

IBM Rational Software Development Conference 2008

WHERE TEAMS ARE **R-HEROES**



Measured Capability Improvement Framework: A Systematic Approach to Software Excellence

Per Kroll

Chief Architect

IBM Rational Expertise Development & Innovation (REDI)

pkroll@us.ibm.com

PPM04

Discussion Topics

- **What is Measured Capability Improvement Framework**
- Establishing a Roadmap to Delivery Excellence
- Executing on a Roadmap to Delivery Excellence
- Conclusions and Links



Industry Challenges that MCIF Addresses

- Connection between improving business results and software delivery strategy
- Defining the software delivery strategy that best addresses business problems/opportunities
- Incremental evolution of software delivery strategy
 - ▶ Address highest impact areas first
- Governance of practice adoption through roll out, enablement, assessment, corrective action
- Measuring return in terms of business results



But first... Going to the doctor...

- **What you want to know**
 - ▶ How long will I live?
- **What the doctor does**
 - ▶ A health assessment
- **What the doctor will measure**
 - ▶ Heart rate, cholesterol, blood pressure, body fat, ...
- **There is a correlation between the values of what a doctor measure and your life expectancy**
 - ▶ But you can outlive somebody with lower cholesterol than you have...



Experiences shows that there is a similar correlation between software best practices and attainment of desired business results

Going to a personal trainer

- **What you want to do**
 - ▶ Run a marathon on a personal best time
- **What the trainer will do**
 - ▶ A fitness assessment to understand your strengths and weaknesses
- **Personalized plan is produced based on where you are and where you want to be**
 - ▶ Run sprints / intervals, run medium distances, strength training, eat healthy, ...
- **Plan will be adjusted based on progress in each area**
 - ▶ Ongoing monitoring
 - ▶ Your plan will be personalized and continuously adapted, but based on known patterns of success...



Business value is maximized through “personalized” software process improvement plans that are continually adapted based on measurable results



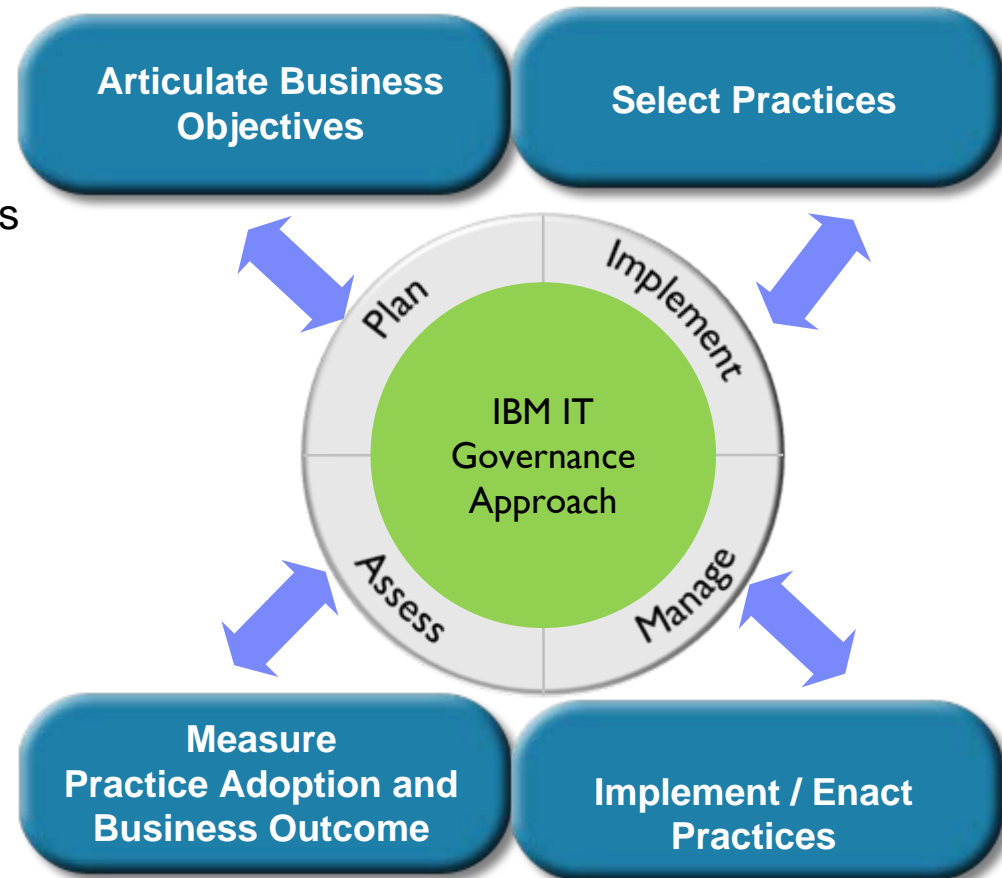
What Is Measured Capability Improvement Framework (MCIF)

- A systematic approach for improving your business
 - ▶ Couple business problems to incrementally adoptable practices
 - ▶ Accelerate incremental rollout of practices (w. associated tools) through reusable assets
 - ▶ Measure effectiveness of practice adoption and business value delivered
- Captures +10 years of Rational experiences in incremental adoption
 - ▶ Key aspects have been used in agile transformation's of +80 IBM internal projects
 - ▶ Process independent – used in conjunction with RUP, XP, Scrum and other processes



Measured Capability Improvement Framework

- Identify desired business objectives
 - ▶ Reduce Time-to-Market, Improve Quality, Increase Innovation, ...
- Identify and select target practices and tooling to drive desired business objectives
 - ▶ Leverage assessments and out-of-the-box business objectives to practices mappings
- Effectively deploy well-governed practices
 - ▶ Process guidance, training courses, enablement material, etc.
 - ▶ Understand what aspects of which tools to adopt to effectively adopt practices
- Measure results and take corrective actions
 - ▶ Understand whether target practices are successfully adopted
 - ▶ Understand whether desired business outcomes are achieved or not



