Quality Management & Risk Management in e-Gov Projects

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Quality Management in IT Projects

- Quality Management comprises
  - Quality Assurance, Quality Control
  - Software, Hardware, Functionality, Compliance

- **Quality Assurance**
  - The systematic process to ensure that the product or service meets the specified requirements.
- **Quality Control**
  - The process that focuses on *fulfilling* quality requirements.

Quality Assurance Vs Quality Control

Attribute	Quality Assurance	Quality Control
Objective	Prevention of defects occurring	Detection and fixing of defects
Focus	Process	Product
Applicability	Throughout the SDLC	In the testing phase
Involvement	The whole team	Testing team
Processes	Documentation Audits Change Control	Quality metrics
Timing	Continuous	Pre-release

Ideally, organizations should adopt both QA and QC practices to achieve **Quality-by-Design**

Requisites of Quality Management in IT Projects

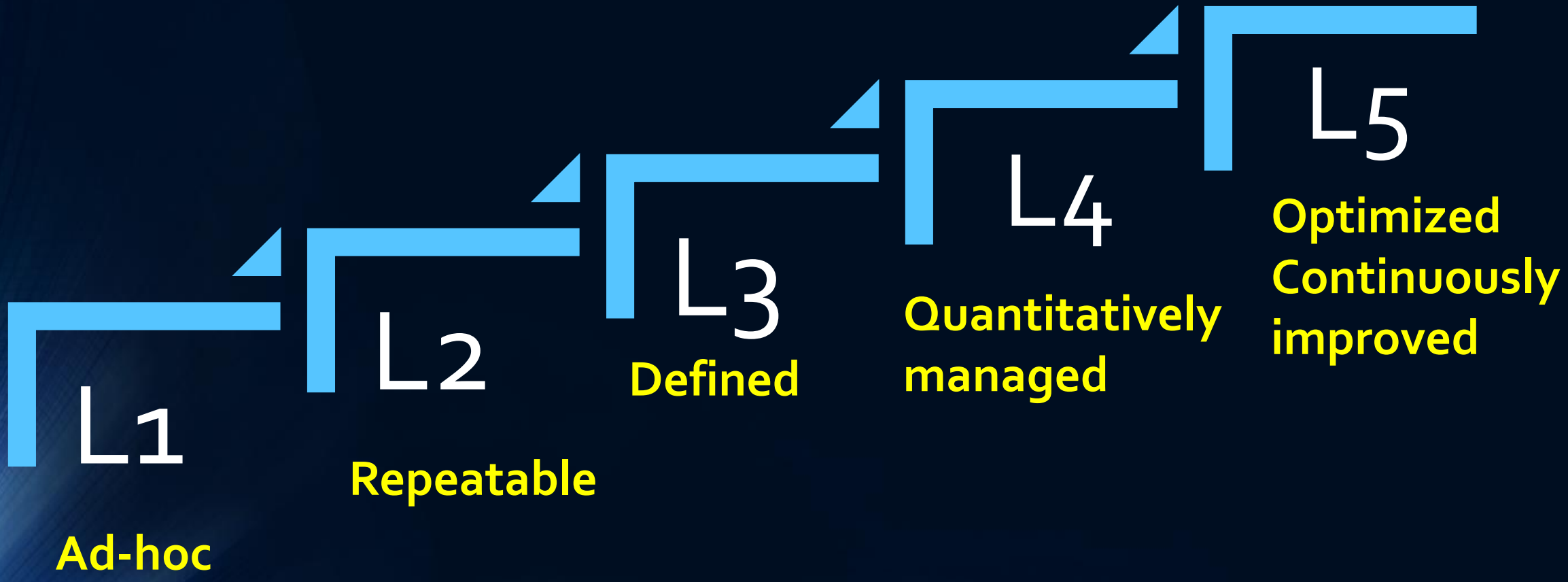
- Performance
- Usability
- Maintainability
- Stability
- Accuracy
- Consistency
- UI, UX

Methods of Quality Management

- Consultation
  - Citizen engagement
- Co-design/ development
- Documentation
- Validations
- Control on code changes
- Plan-Do-Check-Act
  - PDCA

- Agile Methodology
- DevOps
- RTM
  - Requirements Traceability Matrix
- Testing
  - Unit testing
  - Integration testing
  - System testing
  - Acceptance testing

SEI-CMM - process requirements



You can walk on water

if it is FROZEN !

