



e-Government Interoperability Framework (e-GIF)

Royal Government of Bhutan

Reference Summary

Ministry of Information & Communications
Department of Information Technology & Telecom





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Royal Government of Bhutan

PRIME MINISTER

3rd January 2014

FOREWORD

Information and Communication Technology (ICT) provides unprecedented opportunities to realize a nation's development vision and objectives. The implementation of e-Government can significantly enhance efficiency, accountability and transparency of Government functions and service delivery. Therefore, in keeping with the priorities of the government, there is a strong need to put in place strategic plans & policies and ICT standards to support smooth implementation of e-Government.

Through our earlier experiences with e-Government initiatives, one of the critical challenges we have is the existence of isolated and standalone ICT application systems and solutions across the government with no exchange of data. These systems use different technologies, with no common standards, making difficult to integrate and interoperate. As a result, individual agencies collect and maintain data which already exist elsewhere, resulting in duplication of effort and inconsistent multiple records of the same data. Such duplication comes at a huge cost to the Government.

To make e-Government more citizen-centric the government must, first of all, focus on stabilizing backend systems to be interoperable. System integration and interoperability will become easier only if all government agencies adopt common standards in terms of data, applications, and technology. Therefore, having recognized the importance of such common standards, the Government has invested in the development of an e-government interoperability framework (e-GIF) which will facilitate and promote integration and interoperability for the future/upcoming ICT systems of the government for efficient delivery of e-Services.

The e-GIF is published through a portal and this publication aims to guide Government agencies in improving interoperability of ICT systems when they initiate ICT projects. It is my hope that this e-GIF portal will be the first reference material in understanding what e-Government interoperability is; why it is important; and how government agencies can adopt the published standards to further ease system integration and interoperability.

I am confident that the adoption and compliance to the national e-GIF will eventually lead to more informed decisions and better ICT investments as more and more systems seamlessly exchange data and reduce duplication.

The e-GIF portal is: <http://egif.moic.gov.bt/>

Tashi Delek!

(TsheringTobgay)

Contents

Background.....	1
e-Government Interoperability Framework (e-GIF).....	1
Objectives and Benefits of e-GIF	1
e-GIF Architecture	2
Business Reference Model (BRM)	2
Application Reference Model (ARM).....	3
Data Reference Model (DRM).....	4
Technical Reference Model (TRM)	5
Governance	6
Processes	7

Note: Some links provided in this document may require login to e-GIF Portal. For further details, contact e-GIF working group @323215(320 or 304)

Background

The Royal Government of Bhutan (RGoB) has made concerted efforts to use Information Communication Technologies (ICT) to effectively support government functions and services. However, the objectives of e-Government to make more efficient and effective government services is not being fully realised due to ad hoc deployment of IT systems. Such ad hoc IT deployment addresses the needs of specific agencies, but do not facilitate interaction and sharing of information across systems which would increase efficiency and optimization within the RGoB. To meet the overall ICT objectives of the government, there is a need to put in place ICT standards, which will facilitate better coordination and collaboration in the implementation of ICT programmes within the government with a Whole of Government perspective rather than through piecemeal projects.

Currently, the RGoB has around a hundred mid to large backend systems developed on heterogeneous platforms designed to work independently. These systems are all optimised to suit the needs of individual agencies. However those systems can, if designed and developed using standards be practical sources of information for other agencies leading to overall efficiency gains and cost reduction for the RGoB.

In order to address the above challenges, the RGoB has embarked on the development of an electronic Government Interoperability Framework (e-GIF) using International standards and best practices which are catered towards Bhutan's needs.

e-Government Interoperability Framework (e-GIF)

The electronic government interoperability framework, in its broad sense, is government enterprise architecture to define technical standards and best practices to enable ICT systems to integrate and interoperate across the RGoB. It institutes set of standards and guidelines that the government agencies must adopt to enable better sharing and collaboration within government agencies. It allows diverse government application systems to seamlessly exchange data and use the data that has been exchanged meaningfully, with support of standardised technologies, data and applications.

Objectives and Benefits of e-GIF

The vision of e-GIF is to deliver effective automated and connected services of the highest standards and quality with a Whole of Government perspective. Therefore alignment of all ICT projects/programmes with the government's core functions and services is of paramount importance. It aims to institute a common framework that ensures general coherence between public sector ICT systems to effectively share information seamlessly and thus significantly increase efficiency and reduce burden to citizens.

