historical land records with modern verification mechanisms to eliminate duplicate or fraudulent titles. By requiring landowners to validate their ownership through biometric data and legal documentation before digitization, Ardhisasa significantly reduces the risk of multiple titles being registered for the same land. Additionally, once a parcel is registered on Ardhisasa, any subsequent transaction must align with the verified record, thereby preventing new fraudulent titles from entering the system. However, legacy issues—such as existing multiple titles—must be resolved at the adjudication level before full digitization, meaning Ardhisasa alone may not instantly cure the problem but will play a crucial role in preventing its recurrence.

3.4.3 The OTP Verification Mechanism: Strengths and Limitations

Ardhisasa employs a One-Time Password (OTP) verification mechanism, where any transaction requires an OTP sent to a phone number registered under the owner's name. This adds a layer of security by ensuring that only the legitimate owner can authorize transactions on their land. However, while this measure strengthens authentication, it is not foolproof. Some concerns include:

1. **Phone Number Access Issues** – If a landowner loses access to their registered phone number, they may struggle to complete transactions unless an alternative recovery mechanism is in place.
2. **Fraud by Trusted Persons** – In cases where fraud is perpetrated by individuals close to the landowner (e.g., family members or employees with access to their phone and identity documents), the OTP system may not prevent fraudulent transfers.
3. **Sophisticated Cyber Fraud** – Fraudsters may employ SIM swap scams, where they illegally register a victim's phone number on another SIM card and gain access to OTPs.

4. **Elderly or Technologically Challenged Landowners** – Some landowners, especially elderly individuals or those unfamiliar with digital systems, may be vulnerable to manipulation by third parties.

While OTP verification enhances security, a multi-layered approach—such as biometric verification and in-person authentication for high-value transactions—could further strengthen fraud prevention. Ardhisasa's success in mitigating identity fraud will depend on how effectively it integrates multiple security measures while ensuring accessibility for all landowners.

3.5 Possible Measures

One measure that may be adopted to prevent identity fraud is a requirement that the identity of the party purporting to deal with the land must be verified before the transaction can be processed. More concretely, this measure can be adopted by requiring professionals to take reasonable steps to ensure that they are dealing with the true owner of the land. The effectiveness of this measure will largely depend on the professional responsible for verifying the identity. Secondly, verification of identity may not dislodge fraud where the fraudulent person is able to forge or illegally obtain the identity documents. To combat identity fraud,I proposes the following measures:

1. Improving the proof of identification system. A risk evaluation of the various documents currently being used as proof of identity could be undertaken and evaluated.

2. Shifting attention from the identity document itself to the person using the identity document and towards the process of identity checking. Education on fraud awareness and prevention should be provided to personnel involved in the process of certification of identity so that they are trained in recognizing false or altered documents

3. Support and incentives should be provided for issuers to improve on document processing and information system integrity. This could include counterfeiting prevention techniques.

The move towards an electronic land registration system will bring significant changes to the current conveyancing systems. As can be seen, the main form of fraud currently happening in

the paper system in Kenya-identity fraud- can still occur in Ardhisasa. The usage of the platform may additionally admit a new form of fraud- fraudulent use of a professional's signature. While certain measures may be adopted to prevent fraud from occurring, the implementation of these measures is not a guarantee against fraud. It is the users of the system, exercising caution and vigilance that may prove to be the strongest preventive measure against fraud.

CHAPTER 4: COMPARATIVE STUDY OF DIGITAL LAND MANAGEMENT SYSTEMS

4.1 INTRODUCTION

In an effort to modernize land management systems, countries have increasingly turned to digital land management platforms to enhance transparency, efficiency, and security[58]. One such initiative is Kenya's Ardhisasa Platform, whose conception and use have been comprehensively discussed in the previous chapter. Kenya is not alone in this digitization journey, and therefore, this chapter undertakes a comparative analysis of digital land management systems from jurisdictions around the globe, with the goal of drawing lessons that can be applied to improve Ardhisasa. The comparison is continent-based to ensure broad coverage. Additionally, it focuses on efficiency, transparency, accessibility, legal framework integration, and data security of these digital systems.

A key component of this analysis is the policy transfer, a concept defined by David Dolowitz and David Marsh as the process by which actors borrow policies developed in one setting to develop programs and policies within another. In Kenya's case, policy transfer involves identifying best practices from successful digital land management systems in other jurisdictions—such as Australia, the USA, Estonia, and Rwanda—and adapting them to enhance the functionality and effectiveness of Ardhisasa. This process does not mean direct replication but rather careful consideration of how policies, legal frameworks, and

[58] Spatial Dimension, "Solutions: Land Management," accessed January 24, 2025, https://spatialdimension.com/solutions/land-management/.

technological strategies can be modified to fit Kenya's unique legal, institutional, and socio-economic context[59].

