Document No QAF:01

Version 1.0, June 2010

Quality Assurance Framework for e-Governance Applications (QAF)

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Target Audience

• Policy Makers

 (should read the Concept Document (QAF00-00) and the CARE Document (QAF0201) for a conceptual view of the framework)

•Administrators

(should read the Concept Document (QAF00-00) and the CARE Document (QAF0201) for a conceptual view of the framework)

•Implementing Agencies

 (consortium of different expert groups like application developers, Internet service providers (ISPs), Data centres Service Providers, Computer & networking components vendors, TPA's (for SDC and SWAN) etc…)

•Project Managers

(should read the CARE Document in detail and then focus on project process document (QAF0101-01)   depending on the stage of project implementation.)

•Private Sector Contractors and Consultants

(should read the CARE Document in detail and then focus on project process document (QAF0101-01) depending on the stage of project implementation.)

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National e-Governance Programme Vision

"Make all Government services accessible to the Common man in his locality, through common service delivery outlets and ensure efficiency, transparency and reliability of such services at affordable costs to realize the basic needs of the common man "

Quality Objectives

- **Accessibility:**

The accessible services have the characteristic of functionality, security (confidentiality, integrated and availability), usability and interoperability

- **Efficiency:**

The efficient services have the characteristic of the performance (Response Time and Resource Consumed like storage etc.)

- **Reliability:**

Reliable services have the characteristic of availability and maintainability

- **Transparency:**

The availability of Citizen Charter, Service Specification, service report in public domain, citizen participation process to determine citizen charter etc.
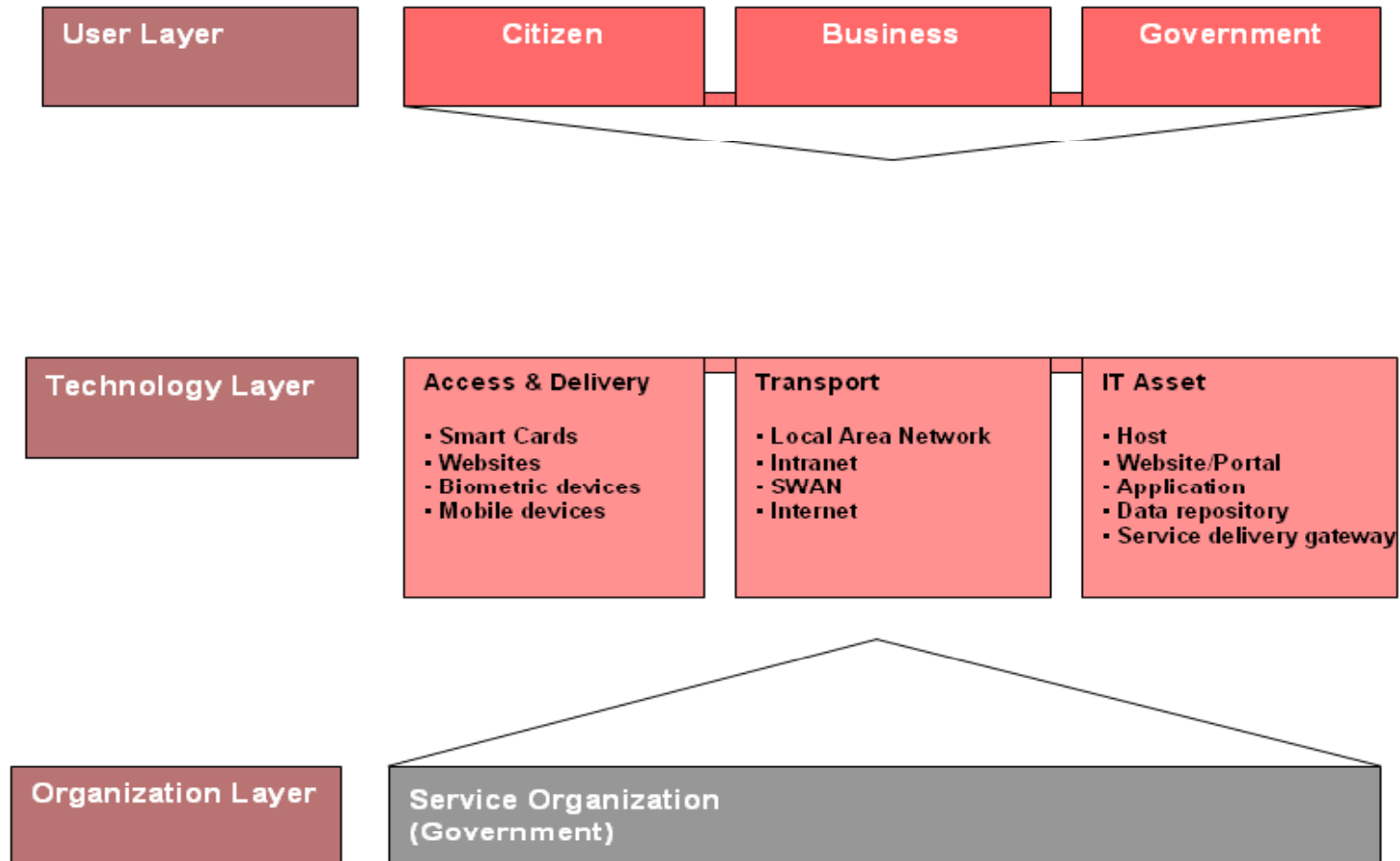
- **Economy of service:**

This encourages the adaptation of proven global standards (preferably open) and architecture, use o reusable standardize product so that cost and risk can be minimized.

e-Governance Projects - Nature

- High Investment
- High Complexity
- Fast Changing Technologies (High Obsolesce)
- High Social Impact
- High Risk

Quality Assurance can help to address the most of the issues

Typical Architecture of eGovernance Solution

User Layer

| Citizen | Business | Government |

Technology Layer

Access & Delivery
- Smart Cards
- Websites
- Biometric devices
- Mobile devices

Transport
- Local Area Network
- Intranet
- SWAN
- Internet

IT Asset
- Host
- Website/Portal
- Application
- Data repository
- Service delivery gateway

Organization Layer

Service Organization (Government)

For details refer Quality Assurance Document(Concept Document-QAF00-00) chapter 2-e-Governance Architecture and Quality Aspects

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Rationale for Quality Assurance in e-Governance

- Assuring quality of eGovernance project is desirable because of huge investment and high risks are involved in the project.

