REPUBLIC OF KENYA

KENYA ARTIFICIAL INTELLIGENCE STRATEGY 2025-2030

March 2025

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List of Abbreviations

AI	Artificial intelligence
ANSI	American National Standards Institute
Chat GPT	Chat Generative Pre-Trained Transformer
FGD	Focus group discussion
GDP	Gross domestic product
HPC	High performance computing
ICT	Information and communication technology
IoT	Internet of Things
KII	Key informant interview
KPI	Key performance indicator
OECD	Organisation for Economic Co-operation and Development
PEAs	Privacy enforcement authorities
PPP	Public-private partnership
R&D	Research and development
SLOC	Strengths, limitations, opportunities, and challenges
SMEs	Small and medium enterprises
STEM	Science, technology, engineering, and mathematics
TIA 942	Telecommunications Industry Association 942
UNESCO	United Nations Educational, Scientific, and Cultural Organization

EXECUTIVE SUMMARY

Kenya's Artificial Intelligence Strategy envisions the country as Africa's leading artificial intelligence (AI) hub for model innovation, driving sustainable development, economic growth, and social inclusion while positioning itself as an AI research and application leader on the continent. Recognising the transformative potential of AI, the strategy also commits to safeguarding national interests by embedding robust data sovereignty, a cybersecurity framework, and ethical oversight in AI deployment. These measures will ensure that Kenya's AI ecosystem is secure and equitable. The strategy provides a comprehensive framework to guide Kenya in harnessing the transformative power of AI, ensuring its deployment benefits all sectors of society while adhering to ethical principles and inclusivity.

Developed through extensive consultations with government agencies, private-sector stakeholders, academia, civil society, international partners, and local communities, the strategy reflects a participatory approach that aligns with Kenya's national values and development goals while embracing diverse perspectives.

At the core of this strategy is Kenya's aspiration to adopt AI technologies and lead in AI model innovation, R&D and commercialisation, creating solutions tailored to its unique needs and those of the African continent. The objectives include establishing a robust governance framework for AI; enhancing adoption in key sectors such as agriculture, security, healthcare, education, and public service delivery; and fostering the growth of local AI ecosystems. Additionally, the strategy prioritises inclusivity to ensure underserved communities are not left behind and aims to position Kenya as the preferred regional hub for AI research, model development, and scalable innovation.

The strategy is anchored by three key pillars and supported by four enablers. The first pillar is AI digital infrastructure, which underscores the need for accessible and affordable AI infrastructure and a modernised national digital infrastructure for AI access and development. The second pillar, data, seeks the establishment of a robust sustainable data ecosystem for AI and innovation. The third pillar, AI research and innovation, is central to the vision of making Kenya a global leader in AI model development. It emphasises the drive to develop cutting-edge localised AI models and solutions through thriving local research and development (R&D), innovation, and commercialisation.

The strategy is also premised on a foundation of several cross-cutting enablers. Governance focuses on harnessing and deepening the legal and regulatory framework to guide AI deployment, ensuring ethical use, data privacy, and public accountability by establishing an agile and dynamic governance framework. Talent development emphasises promoting AI literacy across all demographics, integrating AI into educational curricula, and developing a skilled workforce capable of advancing AI research and innovation. The strategy is also anchored in accelerating investments from public and private sources. Finally, the strategy aims to foster a culture of equitable, ethical, and inclusive AI development and deployment.

Collaboration among stakeholders is crucial. Government institutions will provide regulatory and policy guidance, private-sector actors will drive innovation and commercialisation, academia will advance research, and civil society will ensure that AI adoption is equitable and inclusive. Local communities will play a vital role in ensuring the relevance of AI solutions to societal challenges.

The strategy proposes a phased approach to ensure effective implementation. This begins with foundational investments in policy, infrastructure, and capacity-building, followed by key milestones such as developing a national AI policy, establishing AI research and innovation hubs, executing pilot projects, and creating a monitoring and evaluation framework to track progress.

In conclusion, this strategy presents a bold vision for positioning Kenya as the leading hub for AI model innovation, creating tailored solutions for local challenges by prioritising governance, innovation, and capacity-building. Kenya seeks to lead in driving equitable and sustainable AI adoption while ensuring that the benefits of this transformative technology reach all its citizens. The strategy is a call to action for stakeholders to collaborate in realising this vision and cementing Kenya's position as a stalwart participant in AI development.

FOREWORD

As we stand at the threshold of a new era, in which artificial intelligence holds transformative potential across all sectors of society, the Government of Kenya remains committed to embracing and harnessing the power of AI for sustainable development, economic growth, and the well-being of our citizens. The development of the Kenya AI Strategy marks a significant milestone in this journey - one that reflects the country's ambition to not only be a leader in AI innovation but also to ensure benefits are equitably shared across all segments of society.

AI is a driver of change, touching sectors as diverse as agriculture, healthcare, education, finance, and governance. The global conversation around AI is rapidly evolving, and Kenya has recognised the urgent need to place itself at the forefront of this technological revolution. This strategy is not merely a framework for technological adoption but a roadmap to unlock the full potential of AI while addressing key challenges such as accessibility, inclusivity, and data privacy.

In developing this strategy, we have sought to engage a wide range of stakeholders - from government entities and private industry to academia, civil society, and international partners - ensuring that the final document represents a collective vision for Kenya's AI future. At its core, this strategy aims to position Kenya as a hub for AI R&D, innovation, and commercialisation in Africa, while promoting responsible AI use and ethical standards in its development and deployment.

The strategy sets clear objectives, guiding principles, and actionable steps to establish a robust AI ecosystem that will support Kenya's aspiration to be a regional leader in technology. It outlines strategies in establishing AI digital infrastructure, building capacity in AI R&D, Innovation and Talent, creating an enabling policy and regulatory environment, and fostering public-private partnerships to stimulate innovation.

The implementation of this strategy will require commitment, collaboration, and continuous adaptation to emerging trends and technologies. As we move forward, we invite all stakeholders - public- and private-sector organisations, academic institutions, and international partners - to join us in making this vision a reality. Together, we can build an AI-powered Kenya that benefits all its people, advances sustainable development, and sets the stage for a prosperous and inclusive future.

H.E. Hon. William Kabogo Gitau
Cabinet Secretary
Ministry of Information, Communications and the Digital Economy

ACKNOWLEDGMENTS

The development of the Kenya National AI Strategy was a collective effort involving multiple stakeholders whose commitment, expertise, and dedication were instrumental in shaping this important document. On behalf of the Ministry, I would like to extend my deepest gratitude to all those who have contributed to this initiative.

First, I wish to acknowledge the leadership and vision of the Government of Kenya, particularly our Cabinet Secretary, whose unwavering commitment to the digital transformation of our country has set the stage for this groundbreaking strategy. His support has been essential in guiding this process.

We also extend our heartfelt thanks to the dedicated members of the National AI Working Group and Steering Committee, whose expertise and tireless efforts have ensured that the strategy is both forward-thinking and inclusive. Their contributions have been invaluable in drafting a comprehensive document that addresses Kenya's unique challenges and opportunities.

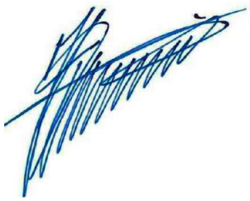
I would like to express my appreciation to our partners in the public and private sectors, academic institutions, and civil society who have shared their insights, knowledge, and resources throughout the consultation process. Your input has been crucial to ensuring that the strategy reflects the diverse needs and perspectives of all Kenyans.

Special thanks go to our international partners for their support. We appreciate the German Federal Ministry of Economic Cooperation and Development (BMZ) and the European Union through the Digital Transformation Center, Kenya implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Canada's International Development Research Centre (IDRC), and the UK's Foreign, Commonwealth, and Development Office

(FCDO). Their collaborative spirit and support have enriched our efforts and understanding of global best practices through lessons learned.

To the technical experts, researchers, and industry leaders who contributed to the research, analysis, and development of the strategy, especially during the national town halls, focus group discussions, and key informant interviews led by the Global Partnership for Sustainable Development Data, your dedication to advancing the field of AI in Kenya is truly commendable. The work you have done will pave the way for a future where AI is not only a tool for economic growth but also for improving the quality of life for all Kenyans.

Finally, I would like to acknowledge the Government of Kenya's ongoing commitment to building an AI-enabled society where innovation, inclusivity, and sustainability drive our shared success. This strategy is a testament to the power of collaboration, and we look forward to working together to implement it.



Eng. John Tanui, CBS
Principal Secretary
State Department for ICT and the Digital Economy

1. INTRODUCTION

The National Strategy on Artificial Intelligence for Kenya was written to harness the transformative potential of AI to drive the country's socioeconomic development. This strategy is a proactive and ambitious roadmap to position Kenya as an African leader in AI by creating an action plan for a robust, inclusive, and sustainable AI-driven future. It ensures that emerging technologies are leveraged to achieve national priorities, enhance public services, and promote inclusive economic growth.

This strategy provides a comprehensive approach to ensure that Kenya can effectively navigate the complexities of AI development and adoption in our context, mitigate potential risks, and capitalise on the opportunities presented by AI technologies. This strategic plan will guide the development, deployment, and governance of AI in Kenya and the integration of AI into various sectors, building a skilled workforce and ensuring that AI contributes to the nation's growth and development while safeguarding the rights and well-being of its citizens by addressing regulatory and ethical considerations. This strategy centres on the Kenyan citizen: it empowers Kenyans by providing them with the tools and opportunities to participate actively in the digital economy, improve their livelihoods, and enhance their quality of life.

Artificial intelligence has revolutionised industries, driven innovation, and reshaped economies globally. AI technologies enhance productivity, enable smarter decision-making, and create new economic opportunities. AI is being used to solve complex problems, improve efficiency, and deliver personalised services.

For Kenya, the potential of AI is immense. As a leading hub for technology and innovation in Africa, Kenya is well positioned to provide leadership and set the pace for how AI can be applied to address our unique challenges and drive sustainable development. By integrating AI into critical sectors—including agriculture, healthcare, finance, and education—Kenya can achieve significant socioeconomic gains, reduce inequalities, and improve the quality of life for its citizens. The National AI Strategy aims to unlock these potentials, positioning Kenya to maximise the benefits of AI, promoting innovation and economic growth while safeguarding our national interests, and ensuring ethical and inclusive AI practices that align with our values and development goals. It is important to note that while AI offers opportunities to transform our country in various sectors and public service, its adoption must be balanced with measures to address potential risks. The misuse of AI—to launch automated cyberattacks, disinformation campaigns, or unauthorised surveillance—poses significant challenges. Kenya's AI Strategy will prioritise frameworks that safeguard against such threats while driving innovation.

1.1. Key Definitions

This section defines key terms in this strategy document. By defining these terms, we aim to ensure a common language and shared understanding among all stakeholders, facilitating effective communication and collaboration as we advance our AI initiatives. Clear and consistent definitions will also help align our strategic goals with best practices and regulatory standards.

Table 1.1: Definitions of key terms

Algorithms	Sets of rules or step-by-step instructions for solving problems and performing tasks that form the fundamental building blocks of all computational processes.
Artificial Intelligence	A collection of emerging technologies that leverage machine learning, data processing, and algorithmic systems to perform tasks that typically require human intelligence. AI encompasses a range of capabilities, including automated decision-making, language processing, and computer vision. In the Kenyan context, AI is a powerful tool for sustainable development, designed to assist and simplify human tasks, solve critical challenges, and drive sustainable growth.
Artificial Intelligence Governance	A framework of policies, guidelines, and practices designed to ensure the responsible, ethical, and transparent development and deployment of AI systems. It includes oversight mechanisms, risk management, and accountability measures.
Data Privacy	A derivative of the fundamental constitutional right to privacy. It is an individual's right to control personal information, including how it is collected, used, stored, and shared. In the context of AI systems, it encompasses principles and regulations that protect individual privacy rights to prevent unauthorised access by algorithms and maintain data confidentiality.
Edge Computing	A distributed computing paradigm that brings computation and data storage closer to the location where they are needed, thus improving response times and saving bandwidth. It enables data processing near the source of data generation rather than relying on a centralised data-processing warehouse.

Emerging Technologies	Novel advancements in science and engineering that have the potential to reshape industries, societies, and economies through innovation.
Generative Artificial Intelligence	AI models capable of creating new content, including text, images, music, or code, based on patterns learned from training data. These systems can produce original outputs that mimic human-created content.
Large Language Models	Advanced AI models trained on vast amounts of text data that can understand, generate, and manipulate human language. They can also perform various language tasks, such as translation, summarisation, and content generation.
Machine Learning	A subset of AI that enables systems to learn and improve from experience without being explicitly programmed. It uses statistical techniques to allow computers to “learn” from data and identify patterns.
Neural Networks	Computational models inspired by the structure and function of the human brain, consisting of interconnected nodes (neurons) that process and transmit information, enabling complex pattern recognition and problem-solving capabilities.
Retrieval-Augmented Generation	A hybrid AI approach that combines information retrieval from a knowledge base with generative AI capabilities. Grounding generated content in verified information enables more accurate and contextually relevant responses.
Small Language Models	Compact versions of larger language models designed to operate efficiently on less powerful devices or within constrained computational environments.

1.2. Background

Kenya is a leading hub for technology and innovation in Africa, and artificial intelligence is increasingly playing a significant role in its digital landscape. Several initiatives have already been established in the country to leverage AI technology, supported by a robust digital infrastructure and driven by a combination of government support, private-sector innovation, development partners, and academic research.

As of March 2024, Kenya had 22.71 million internet users, translating to an internet penetration rate of 40.8% and a mobile penetration rate of 118% with 68 million mobile cellular connections. With a median age of 19, the country's population is highly engaged with technology, seeking digital solutions in everyday life. Kenya has several start-ups leveraging AI technologies to enhance their offerings in various sectors and has already raised millions of dollars in venture capital investments.

In the private sector, homegrown large corporations in the telecommunications and banking sectors are also innovating with AI technologies to enhance customer experience, detect fraud, and improve operational efficiency. Global tech companies have also set up research centres in Kenya to tackle challenges in healthcare, agriculture,

and financial services, among other sectors. Recently, partnerships have been announced on AI infrastructure, including establishing a state-of-the-art green data centre and an East Africa Innovation Lab focused on broad AI digital skills training.

Kenya has made significant strides in developing its digital infrastructure. This uptake is a result of extensive investments in infrastructure and the proliferation of affordable internet services. The country's rapid adoption of internet and mobile technologies has transformed its economic, social, and cultural landscapes. For instance, the government has prioritised the development of digital government services, such as its eCitizen portal, which provides online access to various public services, enhancing efficient and accessible service delivery for all citizens.

Investments in terrestrial fibre networks have increased the reach of high-speed internet to various parts of the country, including previously underserved regions. Currently, the National Optic Fibre Network Backhaul Initiative, in partnership with the private sector and other key infrastructure partners, is aiming to deploy over 100,000 km of optic fibre by 2027. The first two phases of the initiative successfully connected the country's 47 counties, with the current phase targeting to connect all 1,450 sub-counties. The leading mobile network operators continue to invest in expanding their coverage and upgrading their networks to support higher data speeds and better service quality. The country hosts several private data centres that provide reliable and secure data storage and processing capabilities. These facilities could be upgraded to support AI applications by offering robust cloud computing resources and data management services.

Cloud services adoption is accelerating in Kenya, driven by recent announcements by global service providers offering scalable and flexible cloud solutions, and opening offices locally. These services enable businesses and developers to deploy AI applications efficiently, leveraging cloud-based infrastructure for machine learning, data analytics, and other AI-related tasks.

Kenya is actively leveraging AI to enhance education and workforce development. Various initiatives and programmes are in place to equip citizens with the necessary skills to thrive in a digital economy. Kenyan universities offer data science, machine learning, and AI courses, providing students with the theoretical and practical knowledge needed to excel in AI-related fields.

Kenya is emerging as a significant hub for AI research and development in Africa. A growing number of initiatives are focused on using AI to address local and regional challenges. The country's AI research activities span various sectors, including agriculture, healthcare, financial services, and education, with an emphasis on creating solutions tailored to the unique needs of the African context.

Natural language processing is a focus area driven by Kenya's rich linguistic diversity, with research aimed at developing chatbots that can interact through various local languages. Other emerging research efforts aim to apply computer vision to practical applications in agriculture, such as crop disease detection,

and in healthcare, particularly medical imaging analysis. Kenya's leadership in mobile money has also spurred substantial research into machine learning for financial inclusion, aiming to broaden access to financial services through innovative AI applications.

Additionally, several research centres are conducting ongoing research into the societal impacts of AI and developing robust ethical guidelines to ensure responsible AI deployment within the Kenyan context. Therefore, Kenya is well-positioned to contribute significantly to global AI research, particularly in developing AI solutions for emerging markets. The future of AI research in Kenya looks promising, with increasing investment, growing international partnerships, and a rising number of young Kenyans pursuing advanced studies in AI.

Despite these exciting emerging opportunities and the potential for AI to revolutionise the Kenyan economy, there are a number of growing concerns, particularly regarding the governance of the technology and the ability of Kenyan citizens to fully participate in and benefit from AI adoption across various sectors.

Kenya's journey towards becoming an African and global leader in AI development and adoption requires creating an environment that fosters innovation while ensuring responsible use. A balanced approach is needed to unlock AI's transformative potential in addressing our most pressing national challenges while safeguarding every Kenyan citizen's interests and rights.

An enabling environment for AI in Kenya means cultivating conditions where creative and innovative AI-driven solutions can flourish. It involves establishing frameworks that encourage the development, testing, and deployment of AI technologies tailored to our unique context and ensure that Kenyan citizens can directly benefit from these advancements, experiencing tangible improvements in their daily lives and livelihoods.

However, this vision of an AI-enabled Kenya is not without boundaries. There is a need to strike a delicate balance between fostering innovation and implementing necessary safeguards. Protective measures are required to prevent the exploitative use of AI technologies and ensure that their benefits are equitably distributed across Kenyan society. By doing so, Kenya aims to create an AI ecosystem that is not only innovative but also ethical, inclusive, and aligned with its national values and aspirations.

This National AI Strategy espouses harnessing AI as a tool for national development and social progress while vigilantly guarding against potential misuse or unintended negative consequences.

1.3. Rationale for an AI Strategy for Kenya

Kenya envisions becoming a leading force in the African AI landscape by fostering a robust, diverse, and inclusive AI ecosystem. This strategy focuses on creating an enabling environment for responsibly developing quality AI applications that leverage local datasets and talent, ensuring safety, responsibility, and alignment with international human rights standards.