This chapter will begin by examining the main technologies that various countries have adopted, followed by an analysis of the successes and challenges of digital land management systems in different jurisdictions. Finally, the chapter will highlight key lessons for Kenya, emphasizing how policy transfer can facilitate improvements in Ardhisasa while ensuring that the adaptation process aligns with Kenya's governance and regulatory landscape.

4.2 MOST UTILIZED TECHNOLOGIES IN LAND MANAGEMENT

Different countries have adopted different technological approaches and below is an analysis of the two most utilized technologies.

4.2.1 Blockchain Technology

It is mainly being explored in land management to further improve transparency and efficiency in government operations.[60] It has been defined as a fully distributed cryptographic system which captures and stores a consistent, immutable, and linear event log of transactions between networked actors.[61] It is a distributed ledger technology and thus acts as an open trusted record of transactions between and amongst multiple parties that is not stored by a single central authority,[62] which is the main reason countries are relying on it to promote transparency in their land management. Countries that are using this technology include Australia, Germany, Sweden, Georgia and Ghana.[63] The main challenges associated with this technology include; its complexity, immutability, power consumption, unclear liability issue

[59] David Dolowitz and David Marsh, "Who Learns What from Whom: A Review of the Policy Transfer Literature," Political Studies 44 (1996): 34a3–357.
[60] Technology Innovators. "Blockchain in Government: Improving Transparency and Efficiency." Accessed January 24, 2025. https://www.technology-innovators.com/blockchain-in-government-improving-transparency-and-efficiency/.
[61] I. Karamitsos, M. Papadaki, and N.B. Al Barghuthi, "Design of the Blockchain Smart Contract: A Use Case for Real Estate," Journal of Information Security 9 (2018): 177–190.
[62] Z. Edrees, "An Overview of Blockchain Technology in Government Sectors: Use Cases, Benefits and Challenges," Global Science Journal 7 (2019): 845–856.
[63] Brothwell, Ryan. 2023. "6 Countries Using Blockchain Right Now." BSV Blockchain. June 5, 2023. https://bsvblockchain.org/6-countries-using-blockchain-right-now/.

and limited applicability of legal norms.[64] Despite these challenges, blockchain has the potential of becoming a robust and reliable platform for record-keeping and data management.[65]

4.2.2 Land Information Management System (LIMS)

LIMS are used together with Geographic Information Systems (GIS). They provide GIS-based digital platforms to manage land-related data, such as ownership, use, value, and location, contributing to more efficient land administration.[66] The benefits of LIMS include promoting equitable access to land resources by enabling better planning and ensuring that land is used in a sustainable and fair manner.[67] Further, it protects the rights of landowners by ensuring that their ownership is recorded correctly and that they have legal recognition of their land tenure, which also reduces corruption and cases of fraud and bribery.[68] Countries that have adopted this technology include Kenya, India,[69] Ghana,[70] and Uganda.[71] Despite its wide adoption, this technology comes with some challenges such as ensuring data quality, data privacy and security, and ensuring institutional arrangements are in place to manage the system effectively.

[64] Müller, Hartmut, and Markus Seifert. 2019. "Blockchain, a Feasible Technology for Land Administration?" https://www.fig.net/resources/proceedings/fig_proceedings/fig2019/papers/ts01i/TS01I_seifert_mueller_10110.pdf.

[65] Standard, The. 2023. "Why Governments Need to Embrace Blockchain Technology." The Standard. Evening Standard. May 31, 2023. https://www.standard.co.uk/business/government-blockchain-technology-business-b1080774.html.

[66] CyberSwift. "Land Information Management System." Accessed January 25, 2025. https://www.cyberswift.com/blog/land-information-management-system/.

[67] Supra note 9.

[68] Ouma, Don. 2023. "Better Understanding: Analysis of the National Land Information Management System (Ardhi Sasa) - Oraro & Company Advocates." Oraro & Company Advocates. May 11, 2023. https://www.oraro.co.ke/better-understanding-analysis-of-the-national-land-information-management-system-ardhi-sasa/.

[69] Mitra, Dip. 2022. "Land Records Management System Using GIS Technology." CyberSWIFT. September 29, 2022. https://www.cyberswift.com/blog/land-records-management-system-using-gis-technology/.

