
Quality Process Awareness

Objective

To Understand the following :

- Quality – What and Why
- Introduction to Quality Management System (QMS @iGATE)
- QMS support to Software Methodology
- Metrics
- Defect Prevention

Quality Management System

What will make any organization successful ?

What will make a project successful ?

Concept of Quality

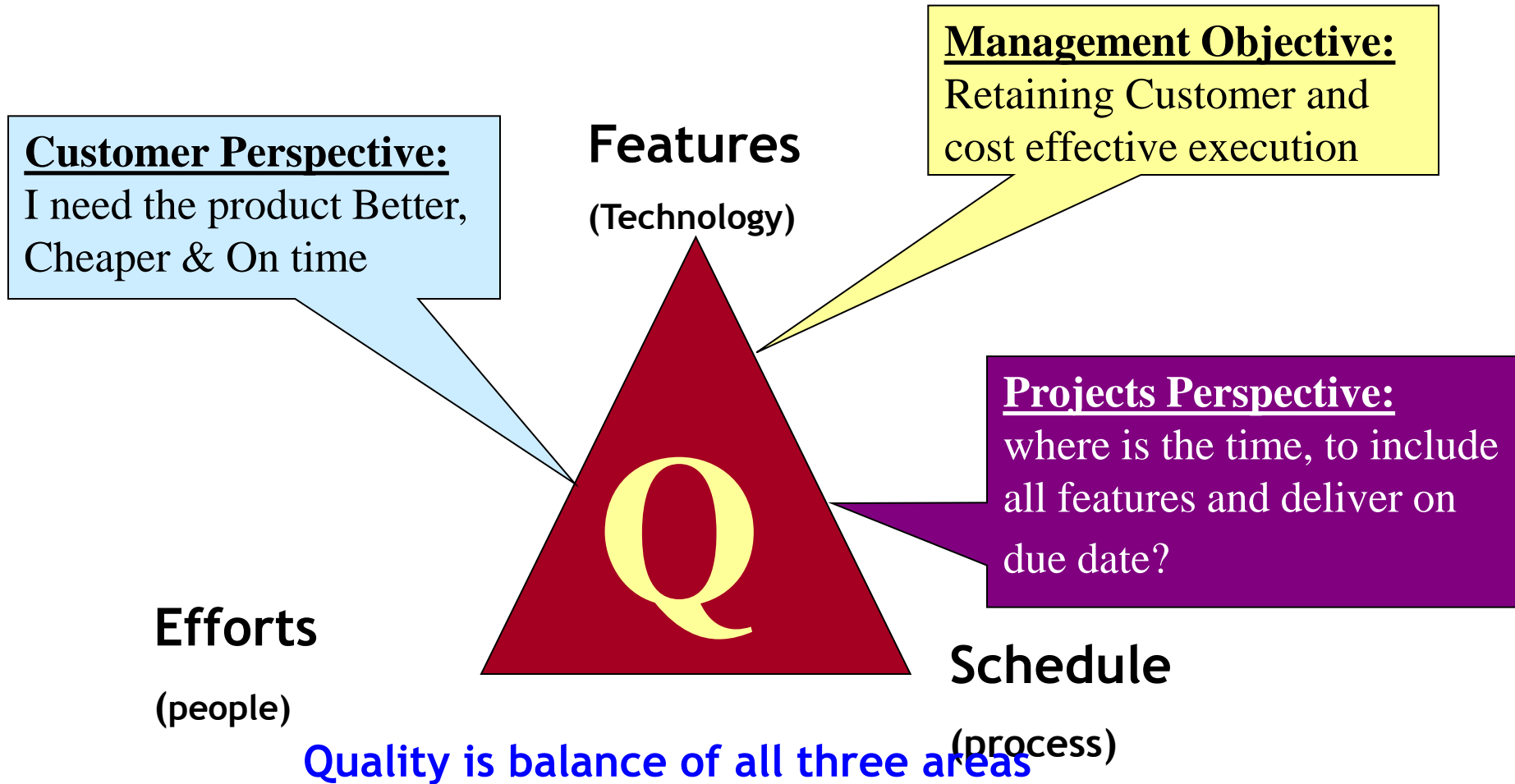
“ I don’t know much about Quality, but I am sure of one thing – if your quality is good, customers come back, else product come back.”

- Margaret Thatcher

Quality - What ?

- **Simply put , quality means a state which is free from defects , deviations and variations and is cost effective**
- **ISO defines quality as ability of a service or product to satisfy the stated or implied needs of the customer**
- **Developing Quality product /service means**
 - Meeting the customer explicit and implicit requirements
 - Delivering on time and in full
 - Defect free service within cost and schedule
 - Being flexible and responsive to desired changes
 - Co-operating
 - Improving own performance

Concept of Quality



Quality Management

- **A management technique used to ensure that product / service of the organization is of desired quality and standards**

- **Quality Management helps in**
 - Establishes a vision for the employees.
 - Sets standards for employees.
 - Monitors and tracks the adherences of standards
 - Helps in communicating to the employees about the standards
 - Brings consistency
 - Reduces conflict (My way is better than yours)

- **Quality Management is needed because**
 - Problems and Solutions are becoming more complex requiring higher level of precision
 - Cost and progress monitoring is becoming difficult
 - rapid pace of technological and business change