Measured capability improvement framework

Map business value to software delivery best practices

- Target: Phase 1
- Already implemented
- Outside scope

Example: Financial Service Company

Customer Business Challenges

- Create financial products more quickly
- Functionality of customer falling behind competition

Operational Objectives

- Reduce

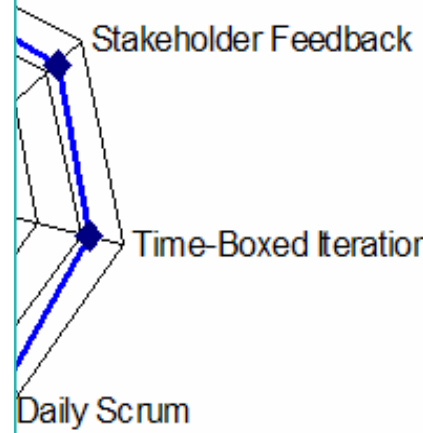
Software Delivery Best Practices

Adopt Practice

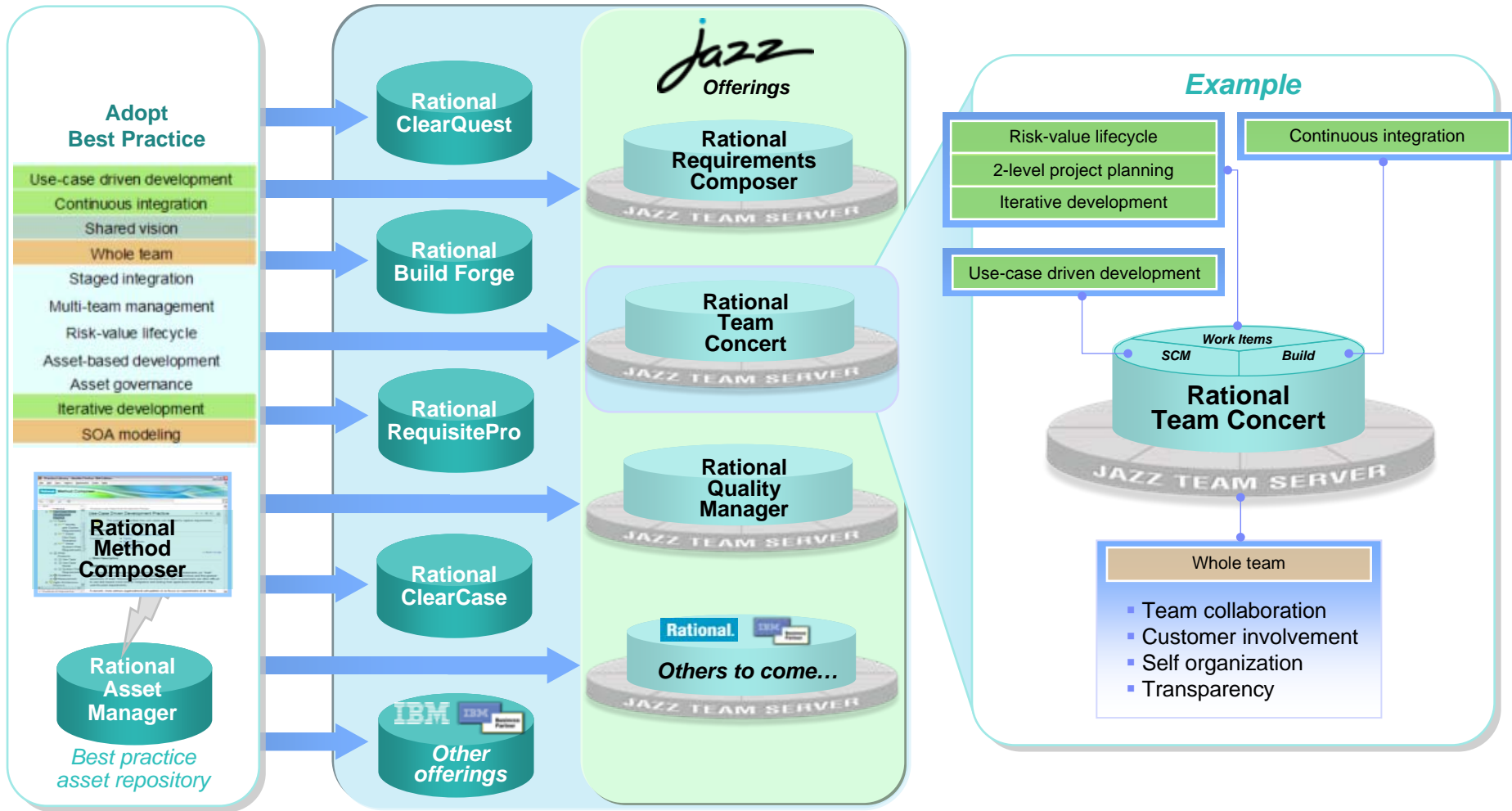
Ongoing Adoption Assessment

Operational Objectives Metrics

Project	Time to Market (M)	Quality (Defect Density)	Innovation (Cust. Sat. Survey)
A	22	2.3	7
B	14	1.4	4
C	18	1.6	6
D	9	0.3	8
E	6	0.4	10




Best practices provide customizable usage models for the Rational Software Delivery Platform



Practices as a foundation for MCIF

- Practices represent a useful unit of knowledge (you can e.g. teach a course on it)
- Practices can be independently / incrementally adopted
- Practices provide one-stop shop to courses, tool features, services, articles, process content, enactment, ...
- Practices map to practitioner pain points
- Practices map to organizational business objectives
- Practice adoption can be measured



MCIF Assets

- Establish roadmap

- ▶ Predefined mapping: Business Objective – Practice Mapping – Products & Services
- ▶ Service offering: Health Assessment for Software Delivery – Understand where you are at today, and establish a roadmap forward



Coming Soon!