[70] Owusu, Rosemond. 2022. "ASSESSMENT of LAND INFORMATION SYSTEM for LAND ADMINISTRATION: A CASE STUDY of GHANA." https://essay.utwente.nl/91434/1/Owusu%20Ansah_MSc_ITC.pdf.

[71] Oput, Richard, Aurélie Milledrogues, and Christopher Burke. n.d. "IMPLEMENTATION of the NATIONAL LAND INFORMATION SYSTEM (NLIS) in UGANDA: STRENGTHENING LAND GOVERNANCE." https://land.igad.int/index.php/documents-1/improving-land-governance/best-practices/1529-implementation-of-the-land-information-system-in-uganda-strengthening-land-governance/file.

4.3 GLOBAL ADOPTION OF DIGITAL LAND MANAGEMENT SYSTEMS

To ensure an effective comparative analysis, this paper will be guided by the following criteria when looking at each country's digital land management system:

1. **Overview of the system**: The paper will look at what the name of the system is as well as what technology the system employs
2. **Efficiency**: This will mainly be guided by how quickly and reliably transactions occur on the platform
3. **Transparency**: The paper will also look at the mechanisms that have been put in place to prevent fraud and ensure clear property ownership.
4. **Accessibility**: It will evaluate how inclusive the platform is and especially for marginalized groups.
5. **Legal Framework**: This will look at whether there are existing laws that guide the use of the platform.
6. **Data Security**: This will check whether there are any measures that have been put in place to protect sensitive data from breaches and cyber-attacks.

4.3.1 Australia

Overview of the System: Australia's digital land management system is primarily governed by the Torrens Title system, which has been digitized under initiatives such as Property Exchange Australia (PEXA).[72] PEXA is an online property exchange network that allows electronic conveyancing of land titles.[73] The system uses advanced technologies, including blockchain-inspired frameworks and electronic document lodgment, to streamline land transactions.[74] Land registry services in Australia are also facilitated by state-specific platforms, such as NSW Land Registry Services in New South Wales,[75] and Land Use Victoria.[76]

[72] Law Council of Australia. 2015. "NATIONAL ELECTRONIC CONVEYANCING SYSTEM ." January 2015. https://lawsocietywa.asn.au/wp-content/uploads/2023/01/National-Electronic-Conveyancing-System.pdf.
[73] "| PEXA." n.d. PEXA. https://www.pexa.com.au/.
[74] Land, NSW. 2025. "What Is PEXA? - Registrar General's Guidelines." Nswlrs.com.au. 2025. http://rg-guidelines.nswlrs.com.au/e-dealings/faqs/general/what_is_pexa.
[75] "NSW LRS Fact Sheets - NSW Land Registry Services." 2015. NSW Land Registry Services. 2015. https://nswlrs.com.au/fact_sheets.
[76] "Victorian Land Use Information System 2016-2017 - Victorian Government Data Directory." 2024b. Discover.data.vic.gov.au. November 16, 2024. https://discover.data.vic.gov.au/dataset/victorian-land-use-information-system-2016-2017.

Efficiency: Compared to traditional systems where transactions took weeks, transactions on PEXA are fast, with most property settlements being completed within a few hours. Additionally, due to the integration of automated processes human error and delays are minimized ensuring reliable service delivery. PEXA has processed millions of transactions since its inception and thus dependable.

Transparency: The digitization of records allows for comprehensive tracking of property ownership and transactions. The system also uses digital signatures and has secure verification processes which prevents fraud and guarantees authenticity. The system also provides real-time updates and thus users get access to accurate and current information.

Accessibility: While PEXA and other digital platforms are widely used in Australia, challenges remain in inclusivity, especially for individuals in remote areas and older populations unfamiliar with digital tools.

Legal Framework: Australia's digital land management system operates within a legal framework that is anchored by the Torrens Title system. There are also state-specific legislations, such as the Electronic Conveyancing National Law which provides clear guidelines for digital transactions and PEXA aligns with both these statutory and common law principles.

Data Security: PEXA currently employs encryption, multi-factor authentication, and other cybersecurity measures to safeguard data. There are also regular audits and updates to enhance the system's resilience against cyber threats. However, this has not always been the case because in 2018 there was a major fraud incident and PEXA then strengthened its security protocols,[77] which are now reflected in the system's adaptive measures to ensure data protection.

4.3.2 United States

Overview of the System: The land management in the United States is decentralized as digital land records are maintained at the county level.[78] Some states have implemented

[77] Moullakis, Joyce. 2018. "PEXA Stirs up Seller Guarantee after MasterChef Hack." Australian Financial Review. August 3, 2018. https://www.afr.com/companies/financial-services/pexa-stirs-up-seller-guarantee-after-masterchef-hack-20180803-h13iju.