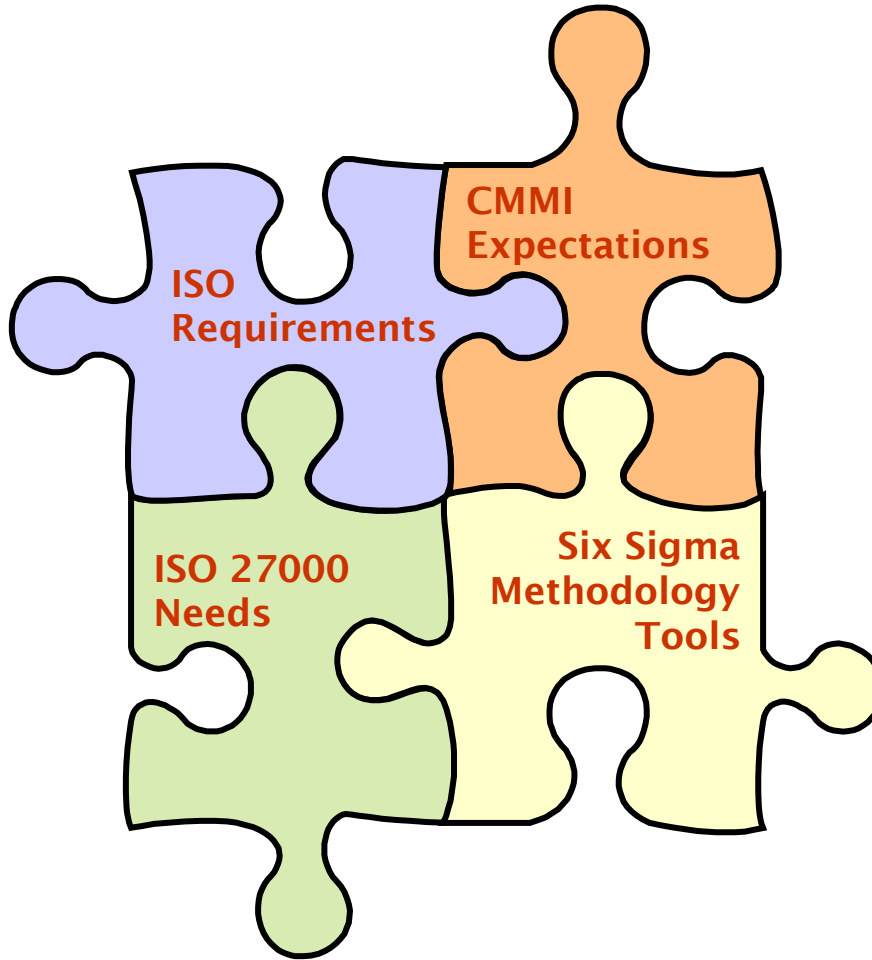
Quality Management Systems – QMS

- **A system of as the organizational structure, procedures, processes and resources needed to implement to implement quality management**

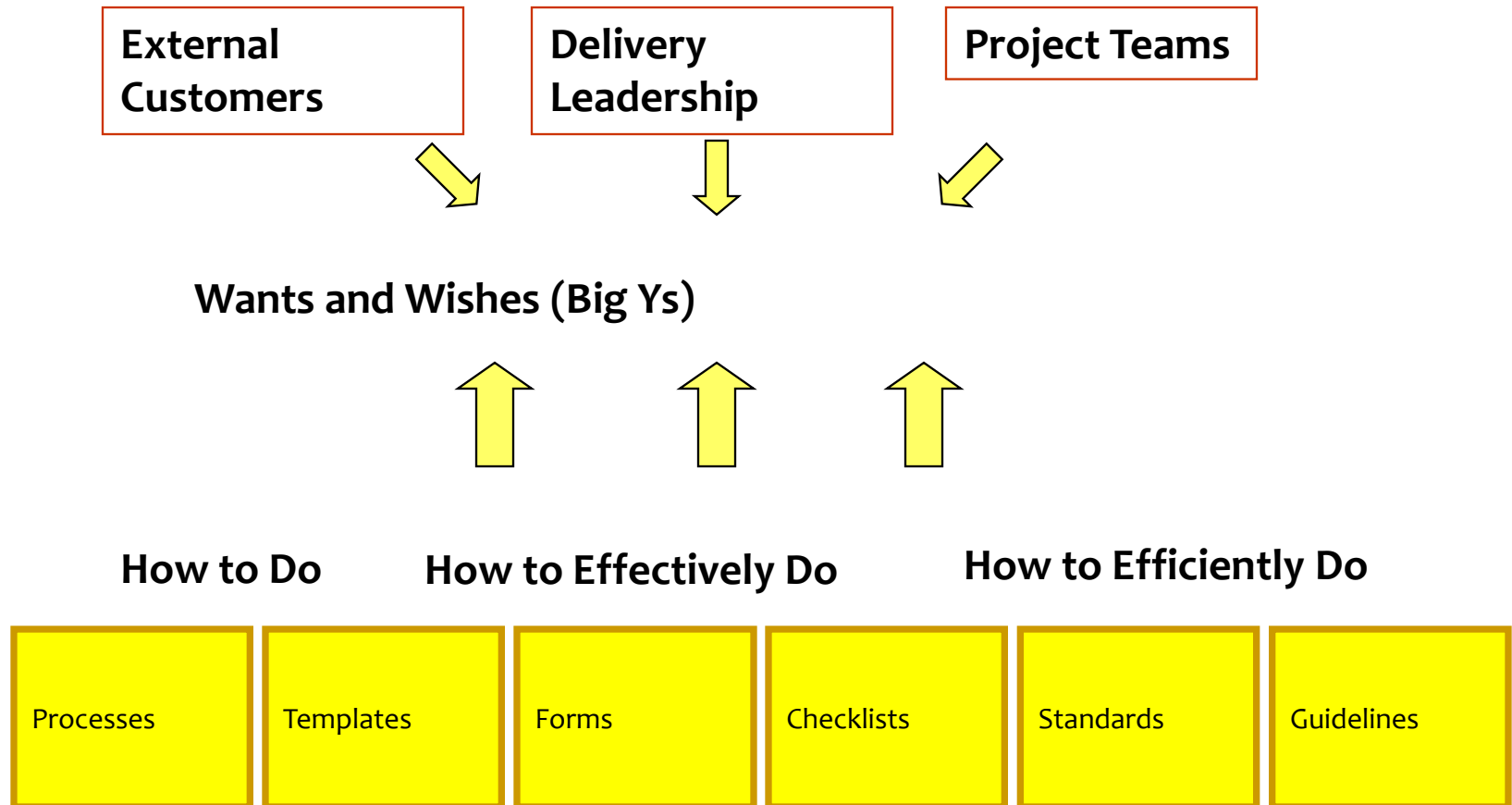
- **Elements of QMS**
 - **Standard Operating documentation**
 - Processes, guidelines, and standards
 - Templates and forms for record keeping
 - **Documentation classification**
 - Public, Sensitive etc
 - **Audit /QA procedure**
 - Internal audit , reporting and
 - **Defect and Rework procedure**
 - **Training of employees**

IGATE QMS is known as Qzen

IGATE QMS is an integration of.....



How can QMS help?



Branded QMS?

Why do we need Qzen?