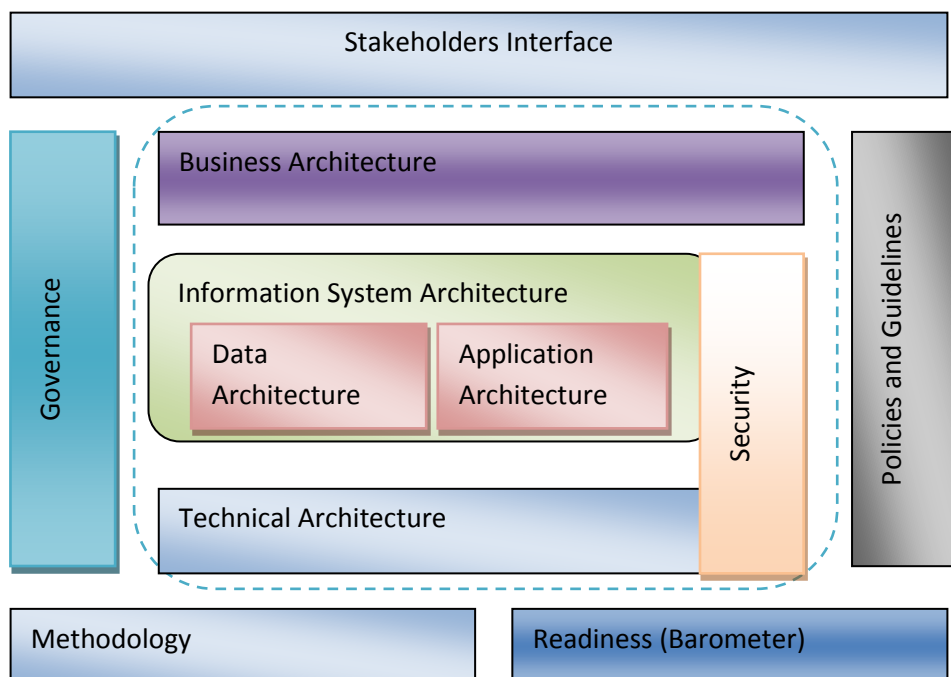
The major benefits of e-GIF are as follows:

1. It will improve collaboration across Agencies within the RGoB and encourage the adoption of Whole of Government IT projects;
2. It will facilitate Interoperability between RGoB systems;
3. It will reduce duplication of effort and resources, saving cost for RGoB;
4. It will help identify common data and systems to be shared within the RGoB;
5. It will help identify new opportunities for ICT development and align the ICT initiatives of every agency towards common national goals;
6. It will facilitate decision making with respect to ICT's role in development.
7. Overall, it will further improve public service delivery through effective use of ICT.

For more details, visit <http://egif.moic.gov.bt/egif>

e-GIF Architecture

The overview of the framework is as provided below:



