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Quality Process Awareness

For Freshers

Name of the Presenter:

Date:

Objective

To Understand the following :

- What is a Quality Management System
- Methodology Overview
- Metrics
- Software Reviews
- Defect Prevention
- Configuration Management

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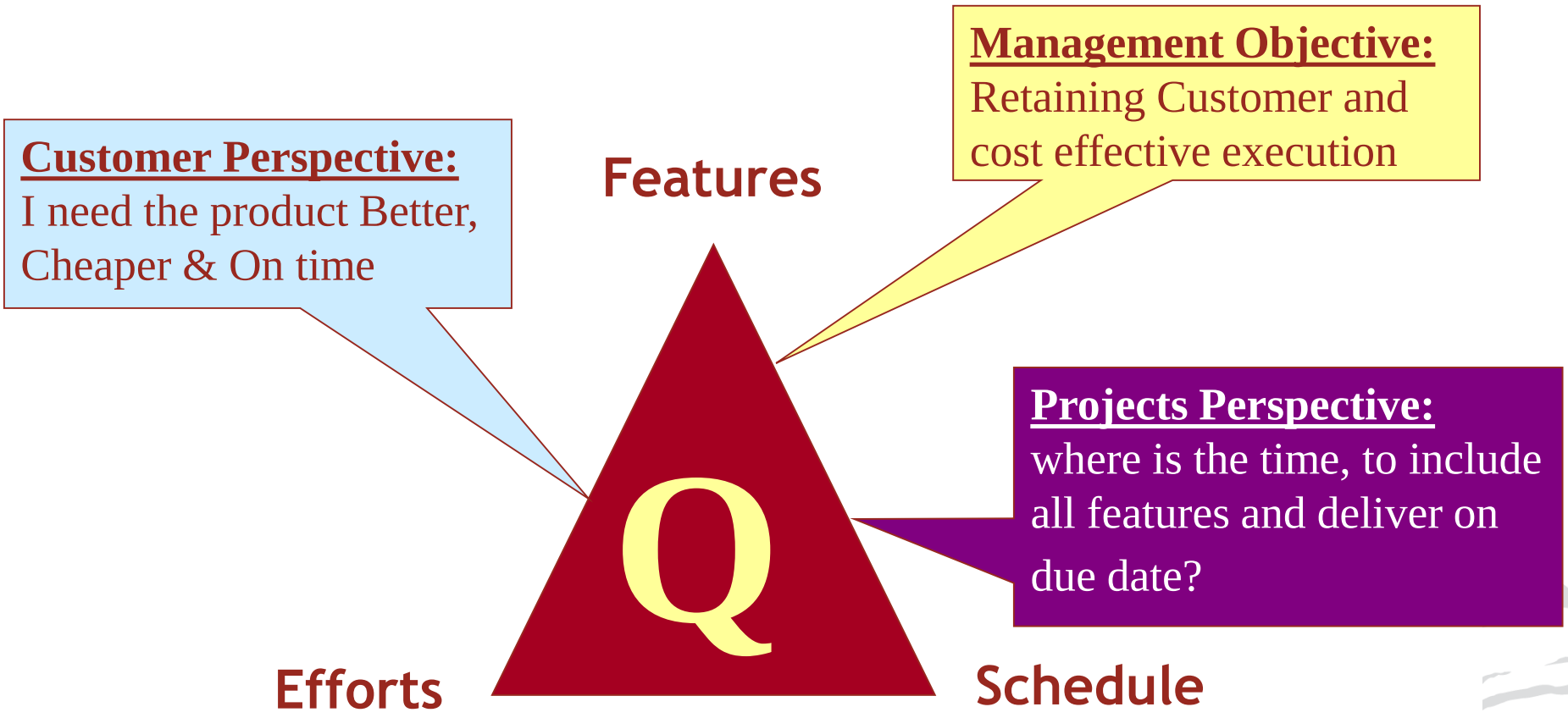
Quality Management System

