



# Empowering software delivery through Rational Collaborative Lifecycle Management Solution

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IBM Software

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## Agenda

- A case for effective ALM
- What is ALM?
- Planning, Tracking & Monitoring – the 5 imperatives
- Planning, Tracking & Monitoring using the IBM Rational CLM Solution
- Q & A

# Innovation is being driven by software



**Mobile banking will be the most widely used banking channel by 2020, if not sooner**

**The average 2010 automobile contains more lines of software code than a fighter jet**

Will it perform?

Is it secure?

Are we compliant?

Source: *Mobile banking: A catalyst for improving bank performance*, Deloitte, 2010; and *This Car Runs on Code*, Robert Charette, IEEE Spectrum, 2009



# Realities can stall software-driven innovation

## Complexities in software delivery compounded by market pressures

### Complex, Multi-platform Systems and Applications

**62%** of companies have agile projects requiring integration with legacy systems

### Increasing Mandates

2010 Spending in U.S. on governance, risk and compliance was **\$29.8 billion**

### Globally Distributed Software and Product Supply Chains

**50%** of outsourced projects are expected to under perform

### Cost Reduction

**70%** budget locked in maintenance and **37%** of projects go over budget

### Unpredictability in Software Delivery

**62%** of projects fail to meet intended schedule

### Changing Requirements and Time to Market

**30%** of project costs are due to rework and poor execution of requirements

Source: Numerous sources, see speaker notes for details

# Software is the Source of Competitive Advantage

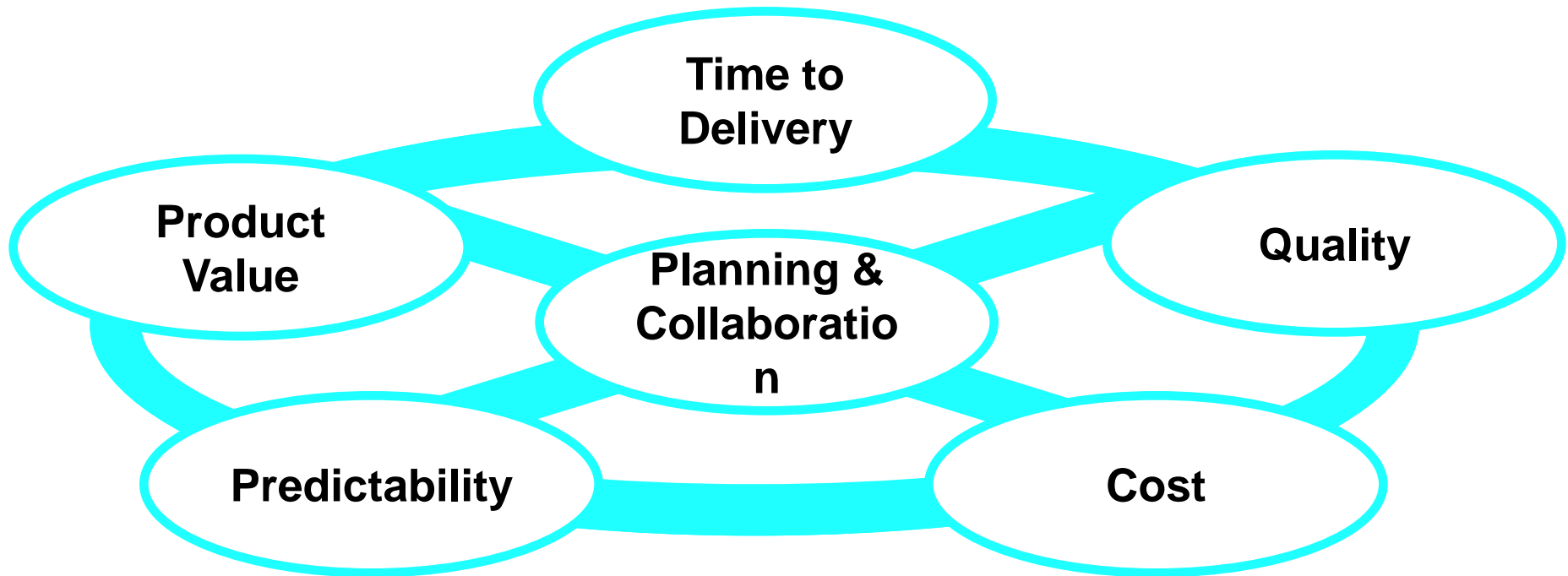


**GM reduced  
time to market,  
delivering the  
Volt in only**

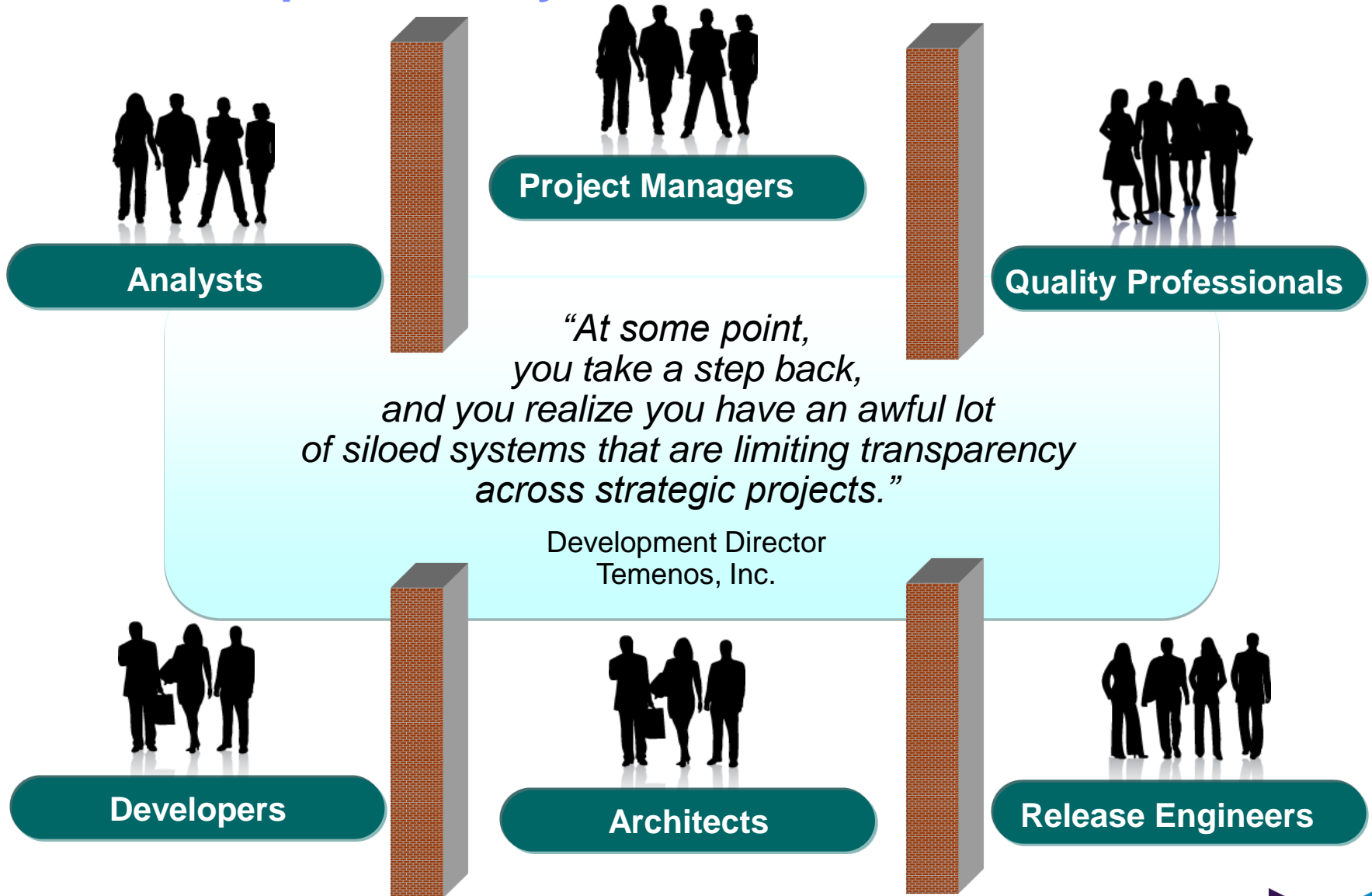


**29** months

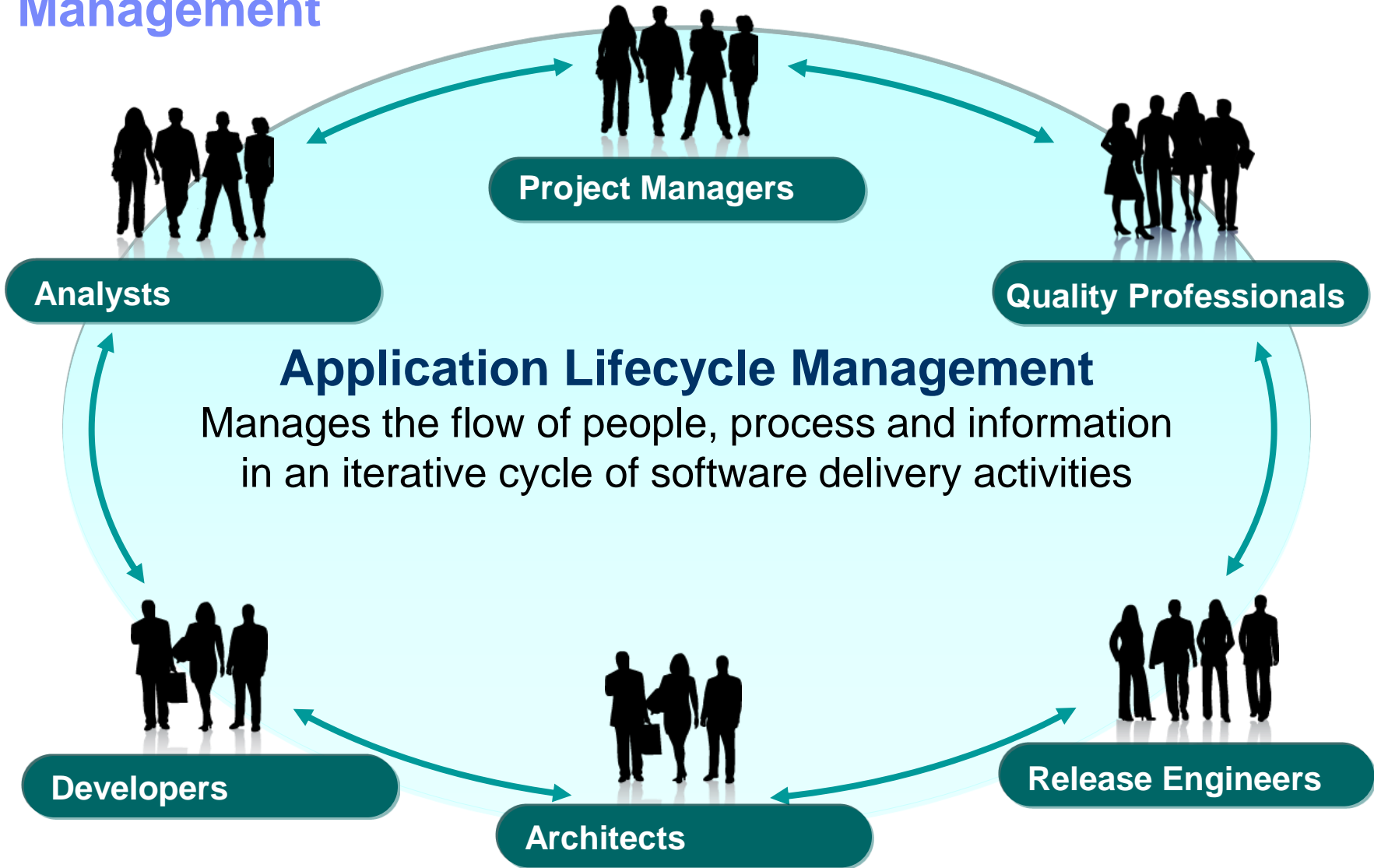
# Productivity is achieved by improving in 5 areas



# Silos inhibit productivity



# Improve productivity with Application Lifecycle Management





# Five Imperatives for effective Application Lifecycle Management

To improve organizational & team productivity