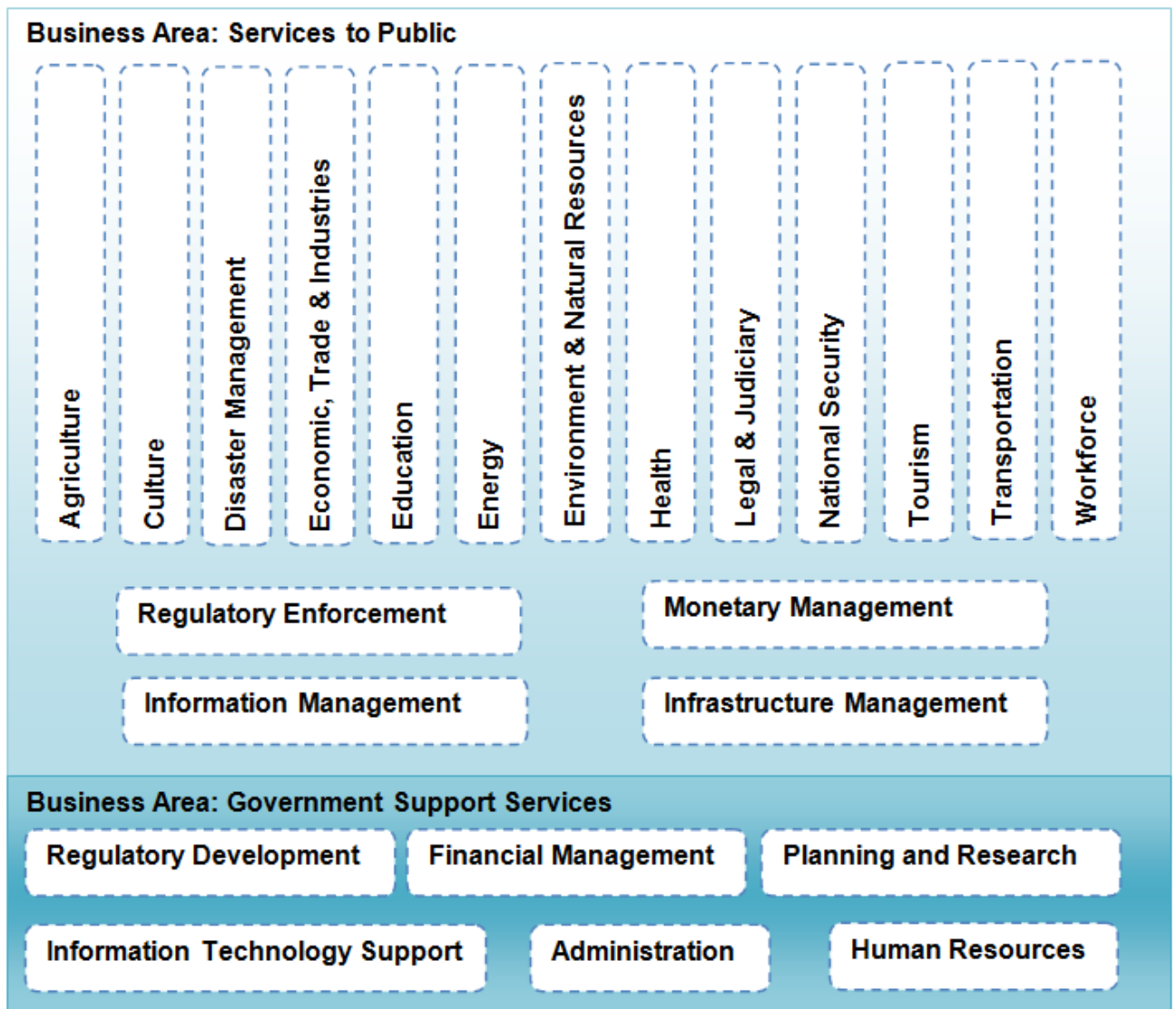
Business Reference Model (BRM)

The BRM defines and provides detailed description of the business areas, government-wide lines of business, their associated government functions and services performed by the RGoB. It ensures strategic alignment of business functions and services to the objectives of the government, and promotes collaboration amongst agencies in delivering government functions around common business areas.

For more details, refer: <http://egif.moic.gov.bt/egif/public/brm>

The components of the BRM are the Business areas, Government-wide lines of business, the Government functions under each of the Government-wide line of business, and Services under each Government functions. For details, refer <http://egif.moic.gov.bt/egif/admin/brm>

- Business Structure - The BRM has four-level hierarchy structure to describe the business of the RGoB, which are Business Area, Lines of Business, Government Functions and Government Services.



Application Reference Model (ARM)

ARM defines the detailed description of the application systems used within RGOB. These application systems are needed to manage the data and support the line of businesses, government functions and services. It also documents a list of reusable application components of these application systems. The objectives of this reference model are to

facilitate interoperability between application systems, identify reusable application components and facilitate application maintenance.

ARM is divided into two major categories: Application System and Application Component. For more information, visit: <http://egif.moic.gov.bt/egif/public/arm>

- Application Structure - Most of the government agencies have used application system(s) to support their functions and services. Using application system improves the efficiency in delivering these functions and services to the public. However, having integrated systems has been a challenge within the RGoB since agencies have developed application systems to cater only to their specific needs.
- ARM classifies application system to relevant Government Functions so as to align them to the overall objectives and strategies of the RGoB. This will help identify common and reusable application systems and application components that have a potential to be used by other government agencies.
- It provides system definition template, Application Component Definition template and Classification Types. It has Application Portfolios and Application Components that exist in Government

Data Reference Model (DRM)

Data Reference Model (DRM) defines standards to describe, share, structure and classify data. It identifies the common data for data integration and institutes standardised data management practices. The objectives of this reference model is to facilitate information sharing, data reuse and enhance the accessibility and integrity of the data, with due considerations placed on data protection.

