



THE UNITED REPUBLIC OF TANZANIA
PRESIDENT'S OFFICE,
PUBLIC SERVICE MANAGEMENT
e-GOVERNMENT AGENCY



e-GOVERNMENT ARCHITECTURE VISION – STANDARDS AND TECHNICAL GUIDELINES

Document Number eGA/EXT/AVS/001



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Document Title

e-Government Architecture Vision –
Standards and Technical Guidelines

Document Number eGA/EXT/AVS/001

APPROVAL	Name	Job Title/ Role	Signature	Date
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1.0 OVERVIEW

1.1. Introduction

The e-Government Agency (eGA) is established under the Executive Agencies Act No.30, 1997, Cap. 245 as a semi-autonomous Institution under President's Office, Public Service Management. eGA is charged with the mandate of providing coordination, oversight and promotion of e-Government initiatives and enforcement of e-Government standards to Public Institutions. In executing its duties, eGA shall implement and maintain coordinated Government operations for Information and Communication Technology (ICT) that include the formulation of standards and guidelines to effectuate the purposes of the Agency.

To realize the vision of e-Government in Tanzania and successfully implement eGovernment Strategy, it is of paramount importance that **“e-Government Standards and Guidelines”** are formulated. The e-Government Standards and Guidelines' aim is to assist in the delivery of more consistent and cohesive service to citizen and support the more cost effective delivery of ICT services by Government. A worldwide agreeable practice for conducting Government wide eGovernment analysis, design, planning and implementation, using a holistic approach at all times, for the successful development and execution of eGovernment Strategy is known as **“eGovernment Enterprise Architecture”**. The e-Government Standards and Guidelines Structure is hereby designed to cover most requirements of eGovernment Enterprise Architecture. This means that eGovernment Enterprise Architecture is incorporated in “eGovernment Standards & Guidelines”.

Management of e-Government Standards and Guidelines requires categorisation. There are **nine categories/areas** covering all aspects of eGovernment. The **first** area that introduces the other eight areas is **eGovernment Architecture Vision**. A Government wide eGovernment Architecture Vision needs to be defined at a national level to articulate what must be done to serve the ICT Strategic needs and directions of Public Institutions. The eGovernment Architecture Vision provides a high level description of the other areas (target architectures) in terms of reference models covering Government, business, data, application and technology domains.

1.2. Rationale

eGovernment Standards and Guidelines ensures uninterrupted and seamless flow of information and improves the coherence of ICT operations of Public Institutions. The eGovernment Standards and Guidelines have been developed to ensure that the following attributes, but not limited to, are addressed in every aspect of design and implementation of any ICT initiative:

- i. **Interoperability:** Allows seamless exchange of information, reuse of data models and inter-changeability of data across systems.
- i. **Open Standards:** Provides interoperability, data preservation and greater freedom from technology and vendor lock-in. Adoption of open standards will facilitate storing of electronic national records and data using open data file formats.
- i. **Flexibility:** Facilitates the adoption of new technologies and allows managing any change in the governance processes.
- i. **Collaboration:** Provides a platform that will allow various Public Institutions to make use of the repositories such as reusable models, script, data and metadata etc.
- i. **Technology:** ensures that the technologies adopted are open so that they can be easily interfaced with other systems across Public Institutions.

1.3. Purpose

In line with the above rationale, the purpose of the eGovernment Architecture Vision is primarily:

- i. To understand the concerns and objectives of Public Institutions, define key business requirements to be addressed by the eGovernment Standards and Guidelines.
- i. To provide standard views on how Government, business, data, applications and technology are organized and define how they support the business processes and address Public Institutions concerns.

The document provides applicable standards and technical guidelines for supporting the adoption of e-Government Standards and Guidelines across the Public Institutions.

1.4. Scope

This document applies to all Public Institutions. The Public Institution Accounting Officer (Head of Institution) in conjunction with the Head of ICT Departments/Units and Business process owners shall be responsible for ensuring the effective implementation specific standards and technical guidelines associated with Architecture Vision within their respective Institutions.

2.0 e-GOVERNMENT ARCHITECTURE VISION

2.1. eGovernment Architecture Vision Reference Framework

As part of the e-Government Strategy 2013, the Government has established an e-Government Strategic Vision:

“To be an effective and better Government, providing innovative public service delivery enabled by ICT”.