➤ **Market**

- Customers comfort in branded methodology of vendor
- Peer Pressure
- Creating a differentiator in the market place
- Delivering Speed with Consistent Predictability



➤ **Delivery**

- Details of software engineering practices
- De-risk projects and reduce escalations
- Building Customer Confidence
- Handling of Large engagement successfully
- Technology and Domain competencies creation and retention (upper life cycle skills)
- Flattening of pyramid requiring deskilling
- Working as Global teams
- Clear, crisp and easy to understand process

Where is QMS ? ---- The iSpace intranet



EMPLOYEE SATISFACTION SURVEY

Tell us how we are doing

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News

- » Announcing iFIRST (iGATE Patni Forum for Incident Reporting Services)
- » Online LTA Claim process
- » Unified Domain Migration - Change in Display Name
- » iGATE Patni Online Compliance Keeper Education and Training Program ("iPOCKET")
- » Announcing the iTrack - Compliance tool for projects and processes

[+ Read More](#)

Quick Links

- | | |
|---------------------------------|------------------------------|
| » Leave Request | » Appraisal (Self) PS 8.8 |
| » Movement Request (MR) | » Appraisal (Manager) PS 8.8 |
| » Business Travel Request (BTR) | » Appraisal (Self) PS 9 |
| » Timesheet Entry | » Appraisal (Manager) PS 9 |



Competency
Management System

Annual Appraisals
2011 - 12

R & R Program



MY CORNER

- » Qzen
- » Kx
- » iChange HCM
- » iChange - PM and Finance
- » iLEARN



APPLICATIONS



CORPORATE CORNER



POLICIES & DOCUMENTS

Where is QMS?

- ☑ iChange - PM and Finance
- ☑ iChange HCM
- ☐ iConnect
- ☐ Ideas
- ☐ iFIRST
- ☑ iLEARN
- ☐ Innovation Portal
- ☐ iTrack
- ☐ iXchange
- ☑ Kx
- ☐ ManageMe
- ☐ PeopleSoft 8.8 Finance (For Core Finance Users Only)
- ☐ PeopleSoft 8.8 HRMS (Only for iGATE Appraisal)
- ☐ Project BIA
- ☑ Qzen
- ☐ Sales Portal (KX)
- ☐ Stationery Request
- ☐ VisaTrack

Methodologies for 'Delivery Excellence'



Rational Licenses

Click here

Which methodology should I use?

Website Features

Downloadable Qzen Collaterals

Downloadable Qzen Release Note

Request for Process Improvement (RFPI)

Recent Updates

Development Agile model -
Configuration Management, Release &
Deployment newly added

Best viewed on 1024 x 768 resolution with IE 6.0 and above.

Development Methodology

Patni PLUS™
Development Methodology

Engage | Enable | Excel

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Release Note

Patni PLUS Development Methodology Umbrella Chart

Expand All Sections Collapse All Sections

Main Description

The diagram illustrates the Patni PLUS Development Methodology Umbrella Chart. It is structured into four main phases: Inception, Elaboration, Construction, and Transition. The Inception phase includes Plan, Requirements, and Architecture & Design. The Elaboration phase includes Architecture & Design and Code. The Construction phase includes Code and Test. The Transition phase includes Test and Final Release. The chart also shows a series of iterations (Iterations ..) across the phases, leading to a Prototype, Proof of Concept, Executable, and Executable ..n. The bottom of the chart features a Knowledge Bus and a Global Knowledge Repository and Tools. A legend on the right indicates Non-Functional Requirements, including Security and Performance.

July 10, 2014

Proprietary and Confidential

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IGATE
Speed.Agility.Imagination

Maintenance Methodology

Patni PLUS™ Maintenance Methodology

Engage | Enable | Excel

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Patni PLUS Maintenance Methodology Umbrella Chart

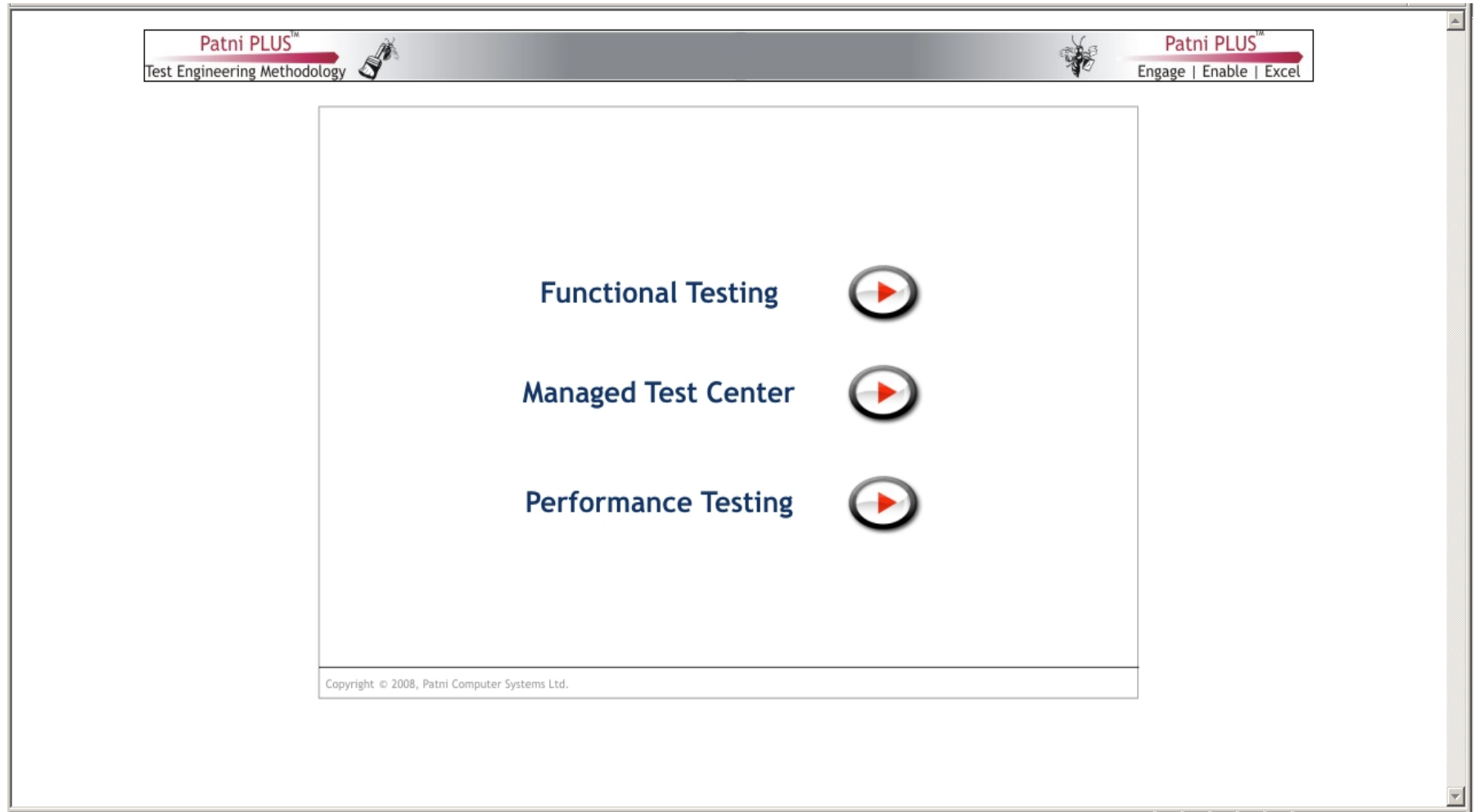
Expand All Sections Collapse All Sections