1.3.1. Key AI Concerns in Kenya

Kenya's AI strategy aims to address the following key concerns of its citizens by ensuring that AI technologies are developed and deployed responsibly and inclusively:

- **Labour Disruptions and Economic Impact:** There is a great opportunity to leverage AI and emerging technologies to drive economic growth and create new employment and skills opportunities. However, the potential for AI to disrupt the job market is a major concern, especially given the unemployment challenges younger generations are currently experiencing. Many fear that AI-driven automation might lead to job losses, particularly in sectors where many Kenyans are employed, like manufacturing, agriculture, and services.
- **Digital Divide and Inclusive Development:** There is legitimate concern about uneven access to digital and AI technologies, including the broader digital divide between urban and rural areas and marginalised communities. Many Kenyans worry that only a small segment of the population will benefit from AI, exacerbating existing social and economic inequalities and widening the digital divide.
- **Data Sovereignty and Privacy:** With the increasing use of AI technologies that require vast amounts of data, there is a fear of data misuse, unauthorised access, and a lack of control over personal information. Emerging concerns about data colonialism and extractive practices by big tech companies are widespread.
- **Ethical AI, Human Rights, and the Promotion of Public Trust:** Significant concerns about the ethical use of AI include issues of bias, discrimination, perpetuation of existing inequalities, and potential exploitation for surveillance and other invasive purposes. Public trust in AI technologies and their developers is lacking, leading to scepticism about the intentions behind AI deployment. There is also a need to ensure that AI development respects human rights and aligns with Kenyan values.
- **Regulatory Preparedness:** The existing regulatory and legal frameworks to address the unique challenges AI technologies pose are inadequate. Without coherent guidelines and frameworks, AI development might outpace the ability to govern it effectively, leading to potential misuse and harm.
- **Local Innovation and Competitiveness:** Kenyans want to ensure they are not just consumers but also producers of AI technologies that can compete in the global markets. With sufficient investment in local AI development and education, Kenya may stay competitive in the global AI race. There is also a concern that if Kenya lags behind, brain drain could result as talented individuals seek opportunities abroad.
- **Public-Sector Efficiency and Service Delivery:** Unbiased adoption of AI in the public sector is necessary to ensure

equitable and efficient service delivery without discrimination to all Kenyans. AI has the potential to improve how the Kenyan government delivers services to its citizens.

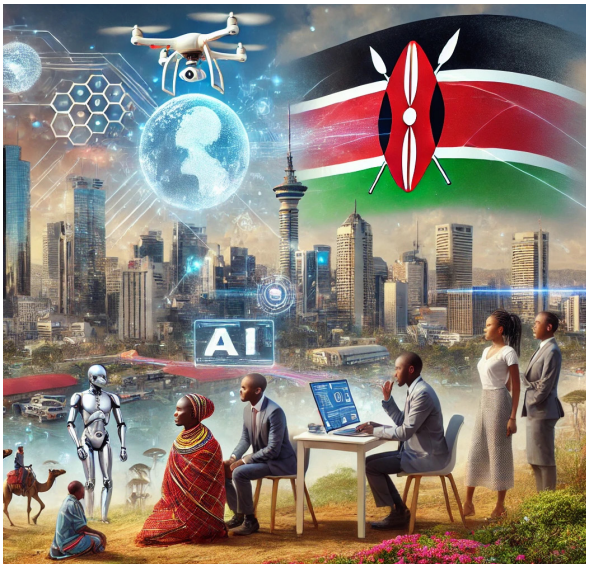
- **Sustainable (AI) Development:** AI development needs to be balanced with environmental sustainability. AI systems, such as large language models and data centres, require significant energy and could have long-term environmental impacts on Kenya's natural resources.

1.3.2. Strategic Importance of AI to Kenya

AI presents the following value propositions to Kenya:

- **Economic Growth:** AI has the potential to significantly boost Kenya's gross domestic product (GDP) by improving efficiencies and creating jobs across various sectors. For instance, AI can enhance agricultural productivity, reduce healthcare costs, and improve transportation systems. The government can anchor demand for AI solutions, stimulating innovation and adoption in the private sector.
- **Public-Sector Efficiency:** AI can improve government service delivery, enhance decision-making, and effectively manage costs. AI-driven solutions can also streamline processes, reduce bureaucratic inefficiencies, and enhance the transparency and accountability of public services.
- **International Competitiveness:** Kenya can attract international investments and collaborations by positioning itself as a primary source market for localised emerging technologies. This can lead to the development of home-grown AI solutions using local data and talent, fostering innovation and creating competitive advantages for Kenyan companies on the global stage.
- **Protection against Negative Impacts of Externally Developed AI Solutions:** By developing local AI capabilities and frameworks, AI solutions can be rooted in Kenyan values and contexts, rather than solely relying on external solutions that may not align with the country's unique needs and challenges. This approach positions Kenya to harness AI's benefits while maintaining control over how these technologies impact the society and economy.
- **Job Creation and Skills Development\:** AI can create new jobs in various sectors, from tech and data science roles to AI-enabled agriculture, healthcare, and education services. Developing AI-specific curricula and training programmes will equip the workforce to thrive in a digital economy, address the existing skills gaps, and prepare Kenya for future technological advancements.

By addressing these key areas, Kenya's National AI Strategy aims to create an enabling environment for AI development that drives economic growth, enhances public services, and promotes inclusive and sustainable development. This strategic approach ensures that AI contributes positively to Kenya's future while safeguarding the rights and well-being of its citizens.



1.4. Methodology

To formulate this strategy, the following mixed methods methodology was adopted to ensure that the resulting document was comprehensive, inclusive, and contextually relevant.

1.4.1. Literature Review and Environmental Analysis

A detailed literature review was conducted to examine global and regional AI strategies, policy documents, and governance frameworks. This review aimed to establish best practices and benchmarking mechanisms that could inform the development of Kenya's AI strategy. The review provided insights into the context and definitions, an environmental analysis to assess Kenya's AI landscape, and foundational considerations specific to the national context. A key component of this phase was stakeholder mapping, designed to identify and understand the roles, responsibilities, and influence of key stakeholders, including implementers and those impacted by the strategy.

This literature review applied an African lens to frame the AI ecosystem. Drawing from normative stakeholder theory, the methodology identified stakeholder categories based on normative claims emphasising fair economic opportunity, political equality, and authenticity. This approach integrated ethical considerations into the strategy, prioritising equitable outcomes and ensuring that diverse perspectives were included in the conceptualization of responsible AI. The findings informed the development of preliminary strategy chapters and guided subsequent data collection and stakeholder engagement activities.

1.4.2. Primary Data Collection

Data collection involved extensive primary research through key informant interviews (KIIs) with government representatives and implementation and development partners; focus group discussions (FGDs) with key AI stakeholders from industry, academia, and civil society; expert consultations with AI thought leaders; town hall sessions with tech and innovation communities within county hubs; and a public survey administered online. Research instruments, such as FGD guides and KII protocols, were designed based on the findings from the literature review and stakeholder mapping. These instruments focused on gathering insights on strategic themes, development priorities, and potential risks and concerns related to AI adoption.

1.4.3. Stakeholder Engagement

A large group of AI stakeholders was initially engaged through a series of three in-person workshops to establish a roadmap for the strategy development process, including setting the vision, the mission, guiding principles and key topics for the strategy to consider. From these large groups, members of a smaller working group were voted on by their peers as representatives of the broader AI community. The strategy working group, consisting of thematic experts, played a pivotal role in guiding the strategy development process. Through four in-person workshops and two virtual sessions, the working group contributed to thematic discussions, validated data findings, and provided critical feedback. In these workshops, the working group supported the strategy formulation team to identify thematic strategy priorities

and an implementation framework. Meetings were structured around presentations, with members contributing written input and recommendations throughout the sessions. This iterative feedback loop ensured that the working group's expertise was fully integrated into the evolving strategy.

1.4.4. Synthesis and Drafting of the Strategy

Data collected during the above phases of the strategy underwent qualitative and quantitative analysis, including thematic and content analysis. The analysis provided key evidence that informed the drafting of a strength, limitations, opportunities, and challenges (SLOC) analysis for AI in Kenya. On the basis of this SLOC analysis, strategic options, decisions, and initiatives were developed and proposed for implementation through the strategy. Figure 1.1 shows a summary of the methodology described above.

1.4.5. Validation of the Strategy

The strategy was presented at two stakeholder workshops, first with public-sector stakeholders and then with members of the Kenyan AI ecosystem. These workshops were held to validate the methodology used to develop the strategy, the vision, guiding principles, and key themes and pillars. The stakeholders engaged were largely in agreement with the strategy as presented.

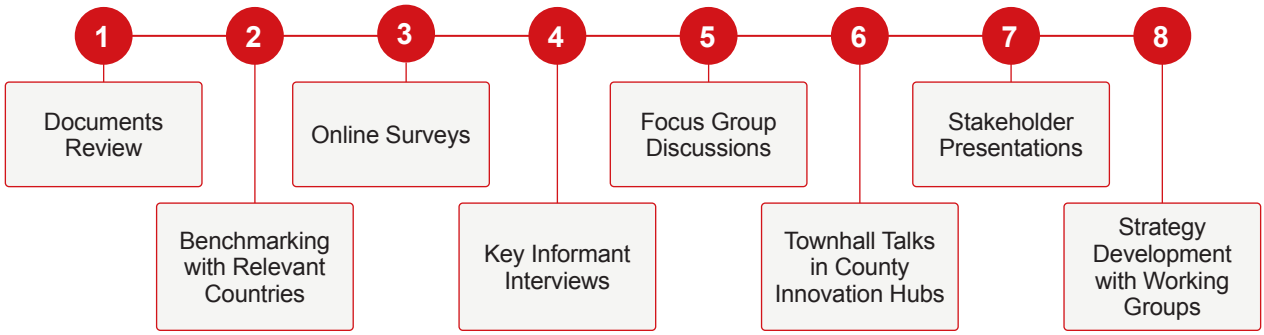
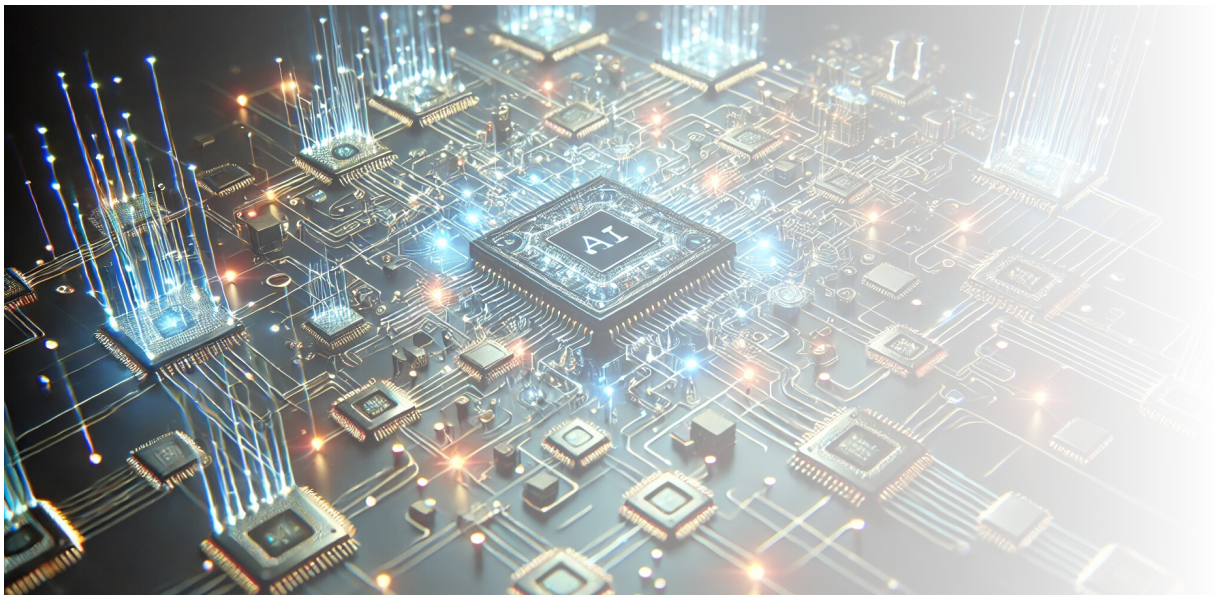


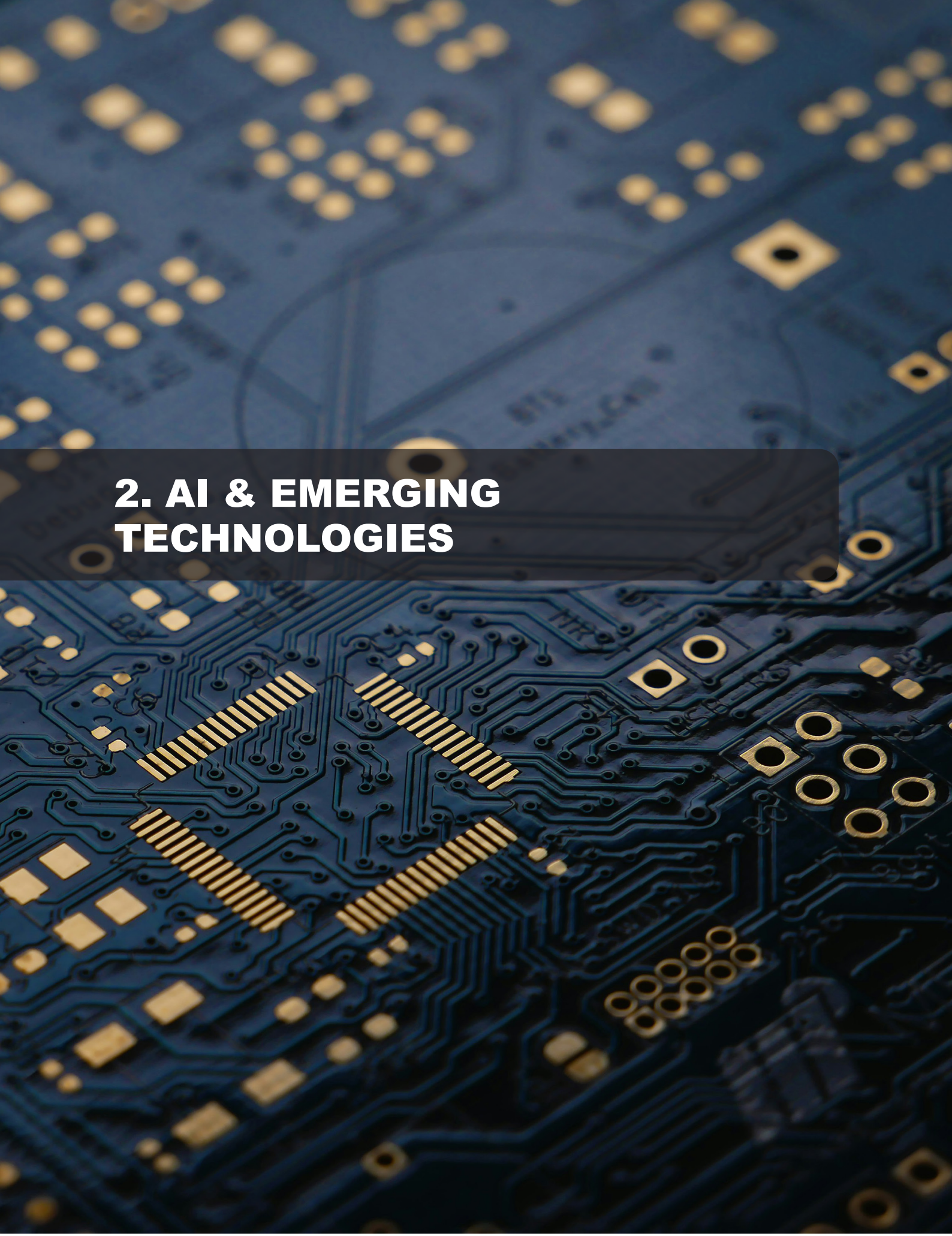
Figure 1.1: Summary of Methodology

1.5. Scope

This strategy aims to be comprehensive, addressing multiple facets of AI development, adoption, and governance. The strategy will create a holistic framework that creates an enabling environment for AI innovation and adoption but also ensures that this technological revolution benefits all sectors of society while adhering to ethical principles and national values. The strategy encompasses the following key areas:

1. **AI Digital Infrastructure:** The strategy provides strategic options and initiatives that enable the development of the technological and supporting infrastructure needed to support local AI growth.
2. **Data:** The strategy addresses the need for a robust and sustainable data ecosystem framework as a critical input for developing contextual AI models and solutions.
3. **Research and Development:** Given Kenya's unique position as a potential provider of local AI solutions to address development challenges, this strategy includes options to foster a robust AI R&D ecosystem.
4. **Talent:** The strategy addresses the critical need for equitable access to AI through developing AI skills across all levels of society.
5. **Governance:** The strategy provides a roadmap for developing initial governance frameworks for responsible AI development and use.
6. **Investment:** A significant outlay of capital and investment is needed to establish an AI industry. The strategy addresses various options and avenues for financing its implementation.
7. **Ethics, Equity, and Inclusion:** The strategy addresses how Kenya can ensure that AI development is ethical, inclusive, and respectful of human rights.





2. AI & EMERGING TECHNOLOGIES

2.1. Definition of Emerging Technologies

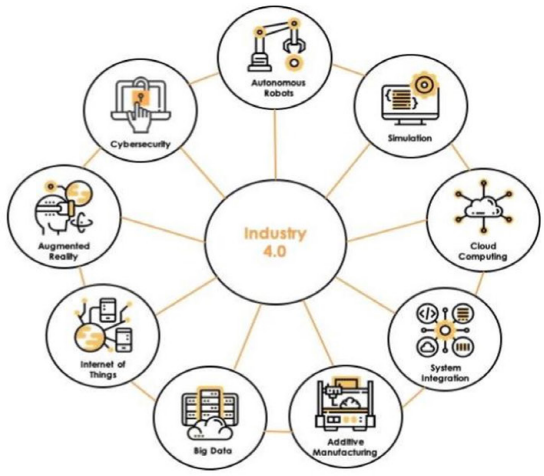
Emerging technologies are innovative advancements in various fields that are in the process of development or are newly introduced. These technologies have the potential to dramatically benefit industries, societies, and individuals by offering new ways of doing things, increasing efficiency, and improving general quality of life.

Emerging technologies encompass a wide range of innovations that are at the forefront of development and have the potential to disrupt existing systems and processes. These technologies are distinguished by their novelty, potential for significant impact, and rapid evolution. Examples of emerging technologies include blockchain, Internet of Things (IoT), virtual reality, and 3D printing. These technologies are often interdisciplinary, drawing from fields such as computer science, engineering, biology, and materials science to push the boundaries of what is possible. One of the most prominent emerging technologies of our time is AI, which has been gaining momentum and transforming various sectors due to its ability to mimic human intelligence and perform tasks that typically require human intervention.

