THE REVOLUTIONARY GOVERNMENT OF ZANZIBAR

PRESIDENT'S OFFICE, CONSTITUTIONAL LEGAL AFFAIRS PUBLIC SERVICE AND GOOD GOVERNANCE

e-GOVERNMENT AGENCY

Document Title

Guidelines for Development, Acquisition, Operation and Maintenance of e-Government Applications

Document Number

eGAZ/EXT/APA/006

APPROVAL	Name	Job Title/ Role	Signature	Date
Approved by	Said Seif Said	Managing Director		DEC 2022

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PREFACE

In the last few decades, the use of ICT as enabler for improving Government operations and service delivery to citizens has not only become rampant, but also inevitable prerequisite for enhancing its efficient and effective. In the quest of reaping the benefits brought about by the use of ICT, public institutions in Tanzania have vigorously been striving to take its advantage but in an uncontrolled manner that resulted into emergence of a number of challenges relating to duplication of efforts, silo initiatives, high cost and security vulnerabilities.

However, if ICT is appropriately used by public institutions, it would effectively contribute to the improvement of their internal operations as well as public service delivery, which are expedient, ease to access and affordable. Therefore, in order to achieve these objectives it was apparent for enactment of the Zanzibar e-Government Agency Act No. 12 of 2019, which provide guidance on proper approach for implementing e-government and establishment of e-Government Agency with mandate of coordinating, promoting and overseeing e-government implementations as well as enforcing compliance with laws, regulations, standards and guidelines related to e-government implementations in public institutions.

In this context, Section 2(6) (h) of the Act requires and empowers e-Government Agency to ensure harmonization and coordination of e-Government interventions, developments and Systems in public institutions are implemented that ensures the anticipated benefits are achieved. Pursuant to these provisions, the Agency has prepared this document to prescribe Guidelines for Development, Acquisition, and Operation and Maintenance of e-Government Applications.

Therefore, we call for all public institutions to effectively observe these guidelines when embarking on e-government initiatives relating to application development, acquisition, operation and maintenance.

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SAID SEIF SAID
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1. INTRODUCTION

1.1. Overview

Zanzibar e-Government Agency (eGAZ) is a public institution establish by the Zanzibar e-Government Agency Act No. 12 of 2019. The Agency is mandated to Coordinate Oversee and Promote e-Government initiatives and enforce e-Government related Policies, Laws, Regulations, Standards and Guidelines in Public Institutions. In executing its duties, eGAZ shall implement and maintain coordinated government operations for Information and Communication Technology (ICT) that include the formulation of standards, technical guidelines and procedures to effectuate the purposes of the Agency.

This document establishes guidelines for Development, Acquisition, Operation and Maintenance of Software used by public institutions.

1.2. Purpose

The purpose of this document is to provide directives to all public institutions during application development, acquisition, operation, and maintenance activities in order to have quality and sustainable applications that facilitate improvement of internal business operations and service delivery.

1.3. Rationale

e-Government implementation, including application development, acquisition, operations and maintenance have been undertaken in uncontrolled approaches that resulted into duplications of efforts, silos initiatives, lack of systems integration, high cost of acquisition and operations and security concerns.

1.4. Scope

This document will be used by all public institutions during development, acquisition, operation and maintenance of e-Government applications.

2. THE GUIDELINES

Pursuant to the provisions of Zanzibar e-Government Agency Act No.12 of 2019, which direct on how and what to do with regards to efficient and effective e-Government implementation in the public sector, the Agency has prepared these guidelines to be used by public institutions. This

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document therefore, stipulates the general and specific guidelines for software development and acquisition as well as software operation and maintenance support.

2.1 General Guidelines

A public institution intending to undertake software development, acquisition, operation and maintenance should ensure that:

i. Has competent internal ICT team with appropriate knowledge and skills.
ii. The ICT department/unit is involved in all related activities.
iii. ICT Staffs are involved in all ICT related contract, preparation, negotiations and management.
iv. The user department is involved in all related activities.
v. Application integration requirements are preferably based on open standards.
vi. Risks are appropriately managed.
vii. Proper criteria are used for estimating costs relate to license fees for all common use ICT support applications, such as antivirus, operating systems, office suites, systems/network monitoring and are appropriately planned and budgeted.
viii. Project change is done in accordance with institutional ICT project change management procedures.
ix. License scheme meets the user requirements where applicable.

2.2 Specific Guidelines

This part provides guidelines specific for application development, acquisition, operation and maintenance related activities implemented by public institutions.