Concept of Quality



Quality is balance of all three areas

Basics of a Quality Management System

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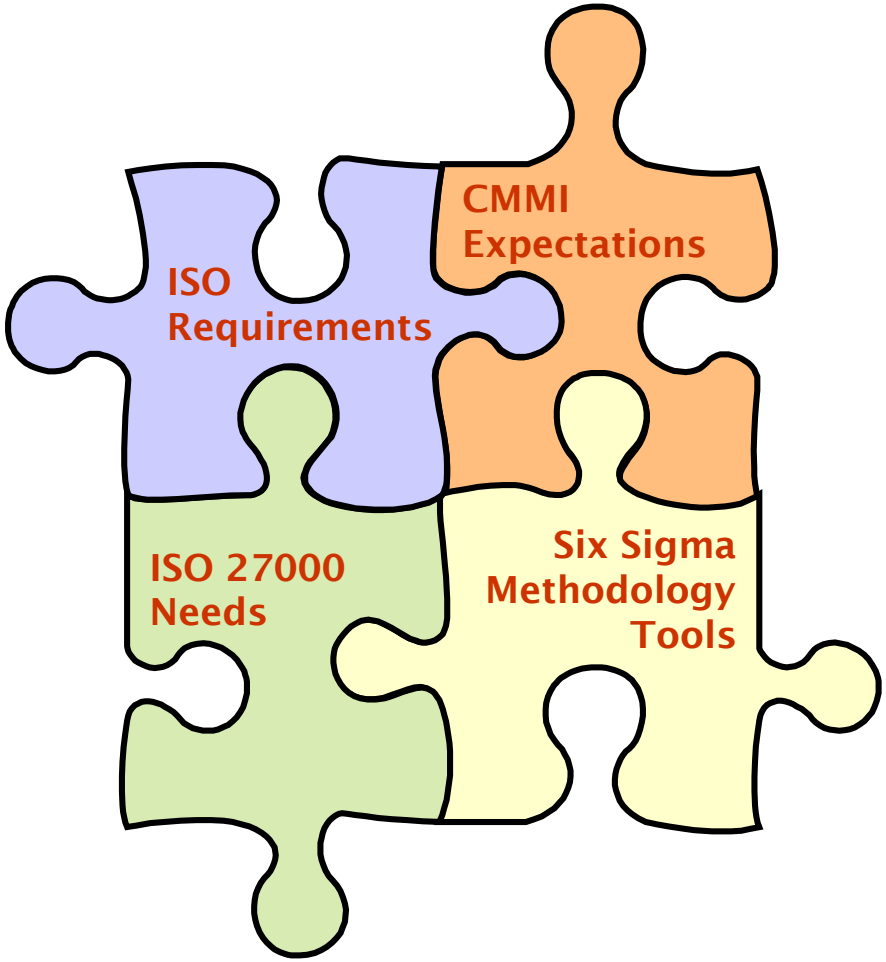
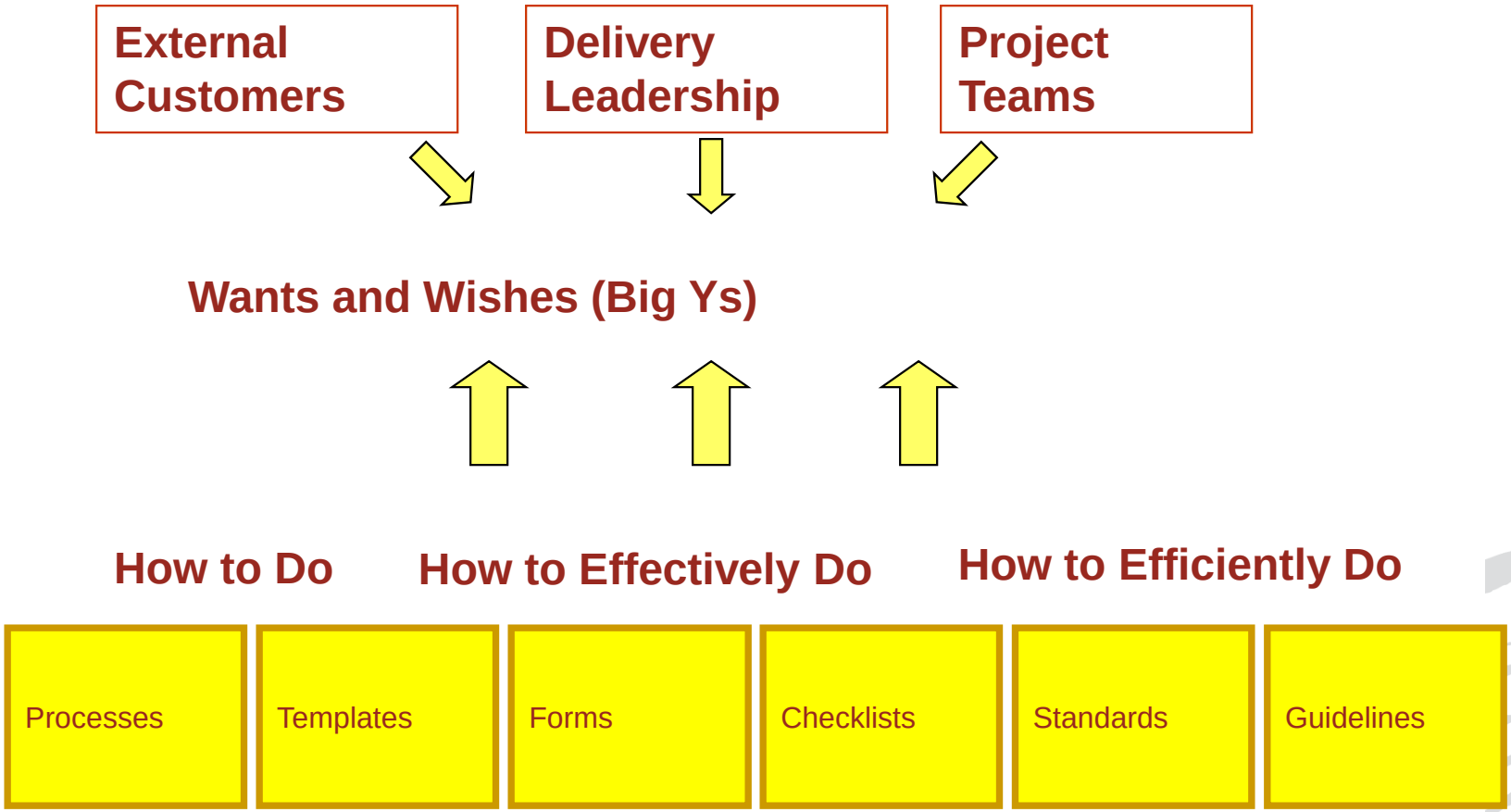
Discussion on:

- Procedures
- Guidelines
- Forms
- Formats

iGATE QMS is an integration of…..



How can QMS help?



Branded QMS?

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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