2.2. Relationship between Emerging Technologies and AI

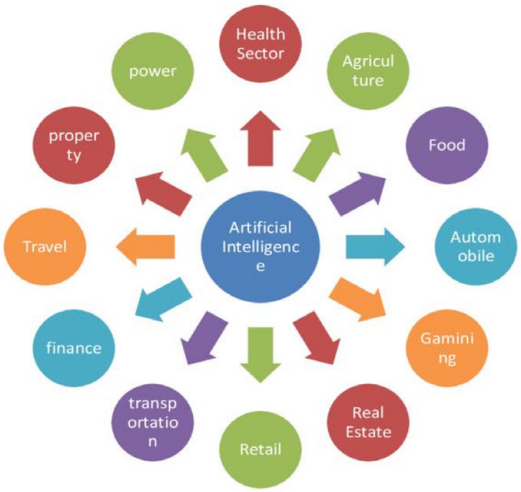
AI has emerged as a transformative technology with the potential to revolutionise industries and redefine how we interact with technology. AI refers to the simulation of human intelligence processes by machines, including learning, reasoning, problem solving, perception, and language understanding. AI systems are designed to analyse data, recognise patterns, and make decisions with minimal human intervention.

AI is a foundational technology that underpins and scales the capabilities of other emerging



AI Is the key technology (Orchestrator) of the 4th industrial revolution – Emerging Technologies

https://www.lumec.co.za/fourth-industrial-revolution-part-one/



AI will affect multiple sectors

Bharadiya, Jasmin & Thomas, Reji & Ahmed, Farhan. (2023). Rise of Artificial Intelligence in Business and Industry. Journal of Engineering Research and Reports. 25. 100807. 10.9734/JERR/2023/v25i3893.

technologies. It can be positioned as a transformative tool and a core enabler that seamlessly integrates with other emerging technologies, driving innovation and solving complex problems in different domains. As AI accelerates technological progress, it is simultaneously improved by advances in these connected fields, thus supporting further innovation.

AI amplifies the potential of emerging technologies such as the Internet of Things, blockchain, edge computing, augmented reality, biotechnology, and quantum computing. AI's core ability to produce, process, and extract meaningful patterns from complex data makes it indispensable to emerging technologies that are heavily reliant on data. For example, AI's ability to process data locally on edge devices and its integration with 5G enables real-time decision-making for applications such as autonomous vehicles or services such as telehealth that require low latency. In smart cities, AI coordinates IoT devices, blockchain networks, and renewable energy systems to optimise smart homes, support urban infrastructure, and promote sustainability.

Furthermore, AI's capacity to automate and optimise processes enhances the efficiency of other emerging technologies. In 3D printing and drug discovery, AI can refine designs and predict the behaviour of materials, improving production efficiency and resource optimisation. Similarly, in cybersecurity, AI automates threat detection and response, providing robust protection for other emerging technologies such as IoT and blockchain networks.

AI capabilities, including computer vision and natural language processing, play a vital role in making other emerging technologies more accessible and user-friendly through natural interfaces. For instance, in augmented and virtual reality, AI can personalise experiences by adapting content to user preferences and behaviours.

2.3. Why AI

Artificial intelligence stands at the forefront of the Fourth Industrial Revolution, serving as the key orchestrator that will fundamentally reshape how we live, work, and interact. As a transformative technology, AI's impact extends far beyond the tech sector, promising to revolutionise healthcare, agriculture, manufacturing, finance, education, and virtually every other aspect of our economy and society. Its ability to process vast amounts of data, recognise patterns, and generate insights makes it an essential driver of innovation and productivity across multiple sectors. AI's transformative power lies in its role as a catalyst for other emerging technologies, including robotics, Internet of Things (IoT), blockchain, and quantum computing.

This strategy focuses on artificial intelligence as a foundational emerging technology, with the core assumption that the central tenets and themes of the strategy—including data, governance, ethics and inclusion, talent development, and digital infrastructure—provide a robust implementation blueprint that can be extended and applied to support a growing technology sector in Kenya.

3. ENVIRONMENTAL ANALYSIS

The rapid evolution of the AI field continues to inform how digital ecosystems adapt to technology while underscoring the overall impact on different economic sectors. An in-depth environmental analysis portrays how the digital landscape evolves, considering how AI is being leveraged. Relying on existing data and publicly available use cases, the environmental analysis provides valuable insights not only into the global AI landscape but also the regional and national AI landscapes, allowing for the identification of stakeholders, opportunities, identification of best practices, areas thriving in the adoption of AI, risks, challenges, technological investment, regulatory preparedness, and growth of the AI landscape through innovation and research. The environmental analysis provides a critical lens through which to identify changes and challenges, areas for improvement, and the dynamics through which Kenya can have a competitive edge in the technological landscape regionally and internationally.

3.1. Social and Economic Environment

3.1.1. Global AI Trends

Global developments in AI and emerging technologies are shaping the future of industries and societies worldwide. The World Economic Forum notes that the world's five leading economies—the United States, China, Japan, India, and Germany—have vested interests in the global AI ecosystem, with the United States and China leading, characterised by the highest percentages in venture capital investment in AI across different sectors. This has led to a new emergent technology sub-sector, with projections by PricewaterhouseCoopers suggesting that AI could contribute up to $15.7 trillion to the global economy by 2030. The majority of these gains are expected from enhanced productivity and increased consumer demand for AI-driven product innovations.

Other global trends in how AI is defining the social and economic environment include:

- **Increased Infrastructure Investment:** In 2023, investments in the graphics processing unit market crossed into the $1 trillion cap club due to high demand from nation states, startups, big tech, and researchers alike. Microsoft carved out an annual spend of $50 billion for AI infrastructure in 2023 and beyond, a yearly investment amount unmatched by any other company worldwide.
- **Increased Innovation Spending:** Generative AI apps have had a breakout year across image, video, coding, voice, or co-pilots for everyone, driving $18 billion in venture capital and corporate investments.
- **Labor Market Transformation:** The integration of AI into the workforce is expected to cause significant disruptions. According to the International Monetary Fund, around 40% of global jobs are exposed to AI, with advanced economies facing a higher risk due to the potential automation of high-skilled roles. This raises concerns about job displacement and the need for large-scale reskilling programmes.
- **Global Inequalities:** AI's rapid advancement is likely to exacerbate existing inequalities, both within and across nations. In advanced economies, AI may benefit high-income workers disproportionately, while those in lower-income or less skilled roles may face greater job insecurity. Emerging markets, with less developed digital infrastructure and workforce capabilities, could struggle to leverage AI's benefits, potentially widening the global inequality gap.
- **Ethical Concerns:** As AI becomes more integrated into various aspects of life, public sentiment towards the technology is increasingly cautious. AI-driven misinformation and disinformation campaigns created by deepfakes and concerns about privacy and online safety on social media platforms are eroding public trust in established institutions and

processes such as elections. According to the 2023 Global Index on Responsible AI, only 38 of the 138 countries assessed have taken steps to address the safety, accuracy, and reliability of AI systems.

3.1.2. Regional Context

Recent global shocks, including the COVID-19 pandemic and geopolitical tensions such as the war between Russia and Ukraine, have severely impacted Africa's economic growth, with real GDP growth dropping from 4.1% in 2022 to 3.1% in 2023. African economies are projected to rebound, with 9 of the top 20 fastest-growing economies from the continent. However, there remain challenges to achieving Africa's development goals and economic and social agendas as laid down in Agenda 2063 and the Maputo Protocol. These include political unrest, climate shocks, and high external debts. According to the World Bank, in 2023, a third of the continent's population was still living in extreme poverty, with energy and transportation bottlenecks limiting productivity and efficient harnessing of natural resources. The African population is youthful, with 12 million youth expected to enter the labour force each year for the foreseeable future, raising the risk of high unemployment levels.

The African Development Bank in its 2024 economic outlook finds that Africa needs to close an annual financing gap of over $402 billion and invest in key areas such as education, energy, and productivity-enhancing technology and innovation to fast track the achievement of its development goals. AI is one of these technologies, and by 2030 it is projected to generate $1.2 trillion in economic value in Africa, contributing a 5.6% increase to the continent's GDP through financial inclusion, employment creation, increased agricultural productivity, and enhanced public service delivery. There are a number of regional initiatives embracing the AI opportunity.

A mapping exercise conducted by the Centre for Intellectual Property and Information Technology Law at Strathmore University on AI applications in Africa identified 301 AI solutions in 27 countries and 41 sectors. These AI application types include data analytics, chatbots, decision support tools, and diagnostic tools in sectors including corporate services, health, education, agriculture, and finance.

Some of the major initiatives contributing to a growing AI ecosystem on the continent include:

- **Masakhane:** A grassroots organisation of researchers and innovators working collectively on natural language processing research in African languages.
- **Lacuna Fund:** A collaborative initiative funding and providing resources for data scientists, researchers, and social entrepreneurs to create and share labelled training datasets for AI.
- **AI4D:** An initiative by a network of funders that partners with Africa's science and policy communities to leverage AI through high-quality research, responsible innovation, and talent strengthening.
- **FairForward:** An initiative by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) supporting

knowledge transfer on AI, improved access to training data and AI technology, and the development of policy frameworks for ethical AI.

3.1.3. National Context

There are a number of startups and solutions signifying an emerging AI-driven economy and sector in Kenya. Research shows that AI utilisation in Kenya is more pronounced in the key sectors of health, education, agriculture, and finance. AI applications are utilised across sectors through varied application types, including chatbots, decision support, and data analytics tools.

In finance, AI-powered solutions have made financial services accessible to previously underserved populations, promoting financial inclusion and access to credit. AI tools have enhanced crop monitoring, yield prediction, and agricultural pest management, leading to increased productivity and sustainable farming practices. These AI-driven initiatives have improved operational efficiency and contributed to Kenya's overall economic growth and competitiveness in the global market. AI development by startups and large technology companies fosters innovation and job creation for Kenya's population, further underscoring AI's transformative potential in driving economic efficiency, competitiveness, and sustainable growth in Kenya's evolving digital economy.

with other emerging technologies, driving innovation and solving complex problems in different domains. As AI accelerates technological progress, it is simultaneously improved by advances in these connected fields, thus supporting further innovation.

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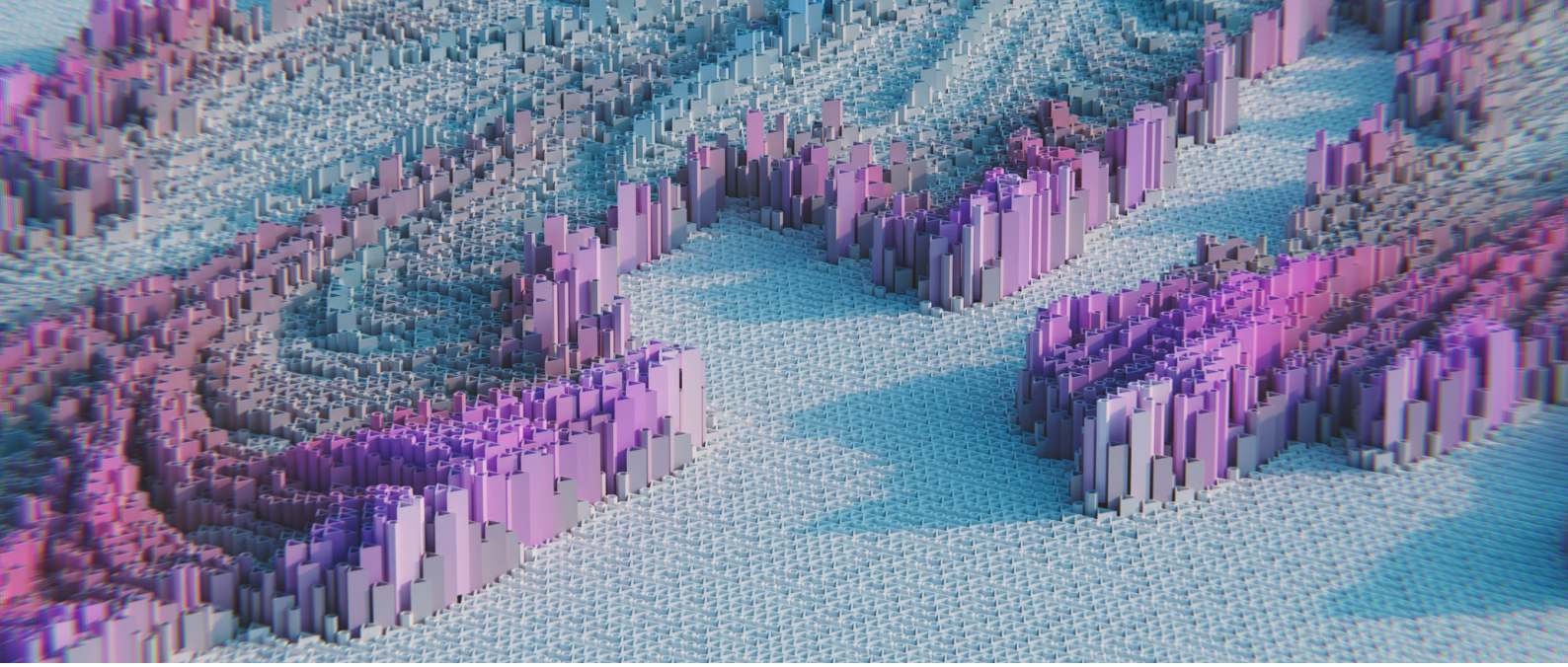


3.2. Technology Environment

3.2.1. Global Context

The Global AI Readiness Index 2024 notes that the United States leads China, the European Union, and the United Kingdom as the source of top AI models. Notably, in 2023, 61 AI models originated from U.S.-based institutions, far outpacing the European Union's 21 and China's 15.

At a firm level, there were notable advancements in AI research, both proprietary and open source, and advancements in model development, especially in large language models and diffusion models, with multimodality becoming a new frontier. We witnessed renewed concerns about data, especially human-generated data and synthetic data. And collaborations increased between governments, academia, and the private sector.

3.2.2. African Context

A few key AI initiatives are transforming Africa's technological landscape. There are notable efforts focused on strengthening African AI and machine learning communities. Many continental forums, workshops, and conferences provide opportunities for learning, networking, and collaboration among African AI practitioners.

Several big tech companies have set up research labs across the continent, with several labs domiciled in Kenya. The research labs focus on key sectors of development such as health, transportation, and the environment.

3.2.3. National Context

3.2.3.1. Digital Infrastructure and Technology Landscape

Kenya has made major strides in deploying digital infrastructure, in particular fibre and mobile network infrastructure. As of early 2024, Kenya had more than 65 million mobile connections. The government of Kenya over the last 15 years prioritised the development of the digital landscape through investments in terrestrial fibre networks and in the digitisation of government services, such as through the eCitizen portal, which provides online access to various public services, enhancing efficiency and accessibility for citizens. Kenya's data centre infrastructure is also rapidly evolving to meet the demands of a growing digital economy. The country hosts several state-of-the-art data centres that provide reliable and secure data storage and processing capabilities. The availability of data, internet coverage, and a population that

conducts a significant portion of commerce and other services digitally have created a supportive environment for startups and organisations that either develop or deploy solutions that leverage artificial intelligence technologies.

3.2.3.2. AI Technology Ecosystem

Technology and developer communities have played a crucial role in software development and particularly in machine learning and data science, which are key areas that contribute to AI development. The developer communities use different online or physical forums to hold educational workshops, share experiences, and learn about the various technologies. A number of tech communities have been set up locally in Kenya, and most are still active. Some are listed at https://devs.info.ke.

Leading Kenyan universities and tertiary institutions of higher learning offer courses in artificial intelligence. Additionally, local organisations have been at the forefront of partnering with government agencies to work on projects aimed at improving data quality towards application of large language models.

3.2.3.3. Research and Development

Kenya is emerging as a hub for AI research and development in Africa, with a growing number of initiatives focused on leveraging AI to address local and regional challenges. AI research activities span developing AI models for predictive analytics, natural language processing, computer vision, and more. These activities are often supported by collaborations between academic institutions, private-sector companies, and international organisations, fostering a vibrant research ecosystem. Academic institutions have set up labs and research centres that conduct research in various areas of AI and machine learning.

Other non-academic research institutions have also been active in the AI research space, receiving interest funding from development partners to tackle areas where AI can be useful for development, such as health, agriculture, and commerce.

A review of existing tech communities in Kenya paints a clear picture of the available skills, interests, and initiatives undertaken by practitioners to grow and advance knowledge in various tech sectors, including AI. The presence of tech communities has further showcased the high level of tech skills available in the country, which has resulted in global big tech companies setting up various research and product-building centres based in Kenya. Many of these big tech establishments in Kenya have been a first within Sub-Saharan Africa.

3.3. Political Environment

3.3.1. Global Context

The world has divided into clear regulatory camps, and progress on a consensus on global AI governance remains slow. Some tensions arise from the chip wars, with the United States mobilising its allies and the Chinese response remaining patchy. Export controls limit advanced chip sales to China, but major chip vendors create alternatives proofed against export control. Countries such as the United Kingdom have taken an approach towards improving public service delivery by establishing an AI incubator. Finding a balance between fostering innovation and regulating risks associated with AI technologies remains a key challenge for jurisdictions worldwide. Countries are exploring ways to promote AI innovation while safeguarding fundamental rights, privacy, and security. International summits, declarations, and agreements, such as the Group of 7 Hiroshima Process International Guiding Principles and the Bletchley Declaration, demonstrate global collaboration in addressing the challenges and opportunities presented by AI technologies. These initiatives aim to foster cooperation and coordination in AI governance efforts.

Developed economies actively craft comprehensive AI governance policies to balance innovation with risk regulation. This is seen through governance practices of the European Union, the United Kingdom, and the United States, reflecting a growing recognition of the need for ethical AI usage characterised by the different approaches to AI governance, including human-centric, risk-based, and safety-based.

Regulatory bodies like the Federal Trade Commission in the United States have taken enforcement actions against tech companies like Amazon for privacy violations related to AI technologies. The cases brought against Amazon for its Alexa app and Ring cameras resulted in the company agreeing to the deletion of certain data and prohibitions against using certain information for model training.

Countries, organisations, and international and regional bodies are increasingly focusing on developing ethical AI frameworks to ensure the responsible and transparent use of AI technologies. Initiatives such as the Organisation for Economic Co-operation and Development (OECD) AI Principles, UNESCO's Recommendation on the Ethics of AI, the African Union Continental AI Strategy, and the European Union AI Act aim to establish ethical AI development and deployment guidelines.

Efforts are underway to harmonise AI regulations across borders to facilitate international cooperation and ensure governance consistency. Multilateral organisations like the OECD, UNESCO, and the European Union are working on frameworks to address global challenges posed by AI technologies.

3.3.2. Regional Context

A number of African countries have formulated national AI strategies to drive innovation, economic growth, and societal development. These strategies outline priorities for AI research, development, readiness measurement, and deployment while emphasising ethical considerations and human-centric approaches to AI governance.

Further, national AI strategies have become the foundation for AI governance in the African continent, where there is a notable increase in the development of national AI strategies. These efforts are likely to grow in the coming years, as evidenced by the

ongoing initiatives to guide AI development and integrate it into national development plans. Developed and developing countries emphasise the importance of ethical AI practices, especially for African nations, mirroring trends in developed countries where ethical considerations are a focus in AI policy discussions.

