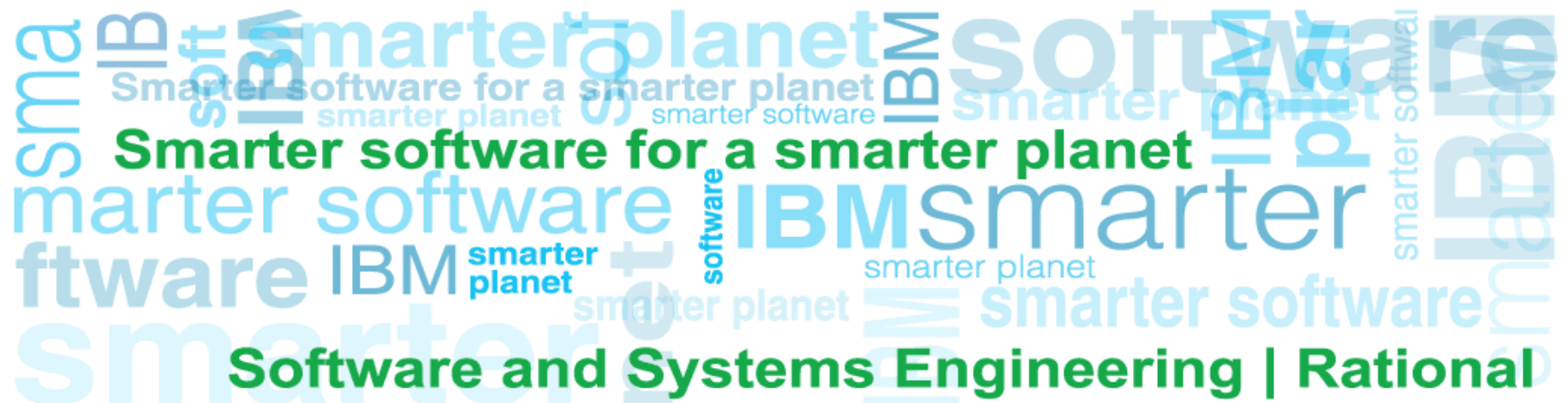
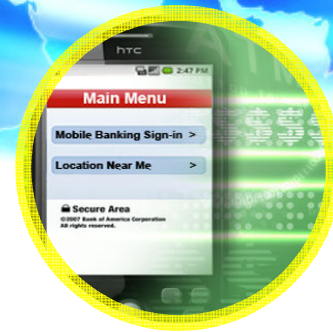