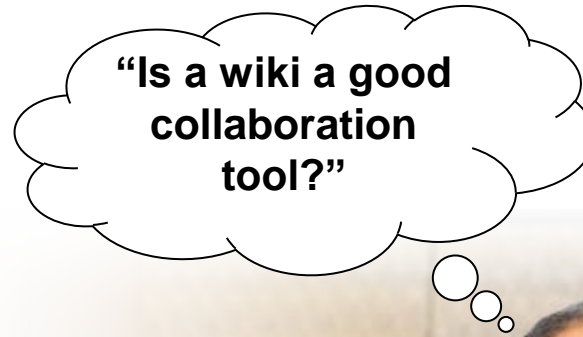


1. Maximize **product value** with **In-context Collaboration**
2. Accelerate **time to delivery** with **Real-time Planning**
3. Improve **quality** with **Lifecycle Traceability**
4. Refine **predictability** with **Development Intelligence**
5. Reduce **costs** with **Continuous Improvement**



## Collaboration challenges

*Can your team...*



- Overcome the barriers of multiple languages and time zones when working with outsourced and distributed team members?
- Bring new team members up-to-speed quickly leveraging historical information in a single source of truth?
- Quickly grasp the “who, what, when and why” of team activities?
- Do you still view Wiki’s and email as advanced collaboration tools?

# Comments on are in-context of the artifact

## 79: Donors will receive confirmation and receipt ?

Edit

### Key Scenarios

1. Donor will receive confirmation notice that donation has been processed.
2. Once the confirmation is received, the Back Office System will initiate an email to the donor based on the primary contact information in the donor's profile.
3. If the profile indicates no email address available and or the given email address is not valid, then a hard copy of the donation will be sent to the donor's mailing address specified in the donor's profile.
4. The Donor will receive an email - mail notice affirming the donation % and amount.
  1. If in email, the donor will be provided an option to print the confirmation notice for tax purposes.
5. The printed confirmation notice must be in a format that is acceptable by country, state, and province agencies and will be mailed in their Bank Statement

### Related Features

Overview

Comments (2)

- 1. Marco to Bob** 1 minute ago (1 reply)

**Statements must be mailed?**

We need to understand if this applies to customers that have opted for electronic statements. **Does paper still need to be mailed?**
- 2. Bob to Marco** 2 minutes ago

**RE: Statements must be mailed?** [RE: #1]

No requirement to mail if customer selected electronic statments.

A click on the comment highlights the text under discussion.