Main Description

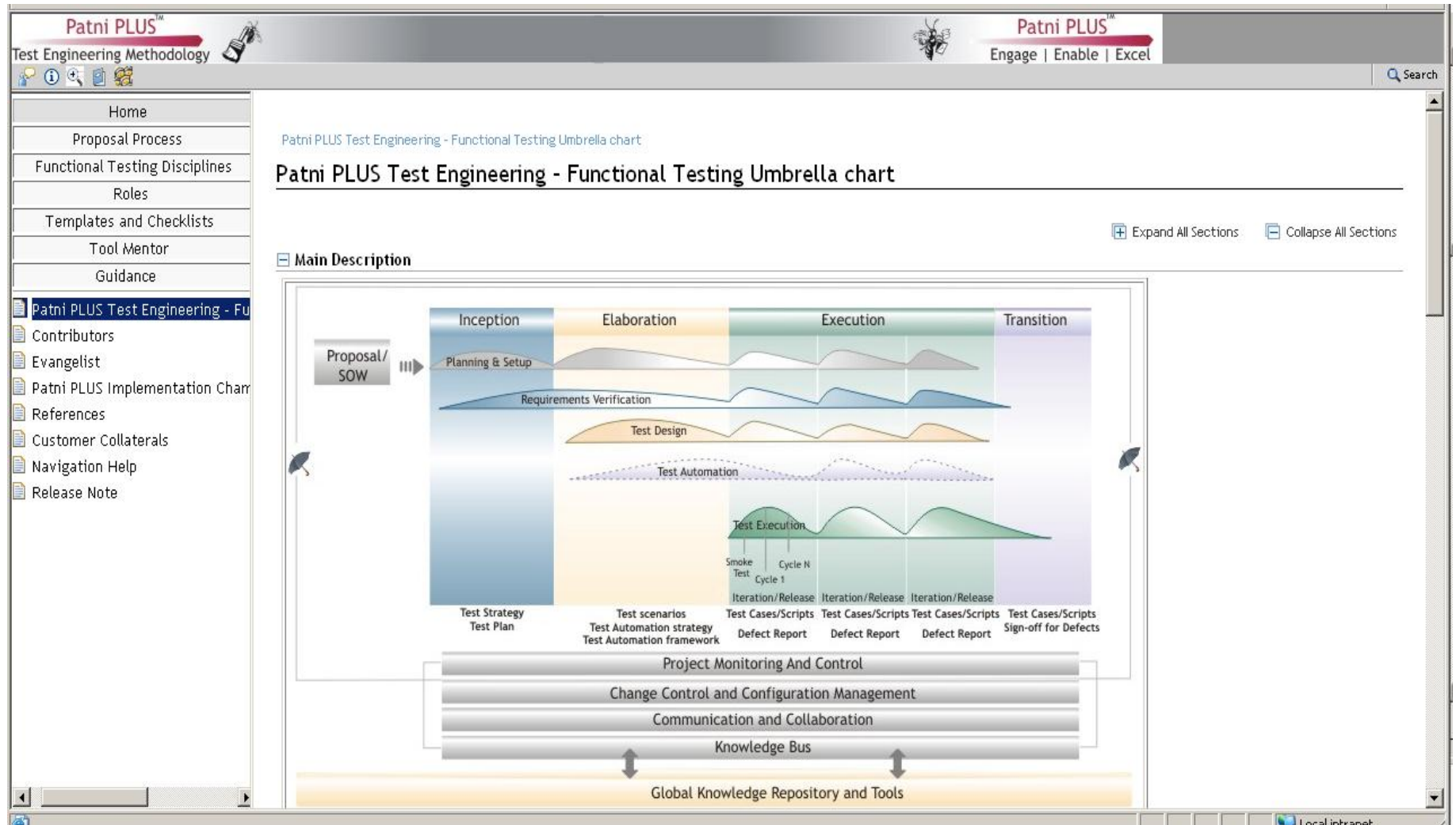
The diagram illustrates the Patni PLUS Maintenance Methodology Umbrella Chart. It features a central process flow with five main stages: Pre Contract, Initiation, Transition, Continual Steady State, and Closure. Each stage has associated activities listed below it. The Continual Steady State stage is highlighted with a circular arrow indicating a continuous cycle of Execution, Improvement, and Knowledge Enrichment. Above the process flow is a wide orange bar labeled 'Governance'. Below the process flow are several horizontal bars representing support functions: Service Level Management, Project Monitoring & Control, Security Management, Supplier Management, Configuration Management, Defect Prevention, Communication and Collaboration, Knowledge Bus, Global Knowledge Repository and Tools, and Infrastructure. The entire process is framed by a 'Scope' bar at the bottom.

