THE UNITED REPUBLIC OF TANZANIA

PRESIDENT'S OFFICE,
PUBLIC SERVICE MANAGEMENT

e-GOVERNMENT AGENCY

e-GOVERNMENT ARCHITECTURE PROCESSES AND GOVERNANCE –

STANDARDS AND TECHNICAL GUIDELINES

Document Number eGA/EXT/PAG/001

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Document Title

e-Government Architecture Processes and Governance – Standards and Technical Guidelines

Document Number eGA/EXT/PAG/001

APPROVAL	Name	Job Title/ Role	Signature	Date
Approved by	Dr. Jabiri Bakari	Chief Executive Officer		

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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 provision 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 services 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 **last** area is **eGovernment Architecture Processes and Governance**. Process and governance is the set of mechanisms through which eGovernment 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 eGovernment Standards and Guidelines. In summary, this document establishes a comprehensive and uniform process for Enterprise Architecture Governance for use in information and communication technology management by Public Institutions. The Process and Governance for eGovernment Standards and Guidelines has been derived from the eGovernment Enterprise Architecture as referred in *eGovernment Architecture Vision - Standards and Technical Guidelines (eGA/EXT/AVS/001).*

1.2. Rationale

The definition of eGovernment Standards and Guidelines is not a onetime effort but is a living and breathing practice that needs to be sustained for successful eGovernment initiatives. Without appropriate process and governance, Public Institutions could be following their own strategies, policies, guidelines and standards without any alignment to the overall eGovernment standards and guidelines of Government.

1.3. Purpose

In line with the above rationale, the Process and Governance ensures a consistent alignment of all eGovernment related initiatives under the eGovernment Strategy through effective governance structure to ensure compliance with the related standards and guidelines.

The eGovernment Architecture Process and Governance Structure is a subset of **Government ICT Governance Structure.**

1.4. Scope

This document applies to all Public Institutions. This includes Public Institution Accounting Officers (Heads of Institution), Business Process Owners, Heads of ICT Departments, Application Developers, Security Officers, Application Architects and Network and Infrastructure Engineers that are responsible for implementation of eGovernment Standards and Guidelines.

2.0 e-GOVERNMENT ARCHITECTURE PROCESSES AND GOVERNANCE

2.1. Governance for eGovernment Architecture Operations

The guidance for implementation for **ICT Governance within the Government**, will be provided by Minister responsible for eGovernment through President's Office, Public Service Management from time to time.

The implementation of Governance for **eGovernment Enterprise Architecture** is bestowed upon e-Government Agency until such time when the Government will decide otherwise. This documents is about Governance for eGovernment Enterprise Architecture. The following are challenges facing Enterprise Architecture programs across Government;

i.   eGovernment initiatives are typically seen as low priority versus other initiatives/ operational functions of the Public Institutions;

ii.   There is involvement of multiple Public Institutions units with multiple Departments and different priorities;

iii. Project owners in different Public Institutions have varying competencies and skill sets in eGovernment Projects implementations;

iv.   There is lack of ownership and effective leadership skills that is required to drive the importance of eGovernment and reinforce trust and commitment towards transforming public service delivery; and

v.   Some of the required skills for identification, preparation, feasibility, approval, implementation, monitoring and evaluation of eGovernment projects are missing in Public Institutions.

The aforementioned challenges warrant the need for a supporting Enterprise Architecture Governance Framework with the responsibility for guiding and monitoring the direction of the eGovernment activities across the Government. An effective governance framework, consisting of a centralised Institution for the management of the eGovernment programs is expected to help address the challenges and achieve the envisioned goals by:

i.   Ensuring adherence of all eGovernment initiatives to a common framework, that is, the Government Enterprise Architecture Framework and related standards and guidelines;

ii.   Ensuring a consistent alignment of all eGovernment initiatives with the overall eGovernment Strategy through effective monitoring and timely interventions;

iii. Enabling cost-effective implementation by drawing overall synergies in optimising implementation overlaps and timing of various initiatives across Public Institutions;

iv.   Leveraging additional sources of funding through support from International Aid Agencies and Private Sector Participation;

v.   Providing a common forum for various stakeholders to continuously collaborate and share knowledge and experience; and

vi.   Assisting in the requisite capacity building within Government for sustainability of eGovernment initiatives.

