



The Five Imperatives – An Application Lifecycle Management Energy Drink Boosts the Whole Team

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IBM Software

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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

Anytime, for any team, silos inhibit software delivery productivity

- People
- Best practices
- Data
- Tools

Decide



1. Business

“At some point, you take a step back, and you realize you have an awful lot of **siloed systems** that are **limiting transparency** across strategic projects.”

- Development Director
Temenos, Inc.

Do



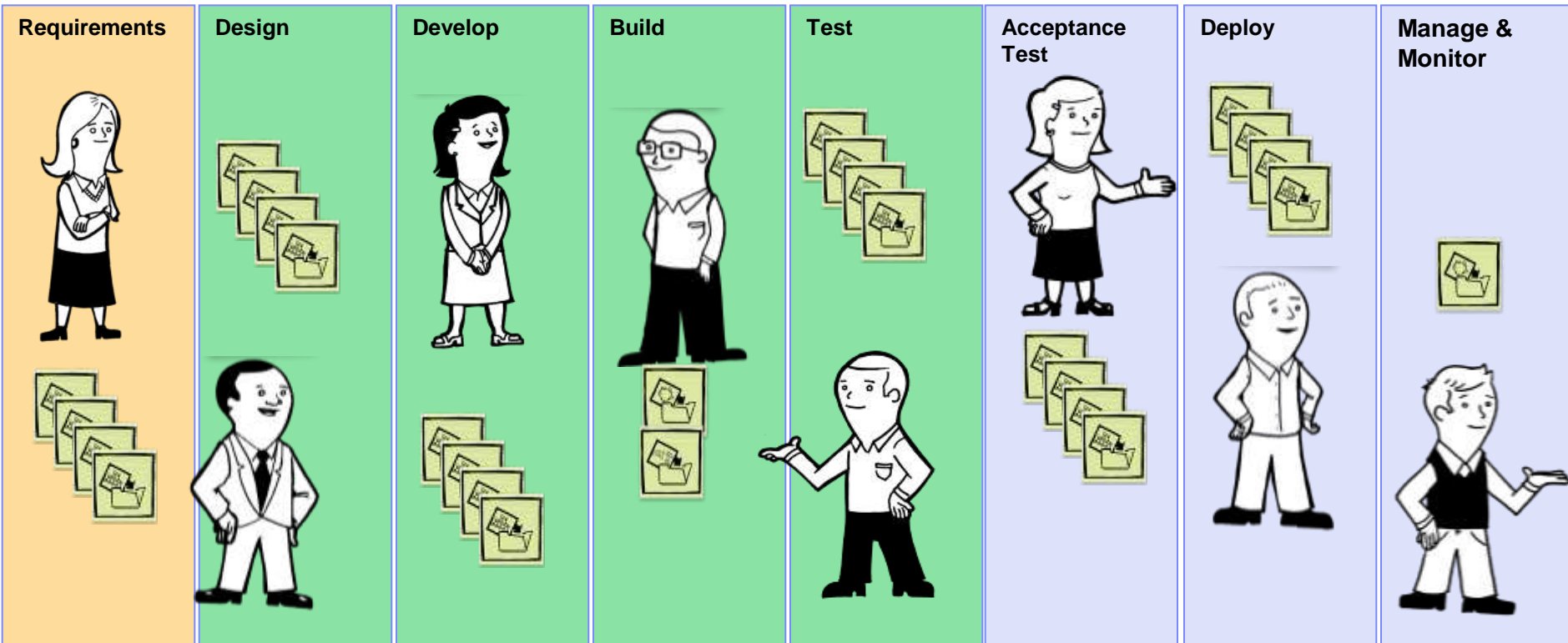
2. Development

Deploy

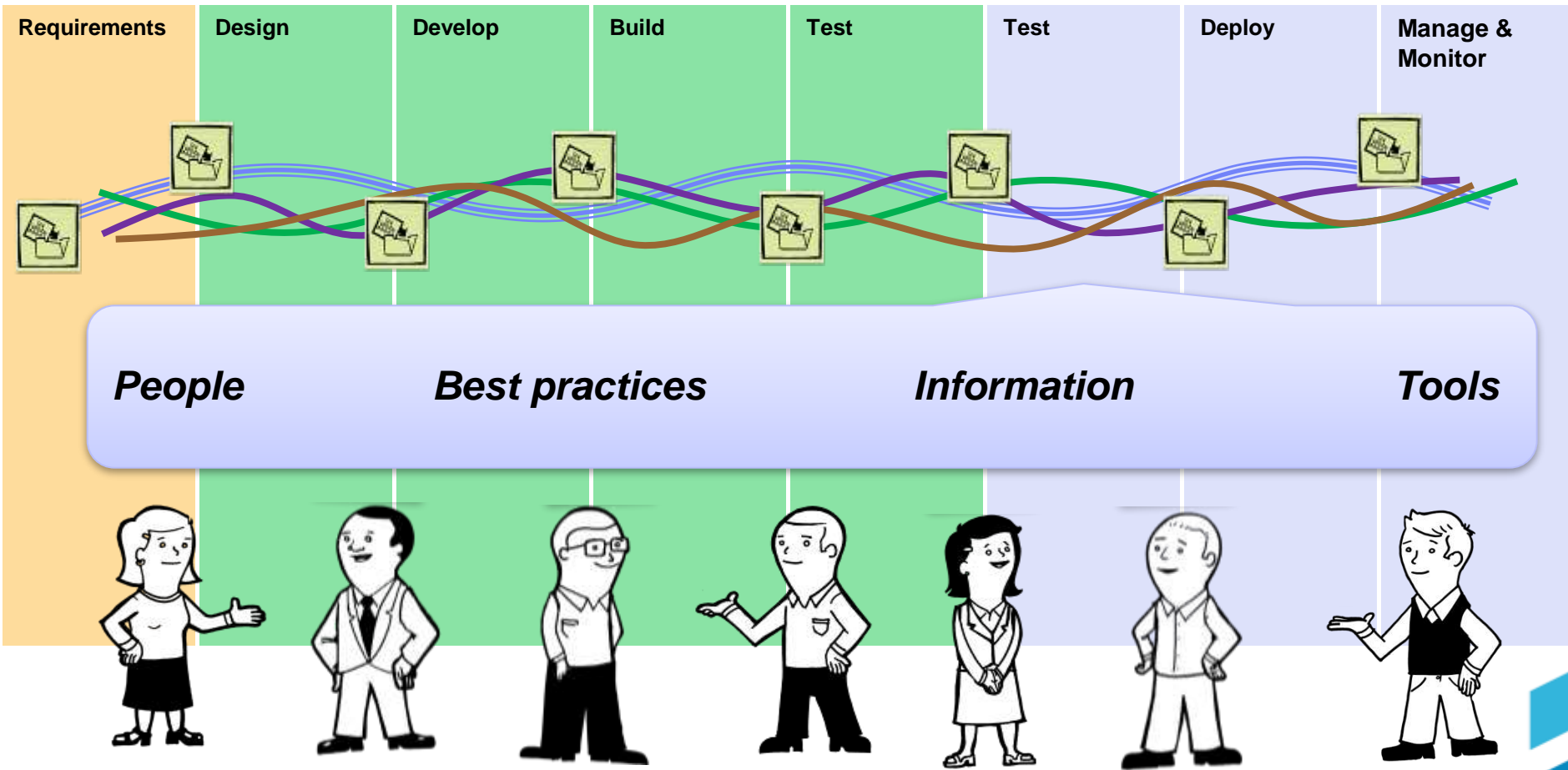


3. Operations

We're good at going deep in each discipline



The challenge is coordinating across the disciplines...



Application Lifecycle Management can improve productivity

ALM manages the flow of:

People



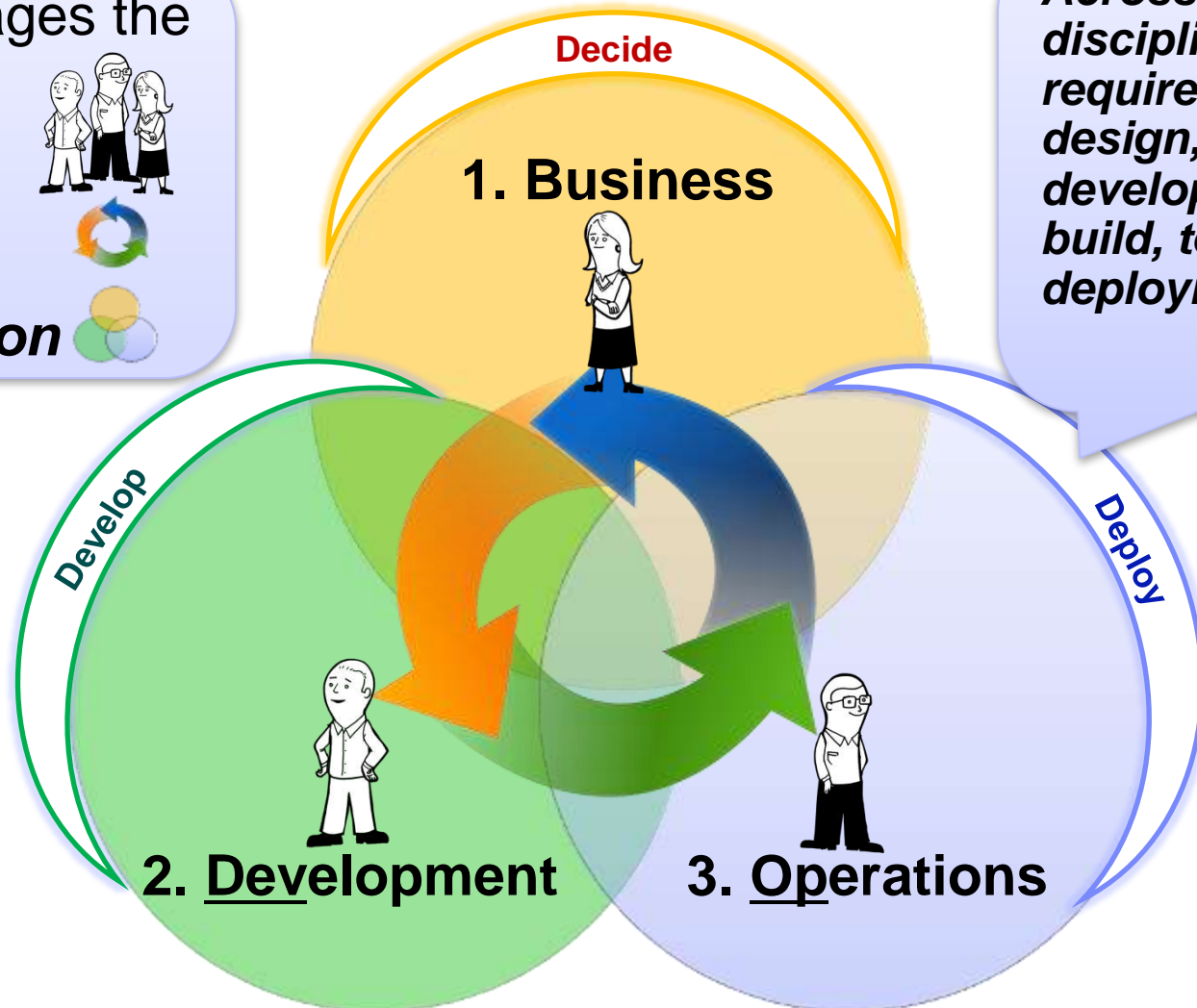
Process



Information



Across the disciplines of requirements, design, development, build, test, deployment