The eGovernment Enterprise Architecture is part of the eGovernment Standards and Guidelines, and therefore, in this vision document and the target architecture documents, the terms are used interchangeably. The e-Government Enterprise Architecture has been established to realise this vision, and therefore, this is the vision of the e-Government Enterprise Architecture.

The underlying concept for defining the e-Government Enterprise Architecture ensures uninterrupted and seamless flow of information and improves the coherence of information systems maintained by Public Institutions and in this way support easy integration of Government applications and existing or any new technology and tools within this framework. Figure I depicts the eGovernment Enterprise Architecture which consists of 9 areas as follows:

1. **eGovernment Architecture Vision**
2. **eGovernment Interoperability Framework**
3. **eGovernment Business Architecture**
4. **eGovernment Application Architecture**
5. **eGovernment Information Architecture**
6. **eGovernment Integration Architecture**
7. **eGovernment Infrastructure Architecture**
8. **eGovernment Security Architecture**
9. **eGovernment Architecture Processes and Governance**

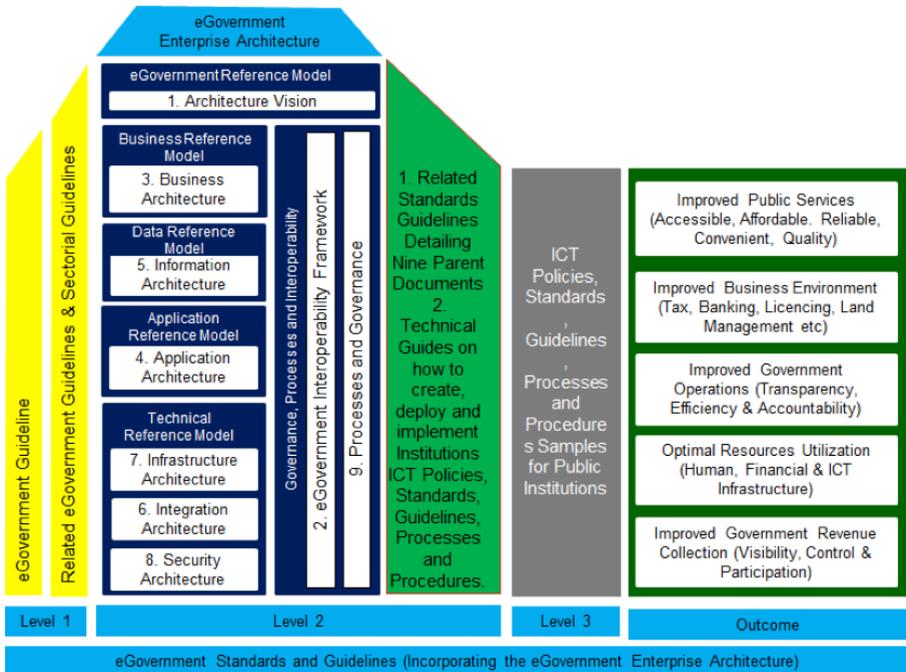


Figure I: Structure of the eGovernment Enterprise Architecture

The different areas in the diagram in Figure I are explained below:

- i. The **eGovernment Architecture Vision** has been defined based on the Government Reference Model. The **Government Reference Model (GRM)** has been derived from the individual architecture segment specific reference models i.e. business, data, applications and technology that provide a bird's eye view of the various standard components to be considered for the whole of Government.