You can develop a high-quality application

*if the software requirements are FROZEN ! **

** The Agile school does not believe in this!*

Challenges to QM in e-Gov Projects

- **Absence of efforts on Architecture, Standards and Specs**
- **Lack of rigour in requirements specification (SRS, FRS)**
  - Incomplete, imprecise specifications
  - Continually changing, no sign-off
  - Not engaging end-users
- **Inadequate contractual provisions**
  - Testing and acceptance criteria not defined
- **Lack of focus on defining SLA's**
  - Lack of provisions for measuring performance against SLAs
- **Misplaced focus on outputs instead of on outcomes**
- **Shortage of knowledge, skills and competencies in the dept**

Suggested measures for enhancing quality

- **Capacity Building on QM methods and techniques**
- **Hiring QM experts in the dept/ PMU**
- **Adopting outcome-based procurement model**
- **Conducting PoC before developing the RFP**
- **Pre-RFP consultation with industry, academia**
- **Survey of best practices**
- **QCBS method of procurement (~ 70% weightage for quality)**
- ***Enabling* the ecosystem, rather than *building* systems**

Risk Management

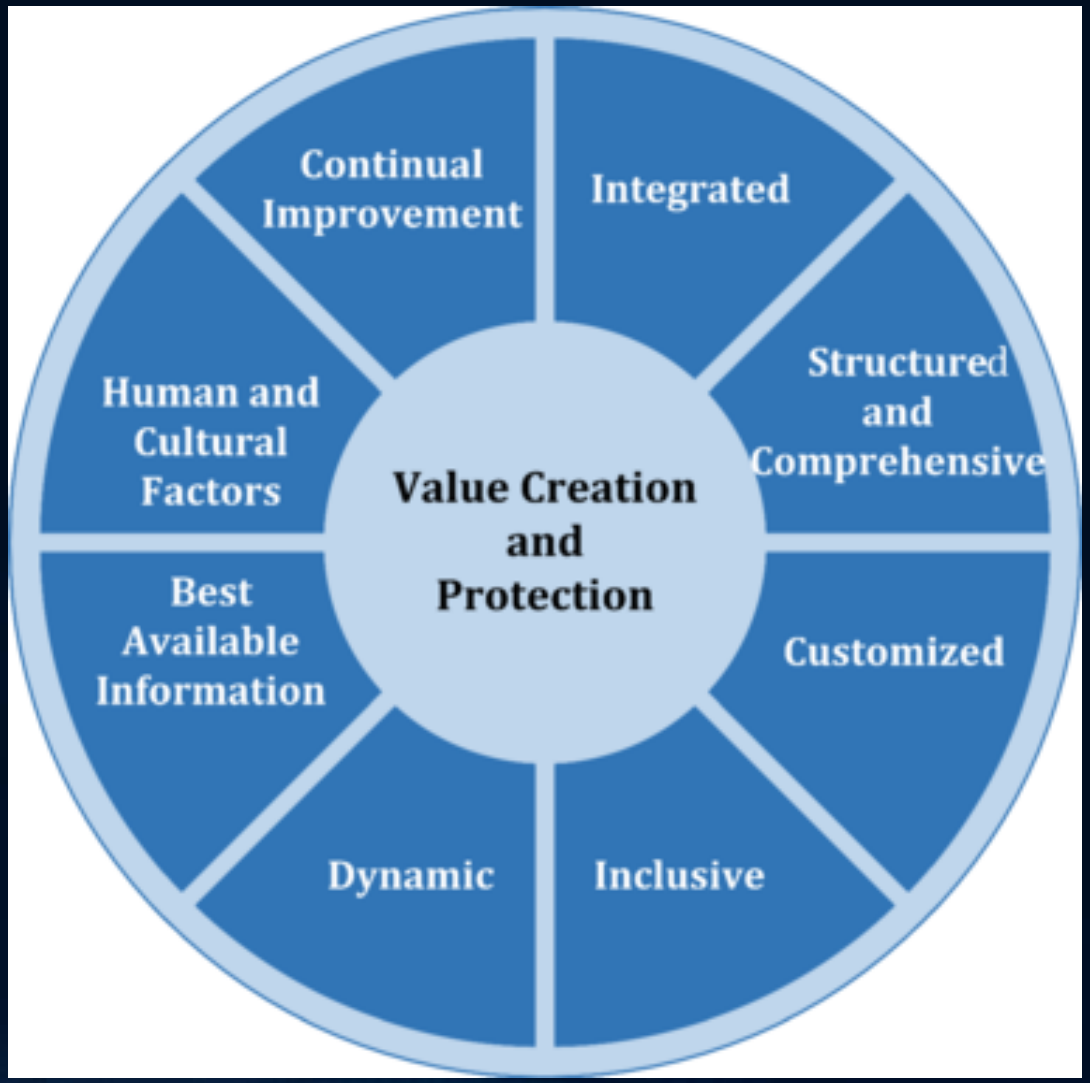
(relates to managing Project Risk and NOT Information Security Risk)