- The NeGP mission defines quality characteristics and a framework is required to ensure that these are addressed in the system and complied with.

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Quality Perspective e-Governance

e-Governance is perceived as a service

Perspective is user not the Govt.

means

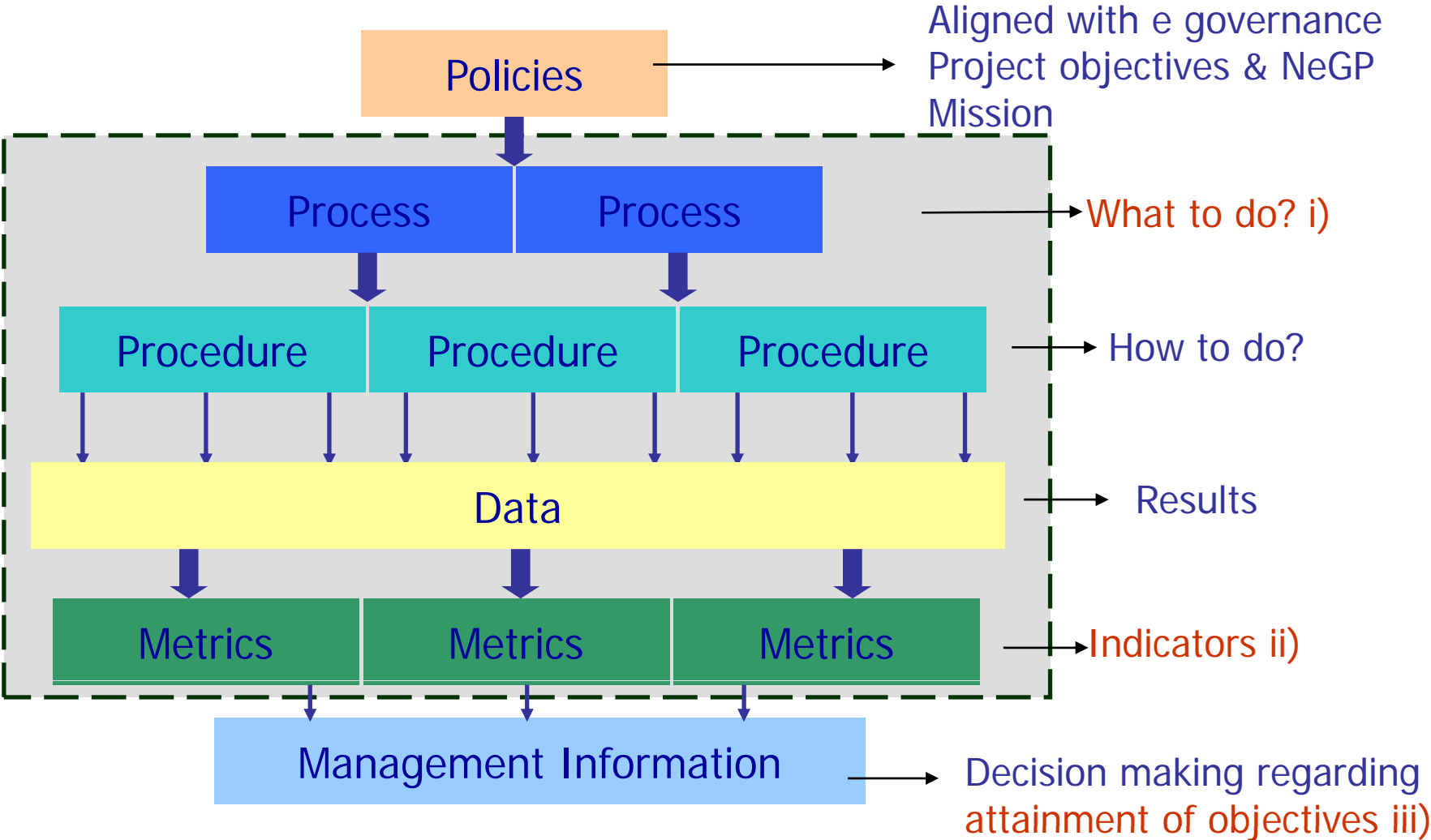"User objective is attained and is satisfied"

Vs.

"*Govt delivered the service from their perspective*"

i.e.

One of the Critical measurement point is "user"

Quality Assurance

Policies → Aligned with e governance Project objectives & NeGP Mission

Process | **Process** → What to do? i)

Procedure | **Procedure** | **Procedure** → How to do?

Data → Results

Metrics | **Metrics** | **Metrics** → Indicators ii)

Management Information → Decision making regarding attainment of objectives iii)