## IBM Rational Quality Manager v4

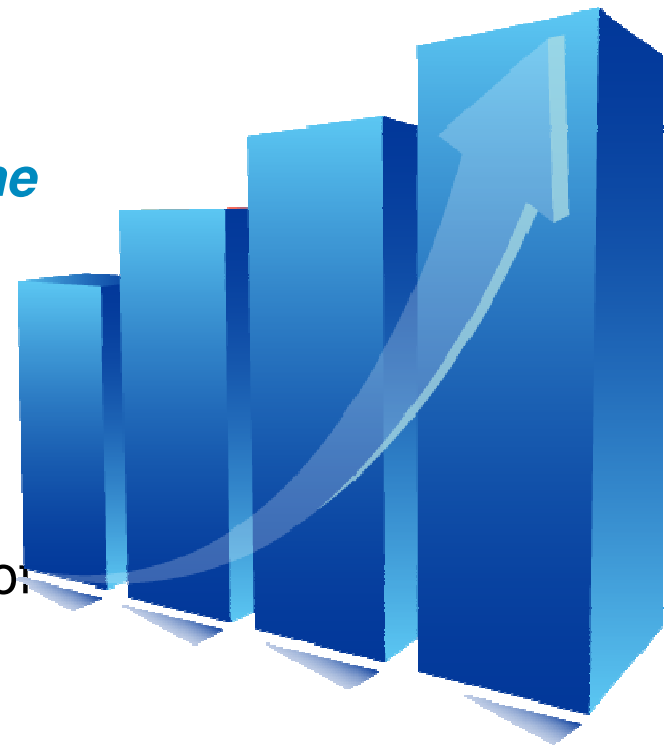


Software drives today's innovation for a smarter planet



## Yet software quality is a major problem across all industries

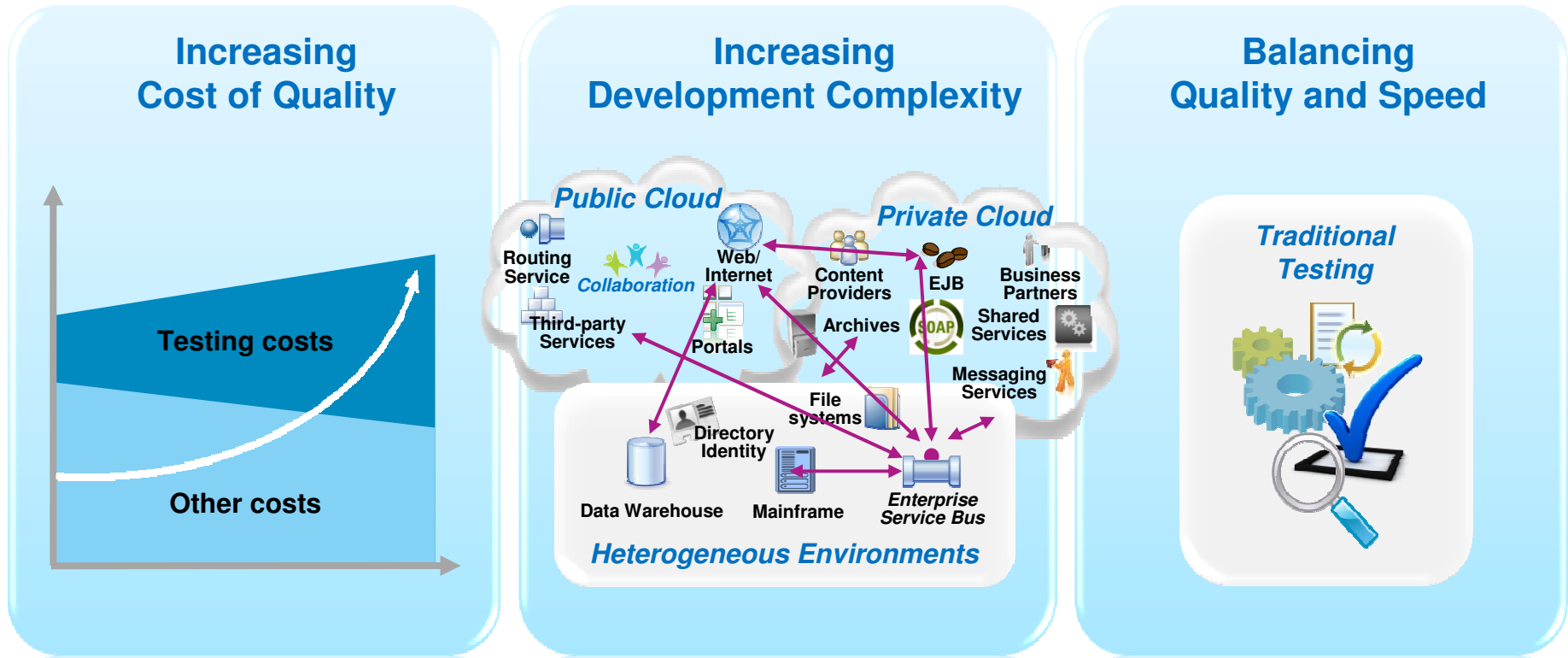
- Software is blamed for *more major business problems than any other man-made product.*
- Poor software quality has become *one of the most expensive topics in human history*
  - *\$150+ billion per year in U.S.*
  - *\$500+ billion per year worldwide.*
- Projects cancelled due to poor quality are *15% more costly than successful projects* of the same size and type.



Source: Capers Jones, 2011

Based on 675 companies, 35 government/military groups, 13,500 projects, 50-75 new projects/month, 24 countries, 15 lawsuits

## Cost, complexity and velocity make today's quality paradigm impractical



Outsourcing **labor** is no longer a sustainable model as global wages are increasing

Product and application **complexity** and size are increasing

**Productivity is inhibited** as test teams can no longer keep up with agile development

\* Source: <http://www.sei.cmu.edu/about/message/>

## Managing software quality has become extremely challenging

### Increasing Cost of Quality

**\$59.5 billion**

The estimated cost of software defects cost to U.S. economy<sup>c</sup>

**13%**

The forecasted increase in wages for India IT workforce in 2011<sup>a</sup>

### Increasing Development Complexity

**\$5-30 million**

The typical investment to build a single test lab for a Fortune 500 company. Most have dozens<sup>b</sup>...

**5X more test labs required**

Large global financial services firm increases test lab deployments from 6 to 32 in 13 years<sup>b</sup>

### Balancing Quality and Speed

**74%**

The estimated number of projects with significant delays or quality issues<sup>c</sup>