Government Reference Model

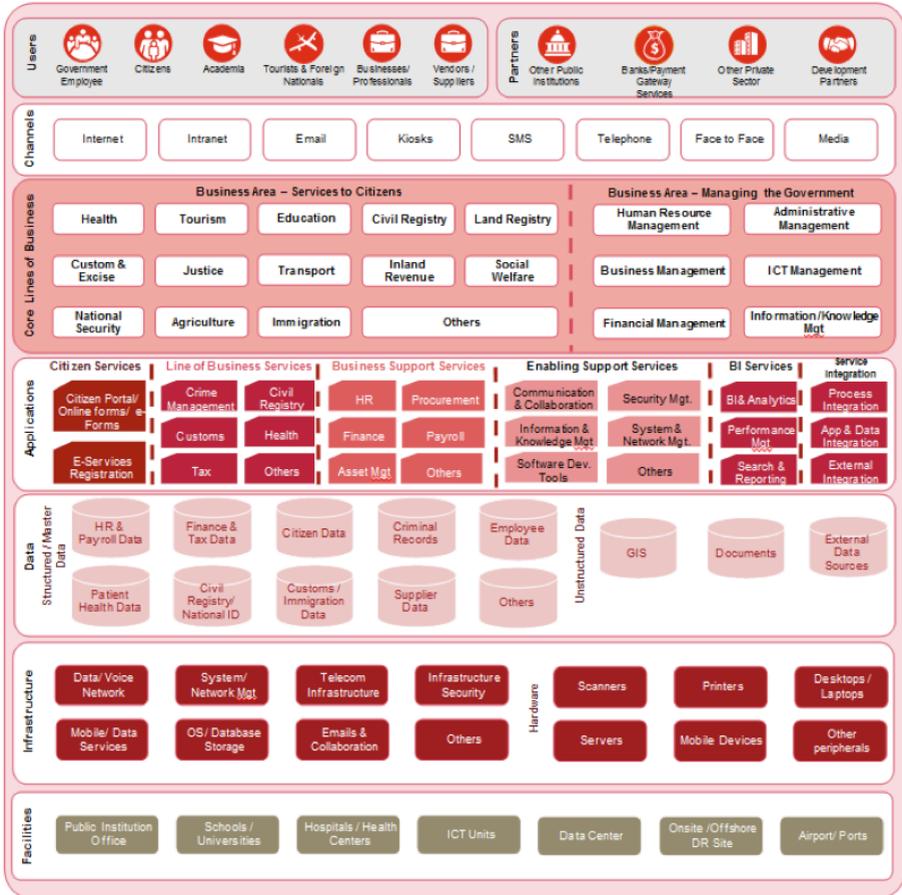


Figure II: Government Reference Model

- ii. The **e-Government Interoperability Framework (eGIF)** has been referenced to ensure adoption of a common framework, policies and standards that needs to be adopted for across Government as a whole. The framework enables any Public Institution to provide and receive information and integrate its processes with other Public Institutions using a predetermined framework. Reference should be made to e-Government Interoperability Framework – *Standards Technical Guidelines (eGA/EXT/GIF/001)* for further details.

- iii. The **eGovernment Business Architecture has been defined based on the Business Reference Model (BRM)**. The Business Reference Model is a functional framework representing the business functions of Public Institutions. It aims to identify common business capabilities across Public Institutions required to provide services to citizens, business and other Institutions. Reference should be made to eGovernment Business Architecture – *Standards and Technical Guidelines (eGA/EXT/BSA/001)* for further details.
- iv. The **eGovernment Application Architecture has been defined based on the Application Reference Model (ARM)**. The Application Reference Model provides logical groups of ICT service capabilities (Application/Service Components) to support the re-use of business components and services across the Public Institutions. It serves to identify and classify horizontal and vertical service components supporting Public Institutions and their ICT investments and assets. Reference should be made to eGovernment Application Architecture – *Standards and Technical Guidelines (eGA/EXT/APA/001)* for further details.
- v. The **eGovernment Information Architecture has been defined based on the Data Reference Model (DRM)**. The Data Reference Model provides a structure that facilitates the development of Government data that can be effectively shared across Public Institutions for better and more effective service delivery, improved decision making and improved mission performance. The DRM is a service-oriented model that provides the pathway for “Services to Citizens” to become operational. At the same time, the DRM provides an impetus for Public Institutions to better understand their data, how it fits in the total realm of Government information. Reference should be made to eGovernment Information Architecture – *Standards and Technical Guidelines (eGA/EXT/IFA/001)* for further details.
- vi. The **eGovernment Infrastructure Architecture, eGovernment Integration Architecture and eGovernment Security Architecture have been defined based on the Technical Reference Model (TRM)**. The Technical Reference Model supports and enables the delivery of service components and capabilities and provides a foundation to advance the re-use and standardization of technology and service components from a Government-wide perspective. Public

Institutions will benefit from economies of scale by identifying and re-using the best solutions and technologies to support their business functions, missions and target architecture. The TRM will continue to evolve with the emergence of new technologies and standards.