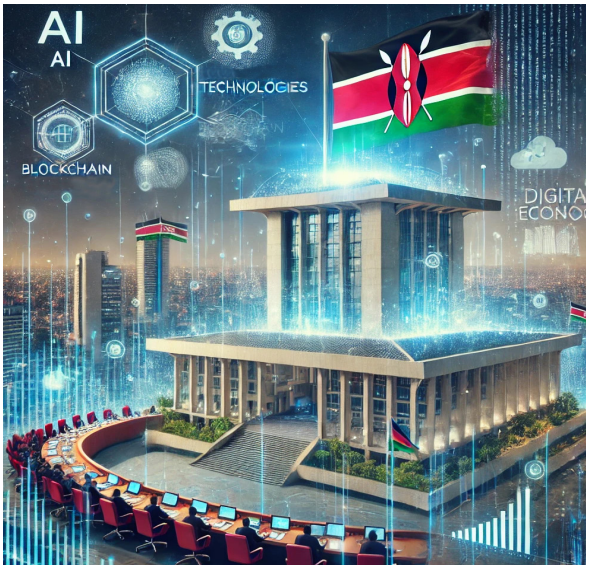
Additionally, there is a growing trend towards regional cooperation in AI governance. The recent adoption of the African Union Continental Artificial Intelligence Strategy points towards a continental focus on AI governance. In both developed economies and African nations, the private sector increasingly adopts AI solutions across various industries, such as finance, healthcare, and agriculture. The private sector continues to play a significant role in driving AI innovation and efficiency, which is seen to be essential to overall economic growth. Key opportunities will derive from integrating AI into national development plans, presenting opportunities for economic growth, innovation, and improved public service delivery, further contextualising areas of focus in AI governance. Given African countries' varied approaches, regulatory harmonisation presents a challenge, making international cooperation in creating cohesive development practices and frameworks crucial.

The East African Community member countries have also established foundational frameworks where data sharing and data protection is concerned, such as in trade, health, data protection, education standards, and financial services. These foundations become near-future enablers for harmonised AI regulations.

3.3.3. National Context

Kenya has shown political will to advance AI adoption by prioritising emerging technologies and AI in the National Digital Economy Blueprint, where AI is referenced as a tool for driving innovation-driven entrepreneurship, and the Kenya National Digital Master Plan (2022–2032), which notes the importance of a national strategy on AI and key focus areas that need to be addressed. Kenya also made commitments to build an AI-powered smart city, the Konza Technopolis, which currently houses the country's data centre. Additionally, the Technopolis authorities signed a memorandum of understanding with a cyberschool to facilitate training of Kenyan youth on AI and cybersecurity, while the African Centre for Technology Studies is planning to establish an AI centre of excellence at the Technopolis.

Other agencies, such as the Office of the Data Protection Commissioner, have embraced AI in their operations such as Linda Data, a platform on which citizens can interact with an AI-powered chatbot to address data protection queries, raising awareness that can ultimately be used to scale the citizen information repository whose effective use can inform the ethical AI framework for the country. The nation's statistical organisation, the Kenya National Bureau of Standards, is committed to expanding the mandate of data and evidence generation through its recently launched data centre.



3.4. Legal and Regulatory Environment

3.4.1. Global Context

The rapid advancement of AI technologies has prompted the development of global policy and legal regulatory frameworks to ensure their ethical and responsible use. These frameworks vary by region and organisation but share common goals, including promoting innovation, protecting human rights, governing administration, and mitigating risks associated with AI. The Global AI Law and Policy Tracker offers an extensive overview of AI governance frameworks across various countries and jurisdictions. The AI Equality Initiative has established a community of practice towards empowered ethical AI, which considers a just, responsible, and inclusive AI global ecosystem. The initiative proposes a global AI observatory model to inform policy development.

Though progress remains slow, 2023 saw a substantial increase from the previous year in the number of countries with laws that include the term “AI” (127 in 2023 compared to 25 in 2022), an indication of the growing recognition of the need for regulatory frameworks and AI governance. Additionally, diverse legislative approaches are being pursued. The European Union, for instance, has been at the forefront of building a robust AI regulatory framework by adopting the EU AI Act, which came into force on 1 August 2024 across all 27 European Union member states. The EU AI Act takes a distinctly risk-based approach towards regulating AI, imposing regulatory burdens only when an AI system is likely to pose high risks to fundamental rights and safety. The Act establishes a tiered framework that classifies risk into four categories: unacceptable risks that lead to

prohibited practices; high risks that trigger a set of stringent obligations, some of which include conducting a conformity assessment; limited risks that relate to transparency obligations; and minimal risks where codes of conduct by stakeholders are encouraged regardless of whether established within the European Union or another jurisdiction.

The United States, on the other hand, has so far issued an executive order on the Safe, Secure and Trustworthy Development and Use of AI, as well as the Blueprint for an AI Bill of Rights, which sets out five principles and associated practices to guide the design, use, and deployment of automated systems to protect the rights of the American public. The United Kingdom has taken a more safety-based approach towards the governance of AI, fortified during its AI Safety Summit 2023, which advanced the establishment of AI safety institutes, global commitments by tech companies united to establish science and empirically led guidelines, standards, and collaborations. The Bletchley Declaration, a product of the summit, advocates for the need to identify AI risks and inform risk-based policy development.

In Colombia, initiatives like the AI Expert Mission and AI National Strategy Policy have been implemented. The United States has released multiple frameworks and guidelines to maintain its leadership in AI research and control government use of AI. The U.S. Federal Trade Commission has issued guidelines to prevent biassed or unfair AI use, while Singapore's Personal Data Protection Commission offers advisory guidelines to support AI implementation while maintaining data protection. The previously mentioned EU AI Act introduced harmonised rules for AI in the European Union market with a risk-based approach, prohibiting specific AI systems, and imposing requirements and transparency rules on high-risk systems. Australia's 2021 AI Action Plan aims to build AI capability and promote trusted, secure AI technologies.

Privacy enforcement authorities (PEAs) across various jurisdictions have taken significant actions in response to privacy concerns surrounding AI technologies, particularly generative AI like OpenAI's ChatGPT. In Canada, the Federal Office of the Privacy Commissioner and provincial privacy authorities launched an investigation into ChatGPT for processing personal data without consent. This investigation was expanded to include assessments of OpenAI's compliance with transparency, access, accuracy, and accountability principles. Similarly, Italy's PEA (Garante) temporarily blocked OpenAI from processing personal data due to potential General Data Protection Regulation violations, which included issues related to transparency and data protection by design. Japan's Personal Information Protection Commission warned OpenAI about collecting sensitive data without consent, emphasising the need for clear notices in Japanese about data collection purposes.

In Korea, the Personal Information Protection Commission fined OpenAI for not notifying the public of a data breach and identified multiple non-compliance issues with the country's Personal Information Protection Act, including the lack of clarity in the controller-processor relationship and absence of parental consent for children under 14. The United Kingdom's Information Commissioner's Office has also been active, fining Clearview AI for unauthorised use of facial images and issuing enforcement notices to Snap Inc. regarding the privacy risks posed by its generative AI chatbot My AI. In the United States, the Federal Trade Commission has taken multiple enforcement actions involving AI, including cases against Rite Aid for biased facial recognition technology and Amazon for violations related to its Alexa app and Ring cameras.

Internationally, the European Data Protection Board formed a task force to enhance cooperation and information exchange in

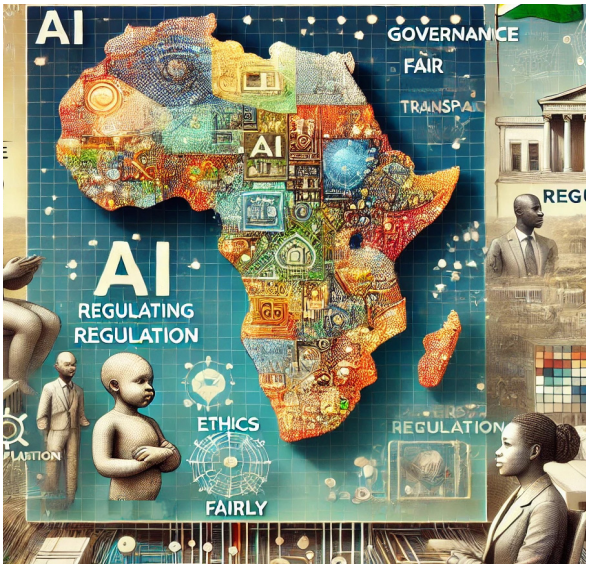
handling complaints and investigations into OpenAI and ChatGPT at the European Union level. The Ibero-American Network of Data Protection initiated a coordinated action on ChatGPT compliance among its member countries. These actions underscore the commonalities in legal obligations regarding the processing of personal data by generative AI and highlight the importance of international cooperation in enforcing privacy laws.

The OECD is also revising its Recommendation on Cross-Border Cooperation in the Enforcement of Laws Protecting Privacy to strengthen these collaborative efforts. Privacy enforcement authorities collaborate globally, as evidenced by statements and resolutions on generative AI from Group of 7 countries and the Global Privacy Assembly. Various privacy enforcement authorities have issued guidance on applying privacy laws to AI, with notable initiatives in Canada, France, Spain, Türkiye, the United Kingdom, the United States, and Singapore. These include principles for responsible AI development, action plans, compliance guidance, and frameworks to ensure AI technologies align with privacy regulations. For instance, France's Commission Nationale de l'informatique et des Libertés (National Commission of Informatics and Liberty) has developed an action plan for AI that respects privacy, and the United Kingdom's Information Commissioner's Office has provided comprehensive AI and data protection guidance.

3.4.2. Regional Context

A quick survey of AI governance in Africa shows increased AI policy initiatives, primarily national AI strategies. The governance of AI in Africa takes a varied approach. A 2021 UNESCO report, Artificial Intelligence Needs Assessment in Africa, published the results of a survey that shows that 18 out of 32 African countries have ongoing national initiatives to guide the development of AI. The development and use of AI are a priority according to the national development plans of 21 of those 32 countries. Out of the respondents, 13 countries have launched AI strategies, 13 have developed AI policies, six have reported enacting legislation to address some of the challenges of AI, 12 have established AI centres of excellence, and 3 have reported issuing ethical guidelines for AI. (Countries that participated in the survey include Angola, Benin, Botswana, Cabo Verde, Cameroon, Chad, Comoros, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Egypt, Equatorial Guinea, Eswatini, Gambia, Ghana, Guinea, Lesotho, Madagascar, Malawi, Namibia, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, Sudan, Togo, Uganda, Zambia, Zimbabwe).

More substantively, the African Union has developed and published a Continental Artificial Intelligence Strategy to help actualise Africa's digital transformation. The policy document lays out a blueprint for AI regulation by African nations and has significant implications for how they approach the governance and oversight of AI technologies. The endorsed policy provides a robust framework for ensuring AI's responsible and ethical use. It includes recommendations for industry-specific



codes of conduct that outline best practices for designing, developing, and deploying AI systems. The continental strategy also calls for establishing technical standards and certification bodies to assess and benchmark AI applications, ensuring they meet rigorous safety, fairness, and transparency criteria.

Recognising the need for regulatory oversight, the Continental Strategy proposes mechanisms for testing and validating AI before it is implemented. This includes guidance for African Union member states on establishing regulatory frameworks to scrutinise AI applications and provide approval for their use. It also encourages the creation of national AI councils to provide ongoing governance and decision-making around these transformative technologies. It is intended to serve as a model that African Union member states can readily adopt. For countries without existing AI regulations, it offers a template that can be quickly adapted to national AI strategies. For those that already have AI policies, the endorsed policy encourages alignment to promote consistency across the African Union.

A growing number of African countries have national AI strategies, including Egypt, Rwanda, Benin, Morocco, Mauritius, Sierra Leone, Tunisia, Nigeria, and South Africa. The development and utilisation of AI is prominent in the majority of the development plans of African states. Despite these advancements, accessibility to these initiatives, specifically national AI policy plans, is limited, as they are not within the public domain. Only three countries have accessible national AI policy plans: Egypt, Rwanda, and Mauritius.

National strategies are powerful and peculiar hybrid policies. The policy documents emulate the national strategic positioning within the global space for various states while establishing their national narrative on the regulation, utilisation, and benefits of AI and its integration within their societies. The national AI strategies assessed within the African context include:

3.4.2.1. Egypt

The national AI strategy reflects the state's realities, as it is rooted in a strengths, weaknesses, opportunities, and threats analysis. The overarching goal is to exploit AI technologies to serve Egypt's developmental goals and to foster regional and international cooperation. The mission is to effectively "create an AI industry" in Egypt, which requires people, technology, policy, and infrastructure. The strategy has four pillars: AI for government, development, capacity-building, and international relations. These pillars are underpinned by four enablers: governance, data, ecosystem, and infrastructure.

3.4.2.2. Mauritius

The Mauritius Artificial Strategy Plan 2018 was the first strategy drafted by an African state. The plan is intended to establish the "cornerstone of the next national development model". It assists in actualising the potential of AI to improve the economic growth, productivity, and quality of life for the Mauritian state. The focal areas of the plan include matching existing and new AI solutions to specific sectors and regions, establishing a "Mauritian unique selling point" of AI, building an appropriate ecosystem to nurture AI with a focus on creating collaborative communities, developing the human capital to sustain the AI ecosystem, and establishing a regulatory framework that acts as a catalyst for AI development and fiscal growth.

3.4.2.3. Rwanda

The National Artificial Intelligence Policy is a state roadmap for harnessing the benefits of AI as well as mitigating the potential risks. The plan aligns with the current national plans: Vision 2050 and the Smart Rwanda Master Plan. It is a catalyst for Rwanda to use AI for "sustainable and inclusive growth" as it seeks to mobilise local, regional, and international stakeholders to assist with positioning the

state to become a “leading African Innovation Hub and Africa’s Centre of Excellence in Artificial Intelligence”. The policy fosters inclusive and sustainable socioeconomic transformation rooted in the national agenda.

3.4.3. National Context

Currently, Kenya has no laws or regulations that specifically regulate AI. The Ministry of Information, Communications, and the Digital Economy is responsible for creating a National AI Strategy in collaboration with various partners. Previous policy efforts include the 2019 Distributed Ledgers (Blockchain) and Artificial Intelligence Taskforce Report, which investigated and evaluated these two emerging technologies and their significant promise for revolutionising Kenya’s economy. The Taskforce noted that the challenge in regulating AI is to strike a balance between supporting innovation and competition while protecting consumers, market integrity, financial stability, and human life. Another effort, let by the Robotics Society of Kenya, is the Kenya Robotics and Artificial Intelligence Society Bill 2023, prepared with the aim of developing a framework that would regulate the use and adoption of AI in Kenya. Still in draft form, the bill has lacked meaningful support from government, regulators, civil society, and private-sector players.

In addition, on 8 April 2024, the Kenya Bureau of Standards released the Draft Information Technology Artificial Intelligence Code of Practice to ensure that the rights of citizens are upheld during the development of AI systems. Once it is finalised and formally gazetted as a legal notice, the code would assist organisations in the responsible development, provision, and use of AI. Additionally, the codes propose several standards aimed at supporting the National AI Strategy and policies to be developed. The National Digital Master Plan 2022–2032, which follows the previous 2014–2017 (extended to 2022) master plan, sets the pace for Kenya’s continued adoption of emerging technologies including AI, blockchain, and quantum computing to foster economic growth. The Master Plan highlights the need for a National AI Strategy, which would address the transformative role of AI in Kenya’s economy, the role of both levels of government in AI investments, facilitation of research and development for effective human-AI interactions, safety, access to datasets, ethical considerations, AI standards and evaluation tools, and human capital.

The legal and regulatory ramifications of AI reflect the urgent need for frameworks that balance innovation with ethical considerations and consumer protection. As AI technologies continue to advance, there is an increased necessity of establishing comprehensive regulations to govern their development and deployment.

Globally, there has been a significant increase in the number of nations adopting AI-related laws, rising from 25 in 2022 to 127 in 2023. This surge indicates a growing acknowledgment of the potential risks and benefits associated with AI, prompting diverse legislative approaches tailored to specific regional contexts. In Kenya, while specific AI regulations are still in development, existing laws such as the Data Protection Act and the Consumer Protection Act provide a foundational framework for addressing issues related to AI. The National AI Strategy signifies the first step towards addressing AI governance. As nations continue to develop and refine their regulatory frameworks, the focus remains on fostering an environment that encourages technological advancement while prioritising the rights and safety of individuals.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3.5. Kenya's AI Readiness Assessment

Kenya's AI readiness must be viewed within the global context, where various indices have rated countries' readiness for AI adoption based on factors such as data, infrastructure, talent, research and innovation, governance, partnerships, and ethical capabilities to handle the adoption of AI. Kenya has been rated within a variety of these indices, including safety and government AI readiness, among others.

For instance, according to the UNESCO Readiness Assessment Methodology on AI Report, the private sector in Kenya is adopting AI-powered solutions at an increasing rate. AI developments have driven innovation and efficiency across the finance, agriculture, healthcare, and education sectors, significantly improving decision-making processes, automation, and data analysis. The assessment is based on five core dimensions that can provide holistic insights into Kenya's progress and preparedness. A summary of the findings appears in Table 3.1.

Table 3.1: Results of UNESCO AI Readiness for Kenya

Core Assessment Dimension	Findings
Legal and Reglatory	Kenya has foundational legal frameworks, such as the Data Protection Act (2019), which regulates automated decision-making and protects individual privacy. The Kenyan Constitution (2010) promotes equality and the rights of marginalised groups, supporting inclusive AI development. There is a recognised need for comprehensive AI-specific regulations to address ethical implications and potential harms. Institutional and human capacity-building are essential for effective implementation and enforcement of regulatory frameworks.
Social and Cultural	There is significant underrepresentation of women and minorities in the AI field, limiting diverse perspectives. Public awareness and engagement are critical for building trust and acceptance of AI technologies. Ethical considerations are central, with a call for frameworks that respect cultural norms and societal values. Without intentional efforts to promote equity, AI could exacerbate existing social disparities.
Scientific and Educational	There is a need for a robust research and development ecosystem to foster AI innovation. Increased investment and a coordinated approach are necessary to enhance AI research output and impact. The availability of AI-related educational programmes is limited, necessitating expansion to meet job market demands. Curricula should be developed to align with industry needs and promote STEM education in order to produce a skilled workforce.

Economic	The number of AI startups and companies is growing, indicating a developing market. Increased public and private investment in AI initiatives is essential for driving innovation and competitiveness. The ICT sector, including AI, contributes significantly to Kenya's GDP, with projections for greater future impacts. There is a critical gap in the labour market, with demand for ICT and AI skills far exceeding supply.
Technological and Infrastructural	The presence of data centres and cloud computing capabilities is essential for supporting AI applications. While there are some existing resources, further investment and development are necessary. As of early 2024, Kenya had approximately 22.71 million internet users, with a penetration rate of 40.8%. All but 2% of the population was covered by at least 2G mobile network technology, but access to 5G was limited (0.6%). Gender disparity in internet usage reflects broader accessibility issues, hindering inclusive AI growth. Challenges related to data sharing and accessibility are significant barriers to AI innovation.