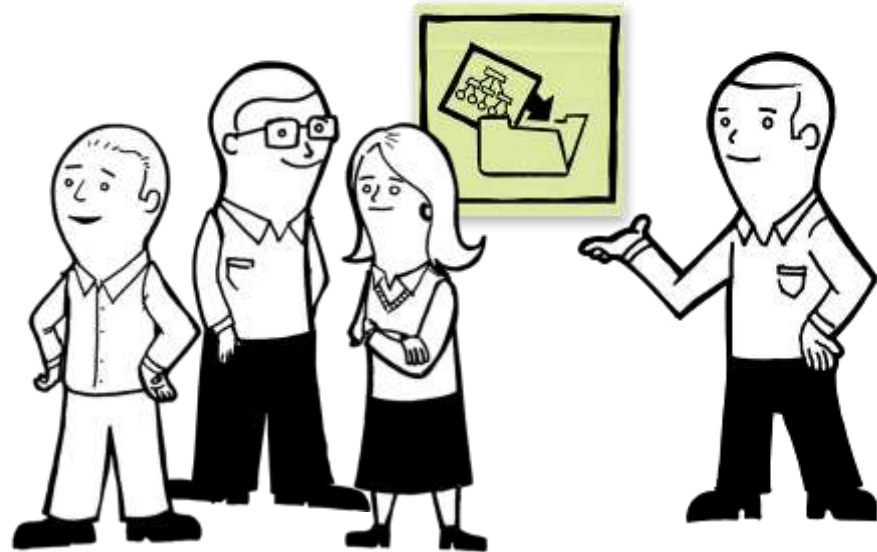


Collaboration challenges

Can your team...



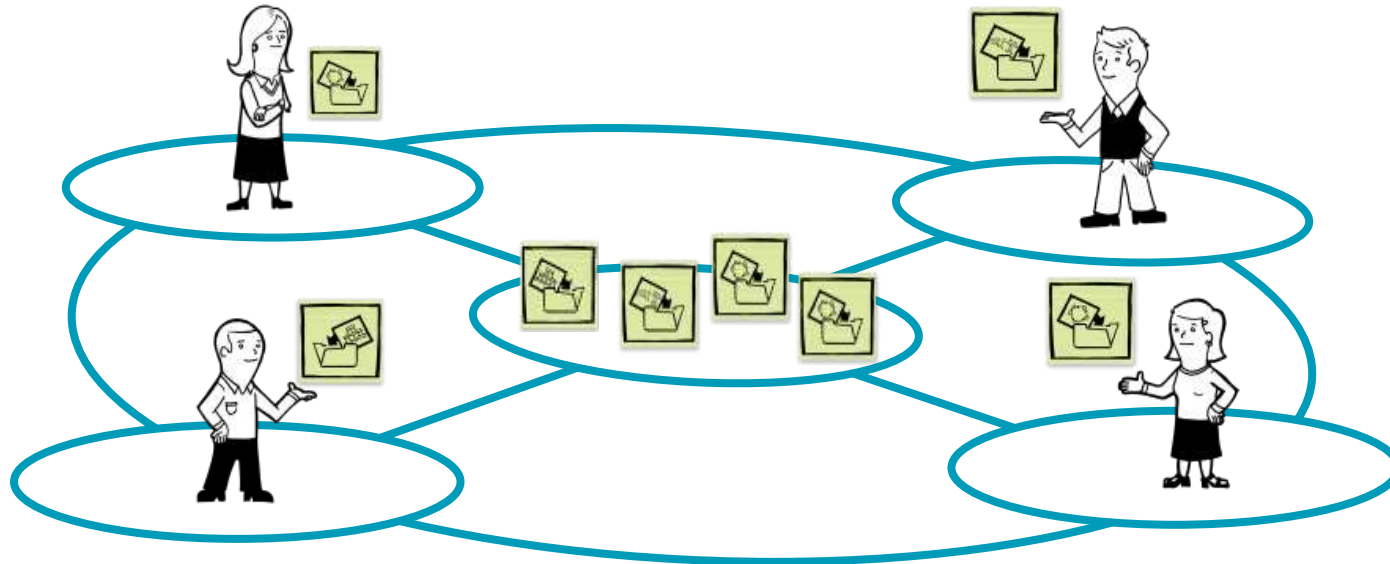
- ...find all the information related to a specific task?
- ...quickly grasp the **“who, what, when and why”** of team activities?
- ...bring new team members up-to-speed quickly?
- ...overcome the barriers of multiple time zones when working with outsourced and distributed team members?



In-Context Collaboration improves product value



- Empower teams to collaborate on and review software development artifacts so they can **incorporate feedback early and often**, aligning delivery with stakeholders' vision
- Provide a **single source of truth** hosted in a shared repository so that team members can collaborate effectively around the globe to build a collective intelligence
- Make **information immediately accessible** to all team members in the context of their work



Comments on requirements' details are in-context



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

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.

Related Features

A click on the comment highlights the text under discussion.

Formal reviews drive agreement & prevent re-work



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

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.

Participant	Type of Participant	Review results
<input type="checkbox"/> Bob	Approver	Done - 5 Approved
<input type="checkbox"/> Deb	Approver	Done - 5 Approved
<input type="checkbox"/> Marco	Approver	60% - 2 Approved, 1 Disapproved
<input type="checkbox"/> Tanuj	Approver	

Test Artifacts



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 roles.

View: All

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

Review Type	Name	Status	Comments
Approver	Bob	Pending	
Reviewer	Sally	Pending	

Work Items



Task 41

Summary: Implement - Frequency of dividend transfer

Overview Links Approvals History

Approvals (1) - 1 pending

New Approval

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

Add Approver...