[78] "The Recording Acts- Introduction." 2024. Lawshelf.com. 2024. https://lawshelf.com/coursewarecontentview/the-recording-acts-introduction.

innovative digital systems, such as Cook County's blockchain pilot program in Illinois.[79] This is an initiative which uses blockchain technology to record property transactions, ensuring tamper-proof records. Additionally, platforms like the Federal Geographic Data Committee (FGDC) support the integration of geospatial data in land management.[80]

Efficiency: The efficiency of digital land management systems varies by jurisdiction. In counties using advanced technologies like blockchain, transactions are quicker and more reliable. However, the lack of a standardized national system leaves room for potential discrepancies and inefficiencies in certain regions.

Transparency: Blockchain-based systems, such as Cook County's pilot, enhance transparency by creating immutable transaction records. Digital platforms also allow citizens to access property histories and title information thus reducing opportunities for fraud and ensuring clarity in ownership.

Accessibility: Accessibility remains a challenge in the U.S., especially in rural counties with limited digital infrastructure.[81] There are ongoing efforts to digitize land records with federal and state governments investing in programs to bridge these gaps.[82]

Legal Framework: The U.S. legal framework for land management is fragmented, with federal laws, state statutes, and local ordinances influencing practices. Additionally, since Blockchain is still a somewhat new technology, its pilot programs often operate in gray area and there is therefore a need for updated legal standards to address digital advancements in property management.

Data Security: As earlier mentioned in this paper, blockchain technology offers robust data security by preventing unauthorized alterations to records. Additionally, counties using digital platforms employ encryption and secure access protocols. However, disparities in cybersecurity measures across jurisdictions pose potential risks.

4.3.3 Estonia

Overview of the System: Estonia's e-Land Register is a cornerstone of its digital land management system, integrated into the broader e-Estonia initiative. The platform employs

[79] IL Blockchain Initiative. 2017. "Illinois Blockchain Initiative: Insights, Progress & Horizon Scanning." Illinoisblockchain.tech. The Illinois Blockchain Initiative. March 24, 2017. https://illinoisblockchain.tech/blockchain-cook-county-final-report-1f56ab3bf89.

[80] "Federal Geographic Data Committee (FGDC) | USAGov." n.d. Www.usa.gov. https://www.usa.gov/agencies/federal-geographic-data-committee.

[81] "The Case for Climate Reparations in the United States." n.d. Brookings. https://www.brookings.edu/articles/the-case-for-climate-reparations-in-the-united-states/.

[82] "Our Investments – Technology Modernization Fund." 2024. Cio.gov. 2024. https://tmf.cio.gov/investments/.

blockchain technology, supported by the country's X-Road infrastructure, to ensure secure and efficient management of land records.[83]

Efficiency: The e-Land Register is highly efficient, with most transactions processed in minutes. The system's integration with other government services eliminates redundancy, ensuring seamless operations for users.[84]

Transparency: The e-Land Register employs Blockchain technology and that ensures the immutability of records, preventing tampering and fraud. Additionally, citizens get real-time access to land records the enhancing the system's transparency.

Accessibility: Estonia's digital system is one of the most inclusive globally, accessible to citizens and e-residents alike.[85] The system also has a user-friendly interface and its processes are simplified, thus marginalized groups are not left out.

Legal Framework: The e-Land Register operates under a clear legal framework, aligned with Estonia's Civil Code and digital governance laws. The country's proactive approach to digital legislation supports the system's continued development.

Data Security: Estonia's e-Land Register is renowned for its data security measures, including blockchain encryption, distributed databases, and regular security audits.[86] The system has also withstood cyberattacks due to the country's advanced cybersecurity framework.

4.3.4 Rwanda

Overview of the System: Rwanda's Land Administration Information System (LAIS) is a digital platform designed to modernize land management which integrates GIS technology, mobile platforms, and cloud computing to manage land registration and transactions efficiently.[87]

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[83] "E-Solutions from Estonialand Registry - E-Estoniax.com." 2023. E-Estoniax.com. January 20, 2023. https://e-estoniax.com/solution/land-registry/.

[84] "European E-Justice Portal - Land Registers in EU Countries." 2021. Europa.eu. 2021. https://e-justice.europa.eu/109/EN/land_registers_in_eu_countries?ESTONIA&init=true&member=1.

[85] Pickup, Oliver, and Oliver Pickup. 2018. "Estonia: The Most Digitally Advanced Society in the World?" Raconteur. September 4, 2018. https://www.raconteur.net/digital-transformation/estonia-digital-society.