Another AI readiness assessment, released by the consultancy group Oxford Insights in 2023, appears in Table 3.2.

Table 3.2: Kenya's AI Readiness—Oxford Insights Government AI Readiness Index

Category	Findings	Relevant Scores and Statistics
Data	Given the importance of data in AI adoption, Kenya lacks sufficient data to train AI models, scoring low on the global index.	Kenya scored 44.44% on data availability and 63.67% on data representativeness.
Infrastructure	Significant investment in connectivity and infrastructure development is evident through the establishment of the National Data Centre. The government has constructed around 8,900 km of terrestrial fibre during the past 10 years, much of which has reached the sub-county level and connects important government offices and institutions.	Kenya's infrastructure ranked 101st worldwide, with a score of 40.19%. Kenya's data and infrastructure score is 51.58%, which is average but categorised as low.
Talent	Kenya is experiencing a significant gap between the high demand for AI skills and the limited number of qualified professionals, due to low STEM enrolment. Current educational programmes in AI at universities and technical institutions are inadequate to meet industry needs.	Only 25% of university graduates complete a STEM course.
Research and Innovation	Kenya's AI landscape underscores the critical need for a unified strategy to advance the field. Current research efforts in AI are disjointed and lack adequate funding, highlighting the need for increased investment from both the public and private sectors to remain competitive on a global scale.	Kenya scored 48.8% in innovation capacity, compared to Sub-Saharan Africa's score of 32.93%.
Governance and Ethical AI Adoption	Emphasis is made on key readiness aspects such as capacity development and innovation, ethics and responsible AI practices, standardisation and collaboration to promote data interoperability and sharing characterised by the The AI Practitioners' Guide (2023), developed by a multi-stakeholder AI practitioners' group (Community of Practice). Kenya still lacks AI-specific regulations.	Kenya scored 40.19% in the government pillar, which denotes government readiness to adopt AI in public services.
Partnerships	Collaborative efforts from a multi-stakeholder group are noted towards regulatory readiness.	Key observation, no percentage scoring.

3.6. Key Findings from Primary Data Collection

This section presents findings from a comprehensive data collection process that engaged a diverse range of stakeholders across Kenya's AI ecosystem. The insights are drawn from government representatives, industry leaders, academia, civil society, and the public through key informant interviews, focus group discussions, expert consultations, town hall sessions, and an online survey. These approaches provided a nuanced understanding of strategic priorities, opportunities, and challenges that can be addressed by the strategy.

3.6.1. Key Informant Interviews

Key informant interviews (KIIs) identified a number of strengths, challenges, limitations, and considerations that the strategy should take into account to ensure effective implementation. They revealed a strong belief in Kenya's potential to become a leader in AI innovation. Participants highlighted the country's vibrant startup ecosystem, growing digital literacy, and access to renewable energy as significant strengths. The nation's pioneering spirit makes it an attractive location for global AI pilot projects and positions it as a regional hub. Over 40,000 people have received AI training, entrenching Kenya as a hub of youthful talent ready to harness the power of AI. Furthermore, the availability of green energy sources like geothermal power presents opportunities to build sustainable regional data centres.

Kenya has already demonstrated its capability to leverage technology in crisis response, as seen in flood management efforts and the swift transition to remote learning during the COVID-19 pandemic. These successes position Kenya to potentially lead neighbouring countries in AI development and implementation.

However, a lack of quality and digitised data, infrastructural gaps, and public mistrust in AI systems pose significant barriers to widespread adoption of AI. Participants expressed concerns over the ethical use of AI, particularly regarding data privacy, misinformation, and bias. Many of those interviewed called for clear policy direction and increased efforts in raising citizen awareness to ensure AI delivers tangible benefits to all Kenyans, increased public trust, and responsible use of AI. The respondents also noted that currently donors have limited coordination in supporting the AI ecosystem, and there's a notable power imbalance, with big tech companies operating in the region wielding disproportionate influence and cornering opportunities compared to small and medium-sized enterprises (SMEs) in the AI ecosystem. Many Kenyans work in AI but remain stuck in bottom-of-pyramid and entry-level jobs such as data annotation, indicating a need for better career progression pathways. Small tech companies struggle with limited access to capital and financing, and energy poverty and associated costs remain ongoing concerns for scaling a local AI ecosystem.

Access and availability of data present another significant challenge, with limitations in quality, quantity, and data sharing mechanisms. Outdated record keeping practices, manual processes in government, and limited digitisation of official records limit the ability of government to tap into to train contextually relevant models . Infrastructure gaps and AI skills gaps of government officials could also keep the government from harnessing the full potential of AI and maintaining procured systems.

Respondents also noted that while Kenya has ambitious goals for AI, these efforts are often underfunded and lack a unified strategy. They recommended that the national AI strategy be inclusive of stakeholder input and ethical safeguards. Additionally, respondents recommended fostering interdisciplinary collaborations between industry, government, and academia; building repositories of local datasets for AI applications; and creating transparent financing models to support startups and innovators. There was an emphasis on transparency in AI deployment and decision-making and the efficient utilisation of national resources processes to build public trust in AI-based systems. Stakeholders emphasised the importance of ensuring AI development leaves no one behind, as the lost ground may never be made up.

On governance, several respondents stated that Kenya needs testing and sandboxing platforms for AI development. They also saw the need to define AI safety in the context of the Global South as well as establish principles for safe, ethical, and inclusive AI implementation in Kenya. Clear lines of responsibility and accountability for AI deployments and decision-making also need to be established.

3.6.2. Focus Group Discussions

Focus group discussions further contextualised and supported the insights arising from the KIIs, focusing on inclusivity and the socioeconomic implications of AI. In several FGD sessions, participants stressed the importance of embedding local contexts into AI systems, including incorporating indigenous knowledge and local languages. The discussions highlighted the importance of incorporating Afrocentric views and values into AI development, with a strong emphasis on local production and civic education. Participants also highlighted that AI systems should be built with representative data that reflects African diversity and contexts. This approach would not only make AI more accessible but also ensure its relevance to Kenya's unique challenges.

Data sovereignty emerged as a critical theme. Participants stressed the need for local data processing capabilities and robust frameworks to secure and manage data effectively. Concerns about the reliance on foreign data centres and their implications for Kenya's digital independence were repeatedly raised in different forums.

Opportunities were identified in sectors like agriculture, education, and healthcare, where AI could enhance service delivery and create jobs. For instance, AI-powered systems could help farmers improve crop yields and enable more efficient healthcare diagnostics. However, participants cautioned against overregulation, which could stifle innovation, particularly for small and medium-sized enterprises.

The FGDs also highlighted the urgent need for capacity-building. Kenya has a shortage of specialised AI professionals, and academic institutions often lag in aligning their curricula with industry needs. The academic FGD raised concerns about curriculum development and funding challenges, particularly in public universities. Participants advocated for collaborative AI innovation hubs and strong public-private innovation networks.

Recommendations included introducing AI education at earlier levels of schooling, promoting research funding, and fostering international partnerships for knowledge exchange. Infrastructure and investment needs dominated many discussions. Participants called for strategic government investments in data centres, cloud computing, edge nodes, and mobile data businesses. They emphasised the need for market-friendly policies to encourage investment while reducing regulatory uncertainty.

3.6.3. Town Hall Meetings

Town hall meetings provided a platform for diverse stakeholders, including citizens and technology practitioners in different regions of Kenya, to voice their perspectives on AI development. The town hall meetings revealed broad public interest in AI's potential across multiple sectors, including health, education, creative industries, media, agriculture, and public services. Participants shared opportunities for AI to improve service delivery, particularly for people with disabilities, and enhance public sector efficiency.

However, a number of town hall participants were concerned about limited access to AI technology, widening of the digital divide, and the risk of exacerbating existing inequalities. Participants also raised fears about job displacement, particularly in labour-intensive industries, due to task automation. Similarly, concerns were raised about the shortage of specialised skills for local AI development. All town hall meetings repeatedly raised the issue that AI use could lead to threats to general and personal well-being, including risks to critical thinking and creativity, the spread of misinformation, and data privacy issues.

Town hall discussions were centred on ethical considerations with participants, similar to FGD respondents, stressing the importance of aligning AI systems with Kenyan cultural norms and values. Public awareness campaigns were proposed to educate citizens on AI's benefits and risks, fostering trust and inclusivity. Moreover, employing universal design to AI systems built in would increase their utility to everyone, including individuals with disabilities.

Despite these concerns, town hall discussions highlighted significant opportunities for economic growth. AI-driven personalization could enhance citizen engagement, while

innovations tailored to local needs could address pressing societal challenges such as poverty and health disparities. The town halls also produced several key recommendations.

On infrastructure and access, participants believed it was imperative that all Kenyans can access AI and that it was necessary to increase access to smartphones and accelerate digitisation efforts. There was also an emphasis on prioritising local datasets and including indigenous knowledge in AI development. The town hall discussions made recommendations to create unified legal frameworks and ethical guidelines for AI development and to ensure that governance and regulatory frameworks remain agile to accommodate the evolving nature of AI technologies. Participants also called for increased investments in infrastructure, such as data centres and connectivity, to support AI deployment at scale.

Additionally, participants made recommendations for professional upskilling programmes and public awareness campaigns. Participants called for consideration of a welfare system for workers displaced by AI automation, highlighting the need to manage AI's social impact thoughtfully and proactively.

All town halls emphasised that it was necessary to develop robust public-private partnerships, international collaborations, and government leadership to drive AI adoption in Kenya. Throughout all discussions, participants emphasised the importance of balancing innovation with responsible development and ensuring that AI advancement benefits all Kenyans.

3.6.4. Online Survey

We received responses from 17 counties across Kenya, with participants representing various sectors. The majority of responses came from academia, civil society, and the for-profit sector, with some input from government, media, and multilateral agency representatives.

Respondents identified key opportunities for AI, particularly in economic growth, education, healthcare improvement, environmental sustainability, and the efficient provision of public services. However, they also expressed significant concerns, mainly focused on ethical considerations, privacy issues, and security risks. Survey participants provided insight into their priorities for an AI strategy. The top priorities, in order of consensus, included research and development, education and workforce training, ethical guidelines and regulations, healthcare and agriculture, and public awareness and engagement.

There were divergent views among respondents regarding AI regulation. One group emphasised the importance of allowing AI to develop its potential before imposing regulations, with public participation shaping policy. In contrast, another group stressed the need for clear policies, laws, and a national strategy to ensure ethical AI development from the outset. A majority of respondents underscored the necessity of transparency in AI decision-making processes to build public trust. They advocated for AI algorithms to be subject to public scrutiny. Moreover, respondents called for public awareness campaigns to educate citizens about AI's benefits, risks, and ethical implications. Inclusivity emerged as a crucial consideration, with respondents urging that AI systems be designed to consider diverse populations to ensure equitable outcomes. Additionally, there was a strong demand for independent bodies to oversee AI implementation, evaluate AI projects, and conduct regular impact assessments on the effects of AI deployments.

3.7. Stakeholder Analysis

3.7.1. Background

Stakeholder mapping is a crucial process in developing a national AI strategy, involving identifying and analysing individuals, groups, and organisations that have an interest or stake in the strategy's outcomes. According to Bryson (2004), stakeholder mapping systematically identifies and analyses stakeholders to understand their influence and importance in decision-making processes. This process helps identify the diverse perspectives, interests, and potential impacts on various sectors of society, ensuring that the strategy is comprehensive and inclusive. The primary purpose of stakeholder mapping is to facilitate effective engagement, foster collaboration, and mitigate risks by understanding the needs and expectations of different stakeholders. Doing so ensures that the AI strategy is aligned with national priorities, ethical standards, and the long-term goals of sustainable development.

3.7.2. Justification

This stakeholder mapping exercise is based on the normative stakeholder theory and the evolving theory of property. To contextualise the AI ecosystem, an African lens is applied in when mapping stakeholders, which presents the ideology that the African AI ecosystem can be described by identifying stakeholders categorised based on normative claims. The normative claims derive from the normative stakeholder theory, which is a critical guide in ethical decision-making in the AI ecosystem. This theory centres on prioritising stakeholders and identifying their obligations and responsibilities. The normative claim is based on the evolving theory of property, which posits that property rights are embedded in human rights, necessitating the consideration of the interests of all stakeholders, including non-owner stakeholders. Stakeholders are categorised based on the normative claims they can make on the AI system, focusing on fair economic opportunity, political equality, and authenticity. This approach emphasises the importance of considering ethical and moral considerations in decision-making processes related to AI development, adoption, and policy formulation. The normative stakeholder theory identifies a range of potential obligations that corporations operating in developing countries may take on, focusing on the commitments of groups of stakeholders rather than individual entities in specific situations. Therefore, in bringing this together to define responsible AI, the strategy defines responsible AI within Africa by emphasising the importance of considering diverse perspectives and ensuring equitable outcomes for all stakeholders involved in the AI ecosystem. Responsible AI, in this framework, involves addressing power dynamics, information asymmetries, and intersecting interests among stakeholders to create an AI ecosystem that is fair, inclusive, and beneficial to everyone. The focus is on identifying disparities in power, understanding relationships and power dynamics between different groups, and ensuring that the development and adoption of AI technology consider the needs and perspectives of all stakeholders. By characterising stakeholders' interactions, interests, responsibilities, and accountability, the aim is to promote responsible AI practices, prioritising equity and inclusivity.

Following from this, these are eight main groups considered during the stakeholder mapping and their indices based on their interest and influence over this strategy document. The results of the mapping of the stakeholder groups are shown in Table 3.3.

Table 3.3 Results of stakeholder mapping

Stake-holder group	Actors	1. Interest Index H:L 2. Influence Index H:L 3. Implications
Developers	Association of Startup and SMEs Enablers in Kenya, Conference of the Parties, Telecommunications Service Providers of Kenya, consultancy firms, government solutions developers	1. High 2. High 3. Must be involved
Customers (Purchasers)	**Private Sector:** Kenya Private Sector Alliance, Kenya Association of Manufacturers, Kenya Bankers Association **Government:** Ministries, departments, and agencies **Citizens**	1. High 2. Low 3. Involved periodically
Communities	Kenya ICT Action Network, Conference of the Parties on AI, Conference of the Parties on Digital Public Infrastructure, East African Community, East African Legislative Assembly, African Union, National Assembly, Law Society of Kenya	1. Low 2. High 3. Keep informed
Regulatory Agencies	Office of the Data Protection Commissioner, Competition Authority of Kenya, Commission on Administrative Justice, Kenya Bureau of Standards, National Computer and Cybercrimes Coordination Committee, Kenya Industrial Property Institute, Kenya Copyright Board, Central Bank of Kenya	1. Low 2. High 3. Keep informed
Researchers	**Academia:** University of Nairobi, United States International University of Africa, Jomo Kenyatta University of Agriculture and Technology, Strathmore University, Kenya Advanced Institute of Science and Technology, other universities, African Centre for Technology Studies **Non-academic/commercial:** Microsoft Africa Research Institute , Moringa, AI Kenya, Local Development Research Institute	1. High 2. High 3. Must be involved

Investors (Financiers/ Development Partners)	**Development Partners:** Foreign, Commonwealth, and Development Office; International Development Research Centre; German International Development Agency; European Union; U.S. Agency for International Development **Government** **Private Sector:** Venture capital and private equity firms	1. High 2. High 3. Must be involved
Infrastructure Providers	Liquid Telecom; Google; Microsoft; Nvidia; Ministry of Information, Communications, and the Digital Economy	1. High 2. Low 3. Involved periodically
Media and Advertising Agencies	Media Council, Editors Guild, Marketing Society of Kenya	1.Low 2.Low 3.Inform periodically

This mapping prioritises the stakeholder groupings that must be involved and should be kept informed. These include AI developers, communities, regulatory agencies, researchers, and investors, as shown in Figure 3.1.

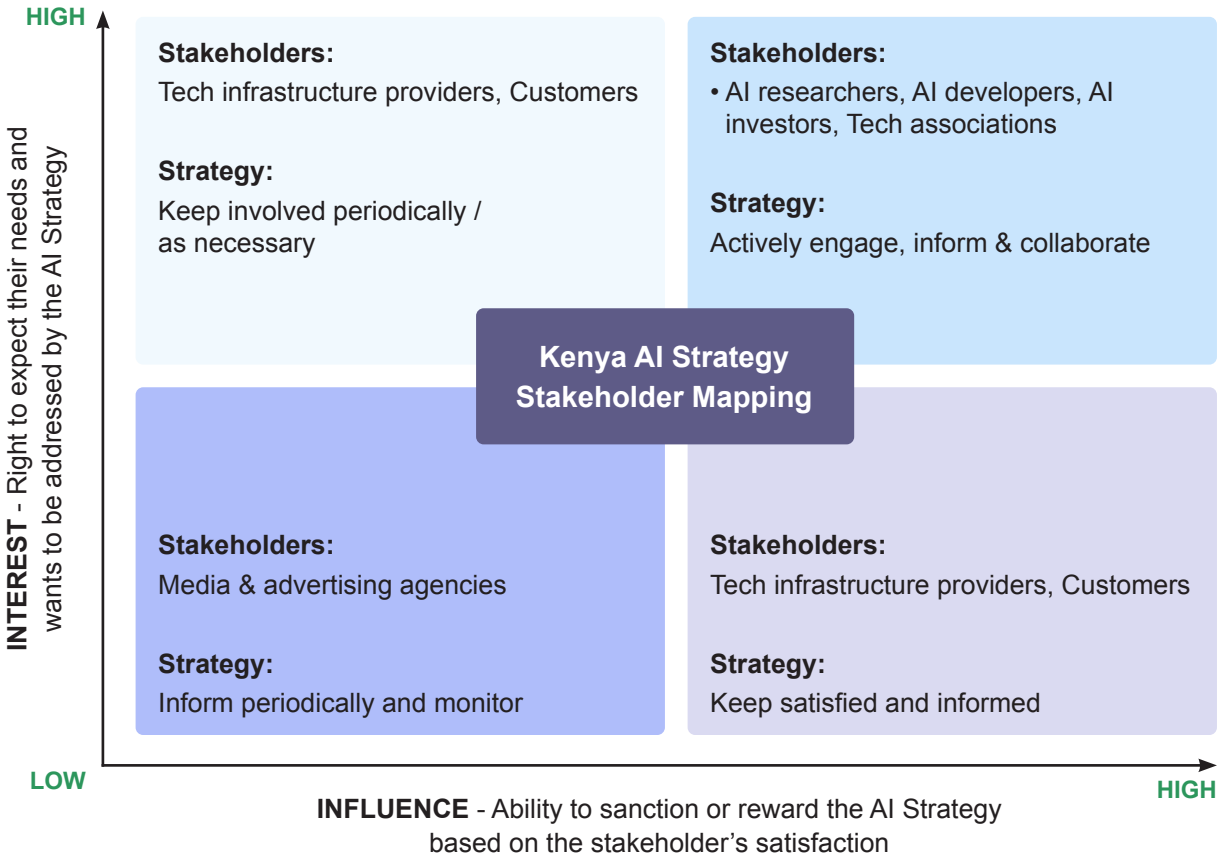


Figure 3.1: Stakeholder Map: Influence Interest Matrix

3.8. Strengths, Limitations, Opportunities, and Challenges Summary

Tables 3.4 to 3.7 show a summary of the information obtained from the various analyses reported in this chapter in the form of strengths, limitations, opportunities, and challenges (SLOC). The key evidence for the selection of each of the SLOC elements is also provided.