Rich hover automates information access without having to click



The screenshot shows a web application interface for 'Quality Management (/qm)'. The main header is 'JKE Banking (Quality Management)' with navigation tabs for Requirements, Planning, Construction, Lab Management, Builds, Execution, and Reports. A 'Mini Dashboard' is visible on the left with a 'My Tasks' section. A task item 'Release 1 Planning (14)' is highlighted, and a rich hover menu is displayed over it. The hover menu contains a list of items, a 'Location' section, an 'Attributes' section, and a 'Links' section.

14: Release 1 Planning

- 58: Dividend processing payment is a one time transaction.
- 78: Requests sent in form of email
- 80: Donors will receive confirmation and receipt
- 69: Dividend allocation by percentage
- 79: Organizations may apply with an initial request

... 13 More

Location

- JKE Banking (Requirements) Collections
- Release 1

Attributes

Type: Release Collection Format: Collection
Description: Status: Approved

Links

- Validated By (1): ...
- Implemented By (1): ...

✓ Rich hovers provide quick access to information to determine if additional details are required!

Align planning across the business, development and test teams



The screenshot shows the IBM Rational CCM interface for 'JKE Banking (Change Management)'. The main view is the 'Release 1.0 Backlog', which contains 36 items (31 open, 5 closed) and ends in 24 days. The 'Links' tab is active, showing a table of links. A green box highlights the 'Implements Requirement Collection' and 'Tested by Test Plan' link types. Two callout boxes with checkmarks point to these link types: '✓ Linked to Requirement Collection' and '✓ Linked to Test Plan'.

Actions	Link Type	0/16	0/0 pts	0/7%
	Related Plans			
	BRM Sprint 2 (1.0) Plan	0/16		
	Product Backlog	0/0 pts		0/7%
	Implements Requirement Collection			
	97: Release 1 Planning			
	Tested by Test Plan			
	3: JKE Banking Release 1			

One plan with multiple views

Everyone sees meaningful data in the context of their work



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 man	1.5 days	Marco
▼	Organizations may apply with an initial request	--	Marco
▶	Implement - Organizations may apply with an initial requ	4 hours	Marco
▼	Customer must create an Organization	--	Deb
▶	Implement - Create an Organization	--	Deb
▶	Organization must	--	

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 Pro
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

▶	Bob	Closed Items: 0 Open Items: 1	Load: 0/8 +8 h
▶	CP	Closed Items: 0 Open Items: 1	Load: 0/8 +8 h
▶	Deb	Closed Items: 3 Open Items: 5	Load: 168/8 -160 h
▶	Marco	Closed Items: 2 Open Items: 14	Load: 92/8 -84 h
▶	Tanuj	Closed Items: 0 Open Items: 0	Load: 0/8 +8 h

Plan at the right level of detail

Everyone participates in planning



- ✓ Stories decomposed into cross-discipline tasks
- ✓ Plans include all work

- ✓ Whole team sees dependencies

Plan Details

Planned Items Links Snapshots Dashboard Notes

View As: Roadmap

Actions	Summary	Effectiv	Owned By	Rank
	Dividend processing payment is a one time transaction.	--	Unassignec	3
	Tester design the test case and test script	--	Tanuj	1
	Developer implement the requirement	--	Deb	2
	Analyst elaborate the requirement	--	Bob	--
	Improve link colors	5 hours	Deb	--
	Requests sent in form of email	--	Unassignec	--
	Donor Dividend Allocation Criteria	--	Unassignec	--
	SWT Exception	1.3 day	Marco	--
	Frequency of dividend transfer	--	Unassignec	--
	Donors Deposit Money Into a Pooled Assistance Fund	--	Unassignec	--
	Organization must identify how much money is desired	--	Marco	--

Plans tied to execution

Status updates are everyday work



✓ In place updates to status automatically appear in the plan

The screenshot shows a project plan titled "BRM Sprint 2 (1.0) Plan" with 28 items, 28 open, and 0 closed, ending in 12 days. The interface includes tabs for "Planned Items", "Links", "Snapshots", "Dashboard", and "Notes". The "View As" is set to "Taskboard". A grid of tasks is displayed, with the task "Analyst elaborate the requirement" highlighted. A dropdown menu is open for this task, showing duration options: 30 minutes, 1 hour, 2 hours (selected), 4 hours, 1 day, 2 days, 3 days, 1 week, and --.

Story	Open
Dividend processing payment is a one	Tester design the test case and test script Developer implement the requirement
Requests sent in form of email	Implement - Requests sent in form of email
Donor Dividend Allocation Criteria	Implement - Donor Dividend Allocation Criteria

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 are the design?

Are there reusable components we can leverage?

Beta!

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?