Scope

Test Engineering Methodology



Test Engineering Methodology



QZen support for SDLC Phases

Requirement Phase

- **Requirement Process flow**
- **Task list for each activity in Requirements**
- **Templates for capturing requirements - functional & non functional**
- **Checklists for review**
- **Guidelines for Requirement Development**
- **Change Management process**
- **Tools for requirement readiness**

Note : We will not be discussing Requirement phase in detail at this juncture

Requirement Phase

- **Some artifacts which is relevant and essential for us**
 - Software Requirement Specification
 - Use Case specification
 - Query Tracking Sheet
 - Traceability Matrix

Design Phase

- **The design phase in iGATE includes 3 activities**
 - Define Architecture
 - High Level Design
 - Low level Design

Design Phase

➤ **Architecture Process includes**

- Understand the customer needs and define the Architecture of the proposed system
- Prepare the software architecture document
- Update the traceability matrix

➤ **High Level Design (HLD) includes**

- Design the functional model of the application
- Design application UI
- Design database models (logical)
- Prepare the HLD document
- Prepare integration test plan

➤ **Low Level Design (LLD) includes**

- Prepare detailed level flow of each and every module (Pseudocode, data structures , procedures etc) in LLD document
- Prepare physical database model
- Prepare unit test plan
- Update traceability matrix

Design Phase –Qzen support

➤ Architecture

- Inputs
 - Non functional Specification
 - Software Requirement Specification
- Output
 - Software Architecture Document

➤ High Level Design Document

- Input
 - Software Architecture Document
 - Base lined SRS/ Use Case Documents
- Support Documents
 - Guideline to design using UML , OO Design patterns
 - Review checklists
- Output
 - HLD Document , Updated traceability Matrix

Design

➤ LLD

- Inputs
 - Base lined HLD
 - Traceability Matrix
- Support Documents
 - Checklists
- Output
 - Base lined LLD ,
 - Updated Traceability Matrix
 - Finalized Coding standards documents
 - Approved unit test plans

Construction Phase –Qzen support

➤ Inputs

- Base lined Low Level Design
- Base lined Unit Test Plan
- Re-usable components
- Traceability Matrix

➤ Support Documents

- Code review checklists (self and peer)
- Coding Standards and guidelines
- Continuous Integration plan

➤ Output

- Reviewed Code
- Defect logs (system /excel)

Unit Testing

➤ Inputs

- Reviewed Code
- Unit Test Plan

➤ Support Documents

- Causal analysis and resolution (for defects)

➤ Output

- Test Report
- Baseline code
- Defect log (tool / manual)

Metrics

Measurement

➤ **Measurement: Measurement is the numerical value assigned to an entity**

✓ It is always associated with a unit

✓ e.g. If I want to measure the weight of a brick I will not say it is 2.5. I will always say it is 2.5 KG

➤ **Examples of Measurement are:**

Length: 2 Meter

Temperature: 298 K, 30 Degree

Time : 60 Seconds

Mass : 50 KG

➤ **Above are 4 basic measurements that we deal in physical world**

Reason for Measurement and Metrics

- Most of the time measurement and Metrics are calculated only for one reason - **DECISION MAKING.**
- E.g. Speed in order to control the vehicle. Carpet area to estimate the cost of the flat etc
- Data based decision making, help's us to take better decisions.
- **Rule of Thumb: Do not put any effort on taking measurement and Metrics if it is not going to be used for any kind of decision making.**

Metrics

- Quantitative Indicator of the project status
- Measurements for Project tracking and Health status
- Using Metrics Project progress can be Monitored
- Different Metrics (e.g.)
 - Effort Variance,
 - Schedule Variance,
 - Defect Density,
 - Cost of Quality,
 - Review Effectiveness,
 - Productivity

Why Capture Efforts ?