[86] Pihlak, Harle. 2017. "Blockchain – Security Control for Government Registers." E-Estonia. August 10, 2017. https://e-estonia.com/blockchain-security-control-for-government-registers/.

[87] Hoza, Thierry . 2019. "CASE STUDY a Quick, Cost-Effective Approach to Land Tenure Regularisation: The Case of Rwanda" https://www.theigc.org/sites/default/files/2019/03/Land-tenure-regularisation-the-case-of-Rwanda-March19-FINAL.pdf.

Efficiency: LAIS significantly reduces transaction times, with most processes completed within days. Additionally, the integration of mobile platforms enables users to access services remotely, further enhancing efficiency.[88]

Transparency: Digital records maintained by LAIS ensure clear and tamper-proof documentation of land ownership. The system's transparency is further supported by public access to land information, fostering trust among stakeholders.

Accessibility: Rwanda's digital land management system prioritizes inclusivity, with initiatives aimed at educating marginalized communities and improving access in rural areas.[89] Mobile platforms play a key role in bridging the accessibility gap.

Legal Framework: Rwanda enacted its Land Law in 2013, and it is the framework within which LAIS operates.

Data Security: Rwanda's LAIS employs advanced cybersecurity measures, including encryption and secure cloud storage, to protect sensitive data. Regular training for system administrators ensures the platform's resilience against evolving cyber threats.

4.4 LESSONS FOR KENYA

4.4.1 Need to enhance efficiency

Automated processes such as those observed in NECS could be adopted to further reduce transaction times on Ardhisasa. For instance, integrating artificial intelligence for document verification could minimize human error.

4.4.2 Improving Transparency

Adopting verification protocols, such as those in Australia can enhance trust. Additionally, implementing detailed audit trails and mandatory digital signatures, as seen in the U.S., could help address fraud.

4.4.3 Enhancing Data Security

Kenya could consider implementing advanced encryption and cybersecurity measures, similar to those used in Australia, to protect sensitive data.

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[88] ArcNews. 2021. "Rwanda Improves Land Management Processes with GIS Technology | ArcNews | Spring 2021." Esri. April 7, 2021. https://www.esri.com/about/newsroom/arcnews/rwanda-improves-land-management-processes-with-gis-technology/.

[89] Nyorekwa, Enock, Twinoburyo Martin, Luther Munu, and Zjos Vlaminck. n.d. "Digital Divides or Dividends? Assessing the Inclusiveness of Basic Services in Rwanda's Digitalisation Agenda" https://includeplatform.net/wp-content/uploads/2022/10/Digital-divides-or-dividends-Assessing-the-inclusiveness-of-basic-services-in-Rwandas-digitalisation-agenda.pdf.

4.5 CHALLENGES IN APPLYING LESSONS TO ARDHISASA

1. **Regulatory Gaps**: Kenya's existing legal framework does not accommodate advanced digital systems and as such, statutes such as the Data Protection Act (2019) may need to be revised to address emerging cyber threats.
2. **Infrastructure Deficits**: Kenya is a third world developing country with limited internet penetration in rural areas and that is a big hindrance to enhancing accessibility.

4.6 CONCLUSION

In conclusion, while Ardhisasa is a really commendable initiative for Kenya, it could use lessons from jurisdictions that have better and more efficient systems. Additionally, there is a need for adopting a balanced approach which combines international best practices with the unique socio-economic and legal framework of Kenya.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Key Findings

This study has examined the role of digital platforms, particularly the Ardhisasa system, in improving efficiency and safeguarding property rights within Kenya's land management system. The findings underscore the persistent challenges in Kenya's land administration, including inefficiencies, corruption, fraud, and bureaucratic delays. The introduction of Ardhisasa was intended to mitigate these issues by digitizing land transactions, eliminating paperwork, and enhancing security. However, despite these efforts, challenges remain, such as system inefficiencies, data security risks, and restricted accessibility, especially for rural populations with inadequate internet access and digital literacy.

The legislative and institutional framework controlling land digitization in Kenya, which includes the Land Registration Act (2012), the Computer Misuse and Cybercrimes Act (2018), and the Data Protection Act (2019), has substantial gaps in enforcement and technological adaption. The study found that these frameworks do not adequately handle cyber threats, data breaches, or fraudulent actions that could jeopardize digital land management systems.