For further details reference should be made to:

- i. eGovernment Integration Architecture – Standards and Technical Guidelines (eGA/EXT/ITA/001);
- ii. eGovernment Infrastructure Architecture – Standards and Technical Guidelines (eGA/EXT/IRA/001); and
- iii. eGovernment Security Architecture – Standards and Technical Guidelines (eGA/EXT/ISA/001).
- vii. The **eGovernment Architecture Processes** and Governance establishes the set of instructions through which e-Government Standards and Guidelines are driven from Government level and adopted and implemented at a Public Institution level. It provides a mechanism for defining, implementing, managing and measuring the effectiveness of the e-Government Standards and Guidelines. Reference should be made to eGovernment Architecture Processes and Governance – *Standards and Technical Guidelines (eGA/EXT/PAG/001)* for further details.

The above 9 areas and respective reference models are the basis for standardization of e-Government initiatives to enable the effective re-use of solutions and services within and across Public Institutions.

2.2. eGovernment Architecture Vision Standards

2.2.1 Table I provides principles under which the eGovernment Enterprise Architecture (eGovernment Standards and Guidelines) is designed. Institutional Enterprise Architectures should also be designed basing on these principles:

Table I: Principles of eGovernment Enterprise Architecture

<i>Principle #1</i>	<i>The Government focuses on citizens</i> Citizens' needs determine how Public Institutions' functions are defined and delivered.
<i>Rationale</i>	Public Institutions have to serve the Tanzanian public who want simpler, faster, better and cheaper access to Government services and information.
<i>Implications</i>	<ul style="list-style-type: none"> i. Public Institutions will design and apply their business processes and services to benefit citizens, even when the services cross lines of business. ii. Public Institutions will offer citizens access to Government services through various means in a single, unified manner, reducing duplication, complexity and inconsistent ways of using Government services.
<i>Principle #2</i>	<i>The Government is a single, unified organization</i> The Government operates as a single enterprise with decision-making flexibility at the Public Institution level.
<i>Rationale</i>	Whole of Government strategic objectives, common governance, integrated management processes and consistent policies improves the implementation of Government-wide strategies and the coordination of the delivery of citizen services.
<i>Implications</i>	Public Institutions will optimize resource allocations and optimize information across the Institution to support services and processes.

<i>Principle #3</i>	<i>The Government architecture is mission-driven</i> Government core mission needs and priorities are the primary drivers for enabling the e-Government Vision.
<i>Rationale</i>	A business-led architecture is more successful in meeting strategic goals, responding to changing mission needs and serving citizen's expectations.
<i>Implications</i>	<ul style="list-style-type: none"> i. Public Institutions will first seek to optimize business processes, and then use performance standards to define automation requirements. ii. Public Institutions will prepare their enterprise architectures to guide their capital planning, budget and investment decisions. iii. Public Institutions will manage change in Government operations with enough security to keep services flowing. iv. Public Institutions will procure systems and processes which are agile and flexible to meet business needs.
<i>Principle #4</i>	<i>Security, privacy and protecting information are core Government needs</i> Security, privacy and protecting information are integral to Government operations.
<i>Rationale</i>	To enable Public Institutions to protect confidential information to increase public trust and improve the security of its resources.
<i>Implications</i>	<ul style="list-style-type: none"> i. Public Institutions will protect information against unauthorized access, denial of service and both intentional and accidental modification. ii. Public Institutions will define set of information security controls to monitor compliance and avoid risk of security violations.

Principle #5	Information is a national asset Information is an asset needed by citizens and leveraged across the Government to improve performance.
Rationale	A well informed citizenry is necessary to the democracy. Further, accurate information is critical to effective decision making, improved performance, and accurate reporting.
Implications	<ul style="list-style-type: none"> i. Public Institutions will improve its information sharing environment to better disseminate information to the public. ii. This will lead to Public Institutions to identify authoritative sources of high quality information, and to provide access to specified data and information. iii. Authoritative data sources will be restructured and catalogued for easy dissemination, access and management.
Principle #6	The architecture simplifies Government operations Architecture is designed to reduce complexity and enable integration to the maximum extent possible.
Rationale	<ul style="list-style-type: none"> i. Complex processes and systems with tightly coupled modules are difficult to manage, prone risk failure, are inflexible to changing Public Institutions business needs and are expensive to maintain. ii. Highly modular, loosely coupled systems and processes take advantage of shared services and reusable components within Government and are available commercially.
Implications	<ul style="list-style-type: none"> i. Public Institutions will share their best practices and reusable business and technical components. This will lead to loosely coupled software components that are shared as services and compatible application development. ii. Building and integrating reusable components will become a common development method.