# Formal Reviews drive agreement and prevent re-work

✓ Reviews & approvals insures artifacts are reviewed and/or approved by key team members and captures compliance requirements.



Test Artifacts

JKE Banking (Requirements) > Approval

Participant's Review: In progress 0% completed | Your role: Approver

Overall Review: Draft → In progress 65% completed | Pause Review

Due: Apr 18, 2011

Instructions to reviewers:  
List of requirements for our second sprint. All comments have been resolved. Please review and approve requirements as written.

<input type="checkbox"/>	Participant	Type of Participant	Review results
<input type="checkbox"/>	Bob	Approver	<div style="width: 100%; background-color: green;"></div> Done - 5 Approved
<input type="checkbox"/>	Deb	Approver	<div style="width: 100%; background-color: green;"></div> Done - 5 Approved
<input type="checkbox"/>	Marco	Approver	<div style="width: 60%; background-color: green; background-image: linear-gradient(to right, red 48%, green 48% 52%, green 52%);"></div> 60% - 2 Approved, 1 Disapproved
<input type="checkbox"/>	Tanuj	Approver	

18 : Dividend Allocation by Percentage

Test Case Overview | Snapshots | History

Originator: Tanuj | Owner: Tanuj | State: Under Review

Description: select a list of potential donations and enter percentages for each

**Formal Review**

List the people who will be reviewers and approvers of this content and define your review process.

View: All

Show All | Items per page | Previous | 1 - 4 of 4 | Next

<input type="checkbox"/>	Review Type	Name	Status	Comments
<input type="checkbox"/>	Approver	Bob	Pending	
<input type="checkbox"/>	Reviewer	Sally	Pending	

Task 41

Summary: \* Implement - Frequency of dividend transfer

Overview | Links | Approvals | History

Approvals (1) - 1 pending

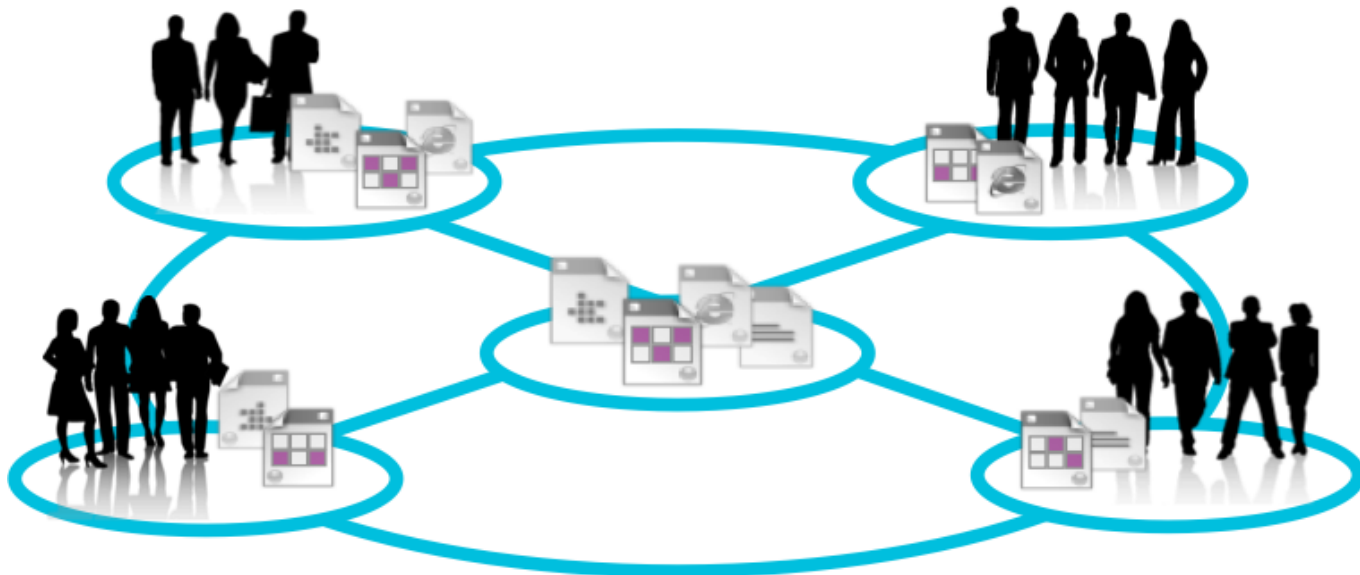
New: Approval

Type	Name	State	Due
Review	Check of algorithm to prevent transfer on weekend	Pending	Apr 18, 2011
	AI	Pending	
	Curtis	Pending	
	Tanuj	Approved	

Add Approvers...

## In-Context Collaboration improves product value by:

- Making **information immediately accessible** to all team members in the context of their work
- Empowering teams to collaborate on and review software development artifacts so they can **incorporate feedback early and often**
- Providing **single source of truth** hosted in a shared repository so that team members can collaborate effectively around the globe



## Planning challenges

*Does your team...*

**“Is a wiki a good planning tool?”**

**“Did you consider how long it will take to test?”**

- View “Plan” as a noun or a verb?
- Plan for improved security and vulnerability remediation?
- Plan across the entire team, involving all stakeholders/disciplines?
- Plan for waterfall, iterative and agile environments?
- Manually collect/report status?

**“Does my plan reflect reality?”**



# Ensure alignment across the business, development and test teams

The screenshot displays the IBM Rational Change Management interface for a project named "JKE Banking (Change Management)". The user "Bob" is logged in. The main view is the "Release 1.0 Backlog" plan, which contains 26 items (19 open, 7 closed) and ends in 24 days. The interface includes a navigation bar with options like "Project Dashboards", "Work Items", "Plans", "Source Control", "Builds", and "Reports". A search bar for "Search Work Items" is also present. The "Release 1.0 Backlog" section shows a "Plan Details" tab and a "Links" tab. The "Links" tab is active, showing a list of dependencies and relationships:

- Planned Items** | **Links** | **Snapshots** | **Dashboard** | **Notes**
- Add: **Contributes To Plan**
- Related Plans
  - Product Backlog [Product Backlog]** 0/0 pts
- Implements Requirement Collection
  - 344: Release 1 Planning**
- Tested by Test Plan
  - 10: JKE Banking Release 1**

# One plan with multiple views facilitate detailed analysis

**1** BRM Sprint 2 (1.0) Plan

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

Plan Details

Planned Items Links Snapshots Dashboard Notes

View As: Roadmap (3 items filtered)

Actions	Summary	Effective Estimate	Owned By
	Frequency of dividend transfer	--	Unassig
	Requests sent in form of email	--	Unassig
	Organization must identify how much money is desired	--	Marco
	Implement - Organization must identify how much money	1.5 days	Marco
	Organizations may apply with an initial request	--	Marco
	Implement - Organizations may apply with an initial requ	4 hours	Marco
	Customers can Nomina		
	Implement - Custo		
	Organization must provide just		

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

30 items: 25 open, 5 closed | Ends in: 6 days

Plan Details

Planned Items Links Snapshots Dashboard Notes

View As: Taskboard

Story	Open	In Progress
Donor Dividend Allocation Criteria	Implement - Donor Dividend Allocation Criteria	
Frequency of dividend transfer		Implement - Frequency of dividend transfer