- **Risk**
  - is the effect of uncertainty on project objectives
  - is expressed in terms of
    - risk sources
    - potential events
    - their consequences and
    - their probability

- **Risk Management**
  - comprises of the coordinated activities to direct and control the organization with regard to **risk**.

Source: ISO 30001:2018

Principles of Risk Management



Source: ISO 30001:2018

Risk Management Framework

- RM is integral to the org structure, vision
- Widespread across all levels
- Governance of risk
- Dynamic, iterative

- Assessment of external context
  - social, economic, environmental, political, contractual, stakeholder perceptions
- Assessment of internal context
  - Vision, mission, objectives
  - Strategies, policies
  - Standards, IT Systems
  - Capabilities

- Planning RM
- Defining decision-making processes
- Capacity building
- Creating awareness

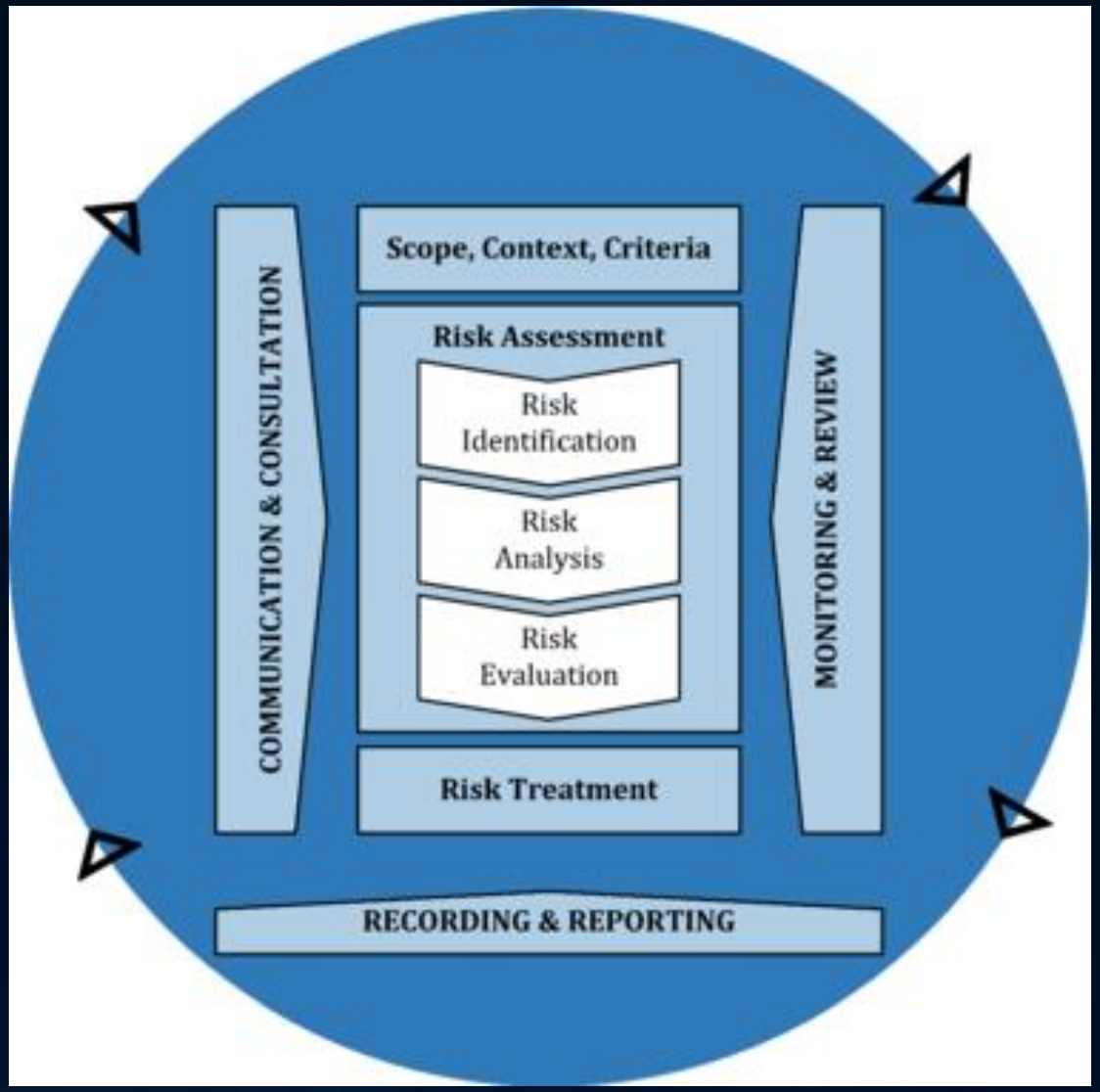
- Adapting to changes in environment- internal & external
- Continuous improvement