A comparative review of jurisdictions such as Australia and the United States illustrates optimal practices in digital land management. Australia's Torrens Title System and the Property Exchange Australia (PEXA) platform [90]demonstrate how seamless, secure online land transactions can be implemented successfully. Similarly, the United States has established digitized property registration systems backed by strong regulatory frameworks and cybersecurity measures. These examples offer valuable insights into improving transparency, security, and accessibility within Kenya's digital land records system.

Despite the potential of Ardhisasa, the study has identified several legal and operational gaps. The first is the inadequacy of data protection mechanisms, as the Data Protection Act (2019) lacks specific regulations tailored to land transactions and property records. Secondly, limited cybersecurity safeguards expose digital land registries to hacking and data manipulation threats. Additionally, the system does not fully incorporate customary land tenure, which governs a substantial portion of Kenya's land, particularly in rural areas. Lastly, there is insufficient legal capacity and training among legal professionals and government officials, which limits the effectiveness of the Ardhisasa platform.

5.2 Recommendations for Addressing the Legal Gaps

To illustrate the critical gaps in Kenya's digital land management system, real-world incidents highlight the urgent need for stronger legal safeguards. In 2021, shortly after the launch of Ardhisasa, reports emerged of landowners unable to access their property records, with some claims of title duplications and missing land data. These inconsistencies raised concerns about data integrity and system reliability, suggesting vulnerabilities in record migration and cyber resilience. Additionally, in 2019, before Ardhisasa's implementation, the Ministry of Lands experienced a cyber breach, where hackers attempted to manipulate land records, exposing the risks of inadequate cybersecurity measures in digital land management.

To mitigate such threats, Kenya should enact stricter cybersecurity laws tailored to digital land records, drawing inspiration from Australia's Electronic Conveyancing National Law (ECNL). Amending the Data Protection Act (2019) to impose stringent cybersecurity protocols, encryption standards, and penalties for unauthorized access would enhance the security of digital transactions. Moreover, the establishment of a Cyber Land Protection Unit

[90] NSW LRS Fact Sheets - NSW Land Registry Services." 2015. NSW Land Registry Services. 2015. https://nswlrs.com.au/fact_sheets.

within the Ministry of Lands would ensure constant monitoring and rapid response to cyber threats, preventing data breaches that could jeopardize property rights.

To address the challenge of customary land tenure not being fully incorporated into Ardhisasa, legislative amendments should be introduced to key land laws, including the Land Registration Act (2012) and the Community Land Act (2016). The Land Registration Act should be amended to explicitly recognize and facilitate the digital registration of customary land rights within the Ardhisasa platform. This would require the development of a specialized customary land tenure module that accommodates communal land ownership structures and incorporates traditional dispute resolution mechanisms.

Similarly, the Community Land Act (2016) should be revised to mandate the digitization and integration of all registered community lands into the national land management system. Clear guidelines should be established for digitizing customary land records while ensuring that traditional governance structures, such as community elders and land adjudication committees, are actively involved in the process.

Additionally, amendments to the National Land Commission Act should require the Commission to develop a standardized framework for verifying and digitizing customary land claims before they are incorporated into Ardhisasa. This would enhance the legal recognition of customary land tenure and provide a transparent mechanism for recording such rights in the digital land registry.[91]

To further promote inclusivity, statutory provisions should also mandate public participation and capacity-building initiatives to educate communities on the process and benefits of digital land registration. This would ensure that rural populations, who primarily hold land under customary tenure, can access and benefit from the Ardhisasa platform, ultimately enhancing tenure security and reducing land-related conflicts.

To ensure that Ardhisasa fulfills its intended purpose, Kenya must strengthen its legal framework for digital land management. This can be achieved by introducing specific

[91] Zubeda Yusuf Mucheke, Challenges to Electronic Conveyancing in Kenya: Case Study Ministry of Lands. Unpublished, PhD Thesis Open University of Tanzania, Tanzania, 2017

legislation similar to Australia's Electronic Conveyancing National Law (ECNL)[92]. Such legislation should establish clear guidelines for secure digital conveyancing, mandate robust cyber security measures, define legal liabilities in cases of cyber fraud and unauthorized access, and integrate digital signatures and blockchain technology to enhance security and reduce fraud risks.

The Data Protection Act (2019) should be amended to include provisions that focus explicitly on digital land transactions. This should involve implementing encryption and authentication protocols for land records, imposing strict penalties for unauthorized access and misuse of digital land information, and establishing independent oversight mechanisms to monitor data security compliance. Furthermore, the government should consider setting up a Cyber Land Protection Unit within the Ministry of Lands to oversee cybersecurity measures and respond effectively to emerging cyber threats targeting digital land management systems[93].