Table 3.4 Strengths

Strength	Key Evidence
Existing diverse and vibrant local innovation ecosystem	There is a vibrant ecosystem of local startups creating AI solutions tailored to Kenyan needs. The stakeholder mapping shows diverse input and actors in AI development and innovation in Kenya. The innovation ecosystem is developing homegrown and localised solutions that are contextually relevant in sectors such as health, agriculture, and fintech. Major international technology companies including Microsoft, Google, Meta, Huawei, and Nvidia have made significant investments in the local ecosystem through the establishment of data centres and AI labs, which bolster the local AI ecosystem, enhance Kenya's AI capabilities, provide access to global best practices, facilitate technology transfer, and improve competitiveness.
Young digital-ready AI workforce	Kenya has a large, young workforce already actively engaging in technology and, now, AI. This workforce has basic training and high digital literacy, which provide a base for developing advanced AI capabilities and fostering innovation as AI workforce demand increases both domestically and internationally. Some of these workers are already supporting international companies such as Sama in the development of AI through outsourced data processing and labelling.
Foundational legal framework for ethical AI development and use	Kenya has robust existing legal frameworks, including the Data Protection Act and the Computer Misuse and Cybercrimes Act, that provide direction on aspects of AI development and use. These regulatory frameworks enable initial trust in AI systems, and some redress mechanisms for misuse and AI harms. Kenya also has policies that create an enabling environment for AI development and prioritise emerging technologies, including the National Digital Economy Blueprint, where AI is referenced as a tool for innovation-driven entrepreneurship, and the Kenya National Digital Master Plan (2022–2032).

Existing digital infrastructure	Kenya has a robust digital infrastructure set up, including a number of private and government data centres, fibre infrastructure, and high levels of mobile infrastructure and internet penetration that support small-scale AI development and deployment. Kenya also has access to clean and green energy, particularly geothermal, which provides a strategic advantage in developing AI infrastructure, such as green data centres with minimal environmental impact.
Political will and strong government support for the adoption of AI	The government has provided political backing for the development of AI in Kenya through participation and ratification of global events and issues on AI; prioritisation of AI through the establishment of the 2019 Distributed Ledgers (Blockchain) and Artificial Intelligence Taskforce and the Sectoral Working Group; and the development of a national AI strategy. The government has mobilised financing and resources for local AI development by facilitating strategic investments from international partners, e.g., the commitment by Microsoft and G42 for a $1 billion digital ecosystem initiative to set up green infrastructure and local language models. There are also existing initiatives in the public sector, including the establishment of the AI-powered Konza smart city, the use of AI in healthcare resource allocation, and deployment of chatbots that support digital service delivery and citizen engagement.
Kenya is a regional hub/gateway to the East & Central Africa region	The presence of homegrown companies and tech startups building AI tools as well as global tech companies setting up research centres provides evidence of Kenya's status as a regional leader. Kenya's existing digital infrastructure, such as the National Optic Fibre Backbone Network Initiative, aim to enhance connectivity across all counties, making the country an attractive destination for technology companies interested in expanding to the region. Kenya's commitments to building smart cities like Konza Technopolis and existing partnerships for AI training and innovation also demonstrate its capacity as a regional leader.

Table 3.5 Limitations

Limitation	Key Evidence
AI skills gap	Kenya faces a huge shortage of advanced-level AI experts with the skills to design and train contextually relevant AI models. This skills gap can slow down AI development, limit innovation, and force reliance on foreign expertise, thereby reducing Kenya's competitiveness in AI. Primary data collection also indicates mismatches between academic training and practical industry needs that limit the ability to further homegrown innovation and effective adoption and maintenance of AI technologies. (Expand this definition to include different types of skills to include non tech professionals)
Regulatory gaps and conflicts	Kenya does not have a comprehensive and specific regulatory framework for AI. While existing legal frameworks such as the Data Protection, Computer Misuse and Cybercrime, Intellectual Property, and Consumers Acts provide some guidance, they are insufficient to address the complexities of AI. There is no specific policy on AI. These policy and regulatory gaps create governance challenges in managing ethical concerns, data privacy, and the safe deployment of AI technologies. They may hinder the responsible development and deployment of AI, potentially increasing the risk of misuse, harm to citizens, or unintended consequences. The resulting atmosphere of uncertainty deters investment, innovation, and adoption of AI by certain industries, including the public sector. Kenya's current regulatory environment for AI is fragmented, with multiple bodies working independently without a unified approach. This fragmentation leads to inconsistencies and inefficiencies in AI governance, making it challenging to create a cohesive strategy for AI development and deployment. The absence of robust AI-specific governance frameworks also limits adoption of AI in the public sector and in regulated sectors where errors and harms from AI deployment could diminish public trust, increase inequality, and degrade quality of service provision.
Data quality, availability, and accessibility concerns	Despite the presence of digital infrastructure, Kenya struggles with data availability and quality, which are critical for training effective AI models. The country ranks low on data availability indices, reflecting challenges in accessing and utilising data for AI development. Where data exists, e.g., in government ministries and departments, it is not fully digitalised and remains siloed. It is also underutilised due to gaps in data governance policies that enable data sharing and collaboration, limiting the potential for data-driven innovation and comprehensive AI solutions.

Primary and supporting infrastructure constraints	While Kenya has made progress in developing its digital infrastructure, challenges remain in terms of data accessibility and the availability of computing power needed for AI applications. These infrastructure limitations could slow down AI adoption and limit the scalability of AI-driven solutions across the country. Kenya's insufficient computing power, broadband connectivity, and energy efficiency hinder large-scale AI deployment, including the deployment of large language models. These constraints limit the scalability and effectiveness of AI initiatives and impede Kenya's ability to implement AI solutions effectively across sectors. Inadequate and unreliable infrastructure, such as network unreliability and inconsistent electricity and water supply, pose a significant barrier to the effective deployment and scalability of AI technologies across the country. Additionally, the slow progress in digitising documents and records from government and other key sectors will delay the adoption of AI technologies. This challenge has hampered the efficient delivery of public services and will limit the ability to leverage AI for data-driven decision-making and innovation within the public sector.
Limited investments in local AI research and development	AI readiness assessments note underinvestment in local AI research and development (R&D). Additionally, startups and universities face funding constraints and limited access to venture capital and development financing to scale AI projects, which are inherently expensive. Inadequate funding curtails growth of local innovations, diminishes competitiveness, and hinders the creation of contextually relevant AI solutions. The Kenyan AI ecosystem heavily relies on funding and support from international organisations and private companies, which may limit the sustainability and autonomy of local AI initiatives. The lack of government-funded AI research highlights a critical gap that could undermine the long-term development and independence of the national AI ecosystem.
Equity and inclusion in AI development and gaps in public AI/ digital literacy	Despite efforts by the government and private-sector players, there remain significant gaps in digital and AI literacy among the general population. This shortfall limits public engagement with AI technologies, reducing the adoption of AI-driven solutions and potentially widening socioeconomic inequalities. The digital divide in Kenya, particularly between urban and rural areas and among marginalised communities, poses a significant challenge to the inclusive adoption of AI technologies. Without targeted efforts to bridge this divide, AI adoption could exacerbate existing social and economic inequalities, limiting the benefits of AI to a small segment of the population. Additionally, there will be a challenge in building public trust and awareness, an important element for the successful adoption of AI. Existing gender imbalances and the underrepresentation of marginalised

	groups in the development and deployment of AI technologies jeopardise the possibility that the benefits of AI will be shared across all segments of society. This underrepresentation may exacerbate existing social inequalities and hinder the creation of inclusive AI solutions that address the needs of all segments of society.
Fragmented/ uncoordinated prioritisation of development and application of AI	There is a potential for unbalanced prioritisation of AI initiatives, with certain sectors receiving more attention and resources than others based on political considerations rather than strategic needs. This concern was raised by both government representatives and innovators. This could stifle innovation, create disparities in AI development across sectors, and undermine the effectiveness of AI initiatives.

Table 3.6 Opportunities

Opportunity	Key Evidence
Job creation and economic growth	AI has shown the potential to significantly boost global GDPs by improving efficiency and productivity in various sectors and creating new jobs. The Kenyan economy is experiencing significant challenges that result in reduced incomes and increased job losses. The adoption of AI in critical sectors like agriculture, healthcare, and finance has led to significant improvements in operational efficiency and service delivery. For example, AI-driven platforms like Apollo Agriculture enhance agricultural productivity, while AI in healthcare supports disease diagnosis and patient management. These innovations not only boost sectoral performance but also contribute to the broader socioeconomic development of Kenya. Sector-specific AI implementations can address unique challenges in these areas, driving improvements in efficiency, productivity, and service delivery. AI-driven economic growth can enhance Kenya's global competitiveness, create new industry and job opportunities, and drive inclusive economic development. These new jobs created by an AI sector can address unemployment, especially among youth, and contribute to economic stability and growth.
Enhanced public-sector efficiency	AI presents an opportunity to significantly improve public-sector efficiency in Kenya by automating processes, enhancing decision-making, and reducing bureaucratic inefficiencies. This could lead to more transparent, accountable, and responsive public services, thereby increasing citizen trust and engagement. Various primary interviews identified the government as an anchor of demand for AI solutions. The government's role as a primary AI adopter can stimulate the market, drive innovation, and create a sustainable demand for AI solutions across various sectors.

AI-specific education programmes	Building a skilled workforce through rapid upskilling, reskilling, and AI-specific education ensures Kenya can meet the future demands of the AI industry, fostering sustainable growth and innovation. The development of AI-specific curricula and training programmes can also help address the existing skills gap, leading to job creation and a more skilled workforce. Kenyan universities and institutions, such as Jomo Kenyatta University of Agriculture and Technology and Strathmore University, already offer specialised AI programmes. Additionally, initiatives like Huawei's AI Certification and the Jitume Digital Hub help build a skilled workforce. These programmes can be further enhanced by leveraging international partnerships that allow Kenya to bridge the skills gap through targeted capacity-building programmes and aligning training to industry needs.
Public-private partnerships	Expanding public-private partnerships and collaborative projects between government, the private sector, and academia can accelerate AI development by leveraging resources and expertise from each sector. Public-private partnerships can pool resources and expertise, accelerating AI development and ensuring that innovations are aligned with national priorities.
Investments in the local AI innovation ecosystem	By positioning itself as a leader in AI innovation in Africa, Kenya can attract international investments in the existing technology community and innovation ecosystem. This could lead to the development of home-grown AI solutions that leverage local data and talent. There are already a number of open data repositories, including from the National Bureau of Statistics. Streamlined development of this data infrastructure and existing repositories can enhance AI research, enable the development of high-quality AI solutions, and improve decision-making processes across sectors. There is also an opportunity to develop local language models, which can democratise access to AI, making it more inclusive and relevant to the Kenyan population, while preserving linguistic diversity. Kenya has the opportunity to harness local industry and capital to support AI research and academia. By encouraging collaboration between businesses, investors, and educational institutions, Kenya can foster homegrown innovation, drive AI advancements, and strengthen its research capacity. This approach can reduce reliance on external funding, empower local talent, and accelerate the development of AI solutions tailored to Kenya's needs.

Leadership in AI development (models, responsible AI, policy)	Emerging applications in agriculture (e.g., crop disease detection), healthcare (e.g., medical imaging analysis), and financial inclusion have exhibited Kenya's ability to develop AI solutions tailored to African contexts. Several global tech companies have also established research centres in Kenya focusing on local AI model development. Stakeholders interviewed in the primary data collection exercise advocated for embedding Afrocentric values and indigenous knowledge into AI systems to ensure relevance and inclusivity, showcasing Kenya's leadership potential in contextual AI development. Additionally, Kenya has foundational legal frameworks, like the Data Protection Act, demonstrating Kenya's potential to lead in crafting AI policy for emerging markets. Kenya's access to renewable energy (e.g., geothermal) creates a ripe opportunity for leadership in sustainable AI development.

Table 3.7 Challenges

Challenge	Key Evidence
Data governance and sovereignty	Kenya relies heavily on foreign data centres to process and store datasets produced in the country and about Kenyans. This dependence on external entities raises concerns about the potential loss of control over critical AI data, which could expose the country to data exploitation, external manipulation, privacy breaches, dependency on external AI solutions, and national security threats. Without strong data governance, Kenya may struggle to protect its citizens' data rights and maintain trust in AI systems. Strengthening these frameworks is essential to safeguard national interests and ensure the integrity of AI initiatives.
Labour market disruption and job displacement	The adoption of AI technologies in Kenya creates the potential for widespread job displacement, particularly in sectors such as manufacturing, agriculture, and services, where a large portion of the population is currently employed. This creates the need for reskilling and upskilling initiatives to mitigate the risk of exacerbating unemployment and deepening social inequalities. The risk of brain drain among skilled AI professionals exacerbates this challenge, as top talent may seek opportunities abroad for better pay, leaving gaps in the local AI workforce. If not managed effectively, the brain drain of skilled AI professionals could limit Kenya's ability to build and sustain a competitive AI ecosystem.

Global regulatory pressure	There is a lag in defining comprehensive ethical and legal frameworks both locally and internationally. As AI rapidly advances, there are challenges in understanding and scoping evolving AI risks, including the risks of bias, discrimination, and potential misuse for surveillance and other invasive purposes. Different regions are therefore adopting varied approaches to AI regulation, from legislation to sector-specific regulation. These diverse approaches create pressure for Kenya to decide which models to follow or how to develop its own approach while at the same time remaining globally competitive. In particular, Kenya must balance an enabling environment for innovation to address Kenya's unique socioeconomic context, creating a framework that aligns with international best practice for regulating risks associated with AI technologies, with preserving citizens' rights.
Cap on competitiveness in AI technology (global)	AI investments and research are concentrated in advanced economies like the United States, China, Japan, India, and Germany. The rapid advancement of AI capabilities in these leading nations outpaces local development in Kenya, potentially widening the technological gap and making it increasingly difficult for the country to compete on the global AI stage. Global supply chains for acquiring essential AI components such as high-performance graphics processing units and specialised AI chips are often dominated by a few key players in developed economies. Limited access to these resources, due to factors like export controls, high costs, or supply shortages, can significantly hinder Kenya's ability to develop and deploy state-of-the-art AI systems and may increase operational costs. This dependence on external resources for core AI infrastructure could slow down local innovation and make it more challenging for Kenya to develop a self-reliant AI ecosystem.
Cybersecurity and mis/disinformation	In the global environment, AI technologies are exploited for cyber-attacks, such as automated phishing and sophisticated hacking. Kenya faces similar risks due to its expanding digital and AI ecosystems. Kenya's reliance on external data centres can compromise data sovereignty and expose Kenya to cross-border cyber risks. The rise of generative AI technologies, such as deep fakes, poses risks for creating and spreading false narratives, undermining trust in media and institutions. Kenya's regulatory frameworks for addressing cybersecurity and misinformation are still evolving, leaving gaps in mitigating these challenges.

4. KENYA AI STRATEGY FOUNDATIONS

4.1. Vision

This strategy envisages Kenya being at the forefront of quality AI research and development and creating innovative and ethical solutions that address the needs of our local but diverse communities. The vision is:

A regional leader in AI R&D, innovation and commercialization for inclusive socio-economic development.

This can be accomplished by:

- Leveraging local talent, datasets, and creativity to transform priority sectors and create inclusive economic growth.
- Upholding ethical and responsible AI by setting clear guidelines that balance innovation with ethical considerations, ensuring AI is developed and deployed safely, responsibly, and inclusively.
- Prioritising data sovereignty and ethical AI practices to build a technological future that is safe, accountable, and beneficial for all Kenyans.
- Collaborating with local and international stakeholders to define and embrace best practices in AI adoption, thus ensuring Kenya's AI ecosystem remains secure and globally competitive.

4.2. Value Proposition

The value proposition for the national AI strategy consists of several prongs:

- **Drive economic growth:** AI is poised to boost GDP, create digital jobs, increase productivity, generate revenue, optimise costs, and enhance government service delivery. Potential job displacement will be proactively addressed.
- **Elevate competitiveness:** Kenya aims to become a frontrunner in AI research and development, cultivate a thriving AI startup ecosystem, and become a net exporter of high-quality AI technology and services.
- **Establish robust data governance:** The strategy will implement a data governance framework that ensures ethical AI use and responsible data accessibility.
- **Ensure agile AI governance:** An adaptive AI governance framework will be established to respond effectively to the rapid pace of technological advancements and ensure the secure adoption and deployment of AI.
- **Foster public trust:** The strategy is committed to promoting public trust in AI technologies by providing a roadmap for AI awareness, literacy, and ethical use.
- **Create social impact:** AI will be leveraged to improve access to essential services, reduce poverty, and empower local communities and individuals. This includes making AI accessible in local languages.

4.3. Guiding Principles

The following principles will guide the implementation of the national AI strategy:

- **Inclusivity and non-discrimination:** The strategy will promote inclusivity, equity, and non-discrimination in the development and deployment of AI, ensuring fair and equal access to AI benefits for all Kenyans, regardless of their background or circumstances.
- **Participation and co-creation:** The implementers of the strategy will encourage multi-stakeholder engagement and involve diverse perspectives from government, industry, academia, and citizens.
- **Transparency and accountability:** The strategy will be implemented with transparency, equity, explainability, and accountability in AI systems, promoting public trust and enabling oversight, auditing, and redress mechanisms.
- **Ethical and responsible AI:** Privacy protection, fairness, safety, security, and respect for human autonomy and decision-making will be important values in the implementation of the strategy.
- **Cultural preservation and contextualization:** AI systems will be developed that are enriched with Kenyan cultural values and that preserve and promote the nation's cultural heritage and ensure contextual relevance to local needs and contexts.
- **Environmental sustainability:** The development and deployment of AI systems will promote environmental sustainability and energy efficiency.
- **Economic benefit and self-sufficiency:** AI will be leveraged to drive economic growth, create new opportunities, and foster self-sufficiency, positioning Kenya as a net exporter of AI technologies and services.
- **Local first approach:** AI development and deployment will prioritise local talent, resources, and solutions while fostering local, regional, and international collaborations and partnerships.

5. STRATEGIC DECISIONS

5.1. Themes and Sub-themes

Strengths, limitations, opportunities, and challenges (SLOC) was used to generate strategic options. The themes and sub-themes that emerged are shown in Table 5.1.