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

Where is QMS ? ---- The iSpace intranet

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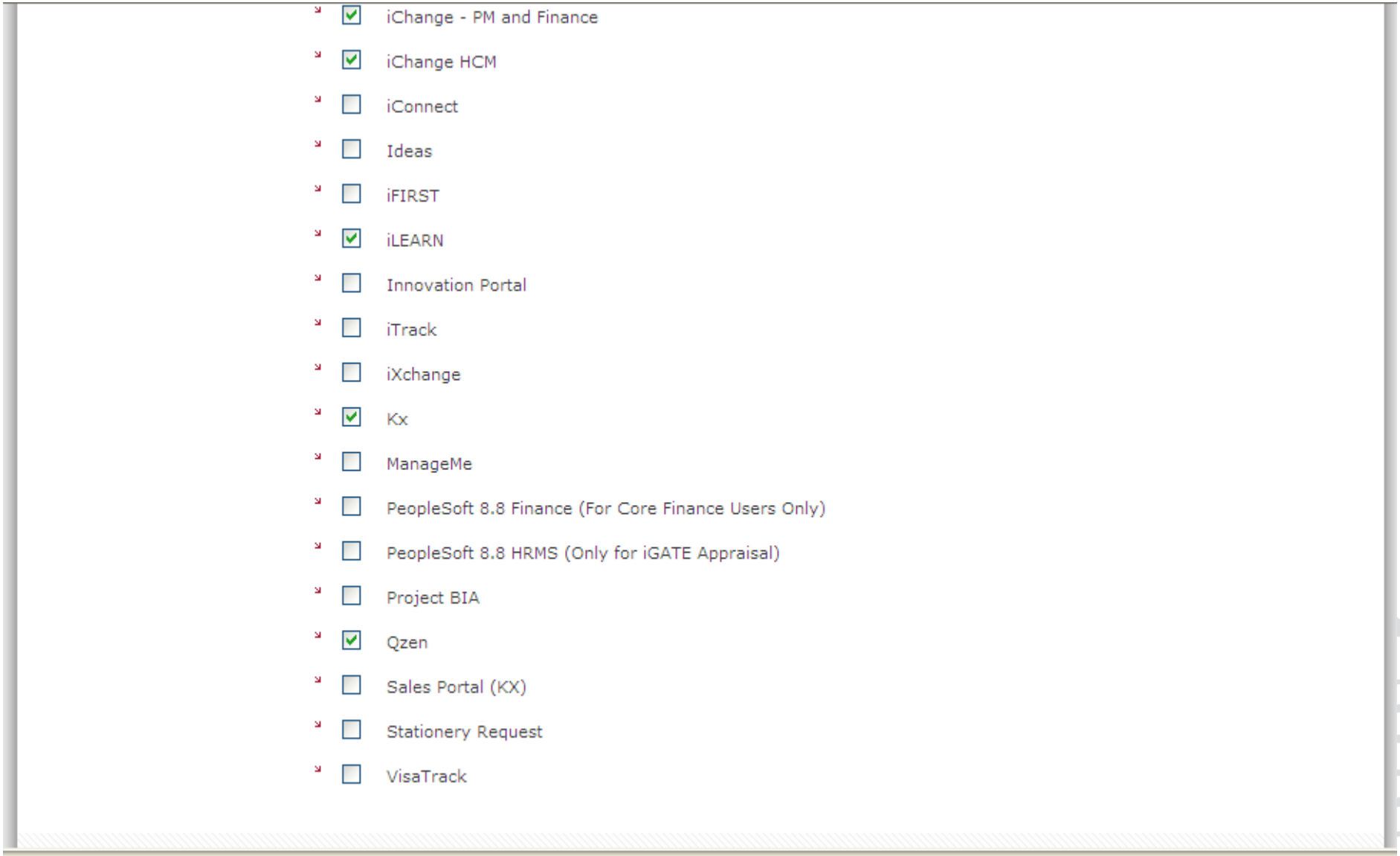
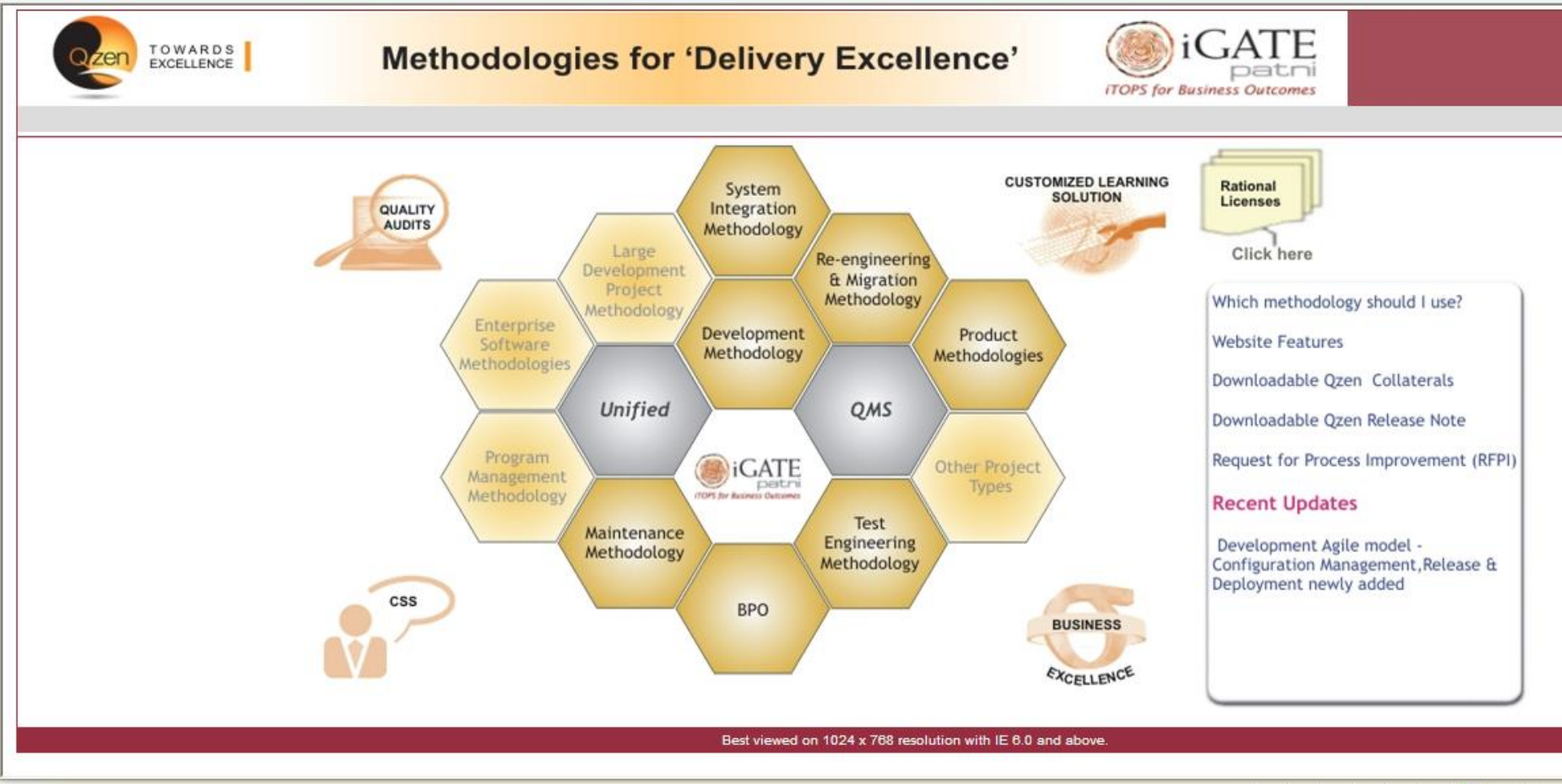
Where is QMS?