2.1.1. eGovernment Architecture Governance Structure

The eGovernment Standards and Guidelines governance is established by the Government adhering to the Architecture Governance Principles (e.g. formalize Architecture Governance and Compliance Processes). In this regard, for the purpose of effective planning, implementation and monitoring of the eGovernment Standards and Guidelines, it is important to have an Enterprise Architecture Governance Framework consisting of the following:

i.   eGovernment Standards and Guidelines Advisory Committee (Standards Steering Committee - SSC);

ii. eGovernment Standards and Guidelines Technical Committee (Standards Steering Committee - STC); and

iii. eGovernment Standards and Guidelines Working Groups (Standards Working Groups - SWGs).

Figure I illustrates the composition of the eGovernment Enterprise Architecture Governance Team required for the implementation of the eGovernment Architecture.

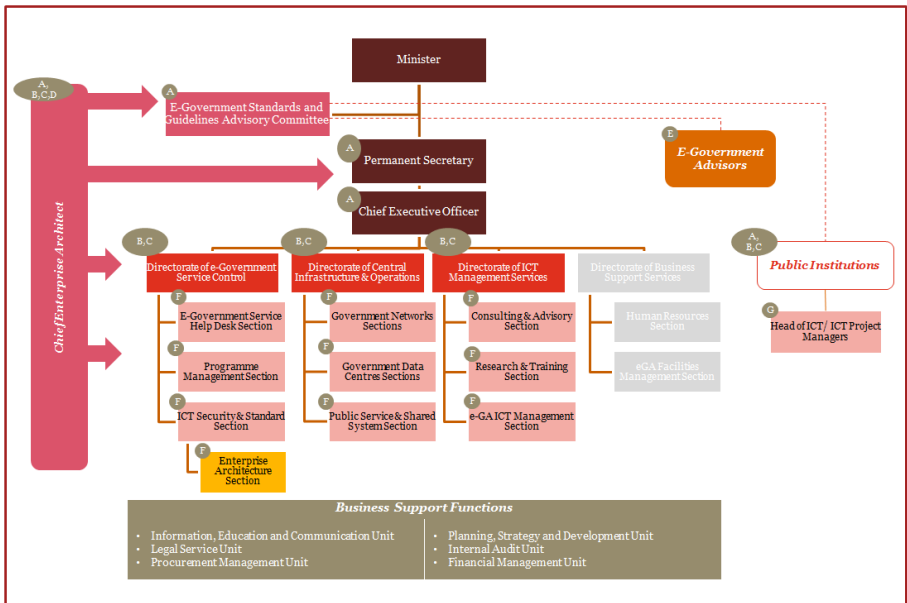*Figure I: eGovernment Enterprise Archtecture Governance Structure*

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Enterprise Architecture Standards and Guidelines Function (highlighted in yellow in the above diagram) is integrated within the ICT Security and Standards Section of the Directorate of eGovernment Service Control of eGovernment Agency. This enables a more effective monitoring and compliance to the eGovernment Standards and Guidelines. The Technology implementation of Enterprise Architecture especially in the areas of National Enterprise Service Bus and Common Data Repository is with Directorate of Central Infrastructure and Operations of eGovernment Agency. The roles and responsibilities of each entity highlighted in the Governance Structure in Figure I are listed in Table I:

Table I: eGovernment Enterprise Architecture Roles and Responsibilities

S. No.	Entity/Unit	Members	Roles and Responsibilities
I.	**Endorsement, Enforcement and Approval of eGovernment Standards and Guidelines**		
A.	eGovernment Standards and Guidelines Advisory Committee (SSC)	Senior Management Team from President's Office – Public Service Management (PO-PSM) Permanent Secretary from PO-PSM Chief Executive Officer of eGovernment Agency (eGA) Directors from eGA Chairman of STC Representatives from key Public Institutions including Ministry responsible for Communication,	1. This Committee is the leading authority in charge of the eGovernment Standards and Guidelines. 2. The Committee comprises of a **Strategic eGovernment Team** for decision making on the eGovernment Standards and Guidelines. 3. The members of the Strategic eGovernment Team consist of Chairman of STC and Senior Management representatives from eGA, PO-PSM and other key Public Institutions that are active in eGovernment and national ICT Strategy/ Programs initiatives.

