REPUBLIC OF KENYA

MINISTRY OF AGRICULTURE AND LIVESTOCK DEVELOPMENT

DRAFT KENYA AGRICULTURAL DATA, INFORMATION AND DIGITAL POLICY

MARCH 2026

FOREWORD

Agriculture remains central to Kenya's economic transformation, food and nutrition security, employment creation and climate resilience. Under Kenya's development blueprint, Vision 2030 and the Government's Bottom-Up Economic Transformation Agenda (BETA), the agricultural sector is positioned to drive inclusive growth, raise productivity for smallholder farmers, strengthen value chains and expand agro-industrialization. The Fourth Medium Term Plan (MTP-IV), under Vision 2030, further underscores the need to modernize agricultural service delivery, improve targeting of public investments, harness digital technologies and data to enhance efficiency, competitiveness and productivity.

Over the past decade, Kenya has demonstrated global leadership in digital innovation, particularly in mobile connectivity, digital financial services and e-government platforms. In agriculture, a wide range of digital initiatives: farmer registries, advisory platforms, market information systems, climate services and traceability tools have emerged. These are rapidly being adopted across national and county governments, the private sector and development partners. While these initiatives have generated important lessons and localized impact, their full potential have been constrained by fragmentation, limited interoperability and the absence of a coherent national digital agricultural architecture.

The Kenya Agricultural Data, Information and Digital Policy therefore establishes a comprehensive framework to guide the development, governance, coordination, and scaling of digital technologies and data use across the agricultural sector. It articulates a farmer-centred, inclusive and devolved approach founded on strong data governance, interoperability, cyber security, innovation and climate responsiveness. Central to this Policy is equally the establishment of an enabling legal, policy and institutional framework to support the effective roll out and governance of digital agricultural innovations. Through this Policy, the Government seeks to transition the sector from fragmented digital initiatives toward an integrated national agricultural data, information and knowledge ecosystem.

This transformation will strengthen evidence-based planning and budgeting, support early-warning and risk-management systems, improve targeting of subsidies and services, modernize extension and advisory delivery and enable transparent monitoring of results in line with the objectives of

Vision 2030, BETA and MTP-IV. It will also create a predictable environment for private-sector participation and public–private partnerships, catalyzing innovation while safeguarding public interest and farmer rights.

Implementation of this Policy will require close collaboration across national and county governments, state agencies, research and training institutions, farmer organizations, the private sector, civil society and development partners. On one hand, the national government will provide strategic leadership, coordination and policy guidance. On the other hand, county governments that are at the frontline of agricultural service delivery are to be empowered through common standards, capacity development, and sustainable financing mechanisms to fully participate in and benefit from the national digital agriculture ecosystem. We therefore call upon all stakeholders to support the adoption and operationalization of this Policy. Together, we can harness data, information and digital technologies as strategic national assets to accelerate agricultural transformation, advance the objectives of Vision 2030, deliver on BETA, implement MTP-IV effectively and secure inclusive and sustainable prosperity for all Kenyans.

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Cabinet Secretary,
Ministry of Agriculture and Livestock
Development.

H.E FCPA Ahmed Abdullahi,
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Chairperson,
Council of Governors.

PREFACE

Kenya's agricultural transformation agenda, spanning crops, livestock, fisheries, irrigation and cooperative enterprises, is anchored in Vision 2030, the Bottom-Up Economic Transformation Agenda (BETA), and the Fourth Medium Term Plan (MTP-IV), which collectively call for productivity growth, strengthened value chains, inclusive farmer participation, climate-resilient food systems and expanded market access. These sub- sectors remain central to national food and nutrition security, employment creation, export earnings and rural livelihoods. Achieving these objectives in a rapidly changing global environment requires a decisive shift toward data-driven planning, digitally enabled service delivery and integrated national systems that connect producers, markets, irrigation schemes, fisheries management institutions, cooperative organizations, veterinary services and public agencies.

Across the country, digital platforms for farmer registration, extension, climate services, market information, subsidy delivery, animal identification and traceability, disease surveillance, fisheries monitoring, irrigation-scheme management, agri-finance, cooperative services, insurance, and financial access are expanding at both national and county levels. These initiatives demonstrate the promise of digital agriculture; however, their effectiveness and sustainability have been limited by fragmented platforms, limited interoperability, and uneven institutional coordination. The challenge before us is therefore not only to expand digital solutions, but to organize, govern and integrate them within a coherent national framework that maximizes public value and catalyzes responsible private-sector participation.

This Kenya Agricultural Data, Information and Digital Policy provides a strategic framework for the coordinated adoption and governance of digital technologies, data, information and knowledge systems and digitally enabled services across agriculture, livestock, fisheries, irrigation and cooperative development. It is designed to strengthen national coherence while respecting and enabling Kenya's devolved system of governance. In line with constitutional principles, the national government will provide policy leadership, standards, and coordination mechanisms, while county governments remain central to frontline service delivery, including extension, animal-health functions, fisheries management, irrigation operations, and cooperative support, through context-appropriate and interoperable digital solutions aligned with national standards.

The Policy further recognizes that digital transformation will only succeed if it is farmer, fisherfolk and pastoralist centered, inclusive and demand-driven. It prioritizes approaches that address barriers faced by women, youth, persons with disabilities and communities in marginalized and ASAL areas, particularly constraints relating to connectivity, digital literacy, affordability and accessibility of services. The objective is to ensure that digital tools and platforms translate into tangible improvements in productivity, efficiency, market access, climate responsiveness, household incomes and livelihoods, consistent with the equity and growth ambitions of BETA and MTP-IV.

Within the State Departments, this Policy will enable more precise targeting of subsidies and services, enhance early-warning and market-intelligence systems, modernize extension and veterinary delivery, improve disease preparedness and response, enhance traceability for domestic and export markets, smarter irrigation planning and management, strengthen cooperative governance and service delivery, improve crop and fisheries monitoring and value-chain development. It will also foster predictable conditions for private investment, research collaboration, and public–private partnerships that support smallholder productivity, pastoral resilience, irrigated agriculture, blue- economy growth, cooperative enterprise development and agro-industrialization.

Equally critical is the establishment of a centralized, secure and reliable data system frameworks. This Policy underscores the importance of sound data governance, privacy, and cybersecurity across all digital-agriculture initiatives. It also promotes interoperability and harmonized standards to reduce duplication, improve data quality, and enable responsible information-sharing among public institutions, counties, research and training organizations, farmer groups, cooperatives, private-sector actors, and development partners. These measures are essential for evidence-based planning, early-warning and risk-management systems, efficient targeting of public support, and transparent monitoring of outcomes under Vision 2030.

Implementation will require sustained collaboration among ministries, county governments, state agencies, veterinary and fisheries authorities, irrigation managers, cooperative institutions, pastoralists, producer organizations, academia, civil society, the private sector, and development partners. Our offices are committed to providing leadership in coordination, standard-setting, and performance oversight, while ensuring that counties, where most agricultural and blue-

economy services are delivered, have the capacity and infrastructure required to integrate effectively into the national digital ecosystem.

We therefore invite all stakeholders to support the implementation of this Policy. By embedding digital technologies and data as strategic national assets, we can modernize agricultural and livestock service delivery, improve irrigation efficiency, strengthen fisheries governance, revitalize cooperative enterprises, expand market opportunities, and advance Kenya's long-term development objectives under Vision 2030, BETA, and MTP-IV.

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ACKNOWLEDGEMENTS

The development of the Kenya Agricultural, Data, Information and Digital Policy was undertaken through an extensive, inclusive and nationally coordinated consultative and participatory process. The Ministry of Agriculture and Livestock Development conveys its sincere appreciation to national and county government institutions, Parliament, state corporations, research institutions, development partners, private-sector organizations, civil-society groups, farmer organizations, and individual experts whose technical inputs, policy insights and practical experience informed and strengthened this Policy.

The Ministry further recognizes the important roles played by the State Departments for Agriculture, Livestock Development, Fisheries and the Blue Economy, Irrigation, and Cooperatives, ICT and Digital Economy, the Office of the Data Protection Commissioner and the Kenya National Farmers Federation, whose collaboration ensured that the Policy reflects Kenya's development priorities, aligns with international good practice and responds to the operational realities and emerging opportunities within the agricultural sector. The Ministry also acknowledges the Council of Governors and county governments for the commitment, technical support and guidance throughout the process.

The Ministry remains committed to working closely with all partners to ensure effective, coordinated, and sustainable implementation of this Policy. Through shared responsibility and sustained collaboration, digital agriculture will serve as a catalyst for productivity growth, innovation, climate resilience and inclusive economic development.