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
Local intranet

Q zen


Qzen
TOWARDS EXCELLENCE
Methodologies for 'Delivery Excellence'
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QUALITY AUDITS
System Integration Methodology
Large Development Project Methodology
Re-engineering & Migration Methodology
Enterprise Software Methodologies
Development Methodology
Product Methodologies
Unified
QMS
Program Management Methodology
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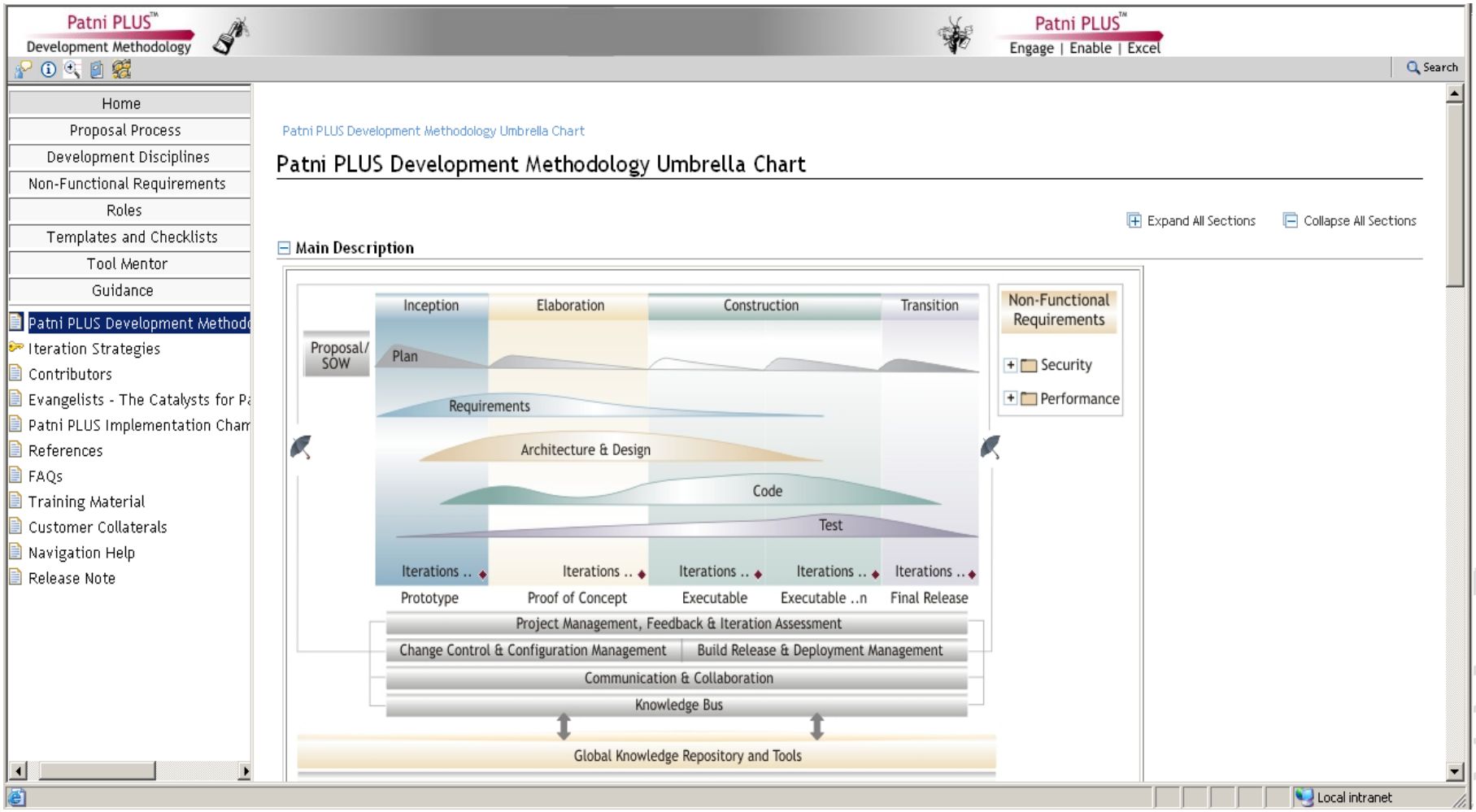
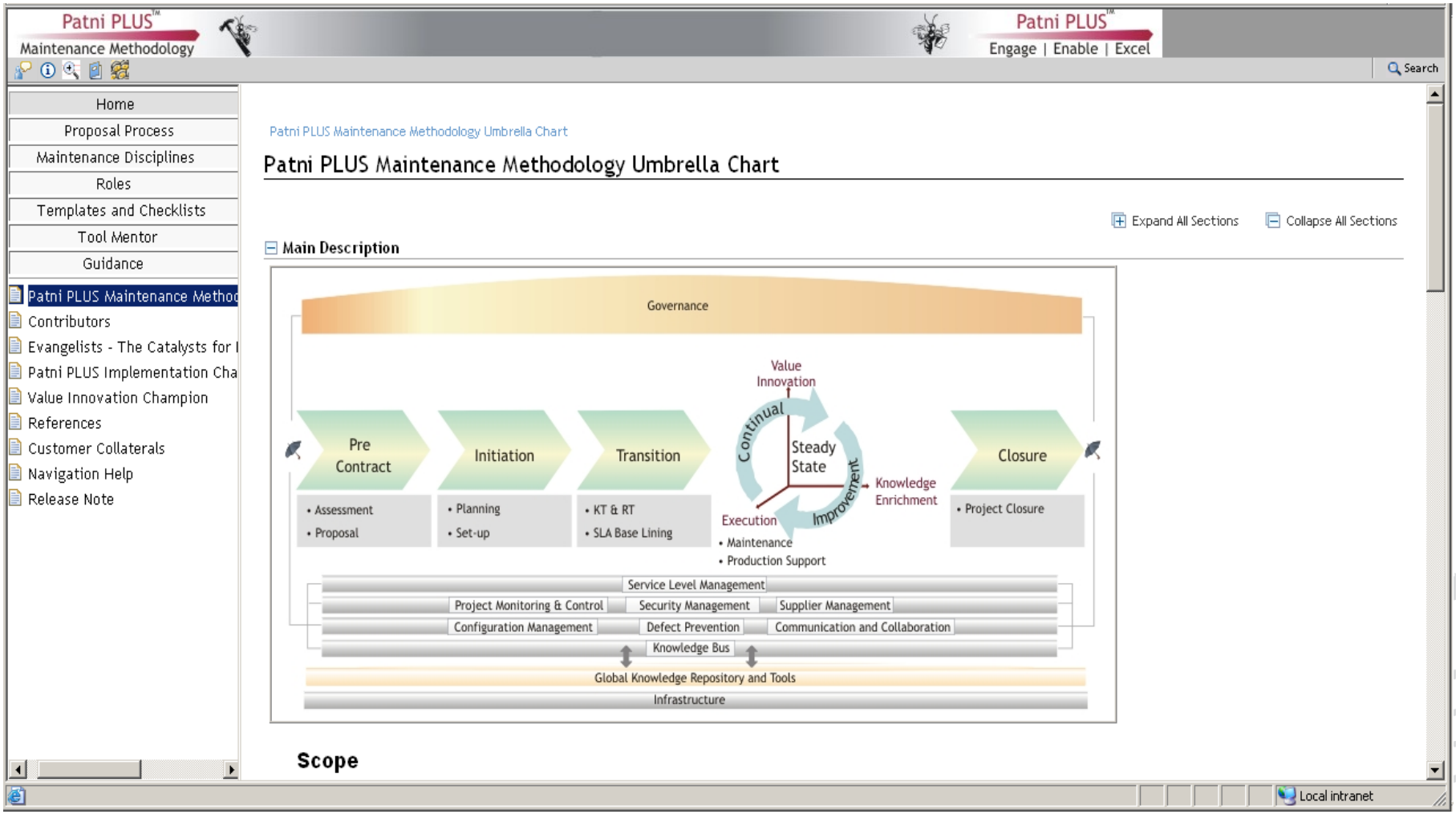
Other Project Types
Maintenance Methodology
Test Engineering Methodology
BPO
CSS
CUSTOMIZED LEARNING SOLUTION
BUSINESS EXCELLENCE
Rational Licenses
Click here
Which methodology should I use?
Website Features
Downloadable Qzen Collaterals
Downloadable Qzen Release Note
Request for Process Improvement (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.
Done
Local intrane