- 2.2.2** Development of Institutional ICT Management Documents (Policies, Strategies, Guidelines, Rules and Procedures etc.) is guided by Standards established in “*Creation of Government ICT Management Documents – Technical Guide (eGA/EXT/AVS/003)*”.
- 2.2.3** Further references (Standards) related to e-Government Architecture Vision will be developed from time to time.

2.3. eGovernment Architecture Vision Guidelines

- 2.3.1** Public Institutions will develop their Institutional **Enterprise Architecture** as guided by “*Creation of Enterprise Architecture – Technical Guide (eGA/EXT/AVS/004) document*”
- 2.3.2** To develop Institutional **Enterprise Architecture**, as guided by “*Creation of ICT Strategy - Technical Guide (eGA/EXT/AVS/002)*” document, Table II, that shows layers, should be considered as represented in the Government Reference Model (Figure II).

Table II: Layers of Institutional Enterprise Architecture.

Layers	Description
i. Users/ Partners	These are the various users (individuals, businesses) who will be availing the Government services. The partners are the external third party organisations either agencies, banks or other Public Institutions that will either access and/or support the delivery of services.
ii. Channels	These are the various service delivery channels through which services will be available to end users and partners in the user layer.
iii. Core lines of business	These are the core business functions of the Public Institution. It could be broadly categorized as business functions that offer services for the citizens and back office business functions. The layer covers standard components of the Business Reference Model .

<p>iv. Applications</p>	<p>These are the various logical group of ICT enabled application/service capabilities (application/service components) required to support the business functions of the Public Institution defined in the core lines of business layers. The layer covers the standard components for the Application Reference Model.</p>
<p>v. Data</p>	<p>There are structured and unstructured Public Institution data to be stored, managed and shared across Public Institutions, departments, agencies and external boundaries for better and effective service delivery. This layer covers the standard components for the Data Reference Model.</p>
<p>vi. Infrastructure</p>	<p>These are the underlying technologies and standards for software and hardware to support and enable the delivery of Application Reference Model service components and capabilities. This layer covers the standard components for the Technical Reference Model.</p>
<p>vii. Facilities</p>	<p>These are the various ICT enabled facilities to host and deliver the online Services.</p>

2.3.3 Public Institutions will develop their Institutional ICT Strategy aligned with their business needs as guided by “*Creation of ICT Strategy – Technical Guide (eGA/EXT/AVS/002)*” document.

2.3.4 Public Institutions will develop their Institutional;

- i. **ICT Policy** as demonstrated in “*ICT Policy Template (eGA/EXT/TEM/001)*”; and
- ii. **Acceptable ICT Use Policy** as demonstrated in “*Acceptable ICT use Policy Template (eGA/EXT/TEM/003)*”.

2.3.5 Further references (Templates and Technical Guides) related to e-Government Architecture Vision will be developed from time to time.

3. IMPLEMENTATION, REVIEW AND ENFORCEMENT

- 3.1. This document takes effect once approved in its first page.
- 3.2. This document is subject to review at least once every three years.
- 3.3. Any exceptions to compliance with this document should be approved in writing by Chief Executive Officer (CEO) of e-Government Agency.