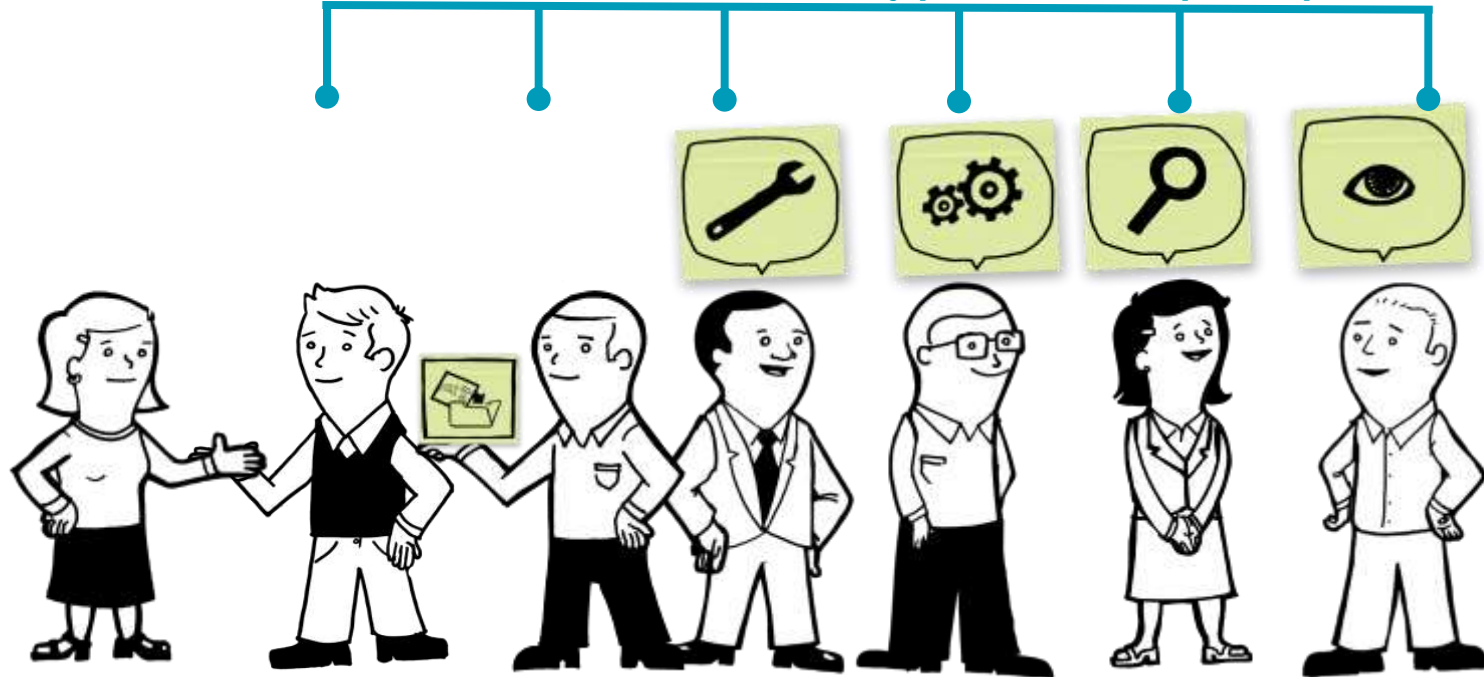
What defects have been addressed since the last build?

Lifecycle Traceability improves quality



- Establish **relationships** between software artifacts
- **Identify and close artifact gaps**, ensuring **coverage** across disciplines
- Provide visibility into the **completeness** of planned items by inspecting all related artifacts
- Provide easy **access to related artifacts** ensuring everyone shares the same view
- Deliver transparency which enables everyone to make **fully informed decisions** based business priorities

Instant access to details from any point in development process



Customer

Final Product

Build Environment
Artifacts

Supporting Systems

Requirements Management
Now!

Initial Idea

Team leads have visibility into coverage & completeness



- Proactively respond to gaps across all the silos as they surface throughout the project
- Issues are quickly highlighted and resolved

BRM Sprint 2 (1.0) Plan

29 items: 29 open, 0 closed | Ended on: Jul 11, 2011

Plan Details

Planned Items Links Snapshots Dashboard Notes

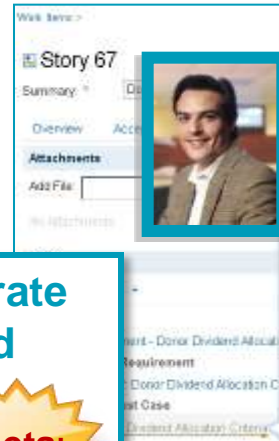
View As: Traceability

Actions	Summary	Implements Requirement	Elaborated by Architecture Element	Tested By Test Case
	Allocate Dividends with Web Service	--	--	--
	Design Allocating Dividends Service	126: Service for Allocating Dividends	Allocate Dividends to Cause	--
	Detail the Design for Allocating Dividends Service	--	Links (2): 1, 2	--
	Implement the Design for Allocating Dividends Service	--	--	--
	Browser Exception	--	--	--
	Customers can Nominate an Organization	Customers can nominate an organization for the program	--	Customers can Nominate an Organization
	Donor Dividend Allocation Criteria	Donor Dividend Allocation Criteria	--	Donor dividend allocation conforms to state
	Frequency of dividend transfer	Frequency of dividend transfer	--	Verify dividend transfer frequency
	Improve link colors	--	--	--
	JKE Charity Coordinator will respond to request in the website tri	...	--	JKE Charity Coordinator responds to online
	Meetings are too long	--	--	--
	Organization must identify how much money is desired	Organization must identify how much money is desired	--	Organization must identify how much money
	Organization must provide justification for why funds are needed	Organization must provide justification for why funds are needed	--	...
	Organizations can Apply	Organizations can apply	--	Organizations can Apply
	Organizations may apply with an initial request	Organizations may apply with an initial request	--	Organizations may apply with an initial request

Team leads can improve quality and predictability



- ✓ Creating a shared vision delivers what the stakeholders want
- ✓ Whole team buy-in improves team trust, efficiency and focus
- ✓ Everyone knows what work is needed by whom and when.
- ✓ Traceability provides insight to knowing when you are DONE!



Developers understand the requirements, design, test criteria and test results



Architects elaborate requirements and give input to developers



Testers define and execute tests cases with a clear understanding of requirements



Teams collaborate and clarify the details of requirements



Measuring and steering challenges

Can your team...



- ...provide one view of project health at multiple levels?
- **...make steering decisions based on facts rather “guesstimates”?**
- ...track desired improvements with metrics?
- ...minimize administrative overhead by relying on your environment to capture metrics?

