REPUBLIC OF KENYA

MINISTRY OF INFORMATION, COMMUNICATIONS AND THE DIGITAL ECONOMY

GUIDELINES ON MANAGEMENT OF ICT RESOURCES IN MINISTRIES, DEPARTMENTS, AGENCIES AND COUNTIES (MDACs)

www.ict.go.ke

September 2024

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1 PREAMBLE

The Government of Kenya recognizes ICT as a key driver of economic growth, social development and national transformation. The constitution mandates the prudent and responsible use of public funds, as well as the efficient and effective use of public resources. ICT is crucial in ensuring that the public sector remains responsive and accountable to citizens by delivering high-quality, transparent services.

The fragmented and uncoordinated acquisition, management and support of ICT services lead to inefficiencies in service delivery, difficulties in data sharing, security risks, illegal and unauthorized software use, duplication of efforts, unresponsive systems, inconsistent technology standards, an inability to leverage economies of scale and increased ICT investment costs.

These guidelines aim to establish a standardized and coordinated approach to leveraging ICT for improved service delivery. They are intended for use by all ministries, departments, agencies and counties. The guidelines are designed to enhance the management of ICT projects and investments across the government in a cost-effective manner. Additionally, they promote a Whole of Government Approach (WoGA) in adopting ICTs within MDACs, leading to improved government operations and Public service delivery.

Principal Secretary
State Department for ICT and Digital Economy

2 DEFINITION OF TERMS

APIs	Application Programming Interface
CTO	Chief Technology Officer
ICT	Information Communication Technology
GEA	Government Enterprise Architecture
GIF	Government Interoperability Framework
IC&DE	Information Communication & Digital Economy
MDACs	Ministries, Departments, Agencies and County

3 MANAGEMENT OF ICT FUNCTION AND INITIATIVES IN MDACs

The Ministry of ICT and Digital Economy, State Department for ICT and Digital Economy, is in charge of managing ICT functions in the government. It has three technical directorates: E-Government & Digital Economy, Infrastructure and Security & Audit, each headed by an ICT Secretary.

To ensure ICT is strategically positioned for impactful leadership in enhancing public service delivery through ICT, a Directorate of ICT was established in all State departments to be headed by a Director ICT who shall report to the Accounting Officer and works with technical departments to align ICT with the institution's Strategic Plan goals, objectives and National ICT policies among other roles.

3.1 Roles of State Department for ICT and Digital Economy

The State Department for ICT and Digital Economy, as mandated by Executive Order No. 1 of 2023, is responsible for providing strategic guidance on the implementation of the government's digital agenda. In carrying out this mandate, the department will guide the implementation of the Government Enterprise Architecture, Government Infrastructure Architecture and Government Security Architecture. Additionally, it will establish inter-agency coordination mechanisms to facilitate collaboration and information sharing among various government departments and agencies.

Specifically, the State Department will undertake the following;

i) **Centralized Planning and Coordination:** The SDICT&DE will be responsible for coordinating government-wide ICT initiatives which include E-government, Infrastructure and Security projects across government agencies, while also advancing the digital economy. It will ensure that approvals for ICT initiatives for individual agencies is given in time so as to ensure this efforts align with broader government objectives, minimizing duplication and optimizing the use of ICT shared services.

ii) **Digital Systems, applications, security and infrastructure Standardization:** The SDICT&DE will oversee and coordinate standardized architecture principles and best practices for data centers, hosting infrastructure, systems and applications. This includes standardizing hardware, software and applications, networking protocols and security measures to streamline operations, enhance system interoperability and reduce redundancy across government agencies.

iii) **Shared Services:** Oversee and coordinate the consolidation of data center facilities and the adoption of shared service models by pooling resources and sharing systems and platforms. This approach will include systems and applications to avoid duplication of investments in hardware, software and personnel.

iv) **Digital Lifecycle Management:** The SDICT&DE will implement lifecycle management practices to regularly assess and rationalize existing systems, infrastructure assets and security tools and solutions. This includes retiring outdated equipment and systems, consolidating redundant resources and reallocating resources to high-priority initiatives.

v) **Governance and Oversight:** The SDICT&DE will implement governance mechanisms to monitor compliance with GEA guidelines and address instances of duplication. This will include conducting regular audits and performance reviews to ensure accountability and effective utilization of funds in the MDAs.