4. GLOSSARY AND ACRONOMY

4.1. **Glossary**
None

4.2. **Acronymy**

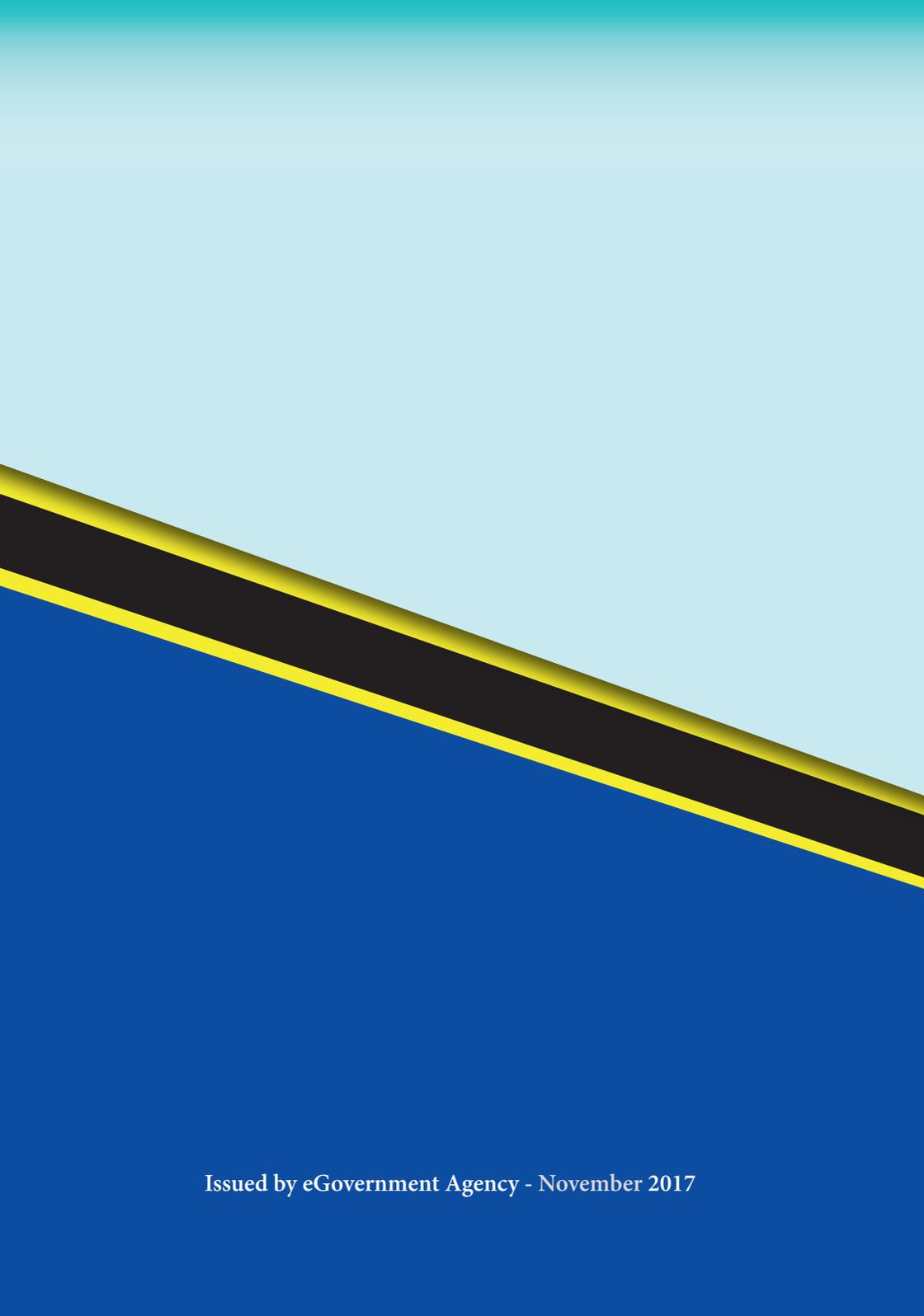
Abbreviation	Explanation
ARM	Application Reference Model
BRM	Business Reference Model
DRM	Data Reference Model
eGA	e-Government Agency
eGIF	e-Government Interoperability Framework
G2B	Government to Business
G2C	Government to Citizen
G2E	Government to Employees
G2G	Government to Government
GRM	Government Reference Model
ICT	Information and Communication technology
TRM	Technical Reference Model

5. RELATED DOCUMENTS

- 5.1. **eGovernment Guideline 2016 by President’s Office – Public Service Management (PO-PSM)**
- 5.2. **eGovernment Interoperability Framework – Standards and Technical Guidelines (eGA/EXT/GIF/001)**
- 5.3. **eGovernment Business Architecture – Standards and Technical Guidelines (eGA/EXT/BSA/001)**
- 5.4. **eGovernment Application Architecture – Standards and Technical Guidelines (eGA/EXT/APA/001)**
- 5.5. **eGovernment Information Architecture – Standards and Technical Guidelines (eGA/EXT/IFA/001)**
- 5.6. **eGovernment Integration Architecture – Standards and Technical Guidelines (eGA/EXT/ITA/001)**
- 5.7. **eGovernment Infrastructure Architecture – Standards and Technical Guidelines (eGA/EXT/IRA/001)**
- 5.8. **eGovernment Security Architecture – Standards and Technical Guidelines (eGA/EXT/ISA/001)**
- 5.9. **eGovernment Architecture Processes and Governance – Standards and Technical Guidelines (eGA/EXT/PAG/001)**

6. DOCUMENT CONTROL

Version	Name	Comment	Date
Ver.	1.0 eGA	Creation of Document	February 2016
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