

Go beyond Jazz, Rock 'n' Roll with Agile Application Lifecycle Management, Quality Management & Automated Testing

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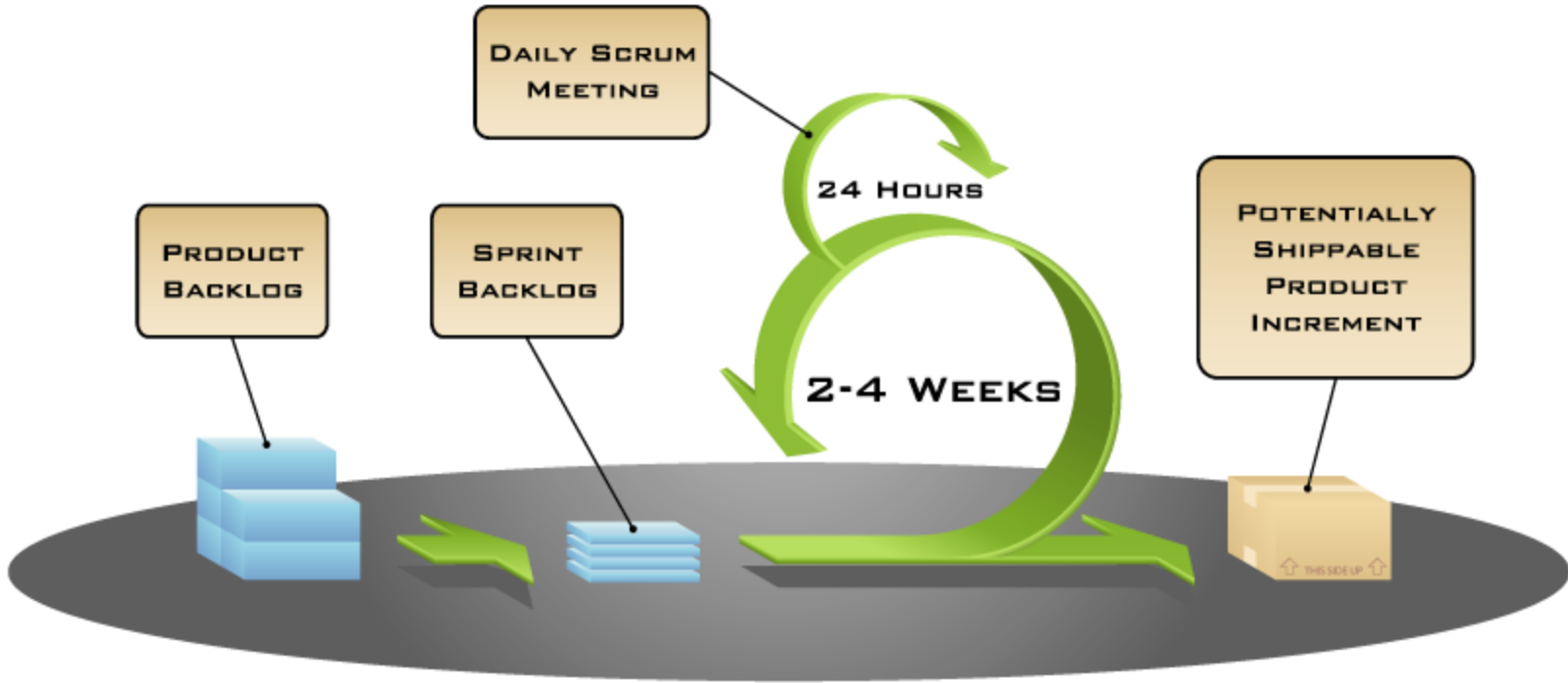
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Agenda

- Scrum Overview
- Test Automation Overview
- How Test Automation fits into Scrum
- Why are there challenges?
- Scrum-of-Scrums!!! What is it? Can it help?
- Scrum-of-Scrum Test Automation Team
- IBM Jazz into the mix!
- Where to Start?
- Case Study
- Demonstration

Scrum Overview



Scrum Overview

Roles

Ceremonies

Artifacts

- Project management in an agile development process
- Delivering the highest business value to stakeholders
- Most valuable remaining features are built next
- Work is structured in two-to-four-week sprints
- Working software produced by the end of each sprint
- Initial project configuration done in Rational Team Concert (# releases, sprint length, roles, permissions, workflow, versioning)

Scrum Overview



Roles



Ceremonies

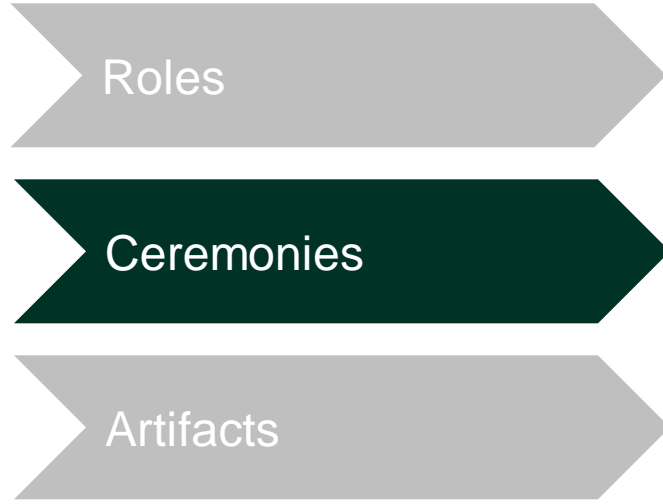


Artifacts

■ Product Owner

- ▶ Responsible for the success of the product
- ▶ Defines the features and release schedule
- ▶ Responsible for determining the business value of the various features
- ▶ Constantly refines and reprioritizes the Product Backlog
- ▶ Configured in Rational Team Concert

Scrum Overview



- **Sprint Planning**
 - ▶ The product owner presents the features most desired for the upcoming sprint
 - ▶ The product owner and team agree on a goal for the sprint
- **Daily Scrum**
 - ▶ Not a status meeting, but a planning and commitment meeting
 - ▶ Helps team members work more effectively together
 - ▶ Team moves items on the virtual scrum board (RTC)
- **Sprint Review**
 - ▶ Team shows off the work that it has accomplished
- **Sprint Retrospective**
 - ▶ Team works to continually improve



Scrum Overview



- **Product Backlog**

- ▶ High-level list that is maintained throughout the entire project
- ▶ It aggregates backlog items: broad descriptions of all potential features
- ▶ Prioritized as an absolute ordering by business value
- ▶ “What” that will be built, sorted by importance
- ▶ Stored and prioritized in Rational Team Concert



Scrum Overview

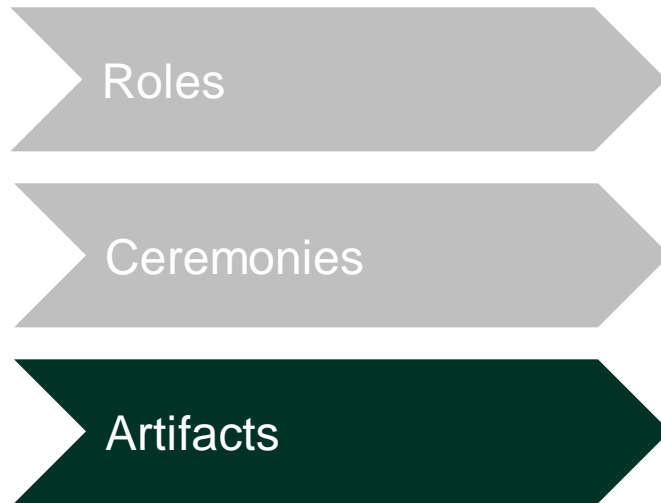


- **Sprint Backlog**

- ▶ The list of work the team must address during the sprint
- ▶ Features (User stories) are broken down into tasks (Task: 1-8 hours of work)
- ▶ Anyone (Team member) can pick a task from the list
- ▶ Tasks on the sprint backlog are never assigned; rather, tasks are signed up for by the team members (This promotes self-organization of the team, and developer buy-in)
- ▶ Sprint Backlog and task hourly estimates in RTC