Task

- ✓ Size
- ✓ Estimated Efforts

Timesheet Entry

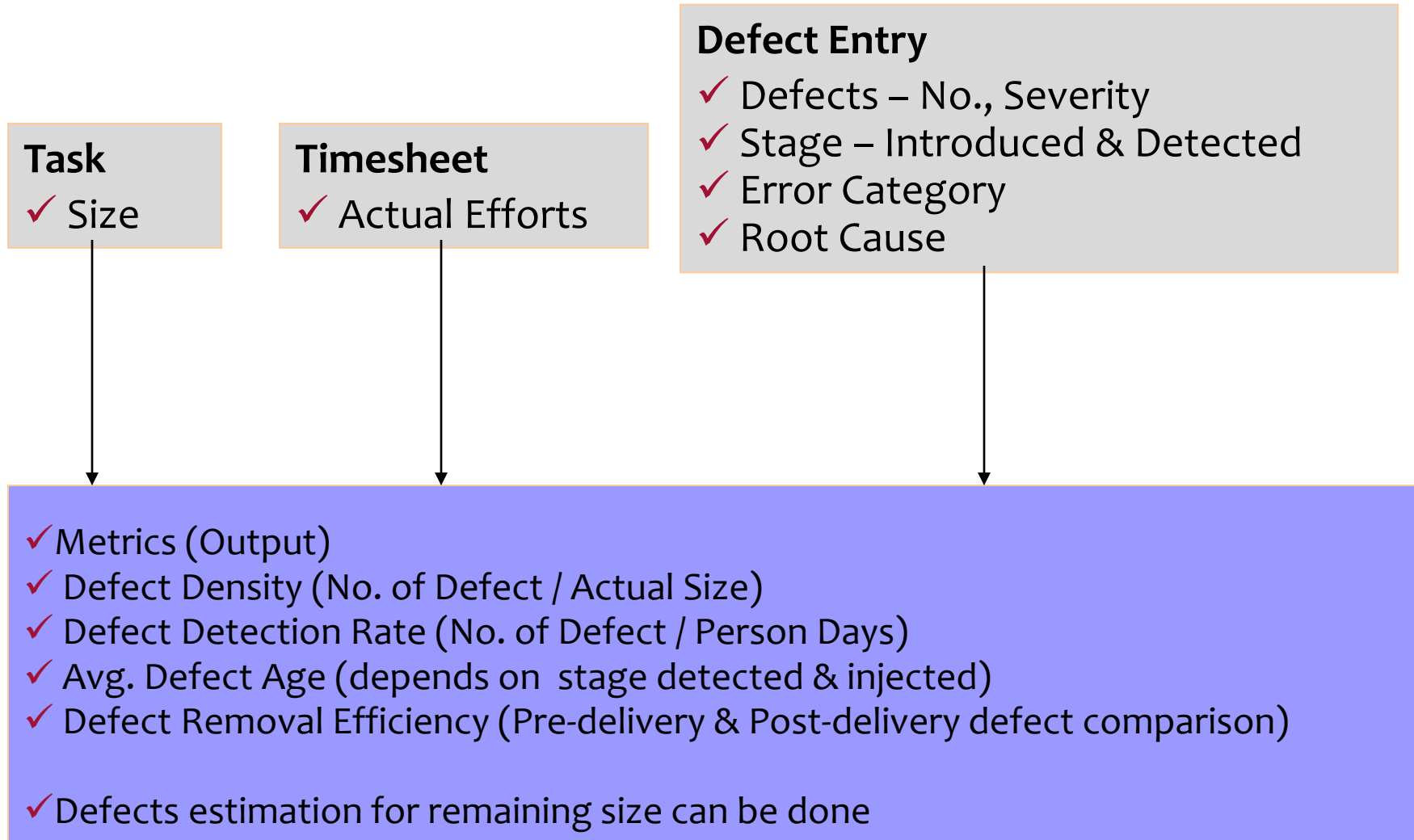
- ✓ Actual Efforts
- ✓ Actual Dates

Metrics (Output)

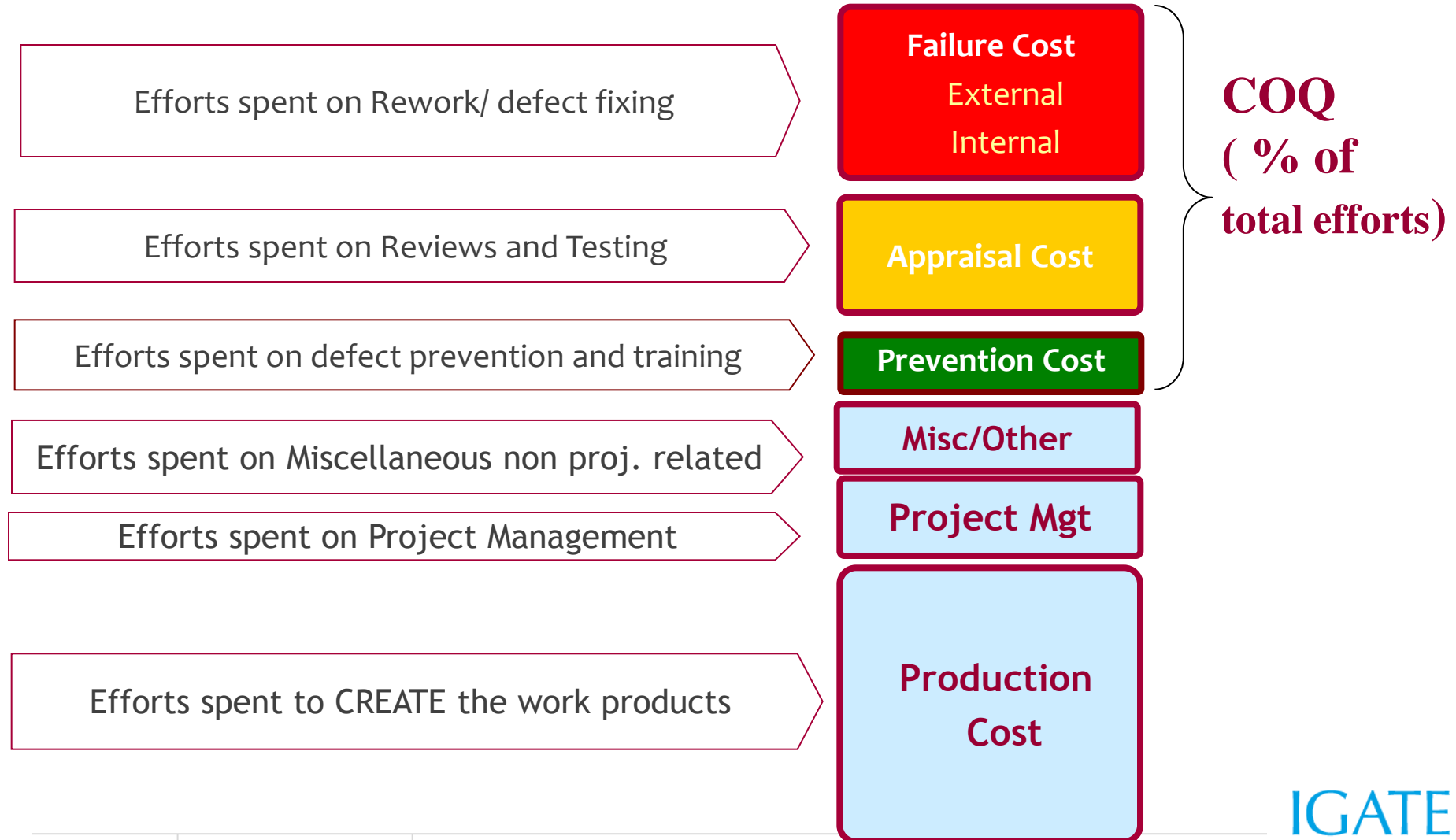
- ✓ Productivity (Size / Actual Efforts)
- ✓ Effort Variance (Difference/Estimated Efforts)
- ✓ Effort Distribution Across Phases
- ✓ Cost Of Quality (Prevention Cost+ Appraisal Cost+ Failure Cost)

Efforts estimation for remaining Size can be done

Why to capture Defects ?



Components of Total Efforts



A Few Metrics

Defect Density

Total Defect density =

(Total number of defects including both impact and non-impact, found in all the phases + Post delivery defects)/Size

Average Defect Age =

(Sum of ((Defect detection phase number – defect injection phase number) * No of defects detected in the defect detection phase))/(Total Number of defects till date)

A Few Metrics

Defect Removal Efficiency (DRE) =

$100 * \text{No. of pre-delivery defects} / \text{Total No. of Defects}$

Review Effectiveness (RE) =

$100 * \text{Total no. of defects found in review} / \text{Total no. of defects}$

Cost of finding a defect in review (CFDR) =

$\text{Total efforts spent on reviews} / \text{No. of defects found in reviews}$

Cost of finding a defect in testing (CFDT) =

$\text{Cost of finding a defect in testing} = (\text{Total efforts spent on testing} / \text{defects found in testing})$