S. No.	Entity/Unit	Members	Roles and Responsibilities
		Science and Technology.	4. The primary roles and responsibilities of SCC includes: i. Endorsement, enforcement, approval and promotion of eGovernment and its associated Standards and Guidelines; ii. Approve changes to the eGovernment Standards and Guidelines based on the Architecture Standards as well as changes to architecture variations; iii. Assign appropriate resources for the implementation of eGovernment Standards and Guidelines; iv. Resolve escalations, amongst others; and v. Appointing Chief Architect
B.	eGovernment Standards and Guidelines Technical Committee (STC)	Chief Architect and Senior Architects Assistant Director responsible for ICT Standards, eGA Directorate of eGovernment Service Control, eGA Directorate of Central	1. The STC is one of the key elements of Architecture Governance that oversees the implementation of the eGovernment Standards and Guidelines. 2. The STC leaders comprise of officers from the eGovernment Agency. A chairperson is appointed as the lead and final

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S. No.	Entity/Unit	Members	Roles and Responsibilities
		Infrastructure and Operations, eGA Directorate of ICT Management Services, eGA Representatives from key Public Institutions including Ministry responsible for Communication, Science and Technology.	decision maker for the committee. The Chairperson may be eGA's Assistant Director responsible for ICT Standards and will be assisted by Secretariat that may comprise of eGA Officers responsible for ICT Standards. 3. In making decisions on the eGovernment Standards and Guidelines, STC is supported by: i. An appointed Chief Architect (who may be the STC Chairperson) and Senior Architects (who may be the STC Secretariat); ii. Senior management representatives from various Public Institutions such as such as Ministry of Communication, Science and Technology (who may be the heads of SWGs); and iii. A spectrum of technology experts from the eGovernment Agency and other Public Institutions; and 4. The primary roles and responsibilities of the STC includes:

S. No.	Entity/Unit	Members	Roles and Responsibilities
			i. Providing the basis for all decision-making with regard to the eGovernment Standards and Guidelines; ii. Receiving on continuous basis, comments from eGoverment Stakeholders and Public at large on improvement of eGovernment Standards Guidelines; iii. Reviewing architectural changes, reviews requests for variance and establishing architecture change management processes; iv. Studying how Public Institutions' project plans, eGovernment and ICT Strategies and other eGovernment Initiatives for consistency with the eGovernment Standards and Guidelines; v. Facilitating study on how ICT Projects comply with eGovernment Standards and Guidelines. The actual Study on ICT Projects compliance will be conducted by the eGovernment Working Groups (SWGs); vi. Approving the introduction of new and

S. No.	Entity/Unit	Members	Roles and Responsibilities
			revised architectural principles and standards as well as authorize the implementation of technology innovations; vii. Submitting eGovernment Standards and Guidelines recommendations to the eGovernment Standards and Guidelines Advisory Committee; and viii. Appointing Members of eGovernment Working Groups.
II.	**Drivers for eGovernment Standards and Guidelines**		
C.	eGovernment Working Groups (SWGs)	Senior officers from eGA and key Public Institutions' ICT Department (having a knowledge of both business operations as well as ICT) Representatives from PO-PSM and Ministry responsible for Communication, Science and Technology Senior Officers and Architects from respective Public Institutions	1. The eGovernment Working Groups comprise of members that will support the actual work of developing and managing the eGovernment Standards and Guidelines for each architecture segment defined. 2. The working group members are typically comprised of domain and technical experts across information, service, security, infrastructure and e-GIF architecture segments. They are essentially senior officers from: i. eGovernment Service Control, eGA or Directorate of Central Infrastructure and