Mr. Peter Owoko,
Agricultural Secretary

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ABBREVIATIONS AND ACRONYMS

AFA   Agriculture and Food Authority

AHITI   Animal Health and Industry Training Institute

AIRC   Agricultural Information Resource Centre

ASAL   Arid and Semi-Arid Lands

ASTGS   Agricultural Sector Transformation and Growth Strategy

ATC   Agricultural Training Centre

BETA   Bottom-Up Economic Transformation Agenda

CGIAR   Consultative Group on International Agricultural Research

CIDP   County Integrated Development Plan

CoG   Council of Governors

DAS   Department of Agricultural Services

DPI   Digital Public Infrastructure

GIS   Geographic Information Systems

ICT   Information and Communication Technology

IoT   Internet of Things

KIAMIS   Kenya Integrated Agriculture Management Information System

KADIC   Kenya Agricultural Digital Information Centre

KALRO   Kenya Agricultural and Livestock Research Organization

KEPHIS   Kenya Plant Health Inspectorate Service

KNBS   Kenya National Bureau of Statistics

KSA	Kenya School of Agriculture
MDA	Ministry, Department or Agency
MoALD	Ministry of Agriculture and Livestock Development
MoICT	Ministry of Information Communications and Technology
MTP	Medium Term Plan
NARS	National Agricultural Research System
NCCAP	National Climate Change Action Plan
NDMA	National Drought Management Authority
NG	National Government
NIMES	National Integrated Monitoring and Evaluation System
PPP	Public–Private Partnership
REC	Regional Economic Community

DEFINITION OF KEY TERMS

Agricultural Data Digital data generated from agricultural activities, including production, inputs, soil and climate, markets, research, extension and farmer-level operations, used to support decision- making and service delivery.

Agricultural Information Systems (AIS) Integrated system used to manage agricultural data and information at the point of collection, collation, analysis, reporting, storage, usage, sharing, retrieval or archival for planning, monitoring, provision of services and decision making.

AgriTech (Agricultural Technology) The application of innovative technologies, including digital tools, data-driven solutions, and advanced systems, to automate agricultural operation for improved agricultural productivity, efficiency, sustainability, and service delivery across the agricultural value chain.

Artificial Intelligence (AI) The application of computer systems and algorithms capable of performing tasks that normally require human intelligence, including learning, reasoning, prediction, and decision support, in agricultural systems and services.

Blockchain A digital database containing secure data and information that can be simultaneously used and shared within a large decentralized, publicly accessible network.

Data Raw, unprocessed facts, figures, or observations relating to agricultural activities in electronic or other form.

Data Governance The framework of policies, standards, roles, and processes that ensure data is managed responsibly, securely, and effectively throughout its lifecycle.

Digital Advisory Services Technology-enabled platforms and tools that provide timely, accurate, location-specific, and actionable agricultural advice to farmers and value chain actors through digital channels such as mobile applications, SMS, chatbots, or web platforms.

Digital Agriculture	The integration of digital technologies and data-driven innovations across the agricultural value chain to improve productivity, efficiency, resilience and service delivery.
Digital Public Infrastructure (DPI)	Shared, interoperable digital systems governed by public institutions that provide foundational building blocks such as farmer registries, data exchange standards and consent mechanisms, enabling governments, private sector and other stakeholders to deliver agricultural digital services securely and at scale
Digital Service Delivery	Provision of public or private agricultural services through digital platforms, enabling efficient, accessible, and user-centered access to information, advisories, and transactional services.
Digital Technologies	Includes artificial intelligence, robotics, drones, remote sensing, blockchain, and other advanced or emerging technologies applied in the agricultural sector.
Information	Data that has been processed, analyzed, organized, or interpreted to provide context, meaning, or insight that supports decision-making, policy formulation, research, innovation, or service delivery in the agricultural sector.
Information Management	Systematic process of collecting, organizing, storing, controlling and disseminating information to ensure it is accurate, accessible and useful for decision-making and organizational efficiency.
Information System	Coordinated set of resources, including hardware, software, data, personnel, and procedures, designed to collect, store, process, manage, analyze, and disseminate data and information.
Interoperability	The ability of different information systems, platforms, and applications to exchange data and use the information seamlessly through common standards, secure protocols, and interfaces.

Kenya Agricultural Digital Information Centre (KADIC)	The national institutional mechanism established under this Policy to coordinate agricultural data management, digital information systems, knowledge services, and digital agricultural service delivery in Kenya.
Knowledge	Fluid mix of framed agricultural experience, values, contextual information, intuition, judgement and expert insight that provides a framework for evaluating and incorporating new experiences and intelligence.
Knowledge Management (KM)	A systematic approach to capturing, organizing, validating, sharing, and applying knowledge to enhance learning, innovation, and evidence-based decision-making.
Metadata	Data that provides descriptive information about other data, including its source, format, time of creation, geographic coverage, and conditions of use, to support effective organization and retrieval.
National Agricultural Data and Information System	An integrated framework of platforms and systems that aggregate, manage, and disseminate agricultural data and information at national and county levels.
Open Data	Data that is made publicly available in accessible formats and can be freely used, reused, and shared, subject to applicable legal, ethical, and policy restrictions.
Public–Private Partnership (PPP)	A collaborative arrangement between public institutions and private sector entities for the delivery of services, infrastructure, or innovation, based on shared responsibilities, risks, and benefits.
Smallholder Farmer	A farmer operating on a relatively small scale of land and resources, often characterized by mixed farming, limited access to capital, technology and markets.
User-Centered Design	An approach to the design of systems and services that prioritizes the needs, contexts, and experiences of end users, particularly farmers and extension service providers.

EXECUTIVE SUMMARY

The Kenya Agricultural Data, Information and Digital Policy provide a comprehensive framework for transforming Kenya's agricultural sector through the coordinated use of digital technologies, data, information, and knowledge systems. Agriculture remains a cornerstone of Kenya's economy, contributing approximately 22% of Gross Domestic Product and supporting over 70% of rural livelihoods. However, the sector continues to face structural challenges, including fragmented data systems, uncoordinated digital platforms, limited interoperability, weak knowledge management, and inadequate institutional capacity to harness data for decision-making and service delivery.

While Kenya has made significant progress in digitalization, particularly in mobile connectivity, digital finance, and e-government, digital agriculture initiatives remain largely project-based, donor-driven, and fragmented. The absence of a unified institutional and governance framework has limited the sustainability, impact and scalability of these initiatives. This Policy addresses these gaps by providing a coherent national framework for agricultural data, information and knowledge governance, digital agriculture service delivery, infrastructure and institutional strengthening.

Central to the Policy is the establishment of an administration and implementation institution for digital agriculture. This institution will serve as the national hub for harmonizing agricultural data standards, managing integrated knowledge and information systems, supporting digital extension and advisory services, coordinating innovation and partnerships, and strengthening evidence-based planning and accountability across the sector.

The Policy aligns with the Constitution of Kenya (2010), Kenya Vision 2030, the Fourth Medium Term Plan (2023–2027), the Kenya Agricultural Policy (2021), the Agricultural Sector Transformation and Growth Strategy (ASTGS 2019–2029), the Digital Economy Blueprint, and relevant legal and regulatory frameworks, including the Data Protection Act (2019). It adopts a farmer-centric, inclusive, and devolved approach, while promoting interoperability, data privacy, climate resilience, innovation and sustainability.

Through coordinated implementation by national and county governments, state agencies, the private sector, development partners, and civil society, this Policy aims to establish a trusted, integrated and future-ready digital agriculture ecosystem that enhances productivity, resilience, competitiveness, and food security for all Kenyans.

CHAPTER 1: INTRODUCTION

1.1 Background

The agriculture sector plays an important role in Kenya's economy and is a central pillar for food and nutrition security. This is affirmed under the economic pillar of Kenya Vision 2030 which identifies agriculture as a key driver of economic growth, poverty reduction and employment creation. The sector contributes approximately 22 percent to national Gross Domestic Product (GDP) and supports over 70 percent of the rural population, with most of the production undertaken by smallholder farmers operating within rain-fed and climate-sensitive systems (KNBS Economic Survey, 2025). While the sector is key to economic growth, improved livelihoods and wellbeing of the society, inherent technological challenges have hindered optimal productivity, sustainability, resilience and competitiveness. To address these, the Fourth Medium Term Plan (MTP IV) 2023–2027, recognizes the role of science, technology and innovation and has placed the digital superhighway and creative economy as key pillars. The Plan explicitly recognizes agriculture as a priority sector for digitalization and data-driven transformation.

In the evolving landscape of modern agriculture, Agricultural Information Management (AIM) and Digital Agriculture represent pivotal strategies for enhancing productivity, sustainability, and resilience, particularly in the African regions. AIM focuses on the systematic collection, organization, and dissemination of agricultural data such as crop yields, market trends, and climate insights to empower farmers, policymakers, and researchers with actionable knowledge. Digital Agriculture, on the other hand, harnesses cutting-edge technologies like IoT sensors, drones, AI analytics, and precision farming tools to optimize on-farm operations in real-time. Together, AIM and Digital Agriculture bridge traditional practices with innovation, addressing challenges like food security, climate change, and resource scarcity. Prioritizing AIM for robust data ecosystems and Digital Agriculture for operational efficiency has the capacity to pave the way for a thriving, inclusive agrifood sector.

Digital agriculture is recognized to play an important role in transforming agricultural

processes in the entire value chain. For instance, it has enabled farmers to use data-driven tools and systems, including Artificial Intelligence, to optimize agricultural productivity, profitability and reduce input costs. Such digital agricultural technologies are also utilized as mitigation and adaptation measures to combat climate change, while supporting food security goals. While traditional agriculture relies heavily on rain-fed agriculture, manual labour, and faces limited climate adaptability, the digital approach leverages emerging technologies to enhance both productivity and climate resilience. Such technologies also provide an efficient platform for real-time access to local and global markets, moving beyond the low-monitoring and localized restrictions of the past to create a more inclusive sector that is significantly more attractive to all generations, including the youth and the vulnerable in society.