- Setting RM Policy
- Providing resources
- Defining RACI
- Defining risk tolerance levels
- Monitoring
- Communication

- Measuring effectiveness of RM
- Realigning the RM strategies and plans

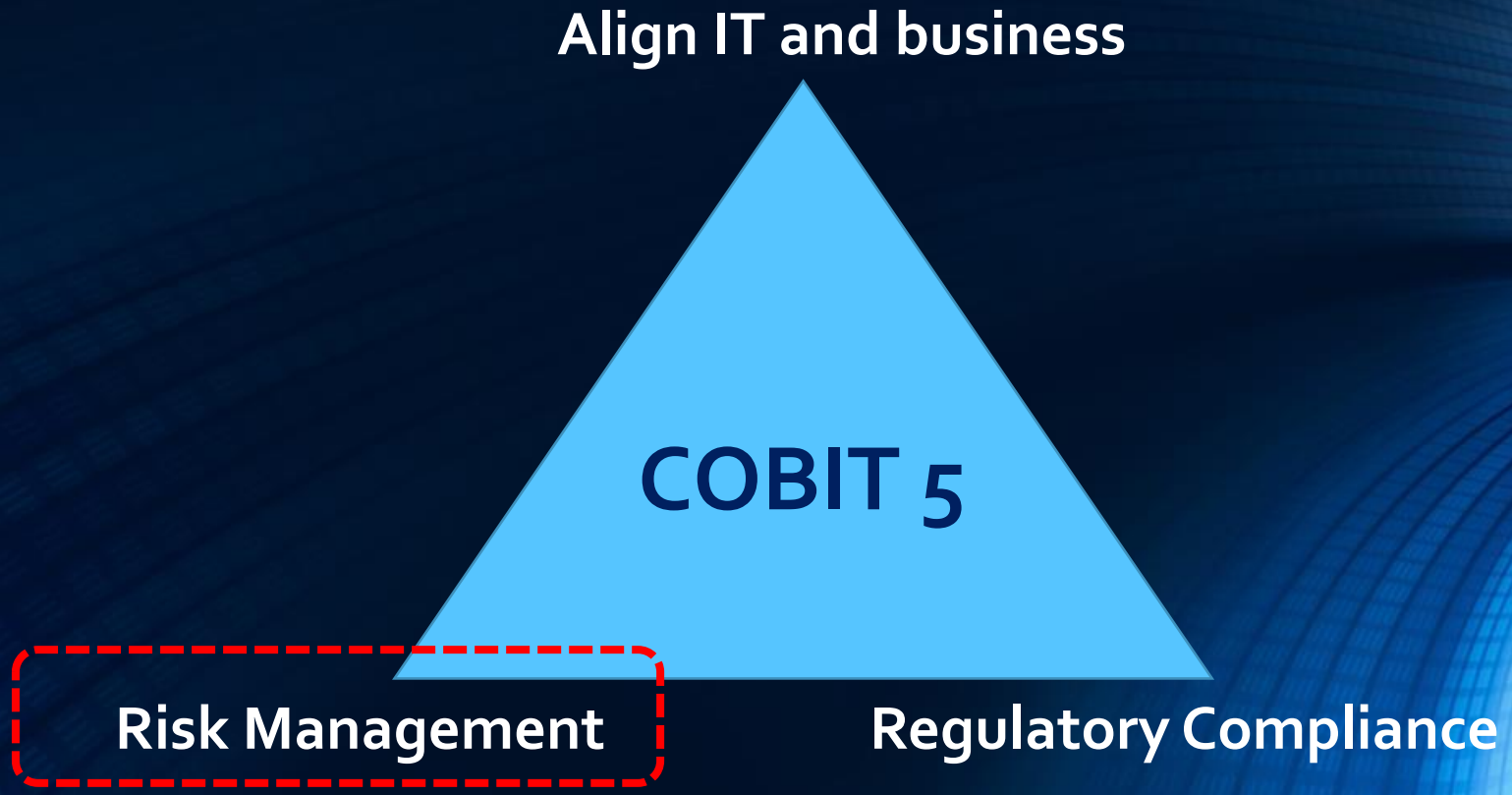
Source: ISO 30001:2018

Risk Management Process



Source: ISO 30001:2018

What is COBIT 5? (1/2)



What is COBIT5 ? (2/2)

- **Control Objectives for Information and related Technology**
- A Value-driven framework for realizing Business Objectives by leveraging IT
- COBIT5 is NOT *another* Standard !
  - It is a Framework that Integrates/ leverages the existing Standards & Frameworks in the Enterprise & IT Management sectors
- Advocates a Holistic Approach through use of Enterprise IT
- Defines 5 Principles and 7 Enablers

COBIT5
– for a *balanced approach !*

5 Principles

1. Meet Stakeholder needs
2. Cover the Enterprise end-to-end
3. Apply an Integrated Framework
4. Adopt a holistic approach
5. Separate Governance from Management

7 Enablers

1. Principles, Policies, Frameworks
2. Processes
3. Organizational Structure
4. Culture, Ethics, Behaviour
5. Information
6. Services, Infrastructure, Applications
7. People, Skills, Competencies

Allocation of risks in a PPP e-Gov project (1/2)

Sl No	Nature of risk	Party best suited to bear the risk	Remarks
1	Environmental risk	Pvt partner	Environmental Impact Assessment
2	Social risk	Government	Social risk management plan
3	Design risk	Private partner	• Government may prescribe specs, standards and design principles • Private partner may develop detailed designs and get them approved before execution.
4	Development risk	Private partner	• Effective project management • Monitor time and cost overruns