- Execute roadmap

- ▶ Service offering: IBM Rational Self Check for Software Teams - Facilitated self assessment
- ▶ RMC 7.5: Guidance on practices and effective usage of products
- ▶ Objective measurements for practices and business objectives (RTC, Vega, ...)



In beta!



Discussion Topics

- What is Measured Capability Improvement Framework
- **Establishing a Roadmap to Delivery Excellence**
- Executing on a Roadmap to Delivery Excellence
- Conclusions and Links



Sample Customer Scenario: EasyBuy.com

- EasyBuy.com is a fictive internet company
- Challenge - Competition seems to get better products out faster
- From the new CIO: To stay competitive, we need to focus on
 - ▶ Improving productivity
 - ▶ Increasing innovation
- Goals
 - ▶ Establish and execute on a roadmap for delivery excellence to achieve the above business objectives
 - ▶ Make sure that progress can be measured and ROI calculated
- The company does not know where to get started, so they call on IBM to help

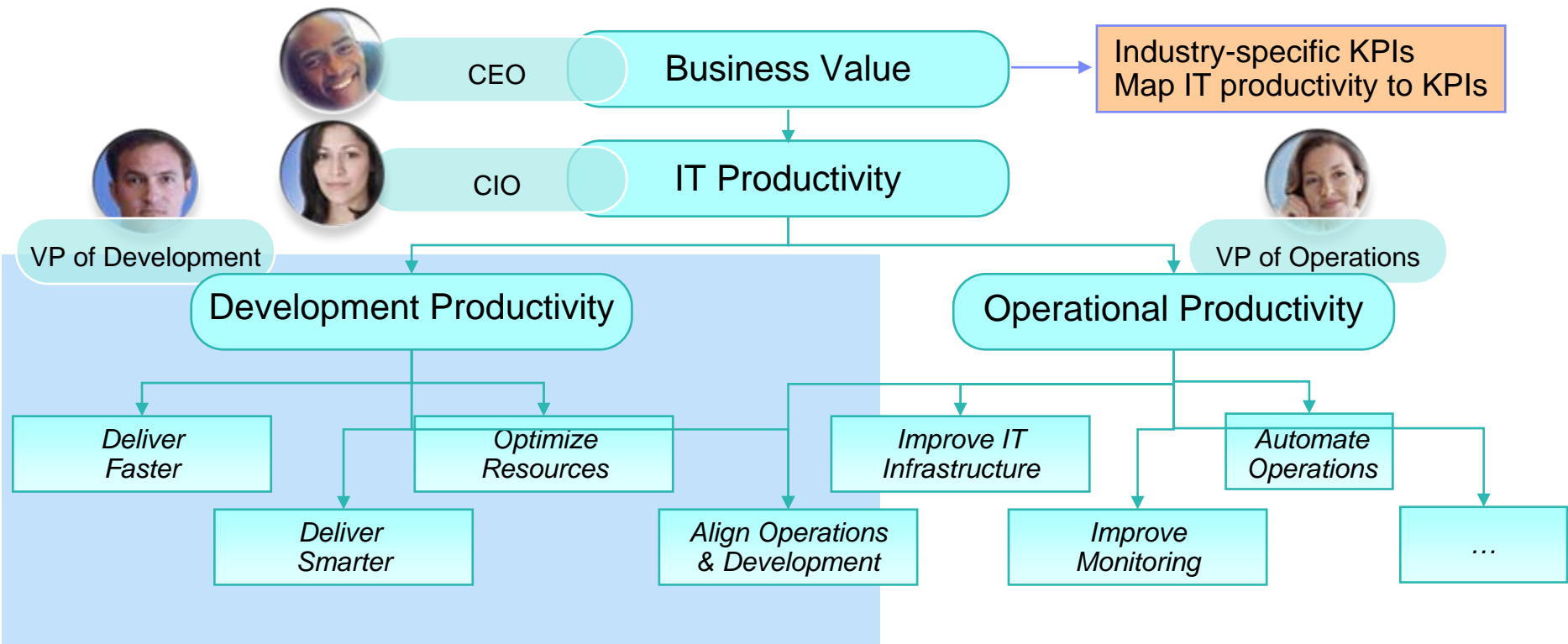


IBM: Mission accepted.