2.2.1 Software Development and Acquisition

2.2.1.1 General Considerations

A public institution embarking on application development/acquisition should ensure that:

i. The applications fulfill institutional business requirements.
ii. It can only acquire an application from vendor when its ICT team lacks the required capacity for in-house development and has failed to get assistance from other public institutions.
iii. Shared systems fulfil stakeholders' requirements.

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iv. The applications should not be platform dependent, such that development framework, database and operating system belong to one platform.

v. Knowledge transfer and training plans are part of the requirements.

vi. Requirements are prepared from re-engineered business processes.

vii. Security requirements, such as ability to generate and store audit logs, strong authentication and authorization, user management, session management, backup and recovery management are part of the application requirements.

viii. All system requirements are appropriately documented using the approved template for System Requirements Specification (SRS) and verified by the user department.

ix. e-GAZ is consulted in case it is a common business support application such as human resource, finance/accounting, procurement, fleet management, payment gateways, e-office systems and e-mail systems.

x. It owns source codes when it is specific for the institution.

xi. It considers the use of open source technology.

xii. There are 'test cases' prepared with regards to the system requirement specifications and tested.

2.2.2 Guidelines for Software Development

A public institution intending to undertake in-house application development should ensure that:

i. Security requirements have been considered during design stage and properly tested, including security vulnerabilities check prior to connecting to its network.

ii. Where necessary it may seek assistance from other capable public institutions and not from a vendor/freelancer.

iii. Internal ICT team leads and maintains accountability throughout the development life-cycle, even where assistance has been sought from other public institutions.

iv. It adheres to the approved Government Applications Development, Acquisition, Operation and Maintenance Standards (e-GAZ/EXT/APA/005), in case application development methodology used is agile or iterative.

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v. It develops Institutional application development standards, which must be verified by e-GAZ, in case of using other methodologies such as agile, extreme programming or rapid prototyping.

vi. It plans for data conversion/migration from the early stages, if the application to be developed replaces the existing one.

vii. It separates production, development and test environments, so as to ensure operational efficiency and effectiveness, including security.

viii. User requirements for the application are identified by the designated owner/custodian of processed information.

ix. There are mechanisms for tracking errors/bugs.

x. A large/complex application is developed in phases.

xi. It uses the latest and stable technology supportable in the market.

xii. It has appropriate license for tools that require license, and never allow the use of pirated ones.

xiii. Test is performed in appropriate environment, properly documented and signed-off by the user department.

xiv. User manual is prepared as part of the application documentation.

2.2.2.1 Guideline for Software Acquisition

2.2.2.1.1 Guidelines for acquisition of 'Off-the-Shelf' applications

A public institution intending to acquire Off-the-Shelf application to support their business operations should ensure that:

i. It has properly customized it, either by in-house or outsourced experts, in order to fit in institution's operations.

ii. It has in place and operationalizes "project, vendor and contract management" practices.

2.2.2.1.2 Guidelines for acquisition of 'Software as a Service'

A public institution intending to acquire a software as a service (SaaS) and the related cloud software to support their business operations should ensure that:

i. It intensively analyzes purchase contract and subscriptions requirements before acquiring such service.

ii. All SaaS are approved by e-GAZ.

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2.2.2.1.3 Guidelines for acquisition of Outsourced Development

A public institution intending to outsource application development to support their business operations should ensure that:

i. The consultant undertaking user requirements gathering should not be the vendor that is engaged to develop the same system.

ii. The contract contains specific clauses that gives it source codes ownership and patent rights.

iii. A consultant who has participated in identifying and engaging an implementation vendor should not participate in developing the application.

iv. A vendor does not bring any license cost for the outsourced development, except for maintenance and third party software if applicable.

2.2.3 Guidelines for Software Operation and Maintenance Support

2.2.3.1 General Consideration

A public institution embarking on application operation and maintenance support should ensure that:

i. It uses ITIL for ICT and support services as guided by ICT service Management Guideline of their institutions, including presence of ICT Service Support Desk.

ii. The acquired or developed applications are hosted on its own approved equipment room or on Government data centers.