Scrum Overview



- **Burn-down**

- ▶ Publicly displayed chart showing remaining work in the backlog
- ▶ Updated every day
- ▶ Sprint Burn-down - Shows the amount of work remaining in the sprint
- ▶ Release Burn-down - Shows the amount of work left to complete the target commitment for a Product Release (spanning through multiple sprints)
- ▶ Release and Sprint burn-down charts automatically generated by RTC



Case Study: Overview

- Tale of Two companies – different industries (two case studies)
 - ▶ Healthcare
 - ▶ P&C company
- Each had a separate test automation department
 - ▶ Individual teams did not include automation experts
 - ▶ Automation Department personnel not assigned to specific projects
 - ▶ Tooling, framework and compliance mandates responsibility
- Results and Benefits
 - ▶ Accountability in place (using RQM, RTC audit trail)
 - ▶ Increased speed to value increased 300%
 - ▶ Increased productivity 400%++
 - ▶ Core competency of teams maintained
- Tools Used Successfully
 - ▶ Rational Quality Manager
 - ▶ Rational Team Concert
 - ▶ Rational Functional Tester
 - ▶ Rational Requirements Composer



Current State: Case Study

- Scrum OOTB failed
 - ▶ Centralized automation group
 - ▶ Automation framework knowledge not universal
 - ▶ Scrum team lacked technical skills required for comprehensive automation
 - ▶ Few automation resources
 - ▶ Waterfall mentality
- Tools in use lacked integration
 - ▶ Mess of many across the organization
 - ▶ Handoff proved hard
 - ▶ No traceability
 - ▶ Requirements???
 - ▶ No useful reports

Proposed Solution

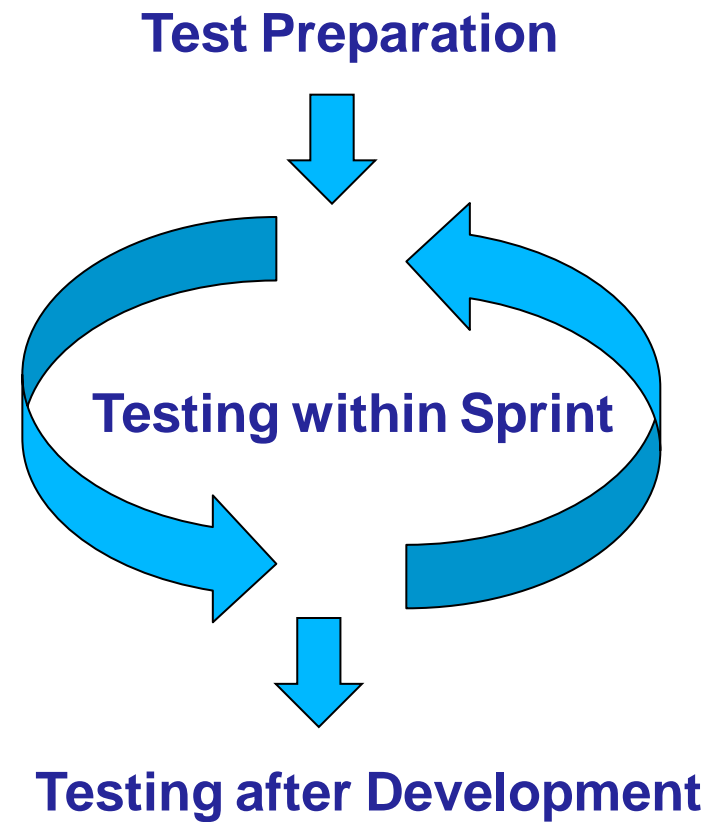
- Scrum of Scrums (well...sort of...)
 - ▶ output of first scrum team is the input of the second
 - ▶ Optimization of resources
 - ▶ No drastic change to the way the organization was functioning
- Integrated solution of tools
 - ▶ Requirements, development, test management, automation, defects (work items)
 - ▶ Scrum team 1: RRC, RTC, RQM (Development Team)
 - ▶ Scrum team 2: RTC, RQM, RFT (Automation Team)



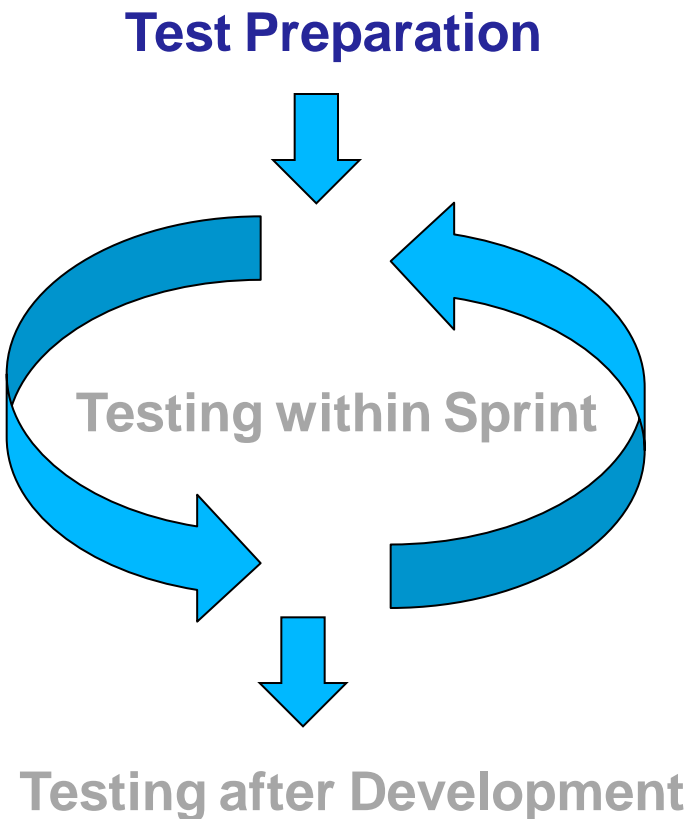
Test Automation Overview

- There is no time for manual regression testing; automation is essential (RQM and RFT)
 - ▶ Test Plans, Test Cases, Test Suites, Manual test scripts, test orchestration and execution – Rational Quality Manager
 - ▶ Automated test scripts - Rational Functional Tester
- Process of writing a computer program to do testing that would otherwise need to be done manually
- Allows repeatable testing
- Most cost effective method for software products that have a long maintenance life
- *Makes the daily work of tester more fun!!!*

How Test Automation fits into Scrum – A TYPICAL SCENARIO!



