

THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF COMMUNICATION AND INFORMATION TECHNOLOGY



**THE TANZANIA NATIONAL ARTIFICIAL INTELLIGENCE
STRATEGY FRAMEWORK**

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STATEMENT

The United Republic of Tanzania is a country of ingenious people and it is these people that we must build our future prosperity on. With this spirit, the Government of Tanzania has committed itself to transform Tanzania into an AI-enabled economy through investment in AI and its application. We have decided to set out on an ambitious path, which requires both the public and private sectors to engage in investing, providing resources, data, and, above all, collaborating to capacitate our citizens in the responsible development and application of AI. We want AI to be not only credible, but above all safe and responsible.

The National AI Strategy Framework is a clear blueprint and guiding roadmap to help the country explore the benefits of AI in the most effective way. The strategy helps the country keep up with new technologies and digital changes in society, while choosing the path that works best for the country's needs, culture and norms. The strategy will work as a necessary tool to harmonize countrywide approaches in the development of AI technologies. This strategy framework intends to create Tanzania's stance towards AI, that is to capitalize on her comparative strengths and ensure a minimization of adverse effects generated by AI technologies, while finding a balance between technological development and moral issues.

The National AI Strategy Framework has been developed in alignment with Tanzania Development Vision 2050 (TDV2050), which aims to set a clear path to deliver a high quality of life for all Tanzanians through inclusive growth, a knowledge-based and industrialized economy and enduring national values. The framework endorses the main idea of the government to provide an enabling environment for both public and private sector players. This will enable them to support responsible development and application of AI for socio-economic development in the country as outlined by TDV2050.

Finally, I express profound gratitude to all government institutions, non-government institutions, international organisations and all stakeholders whose participation was crucial in enriching the content of this national AI Strategy framework and its AI Guidelines. Together, we aim to unlock the full potential of digitalization through responsible AI and propel Tanzania towards a prosperous future.

H.E. President Dr. Samia Suluhu Hassan
President of the United Republic of Tanzania

FOREWORD

The Tanzania Development Vision 2050 and 3rd National Five-Year Development Plan 2021/22- 2025/26 acknowledge that digital transformation is a pivotal driver in building a strong, inclusive and competitive economy. Within these frameworks, together with the National Digital Economy Strategic Framework 2023-2033, emerging technologies including Artificial Intelligence (AI) are seen as essential enablers of socio-economic progress, innovation and productivity enhancement. Tanzania's mission on the use of AI is to propel her towards economic modernization and industrialization for the well-being of her citizens.

The United Republic of Tanzania has certain positive characteristics, such as her geographical position, political stability, and human capital. As per the recent census on the number of potential upcoming skilled, vibrant, innovative and ambitious youth, there is a thirst for technology uptake. In this regard, Tanzania has the potential to position among the AI leaders on the African Continent. Its ongoing investment in digital infrastructure is evidenced in having a robust digital financial system and a thriving startup ecosystem, which provide a foundation for AI integration across all socio-economic sectors.

Tanzania has made notable progress in the development of Artificial Intelligence (AI), with growing interest and emerging initiatives across all sectors. However, to fully harness AI's potential to generate timely, data-driven insights that can drive evidence-based decision-making and catalyze action across both public and private spheres, several interrelated and critical components must be addressed holistically.

Firstly, Tanzania's AI ecosystem exhibits a silo structure, which has fragmented efforts that span across a broad spectrum of areas. These include the foundational building blocks of AI, such as AI-enabling digital infrastructure, data governance, skills and development, research and innovation, as well as having common principles of responsible and ethical AI. Secondly, enabling and inhibiting factors—such as appropriate tools, persistent barriers, algorithmic bias, systemic risks, and potential societal harms—remain insufficiently integrated into the broader national discourse on AI. Moreover, legal and regulatory frameworks require further development and alignment to foster a safe, inclusive, and innovation-friendly AI ecosystem.

Recognizing these gaps and opportunities, the formulation of the National Artificial Intelligence (AI) Strategy Framework and its accompanying guidelines comes at a pivotal moment as the country deepens its commitment to digital transformation. This strategy framework aims to provide a coordinated and forward-looking roadmap for both public and private sector players in advancing AI adoption. This is an instrumental tool to unify stakeholders' efforts across all sectors, promote investment in developing AI; promote ethical and inclusive AI practices, and ultimately ensure that AI contributes meaningfully to Tanzania's socio-economic growth and global competitiveness.

Finally, our most profound gratitude is expressed to all public and private sectors whose participation was crucial in enriching the content of this AI Strategy and AI Guidelines.

Hon. Jerry Silaa (MP)
Minister
Ministry of Communication and Information Technology

PREFACE

In recent years, the world has witnessed high growth and use of 4th industrial revolution digital technologies in all social and economic sectors. The technologies include Artificial Intelligence (AI), Distributed Ledger Technologies or Block chain, Cloud Computing, Big Data Analytics, Internet of Things, Virtual and Augmented Reality to name a few. Not to be left behind, The United Republic of Tanzania has declared that the ICT driven 4th industrial revolution is inevitable and has increased pace in adoption of these digital technologies. This is in line with the development of the ten (10) years Tanzania Digital Economy Strategic Framework (TzDESf) 2024/34, which acknowledges that ICTs are central to a competitive social and economic transformation of the country.

The Government of the United Republic of Tanzania (GoT) understands that the 4th industrial revolution technologies, especially Artificial Intelligence (AI), can bring both positive and negative impact to the economy of the country. On the one hand, AI offers an exciting extension of many human capabilities, such as observation, processing, and decision-making. The output and outcomes of AI systems are nearly instantaneous, offering humans powerful efficiencies that did not exist just a few years ago. The computing power and systems used for AI technologies far exceed human cognitive capabilities, allow for constant “machine learning” without human supervision, and include consideration of patterns that are typically impossible for humans to discern. On the other hand, AI has inherent ethical risks. Ethical problems in AI can lead to a variety of consequences with different levels of severity; these consequences include the profiling and biases of algorithms against a particular race, gender, or specific category of people which can affect how education, healthcare, financial, and privacy systems work. AI can be also used maliciously, in any of these fields to fake data, steal passwords, and interfere with the work of other software and machines, thus undermining public trust in technology even more. These digital crimes put core human values such as personal privacy, data protection, fairness, and autonomy at risk.

Due to rapid use and development of AI in the Country, the GoT through the Ministry of Communication and Information Technology (MCIT) has developed this AI Strategy Framework for the development and use of responsible AI in the country. The purpose of this AI Strategy Framework is to provide guidance, which can assist all stakeholders, both public and private, in the responsible development, deployment, and adoption of AI-based solutions for various social and economic activities. The framework has been formulated after extensive consultations with stakeholders in the AI ecosystem.

Lastly, the preparation of this framework was a collaborative effort of several public and private sector stakeholders. The successful completion of this National AI Strategy Framework was made possible by the joint efforts of several organizations and individuals whose participation we acknowledge with appreciation. Specifically, in the development of this framework, I would like to thank the contribution of the Information Communication Technology Commission, The University of Dodoma,

University of Dar es Salaam, State University of Zanzibar, Mbeya University of Science and Technology, Nelson Mandela African Institution of Science and Technology, Tanzania Technovate Advisory Services, UNESCO, UNICEF, AI community in Tanzania. Finally, I acknowledge the support and guidance provided by all stakeholders who participated in all workshops conducted in Dodoma, Dar es Salaam and Zanzibar.

Mohammed Khamis Abdulla
Permanent Secretary
Ministry of Communication and Information Technology

EXECUTIVE SUMMARY

This framework provides an overview of Tanzania’s strategic approach to Artificial Intelligence (AI) development and application, highlighting its conceptual foundation, historical development, current initiatives, challenges, and future direction. It should be noted that AI refers to the technology that enables machines to perform human-like intellectual functions, including learning, recognition, problem-solving, and decision-making. The AI’s rapid advancement, fueled by increased computing power and big data, positions it as a transformative force within the global economy and Tanzania’s drive for social inclusion and sustainable socio-economic development.

Artificial Intelligence has evolved into a key driver of the Fourth Industrial Revolution, with potential contributions estimated at over \$15 trillion to the global economy by 2030. Recognizing these benefits, Tanzania is continuing to integrate AI across various sectors such as healthcare, education, finance, agriculture, and tourism to enhance service delivery, expand access, and foster economic growth. The GoT has taken proactive measures, including enacting policies, acts, and frameworks, like the Personal Data Protection Act (2022), the Digital Economy Strategic Framework (2024–2034), the National ICT Policy (2016) and the Tanzania Development Vision 2050, to create a conducive environment for AI innovation and adoption. Altogether, these efforts, combined with the AI Strategy Framework, aim to safeguard national interests within a governance structure anchored by an AI Observatory that provides ethical oversight in AI deployment.

The advancement of AI has unlocked significant opportunities in the country across various sectors; however, it also presents a range of challenges that must be addressed to ensure its responsible development and use. Key concerns include ethical issues, data privacy breaches, and the lack of transparency in AI-driven decision-making processes. Moreover, there is growing concern about potential biases embedded in algorithms, which can lead to unfair treatment and discrimination, further amplifying existing social and economic inequalities. The misuse of AI for malicious purposes, such as cybercrime, invasive surveillance, and the spread of disinformation, poses serious threats to both individual rights and national security. These challenges highlight the urgent need for robust governance frameworks and ethical oversight in AI deployment.

To foster the responsible development and use of AI in the country, the National AI Strategy Framework sets out strategies centered on transparency, fairness, and inclusivity. The framework positions AI as a strategic tool for advancing sustainable development, enhancing public service delivery, and accelerating economic transformation. The development of the framework followed a broad and participatory process, involving key stakeholders across government institutions, the private sector, civil society, the media, and the international community.

The rationale for Tanzania's National AI Strategy Framework lies in leveraging AI's potential to boost productivity, address societal challenges, and promote social inclusion. Its overarching goal is to promote responsible development and use of AI across various sectors to foster socio-economic growth. This goal is underpinned by a set of guiding principles that seek to ensure AI systems are trustworthy, fair, secure, and respectful of human rights. To achieve that, the strategy is structured around eight key pillars: AI Infrastructure; AI Governance; Skills and Talent Development; Innovation, Research and Entrepreneurship; Inclusion and Accessibility; Partnership and Collaboration; and Production and Services Sector AI-powered Transformation.

By aligning with the broader digital economy initiatives, the framework aims to position Tanzania as a responsible and innovative player in the AI landscape. As part of its implementation, it has established a National AI Observatory with a governance structure that has a risk management process and a Monitoring, Evaluation, Learning, and Adaptation mechanism. It seeks to balance technological progress with ethical considerations to ensure AI benefits all sectors of society while safeguarding individual rights and national security.

LIST OF ABBREVIATIONS

2G	Second Generation
3G	Third Generation
4G	Fourth Generation
5G	Fifth Generation
4 th IR	Fourth Industrial Revolution
AfCFTA	African Continental Free Trade Area
AI	Artificial Intelligence
AI4D	Artificial Intelligence for Development
AIMS	Artificial Intelligence Management System
AML	Anti-Money Laundering
AR	Augmented Reality
ASEAN	Association of South-East Asian Nations
AU	African Union
BoT	Bank of Tanzania
BRELA	Business Registration and Licensing Agency
COSTECH	Commission for Science and Technology
CSO	Civil Society Organization
DESF	Digital Economic & Strategic Framework
DIT	Dar es Salaam Institute of Technology
DRM	Demand Response Management
DTP	Digital Tanzania Project
EAC	East African Community
eGA	e-Government Authority
eGovRIDC	e-Government Research, Innovation and Development Centre
eKYC	Electronic Know Your Customer
emAI	Extended Mind Artificial Intelligence
ESG	Environmental Social and Governance
EU	European Union
FDI	Foreign Direct Investment
FinTech	Financial Technology
FSP	Financial Service Providers
GDP	Gross Domestic Product
GDPR	General Data Protection Regulation
GII	Global Innovation Index
GIS	Geographic Information System
GIZ	German Corporation for International Cooperation
GKI	Global Knowledge Index
GPAI	Global Partnership on AI
GPU	Graphics Processing Unit
HEET	Higher Education for Economic Transformation
HIV	Human Immunodeficiency Virus

HPC	High-Performance Computing
IBM	International Business Machines
ICT	Information and Communication Technology
ICTC	ICT Commission
IDI	ICT Development Index
IIT	Indian Institute of Technology
IMT	International Mobile Telecommunication
IoT	Internet of Things
IPR	Intellectual Property Rights
IR&E	Innovation, Research and Entrepreneurship
ISO	International Organization for Standardization
ISP	Internet Service Provide
ITU	International Telecommunication Union
KYC	Know Your Customer
LGA	Local Government Authority
LLM	Large Language Model
M&E	Monitoring and Evaluation
MC&E	Monitoring, Control and Evaluation
MCIT	Ministry of Communication and Information Technology
MDAs	Ministries, Departments and Agencies
MELA	Monitoring, Evaluation, Learning, and Adaptation
ML	Machine Learning
MoEST	Ministry of Education, Science and Technology
NEPAD	New Partnership for Africa's Development
NGO	Non-Governmental Organisation
NICTBB	National ICT Broadband Backbone
NIDC	National Internet Data Center
NLP	Natural Language Processing
NM-AIST	Nelson Mandela African Institution of Science and Technology
NMB	National Microfinance Bank
OECD	Organisation for Economic Co-operation and Development
OTT	Over-the-Top
PDPC	Personal Data Protection Commission
PO-RALG	President's Office – Regional Administration and Local Government
PPP	Public Private Partnership
PwC	PricewaterhouseCoopers
R&D	Research and Development
SDG	Sustainable Development Goals
SDR	Sustainable Development Report
STEAM	Science, Technology, Engineering, Arts and Mathematics