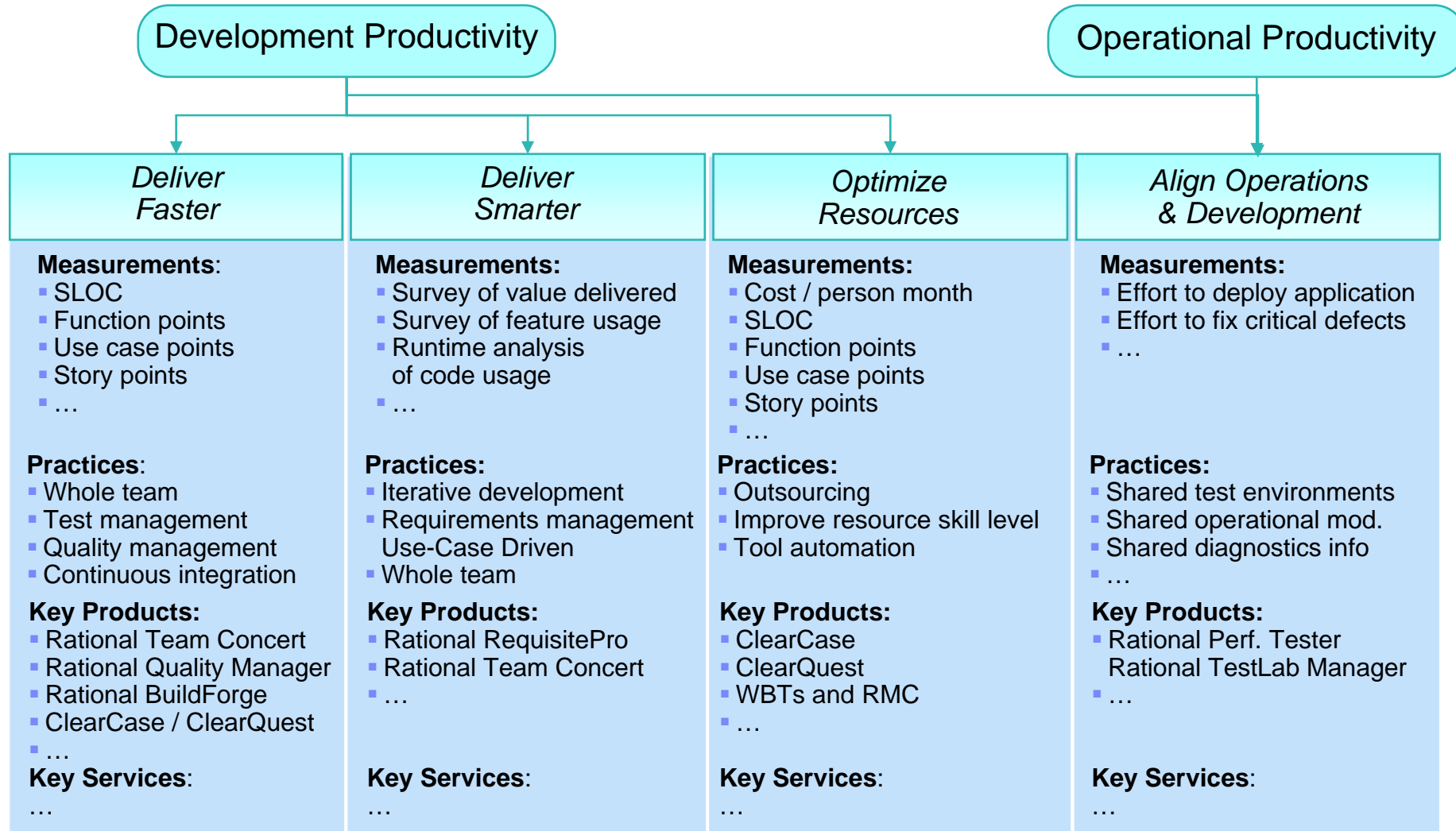


IT Productivity: Value Traceability Tree

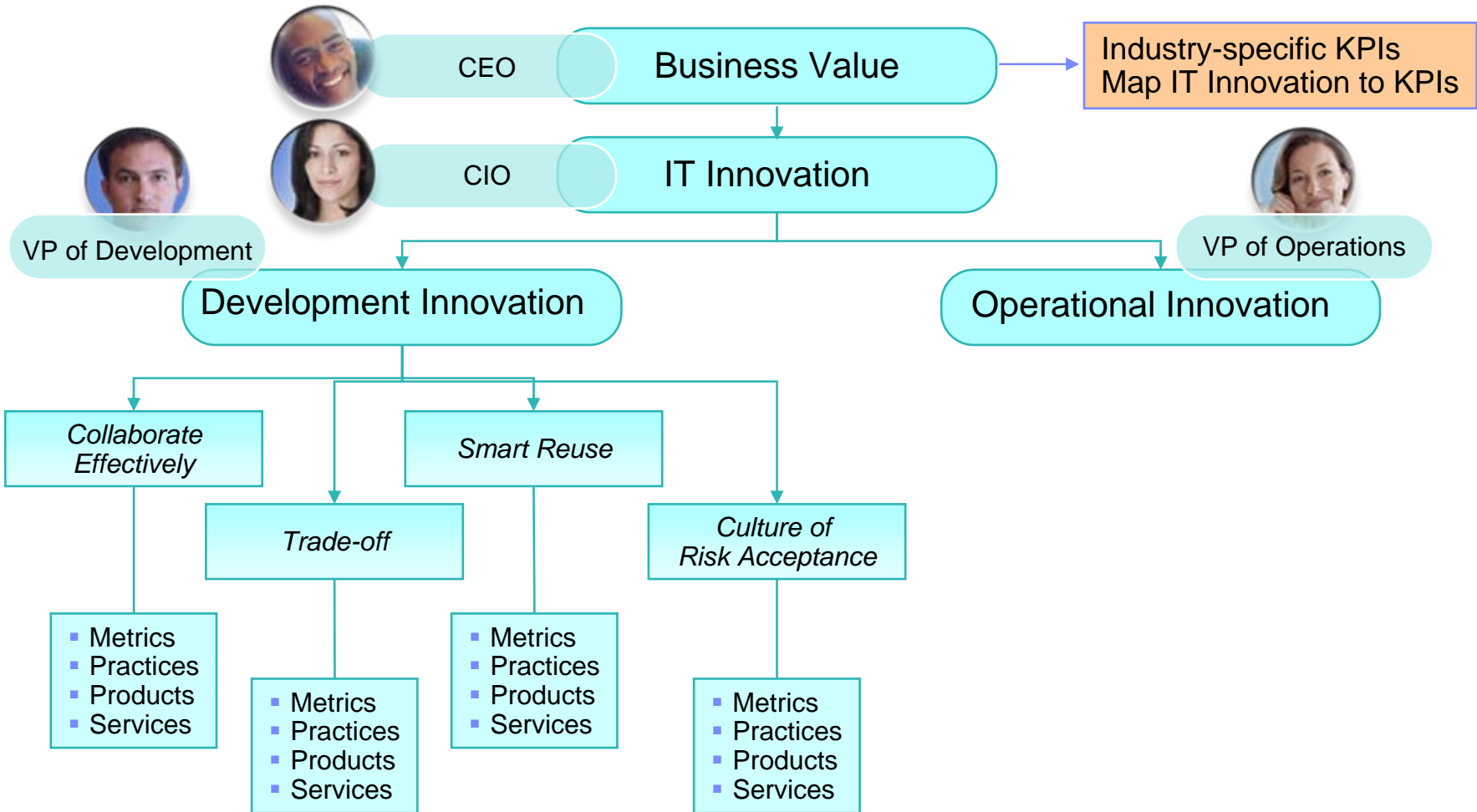
Productivity = Value / Cost



Development Productivity: Value Traceability Tree



IT Innovation: Value Traceability Tree



Practices Determined to Be Within Scope

- Of Interest Now
 - ▶ Whole Team
 - ▶ Iterative Development
 - ▶ 2-level planning
 - ▶ Risk-value lifecycle
 - ▶ Continuous Integration
 - ▶ Shared Vision
 - ▶ Use-Case Driven Development
 - ▶ Requirements management (focused on scope mgmt)
- Maybe of interest later....
 - ▶ Adapt the Process
 - ▶ Business-scenario-driven development
 - ▶ ABD / Asset Governance
 - ▶ SOA
 - ▶ Test management
 - ▶ Quality management
 - ▶ Independent Testing



Service Offering: Health Assessment for Software Delivery

Coming Soon!



- Identify drivers for delivery improvements
- Current state: Showcase practice adoption level for target projects
- Future state: An initial roadmap outlining how you can evolve your delivery approach to address your key business drivers
- List of inhibitors that may prevent successful adoption of target practices
- Identifies potential metrics that help you track progress on the implementation of your roadmap

Sample Assessment Results: Waves of Adoption

Wave 1

- Theme: Unify team around a heart beat
 - ▶ Value provided:
 - Improved Productivity
 - Improved Business Alignment
 - ▶ Practices:
 - Iterative development
 - Whole Team