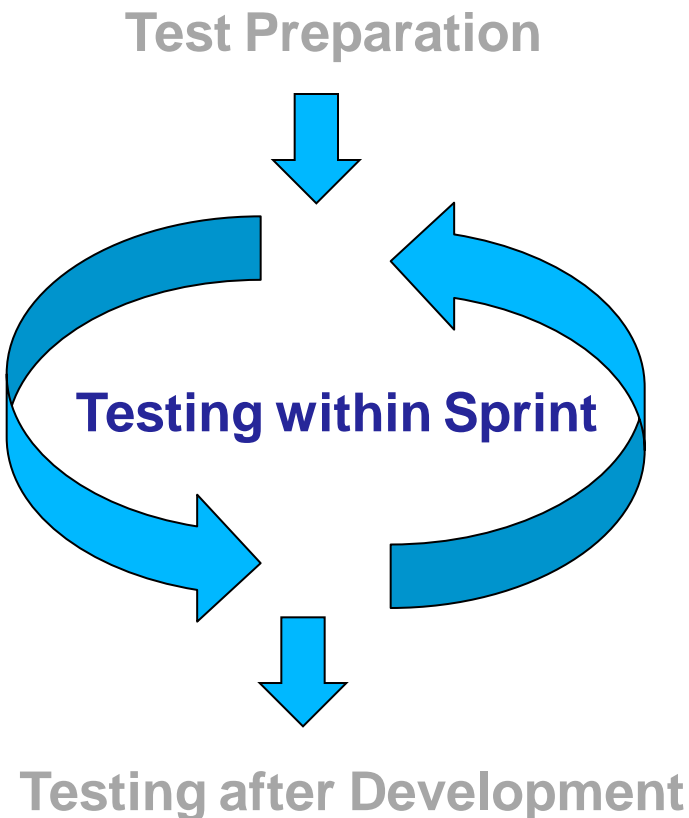
How Test Automation fits into Scrum – A TYPICAL SCENARIO!



- Development of High Level Tests
- Automation Framework Design
- Test automation tools setup and configuration
- Test data & Test environment setup
- Automation tester training



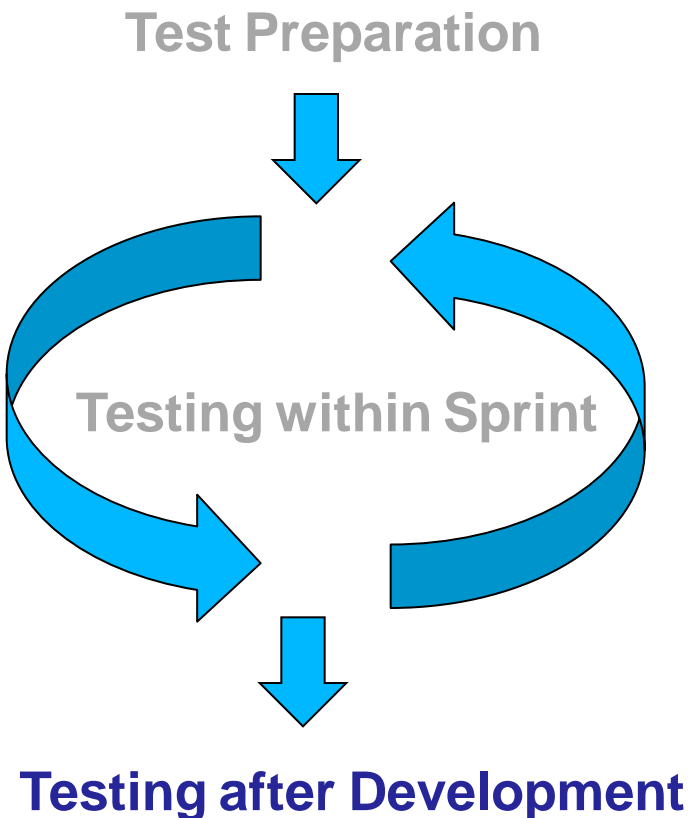
How Test Automation fits into Scrum – A TYPICAL SCENARIO!



- Develop and execute tests as part of sprints
- Functionality is progressively understood from user stories and tests are designed
- Automation Tests are planned and designed for stable stories
- Automated Test is executed



How Test Automation fits into Scrum – A TYPICAL SCENARIO!



- Phase not always practiced
- More testing to ensure quality and compliance of the entire system
- Regression or "hardening" sprints
- "After-Testing" is a key area



How Test Automation fits into Scrum – A TYPICAL SCENARIO!

- Scrum teams try their best to obtain the automation quickly and timely, by following simple rules
 - Building the base early
 - Resilient Automation
 - Testability of the System Under Test – Determine how feasible is test automation
 - Test the automation itself

Why are there challenges?

We prepared for the Tests!

We performed Test after the Sprint



We performed Test within the Sprint

We planned earlier!



Why are there challenges? What are the obstacles?



Where are automation tests when I really need them?

- Manual Tester usually don't trust the results produced by the automated tests
- Cost of maintenance is high – Hard to keep up with the pace of the development teams
- Functionality keeps changing – Hard to decide what to automate
- Automation is treated as QA and not as a development project
- Prioritization problems - Automating the wrong or less important tests



What is required?

- How can Test automation teams catch-up with the pace of the development teams?
- How can Test automation teams focus on implementing correct and most valuable test cases?
- How can Test automation teams make correct automated test available at the right time?
- How can the impact of changing core development stories and requirements be handled?



Scrum-of-Scrums!!!

What is it?

Can it help?

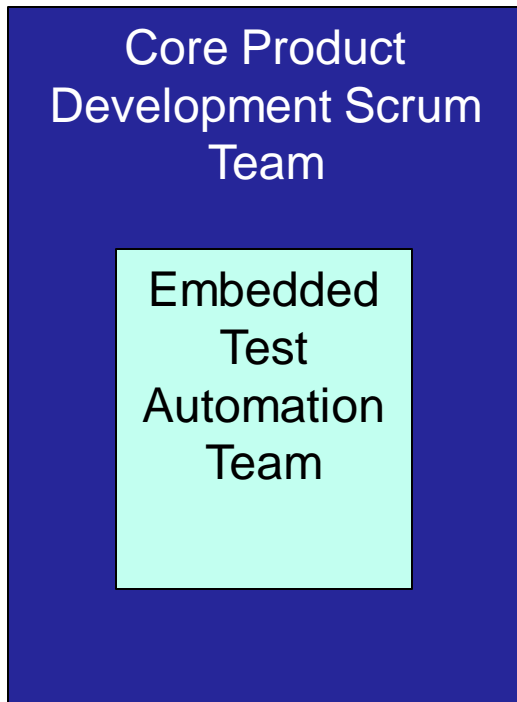
- Important technique in scaling Scrum to large project teams
- Clusters of teams to discuss their work, focusing especially on areas of overlap and integration
- Cross-functional teams, as opposed to 'component' teams
- **Value-driven** teams, as opposed to **Function-driven** teams



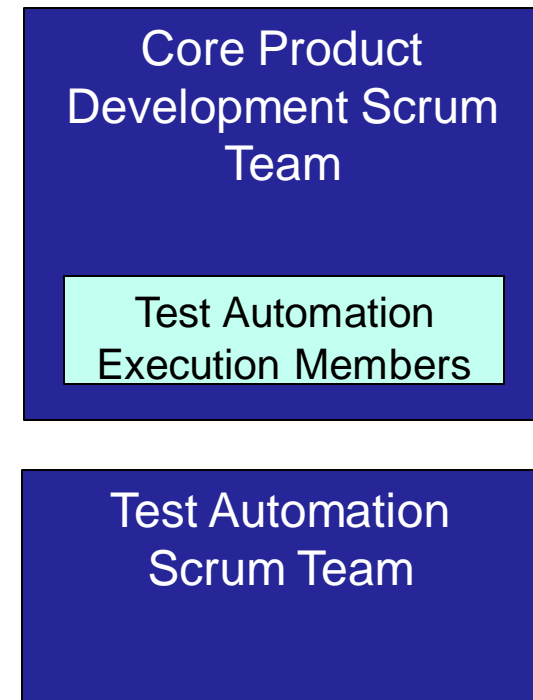
Scrum-of-Scrums!!!