S. No.	Entity/Unit	Members	Roles and Responsibilities
			Operations, eGA or Directorate of ICT Management Services, eGA ii. Senior officers from key Public Institutions' ICT Departments (having a knowledge of both business operations as well as ICT) 3. The workgroups reports to the STC. 4. There will be different working groups responsible for managing the individual architecture segments such as Business Services, Infrastructure, Applications, Security and Interoperability amongst others. The primary roles and responsibilities of these working groups include: i. Facilitating architecture segment sessions to ensure adherence to eGovernment Standards and Guidelines. Also, Gaining consensus of STC members on any matters relating to eGovernment Standards and Guidelines, providing technical guidance to Public Institutions ICT teams,

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S. No.	Entity/Unit	Members	Roles and Responsibilities
			and providing technical assistance on architecture segments as well as formulation of their respective enterprise architecture reference models;
			5. The **e-GIF Working Group (SWG1)** is responsible for defining and managing the technical standards lifecycle, supporting the execution team in the coordination of the entire e-GIF management and compliance process. Essentially the role of the Working Group will include creating and educating e-GIF (Standards, Guidelines and Principles) across all Public Institutions by updating it continually and ensuring compliance to standards across Government. SGW1 is responsible for ensuring that Government Enterprise Service Bus is implemented.
			6. The **eGovernment Services Working Group (SWG2)** is responsible for defining and managing the delivery of Government services in a seamless and integrated manner to citizens, businesses and within the Government;

S. No.	Entity/Unit	Members	Roles and Responsibilities
			7. The **Application Architecture Working Group (SWG3)** ensures adherence to eGovernment Standards and Guidelines for existing and future systems to be implemented in Government. This working group is responsible for ensuring consistency to the Application Architecture;
			8. The **Information Architecture Working Group (SWG4)** is responsible for defining and maintaining the data classification scheme, enterprise common data standards and the enterprise data dictionary. Also, defining and maintaining the Government XML schema for information exchange;
			9. The **Integration Architecture Working Group (SWG5)** is responsible for creating and maintaining integration standards, designing and managing the enterprise SOA architecture and service delivery gateways;
			10. The **Infrastructure Architecture Working Group (SWG6)** is

S. No.	Entity/Unit	Members	Roles and Responsibilities
			responsible for creating and maintaining a National Data Centre such that Government applications are housed in a secure, reliable and scalable environment. They are also be responsible for adherence to standards and guidelines when procuring and maintaining infrastructure equipment; and 11. The **Security Architecture Working Group (SWG7)** is responsible for defining and maintaining the security policies, ensuring compliance to security policies, establishing a process for safeguarding authentication, monitoring potential and actual security incidents and periodically reviewing and validating user access rights and privileges.
D.	Chief Enterprise Architect	Experienced Enterprise Architect (May be a Chairperson of STC)	Experienced Chief Enterprise Architect will be appointed who will: 1. Provide Technical Guidance to the STC, eGovernment Working Groups and the eGovernment Standards and Guidelines Advisory Committee (SSC) whenever required;

S. No.	Entity/Unit	Members	Roles and Responsibilities
			2. Manage the life cycle, implementation and compliance process for the eGovernment Standards and Guidelines.
III.	**Enablers to the implementation of eGovernment Standards and Guidelines**		
E.	eGovernment Advisors	External Consultants, Product Vendors, amongst others.	1. eGovernment advisors consists of the external ICT advisors/ consultants advising on emerging technologies and industry standards in relation to eGovernment Standards and Guidelines.
F.	Program Management Office (PMO)	Team comprising of staff from eGA's Directorate of eGovernment Service Control that may upon approval be assisted by staff from Directorate of Central Infrastructure and Operations, Directorate of ICT Management Services, amongst others.	1. The Program Management Office reports on, oversee and coordinate the portfolio of the various eGovernment Projects across Public Institutions and assist in ensuring that Projects are being delivered and reported on in a consistent fashion and that the relevant Standards and Guidelines are being adhered to. 2. PMO Review Public Institutions' project plans, eGovernment and ICT Strategies and other eGovernment Initiatives for consistency with the