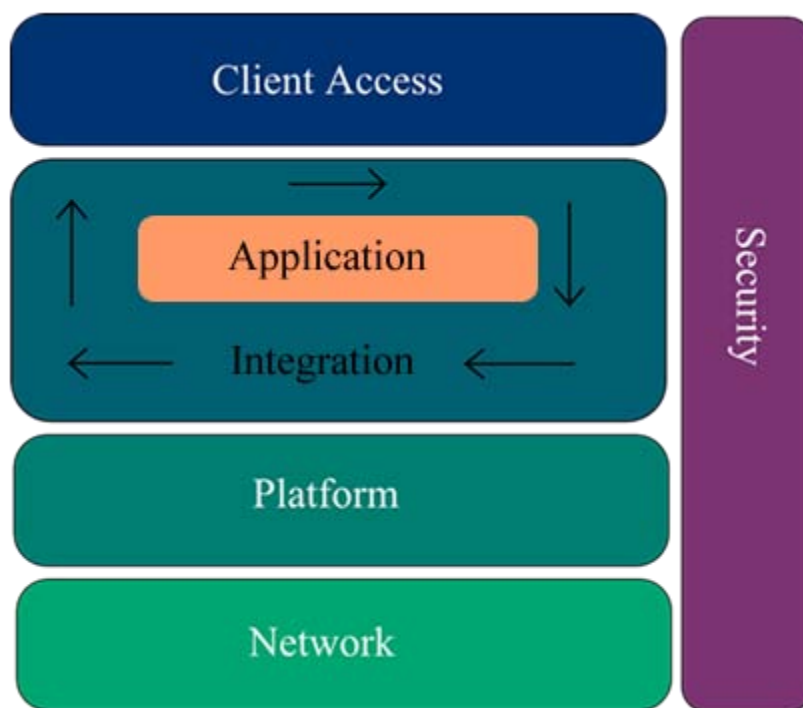
The reference model describes data through the use of data dictionary, conceptual data modeling and standardised naming convention to provide consistent documentation. For more details, visit: <http://egif.moic.gov.bt/egif/public/drm>

- Data Structure - Every government agency uses data to support their government functions and services. The use of accurate data improves public service delivery. Currently, multiple agencies maintain data of the same person, collected for different services at different time. As a result, the data may be inconsistent and it is difficult to maintain same data kept at different locations. There is also duplication of effort and potential for mistakes since each agency has to manually enter the same person's information.
- Considering the above challenges, it requires adopting consistent approach in capturing data and to consolidate common data. The data structure describes data by standardising the use of data dictionaries, conceptual data models, naming convention and data classification.

- People data dictionary – This provides identified common people data with standardised structure, definition, owner and classification. For more detail, refer the following links: <http://egif.moic.gov.bt/egif/admin/drm#drm40> – Current Architecture
<http://egif.moic.gov.bt/egif/admin/drm#drm41> – Target Architecture
- Code Tables – The code tables provides all the standardised codes related to people data.

Technical Reference Model (TRM)

Technical Reference Model (TRM) defines the minimum set of specifications and standards that are required for systems, applications and devices to interoperate and work seamlessly in an efficient manner. The objectives of this reference model are to ensure interoperability, scalability and adoption of open standards. The TRM is divided into five domains as shown below:



For more details, visit: <http://egif.moic.gov.bt/egif/public/trm>

- Technology Structure - It defines how technology standards will be recorded and classified to facilitate the government agencies in planning, procurement and deployment.
- Technology Portfolio - This lists out technology products and solutions in use currently in the RGoB.
- Technology Standards – It documents all the standards under five domains: Network, Platform, Application, Integration and Client Access.

- Best Practices – It provides best practices existing within RGoB and some internationally adopted best practices under five domains so that it may serve as a reference for adoption.
- Central Services - A number of central services to the RGoB are identified and documented so that agencies, who intend to utilise or establish such services, can avoid duplicating the development effort and avail these existing services. This helps Government save in terms of reducing expenditures for development of systems and infrastructure and focus the utilisation of scarce ICT human resources in areas where they are more needed. Smaller agencies could also turn to these central services for cost effectiveness.

Governance

For the effective implementation of e-GIF, it is required to institutionalize an e-GIF Governance Structure within DITT, MoIC to drive implementation and to oversee the compliance of the standards incorporated in the framework. As the e-GIF will be a live document, the governance structure is also required to manage and update the e-GIF every six months.