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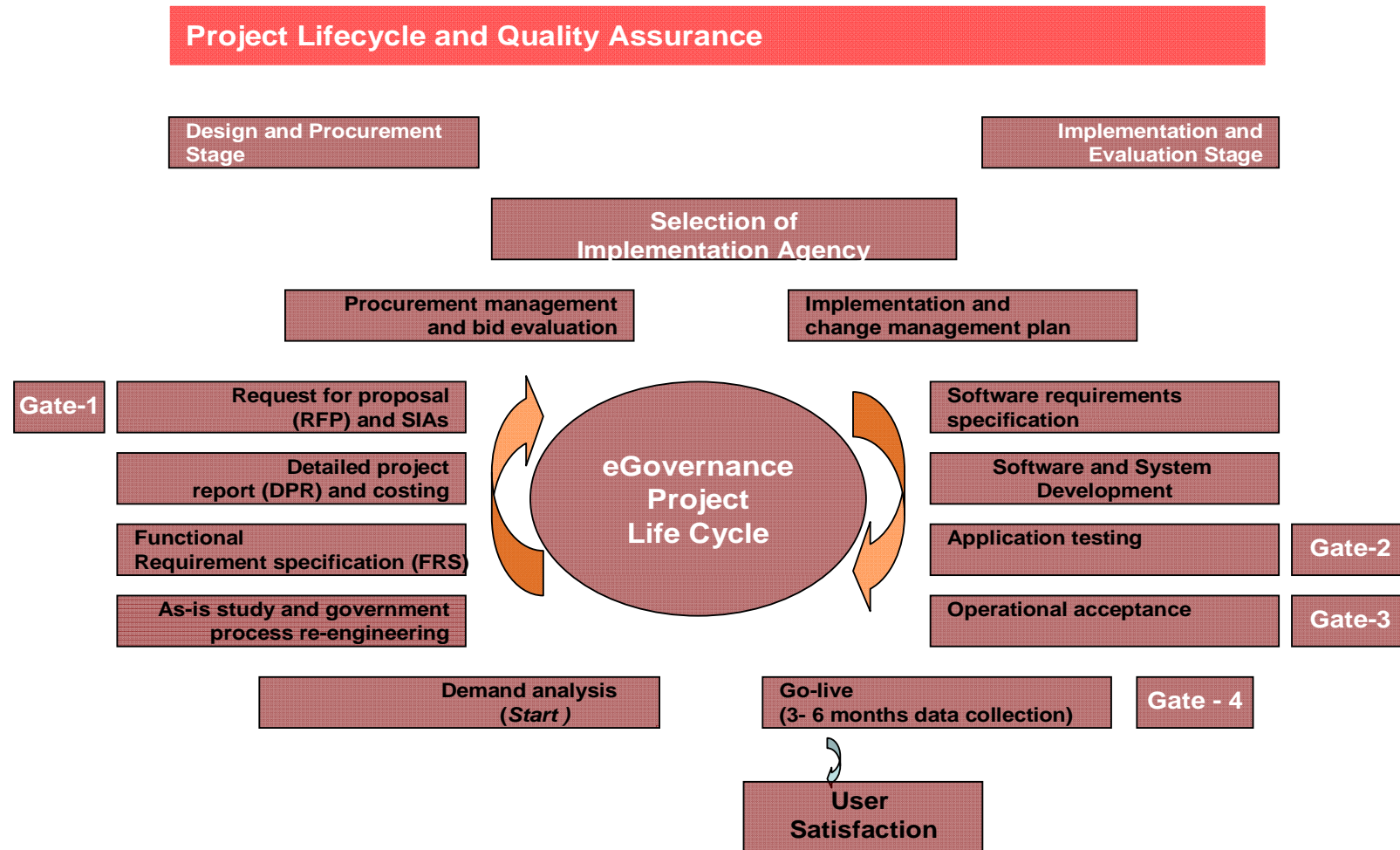
QA focuses on red color areas

Three Stages of Quality Assurance

- three stages of quality assurance in the project lifecycle:

- Implementation Stage (Definition)

- Evaluation Stage (Verification)

- Conformation (Validation)

Quality Assurance - Activities

- Implementation of processes
- Product Assurance
- Process Assurance
- Assurance of Quality System

Project Life Cycle and Quality Assurance

Project Lifecycle and Quality Assurance

Design and Procurement Stage

Implementation and Evaluation Stage

Selection of Implementation Agency

Procurement management and bid evaluation

Implementation and change management plan

Gate-1

Request for proposal (RFP) and SIAs

Software requirements specification

Detailed project report (DPR) and costing

eGovernance Project Life Cycle

Software and System Development

Functional Requirement specification (FRS)

Application testing

Gate-2

As-is study and government process re-engineering

Operational acceptance

Gate-3

Demand analysis (Start)

Go-live (3- 6 months data collection)