**30-50%**

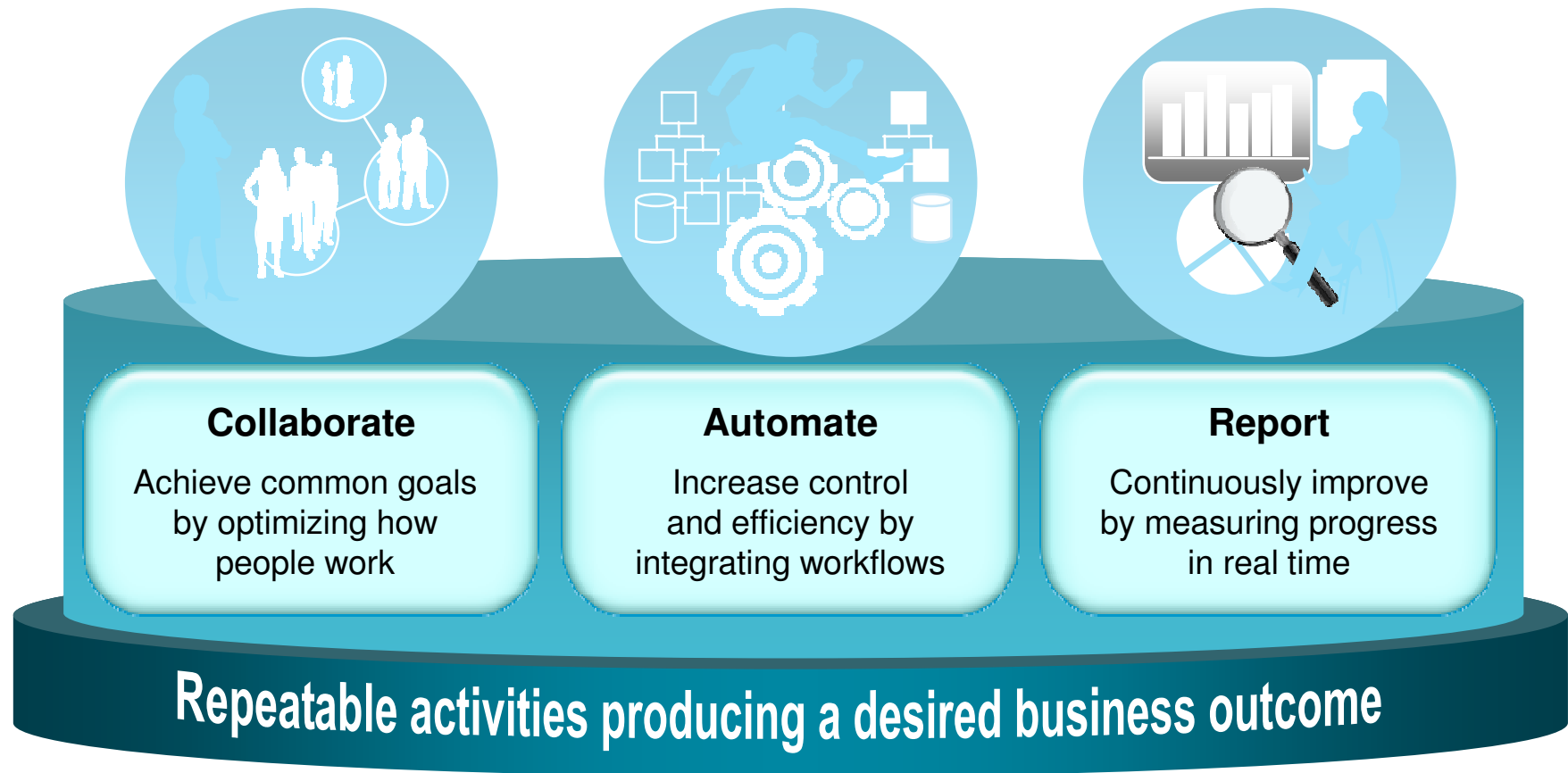
The average amount of time testing teams spend on setting up test environments, instead of testing<sup>c</sup>

<sup>a</sup> The Times of India, IT sector to get 12% average salary hike in 2011, TOI Tech & Agencies, March 8, 2011.

<sup>b</sup> IBM customer reference.

<sup>c</sup> NIST, Planning Report 2002-2003. The Economic Impacts of Inadequate Infrastructure for Software Testing, May 2002.

Successful businesses will manage software and systems delivery as a robust business process