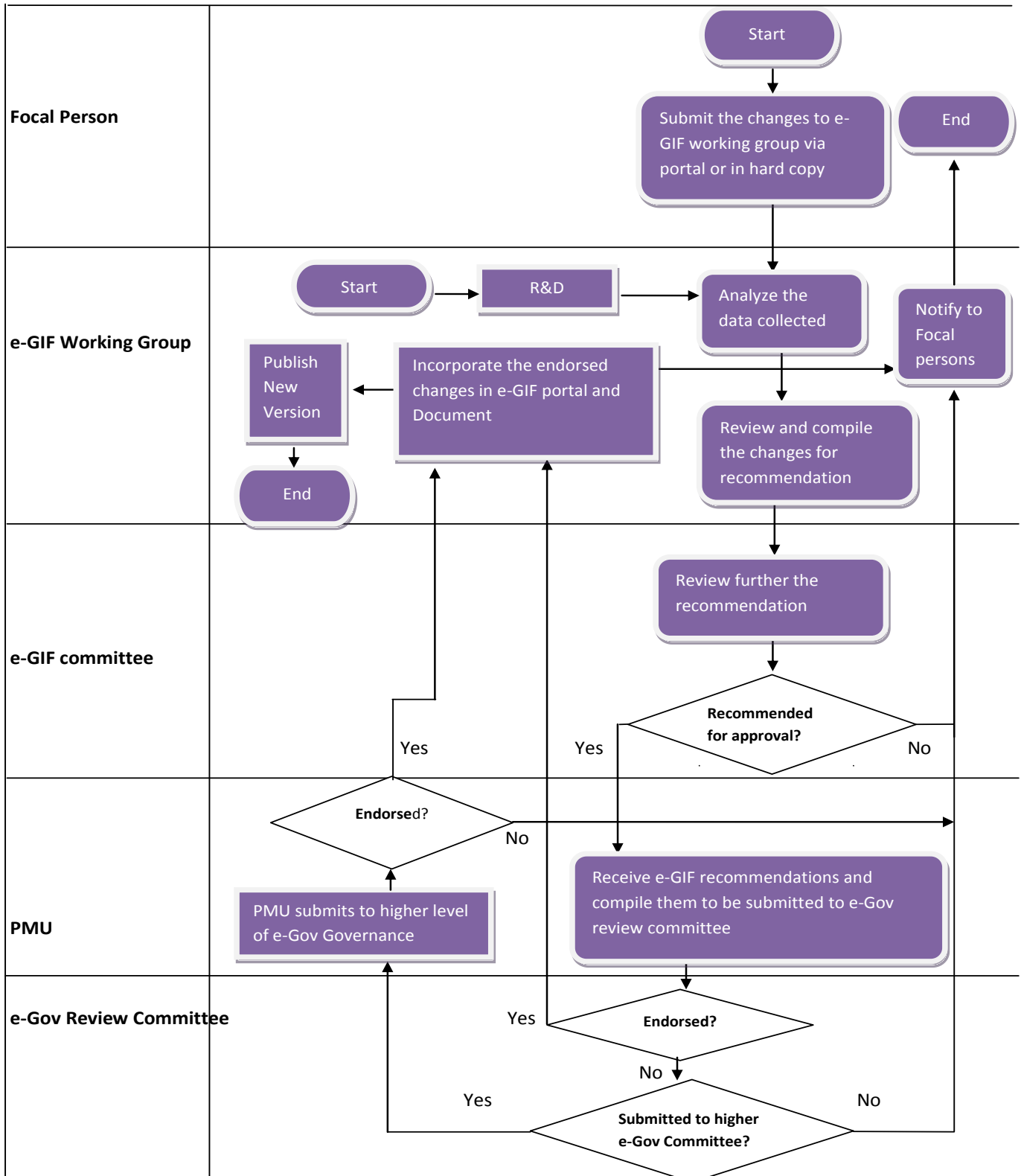
The overall governance objective is to oversee the development, maintenance, monitoring and promotion of standards and guidelines of e-GIF across the Government. While it is necessary to monitor compliance to e-GIF, there is also need to develop, manage and approve changes to the ICT standards, as deemed appropriate. The governance is to ensure that the value of e-GIF as a “government ICT standards” are effectively realized across the government, and is maintained & enhanced across time.