SUA	Sokoine University of Agriculture
SUZA	State University of Zanzibar
SWOC	Strengths, Weaknesses, Opportunities and Challenges
TAMNOA	Tanzania Mobile Network Operators Association
TANESCO	Tanzania Electric Supply Company
TB	Tuberculosis
TBS	Tanzania Bureau of Standards
TCCIA	Tanzania Chamber of Commerce, Industry and Agriculture
TCRA	Tanzania Communication Regulatory Authority
TDV2050	Tanzania Development Vision (2025)
TPSF	Tanzania Private Sector Foundation
TPU	Tensor Processing Unit
Tz DESF	Tanzania Digital Economic & Strategic Framework
UAE	United Arab Emirates
UAV	Unmanned Aerial Vehicle
UDOM	University of Dodoma
UDSM	University of Dar es Salaam
UK	United Kingdom
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNICEF	United Nations International Children's Emergency Fund (now United Nations Children's Fund)
US	United States
USA	United States of America
USD	United States Dollar
VETA	Vocational Education and Training Authority
VR	Virtual Reality
WHO	World Health Organization
XAI	Explainable Artificial Intelligence
ZNCC	Zanzibar National Chamber of Commerce

GLOSSARY

Term/Acronym	Definition/Meaning
Artificial intelligence	A branch of computer science concerned with making computers behave like humans. It refers to the ability of machines to perform cognitive tasks like thinking, perceiving, learning, problem solving and decision making.
Data	Refers to an elementary description of things, events, activities, and transactions that are recorded, classified, and stored, but not organized to convey any specific meaning. Data items can be numeric, alphabetic, figures, sounds, or images. A database consists of stored data items organized for retrieval.
Deep Learning	A subset of machine learning that uses neural networks with multiple layers to analyze complex patterns and relationships in data.
Machine Learning	A subfield of artificial intelligence that focuses on the development of algorithms and statistical models that enable computers to learn and make predictions or decisions without being explicitly programmed. It involves training algorithms on large datasets to identify patterns and relationships and then using these patterns to make predictions or decisions about new data.
Data Analytics	Data analytics is the collection, transformation, and organization of data in order to draw conclusions, make predictions, and drive informed decision-making.
Bias in AI	Refers to AI systems that produce biased results that reflect and perpetuate human biases within a society, including historical and current social inequality.
Information	Any communication or representation of knowledge, such as facts, data, or opinions in any medium or form, including textual, numerical, graphic, cartographic, narrative, or audiovisual forms.
Natural language processing (NLP)	A subfield of Artificial Intelligence that gives computers the ability to interpret, manipulate, and comprehend human language.
Over-the-top (OTT) service	Over-the-top (OTT) service (also known as streaming platform) is a media service offered directly to viewers via the Internet. OTT bypasses cable, broadcast, and satellite television platforms—the media through which companies have traditionally acted as controllers or distributors of such content.
Information Technology (IT)	Any equipment or interconnected system or subsystem of equipment that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission or reception of data or information by an executive entity. IT is related to the terms Capital Asset, IT Investment, Program, Project, Sub-project, Service, and System.

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1.0 INTRODUCTION

1.1 The Concept of Artificial Intelligence

Artificial Intelligence (AI) is the science and technology that performs human intellectual functions with machines. Artificial Intelligence technologies exhibit capabilities that mimic aspects of human cognition, including planning, learning, problem-solving, perception, and interaction with physical environments. Some advanced AI systems also demonstrate emerging traits such as basic social interaction and creative expression.

At its core, AI refers to computer systems capable of learning, recognizing patterns, solving problems, and making decisions in ways that mimic human intelligence. By performing tasks that traditionally require human cognition, AI serves as a tool for advancing social and economic development. AI generates new opportunities and value through its convergence with various technologies and sectors. AI has wide-ranging applications across key sectors such as finance, agriculture, manufacturing, education, healthcare, transportation, and communication. Its integration into economic sectors can drive inclusive economic growth by enhancing service delivery, improving efficiency, expanding access to essential services, addressing skilled staff gaps, and reducing operational risks and costs.

1.2 Background

AI has been rapidly advancing in the 21st Century with the growth of computing power, the emergence of excellent algorithms and big data resulting from the widespread penetration of smartphones, and network development. In recent years, Artificial Intelligence has emerged globally as the driving force behind the Fourth Industrial Revolution, a transformative technological phenomenon with far-reaching implications for governments, citizens, and industries. These changes have shown that AI can bring significant benefits to the economy and society by providing solutions that improve productivity globally, expanding the production frontier and increasing the global economy's Gross Domestic Product (GDP) potential.

Artificial intelligence is projected to contribute up to USD 15.7 trillion to the global economy by 2030—an amount exceeding the combined GDP of China and India. Of this, approximately USD 6.6 trillion is expected to result from enhanced productivity, while USD 9.1 trillion will stem from increased consumer demand driven by AI-enabled products and services.

Tanzania, like many countries globally, is embracing the age of AI, integrating it into some aspects of its development activities for modernizing and digitizing various sectors. Tanzania is adopting AI in different strategic sectors to find solutions for the most pressing issues. AI is being integrated into key sectors such as education, agriculture, healthcare, and financial services, driving inclusive economic growth by enhancing service delivery, expanding access, addressing shortages of skilled professionals, and reducing operational risks and costs.

The Government of the United Republic of Tanzania (GoT), in collaboration with stakeholders, has been taking measures to foster AI adoption, including the development of policy and legal frameworks that support AI usage in social and economic sectors. For instance, the Personal Data Protection Act No. 11 (2022) was enacted with the establishment of the Personal Data Protection Commission (PDPC). PDPC is responsible for overseeing the Act as well as personal data governance. Besides, the Government launched the Digital Economy Strategic Framework (2024–2034) for providing overarching direction for the use of digital technologies, including AI, for the country’s digital transformation. Furthermore, the government developed the National ICT Policy of 2016 to establish a responsive environment for emerging and future technologies, including AI. According to the policy, AI plays a critical role in driving innovation and transformation across multiple sectors, thereby enhancing productivity and improving service delivery. The policy underscores that AI technologies represent significant breakthroughs with the potential to reshape industries and society.

The GoT has also intensified its efforts to strengthen digital infrastructure by expanding the National ICT Broadband Backbone (NICTBB), establishing state-of-the-art data centers, and setting up internet exchange points to facilitate efficient domestic data exchange. These efforts are complemented by initiatives to enhance internet speed and service quality.

The culmination of the above-mentioned strategic interventions has allowed Tanzania to make progress in adopting and utilizing AI to address national development challenges and drive socio-economic growth. This progress includes better service delivery, improved connectivity and access, more accurate predictions of social and economic trends, better healthcare diagnostics, improvements in the education sector, higher productivity in economic areas, and new experiences in industries like tourism and entertainment.

To advance the responsible development and use of AI, this strategy outlines eight (8) focus areas:

- a) Provide scalable, **high-performance computing infrastructure** to unlock the development of AI-based solutions and enrich the AI ecosystem in Tanzania;
- b) Establish **governance, regulatory and standard frameworks** to ensure a robust AI ecosystem among public and private stakeholders;
- c) Nurturing and retention of AI **skills and talent** to ensure the availability of competent AI experts in the country;
- d) Stimulate **innovation, research and entrepreneurship** to catalyze solutions tailored to national and regional needs and contexts;
- e) Embed **inclusion and accessibility** in AI development and deployment to ensure awareness and access to marginalized groups and minimize historical biases and social inequalities;

- f) Establish a robust AI **data governance** framework to ensure data required to train AI systems is of high quality, accessible, fair, and inclusive;
- g) Foster **partnerships and collaboration** to create synergies in the development and responsible use of AI;
- h) Enhance the **production and service** sectors to enable AI-powered transformation to catalyze socio-economic growth.

1.3 Rationale for a National AI Strategy Framework

As the global community intensifies efforts to achieve the Sustainable Development Goals (SDGs), the transformative potential of digital technologies, including AI, is increasingly recognized as a critical enabler of progress. The Pact for the Future, adopted by the UN General Assembly in 2024, highlights that these technologies offer unprecedented opportunities to turbocharge development. The impact of AI on the global economy is promising, estimated to contribute up to a 14% gain in global GDP by 2035. Similarly, a report by the African Union Development Agency indicates that recent projections foresee AI-driven technologies potentially doubling the GDP growth rate of African nations by 2035. According to the AU Continental AI Strategy 2024, as a result of the realization of AI's potential by governments and businesses, investments in AI have increased manifold. For example, from 2019 to 2020, the global corporate investment in AI increased by 40%. However, despite the benefits that AI offers, Africa's rate of adoption and investment remains relatively lower than that of the rest of the world. In view of that, the 44th Ordinary Session of the African Union Executive Council tasked the AU Commission to develop a Continental AI Strategy to leverage AI's potential in transforming Africa's economy and society in alignment with Agenda 2063. The continental strategy calls for the member states to develop national AI strategies to foster AI development and governance.

Moreover, while AI presents significant opportunities for socio-economic development, several challenges need to be addressed to ensure its effective and responsible adoption in the country. These include a shortage of skilled professionals capable of developing, managing, and maintaining AI systems, as well as inadequate infrastructure to support research, innovation, and scaling of AI solutions. Additionally, limited institutional capacity presents difficulties in addressing key AI concerns such as ethics, data sovereignty, privacy, labor market disruptions, the digital divide, and exposure to cybersecurity threats. It is, therefore, imperative to have a national roadmap and guiding framework for leveraging AI for the betterment of society.

This National AI Strategy Framework seeks to create enabling environment for AI development that promotes economic transformation while safeguarding the interests of the nation and its citizens.

1.4 Linkage of AI strategy to other Global and National Frameworks

The National AI Strategy Framework aligns with the key global, continental and national frameworks, ensuring coherence in advancing digital transformation and sustainable development. For example, in support of the UN 2030 Agenda for Sustainable Development, the strategy aims to leverage AI to accelerate sustainable development by promoting innovation, enhancing service delivery, and fostering inclusive growth. It also responds to the objectives of the Global Digital Compact (2024) by promoting equitable access to digital technologies and strengthening AI and data governance. At the continental level, the strategy contributes to the aspirations of the AU Agenda 2063 by driving socio-economic transformation through AI-enabled innovations. Furthermore, it serves as a national implementation mechanism for the African Union Continental AI Strategy (2024), contributing to responsible AI adoption on the continent.

At the national level, the strategy contributes, among other priorities, to the development of AI skills and talent, which are recognized as critical for the country's digital economy transformation, as outlined in the Digital Economy Strategic Framework (2024–2034). Moreover, other frameworks that the strategy closely interlink include National ICT Policy (NICTP) 2016, National Broadband Plan 2025, and National Research and Priority (2021/22 -2025/26). In response to the Tanzania Development Vision 2050, the strategy supports the aspiration, by 2050, to be a nation at the forefront of disruptive technology adoption, empowered by a future-ready workforce, and leadership in an AI-driven global economy.

1.5 Methodology

This strategy was developed through an inclusive, participatory, and consultative process aimed at ensuring national ownership, transparency, and relevance to Tanzania's socio-economic context. The process involved a series of working sessions and technical reviews with officials and leadership from the Ministry responsible for ICT, in collaboration with other Ministries, Departments, and Agencies (MDAs). Furthermore, recognizing the cross-cutting nature of artificial intelligence, the development process actively engaged a broad spectrum of AI ecosystem stakeholders—including representatives from the private sector, academia, civil society organizations, and development partners—through consultative meetings, stakeholder dialogues, and expert roundtables.

This inclusive approach was critical not only for gathering diverse insights and expertise but also for building consensus on the opportunities, risks, and priorities associated with AI. It ensured that the strategy is informed by practical realities, sector-specific needs, and the voices of those most likely to be impacted by AI-driven transformation. By embedding participation at the core of its formulation, the

strategy reflects a national commitment to the responsible, ethical, and inclusive advancement of AI in alignment with Tanzania's development vision.

Prior to the validation workshop, a random online survey was conducted across the country to gather stakeholders' insights and recommendations. The validation of the strategy framework was conducted with more than 120 stakeholders in five (5) workshop meetings involving key players from across sectors including education, health, entertainment and media, finance, technology and industry. Stakeholders engagement played a critical role in shaping the vision, mission, objectives, strategic pillars, and strategies. To guide the strategy formulation process, a comprehensive benchmarking exercise was undertaken to draw insights from existing national AI strategies and identify best practices from other countries.

1.6 Scope of the Strategy Framework

This strategy framework seeks to provide a broad and integrated approach, covering all sectors of the economy and the full spectrum of AI development, application, and governance within the national context. It aims to foster a conducive environment for AI-driven innovation and its adoption across socio-economic domains. While the framework envisions the creation of an enabling environment for AI, it equally prioritizes safeguarding the national interests and citizens from potential risks and ethical concerns associated with AI technologies. The National AI Strategy Framework outlines priority areas essential for the responsible and effective advancement of AI in the country.

These are: AI Infrastructure; AI Governance; Skills and Talent Development; Innovation, Research and Entrepreneurship; Inclusion and Accessibility; Data governance; Partnership and Collaboration; and Production and Services Sector AI-powered Transformation. Overall, the scope aims to position Tanzania as a competitive player in AI innovation while ensuring ethical, inclusive, and sustainable development.

2.0 SITUATION ANALYSIS

The integration of artificial intelligence across all sectors of production and services is pivotal for driving economic transformation. This situational analysis examines the current landscape by focusing on political, social, economic, technological, legal and regulatory frameworks, as well as environmental and sustainability factors both globally and within the context of Tanzania.

2.1. Political Realm

2.1.2 Global Context

Geopolitical competition, growing international cooperation, and the pressing need for regulatory frameworks all influence the global political landscape around the ethical development and application of AI. A number of countries from the Global North, such as the United States of America, European Union, United Kingdom, and countries of the Global South like India and China, are recognizing the strategic importance of AI in driving economic growth, national security, and societal transformation. This has resulted in the formulation of national AI strategies, with a growing emphasis on ethical considerations such as transparency, accountability, privacy, non-discrimination, and human rights. Some political instruments guiding international cooperation frameworks are the UN Global Digital Compact (2024), UNESCO's Recommendation on the Ethics of AI (2022), Organisation for Economic Co-operation and Development (OECD) AI Principles (2019), the European Union AI Act 2024 and the African Union Continental AI Strategy (2024). They emphasize the ethical governance of AI tools from development, deployment, to usage.