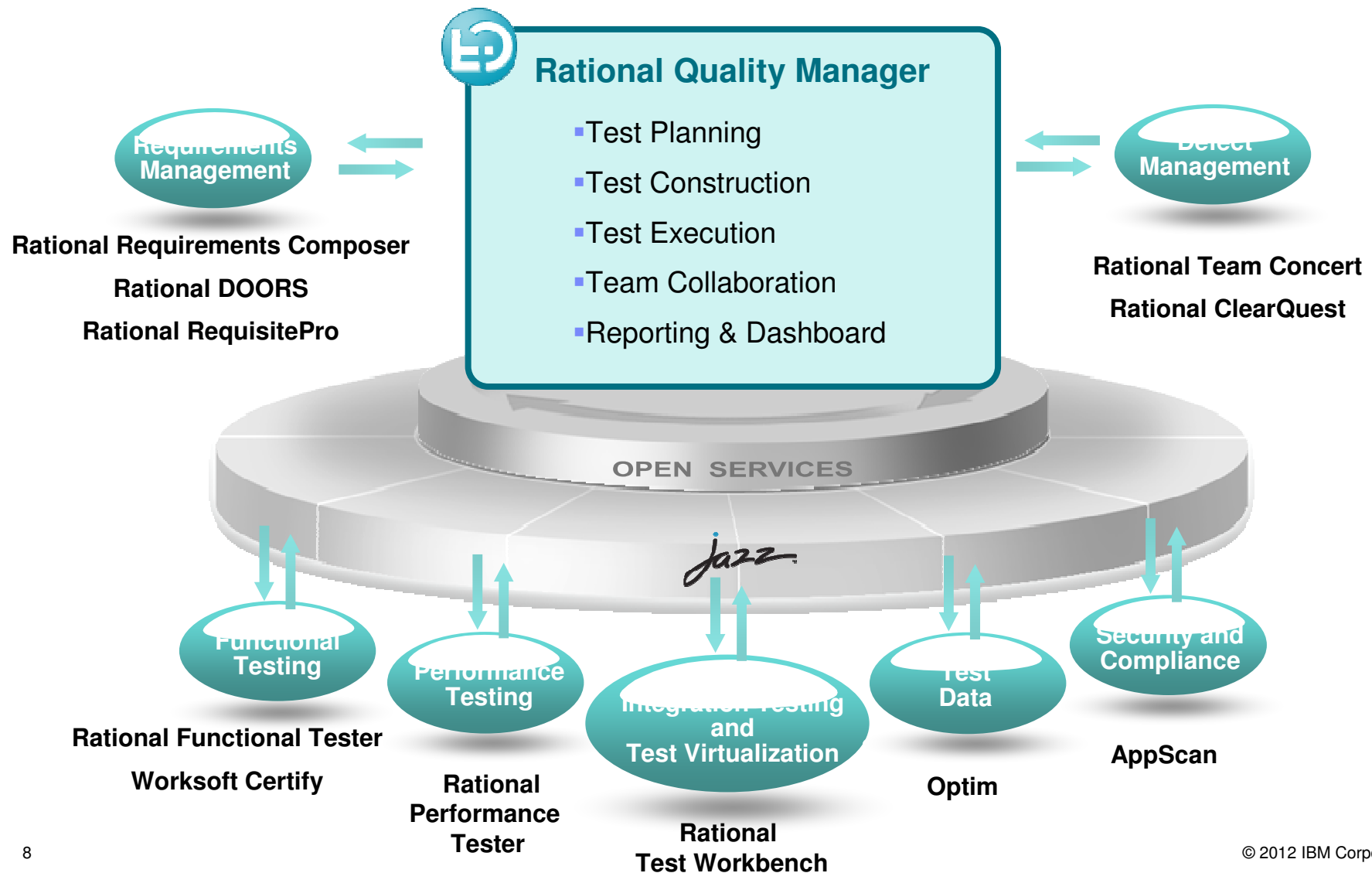




## Better software quality requires a shift in focus



## Rational Quality Manager: Central Hub for Quality Management





## Rational Quality Manager: A Closer Look

### Test Planning

- Comprehensive test plan
- Shared objectives
- Scope, Timeline, Resources
- Risk assessment

### Test Construction

- Requirement driven testing
- Test environments coverage
- Manual test authoring
- Test lab management

### Test Execution

- Manual test execution
- Use test automation tools
- Record test results
- Submit & track defects

### Team Collaboration

- Process enactment and enforcement
- Review and approval
- Task management
- Rapid team member on-boarding

### Reporting & Dashboard

- Status and progress tracking
- Customizable live dashboard
- Real-time metrics and reports
- Compliance and quality audit



## Build Quality in with team collaboration

### Customer Speak!

#### Unify the team through real-time collaboration

A single, dynamic quality contract provides clear and accountable direction



*"Some large projects have found that **41%** of all defects have their origin in bad requirements."*<sup>\*\*</sup>

#### Minimize scrap and rework with lifecycle traceability

Assess changes in scope, delivery date, objectives, etc. in minutes using impact analysis



*Requirements change all the time: **What tests should I eliminate, re-run?***

#### Take noise out of the system and foster greater collaboration

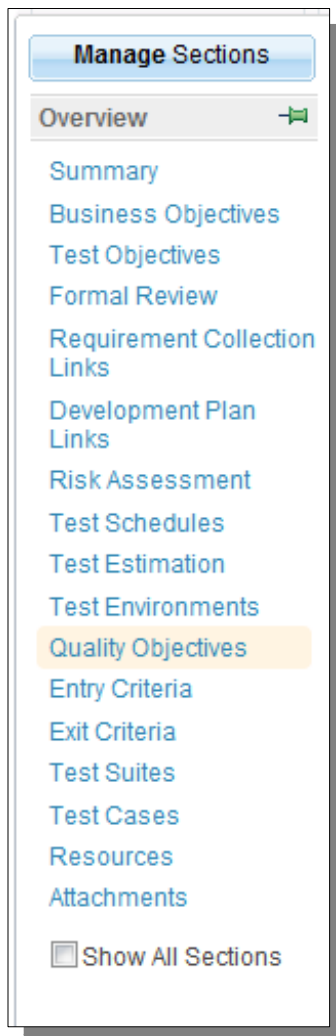
Reduce friction between developers and testers with more efficient handovers, reduced effort, streamlined information




*"Close to **60%** of the defects are duplicates"  
"Our team spends a **lot of time installing builds** to discover issues"*<sup>\*\*</sup>

<sup>\*</sup> Source: IBM


## Comprehensive Test Plan to aim the same goals



- Test Plan customizable to specific process or qualification standards
- Clearly defined quality objectives, responsibilities, scope, timeline, ...
- Reviewed and approved by the whole team
- Connected to actual test activities to reflect up-to-date status


**System Test Plan**   
 Test Plan Overview | [View Snapshots](#)

Originator: ADMIN Action:  State: Draft

**Quality Objectives** 

Defines the overall metrics for what constitutes a quality product.