Table 5.1: Strategic themes and sub-themes

Themes	Sub-themes
1. AI Digital Infrastructure	• AI-ready national digital infrastructure • Compute infrastructure (data centres) • Green energy sources to power AI infrastructure • Domestic manufacturing facilities for AI-specific hardware • Cybersecurity infrastructure • Partnerships and collaborations
2. Data	• Data governance framework • Secure data sharing • Quality AI training datasets
3. AI R&D and Innovation	• AI R&D capabilities • AI innovation • Scaling local AI enterprises • Market for local AI solutions
4. Talent Development	• Foundational AI skills in schools • Specialised AI skills in tertiary institutions and industry • Partnerships for AI talent development and placement • Acquisition of quality foreign AI talent
5. Governance	• Policy framework for AI and emerging technologies • Agile AI legal and regulatory frameworks • AI risk and safety frameworks • Stakeholder collaborations
6. Investments	• Private-sector investments in AI • Public-sector investments in AI • Kenya as an investment destination for AI
7. Ethics, Equity, and Inclusion	• Ethical, responsible, and inclusive AI development and deployment • Inclusivity and national values in AI development and deployment • Public AI literacy

The strategic theme details are outlined below.

1. **AI Digital Infrastructure**

The development of a robust AI-ready national digital infrastructure is critical to supporting Kenya's aspirations in artificial intelligence. This involves establishing advanced connectivity systems, including 5G networks and cloud computing services, to create a seamless and reliable digital environment. Additionally, the establishment of compute infrastructure, particularly the expansion of local data centres to facilitate high-performance computing and secure data storage, is necessary for AI applications.

Moreover, the adoption of green energy sources to power AI infrastructure ensures sustainability and aligns with global efforts to reduce carbon footprints in technology sectors. To complement this effort, Kenya will explore the establishment of domestic manufacturing facilities for AI-specific hardware to reduce dependency on imports and build local expertise. Equally essential is a strong cybersecurity infrastructure to safeguard digital systems, AI models, and sensitive data from malicious threats. These initiatives can be accelerated through strategic partnerships and collaborations with international tech firms, research institutions, and regional organisations.

2. **Data**

A robust data governance framework is the cornerstone of Kenya's AI ecosystem, enabling effective management and ethical use of data. This framework will ensure transparency, accountability, and security in data handling while fostering secure data sharing among stakeholders, including the public and private sectors. Access to quality AI training datasets is vital for the development of reliable and contextually relevant AI systems. This requires investment in the collection, annotation, and curation of diverse datasets that reflect Kenya's unique demographics, environments, and economic contexts. These efforts will enable Kenya to position itself as a hub for data-driven innovation while addressing issues of data privacy and sovereignty.

3. **AI R&D and Innovation**

Building AI R&D capabilities is crucial for fostering innovation and positioning Kenya as a leader in artificial intelligence. This involves establishing research hubs, funding academic and industry collaborations, and promoting open research practices. AI innovation will be driven by policies and incentives that encourage the development of novel

solutions tailored to local challenges, such as agriculture, healthcare, and education. Scaling local AI enterprises requires targeted support for startups and SMEs, including access to funding, mentorship, and incubation programmes. Creating a vibrant market for local AI solutions will further stimulate innovation and scale Kenyan AI solutions, increasing Kenya's competitiveness and contributing to the achievement of Kenya's economic growth goals.

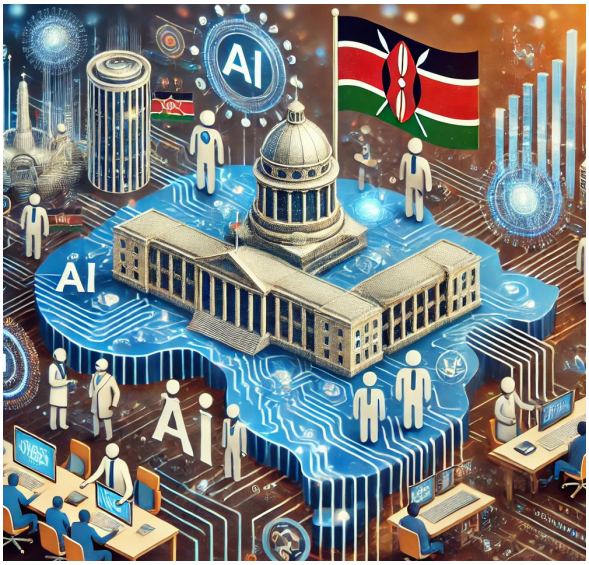
4. **Talent Development**

The foundation for AI excellence lies in cultivating foundational AI skills in schools, integrating basic programming, computational thinking, and ethics into national curricula.

Specialised AI skills in tertiary institutions and industry will be critical for producing experts in machine learning, data science, and AI policy. Partnerships with tech firms and international institutions can accelerate AI talent development and placement, providing real-world experience and job opportunities. Additionally, facilitating the acquisition of quality foreign AI talent through simplified immigration policies and attractive working conditions can help bridge the skills gap while fostering knowledge transfer to local professionals.

5. **Governance**

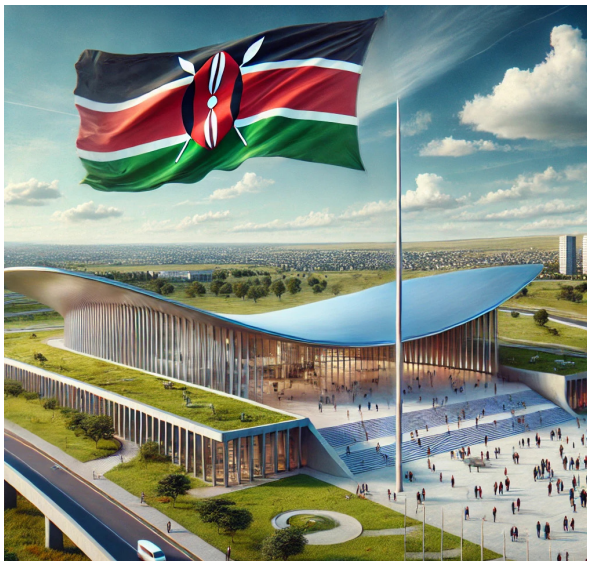
A comprehensive policy framework for AI and emerging technologies is necessary to provide direction and coherence in Kenya's AI strategy. This framework must include agile AI legal and regulatory structures, along with monitoring and oversight mechanisms that



evolve with the rapidly changing technology landscape. The development of AI risk and safety frameworks will ensure that Kenya develops trustworthy AI systems that operate securely and ethically, minimising potential harms. Effective stakeholder collaborations between government, academia, civil society, and industry are essential to align AI initiatives with national priorities and ensure accountability in the governance of AI technologies.

6. **Investments**

Both private-sector and public-sector investments in AI are crucial to drive innovation and scale solutions. Incentives such as tax breaks, grants, and innovation funds can attract private capital, while government funding can support foundational research and infrastructure development. Positioning Kenya as an investment destination for AI involves enhancing the ease of doing business, promoting the local AI ecosystem, and showcasing success stories to international audiences. These efforts wil



7. **Ethics, Equity, and Inclusion**

Promoting ethical, responsible, and inclusive AI development and deployment ensures that Kenya's AI systems align with national values and global standards. Inclusivity in AI development and deployment focuses on addressing disparities, enabling participation from underrepresented groups, and ensuring equitable benefits across all communities. Enhancing public AI literacy is key to fostering trust and informed engagement, empowering citizens to understand and influence AI systems that impact their lives. By embedding ethical principles and inclusivity at every stage, Kenya can develop an AI ecosystem that reflects its diversity and supports sustainable, equitable growth.

For each of the strategic themes, an overall goal was developed. The selected high priority options for each theme were organised into objectives and flagship projects to be pursued to achieve the overall goal as outlined in the next section.

5.2. Goals, Objectives, Flagship Projects, Outcomes, and Key Performance Indicators Options

Tables 5.2 through 5.8 show the goals, objectives, and flagship projects for each strategic theme. The tables also show the intermediate outcomes and KPIs for each of the objectives. The ultimate outcomes are shown together with the overall goal outside the tables for ease of presentation.

1. AI Digital Infrastructure

Goal 1: Modernise the national digital infrastructure for AI access and development

Ultimate Outcome 1: High-capacity digital infrastructure for AI access and development

Table 5.2: AI digital infrastructure

Objective	Flagship Projects	Intermediate Outcomes	KPIs
1.1 Invest in the setup and expansion of AI-ready digital infrastructure across the country	1.1.1 Implement a National Broadband Expansion Program (high-speed internet, 5G networks, etc.)	1. Increased and uninterrupted access and coverage of broadband connectivity	• % national broadband connectivity coverage
	1.1.2 Build robust edge computing capabilities to support AI research, development, and deployment	2. Increased penetration of Edge AI contextualised devices	• Number of devices that can run AI models on the edge infrastructure
1.2 Enhance High Performance Computing (HPC) clusters	1.2.1 Build three TIA 942 (ANSI standard) AI-capable data centres within 5 years	3. Increased local compute power 4. Enhance capacity for training models at a local infrastructure level	• Number of local data centres meeting the TIA 942s standard (ANSI standard) / (GPUs) • % of public sector data centre compute capacity integrated into the AI HPC cluster

Objective	Flagship Projects	Intermediate Outcomes	KPIs
1.3 Increase the supply and use of green energy sources to power AI infrastructure, ensuring sustainability and reducing environmental impact	1.3.1 Review power supply to digital infrastructure and enhance the ratio of green energy	5. Increased % contribution of green energy powering AI infrastructure.	• % of green energy powering data centres
1.4 Develop domestic manufacturing facilities for AI-specific hardware, such as specialised chips and semiconductors, to reduce reliance on foreign technology providers	1.4.1 Establish more local device assembly centres	6. Reduced cost of smart devices utilised in the AI lifecycle	• Decrease in average cost of a computing device
	1.4.2 Establish a national semiconductor manufacturing facility to produce AI-specific chips domestically within five years 1.4.3 Leverage on AfCTA and regional regulatory frameworks and incentives for regional trade to support the manufacturing sector	7. Increased availability of semiconductors for use locally	• Number of semiconductors manufactured
		8. Export semiconductors regionally and continentally	• Number of semiconductors exported
		9. New jobs from technology assembly and manufacturing	• Number of new jobs in technology assembly and manufacturing

Objective	Flagship Projects	Intermediate Outcomes	KPIs
1.5 Establish robust national cybersecurity infrastructure	1.5.1 Establish a multi-stakeholder task force within the proposed National Cybersecurity Operation Centre framework to respond to AI-specific emerging threats 1.5.2 Implement advanced AI-specific threat detection and response systems across critical sectors	10. Enhanced national information security through advanced AI-specific threat detection and response systems across critical sectors	• 100% pass rate on cybersecurity audits and effective resolutions of detected threats
1.6 Forge partnerships and collaborations to develop and improve AI hardware and software	1.6.1 Create partnerships with other countries and global tech companies for knowledge transfer and development of digital infrastructure development for AI 1.6.2 Create collaborations between the government and the private sector to ensure that AI technology supply chains remain robust and innovative 1.6.3 Create partnerships with global tech companies to combat AI threats emerging from misinformation and disinformation	11. Implemented public-private partnership (PPP) projects	• 2 PPP projects in the next 5 years

2. Data

Goal 2: Establish a robust and sustainable data ecosystem for AI and innovation

Ultimate Outcome 2: Enhanced dataset quality, usability, shareability, and sovereignty

Table 5.3: Data

Objective	Flagship Projects	Intermediate Outcomes	KPIs
2.1 Create a robust and responsive data governance framework	2.1.1 Develop a national data policy and strategy informed by best practices 2.1.2 Create a legal sharing framework for all stakeholders to share data with appropriate incentives 2.1.3 Establish an AI-task force within the proposed Data Governance Office Coordination Committee with representation from key data actors in selected in MCDAs, counties (CoG), private sector and civil society representatives, a Data Governance Office in the Ministry, and Data Officers 2.1.4 Enhance data residency requirements and ensure compliance with national data laws and regulations regarding data handling and storage 2.1.5 Classify, categorise and regulate access to data collected within Kenya and from Kenyans	1. Enhanced assessment of data sovereignty	• Comprehensive national data policy and strategy adopted • % reduction in data silos in the public sector • % of locally produced data meeting the standards of sovereignty • % compliance with national data laws and regulations

Objective	Flagship Projects	Intermediate Outcomes	KPIs
2.2 Develop and implement secure data sharing, data access and data interoperability protocols	2.2.1 Create comprehensive national standards and protocols for data and metadata to ensure consistency and facilitate seamless data integration and exchange across government ministries, departments, and agencies (MDAs) as well as the private sector 2.2.2. In compliance with relevant laws, incentivize data sharing and collaboration among stakeholders, including private sector, research institutions, government agencies, and civil society organisations 2.2.3 Implement data initiatives (within guardrails/frameworks to prevent misuse and restricted national access and controlled cross border data flows) 2.2.4 Develop and implement secure data access frameworks that use encryption and authentication to safeguard sensitive data while allowing for wider accessibility	2. Increased data sharing and access	• Number of local datasets openly shared in compliance with national laws and policies • Number of formal data sharing agreements between institutions
2.3 Incentivize the creation of open high quality AI training datasets	2.3.1 Design and implement national data quality standards and protocols for data collection, cleaning, validation, and integration across sectors 2.3.2 Create local data labs with clean, validated, and integrated datasets for access by researchers and AI model developers	3. Enhanced access to quality datasets for AI training	• % of usable datasets for AI models training • Number of local data labs for AI training datasets

3. AI R&D and Innovation

Goal 3: Drive the development of cutting-edge localised AI models and solutions through a thriving local R&D and innovation

Ultimate Outcome 3: Increased contribution of AI businesses to GDP in priority sectors

Table 5.3: AI R&D and innovation

Objective	Flagship Projects	Intermediate Outcomes	KPIs
3.1 Enhance and expand AI research capabilities at universities, TVETs, research centres, and innovation hubs across Kenya	3.1.1 Nurture R&D for public sector innovation 3.1.2 Establish AI research centres of excellence and innovation clusters across different regions 3.1.3 Engage the young workforce to advance research and development through research programs with more local innovation 3.1.4 Establish partnerships between academia, industry, and government to facilitate AI R&D, innovation and evaluation	1. Accelerated local AI R&D and innovation capacity	• Number of published AI journal papers from local authors • Number of patents, trademarks and copyrights registered for AI
3.2 Launch and implement an AI Innovators Program that fosters a robust innovation ecosystem for cutting-edge AI model development and experimentation	3.2.1 Position Kenya as a regional hub for localised AI model development 3.2.2 Enhance science parks and innovation districts to attract and support tech and AI companies and startups 3.2.3 Upgrade tech hubs to provide mentorship and incubation services 3.2.4 Develop and use local data sources for AI development ultimately building AI models tailored to priority local problems 3.2.5 Prioritise the development of AI models that solve pressing social problems and are inclusive, focusing on edge and small AI models	2. Increased AI startups in the AI innovation ecosystem	• Number of operational AI startups
		3. Increased local AI models	• Number of locally developed foundational AI models

Objective	Flagship Projects	Intermediate Outcomes	KPIs
3.3 Develop the market for local AI solutions	3.3.1 Promote adoption and commercialization of locally developed AI solutions by creating regional and global market access opportunities 3.3.2 Incentivize local and regional markets to purchase locally manufactured AI products 3.3.3 Review Public Procurement Regulations to ensure that the Government prioritises the procurement of locally developed AI products 3.3.4 Incentivize edge AI model development and innovations	4. Expanded markets for local AI solutions	• % of general population using local AI solutions versus external solutions • % of market penetration for local AI solutions in Kenya • Number of local AI solutions commercially deployed
3.4 Create an enabling environment for local AI companies to start and scale	3.4.1 Create collaborative AI innovation hubs 3.4.2 Create incubation and acceleration opportunities for new AI startups 3.4.3 Develop an AI resource toolkit for startups to provide resources on online platforms (e.g. access to data centres, access to public data, free cloud credits and development tools to 500 AI startups)	5. New employment opportunities in AI development and deployment	• Number of new hires (local and internationals) that support the AI development and deployment process

4. Talent Development

Goal 4: Build a robust pipeline of competent and agile AI workers for Kenya

Ultimate Outcome 4: Robust pipeline of competent and agile AI workers

Table 5.7: Talent development

Objective	Flagship Projects	Intermediate Outcomes	KPIs
4.1 Integrate AI and data science education into school curricula at all levels	4.1.1 Develop an AI awareness and foundational skills awareness for schools 4.1.2 Roll out the AI awareness and foundational skills curricula in schools 4.1.3 Develop and implement as Training program for AI trainers program across different levels	1. Enhanced foundational AI and data skills	• Number of schools with foundational AI and data skills training
4.2 Develop AI talent to meet emerging demands of the AI ecosystem	4.2.1 Develop and implement common courses on AI in tertiary education 4.2.2 Design and implement ecosystem-driven quality specialised training programs that nurture local AI/data talent to meet industry needs 4.2.3 Develop and implement an AI training of trainers (AI TOT) program 4.2.4 Incentivize the development of AI talent 4.2.5 Create partnerships for AI talent development and placement 4.2.6 Create a policy for knowledge and skills transfer for specialised skills in implementing complex AI projects 4.2 7 Map AI talent for relevance and gaps	2. AI talent pipeline established through targeted training programs focused on emerging technical skills and industry requirements	• Number of people with Deep AI skills

Objective	Flagship Projects	Intermediate Outcomes	KPIs
4.3 Create partnerships for AI talent development and placement	4.3.1 Create a mentorship, apprenticeship and career development program to ensure desired growth 4.3.2 Enhance the Presidential Digital Talent Program (PDTP) and the Public Service Internship Program (PSIP) to allow for specialisation in AI and Data Analytics 4.3.3 Partner with existing innovation hubs and research centres regionally and globally to enhance access to postgraduate opportunities in AI 4.3.4 Implement PPPs in talent development	3. Effective placement created through industry partnerships to match trained AI specialists with relevant employment opportunities	• Number of AI specialists employed in the local AI ecosystem
4.4 Acquire quality foreign AI talent	4.4.1 Develop and implement a national AI talent acquisition program to fill gaps 4.4.2 Review foreign policy regarding work visas to prioritise AI talent acquisition	4. Increased AI capacity in Kenya	• Number of foreign AI professionals acquired

5. Governance

Goal 5: Establish an agile governance and adaptable legal framework for AI

Ultimate Outcome 5: Agile governance and adaptable legal framework for AI

Table 5.5: Governance

Objective	Flagship Projects	Intermediate Outcomes	KPIs
5.1 Develop a harmonised national policy framework for AI and emerging technologies	5.1.1 Develop a national AI and emerging technologies policy that aligns with the AI strategy 5.1.2 Develop a national cybersecurity policy	1. Established comprehensive and coherent policy framework that allows alignment across national AI strategic priorities	• Number of policies implemented that form a harmonised framework for AI and other emerging technologies
5.2 Develop risk and safety frameworks to govern AI development and deployment (technical)	5.2.1 Develop local ethical and safety standards in AI development and deployment 5.2.2 Implement AI ethical and safety standards through conformity assessment schemes/safety audits and technical specifications/regulations 5.2.3 Develop a national AI risk and safety institute	2. Enhanced risk and safety standards for trustworthy AI development and employment	• Number of ethical and safety standard policies and regulations adopted