2.1.3 Tanzania Context

Tanzania's political landscape offers long-standing peace, social cohesion, and political stability that are essential foundations for sustainable AI-powered transformation. Tanzania Development Vision 2050, Digital Economy Strategic Framework (2024-2034), National ICT Policy (2016), Policy Framework for AI in the Tanzanian Health Sector (2022), National Guidelines for Artificial Intelligence in Education (2025) explicitly promote the adoption of digital and emerging technologies to boost productivity and competitiveness, unlocking human potential and economic growth.

For example, the ruling Party's Manifesto (2025) emphasizes the use of science and technology in both the public and private sectors. Additionally, it recognizes digital and emerging technologies in promoting inclusive economic growth and improving the well-being of all citizens in Tanzania.

Tanzania Development Vision 2050 aims to transform the country into a high-income, inclusive, and technologically advanced economy. The vision points out the strategic adoption of emerging technologies, including AI, to drive socioeconomic development, improve service delivery, and enhance productivity across sectors such as agriculture, health, education, manufacturing, and governance.

2.2 Social and Economic Realm

2.2.1 Global Context

The global AI concerns include algorithmic bias, job displacement and a growing digital divide among countries. The global initiatives, such as UNESCO AI Ethics Framework and the UN Global Digital Compact, AU Continental AI Strategy highlight inclusive, rights-based AI development, and AI for Good promotes equitable access to AI benefits. To realize AI benefits, countries focus on human-centric values, digital literacy, reskilling /upskilling of workforce, talent development and retention, as well as ethical governance to ensure AI reduces inequality. AI is reshaping global economic competitiveness, where the U.S. and China are investing heavily in R&D and automation, India invests in skills and talent development programmes and R&D. The OECD AI Policy Observatory and Global Partnership of AI (GPAI) guide responsible AI adoption and tech sovereignty. Global countries should balance innovation with workforce adaptation, foster public-private partnerships and align with international standards for sustainable growth.

2.2.2 Tanzania Context

Tanzania's social and cultural environment presents opportunities for the development and application of AI systems. The national census of 2022 shows that youth represent over 60% of the population. This youthful population in Tanzania is becoming tech-savvy, with growing access to smart devices, social media platforms and increasing internet penetration. The rising digital engagement among youth presents an opportunity to cultivate a new generation of AI innovators, users, and leaders. The large and youthful population require digital and AI skills development to support AI development and innovation.

In addition, the population growth and urbanization trends demand AI-powered solutions in areas such as urban planning, public service delivery, transportation, education, health and agriculture. However, reducing the digital divide between urban and rural populations in Tanzania is essential to ensure equitable access to AI technology and its benefits for economic growth.

The country has a rich cultural diversity of over 120 ethnic groups with strong communal values and social norms, and uses the Swahili language for

communication nationally. However, there is a challenge in the usage of AI platforms and systems in rural and urban settings, as these AI tools are currently developed using foreign languages. The Swahili language plays a pivotal role in localizing AI tools and content, enhancing accessibility and cultural relevance for the wider population. Given that most existing AI tools are developed in foreign languages that remain inaccessible to a large segment of Tanzanians, integrating Swahili is essential to ensuring inclusive and meaningful engagement with AI technologies.

The public awareness and understanding of AI across communities remains low, particularly in rural and underserved areas. This lack of awareness can lead to resistance, mistrust, or misuse of AI systems and platforms. Digital literacy is vital for AI to be effectively integrated into society in Tanzania. Nationwide awareness campaigns, civic education initiatives, and the integration of AI into school curricula and public discussions will play a crucial role in AI development and applications. Notably, there are gender disparities in digital literacy and participation in STEAM fields, which are crucial in inclusive AI development. Gender inclusion strategies such as the Women in Science outreach program, to increase the number of female students in STEAM, are crucial.

The Tanzanian economy is characterized by steady annual growth of 6-7%. The economy relies heavily on agriculture (25% of GDP and 65% of employment), mining, manufacturing, tourism, and an emerging digital sector, with a GDP per capita of \$1,326 in 2023. Nevertheless, the country faces challenges like infrastructure deficits, low human capital, high informality and commodity export dependence, exposing it to global price volatility. Recent policies under the government, including the Tanzania Development Vision 2025, prioritize industrialization, digitalization, and private sector growth, supported by investments in transport and energy. The digital economy, driven by 60% mobile money penetration and FinTech, is a growth area, positioning Tanzania to better leverage strategic trade agreements like the African Continental Free Trade Area (AfCFTA).

In view of the above, Tanzania has the economic potential to adopt AI effectively, but strategic investments in digital infrastructure, AI human capital development, workforce upskilling and supportive policies are essential. Besides, a sector-focused AI development approach can foster equitable economic growth while minimizing potential AI risks.

2.3 Technology Realm

2.3.1 Global Context

Global AI Readiness Index by Oxford Insights (2024) and report published annually by the Stanford Institute for Human-Centered AI (2025) indicates China as a global leader in AI research publications, the US and China for AI models, and India for AI

skills penetration. The initiative provides guidelines to countries developing AI strategies which are aligned with global trends in responsible AI governance, data privacy, cybersecurity, and digital infrastructure while addressing local needs. The 2025 Sustainable Development Report (SDR) and SDG Index (2025) in the context of accelerating global development using AI notes that AI can positively impact 79% of SDG targets, notably in clean energy, climate, water, agriculture, education, and justice. The global initiatives emphasize that the development, deployment and use of AI systems should be ethical and human-centric, observing the cultural values of a country.

The global tech companies like NVIDIA, Google, Microsoft, and International Business Machines (IBM) continue to be players in AI infrastructure, technologies and skills development. NVIDIA Inc. is a global leader in AI infrastructure, including hardware for AI Graphics Processing Units (GPUs) and AI chips. Google Inc. focuses on AI research (DeepMind, Google Research) and deployment (Gemini, Google Cloud AI). Microsoft Inc. provides access to AI through cloud infrastructure, developer tools, and global capacity building, especially in public sector digital transformation. IBM Inc. has been a long-standing leader in explainable and trustworthy AI systems, as well as providing a number of AI and Cybersecurity online training courses, such as IBM machine learning professional certificates, and cybersecurity.

Globally, Large Language Models (LLMs) such as OpenAi, DeepSeek, Gemini are shaping national AI strategies, with countries like the the US, China, the European Union (EU), United Arab Emirates (UAE), Singapore and India are investing in sovereign AI models to ensure technological sovereignty. However, existing global LLMs raise concerns such as privacy, data sovereignty, bias, misinformation, privacy, and environmental sustainability. In response, global governance initiatives like the UN Advisory Body on AI, OECD AI Principles, and the EU AI Act of 2024 are advocating for ethical, transparent, and human-centered development and deployment of LLMs.

2.3.2 Tanzania Context

Tanzania has made significant strides in digital and internet connectivity, where registered mobile phone subscriptions increased from 86.8 million in December 2024 to 90.4 million in March 2025. Internet penetration rose from around 32% (21.8 M users) in early 2024 to nearly 49.3 M users by March 2025, with mobile broadband technologies at 91% for 3G and 88% for 4G. Geographical coverage is also expanding, reaching 67% for 3G and 55% for 4G by September 2023, with further growth likely reflected in the December 2024 base station deployments. 2G coverage remains extensive, covering 98% of the population and 81% geographically as of December 2024. Population coverage reached 20% by December 2024, up from 15% in June 2024. The number of 5G base stations

increased by 8% in the quarter ending December 2024, reaching 900 sites, primarily concentrated in urban areas. Dar es Salaam leads significantly in the number of base stations for all technologies (2G, 3G, 4G, and 5G).

The government has deployed 27,912 km of national ICT broadband backbone to connect regions and neighboring countries. Tanzania has a tier-III National Internet Data Centre, which is connected to the national ICT broadband backbone along with other data centres invested by the private sector. The facilities offer infrastructure and hosting services to local and international clients. Furthermore, some academic and research institutions such as the Nelson Mandela African Institution of Science and Technology (NM-AIST) and Dar es Salaam Institute of Technology (DIT) have high-performance computing (HPC) infrastructure (Supercomputers). The University of Dodoma (UDOM) has a GPU server to support AI model training and testing using various use cases. Despite the above-mentioned initiatives, AI-enabling infrastructure is still a constraint.

Tanzania's human capital landscape presents both significant opportunities and challenges in advancing the development, deployment, and effective use of responsible AI. With over 60% of the population under the age of 25, the country is well-positioned to harness its demographic dividend by building a strong foundation in digital and AI-related skills. However, the existing education and training systems have yet to fully integrate AI-focused curricula or digital literacy at scale, particularly at the primary and secondary education levels. While tertiary institutions have expanded their offerings in ICT and computer science, specialized programs in AI, machine learning, and data science remain limited, with inadequate research capacity and a shortage of qualified faculty and trainers. As a result, the availability of skilled professionals in AI and related fields remains insufficient to meet the growing demand. This gap is further exacerbated by misaligned curricula across educational institutions, limited industry-academia collaboration, limited access to digital tools and infrastructure—especially in rural and underserved areas—and inadequate exposure to innovation and entrepreneurship training. Although several efforts are underway, including the launch of the *Samia Extended Scholarship Program*—which aims to empower the next generation through high-quality education in AI and Data Science—and the *Higher Education for Economic Transformation (HEET)* project, which supports curriculum reform and modernization in higher learning institutions, these interventions remain nascent relative to the scale of need. To unlock the full potential of AI for inclusive and sustainable development, Tanzania aspires to take a strategic, coordinated, and forward-looking approach that prioritizes capacity building, institutional reform, industry partnerships, and targeted investment in AI education, research, and innovation ecosystems.

2.4 Legal and Regulatory Realm

2.4.1 Global Context

The legal and regulatory frameworks ensure ethical and responsible development and application of AI systems, including data usage. The legal and regulatory framework should include effective mechanisms for safeguarding and upholding citizens' rights, as well as monitoring, mitigating and compensating for any unforeseen adverse outcomes resulting from the deployment and use of AI systems. Data protection and privacy, data access and sharing within the country and cross-border are crucial in the development, deployment and usage of AI systems.

In the global context, countries have established legal and regulatory frameworks to govern the development, deployment and use of AI systems. Most global countries have laws on Cybersecurity, Data Security, and Personal Information Protection to regulate data collection, storage, and usage, which are critical for AI systems. For example, the EU bloc has established the EU Act (2024), which is a risk-based approach to AI regulation. The General Data Protection Regulation (GDPR) for data protection and privacy regulates data usage in AI systems.

China's AI Algorithm Regulation (2022) comprises rules requiring transparency and fairness in algorithmic decision-making, particularly in recommendation systems. The Generative AI Regulation (2023) is established in China to regulate generative AI (e.g., ChatGPT-like systems), requiring compliance with socialist core values and data security. India also has the Digital Personal Data Protection Act (2023) that governs AI systems development and usage. The USA has the National AI Initiative Act of 2021 that promotes AI research and development while ensuring ethical considerations. Additionally, Canada established an AI and Data Act of 2023, which is a part of the Digital Charter Implementation Act (2022), aiming to regulate high-impact AI systems, ensuring transparency, accountability, and fairness. In Canada, the Personal Information Protection and Electronic Documents Act (2000) is used for processing personal information, data analysis, decision-making, and automated processing that involves personal information.

Latin America and the Caribbean have data protection laws and privacy, including ethical guidelines that govern the development and usage of AI systems. For example, the Strategic and Responsible Use of Artificial Intelligence in the Public Sector of Latin America and the Caribbean, and the Federal Law on Protection of Personal Data held by Private Parties in Mexico. In the Middle East region, countries like Qatar, UAE, Israel, and the Oceania countries such as Australia and New Zealand have personal data privacy protection laws, which govern data usage for AI systems.

2.4.2 Tanzania Context

The legal and regulatory frameworks of Tanzania related to AI are somewhat covered by the Electronic Transactions Act (2015), Cybercrime Act (2015), Personal Data Protection Act (PDPA) Act (2022) and Copyright and Neighbouring Rights Act (1999). PDPA governs the collection and processing of personal data and privacy rights, and rules for cross-border transfers, data breach notifications, data protection impact assessments, privacy notices, cookie policies, and data sharing agreements. The PDPA is a foundation for AI data governance in the development, deployment and use of AI systems in Tanzania. Cybercrime Act (2015) focuses on computer-related offences, jurisdiction, seizure, and service provider liability. It is relevant to data breaches and cyberattacks in AI systems. However, issues of AI usage, such as disinformation and deepfakes, are yet to be extensively covered in our national laws.

In the context of public sector procurement, the acquisition of ICT systems and software in public entities is governed by existing public procurement laws. In mainland Tanzania, this is primarily guided by the Public Procurement Act, No. 10 of 2023, while in Zanzibar it falls under the Public Procurement and Disposal of Public Assets Act, No. 11 of 2016. While these frameworks provide the general legal basis for public procurement, they lack specific provisions or guidance tailored to the unique characteristics of AI technologies. Key issues include the absence of standards for evaluating technical aspects like algorithmic bias, model transparency, and robustness, as well as defining data ownership and usage rights for training and operational data, ethical considerations and impact assessments in the procurement lifecycle.

The copyright law of Tanzania is governed by the Copyright and Neighbouring Rights Act of 1999 (Cap 218), which protects original works of authorship, including literary, artistic, musical, and audiovisual creations. However, the law doesn't explicitly address the development or use of AI. The law only recognizes natural persons as authors and rights holders, with no provisions for content generated by AI systems or the use of copyrighted materials for training AI models. Additionally, guidance on ownership of AI-generated works does not define or regulate AI entities, and provides no exceptions for text and data mining in the existing Act. The current legal framework is not equipped to handle the complexities and dynamics of AI-driven content creation, raising significant gaps in enforcement, liability, and intellectual property rights in the AI era.

2.5 Environmental and Sustainability Realm

2.5.1 Global Context

Globally, AI drives innovative solutions for climate resilience, clean energy, and sustainable agriculture. It also poses rising environmental risks due to its high energy consumption, carbon emissions, water usage, and e-waste from data centers and hardware. A number of countries and regional blocs introduce regulations, such as the EU AI Act of 2024, to ensure responsible AI development in environmental monitoring, circular economy systems, and Environmental Social and Governance (ESG) analytics. They highlight the need for balanced governance, greener AI infrastructure and global collaboration to align AI initiatives with sustainability goals.