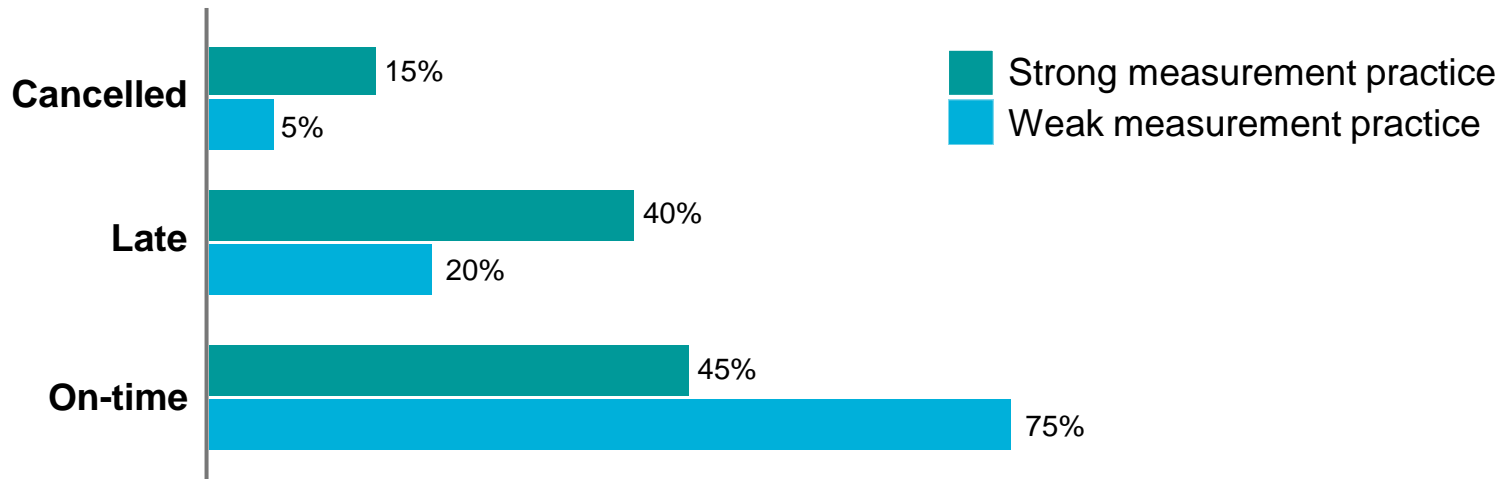


Development Intelligence improves predictability



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

Measurement Practices Impact Project Success



Sources: Capers Jones, Measurement, Metrics and Industry Leadership, Copyright © 2002-2007 by Capers Jones LLC
Capers Jones, Software Engineering Best Practices, Copyright © 2010 McGraw-Hill

Use dashboards to provide that one view of project health

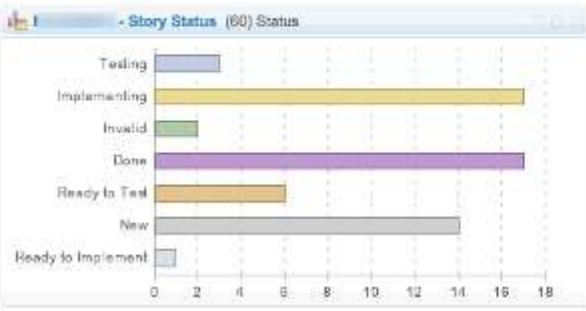


JKE Banking (Change Management)* ?

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 (80)
- 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
 - 155388: [Repository - M14] Performance, quality and robustness enhancements
 - 156051: Improvements and fixes for CLM migration automation
 - 154829: [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

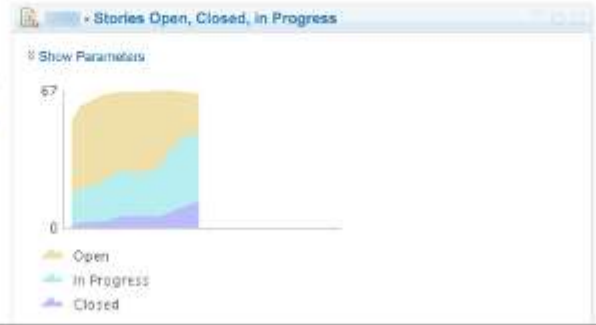
Burndown Current Iteration

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



Stories Open/Closed/In Progress

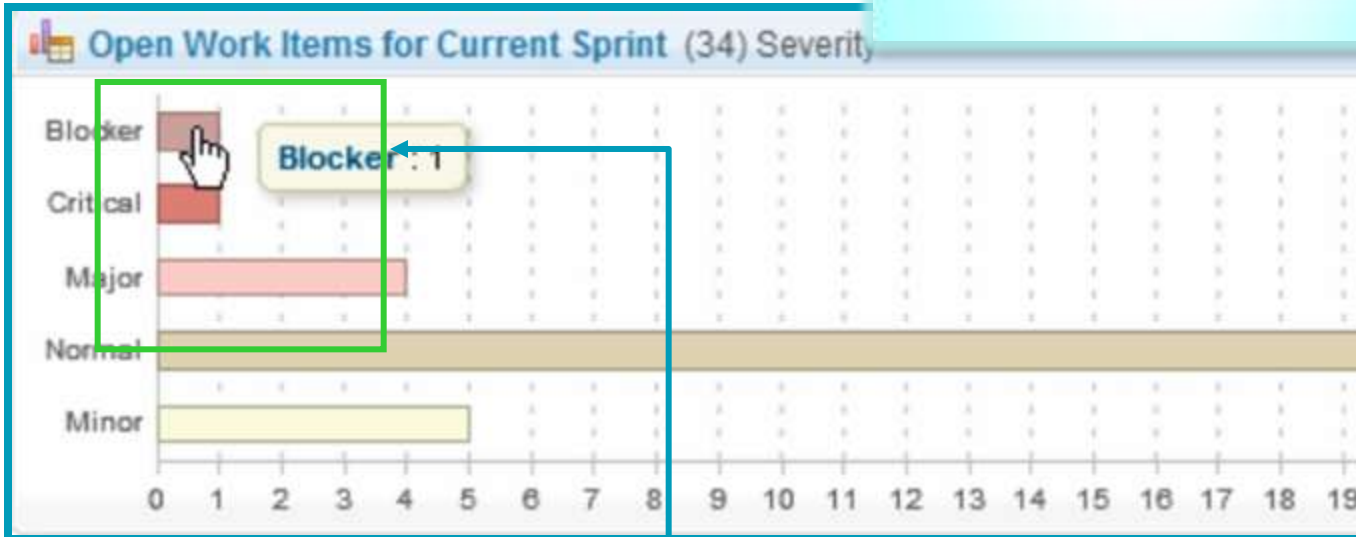
Shows the number of stories which are open, in progress, done during the iteration.