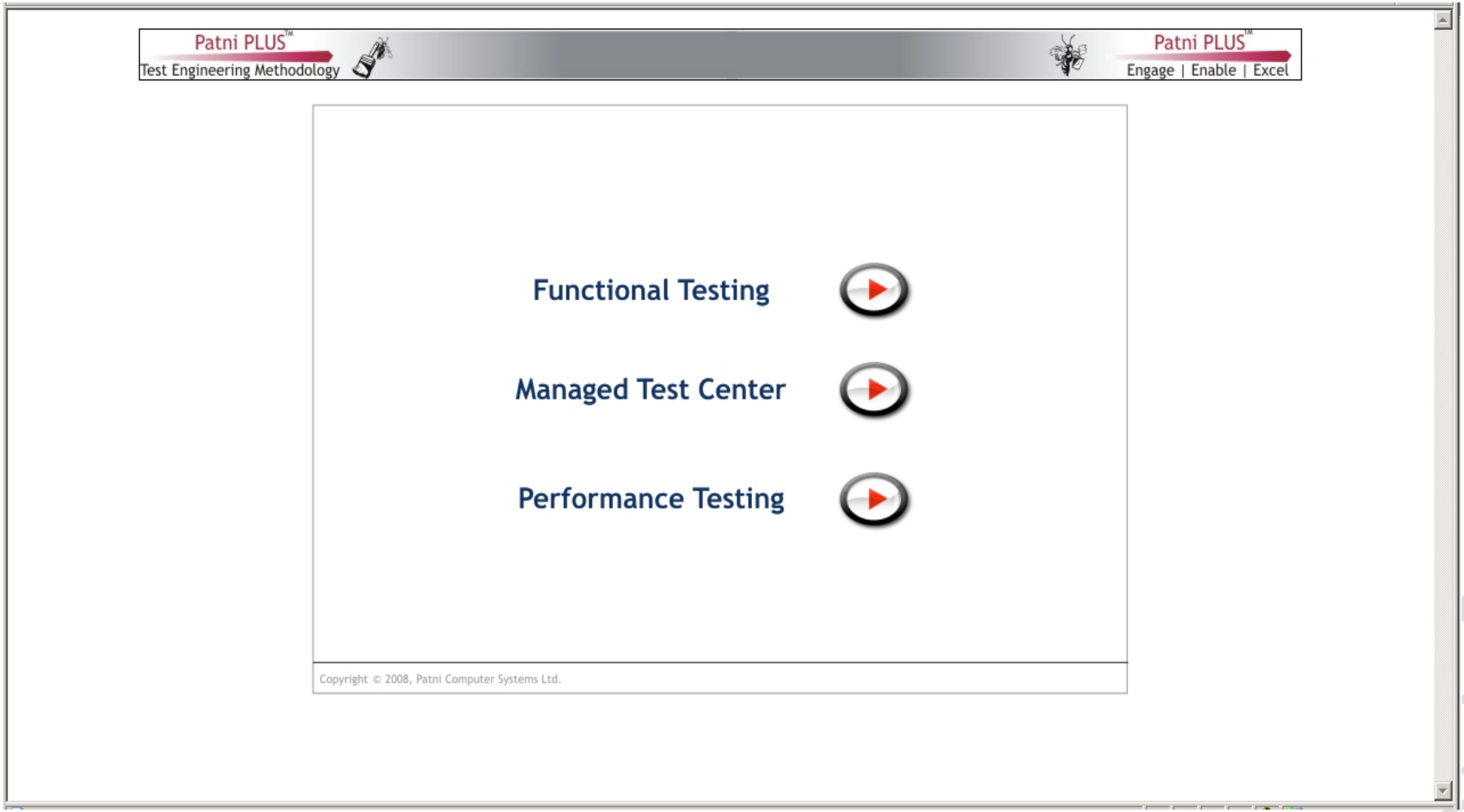
Development Methodology



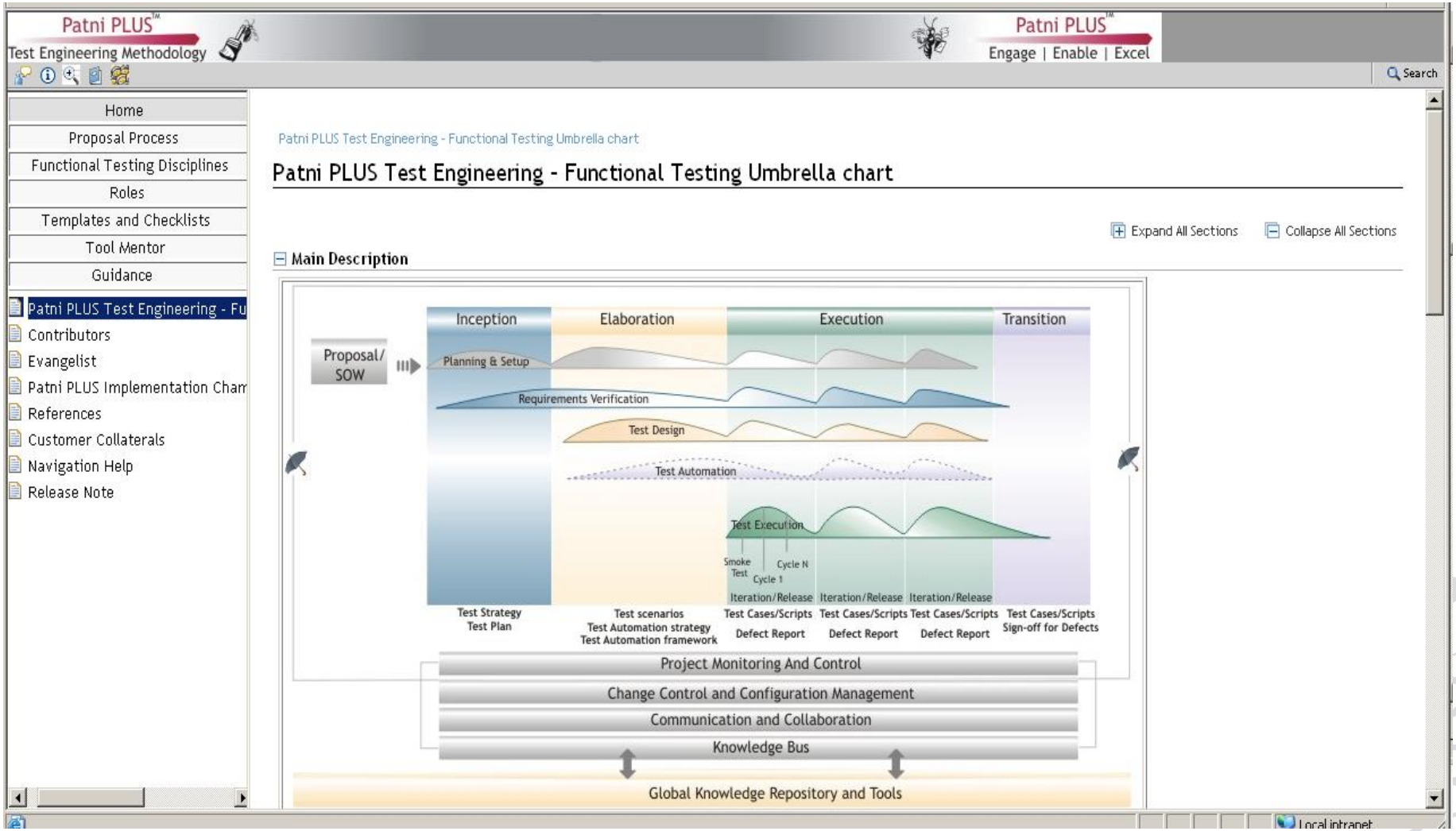
Maintenance Methodology



Test Engineering Methodology



Test Engineering Methodology



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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

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- 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 ?