Objective	Flagship Projects	Intermediate Outcomes	KPIs
5.3 Revise and develop agile legal and regulatory frameworks to meet the demands of AI	5.3.1 Review relevant legislation (employment and labour relations, intellectual property, computer misuse and crimes, etc.) to reflect the demands of AI and other emerging technology 5.3.2 Harmonize East Africa data, tax, and cybersecurity laws for secure and compliant cross-border data transfer and to enhance competitiveness in AI 5.3.3 Proactively implement a soft regulatory framework for AI 5.3.4 As AI matures in Kenya, develop an AI and Other Emerging Technologies Act and regulations 5.3.5 Develop a flexible regulatory environment using regulatory sandboxes to inform the development of an AI regulatory framework and standards	3. Enhanced conformity of legislation and regulations to meet dynamic development of AI and other emerging technologies	• Number of laws reviewed and enacted to meet the context of AI and other emerging technology
5.4 Pursue collaborative intra- and inter-government, non-governmental, and private-sector AI governance approaches	5.4.1 Develop and implement an AI and emerging tech diplomacy program 5.4.2 Promote regional and international cooperation to share knowledge, align AI standards and collaborate on AI challenges ensuring Kenya's active participation in regional and global AI and emerging tech ecosystem	4. Coordinated cross-border governance approaches for addressing AI challenges and opportunities	• Number of value-adding partnerships and collaborations with regional and global AI entities on AI governance
	5.4.3 Enhance participation in AI policy making and programming processes to include the public, developers and consumers	5. Enhanced public support and buy-in of AI policies and programs	• Number of government led AI programs that target public buy-in of policies and programs

6. Investments

Goal 6: Strategically accelerate public and private investments in AI

Ultimate Outcome 6: Increased investments in AI

Table 5.7: Investments

Objective	Flagship Projects	Intermediate Outcomes	KPIs
6.1 Incentivize investments in AI from both local and foreign private investors	6.1.1 Leverage on PPPs to advance investment in localised AI and tech solutions (e.g. public and private sector partnering with Venture Capital firms) 6.1.2 Review and update AI policy and regulatory frameworks to create a favourable investment environment for AI development 6.1.3 Incentivize pension funds, public capital markets, and local and international private sector to invest in the local AI R&D and innovation ecosystem 6.1.4 Implement through PPPs an investor education program to train at least 1,000 potential investors on evaluating and investing in AI solutions	1. Increased investments in the AI ecosystem	• Amount of private sector investments in government-led AI initiatives (US$ m)
6.2 Re-orient public resource allocation to prioritise investments in AI	6.2.1 Create a national AI and emerging tech innovation fund (from the R&D 2% of GDP in NRF) to provide grants and financial support in AI development 6.2.2 Create AI Special Economic Zones (SEZs)	2. Increased government funding allocation to AI development	• % of National Research Fund allocated to the local AI ecosystem • Number of AI startups in SEZs
6.3 Position Kenya as an investment destination for AI	6.3.1 Market Kenya as an investment destination for AI 6.3.2 Promote success stories to showcase at least 50 successful tech startups, inspiring investment in the AI sector	3. Increased foreign direct investment (FDI) for AI	• Amount of FDI into AI tech economic zones (US$) • Number of success stories of AI investment

7. Ethics, Equity, and Inclusion

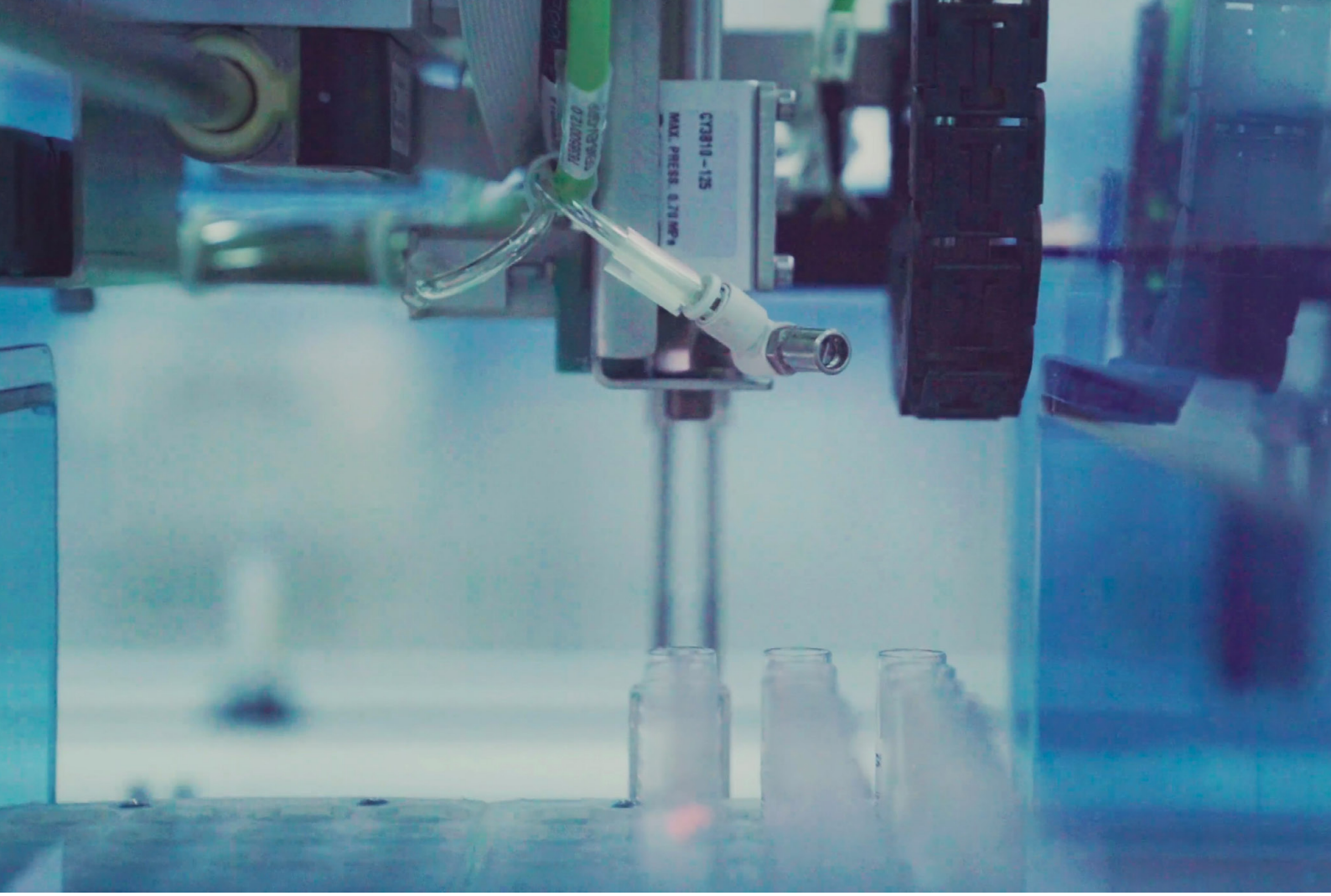
Goal 7: Foster a culture of ethical, equitable, and inclusive AI development and deployment

Ultimate Outcome 7: Enhanced ethicalness, equitableness, and inclusiveness of AI solutions

Table 5.8: Ethics, equity, and inclusion

Objective	Flagship Projects	Intermediate Outcomes	KPIs
7.1 Promote ethical, responsible and inclusive AI development and deployment	7.1.1 Establish a mandatory ethical impact assessment process for AI technologies for public sector 7.1.2 Update and develop guidelines for accountable public sector AI procurement and deployment 7.1.3 Develop sector-specific standards and requirements on ethical AI development and deployment that are aligned to the national values and includes vulnerable groups 7.1.4 Develop a complaints and redress mechanism for citizens to report AI-related concerns (e.g., Commission on Administrative Justice / Ombudsman)	1. More humancentric, safer and inclusive AI solutions	• Reduction in reported No. of incidents involving unsafe or harmful AI behaviours (such as data breaches, privacy violations, etc.)

Objective	Flagship Projects	Intermediate Outcomes	KPIs
7.2 Promote inclusivity and national values in AI development and deployment	7.2.1 Implement data labelling and classification policies that address bias 7.2.2 Develop an ethical framework and define AI rights, ethical principles and considerations 7.2.3 Sponsor and spearhead inclusivity in the data value chain 7.2.4 Maintain a public repository of ethical AI use-cases and best practices to guide development and deployment of AI in the country 7.2.5 Implement a framework for inclusivity in AI including gender mainstreaming and representation of persons with disabilities (PWDs) and other underrepresented groups	2. Increased participation of previously marginalized groups within the local AI ecosystem	• Increased % of representative datasets • Number of ethical AI use-cases • % of women represented in AI • % of PWDs and underrepresented groups in AI
7.3 Enhance public AI literacy	7.3.1 Launch a public awareness campaign on AI rights, disinformation, misinformation, protection and safe development while showcasing the benefits of AI 7.3.2 Educate government employees on ethical, equitable and inclusive AI	3. Increased foundational awareness of AI	• % increase of public awareness of AI



5.3. Priority Use Case

The Kenyan government and ecosystem stakeholders have identified several high-priority use cases across key sectors aligned with Kenya's Bottom-up Economic Transformation Agenda and corresponding pillars in Kenya's Vision 2030. The key sectors prioritised for this strategy include healthcare; education; agriculture; public service delivery; security; micro-, small and medium-sized enterprises; the creative sector; and sustainability. Use cases for these sectors will be prioritised based on their feasibility, potential impact, and alignment with existing data availability and strategic goals and objectives.

In this vein, the government has already identified use cases within the AI ecosystem in the area of natural language processing involving large language models. In healthcare, two critical use cases are under consideration: a maternal health chatbot in local dialects to provide accurate pregnancy and childbirth information, and an expanded disease advisory system building on existing platforms. The education sector has prioritised intelligent tutoring systems and multilingual teacher training modules to improve access and quality of instruction. For agriculture, emerging use cases include translating existing data into farmer-friendly audio formats in local languages and developing AI-powered fertilizer recommendation systems. Public-sector use cases include multilingual chatbots and virtual assistants to improve service delivery, while the creative sector could benefit from an AI-powered national digital creative platform to enhance market access and support local content creators.

5.4. Summary of Strategy

Kenya's AI strategy is summarised in Figure 5.1.

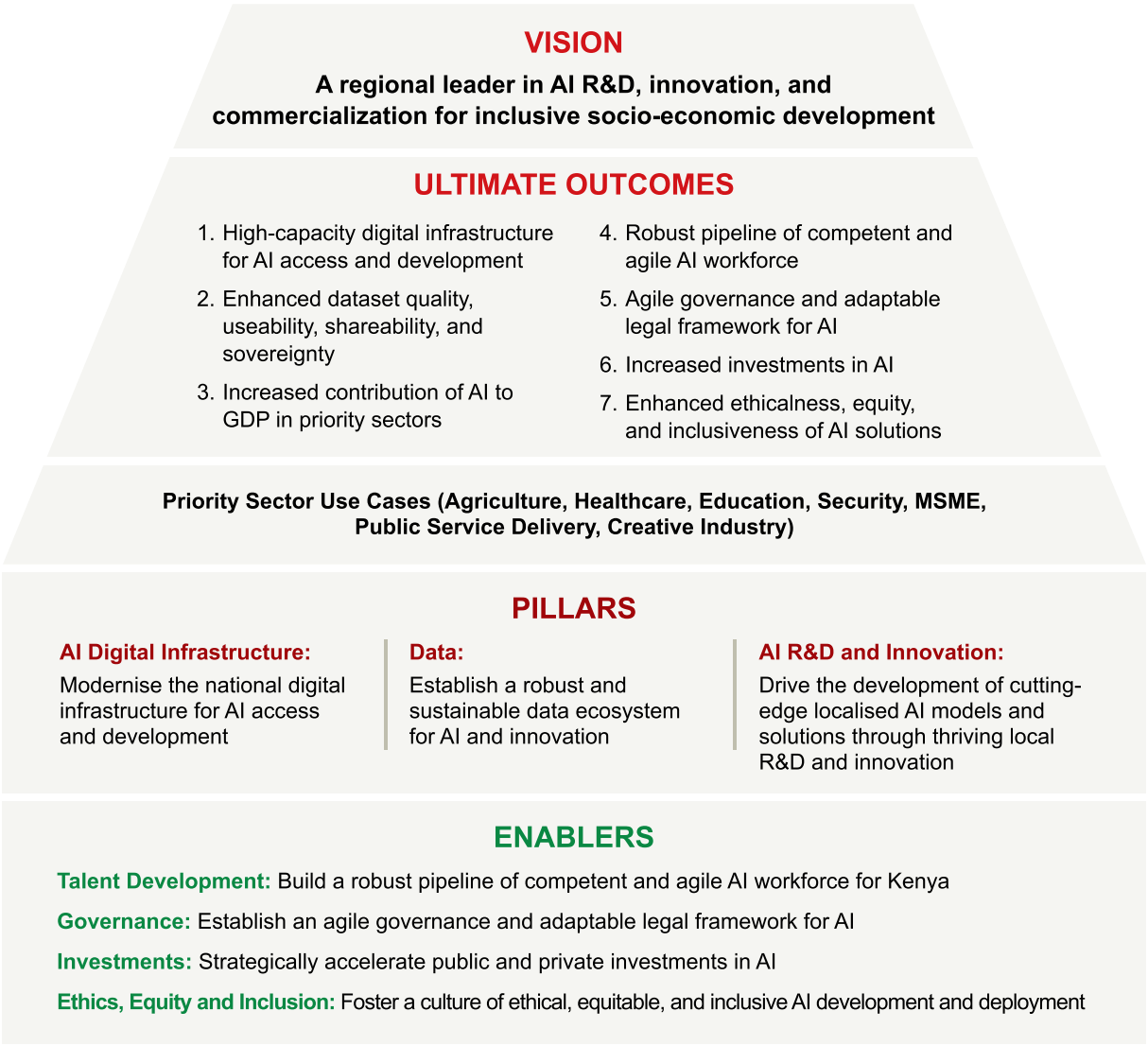


Figure 5.1: Strategy House

ANNEXES

Annex 1: Collaborators and Partners

Technical Experts

Professor Timothy Waema, *Project Lead Consultant*, University of Nairobi

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Strategy Townhall Convenors

AI Kenya

Association of Startup and SMEs Enablers of Kenya

Data Privacy and Governance Society

Dedan Kimathi University of Technology

EldoHub

Kenya Private Sector Alliance

Lake Hub

Qhala

United Disabled Persons of Kenya

The Kenya AI Strategy project was implemented by the Global Partnership for Sustainable Development Data.

Our sincere gratitude to all the individuals and institutions that took part in the Key Stakeholder Meetings, Key Informant Interviews and the Focus Group Discussions for their invaluable insights that went a long way into informing key elements of this strategy development process.

Annex 2: Image Captions and Credits

This annex provides captions and credits for all images used in the document

Cover. A futuristic digital background featuring a green circuit board pattern with binary code, Titima Ongkantong/ Shutterstock.com Kenyan flag added for context, Canva.com

Inside cover. Kenyan flag adding a sense of national pride, Canva.com

Page 7. High-tech circuit board with red lights, Bert B/Unsplash.com

Page 9. Visualization of fiber optic cables transmitting data, Luke Jones/Unsplash.com

Page 10. H.E. Hon. William Kabogo Gitau (Cabinet Secretary), Ministry of Information, Communications and the Digital Economy

Page 11. Conceptual visualization of data processing and artificial intelligence, Google DeepMind/Unsplash.com

Page 12. Eng. John Tanui, (CBS Principal Secretary State), Department for ICT and the Digital Economy

Page 13. Futuristic view of a technopolis building with the Kenyan flag standing tall, ChatGPT.com/Image Generator Pro

Page 17. Futuristic view of Nairobi City with Nairobi National Park and Giraffes in the foreground, ChatGPT.com/Image Generator Pro

Page 18. Futuristic view of a digital and AI-driven Nairobi City, ChatGPT.com/Image Generator Pro

Page 19. Futuristic view depicting Kenya as a leader in AI development, while retaining cultural identity, ChatGPT.com/Image Generator Pro

Page 21. Depicting a digitally empowered workforce, ChatGPT.com/Image Generator Pro

Page 24. Image of AI chips and processors depicting AI digital infrastructure and data, ChatGPT.com/Image Generator Pro

Page 25. A close-up view of a printed circuit board showing intricate electronic pathways and connectors, Vishnu Mohanan/Unsplash.com

Page 27. Futuristic representation of artificial intelligence and neural networks, Growtika/ Unsplash.com

Page 28. A red and white lighthouse behind a traditional wooden dhow named “Hidaya” anchored near the shore, Beks/Unsplash.com

Page 29. Image depicting AI ethical and privacy concerns in Africa, ChatGPT.com/ Image Generator Pro

Page 30. Image depicts the regional nature of AI and connections to the rest of the world, ChatGPT.com/Image Generator Pro

Page 31. Photo of road infrastructure powered by technology. Source; Konza Technopolis, Kenya

Page 32. A 3D-rendered digital landscape with pixel-like structures in shades of blue and purple, Google DeepMind/Unsplash.com

Page 33. Futuristic view showing Kenya as a hub for AI research and development in Africa, ChatGPT.com/Image Generator Pro

Page 35. Image depicting Kenya’s political will to advance AI and emerging technologies through prioritization in the National Digital Economy, ChatGPT.com/ Image Generator Pro

Page 36. A digital wireframe rendering of a judge’s gavel, Conny Schneider/Unsplash.com

Page 38. Image depicting various aspects of AI governance (regulations, transparency, ethics) in Africa, ChatGPT.com/Image Generator Pro

Page 41. A close-up of hands installing an SSD into a laptop, Samsung Memory/ Unsplash.com

Page 47. Town hall convening by Eldohub in Eldoret, Eldohub

Page 61. A futuristic digital abstraction of interconnected data streams and artificial intelligence, Google DeepMind/Unsplash.com

Page 64. A close-up of a network server with blue Ethernet cables plugged into a switch, Scott Rodgerson/Unsplash.com

Page 63. Sunset photo demonstrating the road towards creating an enabling environment for AI to thrive. Source; Konza Technopolis, Kenya

Page 66. Photo depicting development of a robust AI-ready national infrastructure. Source; Konza Technopolis, Kenya

Page 66. Image depicting data in-flows and outflows across the region, ChatGPT.com/ Image Generator Pro

Page 67. *Photo 1:* Photo of the Kenya Advanced Institute of Science and Technology. *Photo 2:* Students ups killing in ICT through the Jitume program. Source; Konza Technopolis, Kenya

Page 67. Image depicts various governance aspects of AI and emerging technologies, ChatGPT.com/Image Generator Pro

Page 68. *Image 1:* Depicting futuristic private-sector and public-sector investments in AI infrastructure, ChatGPT.com/Image Generator Pro. *Image 2:* Depicts the promotion of ethical, responsible, and inclusive AI development and deployment, ChatGPT.com/Image Generator Pro

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