Dashboard details

Easily answer steering questions

✓ Mini-dashboards: available on any page



Mini Dashboard

Plan Items with failing... (0)
No work items found.

Re... in JKE Banking

- JKE Charity Coordinator will respond to request in the website triggering. (117) 3 hours ago
- Donors will receive confirmation and receipt (115) 3 hours ago
- Organizations may apply with an initial request (114) 3 hours ago
- Organizations can apply (112) 3 hours ago
- Requests sent in form of email (110) 3 hours ago
- Donation by Amount (107) 3 hours ago
- Organization must provide justification for why funds are needed (94) 3 hours ago
- Dividend allocation by percentage (83) 3 hours ago
- Customers can nominate an organization for the program (82) 3 hours ago
- Requests sent in form of hard copy mail (70) 3 hours ago

Page 1 of 2 | Next >

Needs triage (8)

- 74: Allocate Dividends To Multiple Causes
- 70: Donor Dividend Allocation Criteria
- 67: Donation by amount

Page 1 of 3

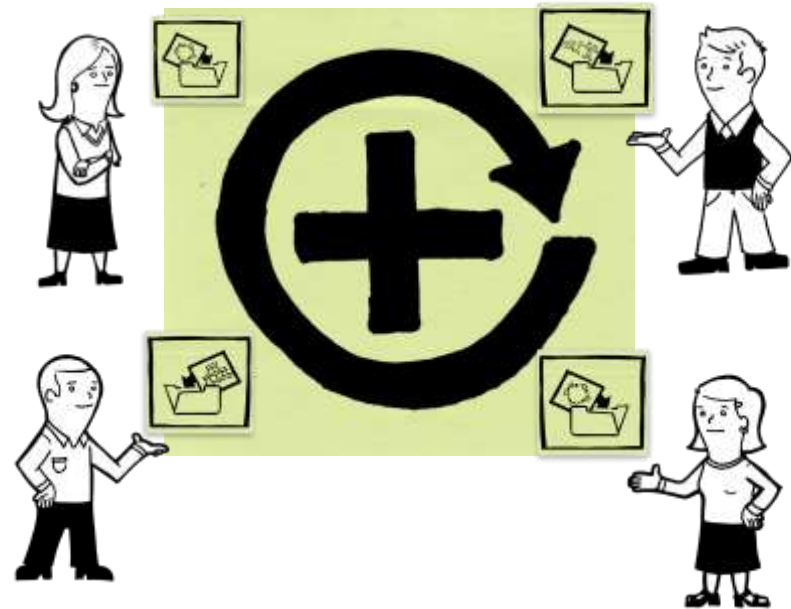
✓ Click thru on the viewlet to drill into information

Continuous improvement challenges

Can your team...



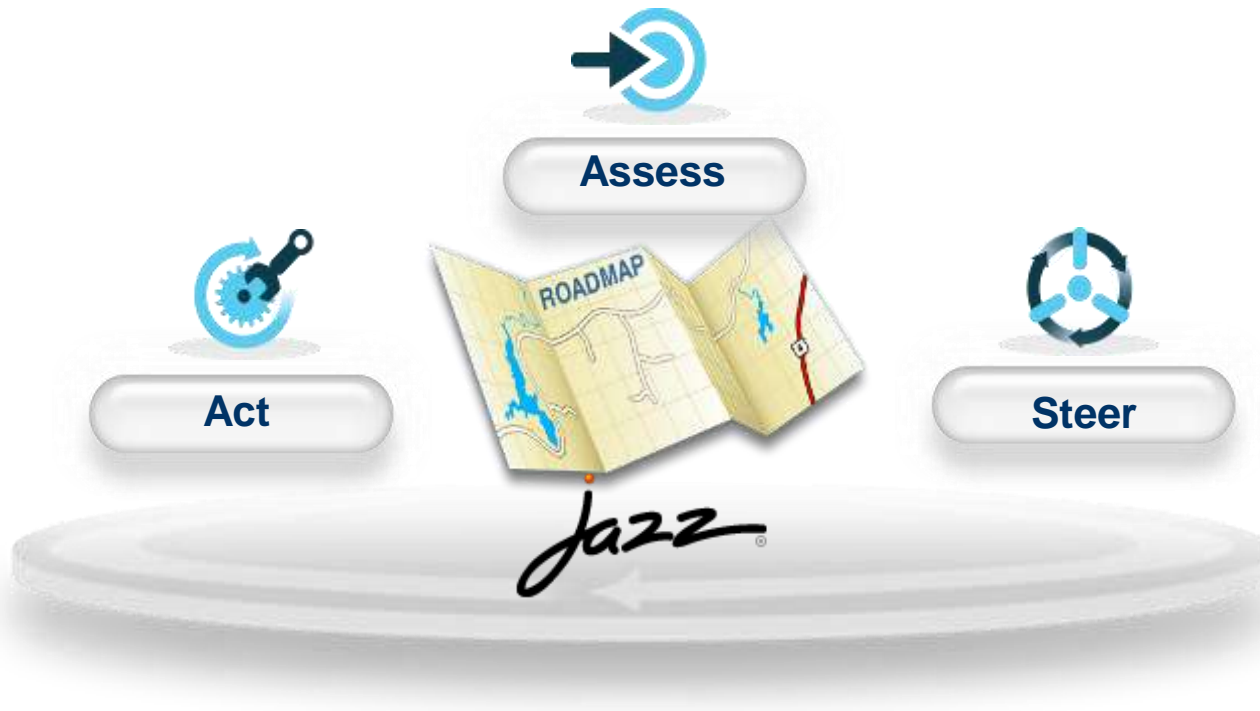
- ...leverage out-of-the-box templates that support traditional and agile workflows?
- ...change process “on the fly” as part of a continuous feedback loop?
- ...allow team leads to determine how strict or lax the “rules of the road” should be?
- ...modify process enforcement over the life of a project, to encourage early-stage experimentation and end-game stability?