**3** BRM Sprint 2 (1.0) Plan

30 items: 25 open, 5 closed | Ends in: 6 days

Plan Details

Planned Items Links Snapshots Dashboard Notes

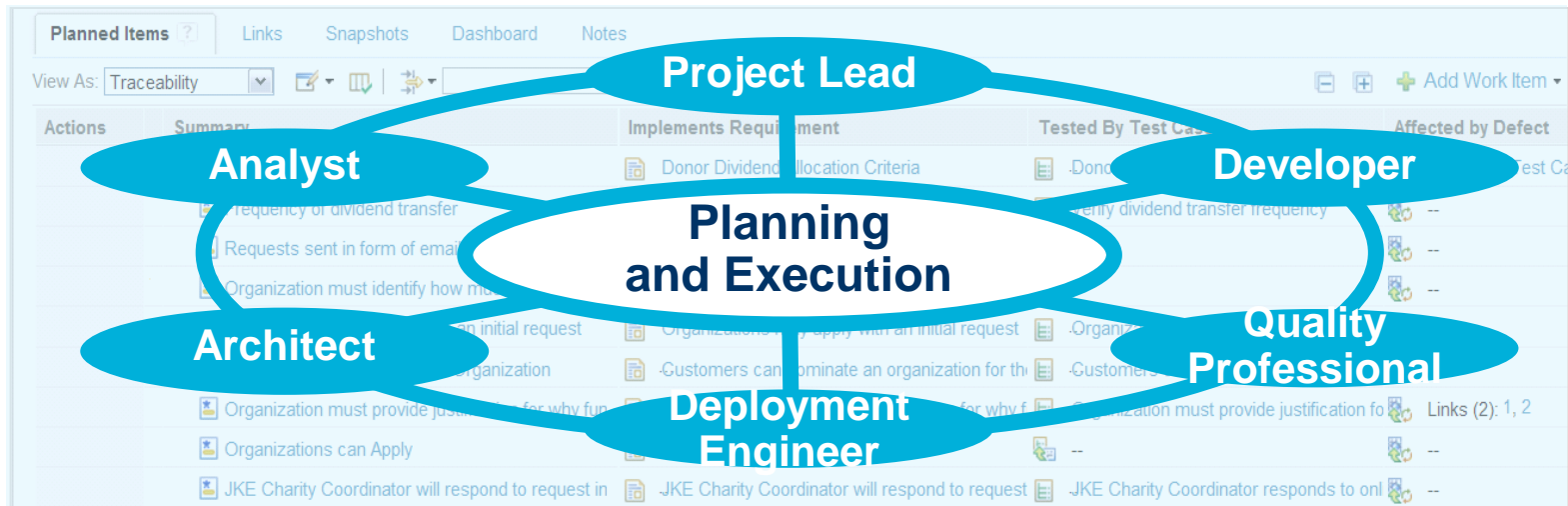
View As: Planned Time

Team Member	Closed Items	Open Items	Load
Bob	0	1	0/8   +8 h
cp	0	1	0/8   +8 h
Deb	3	5	168/8   -160 h
Marco	2	14	92/8   -84 h
Tanuj	0	0	0/8   +8 h



# Real-time Planning accelerates time to delivery by:

- Providing a **single plan** that spans requirements, development, and test, ensuring a team understanding of the overall scope of a project
- **Integrating planning with execution** ensuring the entire team understands the true project status
- Allowing **everyone to participate** in keeping the plan current and accurate
- Helping teams **respond to the unexpected** in a timely manner ensuring the team stays on schedule



# Lifecycle Traceability challenges

## Can your team answer...

### Analyst

Which requirements are addressed in this iteration?

Are all of the requirements tested?

What defects are affecting which requirements?

### Project Manager

Can we pass an audit? Are we ready to release?

What defects were resolved in this release?

Are we aligned with the business?

### Architect

Can we implement in a way that supports maintainability?

Which requirements impact the design?

Are there reusable components we can leverage?

### Developer

What requirements am I implementing? What test uncovered this defect, on which environment and what build?

What changes occurred overnight?

### Release Engineer

How can I standardize when teams use different tools?

Where are the bottlenecks in our processes? Are build times getting longer or shorter?

How can I speed up my builds?

### Quality Professional

What is the quality of the build?

What is ready for me to test?

What defects have been addressed since the last build?



# Team Leads have visibility into coverage & completeness

Tailor traceability View to highlight planning Gaps

BRM Sprint 2 (1.0) Plan Auto-Save Save

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

Plan Details Link Types (Relationships) Edit

Planned Items Links Snapshots Dashboard Notes

View As: Traceability (17 items filtered) Add Work Item

Actions	Summary	Owned By	Implements Requirement	Tested By Test Case	Affected by Defect
	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 nee	Marco	Organization must provide justification for why fund	Organization must provide justification fo	--
	Organizations can Apply	Marco	Organizations can apply	Organizations can Apply	--
	<b>Defect</b> Organization must identify how much money is desired	Marco	Organization must identify how much money is des	Organization must identify how much mo	Links (2): 1, 2
	Donor Dividend Allocation Criteria	Deb	Donor Dividend Allocation Criteria	Donor dividend allocation conforms to si	--
	Organizations may apply with an initial request	Bob	Organizations may apply with an initial request	Organizations may apply with an initial re	--
	<b>Defect</b> JKE Charity Coordinator will respond to request in the we	Marco	JKE Charity Coordinator will respond to request in	JKE Charity Coordinator responds to onl	425: Running out of SW
	Customers can Nominate an Organization	Marco	Customers can nominate an organization for the pi	Customers can Nominate an Organizati	--

# Linked data is visible on all artifacts

- All roles can view the links on their artifacts.
- Each user has their own perspective and user interface for viewing links.
- Create, delete, navigate links on artifacts
- Example: Use the relationships on a defect to determine it's impact
- Traceability links on defects are automatically created

The screenshot displays a web interface for a defect titled "Defect 300". The summary is "Failing Test Case 'Allocate Dividends to Multiple Causes'". Below the summary are tabs for "Overview", "Links", "Approvals", and "History". The "Links" tab is active and shows a list of relationships:

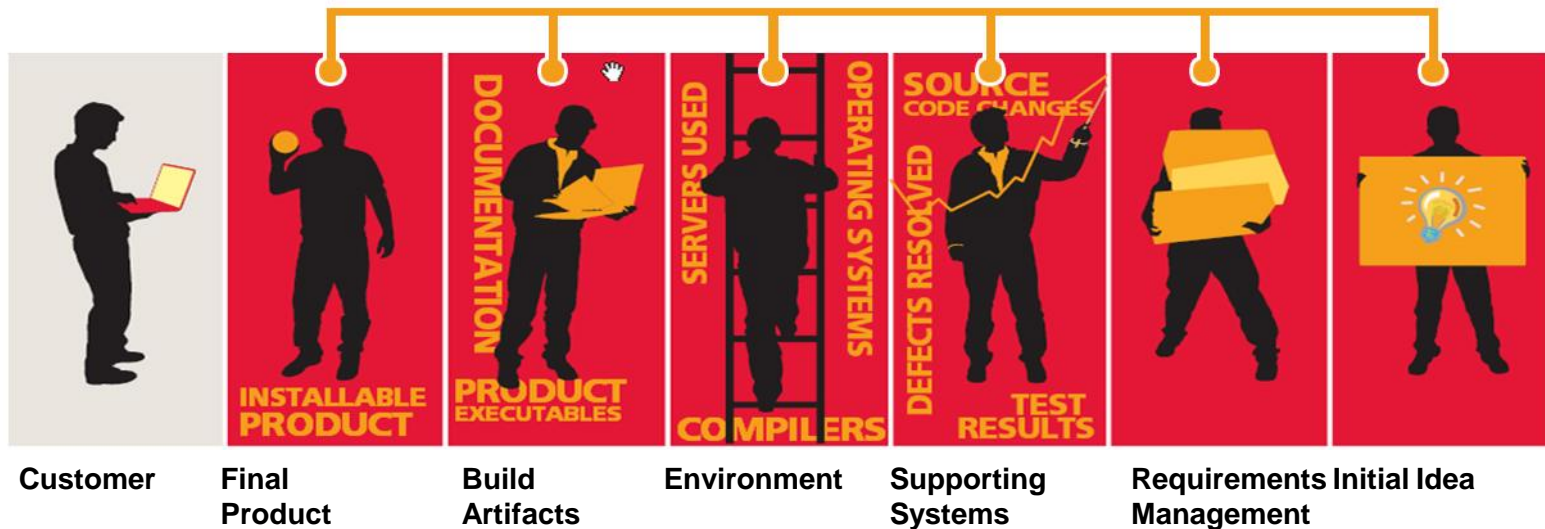
- Affects Test Result**
  - 14: Allocate Dividends to Multiple Causes
- Affects Requirement**
  - 444: Donor Chooses Multiple Organizations
- Related Test Plan**
  - 12: JKE Banking Sprint 2
- Blocks Test Execution**
  - 13: Allocate Dividends to Multiple Causes
- Related Test Case**
  - 97: Allocate Dividends to Multiple Causes
- Affects Plan Item**
  - 284: Donors Can Choose to Support Multiple Organizations

The "Links" section is highlighted with a green border in the image.

# Lifecycle Traceability improves quality by:

- Establishing **relationships between software artifacts**
- Helping you **identify and closing artifact gaps**, ensuring **coverage** across disciplines
- Provides visibility into the **completeness** of planned items by inspecting all related artifacts
- Provides easy **access to related artifacts** ensuring everyone shares the same view
- Delivers transparency which enables everyone to make **fully informed decisions** based business priorities

*Instant access to details from any point in the development process*



## Measuring and steering challenges

### *Can your team...*

- Track desired improvements with metrics?
- Minimize administrative overhead by relying on your environment to capture metrics?
- Provide one view of project health at multiple levels?
- Make steering decisions based on facts rather guesstimates?
- We call this Development Intelligence





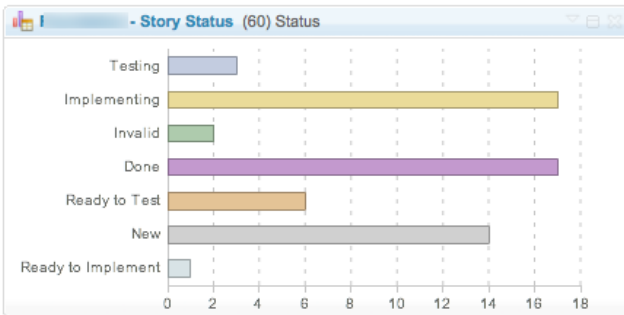
# Information radiators provide a view of project health for all team members

## JKE Banking (Change Management)\* <sup>?</sup>

- Overview
- Time to Value (Schedule)
- Product Value
- Product Cost
- Product Quality
- Reports
- Stabilization

### Story Status Current Iteration

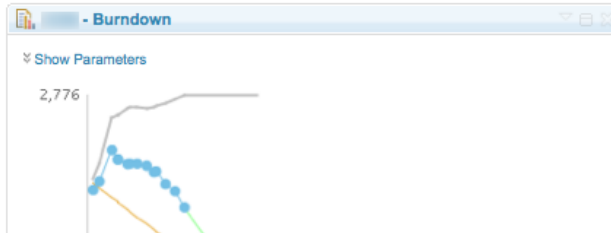
Shows the status of all stories planned for the current iteration



- ### Current Stories (60)
- 150501: Improve Web UI error reporting
  - 154382: Completion (M14) of foundation support for migrating RRC 2.x to 3.0, and JTS consolidation
  - 155918: Provide TVT testcases and testcase updates to TVT team
  - 154263: [Continuation] Create server diagnostics tests and reports that make various checks
  - 155024: Track the fixing of hangs occurring on shutdown of the CLM server
  - 155399: [Repository - M14] Performance, quality and robustness enhancements
  - 156051: Improvements and fixes for CLM migration automation
  - 154929: [Repository - M14] Address high severity defects, Reduce backlog
  - 155033: Explore servlet dispatching enablement as a backup option
  - 155486: [Repository M14] Serviceability and Consumability Improvements
- Page 1 of 6

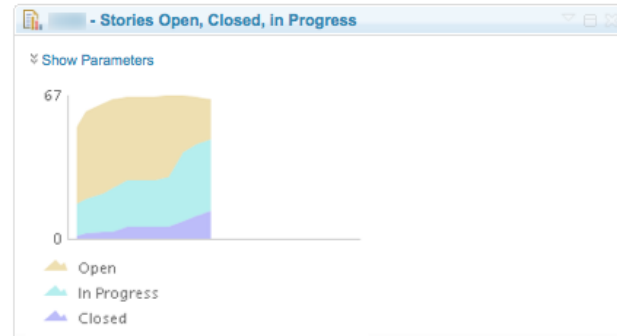
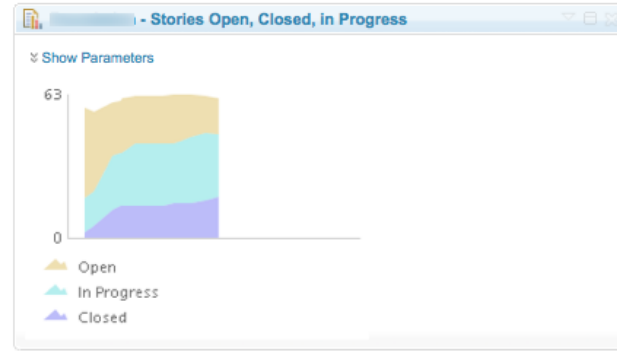
### Burndown Current Iteration

Shows the remaining amount of estimated work in hours of work items planned for the current iteration.