The legal framework should also recognize and integrate customary land tenure into Ardhisasa. This can be done by creating a Customary Land Registry Portal to document and verify land ownership under customary laws, establishing Community Land Arbitration Boards to resolve disputes related to digital registration of customary land, and amending the Land Registration Act (2012) to formalize the recognition of digital records of customary land ownership[94].

Capacity-building initiatives are crucial for the successful implementation of Ardhisasa. The government should develop mandatory digital conveyancing courses for legal professionals, government officials, and land surveyors. Additionally, partnerships with universities and professional organizations such as the Law Society of Kenya (LSK) should be fostered to provide specialized training in digital land transactions. To further support stakeholders, an Ardhisasa Legal Help Desk should be established to assist with legal and technical challenges encountered in digital land management.

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[92] Technology Innovators. "Blockchain in Government: Improving Transparency and Efficiency." Accessed January 24, 2025. https://www.technology-innovators.com/blockchain-in-government-improving-transparency-and-efficiency/

[93] Spatial Dimension. "Solutions: Land Management." Accessed January 24, 2025. https://spatialdimension.com/solutions/land-management/.

[94] Law Council of Australia. 2015. "NATIONAL ELECTRONIC CONVEYANCING SYSTEM ." January 2015. https://lawsocietywa.asn.au/wp-content/uploads/2023/01/National-Electronic-Conveyancing-System.pdf.

Kenya can also benefit from adopting international best practices observed in Australia and the United States. Incorporating blockchain technology for land registration can enhance transparency and security[95]. The government should also establish a centralized digital land transaction hub that connects financial institutions, law firms, and government agencies to facilitate efficient property transactions. Moreover, introducing title insurance policies could protect buyers from fraud and errors in digital land records, thereby enhancing confidence in the land registration system.

5.3 Conclusion

The digitization of Kenya's land management system through Ardhisasa represents a major step towards improving efficiency, transparency, and security in land transactions. However, while the platform has made notable progress in streamlining land administration, it is clear that significant legal, technical, and operational challenges remain. Addressing these gaps is critical to ensuring that Ardhisasa achieves its full potential and serves all landowners fairly and effectively.

To create a more robust and secure digital land registry, Kenya must prioritize strengthening its legal framework, particularly in the areas of cyber security, data protection, and the recognition of customary land tenure. The government should also invest in capacity building for legal professionals and land administrators to ensure they can effectively utilize and manage digital land systems. Additionally, adopting international best practices, such as block chain technology and centralized digital transaction hubs, can provide Kenya with a solid foundation for a more transparent and fraud-resistant land registration system.

Ultimately, the success of Ardhisasa will depend on the commitment of all stakeholders, including government agencies, legal practitioners, landowners, and technology experts, to collaborate and continuously improve the system. By implementing these reforms, Kenya can create a digital land management framework that not only enhances efficiency but also restores public trust in property registration processes, promotes investment, and contributes to national development. Ensuring that land transactions are fair, accessible, and secure is essential for fostering a more stable and prosperous future for all Kenyans.

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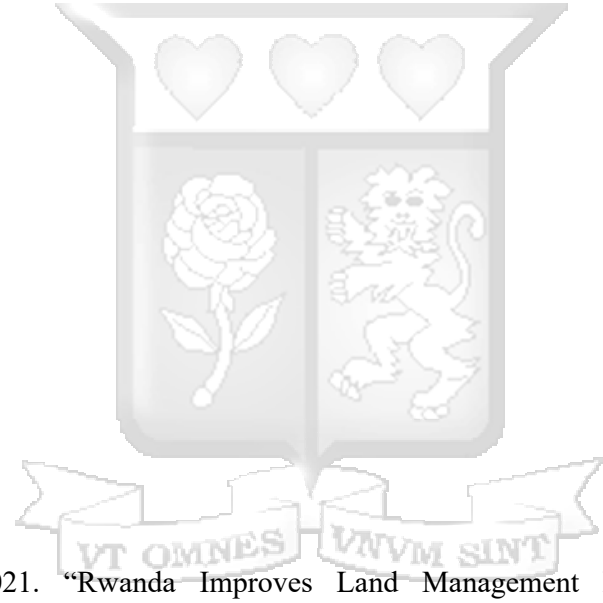
[95] "Victorian Land Use Information System 2016-2017 - Victorian Government Data Directory." 2024b. Discover.data.vic.gov.au. November 16, 2024. https://discover.data.vic.gov.au/dataset/victorian-land-use-information-system-2016-2017.