vi) **Knowledge Sharing and Collaboration:** The SDICT&DE will facilitate knowledge sharing and collaboration among government agencies to promote awareness of existing ICT investments and ongoing projects.

vii) **Resource Allocation Based on Need:** The SDICT&DE will oversee and guide the ICT sector on resource allocation. This will ensure alignment with the ICT strategy and priority areas.

viii) **Continuous Improvement:** The SDICT&DE will foster a culture of continuous improvement by actively seeking feedback from stakeholders, conducting comprehensive post-implementation reviews and adapting guidelines based on lessons learned and evolving requirements.

ix) **Interoperability Standards and APIs:** Promote the use of interoperability standards and APIs to enable seamless integration and data exchange between e-government systems, enhancing collaboration and reducing duplication. Implement enterprise-wide data governance policies to ensure data quality, consistency, security, and privacy across all e-government initiatives. Establish data standards, metadata management practices and data sharing agreements to prevent the creation of duplicate or conflicting data sets.

x) **Enterprise Architecture Reviews and Compliance:** Regularly review e-government projects to ensure compliance with GEA guidelines and identify instances of duplication. This includes assessing project proposals, architecture designs and implementation plans against established standards and best practices.

xi) **ICT Audit and Control:** The SDICT&DE will develop a standardized gap assessment and analysis tool to be used by MDACs for conducting ICT resources gap assessments and analysis. This tool will provide a consistent framework for evaluating ICT resources across different MDACs.

xii) **Digital innovation**: The State department for ICT and Digital Economy is promoting and supporting the digital innovation to contribute to its economic growth and social development. The State Department will create an enabling digital innovation ecosystem by establishing digital innovation policies, strategies and legal frameworks.

xiii) **Data Management**: To align and consolidate data management in public institutions, a centralized data governance framework is essential. This framework should establish clear policies, standards and procedures, while a robust data management platform can streamline processes, improve data quality and ensure consistency. Investing in data management infrastructure and training personnel will create a more efficient and effective data ecosystem

3.2 Roles of MDAC

The Government thus directs all Public Institutions including Ministries, Independent Departments, Regional Secretariats, Government Agencies/Authorities, Parastatal Organizations, Public Corporations and other Government autonomous or semi-autonomous institutions are directed to adhere to these guidelines and associated technical standards

provided for in this document. These guidelines and technical standards will be regularly updated and published based on technological changes, business needs and requirement of the Government.

4 DOMAIN AREAS FOR THE ICT GUIDELINES

The Ministry of ICT and DE has classified guidelines domain areas as follows: ICT function, Strategies, ICT Policies, Government Enterprise Architecture, ICT Infrastructure, ICT Security, ICT funding, Data Management and Digital innovation.

4.1 Guidelines on management of ICT function in MDACs

The MDACs shall;

i) Establish ICT Directorate/Department/Unit to be headed by a Director/CTO and reports directly to the Accounting Officer.

ii) Constitute and operationalize ICT steering committee to oversee all ICT initiatives and funding. The committee will comprise of the following;

  a) Accounting officer or alternate appointee as the chair
  b) Head of Finance or/and Accounting, Procurement

c) Head of technical departments
d) ICT head /CTO as secretary to the committee.
e) Any other member as deemed necessary.

The Steering committee shall;

iii) Ensure that, ICT Department/Directorate/ Section/ Unit, works in close collaboration with MIC&DE for ICT programme and portfolio management.
iv) Promote and drive the MDACs digitalization initiatives.
v) Promote digital innovations, research, business transformation and knowledge management strategies that accelerate technology adoption
vi) Oversee the implementation of ICT policies, strategies, governance standards and programmes
vii) Oversee the implementation business continuity & disaster recovery strategies;
viii) Conduct regular self-assessment on ICT initiatives to measure compliance level on these guidelines and standards for ICT
ix) Oversee the management of the ICT resources

4.2 ICT Strategy

There is a notable increase in ICT investment and adoption in the public sector; however, most MDACs lack an ICT strategy to provide a roadmap for strategic ICT activities, investments, projects and outcomes. The absence of such a strategy results in some ICT investment decisions being inconsistent and misaligned with the MDACs' business strategic goals and objectives.