### Stories Open/Closed/In Progress

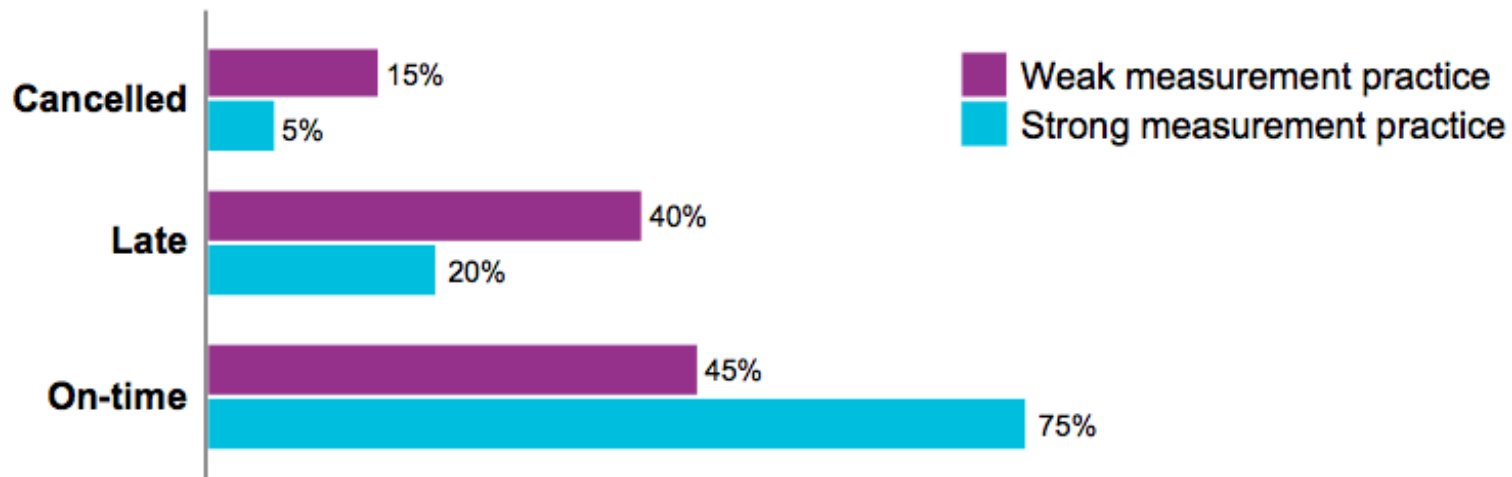
Shows the number of stories which are open, in progress, done during the iteration.



## Development Intelligence improves predictability by:

- Applying **Business Intelligence techniques** to software and systems development
- Enabling **fact-based decision making** (to communicate status, monitor progress, diagnose problems, identify corrective actions)
- Steering projects and programs** to deliver on-time

### Measurement Practices Impact Project Success



Source: Capers Jones, Measurement, Metrics and Industry Leadership, 2009 and Software Engineering Best Practices, McGraw Hill, 2010.



# Continuous improvement challenges

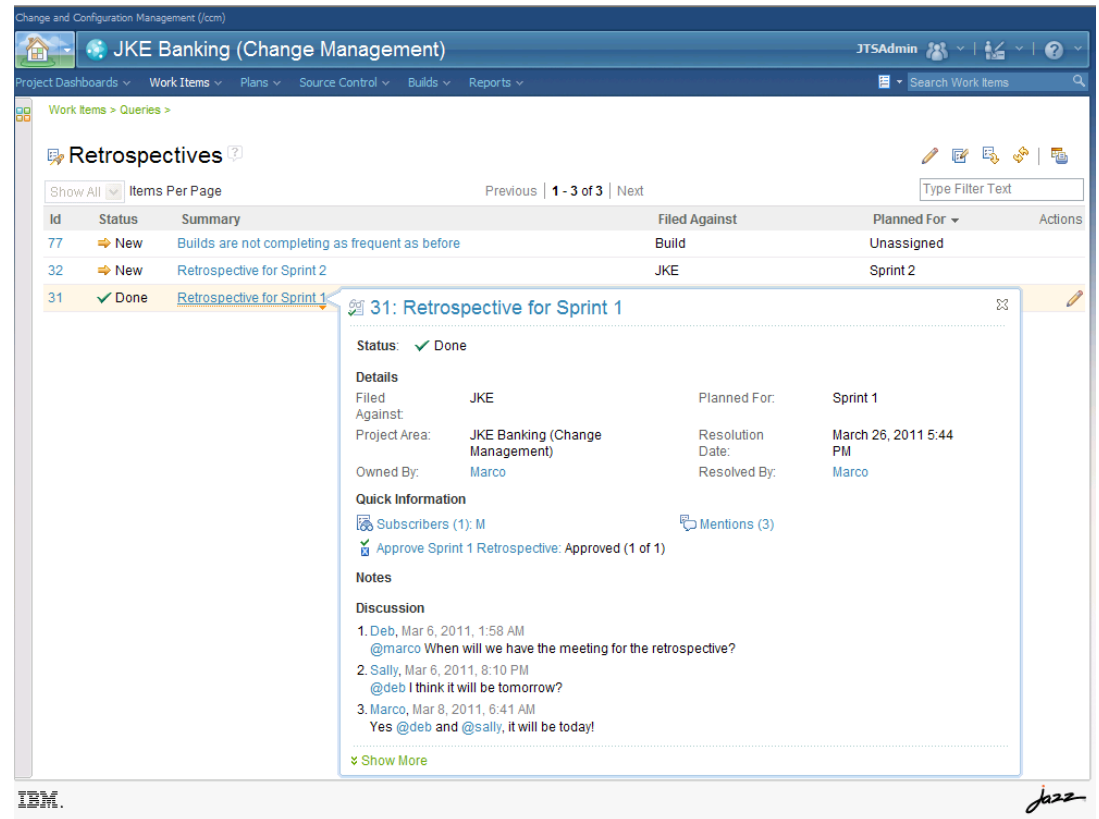
## *Can your team...*

- Assess & act upon improvement ideas freely and as needed through out the project lifecycle?
- Leverage out-of-the-box templates that support traditional and agile workflows?
- Change process “on the fly” as part of a continuous feedback loop?
- Allow team leads to determine how strict or lax the “rules of the road” should be?
- Modify process enforcement over the life of a project, to encourage early-stage experimentation and end-game stability?



# Team Retrospectives help identify areas of improvement

- Tracking Retrospectives help team members to collaborate on improvements.
  - Ranking of process improvements help to focus on where the team feels the biggest pain.
  - Metrics where available help support process improvements and show results.



# Instantiate best practices as templates for breakthrough improvement

Projects Members Templates Sample

## All Lifecycle Project Templates ?

Name	Summary
Quality Professional, Analyst, Developer	This template sets up work item management. The template includes change and configuration management and configuration management. OpenUP or Formal Requirements Base, Use Case, Agile
Quality Professional, Developer - without Requirements	This template sets up work item management) work item management in the change and configuration management. the Scrum, OpenUP

Work Items ▾ Plans ▾ Source Control ▾ Builds

Welcome to Work Items

Queries

- My Queries
- Share My Queries**

Create Query

- Create Query

Create Work Item

- Defect
- Task
- Story
- Epic
- Track Build Item
- Impediment
- Adoption Item
- Retrospective

Create Work Item Set

- Create From Template...

# Tweak process definition “in-flight” to correct team actions

Problem: Story completed without all work completed

Solution: Require detailed tasks completed before completing parent

**Operation Behavior**

Select a cell in the table below to configure the preconditions and follow-up actions for the corresponding operation and role.

Preconditions are checked before running an operation; follow-up actions are executed after. An operation's preconditions and follow-up actions can be configured differently for each role. Note that operation configurations completely replace each other; they are not additive. The process runtime will most appropriate operation configuration for the logged-in user and will use only the preconditions and follow-up actions defined in that configuration.

Operations	Everyone (def...	Team Member	Team Lead
[-] Reports			
...Deploy Report (server)			
...Deploy Report Template (server)			
...Display Report (server)			
...Manage Report Folder (server)			
[-] Source Control			
...Deliver (client)			
...Deliver (server)			
...Save Change Set Links and Comments (server)			
[-] <b>Work Items</b>			
... <b>Save Work Item (server)</b>			

The Save Work Item operation is executed whenever a work item is saved in the repository.

Preconditions and follow-up actions are configured for this operation  
 Final (ignore customization of this operation in child team areas)

**Preconditions (8 available):**

Required Properties

**Follow-up actions (0 available):**

**Name:** Required Properties  
**Description:** Work items must be Filed Against a spe... team can quickly evaluate who is resp...