Discussion points

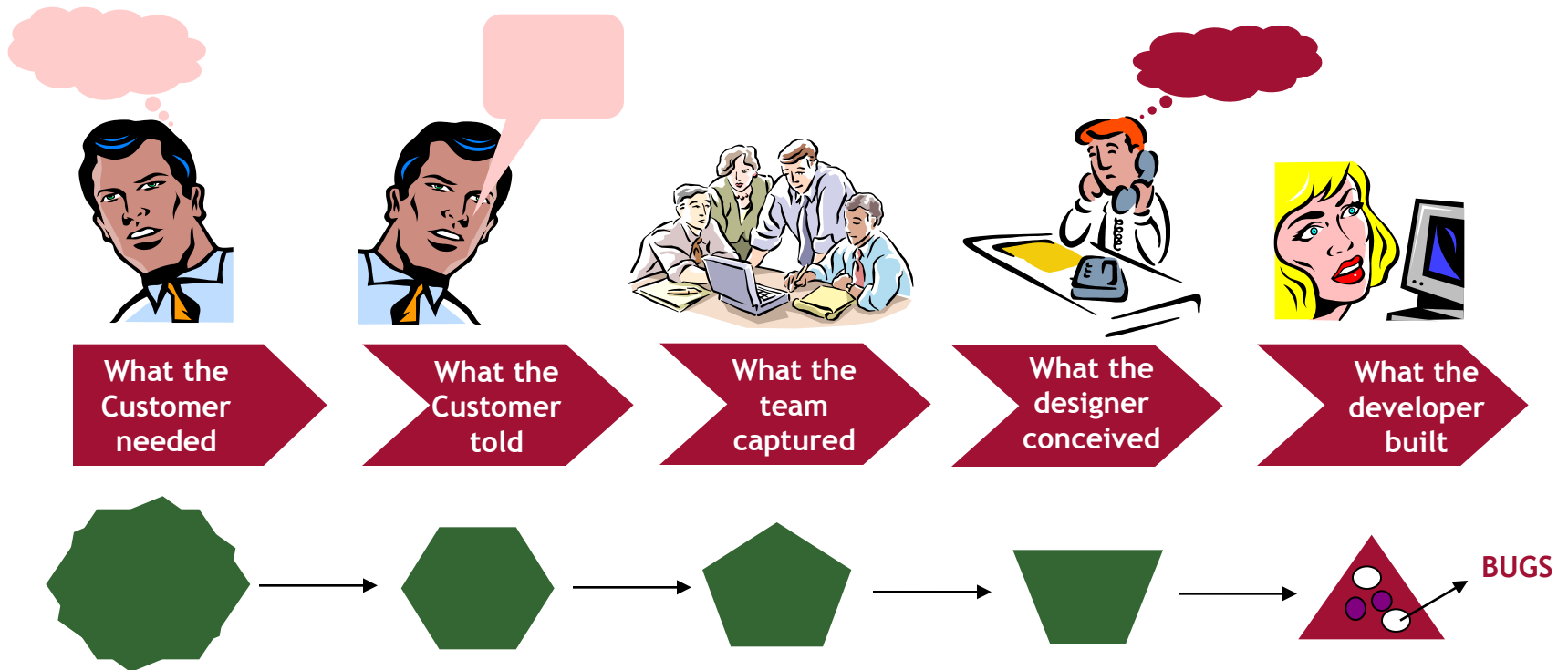
- Do not view metrics in isolation
- Do take corrective actions based on metrics
- Remember that Organizational Metrics baseline depend on your project's metrics