What is it?
Can it help?

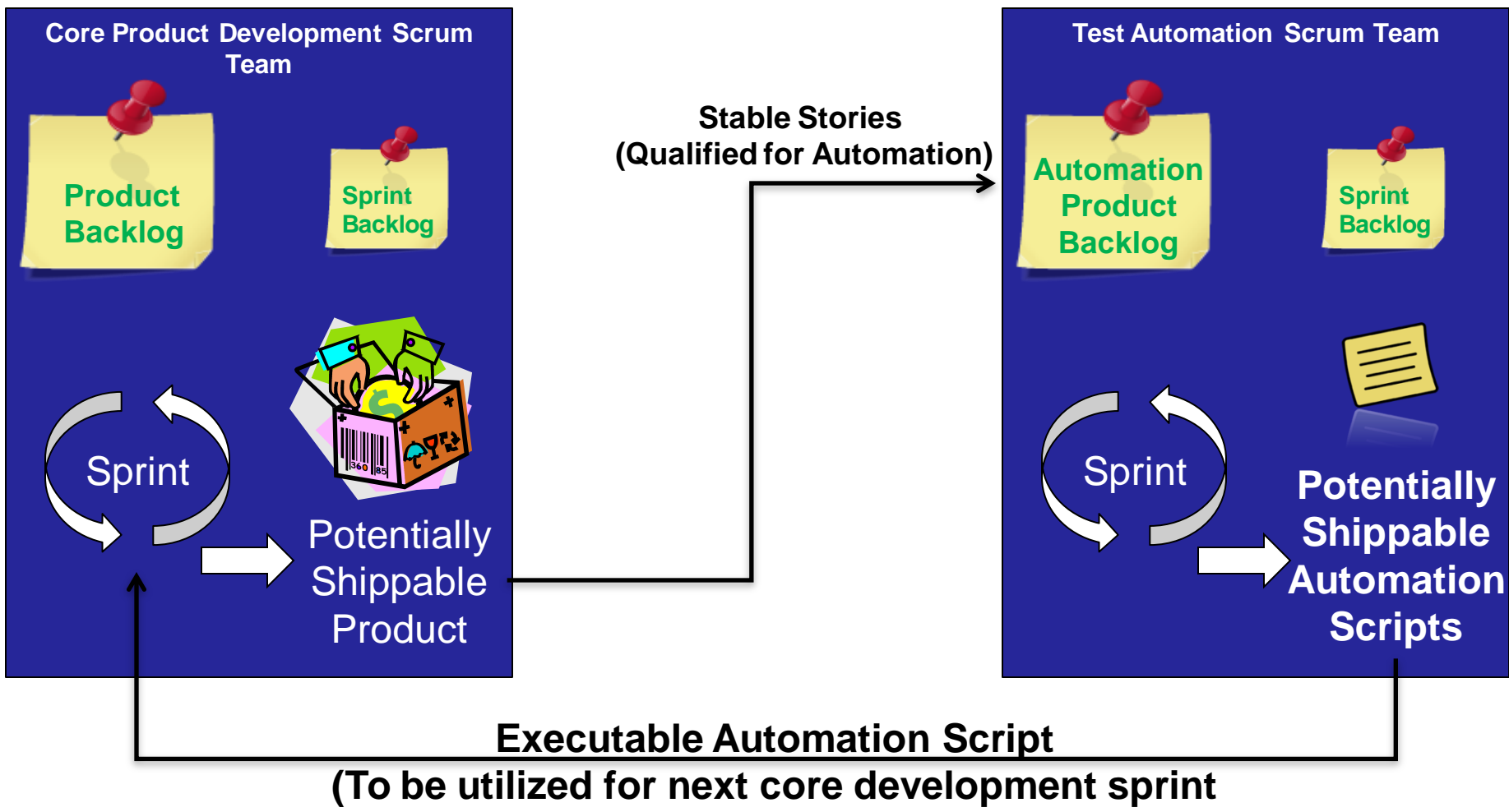
Traditional Scrum Team



Scrum-of-Scrum Teams

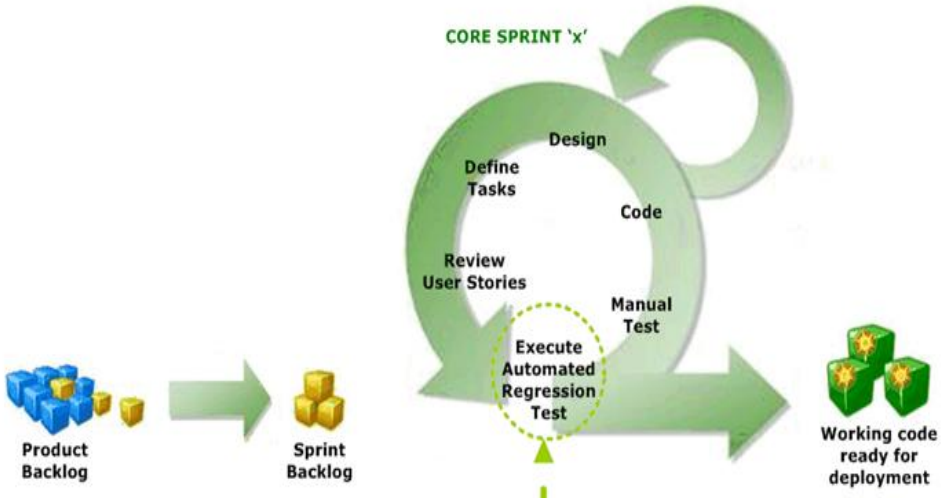


Scrum-of-Scrum Test Automation Team

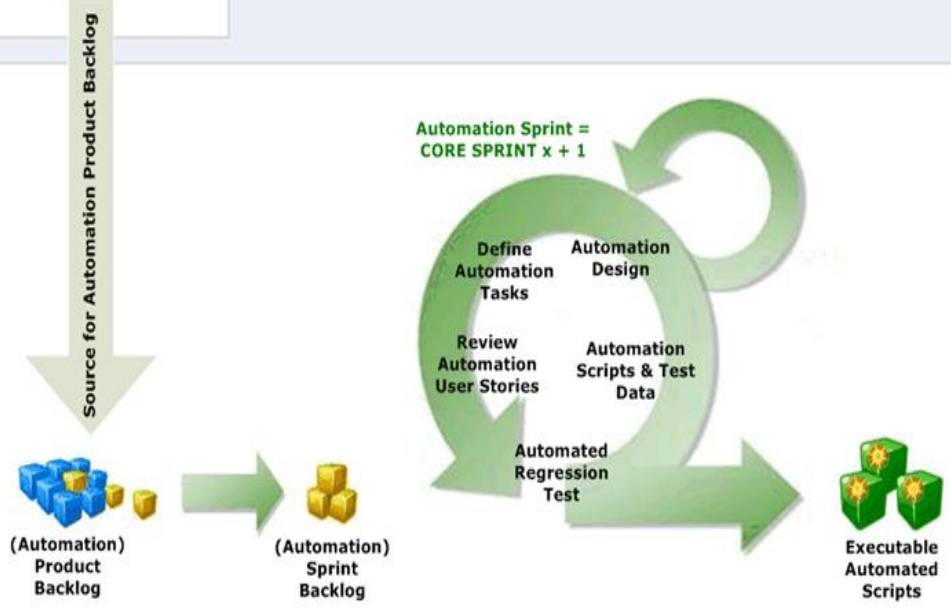


Team Layout

Core Product Development Scrum Team(s)