**Category or Type**

- com.ibm.team.workitem.workI
- workitem.workItemType.delive

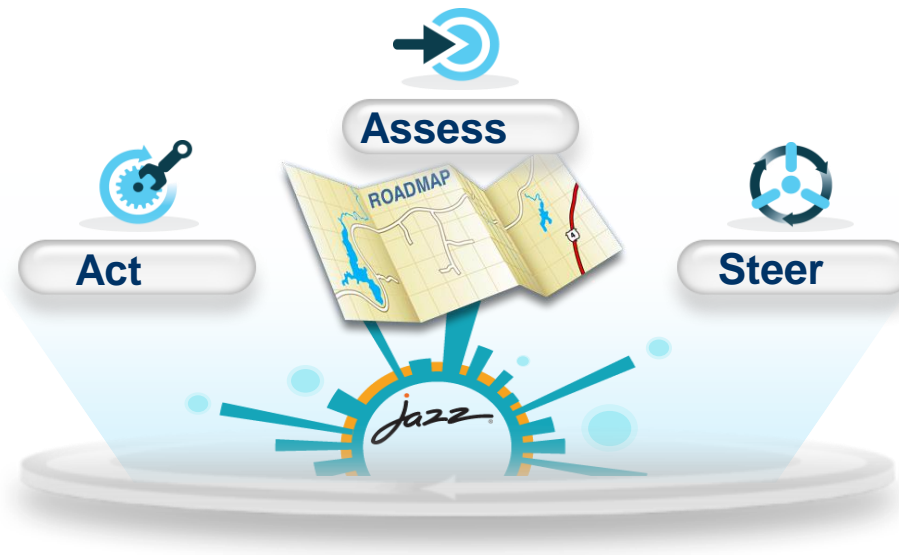
**Add Preconditions**

Select the preconditions to add:

- All Children Resolved
- E-Signature
- Implied Properties
- Permissions Advisor
- Prevent Editing
- Required Approvals
- Required Estimates Precondition
- Required Properties

## Continuous Improvement reduces cost by:

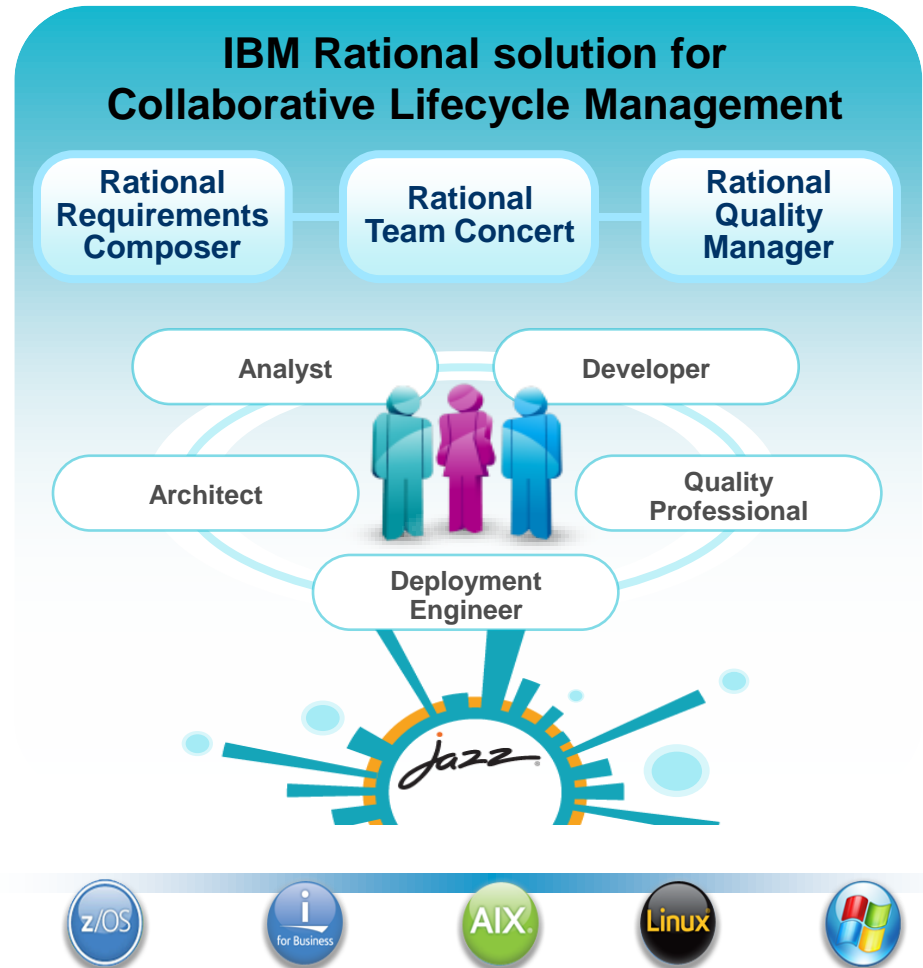
- Enabling breakthrough improvement through the ongoing **adoption of best practices and automation** to reduce manual, non-creative and error prone tasks
- Promoting **incremental improvement of a project** when needed through user interfaces that are easy to customize and ‘in-flight’ changes to process
- Allowing **everyone to participate** with easy to adopt best practices at your fingertips.



# IBM Rational solution for Collaborative Lifecycle Management

*Improve productivity with an integrated ALM solution*

- **Optimize your team through support of the 5 ALM Imperatives**
  - Real-time planning
  - Lifecycle traceability
  - In-context collaboration
  - Development Intelligence
  - Continuous Improvement
- **Get up and running quickly**
- **Extend as your needs evolve with role-based licensing**
- **Support heterogeneous development across multiple platforms and technologies**



# Jazz is IBM's initiative for improving collaboration across the software and systems lifecycle





# The Jazz architecture overcomes limitations of the past

## ✓ Open choice and rich integration

### Uniform Resource Identifiers

“I can link virtually any resource to virtually any other resource regardless of where the resource lives!”

### Standard Interfaces

“Each tool can evolve independently without breaking integrations!”

### Open Standards for the Lifecycle

“Each domain can create standards without having to wait on the others or get the whole industry to agree!”

*Open Services for Lifecycle Collaboration  
open community. open interfaces. open possibilities*

### Integration Services

“Each vendor can evolve their tool to exploit the services that are valuable to customers like me!”

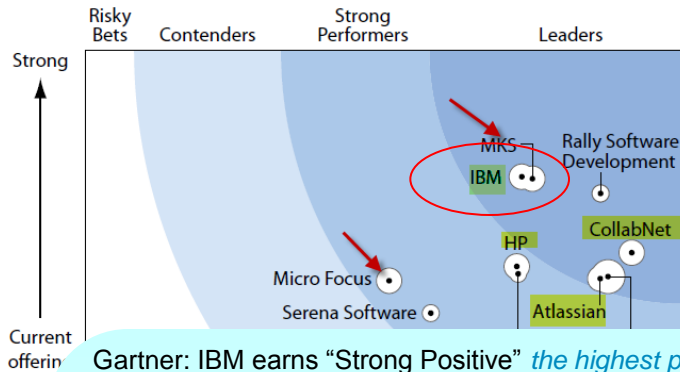
## ✓ Evolutionary and incremental adoption