Defect Prevention

Definition

**Defect Prevention is a measure to prevent
the recurrence of defects**

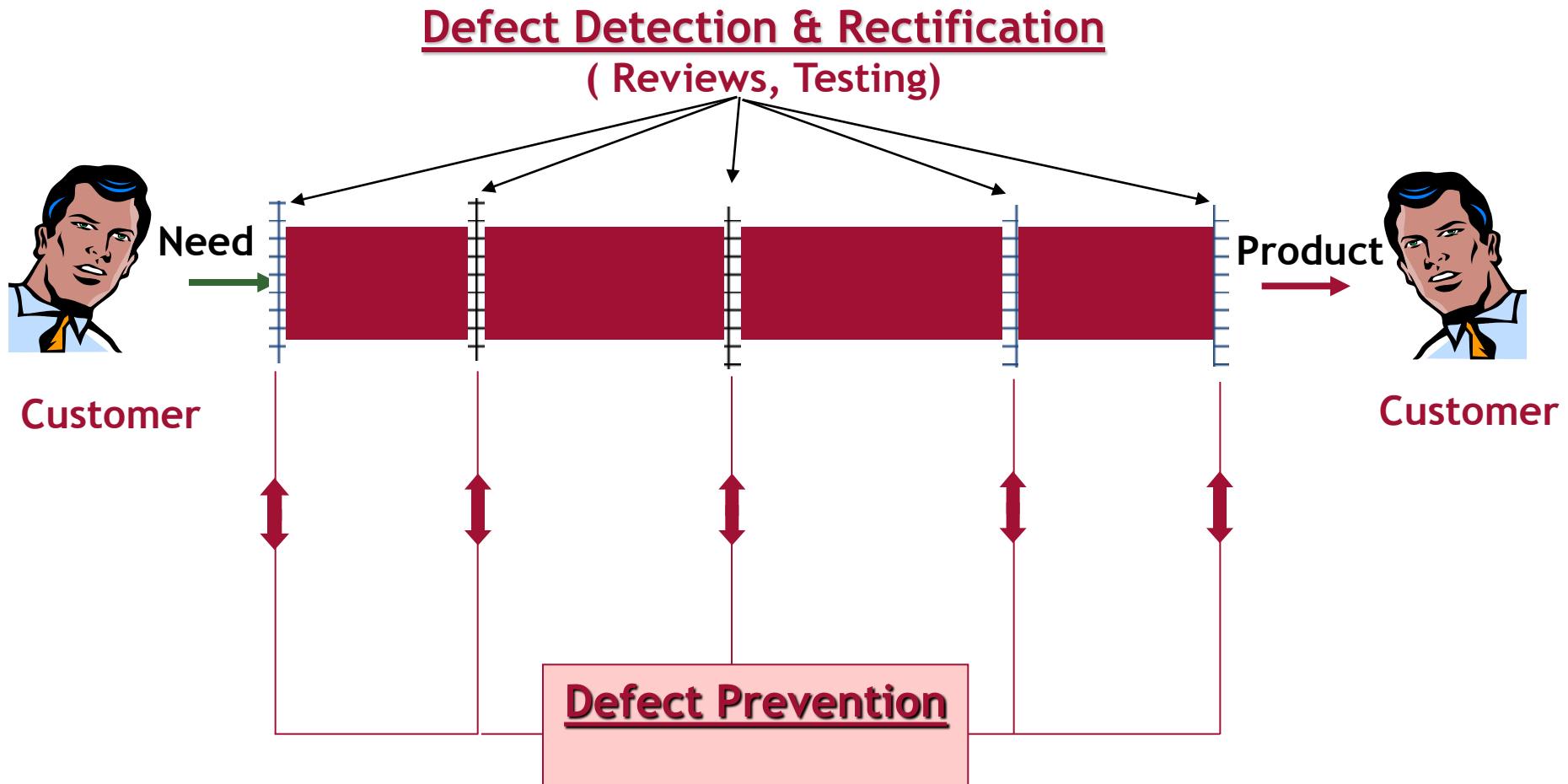
Origin of Defects



➤ Injection

- Requirements Gathering
- Errors in Previous phase output

What to do with Defects



We always try to remove the Defects!

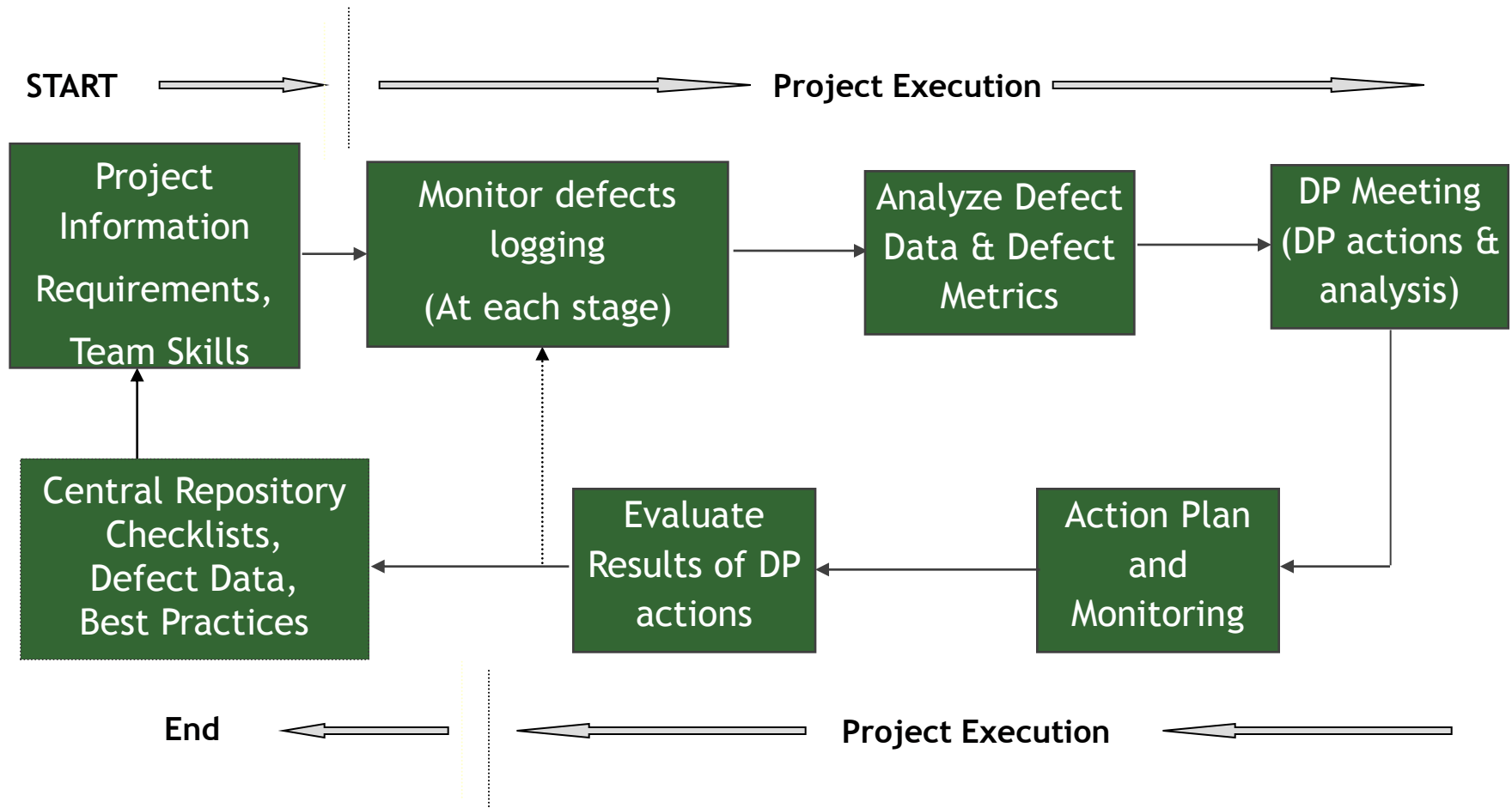
Rectification Process

- Duplication of Efforts
- Schedule Over-run
- Product is corrected
- Additional Cost
- Re-invention of the Wheel

Prevention Process

- Look Ahead
- Utilize Past Experience
- Processes get improved
- Analyze Defects Encountered
- One Time Investment

Workflow of DP activities



Analysis Tools and Techniques

- Checklists
- Brainstorming Sessions
- Pareto Diagram
- Cause and Effect (Fish-bone) Diagram
- 5-Why
- Charts

So what is Defect Prevention?

- It's a Continuous Improvement Process
- To realize that it is OK to make mistakes
- But it is not OK to repeat mistakes
- Learn from past mistakes
- Predict what could go wrong
- Take preventive actions
- Share knowledge/information

To Summarize

Quality processes are followed to ensure that work is done as efficiently as possible, at the same time maintaining consistency of performance throughout the organization.

The key Factors

Ensuring Delivery Excellence

- **Engage** – to become one with customer's Business Objective
- **Enable** – to make available Best in Class Practices
- **Excel** – to provide unsurpassable Delivery Results. Always and every time



Thank you