Gate - 4

User Satisfaction

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For details refer Quality Assurance Document(Concept Document-QAF00-00) chapter 2-e-Governance Architecture and Quality Aspects
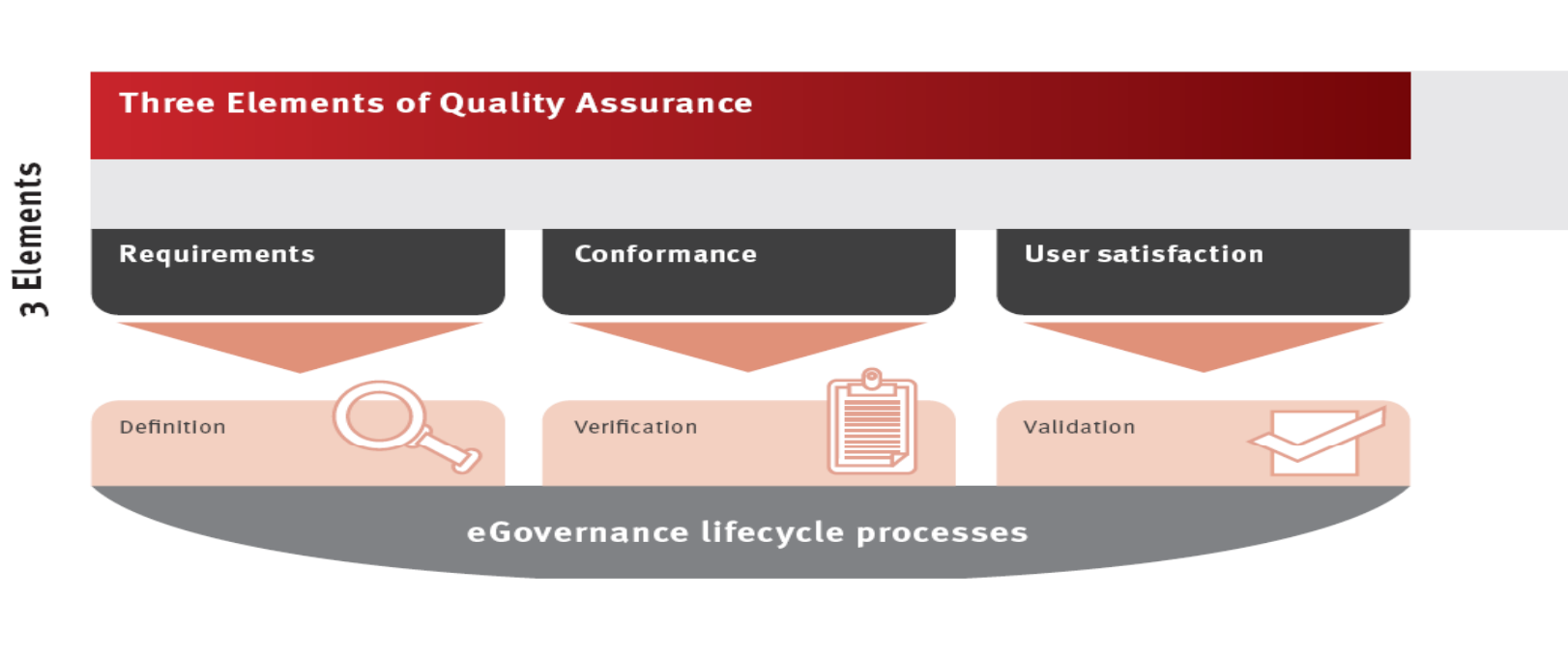
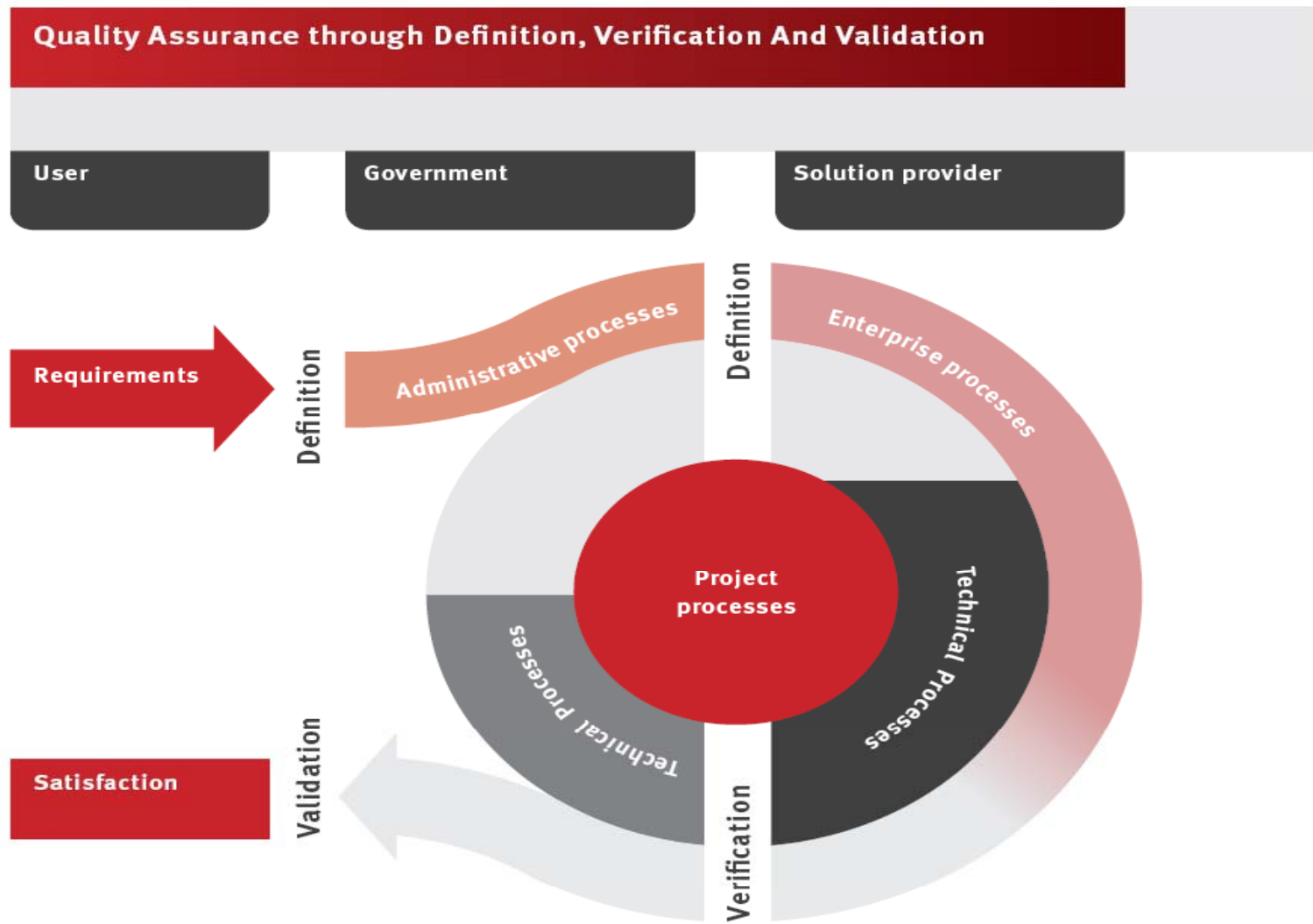# Quality Assurance framework

A framework is required to address

- Requirements are specified to higher degree (definition-adequacy)

- Requirements are fulfilled (Conformity to the requirements)

- Users are satisfied (Attainment of the objective)

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Quality Assurance Framework

The Quality Assurance Framework (QAF) enhances the e-Governance framework conditions in India to support the National e-Governance Plan's vision of providing reliable, cost-effective and transparent citizen services by applying international good practices and guidelines.