1.1.1 Global Context

Globally, digital agriculture has transitioned into a new era where it is driven by high-tech innovations and predictive analytics to meet the food demands of a growing population. According to OECD (2023), these technologies add value by transforming raw data into actionable intelligence, allowing for climate-adaptive strategies and early-warning systems that safeguard production yields against unpredictable weather conditions. This is affirmed by a report by the World Bank (2024) that digital tools not only increase efficiencies and productivity along the value chains, but also provide the accountability needed to unlock insurance and financing mechanisms for value chain actors.

1.1.2 Regional Perspective

Regionally, East Africa is deploying digital solutions as the African Union and the Commonwealth are accelerating their *Digital Agriculture Strategies* to combat climate-driven food insecurity. Countries like Kenya, Ethiopia and Rwanda have become hubs for these advancements, integrating high-impact platforms such as *DigiFarm* and *Arifu,* which provide smallholders with mobile-based insurance and interactive learning. In Ethiopia, the Digital Agriculture Roadmap (DAR) aims to reach 30 million farmers with real-time advisory services, while Kenya is in the process of finalizing its DAR.

1.1.3 National Perspective

Kenya has made notable progress in digitalization, particularly in mobile money, e-government, and digital entrepreneurship (Republic of Kenya, 2019). Kenya has thus solidified its position as a global "Ag-Tech" leader by successfully merging state-led infrastructure with private-sector innovations. At the heart of this transformation is the Kenya Integrated Agriculture Management Information System (KIAMIS), which was officially handed over to the government in late 2025 and now houses data for over 7.2 million farmers (Source: FAO/Ministry of Agriculture, 2026). Private pioneers such as Safaricom's *DigiFarm* provides a holistic marketplace for credit and insurance, while Twiga Foods uses *Soko Yetu* to streamline supply chains for farm products. However, these initiatives remain largely project-based, donor-driven and uncoordinated, lacking a unified national architecture (MoALD, 2023).

1.2 Policy Rationale

With the foregoing background, the formulation of an Agricultural Data, Information and Digital Policy in Kenya is necessitated by the imperative to harmonize fragmented data systems and institutionalize digital technologies and innovations within the agricultural sector.

The clear absence of a dedicated policy and legal framework has perpetuated duplication, governance gaps, lack of interoperability, uneven institutional coordination, data related risks and limited scalability of digital initiatives. In addition, the existing institutional mechanisms at Agricultural Information Resource Centre (AIRC) are deprived of policy guidance, a formal legal mandate and technical capacity to oversee a modern digital ecosystem, thereby necessitating a framework to anchor it as a centralized centre for agricultural information.

The development of the Kenya Integrated Agriculture Management Information Systems (KIAMIS) as a Data Governance Framework, further reflects Government commitment to

improving agricultural data collection, validation, analytics, and sharing through a centralized database and standardized governance structures (MoALD, 2024). KIAMIS is positioned to support farmer registration, e-voucher systems, e-extension, routine data management, and secure data sharing in compliance with the Data Protection Act, 2019. The KIAMIS Data Governance Framework highlights the need for standardized rules, processes, and protocols to enhance coordination, data quality, secure data sharing, and compliance with the Data Protection Act, 2019 (MoALD, 2024).

This policy therefore provides a framework for the development of an integrated digital agricultural information system and institutional framework that facilitates data exchange among stakeholders, strengthens coordination and enhances farmer access to personalized digital advisories. Ultimately, this policy guarantees the institutionalization and scalability of digital agriculture, technologies and innovations for long-term sectoral transformation.

1.3 Scope of the Policy

This policy applies to all agricultural stakeholders in Kenya, including government agencies at both levels of government, farmers, pastoralists, fisherfolk, cooperatives, agribusinesses, research institutions, and technology providers. It provides guidance on the development, adoption and utilization of digital technologies and innovations in the crops, livestock, fisheries, irrigation and cooperative subsectors by agricultural value chain actors. It further provides an enabling policy, legal, administrative and institutional framework for the development of a comprehensive, integrated and secure agricultural information management system and promotion of an inclusive, affordable and sustainable adoption of digital agricultural technologies.

1.4 Approach to Policy Development

This policy was developed through a nationally coordinated and consultative process (led by a Sector Working Group on Agriculture, Policy, Legislation and Standards (SWAG-PLS)) involving engagement with several stakeholders, including the technical experts, private sector, and farmer organizations.

CHAPTER TWO: SITUATION ANALYSIS OF AGRICULTURAL INFORMATION MANAGEMENT SYSTEMS AND DIGITAL AGRICULTURE

2.1 Overview

Digital agriculture is a paradigm shift as it entails the integration of digital technologies in the entire agricultural value chain. This chapter reviews the operating environment, stakeholder analysis and institutional framework with respect to the application of digital agriculture. It also examines the challenges, opportunities and best practices that inform the policy direction.

Kenya currently offers approximately 95 digital agriculture services, nearly double the number available in comparable African economies (KIPPRA, 2024). Despite this vibrant ecosystem, significant gaps still persist that continue to constrain agricultural digitalization, particularly for smallholder farmers; adoption remains low, with only 20 - 30% of farmers using digital agricultural technologies (KIPPRA, 2024), indicating limited scale and inclusion; unequal internet connectivity and high cost of internet, particularly in rural areas, restricts farmers' access to real-time market information. The high cost of smartphones and computers restricts farmers' participation in digital agriculture, reinforcing the digital divide and information asymmetry among smallholder farmers (KIPPRA, 2024). Subscription fees associated with some platforms present affordability barriers, underscoring the need for user-centred and affordable digital solutions.

2.2 Status, Challenges and Opportunities

2.2.1 Agricultural Information Management System

Status of Agricultural Information management System

Kenya has made significant strides in Agricultural Information Management (AIM) through the Kenya Integrated Agriculture Management Information System (KIAMIS), a partnership between the Ministry of Agriculture and Livestock Development, World Bank and FAO. KIAMIS supports data-driven agriculture and has led to over 7.2 million farmers being registered on the platform by 2025, enabling real-time data for policy, subsidies, extension

services, and livestock traceability. This positions Kenya among leaders in digital agricultural ecosystems in Africa, aligning with national digital agendas.

Challenges

The implementation of KIAMIS has faced a number of challenges. Persistent issues include limited ICT access in rural areas due to high cost, low digital literacy, and inadequate infrastructure, hindering smallholder farmer uptake. Data fragmentation, lack of realtime farmer contact validation and refresh lead to inefficiencies in subsidies and other farmer services. Illiteracy, unreliable networks, and insufficient extension staff further limit effective KIAMIS access and use.

Opportunities

KADIC builds on the existing progress of KIAMIS to offer scalable platforms for data interoperability, predictive analytics, and better resource allocation, enhancing food security and policy decisions. Partnerships with development partners and integration with land, coorperatives, market and finance systems can boost transparency, credit access, and market linkages for farmers. Expanding ICT skills, mobile advisories, and national repositories within KIAMIS present pathways for inclusive growth and sustainable agriculture.

2.2.2 Digital Agricultural Technologies

Status of Digital Agricultural Technologies

Kenya has made notable progress in expanding its digital infrastructure, buttressed by expanding mobile and internet connectivity, as well as the rapid growth of digital innovations, solutions, and emerging digital agriculture services.

(i) **Mobile and Internet Connectivity**

As of 2023, internet penetration in Kenya stood at 32.7%, with 17.86 million users and 63.94 million active mobile connections (KIPPRA, 2024) and total mobile subscriptions reached approximately 73.2 million connections, translating to a

mobile penetration rate of about 139.7%; smartphone penetration further increased to approximately 83.5% by mid- 2025, broadening potential access to digital services (CA, n.d.).

(ii) Digital Innovations and Solutions

Digital platforms in Kenya have reinforced the digital agriculture ecosystem by enabling service coordination and data-driven decision-making (FAO & ITU, 2022). Mechanization platforms such as Hello Tractor use mobile and GPS-enabled systems to improve access to equipment while generating operational data that feeds into farm management and extension systems (World Bank, 2020). Digital finance and insurance providers, including FarmDrive, Apollo Agriculture and Digifarm, leverage mobile money and remote sensing to expand access to credit and risk protection for smallholders (GSMA, 2022; IFAD, 2021).

Concurrently, digital traceability and innovation services using AI, blockchain, and mobile communication tools are improving quality assurance, disease surveillance and subsidy targeting across key value chains (OECD, 2023). Agricultural innovation centres serve as platforms for experiential learning and technology transfer; their absence restricts farmers' exposure to new tools, digital solutions and modern production techniques, slowing agricultural transformation. To improve coordination and use of agricultural data, MoALD and county governments have developed the Kenya Integrated Agriculture Information Management System (KIAMIS), supported by a central Big Data Centre and the KilimoStat open data platform, all guided by a data governance framework aligned with the Data Protection Act, 2019 (MoALD, 2023; Government of Kenya, 2024).