2.5.2 Tanzania Context

Tanzania is gifted with a rich biodiversity, natural resources and a strong commitment to environmental sustainability through policies like the National Environmental Policy (1997, revised 2021), the Environmental Management Act of 2004 and various climate action plans. The adoption of AI for environmental sustainability in Tanzania requires investments in data infrastructure, cross-sector partnership and collaboration, and integration of AI into national environmental and climate strategies, including the clean energy strategy. It is important to align AI policies with ESG goals to enhance sustainable development, promote AI green infrastructure and attract investors. Unfortunately, this requires proactive legislation, safeguards against social inequities aggravated by AI adoption and investment in green AI technologies to serve people, the planet and to ensure prosperity in a Public-Private-Partnership (PPP) mode.

2.6 SWOC Analysis

The analysis has been conducted to identify Strengths, Weaknesses, Opportunities and Challenges (SWOC) as a basis for the formulation of objectives of this strategy in the context of technological, environmental, political, economic, social and cultural factors.

The SWOC analysis is presented in Table 1:

Table 1: SWOC Analysis

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Availability of policy, legal and regulatory framework • Availability of digital infrastructure • Existence of various sector AI guidelines in the country. • Availability of skilled and competent ICT human capital • Existence of a strong stakeholders' partnership • Availability of research and innovation institutions • Growing pool of local AI talent and enthusiasts • Integration of AI into national development plans • Presence of incubators and innovation hubs 	<ul style="list-style-type: none"> • Inadequate policy, legal and regulatory framework • Limited AI awareness • Limited AI-enabling infrastructure • Insufficient specialized AI training programs • Shortage of AI skilled human capital • Insufficient funding for AI research • Limited data accessibility for AI development • Lack of a national coordinating structure for AI • Dependence on foreign technologies and solutions • Limited incentives for AI innovation and startups • Limited Swahili Language AI-powered tools
OPPORTUNITIES	CHALLENGES
<ul style="list-style-type: none"> • Presence of political will • Availability of national and international conferences, workshops and forums • Existence of institutions functioning as technical support bodies • Support from development partners and donor agencies • Expanding access to regional and global markets • Growing demand for AI applications across sectors • Emerging youth talent and innovation culture • Digital transformation agendas at continental and global levels 	<ul style="list-style-type: none"> • Weak industry-academia linkage • Cybersecurity threats and data privacy concerns • AI infrastructure investment costs • Financial constraints; • Rapid technological changes outpacing regulatory response

2.7 AI Readiness Assessment

Tanzania AI readiness assessment has been based on global indices and country assessment of various factors, such as policy and regulatory frameworks, institutional arrangements; cultural, social, and human capital landscape; data

infrastructure; talent, research and innovation; and governance, partnerships and ethical capabilities; to handle the adoption of AI.

2.7.1 Global Ranking

According to the International Telecommunication Union (ITU) ICT Development Index (IDI) score measures, Tanzania is placed in the mid-range for African countries, scoring 43.1 out of 100. The IDI assesses the level of development in the ICT sector based on various indicators, including access, usage, and skills.

In the Global Innovation Index (GII) (2024), Tanzania is ranked 120th out of 133 economies and 17th in the region scoring 15.3, while the highest country in the region scored 28.3. GII shows strengths in institutions, market sophistication, and business sophistication, however, it requires imperative strengthening in areas of human capital and research, creative outputs, and knowledge and technology outputs.

According to the Global Knowledge Index (GKI) 2024, Tanzania has gained in all 7 pillars measured among 141 surveyed economies worldwide, in comparison to the 2023 rankings. Tanzania got an overall score of 32.3 points compared to 31.2 points it got in the 2023 rankings. In the enabling environment pillar, Tanzania scored 51.4 points, up from 48.9 points scored in the 2023 GKI ranking. In the economy pillar, it scored 43.7 points, up from 42.0 points scored in 2023.

2.7.2 Tanzania AI Readiness Assessment

The United Republic of Tanzania AI Readiness Assessment Report of 2025 by UNESCO has deepened the understanding of the national capacity, gaps and major concerns among Tanzanians regarding the ethical and responsible adoption of AI to deliver benefits across all segments of society. The assessment revealed progress made in the country in the areas of legal and regulatory, social and culture, scientific and education, economic and technical infrastructure, as shown in Table 2:

Table 2: Key Findings of the Tanzania AI Readiness Assessment Report

No	Core Assessment Dimension Findings	Findings and recommendations
1.	Legal and Regulatory	Tanzania has foundational policy and legal frameworks to support AI adoption, such as the Personal Data Protection Act (2022), Cyber Crime Act (2015), and the Copyright and Neighbouring Rights Act (1999). The frameworks are crucial for personal data governance, electronic transactions, security and safety. Sector-specific policies highlight a nuanced understanding of AI's application, including the AI Policy Framework for the Health Sector and the National Guideline for AI in Education

		<p>There is a recognized need to strengthen governance and legal framework for the AI setting, clear rules for AI ethics, accountability, transparency, including requirements for algorithmic impact assessments, responsibility and human oversight on AI systems. The governance framework should not overregulate but rather promote AI implementation.</p> <p>To promote AI sectoral transformation; the Sectoral AI Guidelines should be tailored for priority sectors like health, agriculture, tourism, and financial services, referencing the existing AI Policy and Legal Frameworks.</p>
2.	Social and Cultural	<p>According to the report, Tanzania does not have a national AI policy or related specific regulations guiding the use of AI in the preservation of cultural heritage and indigenous languages. However, the existing Personal Data Protection Act (2022) and Cyber Crime Act (2015), can be leveraged to guide digital technologies in the cultural sphere.</p> <p>AI guiding policy frameworks are vital to leverage the promising future of AI applications in social and cultural transformation. Moreover, special programs, including public awareness are required to enhance trust in AI, strengthening adoption of AI in the cultural and creative industries.</p>
3.	Scientific and Educational	<p>Tanzania's overall contribution to African research output is at infancy stage. Notable efforts on research related to AI, ML, and Data science from institutions such as the University of Dodoma, Nelson Mandela African Institutions of Science and Technology (NM-AIST), University of Dar-es salaam, Sokoine University of Agriculture, and State University of Zanzibar supporting applied AI research in topics such as Healthcare, Education, and Agriculture have sparked growing contributions to AI-related research.</p>

		<p>In addition, there has been a significant emergence of AI-based innovations across multiple sectors. Both local and international startups drive these innovations, addressing key areas such as health, education, finance, logistics and e-commerce, agriculture, urban planning, and environmental conservation.</p> <p>The finding reveals the importance of increasing the investment in research and development, establishment of National Research centers, and embedding age-appropriate AI education, covering technical and ethical aspects, from primary to tertiary levels, to prepare citizens for an AI-enabled society and cultivate critical thinking.</p>
4.	Economic	<p>The Tanzanian economy is characterized by steady growth of 6-7% annually. Tanzania is actively embracing AI as part of its broader technological and economic development catalysts, whereas the private sector shows promise in localized AI innovation, particularly in health and FinTech.</p> <p>However, measures to strengthen the availability of capital to the underfunded local AI innovation are necessary to leverage digital economy growth in Tanzania and its membership in various regional blocs and cross-border trade agreements like the AfCFTA.</p>
5.	Technical and Infrastructure	<p>There is continuous growth in the usage of digital services enabled by the significant growth of internet subscribers reaching 49.3 million by March 2025, with population area coverage for 3G, 4G and 5G reaching 92%, 91% and 23% respectively.</p> <p>However, there still a need to invest in high-performance computing, cloud and data center computing, like AI and Robotics Data Centre to support the AI innovation ecosystem in Tanzania.</p>

2.8 AI Ecosystem in Tanzania

Tanzania, like many nations across the globe, has progressed through the 1st to the 3rd Industrial Revolutions and is now navigating the transformative wave of the 4th Industrial Revolution, propelled by emerging technologies. The country continues to harness digital innovations, including AI, to improve the livelihoods of its people across social, economic, and cultural dimensions. The traditional digital ecosystem in Tanzania has been significantly energized by recent advancements in AI. Tanzania's AI ecosystem remains nascent but rapidly evolving, supported by a growing community of researchers, innovators, startups, government initiatives, academic institutions, and private sector actors. These stakeholders are increasingly engaging in AI-focused research, capacity building, and pilot projects, setting the foundation for a more structured and impactful AI-driven transformation.

2.8.1 Startups

The development of a dynamic and robust innovation ecosystem in Tanzania has laid a strong foundation for the growth of the AI startup landscape. For example, As of 2025, the Tanzania AI Community has approximately 600+ members, of whom 74% are between the ages of 19 and 29, 49% are students, and 69% are interested in technical skills.

Tanzania's startup ecosystem comprises a network of technology accelerators, innovation hubs, financial institutions, investment groups, and international development partners. Furthermore, the ecosystem enables supporting mechanisms, which include business incubation, mentorship, technical expertise, funding opportunities, strategic advisory services, and enhanced access to domestic and international markets. Such an enabling environment has proven vital in fostering digital innovation and entrepreneurship, particularly in the AI field.

Innovations by AI startups demonstrate Tanzania's growing capacity to leverage AI technologies in addressing systemic development challenges and advancing its digital transformation initiatives.

2.8.2 Academic and Research Institutions

The country's adoption of AI is gradually transforming how knowledge is created, expanded, shared, and utilized. Academic and Research institutions play a vital role in the development and application of AI in the country. Some academic and research institutions involved in AI research and training are: University of Dar es Salaam, Nelson Mandela African Institution of Science and Technology, The University of Dodoma, Muhimbili University of Health and Allied Sciences, Sokoine University of Agriculture, Dar es Salaam Institute of Technology, Indian Institute of Technology Madrasa-Zanzibar Campus, Mbeya University of Science and Technology, Mzumbe University, and The State University of Zanzibar. These

Institutions provide notable contributions to the educational and research initiatives of AI in the country. However, to promote the adoption of AI for industrial transformation, more players need to invest in AI and conduct research on industrial applications of AI technology to support automation, innovation and engineering solutions.

2.8.3 Civil society

The Tanzania AI Civil Society ecosystem is gradually emerging taking onboard the non-governmental organizations. These actors are engaging in AI-related discourse, advocacy, awareness and capacity building, networking, collaboration and applied research. Some players in the ecosystem include:

- a) **Digital Rights Organisations:** Advocating for equitable access to digital technologies and ethical use of AI, especially for youth, women and marginalized groups.
- b) **Consumer Protection Groups:** Monitoring technology applications for potential harms to consumers.
- c) **Disability Rights Organisations:** Promoting accessibility of digital technologies for persons with disabilities.

2.8.4 Production and Service Industry

Tanzania is progressively integrating AI into various industrial sectors, including manufacturing and production, for predictive maintenance, real-time monitoring, and intelligent automation. In the service industry, Tanzania is also adopting AI to transform the way services are delivered and experienced. Some sectors include: agriculture, health, finance, manufacturing, telecommunication, tourism, mining, electricity, transport and logistics, to name a few.

However, ongoing investment in AI-enabled infrastructure, skills, usage awareness, and innovation is essential to expand new and successful applications in the country.

2.8.5 International Community

The engagement of the international community has constructively supported the development of AI technologies nationwide. Prominent global and regional organizations, including Alliance AI, AI Commons, AI4D Africa, IDRC, Sida, UNESCO, UNICEF, the Gates Foundation, Mozilla Foundation, GIZ, AU NEPAD, and the AI Young Leaders Community, have provided critical strategic guidance, technical expertise, and operational support to a growing number of AI-driven initiatives in the country. This collaborative momentum, combining international partnerships with domestic stakeholders, has contributed to the dynamic and progressively maturing AI ecosystem. Such partnerships, backed by institutional support, position the country as an emerging hub for AI innovation in the region.

2.8.6 Government

The government plays a central role in shaping the national AI ecosystem. Institutions such as the Ministry of Communication and Information Technology, ICTC, and COSTECH coordinate policy and innovation support. In 2022, Tanzania enacted the Personal Data Protection Act and established the Data Protection Commission to oversee data privacy amid the growing use of digital and AI technologies. Legal reforms, including amendments to the Cybercrimes Act and Electronic and Postal Communications Act, aim to align legal frameworks with emerging technological trends. Other policies developed in response to fostering responsible use of AI include: Policy Framework for AI in Tanzania Health sector (2022) and National Guidelines for AI in Education (2025). Moreover, the government has undertaken significant initiatives to revamp the education curriculum, aligning it with the evolving demands of the digital age by integrating emerging technologies and fostering future-ready skills, including AI, coding, and digital literacy. Collectively, these government initiatives, spanning national vision documents, sectoral policy instruments, regulatory alignment, and innovation support, underscore its leadership in enabling a well-governed, inclusive, and strategically aligned AI ecosystem. Such initiatives also create a conducive environment that attracts investment in infrastructure to support the responsible use of AI, while promoting the adoption of regionally harmonized frameworks to facilitate cross-border collaboration in resource sharing, talent development, and research.

2.9 AI Concerns

The implementation of AI initiatives presents a dual challenge, socio-economic and technical risks, which must be addressed to secure favourable outcomes in the use of AI. Socio-economic risks encompass concerns such as job displacement, opaque decision-making processes, potential discrimination, intrusion into individuals' privacy and susceptibility to exploitation for criminal purposes. Technical risks involve ensuring the explainability, accountability, and fairness of AI algorithms, as well as prioritizing the safety and security of AI-based systems. Other concerns include:

2.8.7 Inadequate expertise in AI

Tanzania, like other developing countries, faces critical skills gaps in AI. Technical skills in programming, data engineering, and statistical analysis, and complementary soft skills in critical thinking, problem-solving, and AI ethics are vital in AI adoption. Cultivating a robust pipeline of intermediate-level AI experts is critical to meeting the growing demand for AI solutions across diverse sectors and ensuring the responsible, effective application of AI technologies.

2.8.8 Limited access and/or availability of quality data

Data scarcity is a significant challenge for AI adoption, as it restricts the ability to build accurate, fair, and inclusive AI systems. While several data centers are operational, primarily focused on data storage and hosting, there is limited infrastructure to support advanced AI processing and computational capacity. Moreover, data is still centralized in a few large corporations creating a gap in data availability for emerging enterprises, startups, and research institutions. Bridging this gap is essential for ensuring that AI technologies are developed equitably, to benefit a wider range of people in the community, and not exacerbate the existing digital divide.