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Quality Assurance through Definition, Verification And Validation

User

Government

Solution provider

Requirements

Definition

Administrative processes

Definition

Enterprise processes

Project processes

Technical Processes

Technical Processes

Satisfaction

Validation

Verification

For details please refer Quality Assurance Document(Concept Document-Ver QAF 01.00) chapter 3-Quality Assurance Framework

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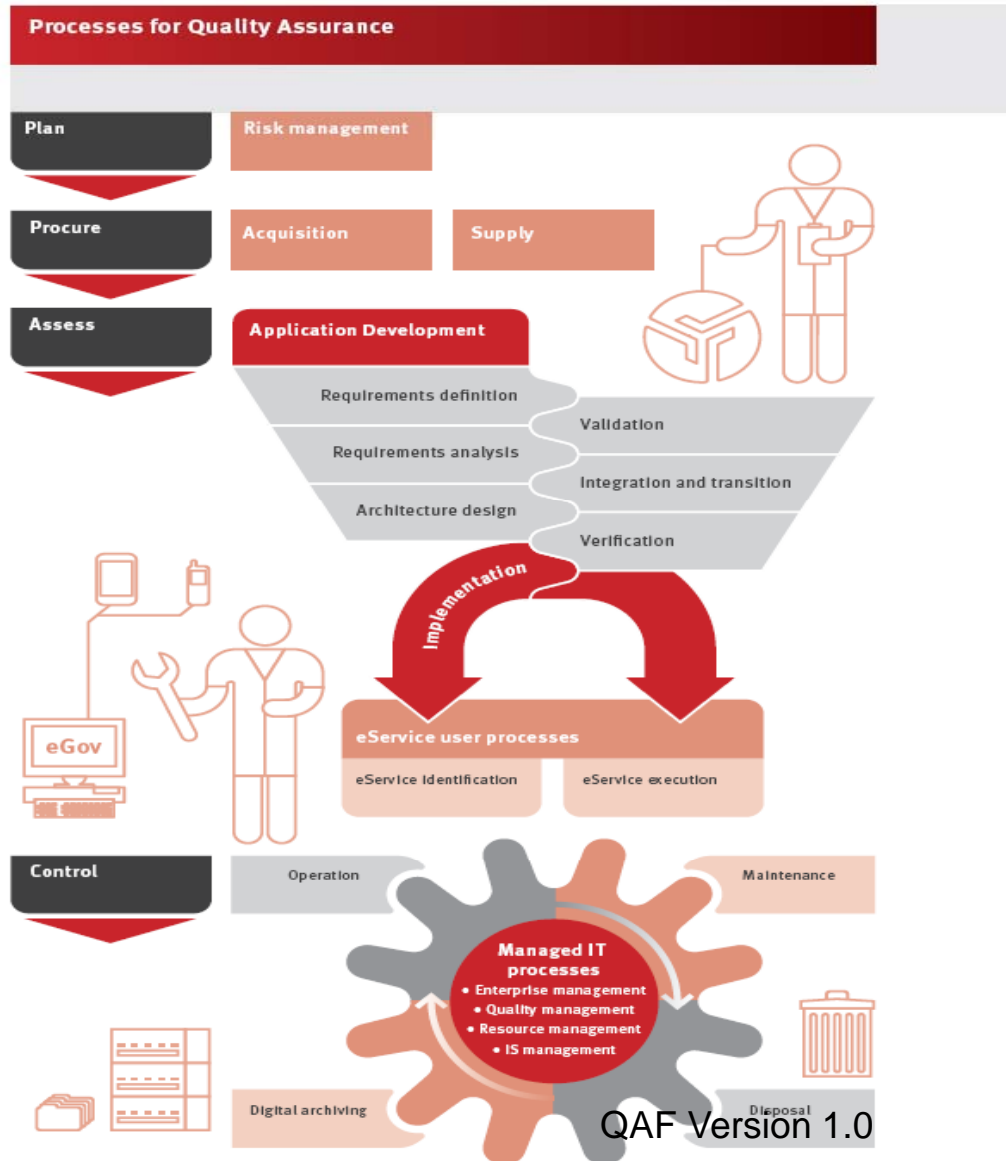# Implementation Stage (Definition)