5	Completion risk	Private partner	• Completion of critical and core components to be a pre-condition for commencement of CapEx payments • All payments to be milestone-based • Agreement to provide for incentives for early completion and penalties for delays in completion • 'Long stop date' may be fixed with a grace period of a fixed time after the scheduled completion date. This is to cover for unforeseen events/ delays.
6	Integration risk	Private partner	• Effective coordination between multiple teams.
7	Performance risk	Private partner	Ambitious but achievable KPIs
		Government	Facilitation by involving filed functionaries and district administration.

Allocation of risks in a PPP e-Gov project (2/2)

Sl No	Nature of risk	Party best suited to bear the risk	Remarks
8	Resource risk	Private partner	Quality of resources deployed to be monitored by the government.
9	Demand risk	Shared	• Effective analysis and estimation of potential demand for the services. • Risk to be borne substantially by the government • Minimum demand to be guaranteed by the government • Cap (on maximum demand to be paid by govt) and collar (minimum demand to be paid by govt) arrangement can be part of the agreement, when the demand can not be estimated accurately.
10	Maintenance risk	Private partner	• Compliance with maintenance standards (ISO where available, prescribed otherwise) • KPIs and SLAs • SLA-linked payments • Independent TPA to assess performance against SLAs/ quality
11	Foreign exchange / interest risk	Private partner	• Through hedging arrangement
12	Regulatory changes	Government	• Private partner to be compensated for changes in regulation/ law that affect the CapEx, and changes that are specific to the agriculture sector • Establishing sandbox environment.

Maximize Quality
Minimize Risk

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