 - Continuous Integration
 - ▶ Inhibitors:
 - Waterfall Culture, Lack of tooling
 - ▶ Suggested metrics:
 - Light FPs and % of unused features
 - Survey of customer satisfaction

Wave 2

- Theme: Improve on requirements
 - ▶ Value provided:
 - Improved Innovation
 - Improved Business Alignment
 - ▶ Practices:
 - Shared Vision
 - Use-Case Driven Development
 - Requirement Mgmt
 - ▶ Inhibitors:
 - Job-functions silos, Stakeholder shortage
 - ▶ Suggested metrics
 - Survey of customer satisfaction



Discussion Topics

- What is Measured Capability Improvement Framework
- Establishing a Roadmap to Delivery Excellence
- **Executing on a Roadmap to Delivery Excellence**
- Conclusions and Links

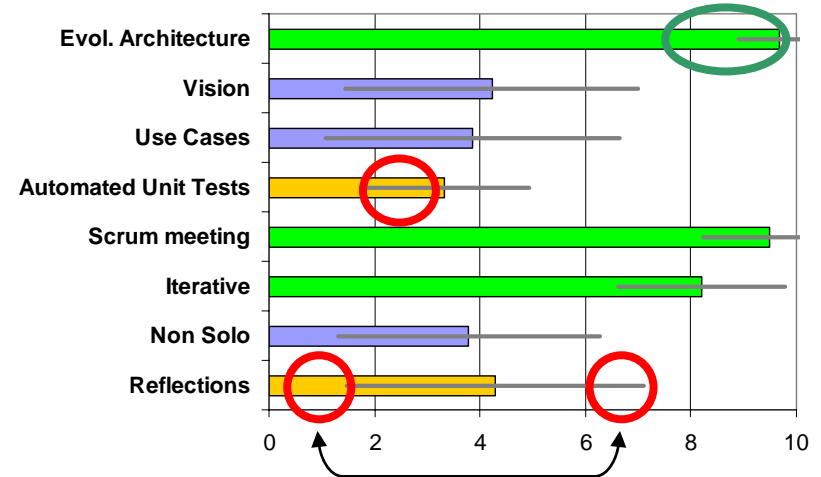


IBM Rational Self Check for Software Teams

The Assessment Tool

Practice	Comments	Average	Deviation
Use Cases	Use Stories instead	7.8	0.50
Unit Test	Not enough, not in build	6.8	1.89
Stakeholder Feedback	Want more	8.5	0.58
Time-Boxed Iterations	Not well specified	8.3	0.50
Daily Scrum	Not Fridays	9.3	0.50
Test Early	Not enough TDD	4.5	1.91
Reflections	Need clear actions	8.8	0.50
Static Analysis	Not automated yet.	3.3	0.96

Big Picture of Practice Adoption



Experience Report

Executive Summary:
The Rational Asset Manager project proved to be an excellent example of agile and iterative practices for others to learn from including scenario-based development, automated testing, and having solid, working software at iterations end.