Processes to be implemented by Government

- *e-governance project enablement*
- *Acquisition of IT system & outsourcing*
- *e-governance project management*
- *Technical processes*
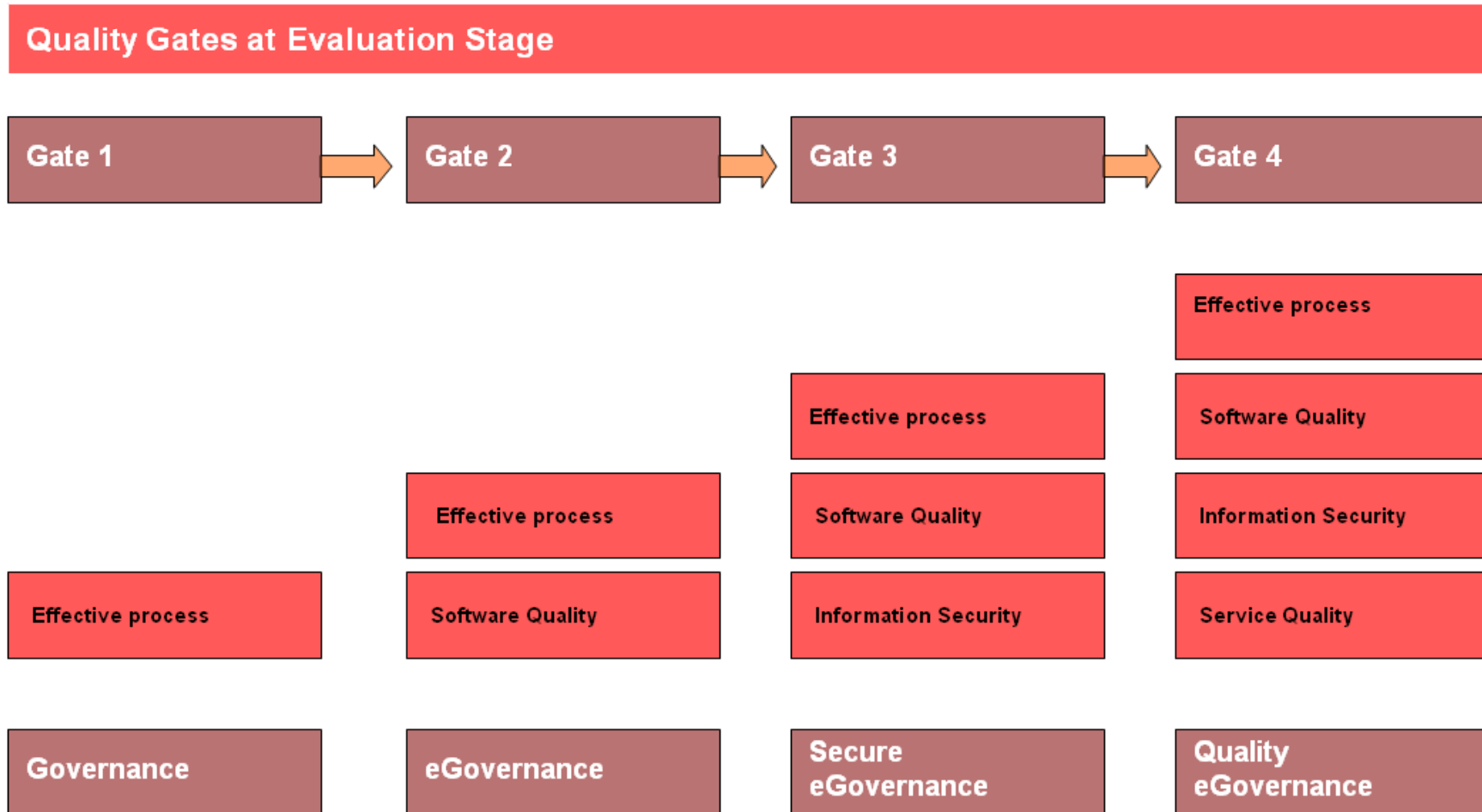- *Supply of services to Citizen, businesses etc.*

Processes to be implemented **solution provider**

- *Enterprises processes for project enablement*
- *Acquisition*
- *project management*
- *Technical processes*
- *Supply of IT services to government*
- The objective of the implementation approach is to ensure that by implementing a defined processes the probability of success of achieving outputs gets enhanced.

For details please refer Quality Assurance Document(Concept and Framework QAF 00.00) chapter 3-Quality Assurance Framework

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Quality Assurance at Implementation(Definition) Stage

Processes for Quality Assurance

Plan — Risk management

Procure — Acquisition, Supply

Assess — Application Development
- Requirements definition
- Requirements analysis
- Architecture design
- Validation
- Integration and transition
- Verification

Implementation

eService user processes
- eService identification
- eService execution

eGov

Control — Operation, Maintenance

Managed IT processes
- Enterprise management
- Quality management
- Resource management
- IS management

Digital archiving

Disposal

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Quality Assurance at Evaluation Stage (Verification)

Quality Gates at Evaluation Stage

Gate 1	Gate 2	Gate 3	Gate 4
			Effective process
		Effective process	Software Quality
	Effective process	Software Quality	Information Security
Effective process	Software Quality	Information Security	Service Quality
Governance	eGovernance	Secure eGovernance	Quality eGovernance

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Quality Assurance at Evaluation Stage
(Certification Process for Verification)

Quality Certifications* in the Project Life Cycle		
Quality in:	**Key Processes**	**Standards**
Government Departments	• Government process re-engineering • Acquisition and Outsourcing • Documentation • Risk management • QMS in govt. depts*◄—— • Request for proposal and SLA	**IS 15700**
Software Application & Data	• Technical standards and architecture • Documentation • Risk management • Software quality evaluation*◄——	**IS/ ISO 9126- 2**
Information Security Management System	• Technical standards • Risk management • Asset management • Documentation • BCP & disaster recovery management • Information security management system*◄——	**IS/ ISO 27001**
IT Service	• SLAs • Documentation • IT service management* ◄——	**IS/ ISO 20000-1**