2.8.9 High resource cost for development and deployment

Development and deployment of AI systems often require significant financial, technical, and human resources. The high resource cost—including computing infrastructure, skilled labor, data acquisition, and model training—poses a major barrier, for both public and private institutions. Cost burden may restrict the participation of a large portion of the stakeholders in having AI deployment plans.

2.9.4 Low AI awareness

While AI holds immense potential to transform the country's economy, enhance public service delivery, and tackle pressing socio-economic challenges, a significant awareness gap persists regarding its benefits, risks, and practical applications. This lack of understanding limits meaningful adoption, restricts informed decision-making, and impedes broader societal engagement in shaping and benefiting from AI-driven transformation.

2.9.5 Privacy and security issues

Privacy and data security are paramount in the era of AI, both globally and in Tanzania. As AI systems rely on a vast amount of personal and sensitive data, they present risks related to data breaches, algorithmic bias and misuse. These risks, if unaddressed, can erode trust in AI systems, hinder responsible innovation and compromise people's rights, leading to socio-economic and reputational damages to respective institutions and users.

It is, therefore, imperative to comply with global and regional data protection rules and regulations, including Tanzania's PDPA (2022). Organizations must have access restrictions, encryption, and auditing capabilities. Trust-building among users through transparent data processes and ethical data handling protocols is crucial for user confidence in AI systems and responsible data management.

2.9.6 Ethical development and responsible use of AI

The legal concerns around AI cover a large spectrum: liability, intellectual property rights, and regulatory compliance. The accountability question arises when an AI-based decision maker is involved, especially in a faulty system or an accident

resulting from an autonomous AI system. Legal issues related to copyright emerge due to the ownership of the content created by AI and its algorithms.

Furthermore, the regulatory systems are often slow to adapt to rapid technological changes, and so must be noted to avoid legal liabilities and risks. Tackling these issues requires legal experts, policymakers, and technologists working together to create clear rules and policies that balance innovation with accountability and protect stakeholders' rights in the AI ecosystem.

2.9.7 Cultural Contextualization

AI should be seen not as an end in itself, but as a tool to address societal challenges, preserve cultural identity and indigenous knowledge, and promote equitable development. In Tanzania, it is essential to adapt AI to the local cultural context, like using Swahili generated models to ensure inclusivity through gender equality, rural access, and reduced socio-economic disparities. This approach will preserve cultural identity while enhancing AI's relevance and effectiveness for local adaptation of AI systems in the country.

2.9.8 Public-Private Collaboration

Successful AI implementation requires coordinated efforts across multiple sectors, recognizing that effective innovation is inherently collaborative. Government, academia, the private sector, civil society, and local communities must work together to ensure that AI solutions are not only technically sound but also socially relevant and ethically grounded. The multi-stakeholder approach will foster inclusive, sustainable, and locally relevant AI solutions that align with national development goals and uphold social values.

2.10 Critical Success Factors

The critical success factors for the AI Strategy Framework include the following:

- a) Digital inclusivity should cover a wide spectrum of citizens from different backgrounds;
- b) Mobilization of funds must be optimized from both public and private sectors;
- c) Development of conducive regulation frameworks that promote innovation and collaboration among actors;
- d) Creation of a governance structure that is empowered to supervise and oversee AI adoption with participation from public and private sectors;
- e) Nurturing of home-grown talents at different levels to create sufficient human capital;
- f) Public and private institutions should ensure that AI infrastructure and datasets are readily available to support research and innovation;
- g) Culture and ethical contextualization should be considered during the development of AI solutions to ensure relevance and long-term sustainability of AI innovations.

2.11 Benchmarking

As AI increasingly influences economies and societies, countries worldwide have developed national AI strategies to unlock its transformative potential. Analyzing these strategies provides valuable insights into best practices, common challenges, and innovative policy approaches. Benchmarking underscores key lessons that Tanzania can draw from pioneering and emerging AI strategies globally and regionally. Benchmarking was done with regard to the following:

- USA, through the *American AI Initiative Executive Order (Feb, 2019)*, has recognised the strategic importance of AI for the country's future economy and security. It aims at boosting the private sector's competitiveness in AI and prioritising AI investment through sustained and proactive government funding in R&D and human talent.
- China through the *Next Generation AI Development Plan 2017*, has set a goal for China to become the global leader in AI by 2030.
- Japan, through its *AI Strategy 2022*, has a comprehensive policy package related to AI for overcoming Japan's own social issues and improving industrial competitiveness.
- Germany's Artificial Intelligence Strategy titled "*AI Made in Germany*" (Nov. 2018) aims to safeguard Germany's outstanding position as a research centre, to build up the competitiveness of German industry.
- The *United Kingdom's National AI Strategy 2021* provides the foundations to foster the UK's global position as a leader in developing AI technologies.
- The *European Union (EU)* aims to foster both technological leadership in AI and ensure that AI systems are developed and utilized in a manner that aligns with European values. The EU has set a legal framework which aims to address the risks of AI and position Europe to play a leading role globally.
- The Asia Pacific region, through the *Association of South-East Asian Nations (ASEAN)*, aims to position ASEAN as a global AI leader by 2045, promoting digital trade and regional collaboration.
- *AU Continental AI Strategy, 2024*, which presents African countries' guidance on AI, focuses on building robust digital infrastructure, developing human capital, and fostering innovation through strong public-private partnerships. The strategy places strong emphasis on ethical AI governance, research and development, capacity building, and regulatory harmonization aligned with international standards.

2.11.1 Lessons learnt from other national strategies

The developed countries give an important lesson on their strategic vision and perspective on AI development and utilization. Collectively, they have demonstrated a need to leverage AI utilizing their strengths, such as technologies of the private sector, manufacturing competitiveness, large-scale capital and data, and taking the global lead in AI.

These experiences offer shared lessons for Tanzania. Chief among them is the importance of articulating a clear vision aligned with national development goals and setting priorities that promote inclusive economic growth and better public service delivery. Additionally, investing in AI skills development and research capacity is vital

for building local expertise. Establishing strong data governance and ethical frameworks is equally essential to spark innovation, create jobs, and ensure the responsible and equitable use of AI technologies.

As Tanzania develops its roadmap to navigate the global and national AI landscape through this strategy, valuable lessons have been drawn from the experiences of countries that have made significant progress in adopting responsible AI. Notably, various successful strategies have highlighted clear national priorities like investment in talent, enabling regulations, infrastructure, and multi-stakeholder collaboration. Other national AI strategies outlined targeted priority sectors, such as health, education, manufacturing, finance, and clearly defined, measurable outcomes.

It is from these lessons that this National AI Strategy Framework charts a roadmap with a global and regional perspective, open to international collaboration, forward-looking, inclusive, and responsive to Tanzania's unique opportunities and challenges.

3.0 VISION, MISSION, GOAL AND STRATEGIC OBJECTIVES

3.1 Vision

AI empowered society for economic growth

3.2 Mission

Transform Tanzania into AI-enabled economy through investment in AI and its application

3.3 Goal

The overall goal is to promote responsible development and use of AI across various sectors to foster socio-economic growth.

3.4 Strategic Objectives

The overall goal of the strategy will be achieved after attaining the following eight strategic objectives:

- (i) Establish scalable and high-capacity AI infrastructure.
- (ii) Harmonize the various regulatory frameworks to have a coordinated national AI governance outlook.
- (iii) Develop a pool of competent AI experts in the country.
- (iv) Stimulate innovation, research and entrepreneurship in AI.
- (v) Promote inclusive and equitable AI adoption.
- (vi) Establish a data governance mechanism to enable the effective use of data for AI development and application.
- (vii) Foster strategic partnerships and multi-stakeholder collaboration in AI development.
- (viii) Accelerate the adoption of AI technologies across production and service sectors.

3.5 Guiding Principles

Table 3 highlights the guiding principles collectively aim to ensure that AI systems are trustworthy, fair, safe, and respectful of human rights.

Table 3: AI Guiding Principles

No	Guiding Principle	Explanation
1	Valid and Reliable	AI systems should produce accurate, consistent, and trustworthy results over time. Validity ensures that AI is measuring or predicting what it's intended to, while reliability means it performs consistently across different contexts and data inputs.
2	Safe	AI should operate without causing harm to users,

		society, or the environment. Safety involves designing AI systems that prevent accidents, unintended consequences, or malicious use, ensuring they function securely under various conditions.
3	Managed Bias	AI developers should actively identify, mitigate, and monitor biases in data and algorithms. Managing bias helps prevent unfair, discriminatory, or prejudiced outcomes, promoting fairness and equity in AI decision-making.
4	Resilient	AI systems should be robust against errors, adversarial attacks, or unexpected situations. Resilience ensures they can recover from failures and maintain performance and security over time, even in challenging or adversarial environments.
5	Transparency	AI processes and decision-making criteria should be open and understandable. Transparency helps users and stakeholders comprehend how and why AI makes certain decisions, fostering trust and enabling effective oversight.
6	Accountability	Organizations and individuals involved in developing or deploying AI should be responsible for its outcomes. Accountability involves establishing clear roles, oversight mechanisms, and the ability to address issues or harms caused by AI systems.
7	Explainable and Interpretable	AI should be capable of providing clear explanations for its decisions or recommendations. Explain ability makes AI's logic understandable to users, enabling better trust, validation, and compliance with regulations.
8	Privacy-Enhanced	AI systems should protect user data and uphold privacy rights. Privacy-enhanced AI employs techniques to secure sensitive information, and ensure that personal details are not exposed or misused.

4.0 PILLARS

The following key pillars have been formulated in order to enable the effective development, deployment and responsible usage of AI in the country.

Pillar 1: AI Infrastructure

Digital infrastructure for AI includes essential hardware and software components such as data storage, cloud computing, high-performance computing, secure networks, reliable power, and development tools that support AI workloads.

Global investment in such infrastructure has grown rapidly over the past decade, fueled by digital transformation and increasing AI demands—leading to advancements like data centers, broadband expansion, and green energy solutions. In Tanzania, the government has established the foundational digital infrastructure that can support AI development, such as NIDC and NICTBB.

However, Tanzania still requires a multidimensional infrastructure investment approach to establish advanced computing resources (like GPUs, data centers from Tier 3 to Tier 4), robust connectivity (5G, fiber, and satellite), upgraded power systems, and sustainable energy. To achieve that, the involvement of key AI stakeholders like Mobile Network Operators, ISPs, international investors, research institutions is crucial.

Strategic Objective	Establish scalable and high-capacity AI infrastructure.
Strategies	<ul style="list-style-type: none"> (i) Establish High-Performance computing infrastructure; (ii) Improve broadband connectivity including 5G for wider access; (iii) Enable cost-effective access to computing resources for AI stakeholders; (iv) Engage key stakeholders to achieve a multidimensional investment in AI infrastructure; and, (v) Establish an enabling environment that supports deployment of AI infrastructure.
Outcomes	<ul style="list-style-type: none"> (i) Increased investment in AI technologies; (ii) Widespread adoption of AI solutions; and, (iii) Improved accessibility of AI Infrastructure.

Pillar 2: AI Governance

Effective AI governance is fundamental to ensuring that AI technologies are developed, implemented, and scaled in ways that are inclusive, ethical, transparent, and aligned with Tanzania's broader national development goals. Tanzania seeks to ensure that AI technologies advance in a manner consistent with its socio-economic priorities, ethical values, legal standards and regulatory frameworks.

As Tanzania accelerates its adoption of AI across various sectors, establishing a comprehensive governance framework becomes imperative. The existing National ICT Policy (2016), Cybercrime Act (2015), Personal Data Protection Act (2022) and the Digital Interoperability and Standards Guidelines (2024) lay the foundation for a conducive legal and regulatory framework for responsible AI to thrive in Tanzania. However, they do not explicitly address the dynamics of AI governance. Therefore, this framework seeks to foster responsible AI deployment while safeguarding individual rights and promoting ethical innovations across various sectors.

Strategic Objectives	Harmonize the various regulatory frameworks to have a coordinated national AI governance outlook.
Strategies	(i) Develop and operationalize sectoral AI governance framework; (ii) Revise policy and legal frameworks requiring alignment with AI governance best practices; (iii) Establish standards that guide the development and deployment of inclusive and trustworthy AI systems; (iv) Setup a national AI Observatory; and, (v) Establish sectoral redressal mechanisms that will allow users to report AI-related harms.
Outcomes	(i) Ensured interoperability, quality, and safety of AI technologies across sectors; and, (ii) National AI Observatory established.

Pillar 3: Skills and Talent Development

Skills and talent development are one of the most essential elements towards achieving a responsible use of AI. Skills development in this case refers to the process of imparting and improving knowledge and capabilities in AI development and usage. Talent development involves identifying, nurturing, and enhancing the skills and abilities of individuals to effectively deploy AI systems for the betterment of society. This includes tapping into the Tanzania diaspora and other external talent to participate and support local skills and talent development. Given Tanzania's

shortage of skilled professionals in AI, there is a pressing need to establish a structured approach for developing and attracting adequate human capital equipped with the necessary expertise and talent to support the country's AI aspirations.

Strategic Objectives	Develop a pool of competent AI experts in the country.
Strategies	(i) Attract and retain talents in AI; (ii) Promote skills development in AI; (iii) Offering comprehensive and inclusive AI education; and, (iv) Develop specialized training and continuous learning programs in AI to transform the existing workforce;
Outcomes	(i) Growing number of locally developed AI platforms and innovative solutions; (ii) Increased number of local AI professionals; and, (iii) Increased workforce trained to be cognizant of AI usage.

Pillar 4: Innovation, Research, and Entrepreneurship

Innovation, Research and Entrepreneurship (IR&E) are vital in shaping the AI industry in Tanzania. The IR&E endeavor, collectively shapes Tanzania's AI landscape, driving progress, job creation, and shared prosperity.

Innovation drives the development of novel tools, platforms, and methodologies that improve how AI is applied in real-world settings. For instance, through iterative experimentation and problem-solving, innovators create more efficient, accessible, trustworthy, and scalable AI solutions that address socio-economic challenges. By cultivating a culture of creativity, Tanzania seeks to stimulate continuous improvement in AI adoption, making it more adaptive and responsive to societal demands.