For guidelines, MDACs shall;

i) In consultation with the Ministry of ICT and Digital Economy, Develop and implement an Institutional ICT Strategy.
ii) In planning the ICT strategy, MDACs will clealy define ICT vision, assess current situation, determine institution ict priorities and objectives in participatory process.
iii) Ensure that all ICT (investments, projects and resource allocations are prioritized and aligned with MDACs strategic goals and objectives, National ICT strategy, Kenya National digital Masterplan 2022-2032 and Vision 2030
iv) Constitute ICT strategy development committees with membership drawn from the MDACs executive leadership, management, technical, operational staffs and other relevant sector stakeholders.
v) Monitor, evaluate and periodically update the ICT Strategy based on prevailing changes in internal and external business environments.

4.3 ICT Policies

While several MDACs have developed and implemented institutional ICT policies, a significant number have yet to do so. The absence of relevant policies governing the acquisition, management and use of ICT resources is contributing to inefficient and inadequate utilization of these resources within their respective institutions.

For guidelines, MDACs shall;

i) All MDACs are required to develop and implement institution's ICT policy that is aligned to the National ICT policy 2019 and Kenya Vision 2030.

ii) Establish the policy development committee

iii) Undertake the policy initiation and formulation comprehensively and participatory with all stakeholders.

iv) Ensure policy statements on Government ICT Architectures (Government Enterprise Architecture, Government Infrastructure Architecture, Government Enterprise Security Architecture and Government Interoperability Framework) are defined clearly and are aligned to Kenya ICT development goals and objectives.

v)

vi) Launch, publicize and implement the ICT policy to all stakeholders.

vii) Monitor, evaluate and update the ICT Policy periodically based on changes in business and processes to reflect and/or align to changes in both the internal and external environments

4.4 Government Enterprise Architecture (GEA)

The Ministry of ICT and Digital Economy has developed the Government Enterprise Architecture (GEA) to provide guidance on the implementation of ICT functions within the government.

Enterprise Architecture (EA) is a logical framework that outlines a business's processes, supporting data, applications and IT infrastructure, with clearly defined goals and objectives for future success. It's a widely used approach to plan and implement efficient and effective transformation initiatives.

4.4.1 Government Commitment to e-Governance

At the policy level, the Government is committed to improving public service delivery through e-Governance.

While the e-Government Mission aims to transform government operations using ICT, it's crucial to acknowledge the challenges posed by large, complex government structures. Individual MDACs often operate within their respective jurisdictions, leading to fragmented processes and duplicated e-Government systems.

4.4.2 The Role of Government Enterprise Architecture (GEA)

To address these challenges and drive effective transformation, the Government has adopted a Government Enterprise Architecture (GEA) framework. GEA provides a comprehensive approach to understanding the current state of government operations and planning for future improvements.

4.4.3 Benefits of Adopting GEA:

By adopting GEA, the Government can:

- Gain a unified digital view of public institutions and the government as a whole.
- Understand current business processes in detail.
- Identify gaps and define new business processes that align with future goals.
- Leverage existing e-Government structures to maximize efficiency.
- Define information structures that meet current and anticipated needs.
- Demonstrate how technology and resource constraints impact feasibility and future direction.
- Address cross-cutting issues such as security, integration, access and governance.

4.4.4 Current Situation

E-Government initiatives within MDACs primarily focus on automating internal manual operations, neglecting the critical step of business process re-engineering. As a result, these initiatives are often limited in scope, confined to specific Ministries and Agencies. Public Institutions lack a cross-agency/ministry perspective, leading to a fragmented e-Government landscape with incompatible and unintegrated solutions.

Furthermore, there is insufficient alignment between Government strategy, priorities and e-Government projects implemented at various levels. This has resulted in some e-Government projects being driven by technology rather than business needs.

These guidelines are to direct MDACs to adopt Government Enterprise Architecture (GEA) as a framework for implementing e-Government services. To achieve a Whole of Government (WoG) approach through GEA, the Government is providing technical standards as a common language for developing and implementing institutional Enterprise Architectures.