Bibliography

1. ArcNews. 2021. "Rwanda Improves Land Management Processes with GIS Technology | ArcNews | Spring 2021." Esri. April 7, 2021. https://www.esri.com/about/newsroom/arcnews/rwanda-improves-land-management-processes-with-gis-technology.
2. DiMaggio, P. J., and Powell, W. W., "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields" (1983) *American Sociological Review* 48(2): 147.
3. Gideon Mwangi, "Development of Integrated Land Information System in Kenya" (LLM Thesis, University of Nairobi).
4. Hoza, Thierry. 2019. "A Quick, Cost-Effective Approach to Land Tenure Regularisation: The Case of Rwanda."

https://www.theigc.org/sites/default/files/2019/03/Land-tenure-regularisation-the-case-of-Rwanda-March19-FINAL.pdf.

5. Illinois Blockchain Initiative. 2017. “Illinois Blockchain Initiative: Insights, Progress & Horizon Scanning.” March 24, 2017. https://illinoisblockchain.tech/blockchain-cook-county-final-report-1f56ab3bf89.
6. Moullakis, Joyce. 2018. “PEXA Stirs up Seller Guarantee after MasterChef Hack.” *Australian Financial Review*, August 3, 2018. https://www.afr.com/companies/financial-services/pexa-stirs-up-seller-guarantee-after-masterchef-hack-20180803-h13iju.
7. Nyorekwa, Enock, Twinoburyo Martin, Luther Munu, and Zjos Vlaminck. n.d. “Digital Divides or Dividends? Assessing the Inclusiveness of Basic Services in Rwanda’s Digitalisation Agenda.”
8. Pihlak, Harle. 2017. “Blockchain – Security Control for Government Registers.” *E-Estonia*, August 10, 2017. https://e-estonia.com/blockchain-security-control-for-government-registers/.
9. “European E-Justice Portal - Land Registers in EU Countries.” 2021. Europa.eu. https://e-justice.europa.eu/109/EN/land_registers_in_eu_countries?ESTONIA&init=true&member=1.
10. “The Recording Acts - Introduction.” 2024. *Lawshelf.com*. https://lawshelf.com/coursewarecontentview/the-recording-acts-introduction.
11. “Victorian Land Use Information System 2016-2017.” *Victorian Government Data Directory*, November 16, 2024. https://discover.data.vic.gov.au/dataset/victorian-land-use-information-system-2016-2017.
12. Law Council of Australia. 2015. “National Electronic Conveyancing System.” January 2015. https://lawsocietywa.asn.au/wp-content/uploads/2023/01/National-Electronic-Conveyancing-System.pdf.
13. Spatial Dimension. "Solutions: Land Management." Accessed January 24, 2025. https://spatialdimension.com/solutions/land-management/.
14. Technology Innovators. "Blockchain in Government: Improving Transparency and Efficiency." Accessed January 24, 2025. https://www.technology-innovators.com/blockchain-in-government-improving-transparency-and-efficiency/.
15. Z. Edrees, “An Overview of Blockchain Technology in Government Sectors: Use Cases, Benefits and Challenges,” *Global Science Journal* 7 (2019): 845–856.

16. Brothwell, Ryan. 2023. “6 Countries Using Blockchain Right Now.” *BSV Blockchain*, June 5, 2023. https://bsvblockchain.org/6-countries-using-blockchain-right-now/.
17. Owusu, Rosemond. 2022. “ASSESSMENT of LAND INFORMATION SYSTEM for LAND ADMINISTRATION: A CASE STUDY of GHANA.” https://essay.utwente.nl/91434/1/Owusu%20Ansah_MSc_ITC.pdf.
18. Oput, Richard, Aurélie Milledrogues, and Christopher Burke. n.d. “IMPLEMENTATION of the NATIONAL LAND INFORMATION SYSTEM (NLIS) in UGANDA: STRENGTHENING LAND GOVERNANCE.” https://land.igad.int/index.php/documents-1/improving-land-governance/best-practices/1529-implementation-of-the-land-information-system-in-uganda-strengthening-land-governance/file.
19. Ouma, Don. 2023. “Better Understanding: Analysis of the National Land Information Management System (Ardhi Sasa) - Oraro & Company Advocates.” Oraro & Company Advocates. May 11, 2023. https://www.oraro.co.ke/better-understanding-analysis-of-the-national-land-information-management-system-ardhi-sasa/.
20. Zubeda Yusuf Mucheke, Challenges to Electronic Conveyancing in Kenya: Case Study Ministry of Lands. Unpublished, PhD Thesis Open University of Tanzania, Tanzania, 2017
21. Selznick, P., *Leadership in Administration: A Sociological Interpretation* (Harvard University Press, 1949).