quality certifications that could be used for various project components to certify quality. These are:
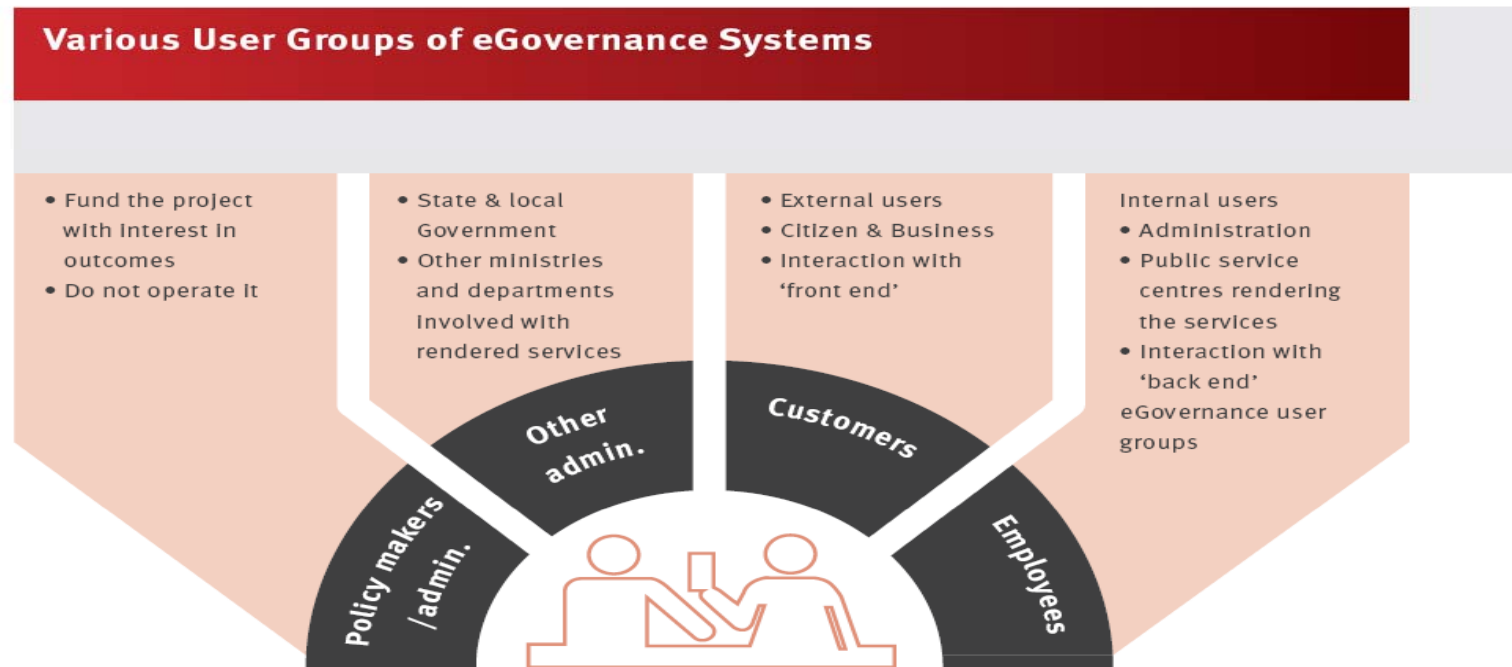
IS 15700: Developed by the Department of Administrative Reforms and Public Grievances in collaboration with the Bureau of Indian Standards, it is a standard for quality in public service delivery by government organisation, also known as Sevottam

IS/ ISO 9126-2: Developed for assessing quality of Software Engineering, provides a set of metrics to evaluate quality of software

IS/ ISO 27001: Stands for a family of certifications Information Security techniques and management systems

IS/ ISO 20000: Measures quality of IT Service Management, incorporates best practices defined in the Information Technology Infrastructure Library (ITIL) family of standards
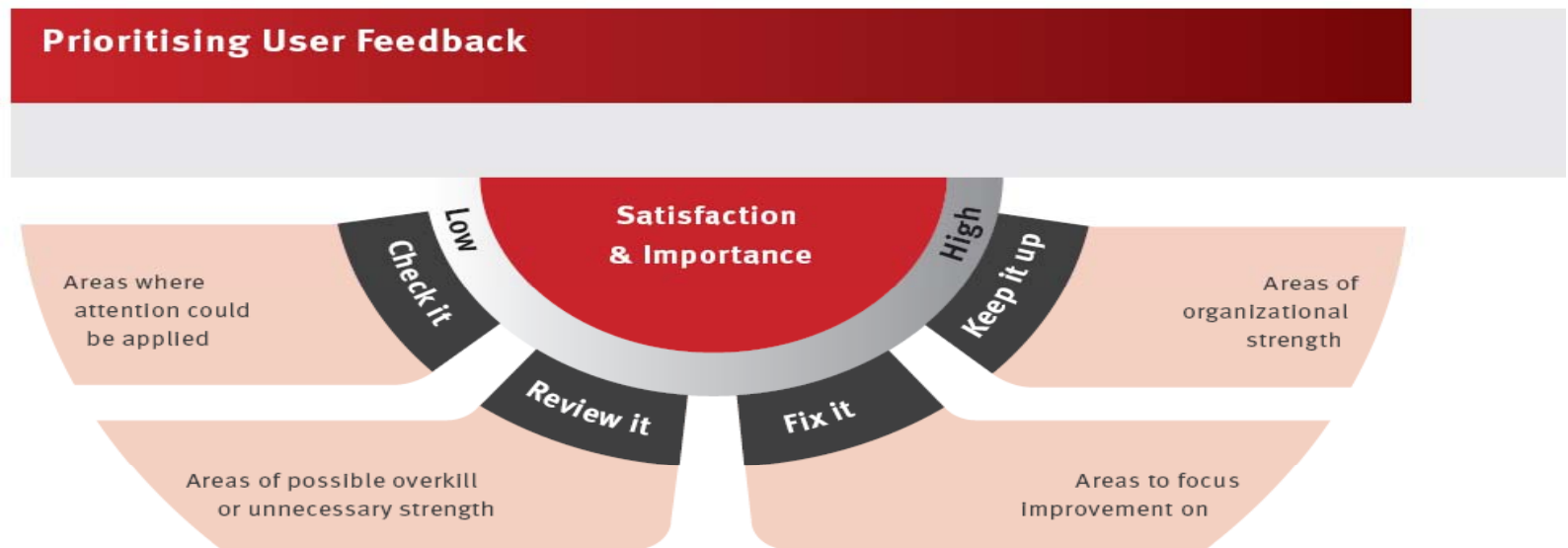
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Quality Assurance at Confirmation Stage
(Validation - Categories of Users)

Various User Groups of eGovernance Systems

- Fund the project with interest in outcomes
- Do not operate it

- State & local Government
- Other ministries and departments involved with rendered services

- External users
- Citizen & Business
- Interaction with 'front end'

Internal users
- Administration
- Public service centres rendering the services
- Interaction with 'back end' eGovernance user groups

Policy makers /admin.

Other admin.