For guidelines, MDACs shall;

i) All MDACs are required to adopt Government Enterprise Architecture while implementing e-Government services and systems.

ii) While implementing the GEA, MDACs shall adhere to Government Interoperability Framework (GIF)

iii) MDACs shall ensure availability of APIs to facilitate system integration with government and private entities in accordance with the laid guidelines.

iv) Develop, as deemed necessary, sectoral/institutional specific interoperability standards not covered by the GIF

v) Use Government designed service driven integration platform to exchange information across all institutions. However, an Institution or a Sector may require institutional/sector level integration platform to facilitate information exchange within an Institution/Sector. In this case MIC&DE shall be consulted for compliance and approval.

vi) Review technology implementations against the GEA and Government Interoperability Framework (GIF) whenever:
- A new, enhanced, or revised version of the GIF is released.
- There are new developments or upgrades to existing systems or applications.

vii) Ensure that all technology products and services intended for public use adhere to the Government Enterprise Architecture (GEA) and the Government Interoperability Framework (GIF).
- **ICT Acquisition**: All ICT investments by the MDACs must be aligned with an approved architecture and comply with the Government Enterprise Architecture (GEA) and Government Interoperability Framework (GIF). MDACs must consult with the Ministry of IC&DE for Approval, coordination, oversight and ensure sustainability of ICT investment and acquisitions, as per Executive Order No. 2 of 2023.
- **Interoperability Requirements:** MDACs must adhere to interoperability standards. The MIC&DE will ensure that systems and services deployed can seamlessly

communicate and exchange data. This will promote collaboration and prevent the development of isolated information silos.

- **Re-engineering of Public Entity Processes**: MDACs are required to document the current state (AS-IS) and develop desired future state (TO-BE) for all processes in collaboration with MIC&DE. This should be accompanied by comprehensive terms of reference that clearly outline the desired outcome . This approach is essential to ensure that developed systems can effectively serve all related institutions, aligning to the Whole of Government approach.
- **Approval of TORs:** The Project proposal/Concept and technical requirements shall be submitted by the implementing agency for review and approval by the Ministry of ICT & DE.
- **Managing change:** MDACs shall consult with the MIC&DE in the event of changes in technology or policy that may affect the interoperability of systems.

4.5 Digital Innovation

The Kenya Government is strategically embracing and adopting the digital innovation with view of improving public services delivery as well as having it contribute to its economic growth and social development. Digital innovation also is being used to improve customer experience and performance and to create new ICT sector business models in public and private sectors.

MDACs are encouraged to provide leadership and collaborate with private players in promoting digital innovation within their sector by identifying and sharing digital innovators and innovative solutions for government and private sector support.

For guidelines, MDACs shall;

i) Establish a digital innovation committee with membership drawn from agencies and non-state actors.
ii) Promote and organize the sector digital innovation hackathons in consultation with SDICT&DE
iii) Build, monitor, evaluate and regularly update sector innovators and innovations database.
iv) Regularly share with SDICT&DE their innovations for promotion, support and possible linkages with local or global innovation incubators.

4.6 Data Management

Data is a vital resource in today's competitive world as it provides valuable information that help businesses make better decisions and work more efficiently. MDACs play an important in collecting, collating, analysing, storing, retrieval and sharing of data. A major hurdle faced by MDACs is the difficulty in managing the growing amount of data from diverse sources. By breaking down data barriers and sharing information easily, MDACs s will have access to valuable insights and make smart decisions

For guidelines, MDACs shall;

i) Comply with the provisions of the Data Protection Act 2019
ii) Appoint data champions in their respective institutions.
iii) Coordinate the aggregation of data generated in their sectors into the Government primary and secondary data centers

iv) Prioritize digitization of records in MDACs to support the Government digitalization initiatives.

v) Promote and Coordinate sector ICT systems hosting in compliance with the Government data center and cloud services policies

4.7 ICT Infrastructure

4.7.1 Network Infrastructure

The government has made significant investments in ICT infrastructure that can be used by both public and private sectors. While this investment was well-intentioned, some MDACs have made separate infrastructure investments that are inefficient, redundant, and pose serious cybersecurity risks.