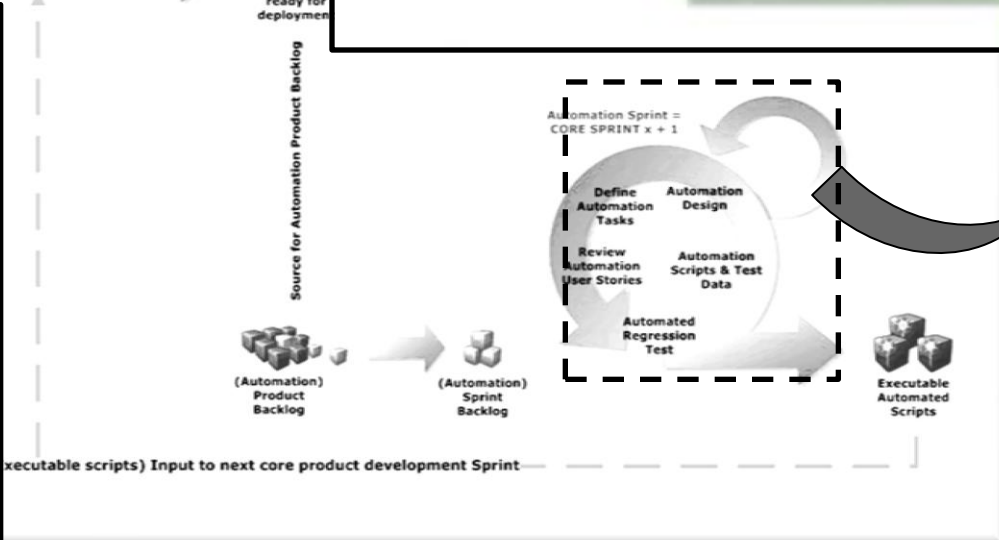
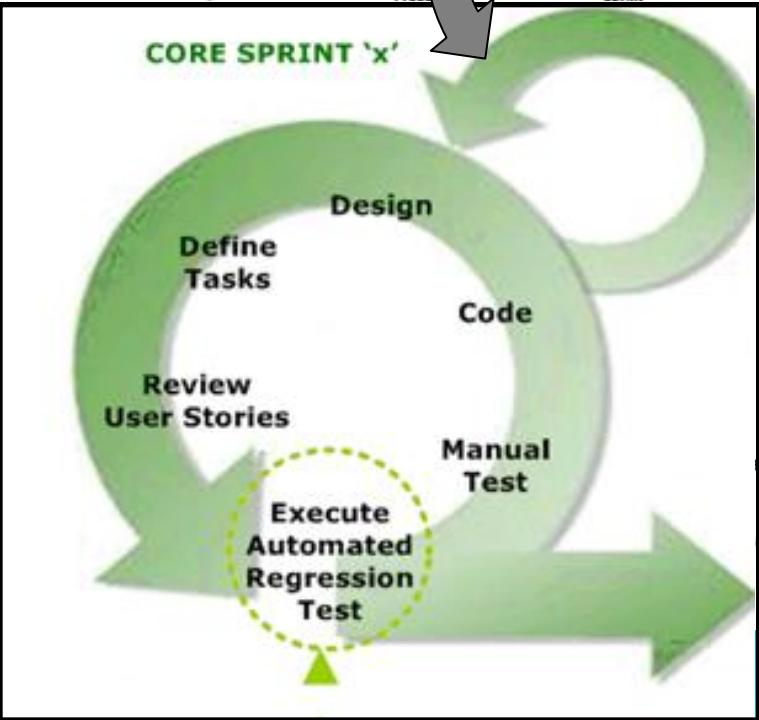
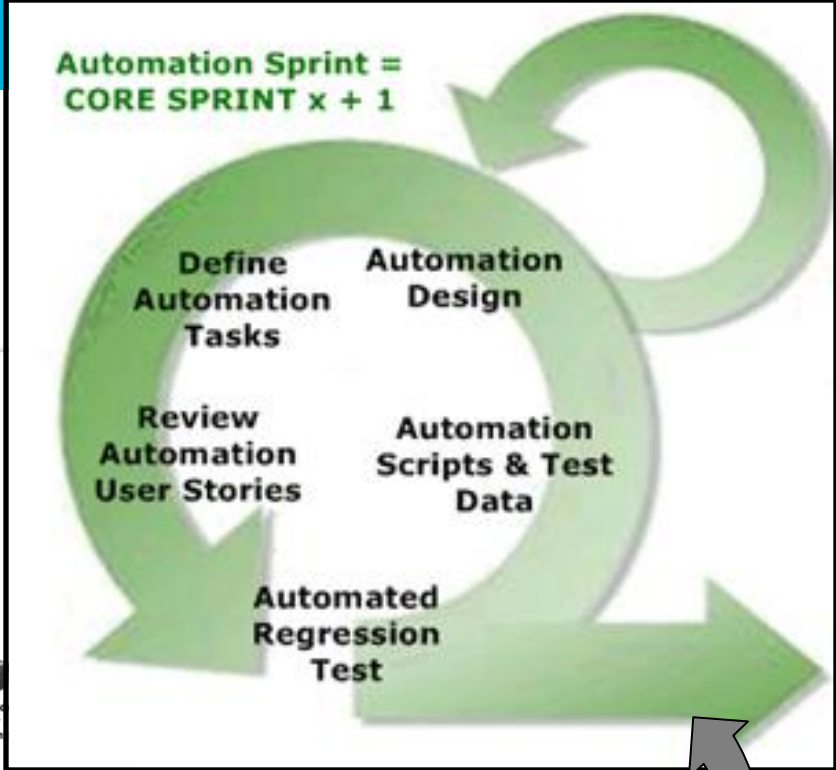
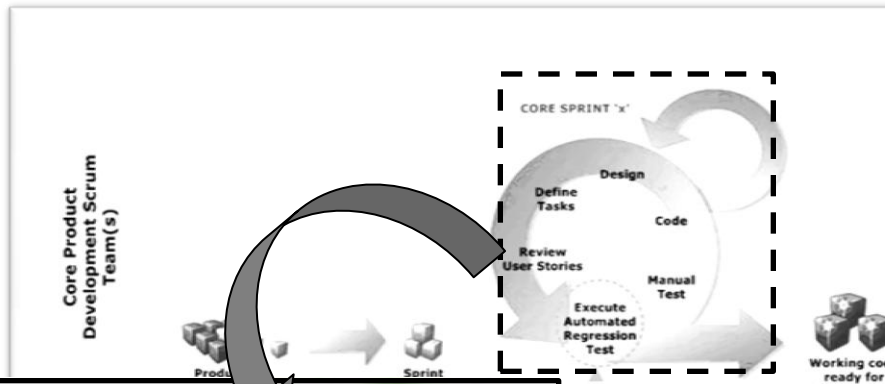