Objective	Expected	Actual Value	Status	Comment
Number of Open Sev1 Defects	= 0	0	Successful	

**Select Quality Objectives** 

Name	Description	Condition	Target
Number of Blocked Execution Records	Objective stating that no Execution Records can be Blocked.	=	0
Percentage of Blocked Execution Records	Objective stating that only a small percentage of Execution Records can be Blocked.	<	10
Number of Failed Execution Records	Objective stating that no Execution Records can be Failed.	=	0
Percentage of Failed Execution Records	Objective stating that only a small percentage of Execution Records can be Failed.	<	10
Execution Record Pass Rate.	Objective stating that the Pass rate must meet a certain percentage.	>	80

## Build the right tests efficiently

- Automate requirement driven testing
- Get stakeholders and developers help through review and approval
- Reuse existing test cases or test scripts when appropriate
- Optimize test environments coverage

The image shows two overlapping windows from the Rational Software Engineering suite. The background window is titled 'Reconcile all the requirement collections' and displays a list of requirements. The foreground window is titled 'Test Environments' and shows a table of platform coverage.

**Reconcile all the requirement collections**

Requirements that don't have any test coverage  
 Please select the requirements that would like to have the test coverage in this test plan

Summary

- ☐ 198: Validate Loan term and amount
- ☒ 72: Support dividend processing via mobile devices
- ☐ 162: Donors Deposit Money in a Pooled Assistance Fund
- ☐ 65: Dividend processing payment is a one time transaction.

**Test Environments**

Work Item: Create

Lists the various environments supported and tested by this test plan. You can add various platforms such as browsers, databases, operating systems and other items. This list is then used to generate test environments.

Platform Coverage | Test Environment

Type Filter Text

Show All Items per page Previous | 1 - 3 of 3 | Next

Type	Attributes
Application Server	Tomcat 6.0, WAS 6.1, WAS 7.0
Browsers	Firefox 2.0, Internet Explorer 7, Safari 3.0
DataBase	SQL Server 2000, SQL Server 2005, SQL Server 2008

Previous | 1 - 3 of 3 | Next

Next > Cancel

## Minimize scrap and rework through lifecycle traceability







- Proactively respond to gaps as they surface through out the project
- Issues can be quickly highlighted and resolved
- Assess impact of changes: requirements, sprints, schedule, etc.
- Understand which defects block which tests and get notified when fixed





































**BRM Sprint 2 (1.0) Plan** \* ?

26 items: 23 open, 3 closed | Ends in: 3 days

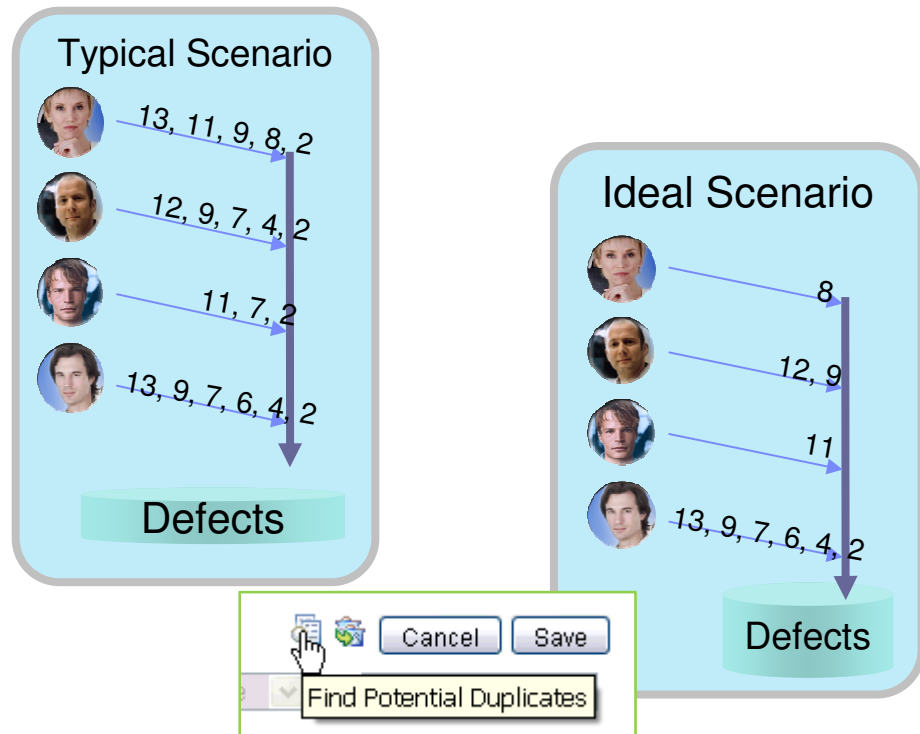
Plan Details [Edit](#)