# IBM Rational dominates marketplace

Forrester: IBM a Market Leader

Figure 5 Forrester Wave™: Agile Development Management Tools, Q2 '10



Gartner: IBM earns "Strong Positive" *the highest possible rating*

Figure 1. MarketScope for Application Life Cycle Management

	RATING				
	Strong Negative	Caution	Promising	Positive	Strong Positive
AccuRev			X		
Aldon			X		
Atlassian				X	
CollabNet				X	
Digite			X		
HP				X	
IBM					X
Kovair			X		
Micro Focus			X		
Microsoft				X	
MKS				X	
Parasoft			X		
Polarian Software			X		
Rally Software				X	
Seapine Software			X		
Serena Software				X	
SmartBear Software			X		
TechExcel			X		
ThoughtWorks			X		
VersionOne				X	

As of 11 November 2010  
Source: Gartner (November 2010)

Gartner: Leader in the Magic Quadrant

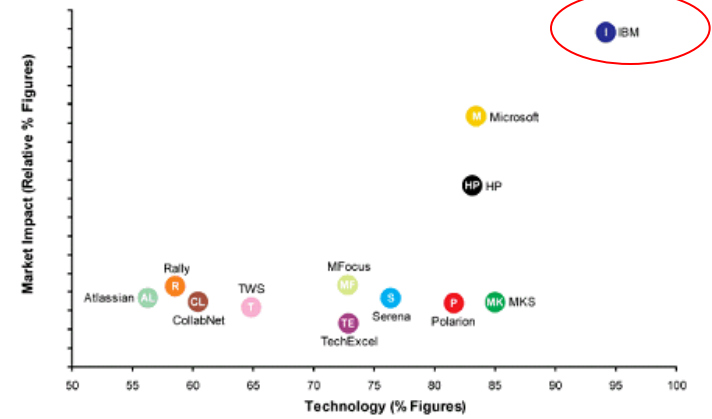
MAGIC QUADRANT

Figure 1. Magic Quadrant for Integrated Software Quality Suite



Ovum: "IBM has the broadest and arguably the *deepest portfolio among all vendors profiled in this report.*"

Figure 3: Extended ALM Decision Matrix



- AL Atlassian
- CL CollabNet
- HP HP
- I IBM
- MF MicroFocus
- M Microsoft
- MK MKS
- P Polarian
- R Rally
- S Serena
- TE TechExcel
- T TWS

Source: Ovum

OVUM

## Where to find more information...

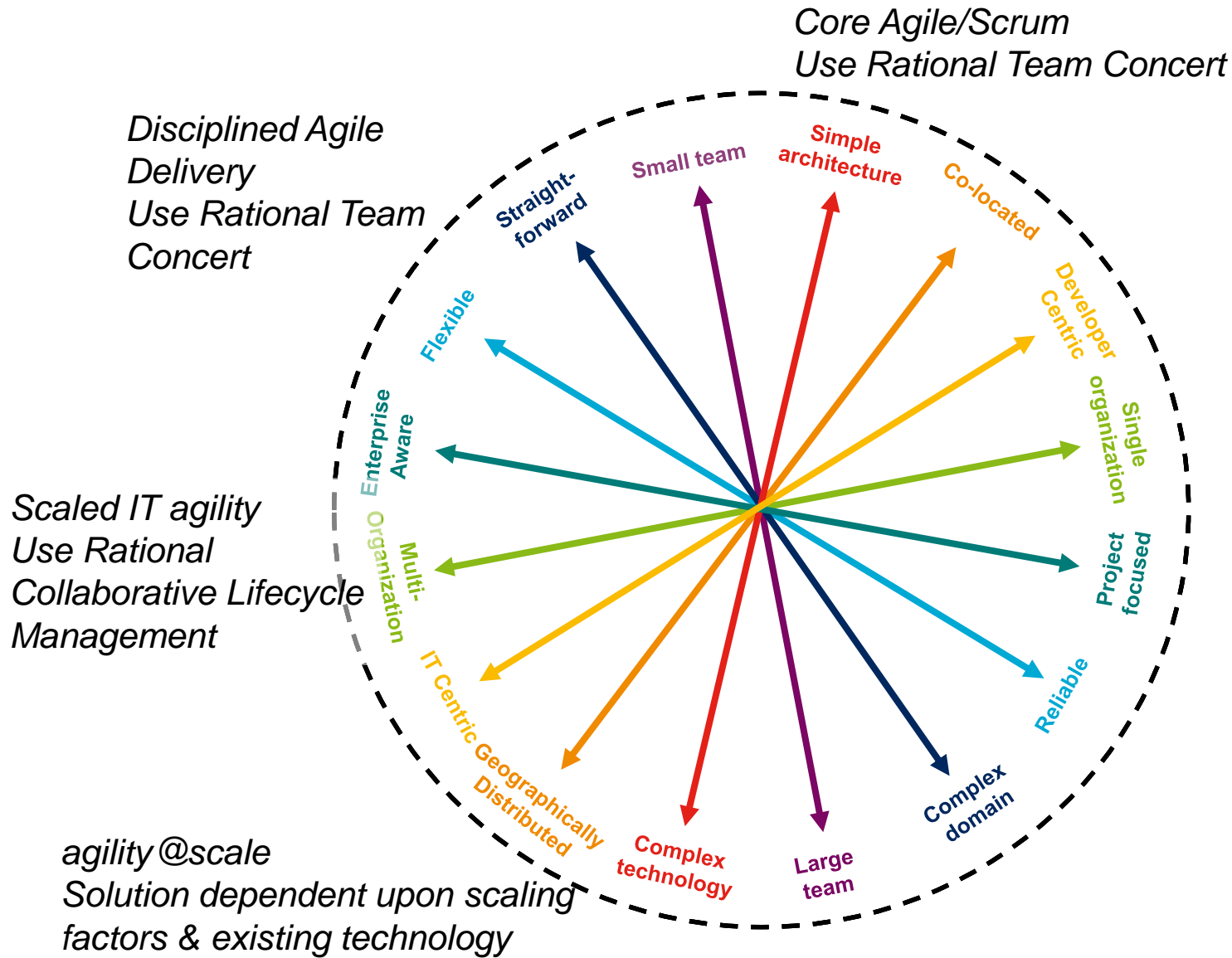
**jazz.net**



[www.ibm.com/software/rational](http://www.ibm.com/software/rational)

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# The Agile ALM compass



# CLM is a Journey: Entry Points and Adoption paths

## Common Entry Points

### Requirements Definition

Improve capacity to deliver value by effectively capturing, prioritizing, managing and monitoring requirements throughout the lifecycle  
**Rational Requirements Composer (RRC)**

### Quality Management

Improve quality and reduce and cost by automating the testing process  
**Rational Quality Manager (RQM)**

### Collaboration, Planning, Change, Configuration and Build Management

Collaborate across diverse engineering disciplines and development teams  
**Rational Team Concert (RTC)**

**NEW**

### Rational solution for Collaborative Lifecycle Management (CLM)

Align Requirements, Development and test teams to reduce cost and improve predictability, value, quality and time to delivery

## Supporting Service Offering

RRC Quick Start

RQM Quick Start

RTC Quick Start

Disciplined Agile Delivery with RTC Quick Start\*

Planning and Governance with RTC Quick Start

Agile Jump Start Deployment Package

Introducing RTC into CCM Legacy Environment Assessment\*\*

CLM Quick Start

## Continued Adoption

How do I ensure development implements the business needs?

**Adopt RRC & RTC**

How do I validate quality with the business?

**Adopt RRC & RQM**

How do I ensure development is tested by independent test?

**Adopt RTC & RQM**