(iii) Digital Agricultural Services

Digital agricultural services have emerged as a complementary mechanism, enabling timely, scalable and data-driven advisory delivery (CTA, 2020). These continue to support farmers across production, markets, finance and innovation by addressing persistent constraints such as limited access to agronomic information, inputs,

credit, insurance and reliable market opportunities. This has improved productivity, resilience and inclusivity (FAO, 2022; World Bank, 2023). Extension and advisory services are central to this effort, providing guidance on crops, livestock, climate-smart practices, and post-harvest management (IFAD, 2021).

(iv) **Digital Agriculture Capacity**

Digital agriculture capacity in Kenya is influenced by the availability, distribution and sustainability of human and financial resources across institutions, service providers and users.

__Challenges__

However, the system is constrained by structural limitations: one extension officer typically serves 1,500–3,000 farmers, and reliance on paper-based reporting has resulted in delayed information flows, weak feedback mechanisms and limited adaptive use of data (World Bank, 2022; Ministry of Agriculture, 2023). The Kilimo Call Centre serves as a digitally enabled advisory service, but its scale and functionality remain constrained by reliance on call-based and messaging systems with limited modularity and interactive engagement, as well as by broader challenges affecting call Center expansion particularly limited funding, the high cost of modern call Center tools and equipment, and inadequate human capacity and technical knowledge required for effective management, especially at the county level (Government of Kenya, 2022). In contrast, platforms such as iCow, DigiCow, iShamba, Arifu, and Digital Green have expanded outreach, personalized advisory content, strengthened monitoring systems, and improved feedback loops, reflecting the government's recognition of digital extension as a tool for efficiency and inclusivity (Ministry of Agriculture, 2023; FAO, 2022).

While progress has been made in general ICT development, sector-specific capacity for digital agriculture remains fragmented and insufficiently institutionalized, particularly within devolved agricultural service delivery systems (IFPRI & ReSAKSS, 2014; MoALF, 2017). Human and financial capacity are increasingly recognized as foundational enablers for the adoption and scaling of digital agriculture in Kenya, with the Government, through the Ministry of Agriculture and Livestock Development (MoALD), prioritizing digitization

of agricultural services, extension, markets and data systems such as KIAMIS as part of broader sector transformation efforts.

Assessments indicate that institutions across Kenya's digital agricultural ecosystem operate with limited specialized skills. Emerging disciplines in digital agriculture such as Artificial Intelligent, Machine Learning and agri-robotics are lacking within the Ministry. Coordination, training and policy institutions lack sufficient personnel with advanced competencies in data analytics, digital system architecture, interoperability and knowledge management, despite having experienced staff in conventional agriculture (IFPRI & ReSAKSS, 2014; MoALF, 2017). Among non- state actors, capacity varies widely, with cooperatives and NGOs showing moderate digital literacy, while many smallholder farmers and producer organizations continue to face significant digital skills gaps, limiting effective engagement with data-driven systems (IFPRI & ReSAKSS, 2014).

Opportunities

Kenya presents robust opportunities for advancing digital agriculture. This potential is anchored in robust mobile connectivity and high smartphone penetration, which enable widespread access to digital platforms. These platforms support real-time advisory services, market linkages, and financial services for farmers. Innovations such as Hello Tractor are improving access to mechanization services Other platforms, including FarmDrive and Digifarm, are expanding access to credit and insurance through remote sensing tools and digital data analytics. In addition, system such as KIAMIS, which has registered 7.2 million farmers and KADIC offer scalable data ecosystems for precision interventions, traceability, and policy targeting. Government prioritization through MoALD's digitization efforts, including the KilimoStat platform and data governance under the 2019 Data Protection Act, creates a foundation for interoperability and inclusive growth.

Leveraging both public and private digital agricultural services such as iCow, DigiCow, iShamba, and Digital Green provides avenues to enhance extension outreach, personalize climate-smart advice, and strengthen feedback loops, addressing the current gaps in the conventional ratio of one extension officer per 1,500–3,000 farmers. Public-private partnerships can drive capacity building in data analytics, AI, and blockchain for non-state

actors like cooperatives and NGOs, while agricultural innovation centers facilitate experiential learning and technology transfer to bridge digital literacy divides among smallholders.

Financial and human resource investments, coupled with strengthened institutional capabilities offer significant potential for sustainable scaling. modernization the sector through the establishment of a Kenya Agricultural Digital Information Centre, hold promise for sustainable scaling, fostering productivity, resilience, and market access in a devolved system.

2.2.3 Policy, Legal and Institutional Framework

Status of Policy, Legal and Institutional Framework

(i) ***Legal and Policy Framework***

Kenya's legal framework provides important foundations for digital agriculture but remains fragmented and insufficiently harmonized. The Constitution guarantees rights to information (Article 35), privacy (Article 31), equitable access to services (Article 6) and public participation (Article 10), all of which underpin open agricultural data, protection of farmer information, and inclusive stakeholder engagement. Supporting statutes and policies (*detailed analysis in Appendix II*) such as the *Access to Information Act (Cap. 7D)*, *Data Protection Act (*Cap. 411 C)*, and Computer Misuse and Cybercrimes Act (2025)* and the *Kenya Information and Communication Act (Cap. 411A)* establish obligations for transparency, lawful data processing and cybersecurity safeguards in agricultural systems.

(ii) ***Institutional Analysis***

Kenya's agricultural data, information and knowledge management ecosystem is shaped by a wide range of actors across the public sector, county governments, development partners and the private sector.

a) **National Government Ministries, Departments and Agencies**

Key national government institutions include the Ministry of Agriculture and

Livestock Development and its state corporations, other Ministries and Departments such as Ministry of Information, Communications and the Digital Economy, State Departments for Irrigation, Cooperatives, Lands and Physical Planning. Other government agencies including the Agriculture Resource and Information Center, Kenya National Bureau of Statistics, Agriculture and Food Authority, National Drought Management Authority, Kenya Meteorological Department, Kenya Agricultural and Livestock Research Organization and the Kenya Revenue Authority also generate critical datasets for the agricultural sector (KNBS, 2023; NDMA, 2022; KMD, 2023). Additionally, national platforms such as the Kenya Open Data Initiative provide mechanisms for publishing and sharing public sector data, including agricultural datasets, though utilization remains limited.

b) **County Governments**

Following the devolution of agriculture under the Constitution of Kenya and the County Governments Act (Cap. 265), county governments have become central collectors of farm-level, production, extension and market data, enhancing local decision-making but also introducing variability in data standards and systems across counties (Republic of Kenya, 2010; FAO, 2021).

c) **Research and Academic Institutions**

Research and academic institutions such as KALRO, ILRI, CABI and universities further contribute research-based datasets as well as information and knowledge materials on crops, livestock, soils, climate resilience and pests and diseases, while development partners generate project-level data that can inform national investments (KALRO, 2022; ILRI, 2023).

d) **Private Sector Actors**

The private sector, particularly telecommunications companies, agribusinesses, digital platforms and fintech providers play an increasingly important role by generating high-frequency farmer and market data through mobile services and digital transactions (GSMA, 2022)

Challenges

Despite these enabling laws, Kenya lacks a dedicated and sector-specific legal framework to coordinate digital agriculture. Existing provisions are broad, leaving gaps in interoperability, institutional responsibility and enforcement. This has constrained the domestication of continental strategies such as the *African Union Digital Agriculture Strategy (2024–2030)* and slowed implementation of national policies including the *ASTGS (2019–2029)*, *Sessional Paper No. 2 of 2021 on Agricultural Policy* and the *Kenya Digital Economy Blueprint (2019)*.

The Kenya Agricultural Marketing Strategy (AMS) 2023–2032 recognizes digital technologies including the internet and mobile platforms as key drivers for enhancing market access for smallholder farmers, reducing transaction costs and enhancing efficiency across agricultural value chains. The AMS 2023 - 2032 strategy promotes the integration of mobile applications, e-commerce platforms and data-driven tools to improve market information dissemination, facilitate digital financial transactions and optimize supply chains. It further emphasizes digital literacy and capacity building as critical enablers of adoption, positioning digitalization as a transformative force for inclusivity, efficiency and sustainability in the agricultural sector.

Opportunities

A unified legal and policy framework is therefore essential to consolidate fragmented interventions, safeguard farmer rights and provide clear guidance for the governance, integration and sustainability of digital agriculture systems.

In spite of the many institutions having some responsibility for digital agriculture, initiatives have ineffectively been coordinated due to the absence of a clear institutional lead and weak collaboration among actors. Multiple public and private stakeholders operate in silos, leading to fragmented systems, duplication of efforts and limited interoperability. This lack of coordination has constrained data sharing, scalability and alignment with national priorities.

2.2.4 Cross-Cutting Issues

Status on Key Cross-cutting Issues

(i)   Environmental Factors

Kenya's agricultural sector is highly vulnerable to climate variability, land degradation and biodiversity loss, making environmental sustainability central to digital transformation. Climate change and its adverse effects; rising temperatures, shifting rainfall patterns and recurrent droughts and floods have reduced soil moisture, water availability and productivity, while eroding household and community livelihoods, particularly in arid and semi-arid lands. These climate stresses worsen food insecurity and deepen vulnerabilities, making resilience a critical priority for agricultural transformation.