Planned Items ? [Links](#) [Snapshots](#) [Dashboard](#) [Notes](#)

View As: **Traceability**    Type to Filter (17 items filtered)    [Add Work Item](#)

Actions	Summary	Owned By	Implements Requirement	Tested By Test Case	Affected by
	 Requests sent in form of email	 Unassigned	 Requests sent in form of email	 --	--
	 Frequency of dividend transfer	 Unassigned	 --	 Verify dividend transfer frequency	--
	 Organization must provide justification for why funds are neec	 Marco	 Organization must provide justification for why funds are ne	 Organization must provide justificatio	--
	 Organizations can Apply	 Marco	 Organizations can apply	 Organizations can Apply	--
	 Organization must identify how much money is desired	 Marco	 Organization must identify how much money is desired	 Organization must identify how much	<a href="#">Links (2)</a>
	 Donor Dividend Allocation Criteria	 Deb	 Donor Dividend Allocation Criteria	 Donor dividend allocation conforms t	--
	 Organizations may apply with an initial request	 Bob	 Organizations may apply with an initial request	 Organizations may apply with an initi	--
	 JKE Charity Coordinator will respond to request in the websit	 Marco	 JKE Charity Coordinator will respond to request in the web	 JKE Charity Coordinator responds to	425: Rur
	 Customers can Nominate an Organization	 Marco	 Customers can nominate an organization for the program	 Customers can Nominate an Organi	--

## Reduce friction: Streamline defect submission



- **4-clicks to submit a defect** automatically linked to impacted artifacts
- **Test results are recorded** and linked to test cases, and associated requirements
- Defects are automatically matched to existing defects to **eliminate duplicate defects occurrence**
- **Everyone has visibility** into the defects, their impact, and the action taken to resolve them



## Manage risk with smarter testing

### Customer Speak!

#### Focus your testing effort on the right 20%

Assess and monitor risk associated with requirements and test cases to prioritize activities



*"80/20 rule applies: 80% of test cases rarely identify defects"\**

#### Apply automation where it matters

Use analytics to better manage your investment in automation and maximize its return on investment



*"We have 50,000 automated tests. We don't quite understand what we should maintain"\**

#### Avoid disruption and achieve better business stability and project delivery predictability

Achieve quality objectives by understanding and controlling sources of risk



*"I just got a budget cut, what testing should I eliminate? What impact will it have on application production quality?"*

*\*Source: Business Week*

## Optimize testing effort through risk management and prioritization

- Risk assessments captured in Test Plan and Test Cases
- Collaboration planning of risk mitigation strategy
- Test Case will contain a risk failure score and a risk priority score
- Documented risk related decisions

**Classics Java Test Plan**  
 Test Plan Overview | View Snapshots

Originator: ADMIN Action: Select Action

Test coverage for the Classics Java application.

**Test Cases**

Lists the test cases associated with a given plan. Removing a test case will remove the association.

Group by: Ungrouped

Show All Items per page

ID	Risk Assessment	Suspect	Name
12	○○○○○	◇	View
15	○○○○○	◇	Add N
16	○○○○○	◇	Order
17	○○○○○	◇	Add N
18	○○○○○	◇	Admin
19	○○○○○	◇	Order

**Risk Assessment:**  
 ○○○○○ very high

**My Risk:**  
 Rate this: ○○○○○ very low  
 Comment here

**Community Risk:**

Category	Count	Percentage
Very high:	0	(0%)
High:	0	(0%)
Neutral:	0	(0%)
Low:	0	(0%)
Very low:	1	(100%)
average	○○○○○	very low

Discard Changes Save  
 Saved successfully at: 11:55:20

Work Item: Create








Type Filter Text

Theme	Weight	Modified
Functiona...	20	1 minu...
Functiona...	100	1 minu...
Functiona...	100	1 minu...
Functiona...	100	1 minu...
Functiona...	100	1 minu...
Functiona...	100	1 minu...

## Accelerate Manual Testing

- Capture concise and unambiguous test scripts
- In-line images clearly guide the users through execution and expected results
- Reuse test steps across multiple scripts via keywords
- Reduce human error thanks to assisted input data and comparison

Manual Steps ?

Step	Description:	Expected Results	Validates
1	select the "Jazz Community Site" window		
2	select the "Rational Quality Manager - Projects - Jazz Community Site" window		
3	select the "New Work Item - Change and Configuration Management" window		
4	click the "Conditions" link		
5	drag the "com_ibm_team_workitem_web_ui_internal_view_queryeditor_Attribute" html		
6	click the "is" textbox		
7	click the "Run" button		

Click to add step

Keyword View ?

Clipboard ?