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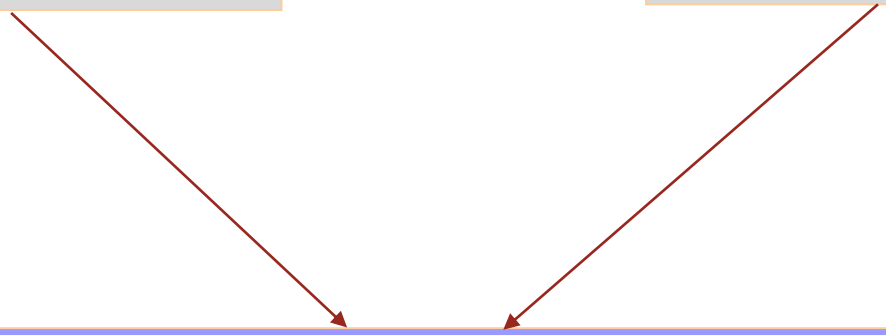
Task

- ✓ 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 ?

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Task
✓ Size

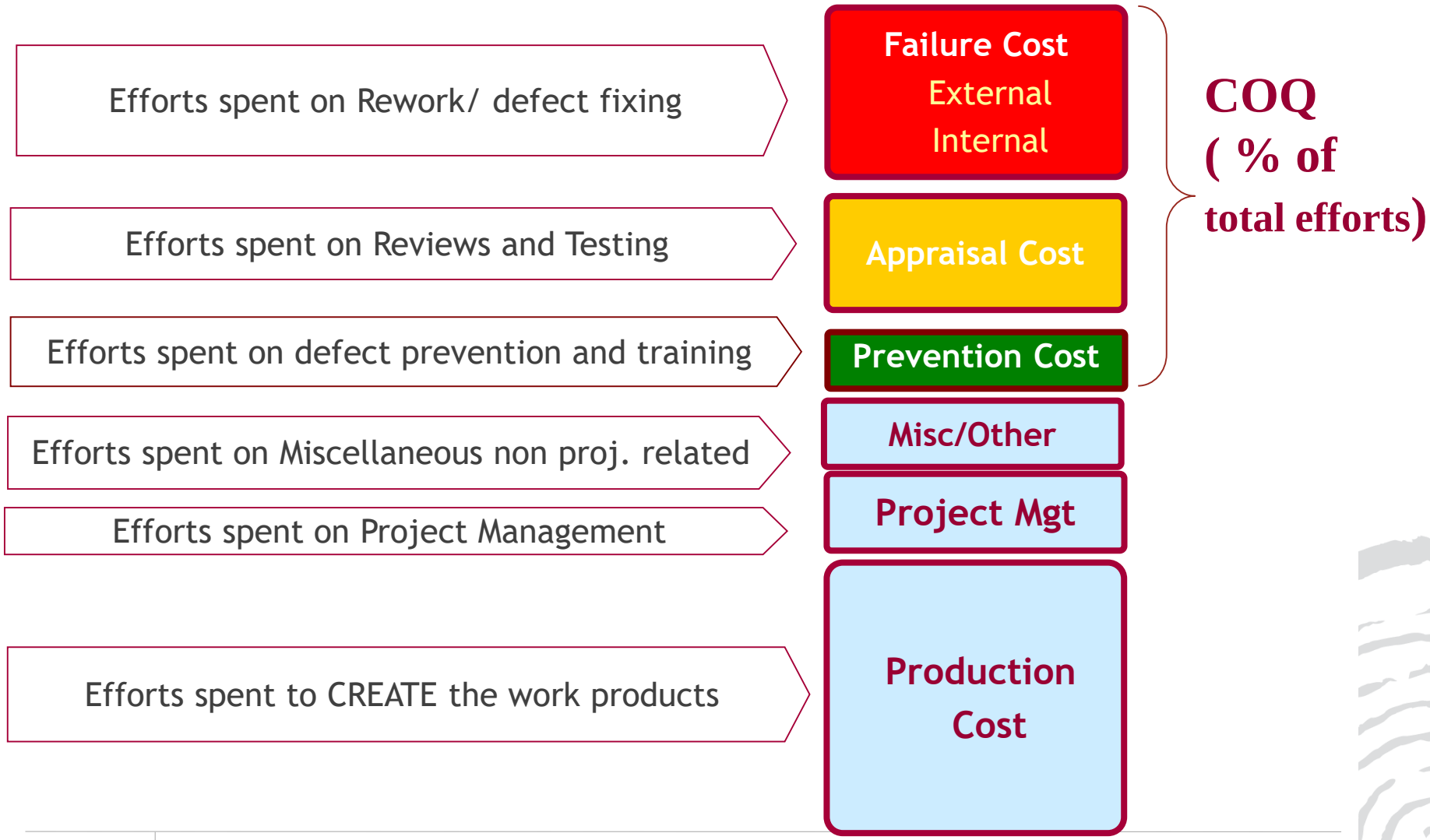
Timesheet
✓ Actual Efforts

Defect Entry
✓ Defects – No., Severity
✓ Stage – Introduced & Detected
✓ Error Category
✓ Root Cause

✓Metrics (Output)
✓ Defect Density (No. of Defect / Actual Size)
✓ Defect Detection Rate (No. of Defect / Person Days)
✓ Avg. Defect Age (depends on stage detected & injected)
✓ Defect Removal Efficiency (Pre-delivery & Post-delivery defect comparison)

✓Defects estimation for remaining size can be done

Components of Total Efforts



A Few Metrics

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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

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Defect Removal Efficiency (DRE) =
100 * No. of pre-delivery defects / Total No. of Defects

Review Effectiveness (RE) =
100 * Total no. of defects found in review / Total no. of defects

Cost of finding a defect in review (CFDR) =
Total efforts spent on reviews / No. of defects found in reviews

Cost of finding a defect in testing (CFDT) =
Cost of finding a defect in testing = (Total efforts spent on testing / 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

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Software Reviews

Reviews

Why ?

- Every person has blindfolds
- Reviewer brings a different perspective
- It is cost effective way of finding defects
- It improves clarity of reviewed material

Types of review

Self Check
Peer to Peer
Peer Review

Peer Review Types

Walkthrough Process

- Approach to Solution
- Detect Defects
- Find Omissions of requirements
- Style/Concepts Issues
- Educate team Members

Inspection

- Detect Defects
- Conformance to Standards/Spec.
- Requirements Transformation into product

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Configuration Management

Configuration

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What is a configuration?