Core Test Automation Team(s)

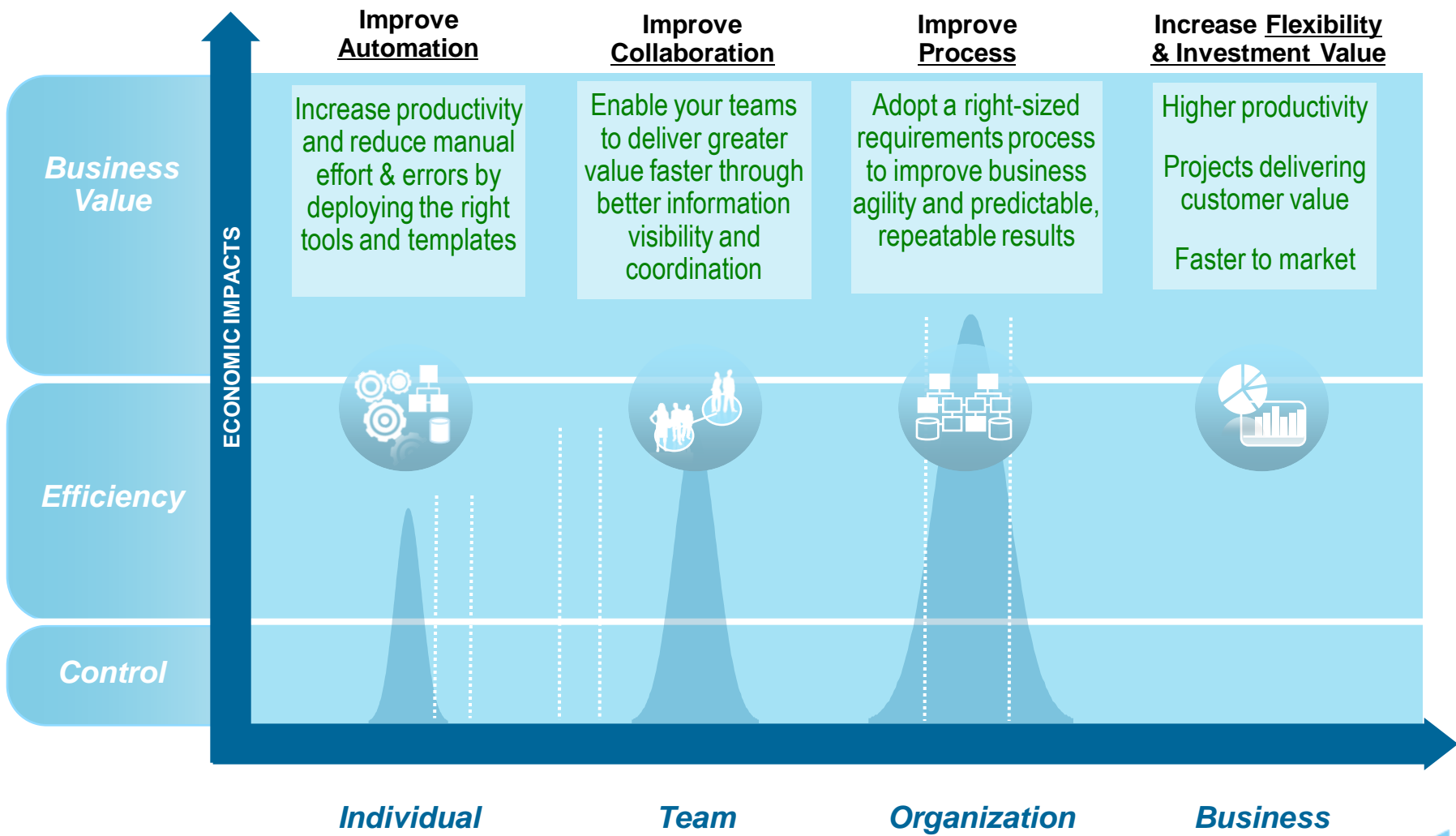


(Executable scripts) Input to next core product development Sprint

Team Functions



IBM Jazz into the mix!

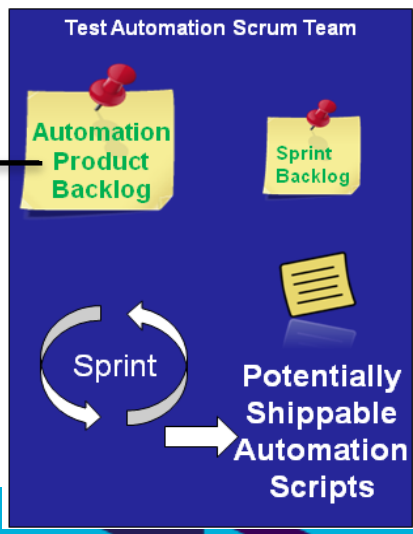
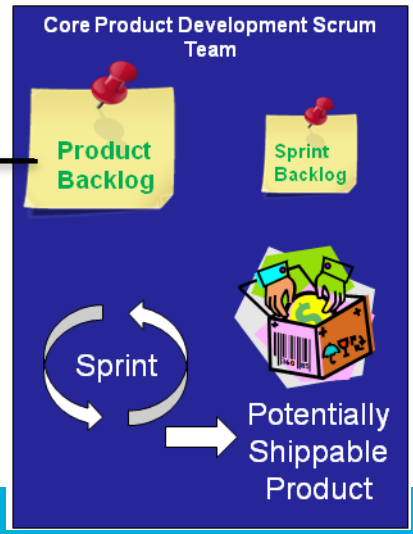
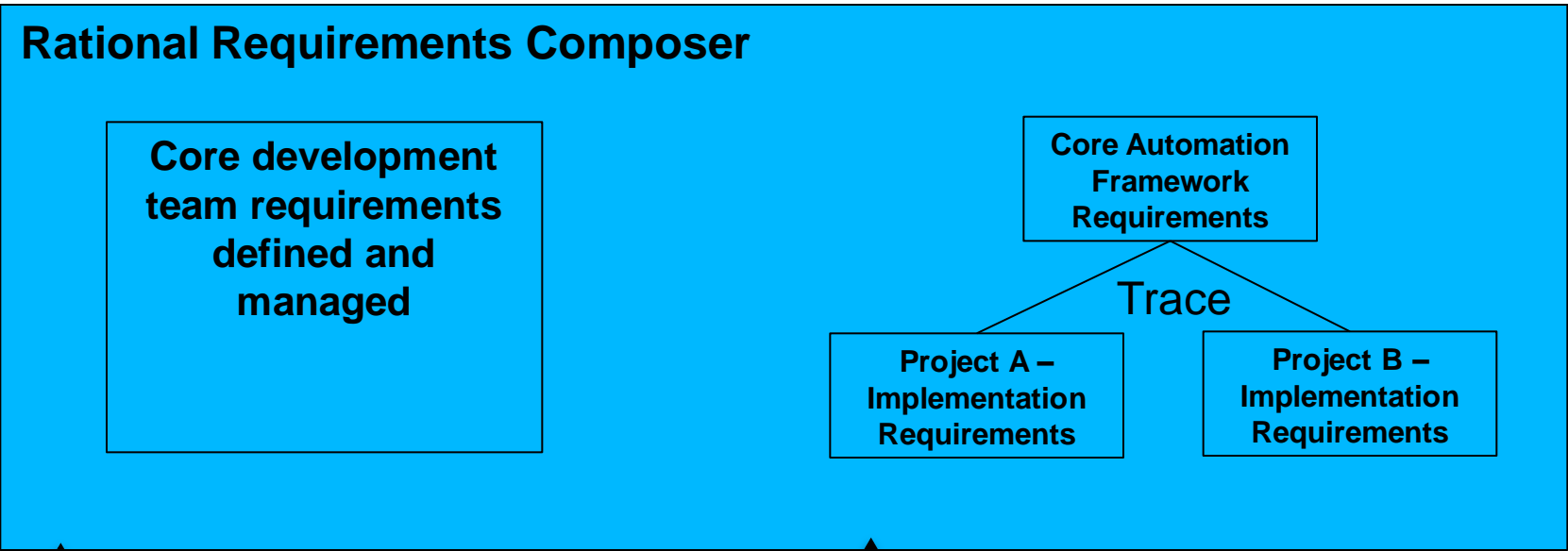