Type Filter Text

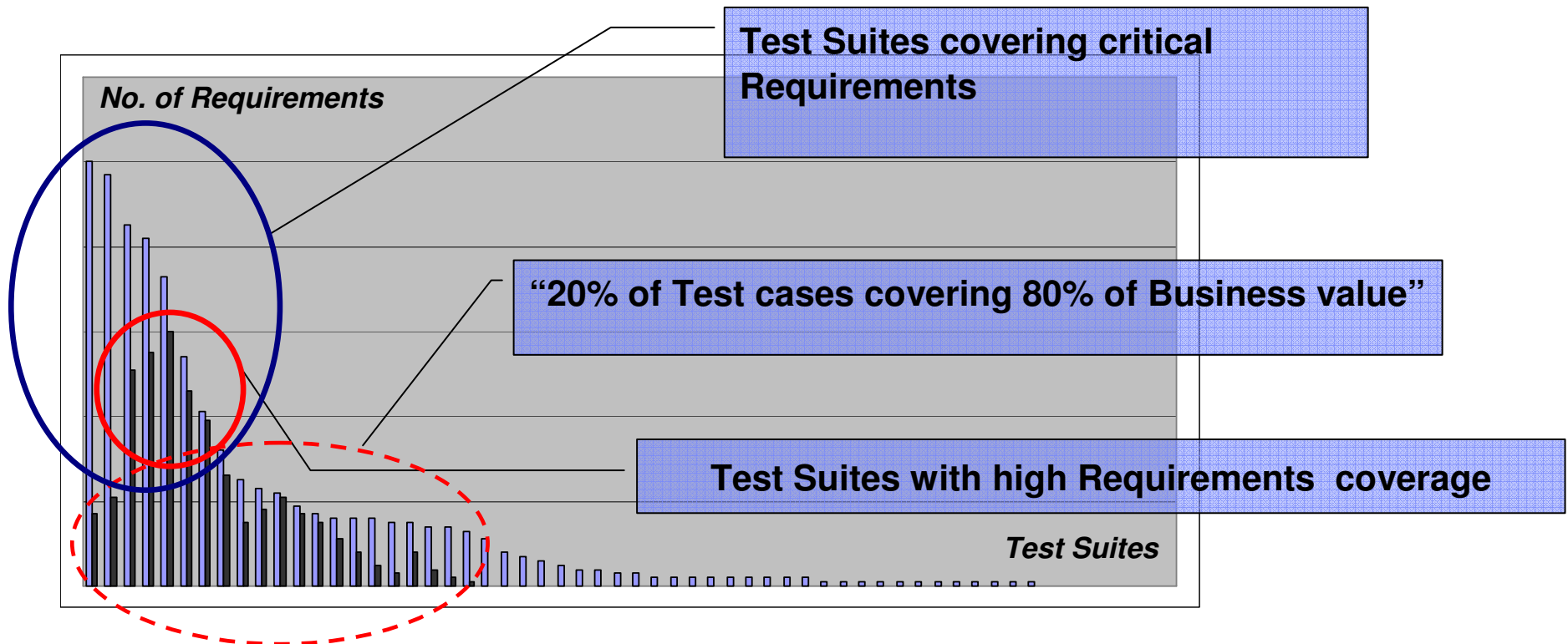
Steps

- Insert New Step Above
- Insert New Step Below
- Insert New Step(s) via Recording
- Reporting Step
- Add to Clipboard
- Remove Step
- Link to any Requirement
- Remove Requirement Links from step

## Apply automation where it matters the most

	No. of Changes
Module A	12
Module B	9
Module C	15
Module D	10
Module E	43
Module F	6

**“80% of the defects come from 20% of the modules”**



## Make confident decisions

### Customer Speak!

#### Take informed decisions and make proactive change with real-time analysis and actionable reporting

Measure and manage quality, project and team status performance and results



*"77% of managers are aware of bad decisions made due to lack of access to accurate information"\**

#### Achieve project quality objectives each and every time

Complete traceability across quality assets



*"We can do better, but don't know what's not working, how bad it is, or where to start."*

#### Confidently deliver incremental quality improvements

Manage, measure and improve quality software delivery capability with a proven, repeatable approach