Let us discuss the following:

- When you want to purchase a PC of a certain “configuration”, what do you mean?
- Do Car’s have configurations?

Provide a thought to these…

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Some Typical scenarios/problems arising possibly due to poor management of configuration :

- It works on my machine, fails in integration!
- I fixed it last week. How did it come back?
- I had changed the source code. But I don't see my changes now
- I lost the source and the backup gives read error

Configuration Item

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Configuration item (CI):

is a collection of elements, treated as a unit for the purpose of CM, which are likely to undergo change during the project life cycle

Version

The term 'version' is used to define a stage in the evolution of a CI, for example versions of source code, etc.

Baseline

A 'baseline' is a CI that has been reviewed and agreed upon and is a basis for further development.

After baselining all changes to CI are controlled through a formal change process.

Cutting a Configuration

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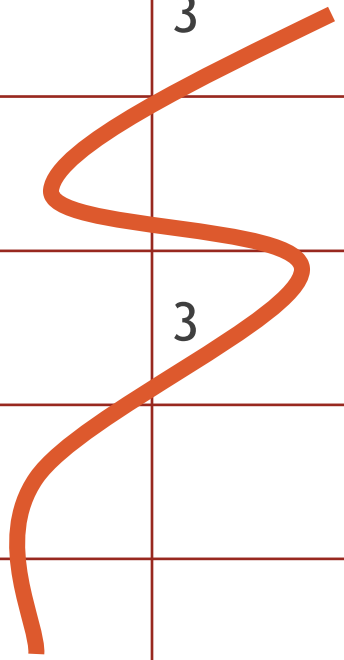
Program name	Version no	Version no	Version no	Version no
A	1	2	3	
B	1	2		
C	1	2	3	
D	1	2		
E	1	2		



Traceability Concepts

- Forward Traceability
- Backward Traceability
- Horizontal Traceability

Usage of Tools

- SVN (Subversion)
- Visual Source Safe (VSS)
- IBM Rational Clearcase
- CM Synergy

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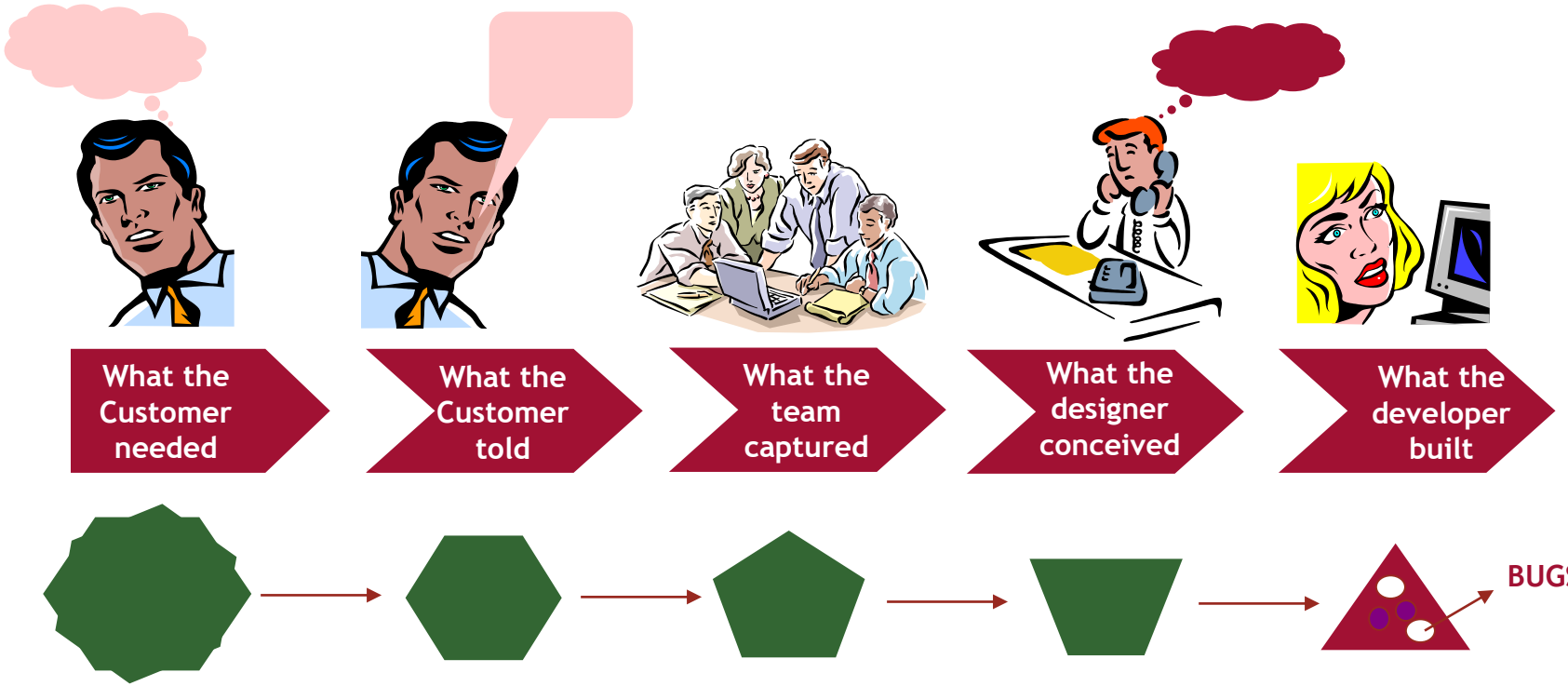
Defect Prevention