Strengthening digital climate-smart agriculture, improving accessibility, early warnings and embedding recovery mechanisms are therefore essential to enhance resilience, safeguard production and enable informed, data-driven decision-making across Kenya's agricultural sector.

Challenges

However, challenges remain in scaling these technologies across rural areas with limited connectivity, ensuring that environmental data is localized, readily accessible and aligning digital innovations with Kenya's broader climate change frameworks.

Opportunities

Digital agriculture offers tools such as climate-smart advisory systems, predictive analytics and precision technologies that enable farmers to adapt to unpredictable weather, optimize resource use and reduce environmental footprints. By integrating mobile platforms and AI-driven monitoring, farmers can better manage and safeguard yields while conserving ecosystems. Embedding environmental safeguards into digital agriculture policies is therefore critical to achieving resilience, sustainability and long-term food security.

(ii) Social Inclusion in Digital Agriculture

Status of Social Inclusivity in Digital Agriculture

Kenya's Constitution and the Agriculture Sector Transformation and Growth Strategy (2019–2029) place social inclusion at the center of agricultural transformation, making equitable access to digital tools a national priority. Progress has been made in integrating women, youth and persons with disabilities into digital agriculture through mobile platforms, precision technologies, AI and digital financial services. Government initiatives, including youth agripreneur programs and integration into national systems such as KIAMIS, have supported youth capacity building. These innovations have expanded access to extension services, market information, climate advisories and financing.

Challenges

Overall, Kenya's digital agricultural transformation reflects meaningful progress toward inclusion but highlights persistent disparities in access, participation and benefits. Participation remains uneven, shaped by socio-economic factors such as gender, age, education, disability and income levels. Women, who form a large share of the agricultural workforce, continue to face barriers including limited control over land and assets, constrained access to finance, high costs of devices and data and persistent social norms. Youth, while digitally literate and entrepreneurial, struggle with access to land, capital and training, while persons with disabilities remain significantly under-included due to high costs of assistive technologies, poor connectivity and insufficient attention to accessibility in system design.

Women, youth and persons with disabilities are increasingly visible within digital agriculture ecosystems, yet their engagement remains uneven and shaped by structural and institutional barriers. Without deliberate equity-focused strategies, digitalization risks reinforcing existing inequalities. Aligning digital agriculture with social inclusion priorities is therefore essential to ensure that technological transformation delivers equitable, sustainable and resilient outcomes across all population groups.

2.5 Summary of Key Issues, Opportunities and Best Practices

a)   ***Lack of an Integrated Agricultural Information Management System***

One of the major issues identified in the foregoing situation, is the fragmented data collection and management as well as the limited interoperability among existing agricultural information platforms. Farmers, policymakers and researchers often rely on scattered, inconsistent datasets, which undermines evidence-based decision-making. Best practice calls for establishing a centralized, integrated agricultural information management system that harmonizes data from diverse sources, extension services, research institutions and markets. Such a system should be accessible, regularly updated and designed with open standards to ensure interoperability. Countries like Rwanda and India have demonstrated success by linking farmer registries with market and climate data, enabling real-time advisories and targeted interventions.

b)   ***Inadequate Adoption of Digital Agricultural Technologies***

The adoption of digital tools faces barriers such as high costs, limited digital literacy, inadequate infrastructure and resistance to change among value chain actors. Sustainable uptake requires more than just technology deployment, it demands capacity building, affordability and contextual relevance. Best practices include subsidizing access to mobile-based advisory services, promoting public-private partnerships to expand rural connectivity and embedding digital literacy training within extension programs. For example, Kenya's DigiFarm and Ethiopia's ATA platforms show that when digital solutions are tailored to local needs and supported by awareness, training, farmers are more likely to adopt and sustain their use.

c)   ***Weak Policy, Legal and Institutional Framework***

Institutional, administrative, policy legal frameworks if not comprehensive and harmonious, hinder the effective rollout of digital agriculture. Overlapping mandates among ministries, limited enforcement of data protection laws and insufficient policy coherence create gaps in agricultural data governance. Best practice emphasizes the need for a comprehensive, harmonized framework that aligns agricultural digitization with national ICT strategies, data governance standards and international best practices. Clear roles for institutions, enhanced

human and financial capacities, strong monitoring mechanisms and legal safeguards for data privacy are essential. Countries like Ghana have advanced by embedding digital agriculture within broader e-governance reforms, ensuring accountability and sustainability.

d)   ***Inadequate social inclusion and environmental safeguards in digital agriculture***

Limited access to digital tools and platforms by smallholder farmers, women, youth and marginalized groups remains a critical issue. Connectivity gaps, inadequate infrastructure, inadequate energy and electricity, affordability issues and exclusionary practices prevent equitable participation.

Participation in digital agriculture remains uneven, shaped by socio-economic factors such as gender, age, education, disability and income levels. Persistent disparities in access to devices, connectivity, digital skills and productive assets highlight the need for equity-focused strategies to ensure that agricultural digitalization delivers sustainable and inclusive outcomes for all.

Further, challenges remain in scaling digital technologies across rural areas with limited connectivity, ensuring that environmental data is localized and accessible and aligning digital innovations with Kenya's broader climate change frameworks.

CHAPTER THREE: POLICY DIRECTION AND INTERVENTIONS

3.1 Overview

This Policy identifies digital technologies and innovations as a key enabler towards the transformation of the agricultural sector in Kenya. This Chapter provides overall and specific objectives, guiding principles, key priority areas derived from the objectives and broad policy directions as well as interventions relating to digital agriculture.

3.2 Overall Objective

The overall objective of the policy is to enhance the use of agricultural data, information and knowledge and to leverage sustainable digital technologies and innovations to transform the agricultural sector for improved productivity, efficiency, inclusivity and resilience across the agricultural value chain.

3.2.1 Specific Objectives

The specific objectives of the Policy are to:

a) Establish a comprehensive, integrated and secure agricultural information management system to harmonize data, improve management and enable efficient information and knowledge access, exchange and sharing across all value chain;

b) Promote inclusive, affordable and sustainable adoption of digital technologies to enhance productivity, resilience and competitiveness across the agricultural sector;

c) Provide an enabling policy, legal and institutional framework that supports coordinated governance, integration, innovation, research, incubation and scaling of digital agricultural initiatives at both levels of government; and

d) Promote social inclusion and climate resilience in digital agriculture by addressing barriers to equitable access and strengthening data-driven climate adaptation for smallholder farmers, women, youth, persons with disabilities, and other underserved and marginalized groups within the agricultural sector.

3.3 Guiding Principles

Implementation of this Policy will be guided by the following principles:

(i) ***Farmer-Centric and Demand-Driven Approach:*** Digital agriculture interventions will be designed around the real needs, priorities and capacities of farmers, pastoralists, fishers and agribusinesses, ensuring relevance across diverse agro-ecological and socio-economic contexts.

(ii) ***Social Inclusivity, Equity and Leaving-No-One-Behind:*** The Policy will promote equitable access to digital agriculture services for women, youth, persons with disabilities, pastoral communities and marginalized regions, with targeted approaches for ASAL areas and climate-vulnerable communities.

(iii) ***Devolution and Subsidiarity:*** Digital agriculture systems will respect the roles of county governments in service delivery, extension and local data collection, while ensuring national coordination, standardization and integration, consistent with Kenya's devolved governance framework.

(iv) ***Interoperability and Integration:*** All digital agricultural systems will interoperate and integrate across institutions and levels of government; standalone platforms will be discouraged (Republic of Kenya, 2019a; Republic of Kenya, 2022). This principle will be operationalized in line with the ICT Authority Systems and Applications Standard (ICTA.6.002:2019) and related government ICT architecture requirements (ICT Authority, 2019). The modern national institution for agricultural data management, digital innovation, and integrated information services will act as the sector coordination point for compliance with ICT standards in agriculture.

(v) ***Data Governance, Privacy and Security:*** All data handling will be ethical, secure and in compliance with the applicable laws and the data governance frameworks.

(vi) ***Evidence-Based Decision Making:*** Digital agricultural systems will support planning, budgeting, monitoring, evaluation and performance management, consistent with ASTGS performance management emphasis and MTP IV results-driven implementation.

(vii) ***Innovation and Private Sector Engagement:*** The Policy will promote innovation, entrepreneurship and private sector participation, including AgriTech startups, research institutions and other technology firms.

(viii) ***Sustainability and Scalability:*** Digital agriculture interventions will be designed for long-term sustainability and national scalability, avoiding pilot-only approaches and ensuring institutional anchoring in the public sector.

(ix) ***Climate Responsiveness and Resilience:*** All initiatives will integrate climate information services, early warning systems and adaptation tools, in line with NCCAP III priorities for food security and resilience.

3.4 Focus Areas, Policy Statements and Interventions

The policy focuses on six broad areas derived from the policy objectives among them namely: (i) agricultural data, information and knowledge management system; (ii) digital agricultural infrastructure and technologies; (iii) digital agriculture services; (iv) digital agriculture capacities; (v) an enabling policy, legal, institutional framework and (vi) the mainstreaming of cross-cutting and emerging issues.

3.4.1 Agricultural Data, Information and Knowledge Management System

An integrated data, information and knowledge management system is one of the key enablers identified to address fragmented data, leverage data as a strategic asset and enhance information and knowledge management for agricultural transformation.