Research serves as a fundamental driver for AI advancement by producing empirical evidence necessary for developing AI systems, including supporting planning and decision making. Unfortunately, in Tanzania, research is challenged by a few issues, including limited funding and research facilities, which lead to the low contribution of the country's AI research outputs. To pave the way for AI development and the deployment of technological solutions across individuals, businesses, and the public sector, Tanzania is currently prioritizing applied research, complemented by emerging AI capabilities.

In addition, entrepreneurship serves as a cornerstone in translating AI innovations into viable products and services that reach the market and create impact at scale. As a result, the public and private sector also benefits from these entrepreneurial AI innovations, which can be incorporated into their production and service processes. Entrepreneurship also enhances public-private partnerships that catalyze the

commercialization of innovation and research outputs. However, entrepreneurs in the country still require skills that will enable them to capitalize on AI advancements to create market-ready solutions. Furthermore, they need to enhance their knowledge on identifying and tapping opportunities, resource mobilization, and their ventures' adaptive capacity to the ecosystem.

In order to stimulate the adoption of AI, Tanzania aspires to promote innovation, strengthen research capacity, and support entrepreneurship growth.

Strategic Objective	Stimulate innovation, research, and entrepreneurship in AI.
Strategies	<ul style="list-style-type: none"> (i) Create a conducive legal and regulatory environment for innovation, research, and entrepreneurship in AI; (ii) Enhance funding mechanisms, research facilities, and human capital to accelerate AI innovation and research.; (iii) Establish AI innovation hubs; (iv) Strengthen funding schemes for scaling up and commercialization of AI solutions; and (v) Establish a one-stop centre to enable fiduciary services provision for AI innovators, researchers, and entrepreneurs.
Outcomes	<ul style="list-style-type: none"> (i) Increased contribution of local innovation and research in the development of AI solutions; (ii) Increased opportunities for AI entrepreneurship growth; and, (iii) (iv) A one-stop centre is established and fiduciary processes for innovators, researchers, and entrepreneurs are improved.

Pillar 5: Inclusion and Accessibility

Inclusion in AI refers to the intentional involvement of humans with diverse attributes and perspectives throughout the entire lifecycle of AI systems, from data collection and model design to deployment, governance, and continuous impact assessment. It entails addressing systemic disparities related to race, gender, geography, socio-economic status, disability, and language, to ensure that the benefits of AI are equitably shared across all communities.

In Tanzania, the development and advancement of AI present equal opportunities to all segments of society, regardless of gender, age, disability, geography, or socio-economic status. However, such opportunities are influenced by socio-economic development and cultural limitations that exist in our communities, which introduce, among other challenges, a gender divide and social inequalities.

Despite significant strides made to improve access to digital services in the country, there still exists an AI adoption disparity in the community. Therefore, this strategy commits to promoting AI inclusion and accessibility by enabling equitable participation of all segments of society.

Strategic Objective	Promote inclusive and equitable AI adoption.
Strategies	<ul style="list-style-type: none"> (i) Implement a national AI awareness and digital literacy programmes; (ii) Promote representation and participation of diverse groups in AI systems development and usage; (iii) Support AI innovations that address specific demographic and geographic needs; and, (iv) Promote the development and deployment of AI systems that are trained on and capable of understanding the Swahili language.
Outcomes	<ul style="list-style-type: none"> (i) Increased general public awareness of AI; and, (ii) Increased usage of AI solutions by diverse groups.

Pillar 6. Data governance

Data is the foundational fuel powering AI for the development of ethical, secure, and trusted systems. Tanzania has made strategic efforts to strengthen data governance, including support for data initiatives. Currently, the development of policy and legal frameworks and the enhancement of national data infrastructure do not take into account matters of data governance related to AI.

To fully harness the transformative power of AI, there is a need to scale up and deepen these initiatives. This includes advancing comprehensive strategies for data collection from diverse sources, promoting responsible data sharing and privacy protection, improving data quality standards, investing in resilient data infrastructure, and building institutional awareness and capacity in data governance. These actions are essential to create a trustworthy, inclusive, and sustainable data environment that enables AI to thrive across all sectors of the economy and society.

Strategic Objective	Establish a data governance mechanism to enable the effective use of data for AI development and application.
Strategies	<ul style="list-style-type: none"> (i) Create sector-specific data governance mechanisms to support AI development and application; (ii) Boost data sovereignty; (iii) Promote digitization of data and establishment of interoperable data platforms;

	<ul style="list-style-type: none"> (iv) Harmonize data quality standards for sharing across sectors and borders; and, (v) Promote open data initiatives.
Outcomes	<ul style="list-style-type: none"> (i) Improved availability of high-quality data for AI development and usage; (ii) Established sectoral data governance frameworks to ensure AI ethical and legal compliance; and, (iii) Increased institutional capacity in data governance.

Pillar 7: Partnership and Collaboration

Partnerships and collaboration serve as a foundation for shared innovation, enabling the effective exchange of knowledge, expertise, technological resources, and human capital to address national development challenges through AI. Partnerships and collaborations provide access to cutting-edge technologies, technical assistance, financial resources, and global best practices, thereby accelerating AI development.

In Tanzania, there are multi-stakeholder platforms and networks that facilitate ongoing AI dialogue, dissemination of best practices, and collective action across sectors. The country actively leverages existing international cooperation frameworks and pursues new partnerships with international organizations, development agencies, multinational technology firms, and regional blocs.

Unfortunately, existing partnership and collaboration initiatives remain fragmented, with limited emphasis on a coordinated strategy to drive a unified national approach to AI development and deployment. By prioritizing a strategic partnership, Tanzania aims to unlock the full potential of AI as a driver of inclusive growth, digital transformation, and sustainable development, while positioning itself as a key contributor to the African and global AI ecosystem.

Strategic Objectives	Foster strategic partnerships and multi-stakeholder collaboration in AI development.
Strategies	<ul style="list-style-type: none"> (i) Promote innovation partnership programs to foster collaboration among government, academia, industry, and civil society; (ii) Convene annual national AI dialogues and forums to showcase AI advancements, and promote inclusive innovation and knowledge exchange; and, (iii) Strengthen international collaboration and AI diplomacy.
Outcomes	(i) Strengthened partnerships between government, private

	sector, academia, and civil society to co-develop and deploy responsible AI solutions; and, (ii) Increased collaborative AI initiatives addressing national development priorities through shared expertise, resources, and innovation.
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Pillar 8: Production and Services Sector AI-powered Transformation

The integration of artificial intelligence into production and service sectors presents a transformative opportunity to enhance productivity, efficiency, and competitiveness across economies. AI can unlock new value chains, optimize operations, and improve service delivery in the production and service sectors. Tanzania has made progress in utilizing AI in health, education, and finance sectors, in contrast to other sectors.

Therefore, to fully harness the AI potential, Tanzania aims to deliberately invest in AI adoption, capacity building, and innovation within the production and service sectors. This strategy framework endeavors to accelerate the responsible deployment of AI technologies that drive economic growth, support industrialization, and improve public and private sector services.

Strategic Objective	Accelerate the adoption of AI technologies across production and service sectors.
Strategies	(i) Launch sector-specific AI adoption programs and implementation roadmaps; (ii) Promote the use of research and innovation outputs in production and service sectors; (iii) Review of policy, legal, and regulatory frameworks to support the deployment of AI solutions in production and services delivery; and, (iv) Establish a sectoral regulatory sandbox for AI solutions.
Outcomes	(i) Increased deployment of AI-powered solutions in key production and service sectors; and, (ii) Expanded network of AI-driven innovations and startups contributing to job creation, value addition, and inclusive economic growth.

5.0 TANZANIA AI OBSERVATORY

The African Union Continental AI Strategy encourages Member States to develop national AI strategies and governance frameworks that prioritize building the necessary capabilities to manage AI-related risks and harness its benefits. These national efforts are also expected to align with the broader goals of Agenda 2063. The AI Observatory is one approach as an assurance mechanism. Noting that responsible AI deployment and usage in the Tanzanian digital economy is a cross-cutting issue. The national AI Observatory is a multi-tiered governance approach that ensures responsible AI ecosystems are enabled, the benefits of AI are equally distributed, risks are mitigated and harms addressed, and that the development and use of AI in the country is transparent and accountable to its people.

The AI Observatory is designed to monitor, analyze, and visualize the development and impact of artificial intelligence across various sectors in the country, i.e., both the public and private sector, including civil society. The AI Observatory has a special focus on the foundational elements of inclusive and responsible AI governance to better identify risks, opportunities, and developments and to predict AI's possible impacts on the country.

5.1 Tanzania AI Observatory Goal, Functions, and Outcome

The goal is to deepen national understanding of AI through comprehensive monitoring, data-driven analysis, and inclusive community engagement. This approach aims to promote the ethical development and responsible deployment of AI technologies for the benefit of Tanzania and its people. The proposed functions of the AI Observatory include:

- (a) Monitor and assess AI developments, trends, and impacts to inform evidence-based decision-making.
- (b) Inform, influence, and monitor policy making as it pertains to responsible AI for development and inclusion in the country.
- (c) Promote an inclusive, community-driven approach that incorporates local experiences and ensures data privacy safeguards during the collection and use for AI development.
- (d) Raise awareness on the responsible use of data and AI in a way that is in line with the policies and regulations of the country.
- (e) Connect public and private entities (researchers, policymakers, entrepreneurs, civil society, educators, and beneficiaries) by creating dynamic collaborative engagement between the different stakeholders to promote enhanced guidelines and strategies that fulfill the promise of responsible AI for development in the country.

- (f) Champion AI ethical values and standards in data and AI governance and share best practices accordingly.
- (g) Develop a registry of crucial AI systems focused on applications, indicating outcomes, including social and economic impacts.

The outcome of the work of the Tanzania AI Observatory should allow the stakeholders of AI in the country to:

- (a) Have a better understanding of AI technologies.
- (b) Have a better grasp on the kinds of value that AI can add, while being well-informed about trade-offs and risks.

5.2 Tanzania AI Observatory Governance Structure

Figure 1 illustrates the Tanzania AI Observatory governance structure:

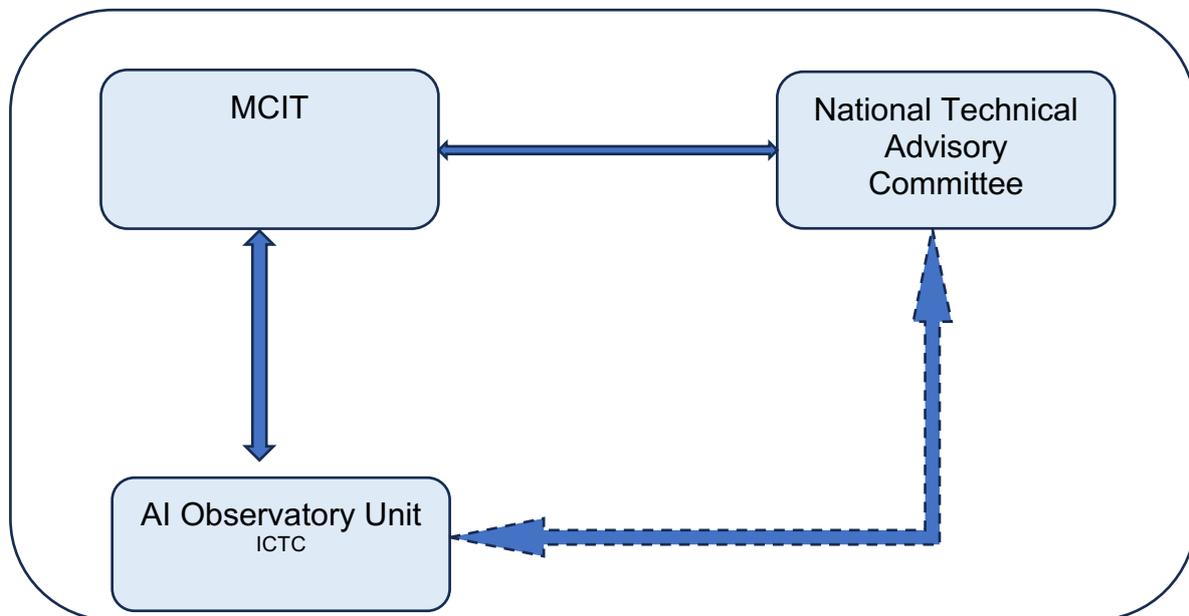


Figure 1: Tanzania AI Observatory Governance Structure

5.2.1 Ministry of Communication and Information Technology

The role of the Ministry of Communication and Information Technology (MCIT) is to provide administrative and coordination activities. This will ensure the necessary high-level coordination for monitoring the national AI strategy framework with a result-oriented approach, achieve the national strategic priorities and objectives more effectively to catalyse Tanzania’s digital transformation.

5.2.2 National Technical Advisory Committee

The role of the national technical advisory committee is to provide strategic guidance in the adaptation of AI strategies across sectors in the country, in addition to supporting the monitoring, evaluation, learning, and adaptation of the AI strategic activities. It will also provide high-level coordination for the preparation of AI action plans that are in harmony with each other and ensure inter-institutional coordination. Members of the National Technical Advisory Committee are:

- i) Ministry of Communication and Information Technology- Chairperson
- ii) Ministry of Education, Science and Technology
- iii) President's Office-Regional Administration and Local Government
- iv) Representative from e- Government Authority
- v) Representative from e- Government Authority of Zanzibar
- vi) Representative from Business Registrations and Licensing Agency (BRELA)
- vii) Representative from Bank of Tanzania (BoT)
- viii) Representative from the Tanzania Communication Regulatory Authority (TCRA)
- ix) Representative from ICTC
- x) Representative from PDPC
- xi) One representative from public higher learning institution
- xii) One representative from private higher learning institution
- xiii) One representative from Vocational Education & Training Authority (VETA)
- xiv) Representative from Tanzania Mobile Network Operators Association (TAMNOA)
- xv) Representative from the Commission of Science and Technology (COSTECH)
- xvi) Representative from Tanzania Private Sector Foundation (TPSF)
- xvii) Representative from Tanzania Chamber of Commerce, Industry and Agriculture (TCCIA)
- xviii) Representative from Zanzibar National Chamber of Commerce (ZNCC)
- xix) Representative from Civil Society Organization (CSO)

5.2.3 AI Observatory Unit

The AI Observatory Unit will be hosted at the Tanzania ICT Commission and its role will be to monitor the implementation process of the national AI strategies and report to the MCIT and National Technical Advisory Committee. In the performance of its functions, the Unit will be able to co-opt members from the public and private sectors on an ad-hoc basis in relation to the activities being conducted. A sectoral AI expert competency inventory will be created, and necessary activities will be coordinated to meet the needs in line with strategic priorities.