Continuous Improvement reduces cost



- Improve software delivery through the ongoing **adoption of best practices and automation** to reduce manual, non-creative and error prone tasks
- Promote **incremental improvement of a project** when needed
- Enable breakthrough improvement by **capturing best practices and reusing** across teams
- Allow **everyone to participate** with easy to adopt best practices at your fingertips.



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

Id	Status	Summary	Filed Against	Planned For	Actions
77	New	Builds are not completing as frequent as before	Build	Unassigned	
32	New	Retrospective for Sprint 2	JKE	Sprint 2	
31	Done	Retrospective for Sprint 1			

31: Retrospective for Sprint 1

Status: Done

Details

Filed Against:	JKE	Planned For:	Sprint 1
Project Area:	JKE Banking (Change Management)	Resolution Date:	March 26, 2011 5:44 PM
Owned By:	Marco	Resolved By:	Marco

Quick Information

Discussion (4 comments) Add Comment

[Collapse All](#) | [Expand All](#)

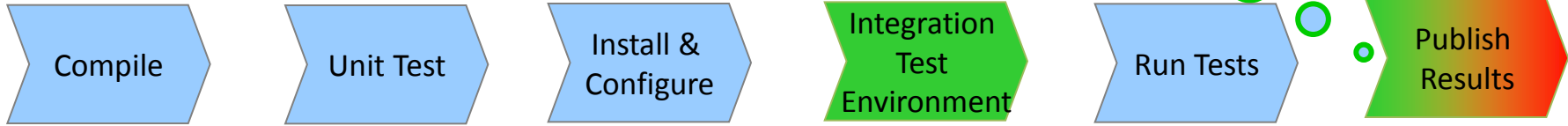
1. [Tanuj](#) Sep 1, 2011 1:22 PM
I have some concerns about late-in-the-cycle deliveries causing code churn. We had some challenges with the retesting required late in the sprint.
2. [Tanuj](#) Sep 1, 2011 1:24 PM
Should've also mentioned that it's been hard to find information on the right build for the fix and to understand where to find the latest good build.
3. [Deb](#) Sep 1, 2011 1:42 PM
[@tanuj](#) - I don't think we've had a lot of disruptive changes at the end of the sprint. Let's talk about this more in depth at the meeting tomorrow. I do agree [@tanuj](#) that tracking down build status has been too hard.
4. [Bob](#) Sep 1, 2011 1:45 PM
In the meeting, I'd like us to discuss some issues where requirements were not well understood and that required some things to be reworked during this sprint(which may contribute to [@tanuj](#)'s impressions in comment 1). Hopefully, as a team we can come up with some ideas on reducing this confusion.

Jazz

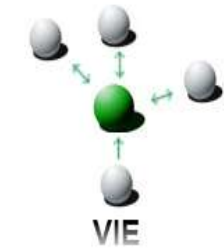
Beyond milestones...

Continuous Integration testing for builds

“Green” builds have passed **meaningful** integration tests








Line Change	Build Change	Component
PA 100%	PA 100%	224
EA 100%	EA 100%	104
PA 100%	PA 100%	109
MA 100%	MA 100%	107
EA 100%	EA 100%	104
EA 100%	EA 100%	110
EA 100%	EA 100%	101
EA 100%	EA 100%	104
EA 100%	EA 100%	115
100% 100%	EA 100%	104
EA 100%	EA 100%	101
EA 100%	EA 100%	111



Nightly build is not **published** until integration tests run.

Five Imperatives for Effective Application Lifecycle Management to improve organizational productivity



-  Maximize product value with **In-Context Collaboration**
-  Accelerate time to delivery with **Real-Time Planning**
-  Improve quality with **Lifecycle Traceability**
-  Achieve predictability with **Development Intelligence**
-  Reduce costs with **Continuous Improvement**

Learn more at [ALM Everywhere](#)

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- view presentations
- watch videos
- listen to podcasts
- see a project dashboard
- review the release plan

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1 Download

RTC, RRC or RQM for CLM
<https://jazz.net/downloads/rational-team-concert/>

Sample scenarios for CLM
https://jazz.net/wiki/bin/view/Main/MTM_Lifecycle_Welcome

Track our progress at jazz.net!

We openly develop our software with our own tools!
<https://jazz.net/projects/clm/>

Interactive White Board



Short, simple way to share the *5 ALM imperatives*
ibm.co/alm-everywhere

Role-based Demo



VP of Development, a Business Analyst or Project Owner, Agile Team Lead, Developer and Test Lead.

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