Customers

Employees

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Confirmation Stage
(Validation - User Feedback)

Prioritising User Feedback

Satisfaction & Importance

Low — Check it — High — Keep it up

Review it — Fix it

Areas where attention could be applied

Areas of possible overkill or unnecessary strength

Areas of organizational strength

Areas to focus Improvement on

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Applying QAF in an e-Governance Project

| Vision | High Level Govt. Organizations/ (Ministries) Objectives |

| Existing System (where are we now?) | Status Appraisal |

| Proposed System (where do we want to be?) | Quality Objectives (Service Levels) |

| Roadmap (How do we get to the proposed system?) | Process Implementation |

| Project Milestone Attainment (How do we check that our milestones have been achieved) | Conformity Assessment |

| Fulfillment Of Purpose (How do we check that objectives have been attained) | User Satisfaction |

Organizational View of eGovernance Implementation

Quality assurance view of eGovernance Implementation

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Steps for Initiating Quality Assurance through the Project Lifecycle

1 — FRAME A QUALITY POLICY drawing on the NeGP vision statement and specific project objectives. This exercise should be controlled by members of the Project Steering Committee with the Project Director of the government agency taking ownership of implementation. The Quality Policy should be framed in such a way as to encourage conversion of policy objectives to measurable indicators as far as possible

2 — DETERMINE THE PROCESSES needed for the project and their application throughout the organization

3 — DETERMINE THE SEQUENCE and interaction of these processes

4 — DETERMINE CRITERIA and methods needed to ensure that both the operations and controls of these processes are effective

5 — MAKE AVAILABILE skilled resources and information necessary to support the operation and monitoring of these processes

6 — MONITOR, MEASURE AND ANALYSE these processes

7 — IMPLEMENT ACTION necessary to achieve planned results and continual improvementsof these processes

8 — DEVELOP THE RFP using standards, architectures and conformity assessment (CA) requirements

9 — EVALUATE THE CRITICAL COMPONENTS of the system for compliance with the risk based selected CA specifications

10 — PLAN AND CONDUCT User Satisfaction Surveys and incorporate into project monitoring mechanisms

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QAF Documents Navigation Guide

Quality Assurance Requirement	Quality Assurance Framework (QAF00-00) (Documents)
(Definition) Process Design & Implementation (Implementation Stage)	• Government department process requirements (QAF01-01) • User process requirements (QAF01-02) • IT solution provider process requirements (QAF01-03) • Standards and Architectures(QAF01-04) • Recommended practices and guidelines (QAF01-05)
(Verification) Product Assurance Process Assurance Assurance of management systems (Evaluation Stage)	• Conformity Assessment Requirements (CARE) (QAF02-01) • Conformity Assessment Specifications (QAF02-02) • Conformity Assessment Evaluation models(QAF02-03) • Conformity Assessment Certification Schemes(QAF02-04) • Conformity Assessment aadministration(QAF02-05)
(Validation) **User Satisfaction** (Confirmation Stage)	• Project evaluation (EAF01) • User satisfaction (QAF03-01)

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Quality Assurance Framework Documents

Title of Document	Scope of Document	Target Audience
Govt. organisation – Process Requirements (QAF0101)	Defines the purpose, activities and expected outcome from project management, infrastructure management, HR management & Quality management processes	Policy Makers and Administrators
Project Process Requirements (QAF 0101-01)	To identify, control and mitigate risks and to control execution of the project.	Project Managers
Legal requirements (QAF 0101-02)	Summarize various legislations applicable, primarily the IT Act 2000 (Amendment 2008) and the other acts for delivery of the Govt. Services through Websites like consumer protective out, disability act, right to information act etc	Project Managers and concerned responsible from concerned ministry
User Process Requirements (QAF0102)	Provides recommendations to users to safeguard their interest with respect to security and privacy of personal information.	Project Managers and General Users
IT Solution Provider Process Requirement (QAF0103)	Highlights the processes and practices which the implementing agency should follow	RFP Writers, Conformity assessment bodies and the solution providers/vendors
Standards & Architectures (QAF0104)	Presents standards, processes, methods and products of state of the art IT development for e-Governance applications in concise form.	RFP Writers, Conformity assessment bodies and the solution providers/vendors
Guidelines & Recommended Practices (QAF0105)	Set of recommended practices are being developed to make the system efficient & effective	solution providers/vendors
Conformity Assessment Requirements (CARE) (QAF0201)	Provides an indicator of the degree of compliance of the solution to the requirements as defined in the Request for Proposal (RFP)/contract documents by means of an objective evaluation of the solution. It recommends process for selecting quality gates and evaluating the solution for these quality gates.	RFP Writers and the solution providers/vendors

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Title of Document	Scope of Document	Target Audience
Conformity Assessment Specification (QAF0202)	Elaborates the CARE document In terms of introduction, purpose, objectives, scope, target audience, technical description & process, specification & specific requirements, applicable standards, minimum documents required & assurance mechanism.	The technical experts, Evaluators (CAB) & the solution providers/vendors.
Conformity Assessment Evaluation models (QAF0203)	Define Quality Evaluation Model for those component where quality of the subject area needs to evaluated, standard exists but no formal certification scheme in place. Evaluations are carried out on both the process & product artifacts	The technical experts, Evaluators (CAB) & the solution providers/vendors.
Certification Schemes QAF0204)	Designed around those subject area & standards where normative document on "requirements" exist & certification schemes are in operation by various accredited certification bodies traceable to international accreditation forum.	Certification bodies(CAB) & the solution providers/vendors.
Conformity Assessment - Administration (QAF0205)	Highlights about the administration of conformity assessment of e-governance program.	Administration are the Conformity Assessment Bodies (CAB)
User Satisfaction (QAF0301):	Define User Satisfaction measurement model	Policy makers & administrators
Project evaluation (EAF01)	Provide rational framework for assessing e-Governance projects on various dimensions**(**To provide guidelines for shaping future e-governance projects, To provide material for e-governance training programs, To enhance the trust and confidence of stakeholders by enabling creation of a Knowledge base of all e-Governance projects rated as per adopted framework.)	Senior administrator of implementing organization and the funding agencies.

Thanks

Your feedback may be sent to
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