6.0 RISK AND MITIGATION STRATEGIES

This National AI Strategy Framework, enhanced by the National AI guidelines, will guide all sectors in the country on how to responsibly develop and use AI in their domains. To ensure this happens, it is essential to identify potential risks and initiate appropriate response processes.

The Strategic Framework recognizes six categories of risks that may affect its implementation, which are: **Strategic Layer, Governance & Compliance Layer, Technical Layer, Operational Layer, and Monitoring & Feedback Cycle risks.** Recognizing these risks allows for the implementation of effective measures to manage them, maximizing the benefits from the AI ecosystem while minimizing any potential harm.

6.1 Risk Identification

Table 4 indicates the associated risk category to the risk factor:

Table 4: Risk Factor Identification

Risk Factor	Risk Category				
	Strategic Layer	Governance & Compliance Layer	Technical Layer	Operational Layer	Monitoring & Feedback Cycle
Alignment Risk	✓				
Change Management				✓	
Data Risk			✓		
Ethical risk		✓			
Feedback Loops					✓
Funding Shortfall				✓	
Integration Risk				✓	
Regulatory Risk		✓			
Security Risk			✓		
Slow Adoption by the Private Sector			✓		
Talent Risk				✓	
Value Realization	✓		✓		

6.2 Risk Management Process

Figure 2 outlines the risk management process:

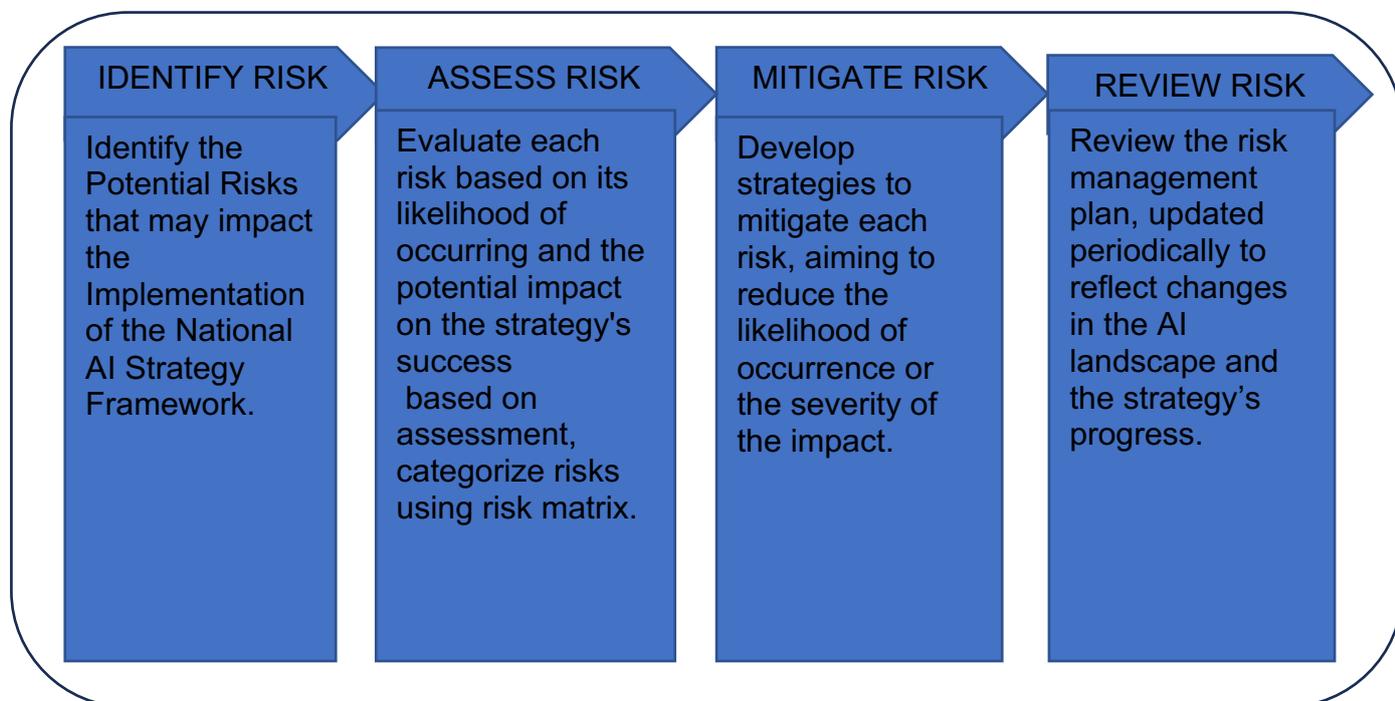


Figure 2: Risk Management Process

6.3 Risk Factors and Outcomes

Table 5 associates the risk factors with outcomes:

Table 5: Risk Factors and Outcomes

Risk Factor	Description	Likelihood	Impact	Mitigation Strategy	Risk Rating
Alignment Risk	AI initiatives not aligned with business goals	Medium	High	Regular strategic reviews of business goals	High
Change Management	Resistance from staff, lack of AI adoption	Medium	High	Training, communication, and AI literacy programs	High
Data Risk	Poor data quality, insufficient or biased data	Medium	High	Invest in data governance, diverse and representative datasets	High
Ethical risk	AI decisions	High	High	• Develop and	Medium

	lacking fairness, accountability, and transparency			implement robust AI ethics principles. <ul style="list-style-type: none"> • Establish clear and transparent regulatory frameworks. • Conduct public awareness campaigns to promote trust in AI. 	
Feedback Risk	Poor feedback mechanisms for continuous improvement	Medium	Medium	<ul style="list-style-type: none"> • Use dashboards or alerts to track model performance over time (accuracy, errors, etc.) • Have humans review AI decisions regularly, especially in high-risk areas. 	Medium
Funding shortfall	Insufficient resources allocated for implementing the strategy.	Medium	High	<ul style="list-style-type: none"> • Secure additional funding from the public and private sectors. • Prioritize initiatives based on cost-effectiveness. • Explore innovative financing mechanisms (e.g., public-private partnerships). 	High
Integration Risk	Difficulties in integrating AI into existing workflows	Medium	Medium	Cross-functional planning, API-first development	Medium
Performance Drift	AI models degrade over time or lose relevance	Medium	Hugh	Ongoing monitoring, automated retraining	High

Regulatory Risk	Non-compliance with AI-related laws (e.g. PDPC Act, Cyber Security Act)	Medium	High	Involve legal early, implement compliance-by-design	High
Security Risk	Vulnerability to cyberattacks or data breaches	High	High	Implementing robust cybersecurity measures	High
Slow Adoption by the Private Sector	Limited private sector interest in investing and adopting AI technologies.	High	High	<ul style="list-style-type: none"> • Develop tax incentives and conducive environment to attract private investment. • Partner with industry associations to address adoption challenges. 	High
Talent Risk	Lack of skilled professionals to build and manage AI	High	High	Hire/partner strategically, upskill existing workforce	High
Value Realization	Difficulty in quantifying AI ROI or outcomes	High	High	Define clear KPIs, and use pilot programs	High
Model Risk	Inaccurate, outdated, or overfitted models	Medium	High	Regular model validation and retraining	High

7.0 MONITORING, EVALUATION, LEARNING AND ADAPTATION

Monitoring, Evaluation, Learning, and Adaptation (MELA) is a comprehensive framework designed to track the progress of the implementation, ongoing improvement, and accountability of the National AI Strategy framework. Within this National AI Strategy framework, MELA provides a structured method to track progress towards strategic objectives, assess impact, and generate evidence to support decision-making. The framework integrates learning and adaptation into the process to ensure the strategy remains responsive to emerging challenges, technological advancements, and available limited national resources to serve increasing economic and social demands. This approach fosters a culture of innovation, transparency, and results-focused management, enhancing the effectiveness and sustainability of AI adoption across sectors.

The Ministry of Communication and Information Technology (MCIT), through the Tanzania AI Observatory, will be responsible for steering the MELA framework in close collaboration with other stakeholders responsible for the implementation of this strategy. Each sector will establish a monitoring, evaluation, learning, and adaptation framework that will be linked to the MCIT. The emphasis will be on generating, using, and linking relevant data to meet the needs of different stakeholders. Monitoring shall be done through meetings, specific and general reports, supervision, and inspections.

7.1 Purpose of the MELA framework

The purpose of the MELA framework is to:

- a) **Track and Measure Progress**
Keep track of the implementation progress of the strategy by facilitating review of the performance against defined strategic objectives and sector targets.
- b) **Generate Evidence and Insights**
Evaluate the impact of AI policy frameworks, guidelines, and programs, producing reliable data and lessons learned to guide strategic decisions and resource allocation.
- c) **Foster Continuous Learning**
Create mechanisms for capturing experiences, innovations, and best practices that can inform improvements and adaptation over time.
- d) **Enable Adaptive Management**
Ensure the strategy framework remains responsive and flexible, adjusting priorities and interventions in line with technological developments, stakeholder feedback, and emerging national needs.

7.2 Objectives of the MELA framework

The overall objective of this MELA framework is to guide implementation of the National AI Strategy framework by tracking progress, assessing impact, learn from experience, and adapting to ensure that the strategy framework delivers effective and sustainable results. Also, it is to strengthen accountability and transparency by ensuring all stakeholders have a clear understanding of the progress, performance, and use of resources in implementing the National AI Strategy framework.

7.3 Monitoring and evaluation indicators

A list of both quantitative and qualitative indicators has been developed to track the progress towards achieving the strategy objectives. These will be reviewed annually to meet additional information requirements necessitated by the new developments. Specifically, baseline data will be collected and updated as a benchmark for the strategy implementation monitoring.

At each particular implementation period, internal and external evaluations will be undertaken to review the implementation of the strategy. The internal evaluation system assesses systematically and objectively the relevance, processes, and performance of the National AI Strategy Framework. The general objective of evaluation is to determine the relevance, effectiveness, and impact of strategy on the physical environment, social, political, and economic development of the country.

7.4 Monitoring and evaluation tools and deliverables

The output and deliverables of the MELA system of the National AI Strategy Framework will be as follows:

- a) Periodic (monthly, quarterly, or annual) monitoring reports tracking progress against key indicators and milestones, thus making the strategy a living document.
- b) Mid-term and final evaluation reports measuring effectiveness, impact, and lessons learned over the strategy's lifespan.
- c) Learning reports and knowledge products summarizing insights, best practices, and case studies from different studies to inform stakeholders and guide improvements.
- d) Revised action plans or policy adjustments based on evidence and evaluation findings.
- e) Documented consultations, workshops, and feedback sessions capturing stakeholder perspectives and commitments. Further updates can be obtained through the implementation reports of the Client Service Charter.

These will indicate progress on the implementation of the strategy objectives and their targets.

7.5 Monitoring, Evaluation, Learning, and Adaptation reports

Table 6 highlights the report types that indicate the content required and frequency of reporting.

Table 6: MELA Report Types

Report Type	Purpose	Frequency	Key Contents
Monitoring Report	Track progress against plans, indicators, and milestones	Monthly or quarterly	<ul style="list-style-type: none"> Activities completed- Progress on targets- Challenges and risks- Immediate actions
Evaluation Report	Assess performance, outcomes, and impact	Mid-term and Final	<ul style="list-style-type: none"> Relevance, effectiveness, efficiency, impact, sustainability- Lessons learned- Recommendations
Learning Report / Knowledge Brief	Capture and share lessons, good practices, and insights	Annually or after major milestones	<ul style="list-style-type: none"> Success stories- Challenges and lessons learned- Policy implications- Next steps
Adaptation and Revision Report	Document strategy updates and adjustments	As needed	<ul style="list-style-type: none"> Rationale for change- Proposed revisions- Resource implications- Updated implementation plans
Stakeholder Feedback Report	Summarize consultations and stakeholder input	Periodically or linked to reviews	<ul style="list-style-type: none"> Feedback received- Analysis of input- Recommendations for integration into strategy

The Ministry of Communication and Information Technology (MCIT), being the custodian of the strategy, will require the following reports:

- a) MDAs, Regional, LGAs, and independent institutions evaluation reports;
- b) Departmental weekly reports;
- c) MCIT Management monthly reports;
- d) MCIT quarterly, mid-year and annual reports;
- e) Annual reports; and
- f) Reviews and survey reports.

ANNEX: AI USE CASES

To align with the digital transformation initiatives, the strategy outlines AI use cases in various social and economic sectors in order to create harmony, encouraging ethical innovation and guidance on areas of investment in AI through meaningful engagement with public and private sectors. Among existing AI tools are Health AI (maternal/child health risks, diabetic retinopathy screening), Machine learning program for school attendance; AI for Pneumonia Detection: Mobile app analyzing chest x-rays; Soil quality assessment using gamma ray sensors; and AI for early breast cancer detection, AI for Rabies screening & outbreak prediction, AI for TB screening in HIV patients, AI in detection of dilated cardiomyopathy.

Noting that AI efforts are currently implemented in silos, it is therefore a challenge to understand the impact of responsible development and usage of AI nation-wide. To accelerate meaningful AI adoption, the strategy framework emphasizes the need to prioritize and showcase AI applications in key sectors. The AI use cases will enable both public and private sector participation, including the availability of dedicated government funding and incentive mechanisms for pilot projects in these sectors. Public-private partnerships will bring together technical expertise, share data appropriately, and increase investment. It will enhance open calls and challenge funds to encourage investments, assist innovation from startups, support research institutions, and involve civil society.

Showcasing success stories in these sectors will build public trust, demonstrate the value of AI in solving local challenges, and serve as a model for scalable, inclusive digital transformation.

Following Stakeholder workshops that were conducted, the following are some use cases in the various economic and social sectors that could benefit from the use of AI platforms and systems to enhance efficiency and higher productivity, including better service delivery.