IBM Jazz into the mix – Rational Requirements Composer

- Rational Requirements Composer
 - Rational Requirements Composer helps teams define and use requirements effectively across the project lifecycle
 - Engage a wide range of customers and other stakeholders in the requirements process
 - Storyboards
 - Process diagrams
 - Use cases
 - and other visual and textual techniques
 - Gain fast stakeholder consensus through effective team collaboration and deep visibility into team activity



IBM Jazz into the mix – Rational Requirements Composer



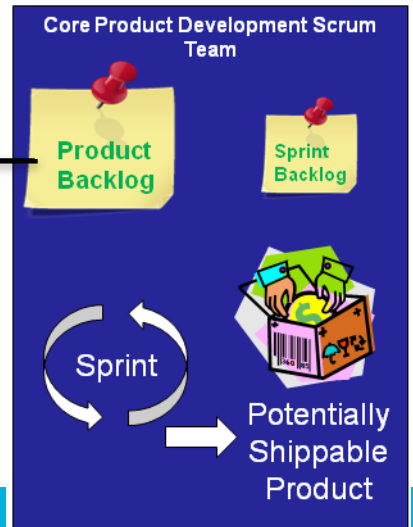
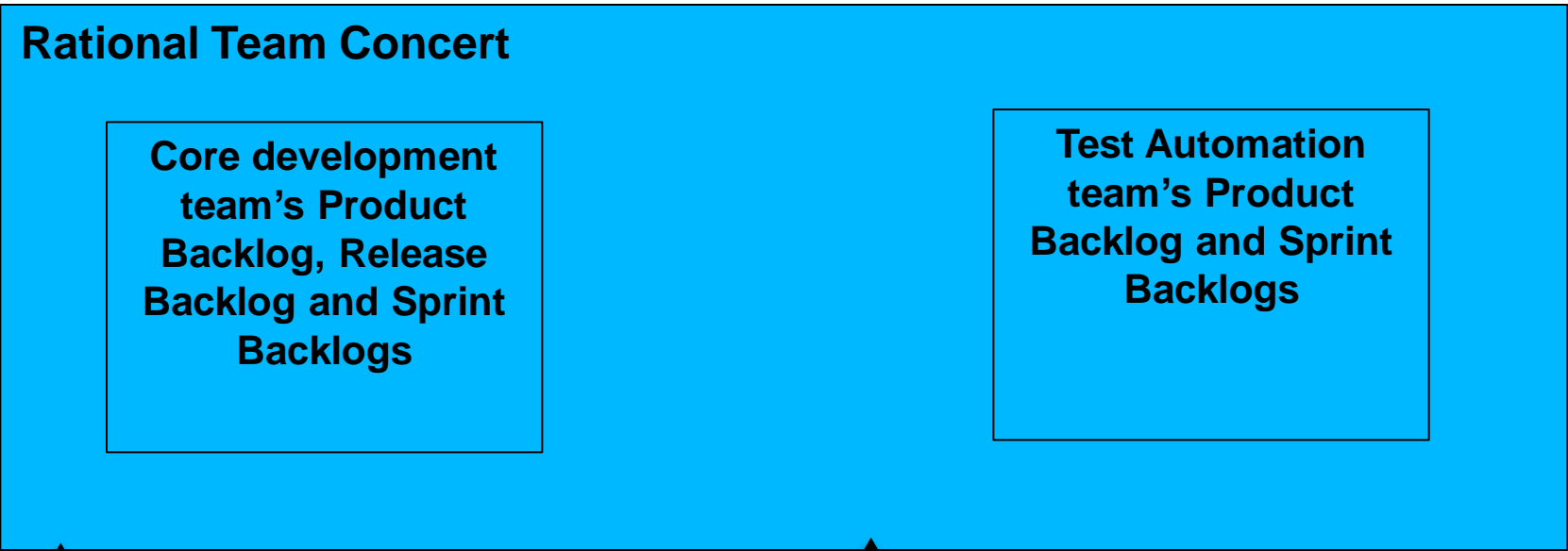
Requirements Defined & Managed With Rational Requirements Composer

IBM Jazz into the mix – Rational Team Concert

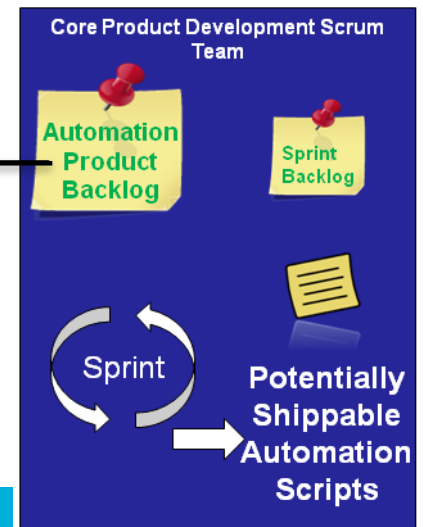
- Rational Team Concert
 - **IBM Rational Team Concert (RTC) is a lean collaborative lifecycle management solution**
 - Helps companies build better software and products with a complete lean development environment for teams
 - Agile, formal and hybrid planning and reporting
 - Support geographically distributed teams with features such as communication in context, event feeds, integrated chat, and automated traceability, all beyond simple email
 - Can be easily adopted by component, as a unified solution, or surrounding existing tooling