Policy Statement

The Government (national and county governments) will strengthen digital agriculture through effective coordination, integration and governance of agricultural data, information and knowledge management systems to enable data, information and knowledge-driven planning, investment targeting, early warning and performance monitoring, while promoting effective sharing and use of data as a public good.

Policy Interventions

National Government will:

(i) Strengthen the Agricultural Information Resource Center to harmonize tools, standards, systems and processes across the country, ensuring consistent data quality, definitions, reporting protocols and unique identifiers for all agricultural sub-sectors.

(ii) Develop and maintain an integrated agricultural information management system to integrate applicable digital data platforms, manage databases effectively and guarantee seamless data sharing through an effective data governance framework.

(iii) Develop and maintain a Compendium of Kenya Agricultural Statistics defining key indicators with corresponding consistent codes, reporting units, metadata and standard operating procedures to ensure nationwide consistency and harmonized data standards.

(iv) Invest in modern, reliable data collection tools and methods, including mobile, geospatial and remote sensing tools, IoT applications and digitization of historical datasets to ensure comprehensive and accurate agricultural data.

(v) Implement capacity building programs at the national level, including relevant training of stakeholders.

County Governments will:

(i) Establish dedicated County Data Management Units, mandated to oversee data governance, ensure compliance with national standards and coordinate investment in secure, interoperable systems across all agricultural sub-

sectors.

(ii) Align county data collection, storage and reporting systems with national standards, tools, formats as well as data and information management systems to ensure harmonization and interoperability across all agricultural sub-sectors.

(iii) Facilitate continuous registration and updating of the farmer registers, digitization of old records to build counties historical data, and regular collection and updating of county level production and market information data in line with Schedule IV of the Constitution.

(iv) Contribute to reduction of national data gaps through timely and seamless sharing of county data with the national office for compilation of complete national data and statistics.

(v) Undertake the capacity building of county staff and local stakeholders on data collection and database management and information sharing skills.

(vi) Adopt modern tools and other modern digital systems for data collection and management.

(vii) Promote the use of standardized agricultural data for evidence-based decisions and policies development, county planning, resources allocation, as well as monitoring of outputs and impacts of investments decisions.

(viii) Strengthen use of digital agriculture to enhance extension advisory and support services, farmers' digital financing and insurance, commodities aggregation, storage and postharvest loss management.

(ix) Enhance traceability and strengthen produce quality assurance, improve digital access markets and build climate-change resilience.

(x) Establish local data verification and quality assurance mechanisms to ensure accuracy, completeness and reliability.

National and County Government will:

(i) Develop and maintain KIAMIS as the single national digital system for the

agricultural sector data and information collection and management and ensure interoperable ecosystem that brings together other systems dealing with agro-weather, inputs, production, farm management, geospatial, prices, marketing and cooperatives data to support comprehensive decision support systems and digital agriculture innovations.

(ii) Support coordination and integration of public data, information and knowledge generated by MoALD, counties and state corporations; data information and knowledge from other Ministries, departments and agencies, the private sector and agricultural research data, information and knowledge into a single trusted source of truth to support evidence-based decisions and farmer support services.

(iii) Conduct joint monitoring, evaluation and maintenance of all agricultural data platforms to ensure quality, completeness, interoperability, security and usability.

(iv) Promote public-private-research partnerships to enhance data sharing, analytics, predictive modelling, early warning systems and digital advisory services.

(v) Implement coordinated training and capacity-building programs for government staff and stakeholders across the country.

(vi) Establish feedback and learning mechanism where policy makers, farmers, data users, and researchers can provide input on how to improve data collection and management, as well as effective data governance to achieve the FAIR principles ensuring that public data is a social good that is Findable, Accessible, Interoperable and Reusable.

(vii)   Strengthen the strategic use of agricultural data as a public resource to inform planning, performance monitoring, investment targeting and accountability at all levels.

(viii) Strengthen information and knowledge management by improving content generation and sharing, use of modern tools and equipment for information documentation and storage.

3.4.2 Digital Agricultural Infrastructure

Key issues in digital agricultural infrastructure include unequal and costly rural internet; low adoption of digital agriculture technologies; high costs of smartphones, data and platform subscription fees; fragmented and poorly coordinated agricultural data systems; absence of dedicated agricultural innovation and learning centres; unreliable electricity supply in rural areas; and limited farmer involvement in the design of digital platforms, resulting in solutions with low relevance and practical market linkage for smallholder farmers.

Policy Statement

The Government will facilitate the development of an inclusive and coordinated digital agricultural ecosystem.

Policy Interventions

The National Governments will:

(i) Establish a national agricultural data administration and management framework to guide data standards, interoperability, privacy and sharing.
(ii) Integrate agricultural data and information systems across ministries, agencies and national platforms.
(iii) Prioritize targeted expansion of rural broadband and last-mile connectivity.
(iv) Support national financing and subsidy schemes to improve farmer access to digital devices.
(v) Strengthen rural power infrastructure through grid extension and sustainable energy solutions.

The County Government will:

(i) Identify priority agricultural areas requiring digital infrastructure and support last- mile deployment at county level.
(ii) Undertake farmer sensitization and hands-on training on digital platforms and tools.
(iii) Strengthen county-level data collection and management systems and align

them with national data standards.

    (iv) Use digital data to support county planning, extension services and market linkages.

National and County Government will:

    (i) Strengthen coordination mechanisms between national and county governments to ensure alignment of digital agriculture initiatives.

    (ii) Collaborate with the private sector, research institutions and development partners to scale proven, farmer-centred digital solutions.

    (iii) Deploy digital platforms that provide end-to-end market linkages.

    (iv) Promote integration of digital platforms with cooperatives, aggregators and producer organizations.

    (v) Jointly monitor adoption, impact and inclusivity of digital agricultural technologies.

    (vi) Facilitate access to land, wayleaves and local approvals for digital infrastructure expansion.

3.4.3 Digital Agricultural Services

The limitations across digital agriculture services reduce the reach, interactivity, and utilization of data-driven digital tools, weakening the ability to deliver timely, integrated and inclusive services to stakeholders.

Policy Statement

The government will facilitate the development and delivery of digital agricultural services that are effective, accessible, and user-friendly for all stakeholders.

Policy Interventions

National Government will:

    (i) Raise awareness and strengthen capacity among stakeholders on the availability and use of digital agricultural services.

    (ii) Promote the adoption of digital agricultural tools across all stakeholder groups.

(iii)   Support the development and integration of national digital platforms into a unified digital agriculture service ecosystem.

(iv)   Facilitate partnerships with digital agricultural service providers.

(v)   Monitor, evaluate, and improve service delivery.

County Government will:

(i)   Integrate and strengthen digital agricultural services within county systems.

(ii)   Collaborate with innovators and service providers in the delivery of digital agricultural services.

(iii)   Promote stakeholder organization aggregation, and engagement within the digital agricultural service space.

(iv)   Build user capacity on digital agricultural services.

(v)   Establish accessible digital agriculture service support centers.

National and County Government will:

(i)   Promote integrated digital agriculture service ecosystems that connect agricultural stakeholders and government services in real time.

(ii)   Strengthen public–private partnerships to scale digital tools relevant to digital agriculture service.

(iii)   Facilitate accessible digital service support channels.

(iv)   Implement joint monitoring and learning mechanisms.

3.4.4 Digital Agriculture Capacity

Digital agriculture is constrained by systemic human and financial capacity gaps across institutions, service providers, and users. These gaps undermine coordination, skills development, sustainability of digital initiatives, and inclusive adoption, particularly within devolved agricultural systems (IFPRI & ReSAKSS, 2014; MoALF, 2017). Addressing these challenges requires targeted, coordinated, and sustainably financed interventions by national and county governments, working jointly with non-state actors and the private sector.

Policy Statement

The Government will strengthen coordination mechanisms, build digital agriculture skills, and establish sustainable financing approaches to support an inclusive and resilient digital agriculture ecosystem.

Policy Interventions

The National Government will:

(i) Strengthen national coordination capacity for digital agriculture by building specialized human resources with advanced skills in analytics and knowledge management.

(ii) Enhance national coordination capacity by establishing robust data governance frameworks and technical expertise to manage data standards, interoperability, and secure data sharing across digital agriculture systems.

(iii) Enhance institutional resourcing of national agricultural information and coordination functions to ensure sustainable financing for digital platforms and systems.

(iv) Reform and modernize agricultural training frameworks by integrating digital agriculture, data literacy and ICT-enabled service delivery competencies into national curricula.

(v) Strengthen digital research capacity by supporting skills development in data science and digital systems and improving linkage between research outputs and public digital platforms.

(vi) Align national financing and public–private partnership mechanisms to support sustainable digital agriculture service provision and innovation.

County Governments will:

(i) Strengthen digital competencies among extension staff, farmers, cooperatives, pastoralists, and fisherfolk, with targeted support for women, youth, and marginalized groups through continuous training and integration of digital tools into extension service delivery.

(ii) Allocate adequate county-level resources to support training, deployment, and retention of digitally competent agricultural personnel, while also financing the necessary digital infrastructure, operational costs and system maintenance required for effective service delivery.