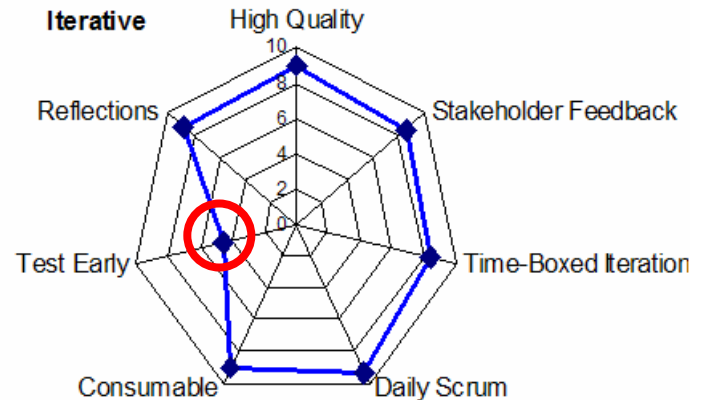
Project Context:

Context Factor	Value	Comments
Project Status	Just about done	Scheduled GA is June 29th
Project Length	18 Months	
Team	30-35 people (20 dev) total across 4 teams	Includes developers, designers, analysts, architects, etc. Core team in Raleigh, rich client team in China (some in Austin and Chicago).
Iterations	Averaged 3 weeks each, 6 total iterations	5 iterations total (they are done)
Audit requirements	None	For example, is your product subject to CMMI level, ISO, or other standards requirements?
Programming Languages	Java, HTML, JavaScript	

Comments:
Each iteration was around 60 days (they varied in length) with some being 30 days long. Iterations were predetermined, dates had to be met, meeting dates was critical, product needed to come out in Q2 of 2007.

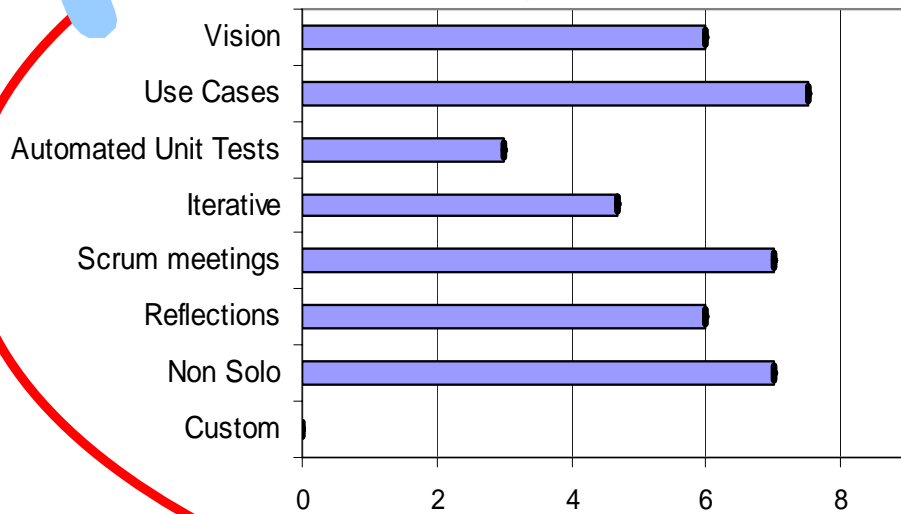
Use of Practices: (Scale of 0 - 10) 10 = 100% usage

Deep Dive on Practice

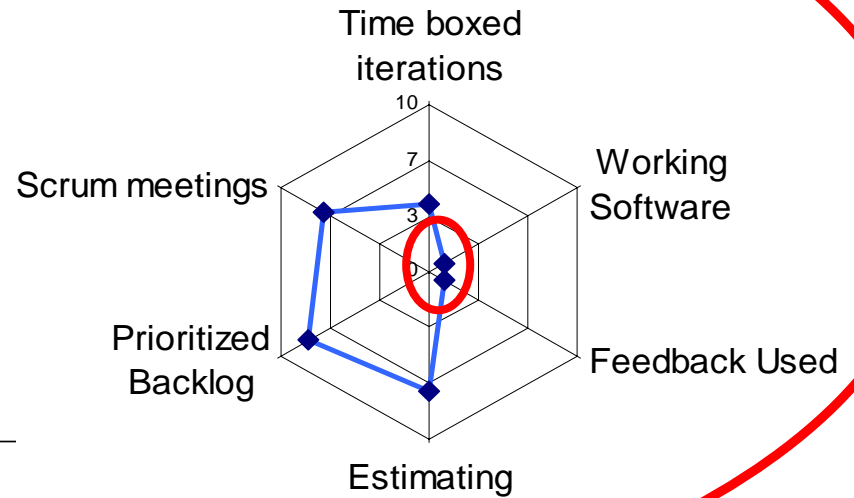


Example: Are we iterative?

The Big Picture



We're iterative, right?



235 people. Multi-shore. Java

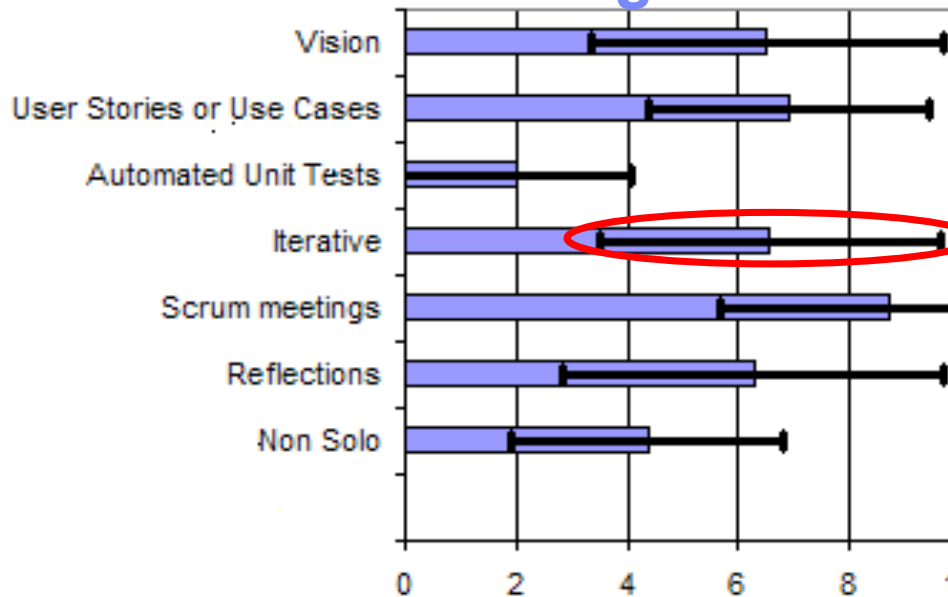
8 week "iterations". 24 Month project. New to agile.