Definition

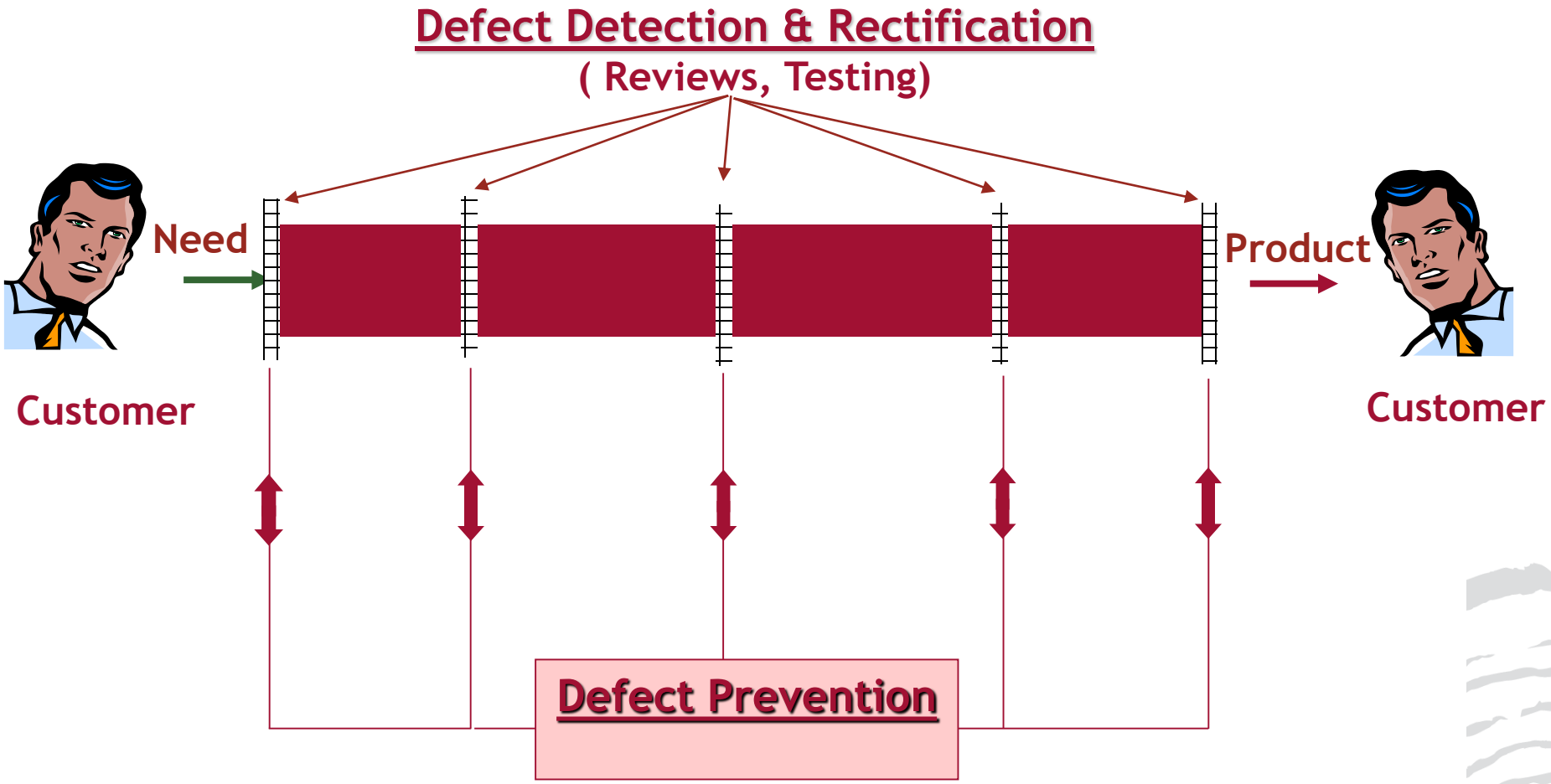
Defect Prevention is a measure to prevent the recurrence of defects

Origin of Defects



- Injection
  - Requirements Gathering
  - Errors in Previous phase output

What to do with Defects



We always try to remove the Defects

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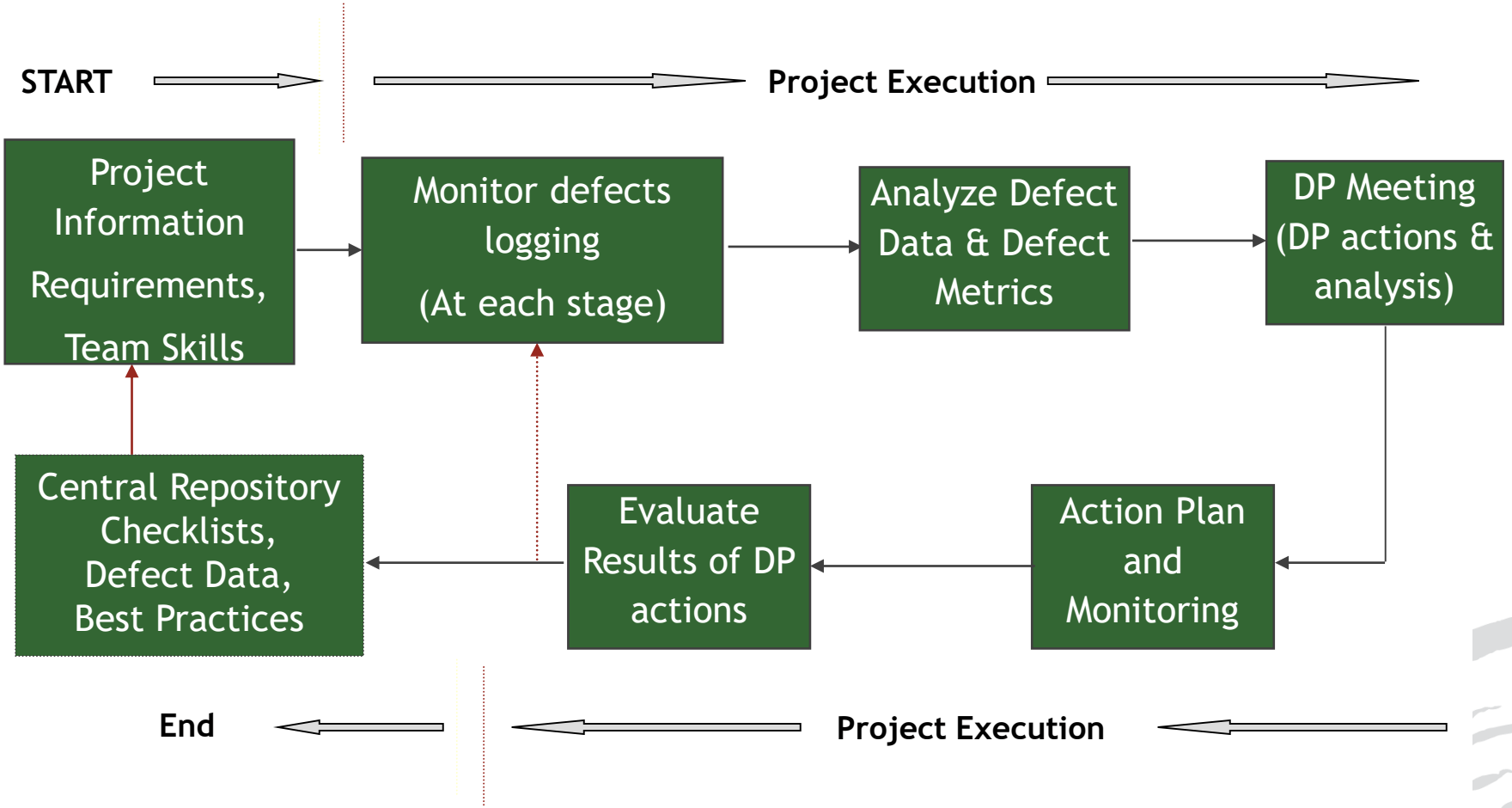
Rectification Process

- 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



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

So what is Defect Prevention?

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- 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

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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.

Thank you