(iii) Undertake adoption and operationalization of national digital agriculture platforms by investing in county-level organizational readiness and staff capacity.

The National and County Governments will:

(i) Coordinate and harmonize digital agriculture capacity development initiatives to ensure alignment, interoperability and efficient use of resources.

(ii) Promote integrated capacity development approaches linking training institutions, research organizations, extension systems and digital service providers.

(iii) Implement sustainable financing mechanisms through aligned planning and budgeting frameworks to reduce reliance on fragmented project-based funding.

(iv) Collaborate with the private sector, civil society, and development partners to leverage innovation and expertise while safeguarding public interest and sustainability.

(v) Monitor and periodically review digital agriculture capacity development to ensure responsiveness to evolving technologies and sector needs.

3.4.5 Enabling Policy, Legal and Institutional Framework

An enabling policy, legal and institutional framework is one of the core issues identified for sustainable digital agricultural technologies.

Policy Statement

The Government will commit to implement the agricultural data, information and digital policy, establish and operationalize a legal and institutional framework to coordinate,

regulate and support the development, integration and sustainable implementation of digital agriculture systems across the agricultural sector.

Policy Interventions

National Government will:

(i) Establish the Kenya Agricultural Digital Information Centre (KADIC) as a dedicated national institution for the administration of digital agricultural initiatives, data, and knowledge information management.

(ii) Establish clear governance arrangements for agricultural data, including data ownership, sharing, interoperability standards, cybersecurity and ethical use of emerging technologies.

(iii) Harmonize existing sector policies, strategies and digital initiatives to eliminate duplication and ensure alignment with national development priorities.

(iv) Develop a framework to support integration of digital agriculture platforms and open data systems to support planning, research, monitoring and service delivery.

County Governments will:

(i) Align County agricultural strategies and digital initiatives with the national digital agriculture policy framework.

(ii) Adopt frameworks for standardized data collection to enable aggregation and sharing of County data at the national level.

National and County Governments will:

(i) Establish coordination mechanisms for joint planning, implementation, monitoring, and evaluation of digital agriculture initiatives.

(ii) Develop a framework to facilitate interoperable digital agriculture systems to enable seamless data sharing across national and county governments and with relevant non-state actors.

(iii) Strengthen collaboration with the private sector, research institutions,

development partners, and civil society to support innovation, scalability, and sustainability of digital agriculture solutions.

3.4.6 Cross Cutting and Emerging Issues

(a) **Social Inclusion**

Social inclusion in digital agriculture is essential to ensure that Kenya's digital transformation delivers equitable and sustainable outcomes.

Policy Statement

Both levels of government will mainstream gender and social inclusion in digital agriculture by ensuring equitable access to digital technologies, data, skills, and digitally enabled agricultural services, while addressing structural barriers that limit participation of marginalized groups.

Policy Interventions

National Government will:

(i) Expand affordable rural connectivity, mobile internet coverage, and access to digital devices to reduce cost barriers for women, youth, PWDs, pastoral and marginalized communities;

(ii) Integrate gender-responsive and universal design standards into national digital agriculture platforms, policies, and systems to enhance usability and accessibility.

(iii) Undertake targeted capacity-building programs for women, youth, PWDs, pastoral and marginalized communities to strengthen their digital agriculture skills.

County Government will:

(i) Implement localized digital agriculture initiatives that promote gender, youth, and PWDs inclusion within counties.

(ii) Facilitate women, youth, and PWDs access to extension services, digital platforms, and market linkages through county-level digital hubs and farmer aggregation models.

(iii) Support youth and women-led agri-tech enterprises throug incubation, mentorship, and linkage to county procurement and markets.

(iv) Partner with community organizations, cooperatives and PWD associations to deliver inclusive digital literacy and awareness programs.

National & County Government will;

(i) Collaborate with the private sector, development partners, and civil society to upscale inclusive digital agriculture solutions and public–private partnerships.

(ii) Harmonize the monitoring and evaluation frameworks that track inclusion across gender, youth, and PWD to access government procurement e.g. through capacity building.

(iii) Promote awareness and address social norms and discriminatory practices that hinder equitable participation in digital agriculture.

(iv) Mobilize resources to support assistive technologies, inclusive infrastructure, and targeted innovations that enable full participation of marginalized groups.

(b) **Climate Change and Digital Agriculture**

Addressing climate change through digital agriculture is critical for safeguarding Kenya's agricultural productivity, food security, and rural livelihoods.

Policy Statement

The Government (national and county) will promote the integration of digital agriculture technologies to enhance climate risk management, strengthen early warning and response systems, and support climate-resilient livelihoods across all farming systems.

Policy Interventions

National Government will:

(i) Develop and implement a national framework for climate-smart digital

agriculture, integrating climate information services, satellite monitoring, early warning systems and digital advisory platforms.

(ii) Strengthen national climate, weather, and agricultural data systems to ensure timely, localized and farmer-friendly information.

(iii) Promote development and scaling of digital tools in all the agricultural sub-sectors.

County Government will:

(i) Localize and disseminate digital climate and agricultural advisory services tailored to county-specific agro-ecological zones and farming systems;

(ii) Facilitate farmer access to digital platforms through extension services, farmer groups, and community digital hubs;

(iii) Strengthen county-level early warning, preparedness, and response mechanisms using digital technologies.

National and County Government will:

(i) Coordinate implementation of digital climate-smart agriculture initiatives to ensure alignment, interoperability and scalability.

(ii) Monitor, evaluate, and continuously improve digital agriculture interventions to enhance climate resilience and recovery from climate shocks.

CHAPTER FOUR: POLICY MANAGEMENT AND REVIEW

4.1 Overview

To effectively implement the proposed policy interventions, this Chapter provides the institutional structures for management and implementation as well as linkages with all actors in the agriculture sector. It also provides monitoring, evaluation, reporting and review mechanisms.

4.2 Institutional Framework

4.2.1 National Level Actors

At the national level, the Ministry responsible for Agriculture will provide policy direction for digital agriculture while the Kenya Agricultural Digital Information Centre (KADIC) will be established and be responsible for:

(i) Developing a comprehensive agricultural integrated information system;

(ii) Managing the integrated information system;

(iii) Facilitating the exchange of agricultural data, information and knowledge among the Ministries, Departments and Agencies, County Governments, and other stakeholders;

(iv) Providing personalised, insightful, data-driven digital advisories to agricultural value chain actors;

(v) Collating and disseminating data, information and knowledge generated by the Ministries, Departments and Agencies, County Governments, and other stakeholders;

(vi) Developing and operationalizing a data governance framework for the agricultural sector;

(vii) Testing and incubating digital agricultural solutions and innovations;

(viii) Building the capacity of county governments in relation to digital agriculture;

(ix) Collaborating with county governments in establishing county-specific digital agriculture incubation centres;

(x) Collaborate with county governments in establishing county-specific agricultural digital information centres;

(xi) Advising the Cabinet Secretary on policies and strategies related to digital agriculture and information.

Further a Technical Advisory Committee will be established and anchored under JASSCOM and be responsible for:

(i) Providing expert guidance to ensure that KADIC's digital systems, data and services remain accurate, reliable and aligned to national agriculture goals.

(ii) Advise on compliance with policies and standards.

(iii) Recommend innovative technologies and best practices.

(iv) Provide feedback on user needs and centre's performance.

(v) Linkage with actors in digital agriculture including intergovernmental coordination.

The membership of the Technical advisory committee will be :

(i) Representative from the State Department responsible for ICT.

(ii) Representative from the State Department responsible for crops, livestock, fisheries, cooperatives and irrigation.

(iii) Representative from Office of the Data Protection Commissioner.

(iv) Representative from KADIC.

(v) Representative from COG.

(vi) Representative from the private sector.

(vii) Representative from farmer organization.

(viii) Representative from Research and academia.

Other Ministries

Other Ministries will:

(i) Provide ICT infrastructure and data protection.

(ii) Funding digital transformation and ensuring accountability.

(iii) Support integration of climate and weather data.

(iv) Support integration of agricultural data, information and knowledge.

Other National Government Agencies

The agencies listed in *Annex 2* will:

(i) Provide agricultural data, information and knowlegde to KADIC for collation into the National agricultural data base.

(ii) Collaborate with KADIC in agricultural data collection and analysis.

(iii) Support integration of agriculture data and digital services with KADIC systems.

(iv) Promote the adoption of digital technologies in the subsectors.

4.2.2 County Level Actors

At the County level, County Governments will establish County Agricultural Data, Information and Knowledge Management Units or strengthen the existing County statistics units within the County Agricultural Department responsible for crop, livestock and fisheries. The units will be responsible for:

(i) Undertake agricultural data collection and analysis in collaboration with KADIC.

(ii) Manage the established agricultural data and information system at the County level.

(iii) Capture, document and disseminate agricultural data and information innovations and best practices.

(iv) Use the data governance framework provided by KADIC to ensure interoperability with national systems.

County Governments

The County Governments will:

(i) Establish the County Agricultural Data, Information and Knowledge Management Units

(ii) Develop an integrated agricultural data and information system that is interoperable with the KADIC system.

(iii) Allocate budget to support agricultural data collection, analysis, reporting and knowledge management.