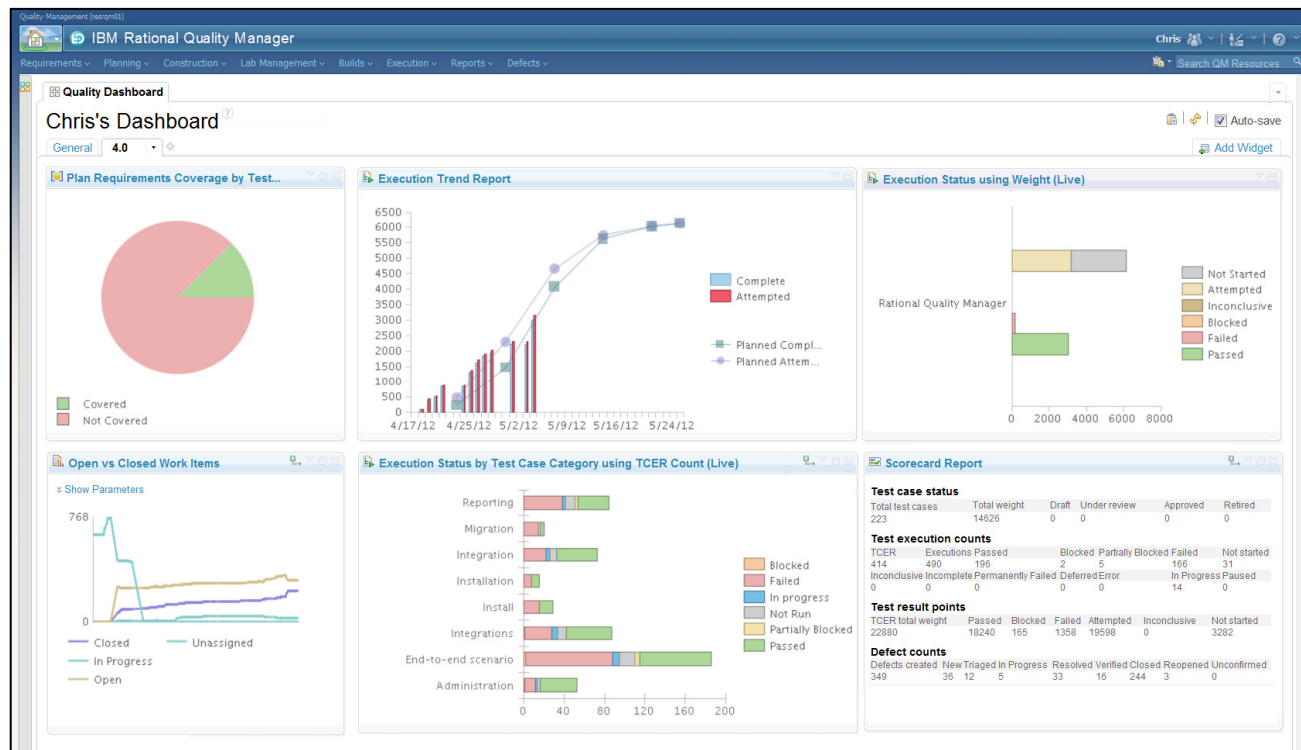


*"2/3 of executives make more than half of their decisions based on 'gut feel' rather than verifiable information"\**

*\*Source: Business Week*

## Take informed decisions with real-time dashboard

- Quickly identify and respond to issues thanks to accurate and real-time status
- Raise enterprise visibility and transparency to reduce costs and risk
- Reduce escalating cost of information gathering
- Reduce risk by identifying trends before they become issues





## Assess and measure against Organizational policies

**System Test Plan** ?  
Test Plan Overview | [View Snapshots](#)

Originator: ADMIN Action: Select Action State: Draft

**Quality Objectives** ?

Defines the overall metrics for what constitutes a quality product.

Objective	Expected	Actual Value	Status	Comment
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Execution Record Pass Rate.	Objective stating that the Pass rate must meet a certain percentage.	>	80

- Standard Objectives
- Reuse across Test Plans
- All working toward same objectives
- Measures against business objectives

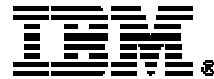
## Drive continuous and measured improvement

- Real-time intelligence based on IT industry best-practice metrics and models
- Proven business intelligence backbone automates collection and analysis to improve lifecycle productivity
- Measures the effectiveness of processes and practices to improve organizational and business outcomes



## Rational Quality Manager Open Ecosystem

**Rational.** software



**Tivoli.** software

### Automated Testing

- Rational Functional Tester
- Worksoft Certify
- Rational Performance Tester
- Rational Service Tester for SOA Quality
- Rational AppScan Tester Edition
- Rational Test RealTime
- Rational Rhapsody

### Builds, WorkItems and Defects Reporting

- Rational ClearQuest
- Rational Team Concert
- Rational BuildForge
- Rational Insight

### Requirements

- Rational Requirements Composer
- Rational DOORS
- Rational RequisitePro

### Provisioning

- Tivoli Provisioning Manager (TPM)
- Tivoli Service Request Manager
- TADDM



Supporting bidirectional integration with the Jira change management system



Accelerating test sandbox creation through service virtualization



Quick Test Professional LoadRunner

**WIND RIVER**

Embedded SW Testing



Managing mobile applications testing across a global handset test environment



Model-based test generation



Telecom Test Automation

## Summary: Rational Quality Manager

- **Collaborate**

Bridge the gap between technical and business communities through shared access to enterprise documents, workflows and collaboration solutions.

- **Automate**

Make it easy for individuals and teams to "do the right thing" and "do things right" by automating team process and workflow.

- **Report**

Track and measure progress across multiple teams, tools and geographies by leveraging the real-time instrumentation of the software lifecycle.



*Helping customers improve the value and performance of their investments in software as strategic business assets*



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