For guidelines, MDACs shall;

i) All MDACs are required to utilize existing ICT Infrastructure before engaging in any infrastructure investments.

ii) Proposed ICT Infrastructure must be aligned to ICT Infrastructure blue print plan

iii) All MDACs must seek authority from the State Department for ICT and Digital Economy before engaging in any ICT Infrastructure investments.

iv) MDACs will utilize the Internet bandwidth from the existing government Infrastructure as a primary link where there is an existing Infrastructure footprint and may consider other internet Service Providers (ISPs) as a secondary link.

4.7.2 Data Centre and Cloud Services

The government has invested in data centers to streamline management and reduce operating costs. However, MDACs have continued to invest in smaller data centers for their own applications. These isolated infrastructures lead to high operating expenses and significant security risks. The lack of a framework for utilizing these infrastructure investments prevents the government from adopting a unified approach to data center management, resulting in substantial capital and operating costs.

For guidelines, MDACs shall;

The State Department for ICT and Digital Economy has designated specific Data Centres as central repository for Government applications and systems in managed environment.

i) All MDACs are required to have their existing and future applications systems hosted or migrated to the designated government data centre.
ii) MDACs shall seek for approval to undertake any data Centre investments either on upgrade on new developments before any budget allocation.

4.8 ICT Security and Audit Control

ICT resources are susceptible to attacks from both internal and external sources. Information security standards vary across MDACs, and many lack information security strategies or policies. The Security Architecture is a unified security design specification aimed at addressing these challenges and supporting the government's goal of providing quality services to its citizens. As an essential component of the GEA, the Security Architecture is designed to:

i) Enable secure and efficient business transactions and service delivery.

ii) Ensure secure communications and adequate protection of information resources within MDACs.
iii) Comply with legal information security requirements related to confidentiality, integrity, and availability.
iv) Take advantage of opportunities for IT security synergies and economies of scale
v) Inform MDACs on ICT resources that are vulnerable.

For guidelines, MDACs shall;

i) Perform self ICT risk assessment to evaluate the business influence of vital business assets, likelihoods, effects of vulnerabilities and security threats.
ii) Develop and implement Institutional ICT Security Policy to guide the management of ICT Security in line with Government Security Architecture and Cyber Security Policy.
iii) Develop Business continuity and Disaster Recovery Plan.
iv) Review the Security Architecture in response to changes in various institutional plans and policies, advancements in technology, identification of new risks and enhancements made to the architectural framework.
v) During the development of the Security Architecture, institutions are mandated to comply with the interoperability standards outlined in the e-Government Interoperability Framework Technical Standards.
vi) Institutions may formulate industry-specific security standards for their respective sectors. Preference should be given to open standards over proprietary.

vii) Continuously review the security architecture in line with the 5Cs of Cybersecurity which is change, cost, continuity, compliance and coverage

4.9 Funding for ICT Related Projects Guidelines

Efficient management of ICT funds from the government and donors is essential to ensure resources are used effectively and support a unified government approach. Effective management of these funds is crucial for ensuring that investments contribute to a coherent, integrated and efficient government operation. The Ministry of ICT aims to maximize the impact of ICT investments by establishing a centralized governance framework and aligning ICT projects with strategic goals to streamline operations.

For guidelines, MDACs shall;

i) The MDACS in consultation with MIC&DE shall engage development partners and stakeholders, in conceptualization and planning of ICT related projects.
ii) The MDACs shall ensure that ICT related donor funded projects are aligned to ministerial strategies and national ICT strategies.
iii) The MDACs shall seek concurrence with the state department of ICT&DE in aligning these donor funded projects to the national ICT strategies and plans.
iv) In collaboration with State department of ICT&DE Establish inter-agency coordination mechanisms to facilitate collaboration and information sharing among different government departments and agencies.
v) Hold Regular coordination meetings and joint planning sessions will help ensure that ICT projects are integrated and aligned to overall government objectives.
vi) Conduct regular audits, and performance reviews to ensure accountability and effective utilization of funds.

5 APPENDICES

APPENDIX 1 – Government Enterprise Architecture (GEA): (https://www.icta.go.ke/ict-standards)

APPENDIX 2 – Government Interoperability Framework (GIF) https://www.icta.go.ke/ict-standards)

APPENDIX 3 – End User Computing Devices Standards https://www.icta.go.ke/ict-standards)

Issued by Ministry of Information, Communications and The Digital Economy

September 2024