(iv) Coordinate the data submission of agricultural data and information to KADIC at the National level for collation.

4.2.3 Private Sector

The private sector will:

    (i)   Support integration of digital services

    (ii) Disseminate agricultural advisories and market information to members

    (iii) Promote adoption of improved technologies and best practices

    (iv) Collaborate and share agricultural data, information and technology to KADIC.

4.3 Financing Policy Implementation

The implementation of the Kenya Agricultural Data, Information and Digital Policy will be financed through a coordinated and multi-source financing framework at both the National and County Government levels. At the National level, the Ministry of Agriculture and Livestock Development will allocate resources through the established KADIC to support implementation of this policy. Financing will also be mobilized through conditional grants, intergovernmental fiscal transfers, and special purpose funds targeting digital transformation within the agricultural sector. Additional resources will be leveraged from national ICT programs implemented in collaboration with the Ministry of Information, Communications and the Digital Economy to strengthen connectivity, digital infrastructure and cybersecurity systems supporting agricultural digitization.

At the County level, County Governments will mainstream digital agriculture priorities within County Integrated Development Plans (CIDPs) and Annual Development Plans (ADPs), with dedicated budget allocations under agriculture, ICT, trade, and cooperative development departments. Counties will finance localized digital extension services, farmer data management systems, innovation hubs, and capacity-building initiatives to enhance digital literacy among farmers and agribusinesses.

To complement public financing, both levels of government will mobilize external resources from development partners, climate and innovation funds, and multilateral financing institutions. Public–private partnerships (PPPs) with agritech companies, telecommunications providers, financial institutions, and producer organizations will be promoted to expand investment in digital platforms, e-commerce systems, precision

agriculture technologies, and digital financial services. Blended finance models' mechanisms will support sustainable implementation and scaling of digital agriculture initiatives across the country.

4.4 Monitoring, Evaluation and Reporting

A comprehensive Monitoring, Evaluation, and Learning (MEL) framework will be established to oversee the implementation of the Kenya Agricultural Data, Information and Digital Policy, ensuring systematic tracking of progress, measurement of results, and continuous improvement of digital agriculture interventions. The M&E function will be coordinated at the national level by KADIC in collaboration with the agricultural data, information and innovation actors. Clear and measurable key performance indicators (KPIs) will be developed across all policy pillars, including digital infrastructure development, data governance, e-extension services, digital financial inclusion, innovation ecosystems, capacity building, and institutional strengthening. Indicators will capture technological adoption, socio-economic outcomes, service efficiency, market access, inclusivity, and governance performance.

4.5 Policy Communication

The Ministry responsible for agriculture will within six (6) months of this Policy's commencement, in collaboration with the Agricultural Information Resource Center, develop and operationalize a digital communication framework aligned with the Kenya Agricultural Data, Information and Digital Policy to enable real time information sharing, inclusive stakeholder engagement and effective intergovernmental coordination across the agricultural sector.

4.6 Risk and Mitigation

The Ministry of Agriculture and Livestock Development and the Agricultural Information Resource Center will in collaboration with other stakeholders develop a comprehensive risk management framework together with mitigation measures. Key risks to be addressed include: inadequate or delayed financing for digital infrastructure and services; fragmented institutional mandates across national and county levels; low digital literacy among farmers

and extension officers; limited access to reliable internet connectivity and electricity in rural areas; data privacy and cybersecurity concerns; resistance to technological change; and weak coordination among public, private, and development partners. The risk framework to include continuous monitoring, stakeholder engagement, and adaptive management will further support responsive and resilient policy implementation.

4.7 Policy Review Cycle

The Kenya Agricultural Data, Information and Digital Policy will be subject to review to ensure continued relevance, effectiveness, and alignment with the evolving digital agricultural sector. A comprehensive policy review will be conducted every after 10 years of implementation, or earlier if warranted by significant changes in policy direction or digital agricultural sector.

ANNEXES
ANNEX 1: IMPLEMENTATION MATRIX

Policy objective	Priority interventions (summary)	Lead (national)	Lead (county)	Key partners	Timeframe	Indicative indicators
1. Establish a coordinated data, information and knowledge ecosystem	Harmonise standards; strengthen KIAMIS interoperability; develop agricultural statistics compendium; improve knowledge management	MoALD (State Departments), KADIC/AIRC, KNBS, ICT Authority/Ministry of ICT	County Departments of Agriculture/Livestock/Fisheries; County Digital Agriculture Units	CoG; ODPC; research institutions; private platforms; development partners	Short–Medium term	Adopted data standards; interoperable systems connected; farmer register updated; published compendium.

Policy objective	Priority interventions (summary)	Lead (national)	Lead (county)	Key partners	Timeframe	Indicative indicators
	t tools and workflows.					
2. Promote inclusive, affordable, and sustainable adoption of digital technologies.	Expand rural connectivity and power; improve access to devices; support farmer-centred innovation and learning hubs.	Ministry of ICT & Digital Economy; MoALD; Energy agencies	County Governments (connectivity facilitation; local infrastructure support)	Private telecoms; CoG; development partners	Medium term	Coverage in priority zones; reduced access costs; increased adoption rates disaggregated by gender/youth/PWD.

Policy objective	Priority interventions (summary)	Lead (national)	Lead (county)	Key partners	Timeframe	Indicative indicators
3.Enhance effectiveness, accessibility and usability of digital agricultural services.	Integrate advisory, market, finance, and climate services; establish/strengthen service support centres; awareness and user capacity building.	MoALD; KADIC; relevant regulators/agencies	County extension services; county service centres/call centres	AgriTech providers; farmer organisations; KENAFF	Short–Medium term	Active digital service users; response times; service satisfaction; increased extension reach.

Policy objective	Priority interventions (summary)	Lead (national)	Lead (county)	Key partners	Timeframe	Indicative indicators
4.Strengthen institutional, human, and financial capacity for digital agriculture.	Skills development (data governance, analytics, KM); curriculum reform; sustainable financing for platforms; joint capacity programmes.	MoALD; National Treasury; training and research institutions	County Governments; ATCs and county training institutions	Universities; KALRO; private sector; development partners	Medium term	Number trained; updated curricula; budget lines for digital agriculture; reduced reliance on pilots.

Policy objective	Priority interventions (summary)	Lead (national)	Lead (county)	Key partners	Timeframe	Indicative indicators
5.Provide an enabling policy, legal and institutional environment for coordinated governance and scaling.	Clarify coordination mechanisms; align sector initiatives; establish operational governance arrangements for interoperability, privacy, and cybersecurity.	MoALD; IG Secretariat; Ministry of ICT; ODPC	County Governments; CoG	Regulators; Attorney-General's Office (as needed for alignment)	Short term	Functional coordination structures; adopted interoperability guidance; compliance mechanisms operational.

Policy objective	Priority interventions (summary)	Lead (national)	Lead (county)	Key partners	Timeframe	Indicative indicators
6.Promote inclusive, equitable, and accessible digital agriculture systems.	Mainstream GESI and accessibility; targeted capacity for women/youth/PWD; universal design standards and localized delivery.	MoALD; relevant GESI institutions	County Governments; community structures	CSOs; PWD associations; youth and women organisations	Short–Medium term	Disaggregated access metrics; accessible platforms; participation rates of target groups.

ANNEX 2: AGRICULTURAL DATA, INFORMATION AND INNOVATION ACTORS (PUBLIC & PRIVATE)

S/No.	Institutions
Government Agencies	
1.	Agricultural Development Corporation
2.	Agricultural Finance Corporation
3.	Agriculture and Food Authority (AFA)
4.	Commodities Fund
5.	Kenya Animal Genetics Resource Centre (KAGRIC)
6.	Kenya Agricultural Livestock Research Organization (KALRO)
7.	Kenya Dairy Board (KDB)
8.	Kenya Sugar Board (KSB)
9.	Kenya Plant Health and Inspectorate Service (KEPHIS)
10.	Kenya Tsetse and Trypanosomiasis Eradication Council (KENTTEC)
11.	Kenya Veterinary Board (KVB)
12.	Kenya National Bureau of Standards
13.	Kenya Veterinary Vaccines Production Institute (KEVEVAPI)
14.	National Biosafety Authority
15.	National Irrigation Board (NIA)
16.	National Cereals and Produce Board (NCPB)
17.	Pest Control Products Board (PCPB)
18.	Tea Board of Kenya (TBK)
19.	Kenya Genetic Resource Centre (KAGRC)
20.	National Livestock Development Promotion Services (NLDPS)
21.	Veterinary Medicines Directorate (VMD)
Research and Academia	
22.	Universities
23.	The Consultative Group on International Agricultural Research (CGIAR)
24.	Kenya Institute for Public Policy Research and Analysis (KIPPRA)
25.	Tegemeo Institute of Agricultural Policy and Development
26.	International Livestock Research Institute (ILRI)

27.	International Centre of Insect Physiology and Ecology (ICIPE)
28.	Kenya Marine and Fisheries Research Institute (KEMFRI)

Development Partners

29.	Development Partners
30.	Non -Governmental Organizations and Civil Society Organization

Private Sector

31.	Private Sector
32.	Farmer Organizations and Cooperatives

ANNEX 3: REFERENCES

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