2.2.3.2 Guidelines for Application Operation Support

A public institution embarking on application operation support should ensure that:

i. It is done using Government's internal capacity, or obtain e-GAZ approval in case of outsourcing the service from the vendor.

ii. There is a separation of duties between application developer and application administrators who perform day to day operations of the application such as preparing servers, installing and configuring software, loading data, restating failed instances, accommodating changes

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required by users, organizing maintenance, and minimizing downtime.

iii. All business operations in applications such as adding or removing users, reviewing users roles and activities, and viewing or approving business transactions are done by business users and not ICT staff.

iv. All applications are supposed to be operated by the ICT department and be assigned application administrator(s).

v. There is Operation Level Agreement (OLA) between ICT and user departments stipulating key responsibilities of each.

vi. It handles its ICT security operations, such as backup and restoration, logs management and vulnerability management.

vii. ICT security operations such as vulnerability assessments and penetration testing are mandatory and done by the institution itself or e-GAZ.

viii. The application undergoes security assessment at least once annually and have in place a documented process for all application operations, such as user and access management.

2.2.3.3   Guidelines for Applications Maintenance Support

A public institution embarking on application maintenance support should ensure that:

i. Any changes, such as bugs and errors fixing, patches and upgrades are undertaken in accordance with change management process and are properly documented.

ii. Has in place documented procedures to guide any changes to application codes.

iii. User satisfaction mechanisms with regards to performance of application services are instituted.

iv. All applications, which require licenses, have a valid maintenance license for patches and upgrades, including presence of a clear Service Level Agreements (SLA).

v. Application changes and versions control are appropriately managed, including undertaking of

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security tests before incorporation of the changes into the live environment.

    vi.   Available upgrades and patches are regularly checked.

3. IMPLEMENTATION, ENFORCEMENT AND REVIEW

This document shall be:

3.1. Effective upon being signed by the Managing Director on its first page.

3.2. Subjected to review at least once every three years or whenever necessary changes are needed.

3.3. Consistently complied with, any exceptions to its application must duly be authorized by the Managing Director.

4. GLOSSARY AND ACRONYMS

4.1. Glossary

Term	Description
Application Acquisition	A process that is intended to assist public institutions with the selection, purchase and, if applicable, implementation of applications, frameworks or other software components.
Application Development	A process of conceiving, specifying, designing, programming, documenting, testing, and bug fixing involved in creating and maintaining applications, frameworks or other software components.
Business Support Applications	These are applications used by user departments to facilitate performance of business support functions, such as human resources and administration, customer management, sales, marketing, finance and accounting, audit, planning, performance management, procurement, fleet, assets, projects, office communications, file and records management etc.
Core Business Applications	These are applications used by user departments to perform main or mandated business functions of their respective institutions. These applications are usually developed (custom-made) in order to meet specific needs of the respective business.
Government Data Center	Centralized facilities that offer hosting/co-location services to public Institutions.
ICT Support Applications	These are technical applications that are necessary to support the business support and core business applications. They include but are not limited to systems/networks monitoring and management systems, active directory, security systems, etc.
Off-the-shelf Applications	Are readymade software available for use with necessary customization in order to satisfy the needs of the respective public institution. They include Commercial Off-the-Shelf (COTS), Modifiable Off-the-Shelf (MOTS), Government Off-the-Shelf (GOTS), and Niche Off-the-Shelf (NOTS).

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Outsourced Application Development	A practice of hiring a third-party programmer/company to offer services related to specific activities or all activities related to application development.
Platform Dependence	Refers to applications that run under only one operating environment. For example, Windows running on x86 hardware or Solaris running on SPARC hardware.
Quality Application	Applications that meet specified requirements and/or user/customer needs and expectations.
Software as a Service (SaaS)	A software distribution model in which a third-party provider hosts application and makes them available to customers over the internet or a private network.
System Custodian	A person who has a responsibility for taking care of or protecting systems/applications, normally the head of ICT department/unit. The system custodian is a key contributor in developing system design and security specifications to ensure that they are documented, tested, and implemented.
System Owner	A person who owns a business process, who is a key contributor in developing business requirement specifications to ensure that the business operational needs are met.

4.2. Acronyms

e-GAZ	**Zanzibar e-Government Agency**
ERP	Enterprises Resource Planning
ICT	Information and Communication Technology
OLA	Operation Level Agreement
SaaS	Software as a Service
SLA	Service Level Agreement
SRS	Systems Requirement Specification

5. RELATED DOCUMENTS

    i.   e-Government Guidelines *(PO-CLAPSGG, 2022)*
   ii.   Standards for Development, Acquisition, Operation and Maintenance of e-Government Applications *(eGAZ/EXT/APA/005)*

6. DOCUMENT CONTROL

Version	Name	Comment	Date
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