S. No.	Entity/Unit	Members	Roles and Responsibilities
			eGovernment Standards and Guidelines;
			3. PMO review ICT Projects compliance with eGovernment Standards and Guidelines.
			4. PMO ensures that proposals for Investment in ICT resources submitted to the eGovernment Agency are architecturally sound.
G.		Public Institution's ICT Project Managers / Head of ICT	1. The Project Managers execute individual Public Institution specific eGovernment and ICT Projects and also enterprise level strategic architecture initiatives in line with established eGovernment Standards and Guidelines e.g. Service Oriented Architecture (SOA) based integration platform, identity management solutions etc;
			2. The Project Managers are responsible for maintaining the project implementation plans and ensuring that eGovernment Standards and Guidelines are incorporated in the design of the proposed ICT/eGovernment Projects;

S. No.	Entity/Unit	Members	Roles and Responsibilities
			3. Project Managers ensure that all Government ICT Project information is recorded in Government Project Portfolio System (GIP); and 4. Project Managers seek advice from the eGA for any ICT/ eGovernment Projects as directed by the Government though various guidelines and circulars that are issues from time to time.

2.1.2. eGovernment Architecture Change Management Process

The goal of a change management process is to ensure that the associated eGovernment Standards and Guidelines achieve the intended benefits. This includes managing changes to the standards and guidelines in a cohesive and structured way to establish and support a dynamic environment.

The change management process typically provides for the continual monitoring of such new developments in technology and changes in the business environment, and for determining whether to formally initiate updates to the standards and guidelines. The Table II below demonstrates the change requests drivers for eGovernment Standards and Guidelines. The change management process for standards and guidelines needs to determine how changes are to be managed, what techniques are to be applied, and what methodologies are used. The approach to change management aims for a dynamic Government enterprise architecture. There are typically three categories of changes as shown in Table III. To determine whether a change is simplification, incremental, or re-architecting, the following activities should be undertaken:

i.   Registration of all events that may impact the standards and guidelines;
ii.   Resource allocation and management for each task to be performed;
iii. Performing an assessment of what should be done; and
iv.   Evaluating impact of the change.

Table II: eGovernment Change Request Drivers

Business Drivers	Technology Drivers
i. Developments and evolution in Government operations ii. Exceptions in Government operations iii. Innovations in Government services iv. Innovations in technology – Digital Government v. Strategic changes in the eGovernment Strategic Plan	i. New technologies available for Government ii. Asset management cost reductions initiatives undertaken by Government iii. Initiatives to standardize technology platform for Government

Table III: eGovernment Change Categories

Category of Change	Description	Extent of Change Impact
i. Simplification change	A simplification change can normally be handled via change management techniques.	• Change impacts only one stakeholder • Change can be allowed under a dispensation • Change resulting from consolidation of multiple systems
ii. Incremental change	An incremental change may be handled via change management techniques, or it may require partial rework to related standards and guidelines.	• Changes in technology or standards leading to updates in the Technology Architecture, but not the entire standards and guidelines
iii. Re-architecting change	A re-architecting change requires putting the related standards and guidelines through the architecture development cycle.	• Change impacts two stakeholders or more • Significant change in the eGovernment Strategy

a. STC Role in the Change Requests

The STC assesses and approves Requests for Change (RFC). An RFC is typically in response to known problems but can also include improvements to the Standards and Guidelines. Depending on the type of change, the STC may issue approval or rejection of the change.

b. Change Management Flow

The change management flow for the standards and guidelines is depicted below:

Table IV: Change Management Flow

Activity	Details
1. Establish purpose of change and outcome	i. Influence eGovernment initiatives to exploit the standards and guidelines for value realization (outcomes).
2. Deploy monitoring tools	i. Monitor technology and business changes which could impact the baseline eGovernment Standards and Guidelines. ii. Monitor the level of adoption of standards and guidelines for the Government.
3. Manage risks	i. Manage risks and provide recommendations for alignment of Standards and Guidelines with respect to the National eGovernment Strategy.
4. Identify need for change	i. Conduct performance reviews on service levels. ii. Assess change requests and reporting to ensure that the expected benefits and service level expectations are met. iii. Ensure change management requests adhere to the defined Standards and Guidelines.