Iterations have enabled them to realize the plan was severely overbooked and prioritization of content began early.

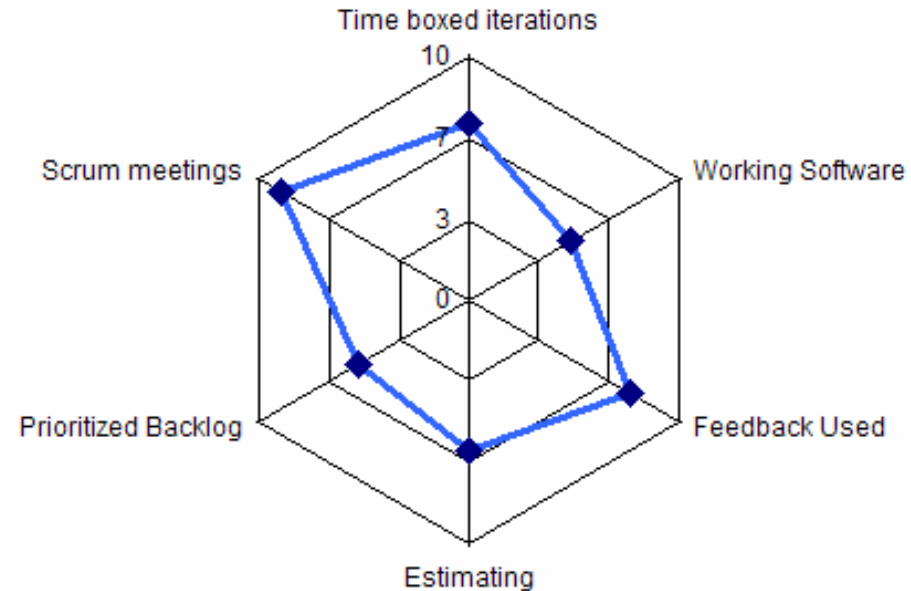


Look at deviation among team members

The Big Picture



Deep dive on Iterative



30 people. Distributed. Java
2 week iterations. 6 Month project

- ✓ “Agile has enabled the project to be responsive to changing requirements and to deploy more function in a drastically reduced timeframe.”
- ✗ Sustainable Pace – Testers have worked at a frantic pace to make adjustments to scope.
 - ➔ Recommend team understand estimating and velocity so they have higher quality iterations
 - ➔ Focus on developer testing to reduce burden on test team



Each practice is clearly called out, with information
Why should you use this practice?
How do you adopt this practice?
How do learn about this practice? (Courses, books, etc)

Tool Mentor: Plan Iteration with Rational Team Concert (RTC)



This tool mentor describes how to plan an iteration using Rational Team Concert (RTC) work items.

Main Description

Prerequisites

Find enablement material and sign up for courses, etc

Read the following documents:

- Getting started with Work Items in Jazz: <https://jazz.net/learn/LearnItem.jsp?href=content/docs/work-items/index.html>
- Getting started with Iteration Planning in Jazz: <https://jazz.net/learn/LearnItem.jsp?href=content/docs/iteration-planning/index.html>

The following steps from the [Plan Iteration](#) task are covered in the tool mentor:

- Create Iteration Plan
- Prioritize work items
- Define the iteration objectives
- Commit work to the iteration