The e-GIF governance will specifically look into achieving the following e-GIF objectives:

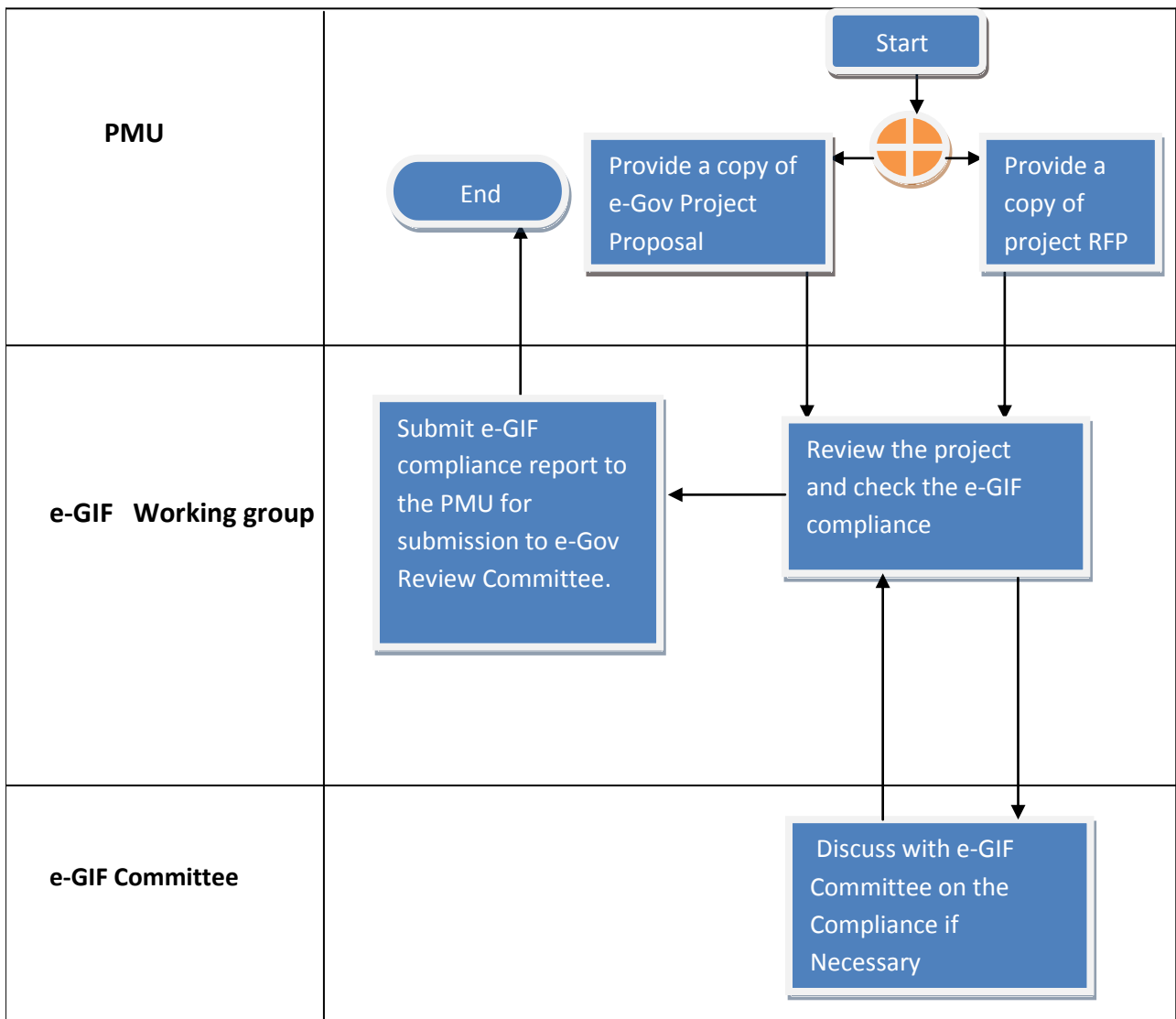
- All the Government agencies adopt the e-GIF standards for their new ICT initiatives
- The ICT initiatives are aligned to effectively support the government functions and services
- The ICT systems can easily interoperate and integrate to share Government information

Processes

1. Process: Submission of changes /recommendation for approval



2. Process: Review of e-Gov Project Proposal.



The above two processes shows the procedural flows in maintenance of e-GIF and approval of ICT projects for e-GIF compliance.