Healthcare

- **Disease surveillance to enable follow-up:** Utilizing AI to monitor disease cases over time, ensuring timely follow-up for patients and tracking disease progression for better management.
- **Disease outbreaks:** Detecting and analyzing patterns of emerging health threats rapidly using AI to identify outbreaks early and initiate appropriate responses.
- **Data dashboard to enhance agile planning, monitoring and decision making:** Implementing real-time AI-driven dashboards that visualize health data, supporting swift decision-making and adaptive planning.

- **Interoperability of system using AI for diagnosis and reporting mechanism:** Integrating diverse health systems with AI to facilitate seamless diagnosis, data sharing, and reporting across platforms.
- **AI predicting possible diagnosis of particular reported outbreak and communicated to decision maker for urgent remedial action:** AI analyzing outbreak reports to suggest probable diagnoses, enabling prompt action by health authorities.
- **AI using IoT to monitor occupational health hazards in real time:** Combining AI with IoT devices to continuously monitor workplaces for hazards, ensuring immediate alerts and safety measures.
- **Predictive analysis using AI to suggest preventive measures:** AI analyzing health data to recommend preventive strategies before disease occurrence or escalation.
- **To train data for AI usage in health (afya) call centre to strengthen use of health information and communication:** Developing datasets to improve AI-powered call centers that provide health advice, information, and triage support.
- **Demand prediction of health commodities using AI, to reduce stockout and overstocking:** Using AI forecasts to optimize inventory of medicines and supplies, ensuring availability without excess.
- **Integration of AI in bio-ethics training and standards:** Incorporating AI tools into bio-ethics education to enhance understanding and adherence to ethical standards in health research and practice.
- **AI-powered diagnostic systems for early detection of diseases like malaria, tuberculosis, and cervical cancer:** Deploying AI tools to analyze diagnostic data early, increasing detection rates of specific diseases.
- **Predictive analytics to forecast disease outbreaks and optimize resource allocation:** Using AI models to anticipate outbreaks, enabling efficient distribution of healthcare resources.
- **Virtual health assistants and chatbots to support remote consultations and health education in underserved areas:** AI-driven virtual agents providing medical advice and health information to populations with limited access to healthcare services.
- **Medical imaging analysis to assist radiologists in detecting anomalies in X-rays and scans:** AI systems that automatically identify abnormalities in medical images, aiding radiologists in diagnosis.
- **Use of AI for event-based surveillance of outbreak-prone diseases, reducing average time to triage for submitted alerts:** AI analyzing real-time event data to quickly triage and prioritize disease alerts, speeding up response times

Finance

- **Credit scoring (by banks):** Using AI algorithms to evaluate an individual's creditworthiness based on various data points, enabling faster and more accurate lending decisions.
- **Personalisation of services to customer:** Applying AI to tailor financial products, recommendations, and communication to each customer's preferences and behavior, enhancing customer engagement.
- **Sanction screening (funds):** Utilizing AI to automatically screen transactions against sanctions lists, preventing illegal or unauthorized fund transfers.
- **eKYC:** Employing AI-powered digital identity verification processes, allowing customers to authenticate their identities remotely, streamlining onboarding.
- **AML (Anti-Money Laundering):** Implementing AI systems to detect suspicious transactions and patterns indicative of money laundering activities, strengthening compliance efforts.
- **Financial stability analysis:** Using AI to monitor economic indicators and financial data to assess and predict systemic risks that could impact financial stability.
- **Churn prediction:** Applying AI models to identify customers likely to close accounts or stop using services, enabling targeted retention strategies.
- **AI-based credit scoring models for underserved populations without traditional credit histories:** Developing alternative AI-driven models that assess creditworthiness using non-traditional data sources, increasing financial inclusion.
- **Fraud detection systems for mobile money and digital banking platforms:** Leveraging AI to identify and prevent fraudulent activities in real-time, protecting customer assets and platform integrity.
- **Chatbots and virtual agents for customer service in local languages:** Using AI-powered chatbots to provide accessible, 24/7 customer support in multiple languages, improving service quality.
- **Use of AI to improve mobile money customer experience:** Applying AI to personalize interactions, streamline transactions, and resolve issues efficiently, enhancing overall user satisfaction.
- **AI technologies are increasingly being leveraged by Mobile Money Service providers, Banks, FinTechs and Audit firms to enhance financial services, drive data-driven decision-making, credit scoring and improve risk management:** Broadly, AI is transforming the financial sector by enabling smarter risk assessments, personalized services, fraud prevention, and operational efficiency across various institutions.

Education

- **Curriculum integration at all levels from early childhood development to tertiary level education on AI including critical thinking, data literacy and ethics:** Embedding AI topics across educational stages to foster understanding of AI concepts, promote critical analysis, and highlight ethical considerations from an early age through higher education.
- **Upskilling of educators in AI:** Providing training and professional development for teachers and educators to enhance their understanding and teaching capacity in AI technologies and methodologies.
- **Develop and operationalise AI Competency framework for teaching and learning:** Creating and implementing a structured framework that defines the skills, knowledge, and attitudes required for effective AI-enabled education practices.
- **Equitable access insuring inclusive digital infrastructure and localized learning:** Ensuring all learners have access to reliable digital tools and resources, tailored to local contexts, to promote fairness and inclusivity in AI-driven education.
- **Strengthen AI research and innovation in educational institutions, including funding, partnerships and policy incentives:** Supporting research initiatives and innovative projects through funding, collaborations, and policies to advance AI in education.
- **Ensure that all AI applications comply with national legal frameworks and adaptable international standards:** Making sure AI tools used in education adhere to relevant laws and can align with international best practices for safety and ethics.
- **Ensure that the development, implementation and evaluation of AI initiatives/applications in education are aligned with the broader national education goals and values as per educational policies and strategies:** Aligning AI projects with national education priorities and values to support cohesive policy implementation and sustainable development.
- **Assess and attract investment for digital infrastructure to ensure that they support the implementation of AI:** Evaluating current infrastructure needs and attracting investments to build robust digital systems capable of supporting AI integration in education.
- **AI solutions to have IPR:** Ensuring that intellectual property rights are secured for AI tools and applications developed for educational purposes, protecting innovations and creators.
- **Student performance prediction and early intervention tools to improve learning outcomes:** Utilizing AI to analyze student data for early detection of learning challenges and providing targeted interventions to enhance academic success.

- **Personalized learning platforms that adapt content to individual student needs:** Developing AI-driven systems that tailor educational content and pacing based on each student's abilities, preferences, and progress.
- **Automated grading systems for assignments and assessments:** Implementing AI tools to efficiently evaluate student work, providing quick feedback and reducing manual grading efforts.
- **Natural language processing (NLP) tools for translation and local language learning content development:** Using NLP technologies to translate educational materials and create content in local languages, promoting accessibility and linguistic inclusivity.

Agriculture and Fisheries

- **Acquisition of climate data, analysis of the datasets, and creation of accurate models to predict changes in climate. This will enable mitigation and adaptation to protect our people against climate-induced effects:** Gathering and analyzing climate data to develop reliable models that forecast climate changes, helping farmers and communities adapt and implement strategies to mitigate adverse impacts.
- **Interactions between soil health variables with other variables such as weather patterns and quality of water to improve crop performance, farm productivity, and utilization of natural resources. [precision agriculture]:** Studying how soil health interacts with weather and water quality to optimize crop growth, increase yields, and make efficient use of natural resources through targeted farming practices.
- **Capturing of remote sensing and UAV images of fields, and analysis of the images to detect undesirable situations such as wildfires, poaching, pests and diseases. This will enable early and proactive interventions to minimize losses:** Using aerial imagery from satellites and drones to monitor fields for threats like pests, diseases, or environmental hazards, allowing timely responses to prevent extensive damage.
- **Deployment of data sensors to acquire air and water quality monitoring data for identification of sources of pollution and predict new occurrences. This will enable timely implementation of environmental interventions:** Installing sensors to continuously monitor air and water quality, helping identify pollution sources and forecast future issues for prompt environmental management.
- **Remote sensing and drone-based monitoring for crop health analysis, irrigation planning, and yield prediction:** Utilizing drones and satellite imagery to assess crop vitality, optimize irrigation schedules, and forecast harvest yields, leading to more efficient farm management.
- **AI-driven pest and disease detection using smartphone apps and image recognition:** Developing mobile applications that analyze photos of crops to

identify pests and diseases early, enabling quick treatment and reducing crop losses.

- **Climate and weather prediction models to support adaptive farming practices:** Creating AI-powered models to forecast weather patterns, helping farmers plan planting, irrigation, and harvesting activities in response to changing climate conditions.
- **Market intelligence platforms for pricing trends and demand forecasting:** Using AI to analyze market data, providing farmers with insights into pricing trends and consumer demand to optimize sales and profitability.
- **Use of AI to provide farmers with advice on fertilizers, tools, and disease management:** Offering personalized recommendations based on data analysis to help farmers select appropriate inputs and practices for optimal crop health.
- **Use AI-based apps to diagnose poultry or crop diseases where farmers upload photos of symptoms and receive real-time advice, medication guidance, and supplier contacts:** Implementing mobile tools that analyze images of sick animals or plants to provide instant diagnosis, treatment options, and contact information for supplies.
- **Precision agriculture, where AI-powered drones are used to survey fields to monitor plant health, map nutrient deficiencies, and guide irrigation:** Employing drones equipped with AI to perform detailed field surveys, identifying issues like nutrient gaps and guiding targeted irrigation to enhance productivity

Cultural Heritage & Tourism

- **AI-based language translation and transcription tools to preserve indigenous languages:** Utilizing AI technologies to translate, transcribe, and document indigenous languages, supporting their preservation and making them accessible to wider audiences.
- **Virtual reality (VR) and augmented reality (AR) experiences powered by AI for cultural tourism:** Creating immersive VR and AR experiences that bring cultural sites and artifacts to life, enhancing visitor engagement and education through AI-driven authenticity and interactivity.
- **Digital archives and restoration tools for preserving historical artifacts and documents:** Using AI to digitize, analyze, and restore historical artifacts and documents, ensuring their preservation for future generations and facilitating research.
- **AI-enhanced content recommendation systems for tourism apps and platforms:** Implementing AI-driven algorithms that suggest personalized travel itineraries, cultural experiences, and attractions to tourists, improving their overall experience and engagement

Media, Creative and Entertainment

- **AI-powered analytics tools help media companies understand their audience demographics, preferences, and behavior:** Using AI to analyze viewer data, media organizations can gain insights into audience age, interests, and consumption patterns, enabling them to tailor content and improve engagement.
- **AI-powered platforms aggregate and curate local news content from various sources across Tanzania, providing users with news updates tailored to their interests and location:** AI-driven systems gather news from multiple outlets, personalize updates based on user preferences and geographic location, ensuring relevant and timely information delivery.
- **AI-powered tools are employed to generate content in Swahili and other local languages, catering to the diverse linguistic landscape of Tanzania:** Utilizing AI language generation, media creators can produce articles, scripts, and multimedia content in local languages, making media more accessible and inclusive.
- **AI algorithms are utilized to detect and prevent copyright infringement in the media and entertainment industry in Tanzania:** Implementing AI-based detection systems helps identify unauthorized use of copyrighted material, protecting creators' rights and maintaining industry integrity.

Energy

- **Use of AI technologies through the distribution and transmission network to allow for faster and better collection of data from source for better insights:** AI-enabled systems gather real-time data across the grid, enabling quicker analysis and improved decision-making for efficient energy management.
- **Customer services utilising AI to generate information that is acted upon in real-time speed with accuracy:** AI-driven customer support tools provide instant, accurate information and responses, enhancing user experience and operational efficiency.
- **The use of AI to do predictive maintenance, and condition-based maintenance that can be more accurate, more efficient, and more cost-effective:** AI algorithms predict equipment failures before they occur, allowing maintenance to be scheduled proactively, reducing downtime and costs.
- **Using AI to optimize grid operation and enhancing the capacity of existing transmission and distribution lines, as well as extending the lifetime of existing equipment:** AI helps balance load, improve efficiency, and prolong equipment lifespan, maximizing the use of current infrastructure.
- **AI being used to optimize demand side management in ways that are not easily done by humans:** AI analyzes vast data sets—considering factors like

time, location, weather—to dynamically adjust energy consumption and distribution, improving grid stability and efficiency.

- **For renewable energy that is intermittent, AI can be used to generate an accurate yield projection:** AI models identify patterns to forecast energy output from renewables more precisely, helping to balance supply and demand and optimize overall energy production across the country

Transportation & Urban Planning

- **AI-powered traffic management systems to reduce congestion in major cities:**
These systems utilize AI algorithms to monitor real-time traffic conditions, predict congestion patterns, and dynamically adjust traffic signals and routing suggestions. The goal is to improve traffic flow, decrease travel times, and reduce vehicle emissions in densely populated urban areas.
- **Predictive maintenance for public transportation and logistics infrastructure:**
AI models analyze data from sensors and operational records to forecast equipment failures before they occur. This proactive approach ensures timely repairs, minimizes service disruptions, extends the lifespan of infrastructure, and reduces maintenance costs for buses, trains, and logistics facilities.
- **Route optimization for delivery services and emergency response vehicles:**
AI-driven algorithms calculate the most efficient routes considering current traffic conditions, delivery priorities, and emergency situations. This enhances the speed and reliability of deliveries and emergency responses, reducing fuel consumption and ensuring timely service delivery

Environmental Conservation

- **AI-driven models for climate change prediction and mitigation strategies:**
These models analyze vast amounts of environmental data to forecast climate patterns, temperature changes, and extreme weather events. They help policymakers develop effective mitigation strategies and adapt to changing conditions by providing accurate, data-driven insights.
- **Real-time monitoring of deforestation and land degradation using satellite imagery and AI:**
AI algorithms process satellite images to detect and track changes in forest cover and land quality over time. This enables rapid identification of illegal logging, land conversion, and degradation, supporting conservation efforts and sustainable land management.

- **Wildlife protection through AI-based camera traps and tracking systems:**

AI-powered camera traps and tracking devices automatically identify and monitor animal species, behaviors, and movements. This technology aids in wildlife conservation by providing critical data on population health, migration patterns, and threats such as poaching

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