Create Iteration Plan

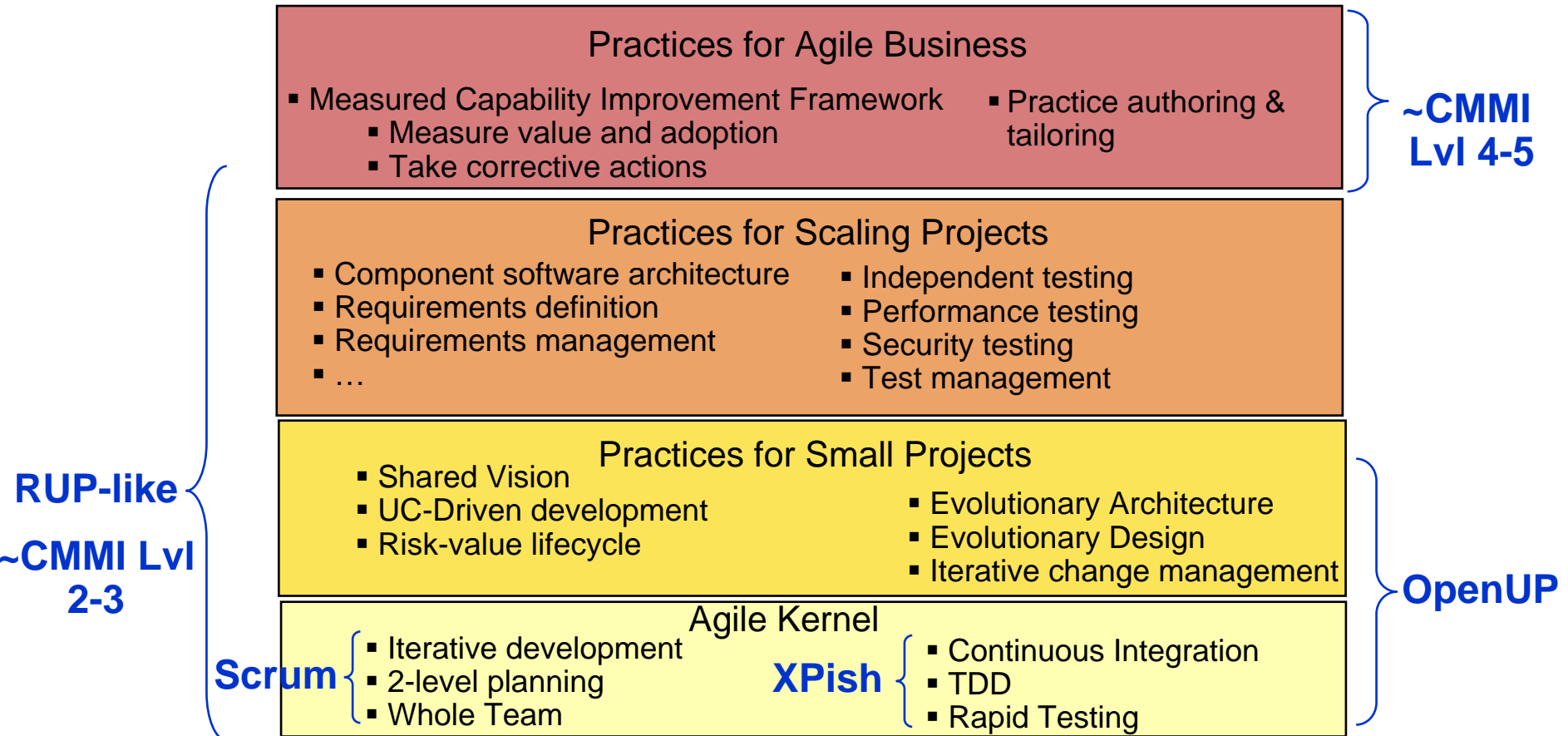
To be able to create iteration plan for specific iteration, this iteration need to be defined in the Process Template (See: [About Jazz Process Templates](#) for more detail) and assigned to your team area prior to iteration plan creation. For each iteration in your team [Process Iterations](#), you can create the iteration plan by follow the steps described in this document: <https://jazz.net/learn/LearnItem.jsp?href=content/docs/iteration-planning/index.html> .

Once you have created the iteration plan you can start editing the **Overview** page by switching the [Iteration Plan Editor](#) into edit mode. We recommend documenting the following information following the outline from the [Iteration Plan](#).

Understand how Rational tools supports the practice, and how to measure your adoption. Have you done a great job yet implementing the practice?

- Welcome
- Management Practices
 - Iterative Development
 - How to Adopt This Practice
 - Tasks
 - Work Products
 - Guidance
 - Rational Team Concert
 - Tools
 - Assess Iteration Results with Rational Team Concert
 - Plan Iteration with Rational Team Concert (RTC)
 - Measurements
 - Subjective Assessment
 - Objective Measurement
 - Two-Level Project Planning
 - Risk-Value Lifecycle
 - Deployment Evaluation Framework
 - Additional Practices
 - Requirements Practices
 - Architecture Practices
 - Development Practices

MCIF and SEI CMMI



Discussion Topics

- What is Measured Capability Improvement Framework
- Establishing a Roadmap to Delivery Excellence
- Executing on a Roadmap to Delivery Excellence
- **Conclusions and Links**



Value of MCIF

- Receive more value from IBM as a result of joint focus on addressing customer business objectives and challenges
- Understand what practices drives what business benefits
- Deploy solutions more rapidly through improved deployment guidance and sharing early successes through standardized experience reports
- Continuously assess adoption progress, and take corrective action
- Measure business benefits achieved
- MCIF is modular - only use what you benefit from



Where to Go for More Information

- MCIF page
 - ▶ IBM.COM <http://www.ibm.com/software/rational/announce/mcif/>
 - ▶ developerWorks
http://www.ibm.com/developerworks/rational/library/edge/08/may08/krebs_kroll/index.html





QUESTIONS





THANK YOU

Learn more at:

- [IBM Rational software](#)
- [IBM Rational Software Delivery Platform](#)
- [Process and portfolio management](#)
- [Change and release management](#)
- [Quality management](#)
- [Architecture management](#)
- [Rational trial downloads](#)
- [Leading Innovation Web site](#)
- [developerWorks Rational](#)
- [IBM Rational TV](#)
- [IBM Rational Business Partners](#)

© Copyright IBM Corporation 2008. All rights reserved. The information contained in these materials is provided for informational purposes only, and is provided AS IS without warranty of any kind, express or implied. IBM shall not be responsible for any damages arising out of the use of, or otherwise related to, these materials. Nothing contained in these materials is intended to, nor shall have the effect of, creating any warranties or representations from IBM or its suppliers or licensors, or altering the terms and conditions of the applicable license agreement governing the use of IBM software. References in these materials to IBM products, programs, or services do not imply that they will be available in all countries in which IBM operates. Product release dates and/or capabilities referenced in these materials may change at any time at IBM's sole discretion based on market opportunities or other factors, and are not intended to be a commitment to future product or feature availability in any way. IBM, the IBM logo, the on-demand business logo, Rational, the Rational logo, and other IBM products and services are trademarks of the International Business Machines Corporation, in the United States, other countries or both. Other company, product, or service names may be trademarks or service marks of others.