5. Develop RFC to meet performance targets and service levels	i. Make recommendations on the change required to meet performance targets by developing a RFC.
6. Manage governance process	i. Schedule the meeting with the STC. ii. STC categorises type of change and submits approval for implementation of the change.
7. Activate process to implement change	i. Produce request for funding and updating the standards and guidelines. ii. Ensure that changes implemented are captured and documented in the standards and guidelines.

2.1.3.   e-Government Architecture Implementation

The key activities to be undertaken in implementation of the eGovernment Enterprise Architecture are as follows:

a. Institutionalise the Enterprise Architecture Governance Structure
i.   Define and formalize an Enterprise Architecture Governance Structure according as described in Figure 1.
ii.   Empower the eGovernment Standards and Guidelines Advisory Committee SSC and STC to study Public Institution ICT Project designs to ensure they comply with the eGoverment Standards and Guidelines, adopting the architecture compliance process.
iii. Empower STC and SWGs to review the technical standards, incorporating emerging industry best practices, technologies and standards periodically (when relevant).

b. Define Government Wide Training Strategy
i. Assess the training needs and define Public Institution-wide training strategy for capacity building across various levels in the Government to handhold and create awareness of the architecture standards and guidelines across the Public Institutions, ensure successful implementation of all ICT initiatives and to endow

them with the proper mindset for adapting to the new ICT initiatives.

ii. Conduct 'Train the trainer' sessions with the aim of identifying a core team of trainers including representatives from various Public Institutions for the initial training session.

iii. These trainers should pass their knowledge on to the Public Institutions. Each Institution will designate a representative for getting trained to ensure compliance to standards.

c. Architecture Compliance Process

i. Institutionalize eGovernment Standards and Guidelines review, monitoring and compliance processes to ensure adherence of Public Institutions applications with the eGovernment Standards and Guidelines.

d. Architecture Change Management

Formalize an architecture change management process that will handle change/ enhancements in eGovernment Standards and Guidelines. The STC is to initiate the architecture change management process to update the standards if required. Refer to the Section 2.1.2 for architecture change management process.

2.2.   eGovernment Architecture Processes and Governance Standards

Standards related to e-Government Architecture Processes and Governance will be developed from time to time.

2.3.   eGovernment Architecture Processes and Governance Technical Guidelines

Templated and Technical Guides related to e-Government Architecture Processes and Governance 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.

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4. GLOSSARY AND ACRONYMS

4.1   **Glossary**
None

4.2   **Acronyms**

Abbreviation	Explanation
eGA	eGovernment Agency
GIP	Government ICT Porfolio system
ICT	Information and Communication Technology
PO-PSM	President's Office Public Service Management
RFC	Request For Change
SOA	Service Oriented Architecture
SSC	Standards Steering Committee
STC	Standards Technical Committee
SWG	Standards Working Group
XML	Extensible Markup Language

5. RELATED DOCUMENTS

5.1.   **eGovernment Guideline 2016 by President's Office – Public Service Management (PO-PSM)**

5.2.   **eGovernment Architecture Vision - Standards and Technical Guidelines *(eGA/EXT/AVS/001)***

5.3.   **eGovernment Interoperability Framework - Standards and Technical Guidelines *(eGA/EXT/GIF/001)***

5.4.   **eGovernment Business Architecture - Standards and Technical**

Guidelines *(eGA/EXT/BSA/001)*

5.5. eGovernment Application Architecture - Standards and Technical Guidelines *(eGA/EXT/APA/001)*

5.6. eGovernment Information Architecture - Standards and Technical Guidelines *(eGA/EXT/IFA/001)*

5.7. eGovernment Integration Architecture - Standards and Technical Guidelines *(eGA/EXT/ITA/001)*

5.8. eGovernment Infrastructure Architecture - Standards and Technical Guidelines *(eGA/EXT/IRA/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
Ver. 1.1	eGA	Alignment with eGovernment Guideline 2017	November 2017