IBM Jazz into the mix – Rational Team Concert



User Stories, Tasks managed With Rational Team Concert



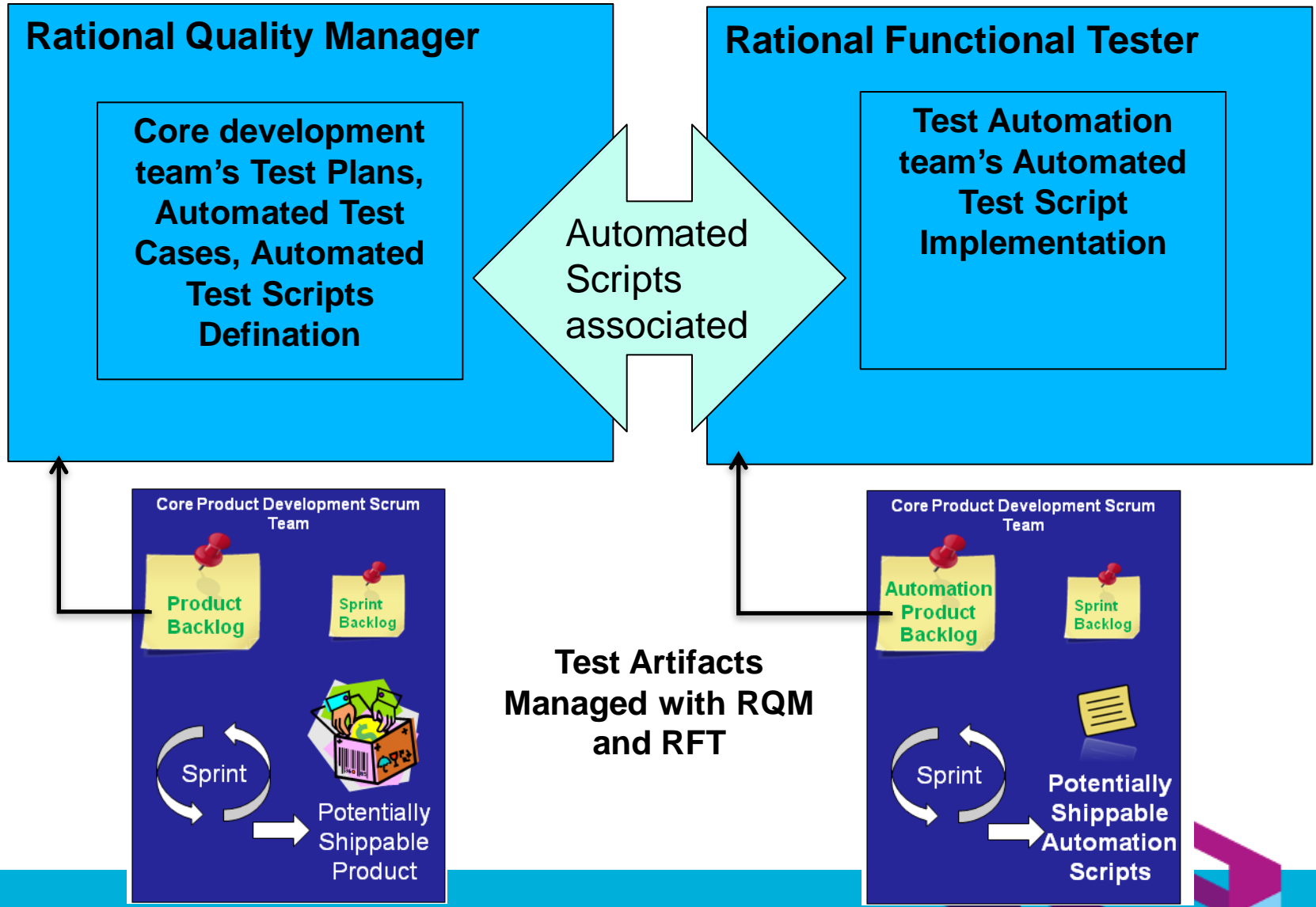
IBM Jazz into the mix – RQM & RFT

- Rational Quality Manager
 - **Rational Quality Manager provides quality assurance teams with the means to track and manage the quality lifecycle**
 - Risk Based Testing to prioritize the features and functions to be tested based on priority and likelihood or impact of failure supporting best practices in Risk Management
 - Advanced and Customized reporting that addresses the concerns and needs of business analysts and management

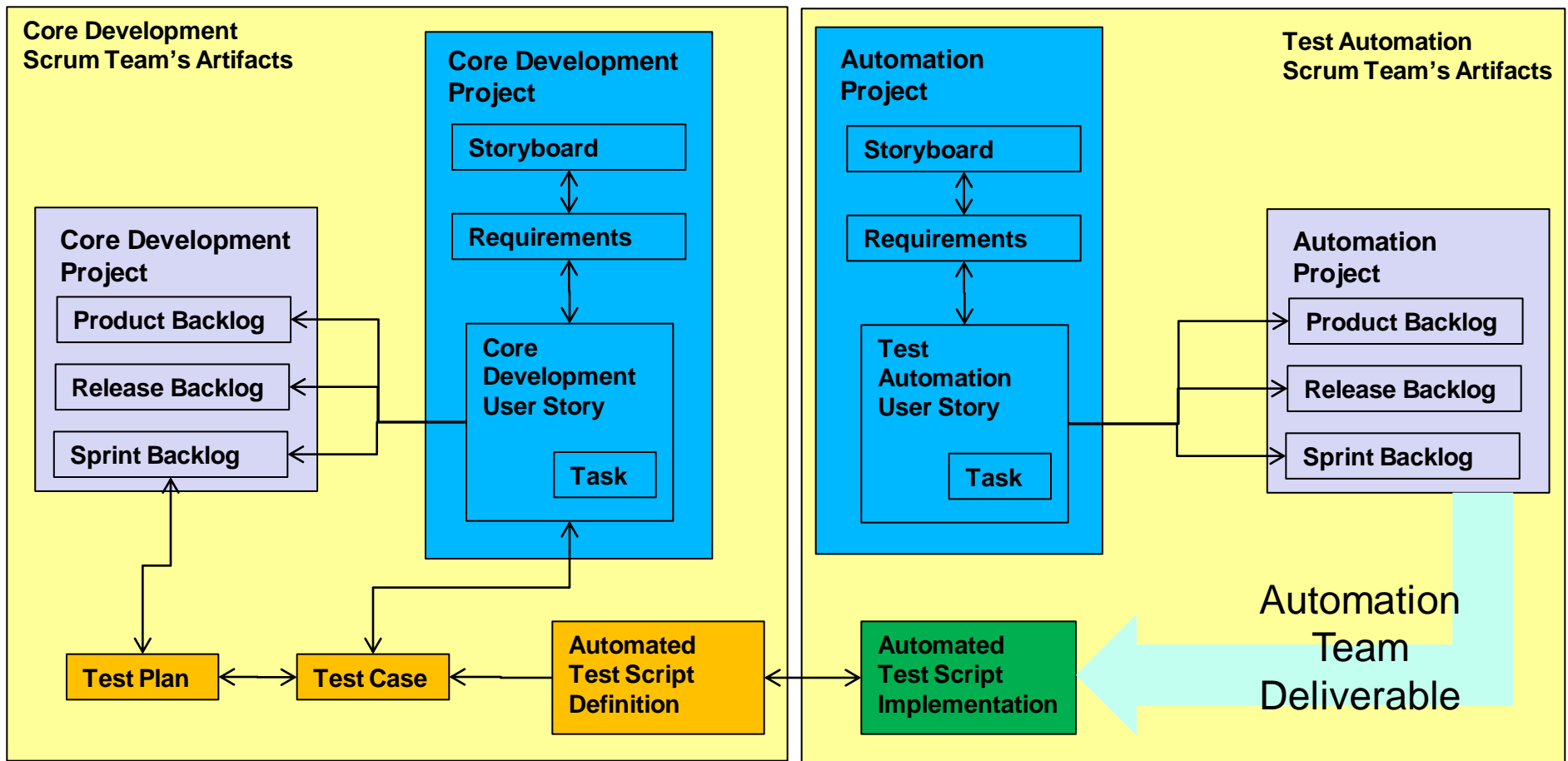
- Rational Functional Tester
 - **Rational Functional Tester is an automated functional testing and regression testing tool**
 - Provides testers with automated testing capabilities for functional testing, regression testing, GUI testing and data-driven testing
 - Integration with Jazz Eclipse Client – for Rational Team Concert and Rational Quality Manager Servers – provides access to work items and logical or compound SCM test asset support



IBM Jazz into the mix – RQM & RFT



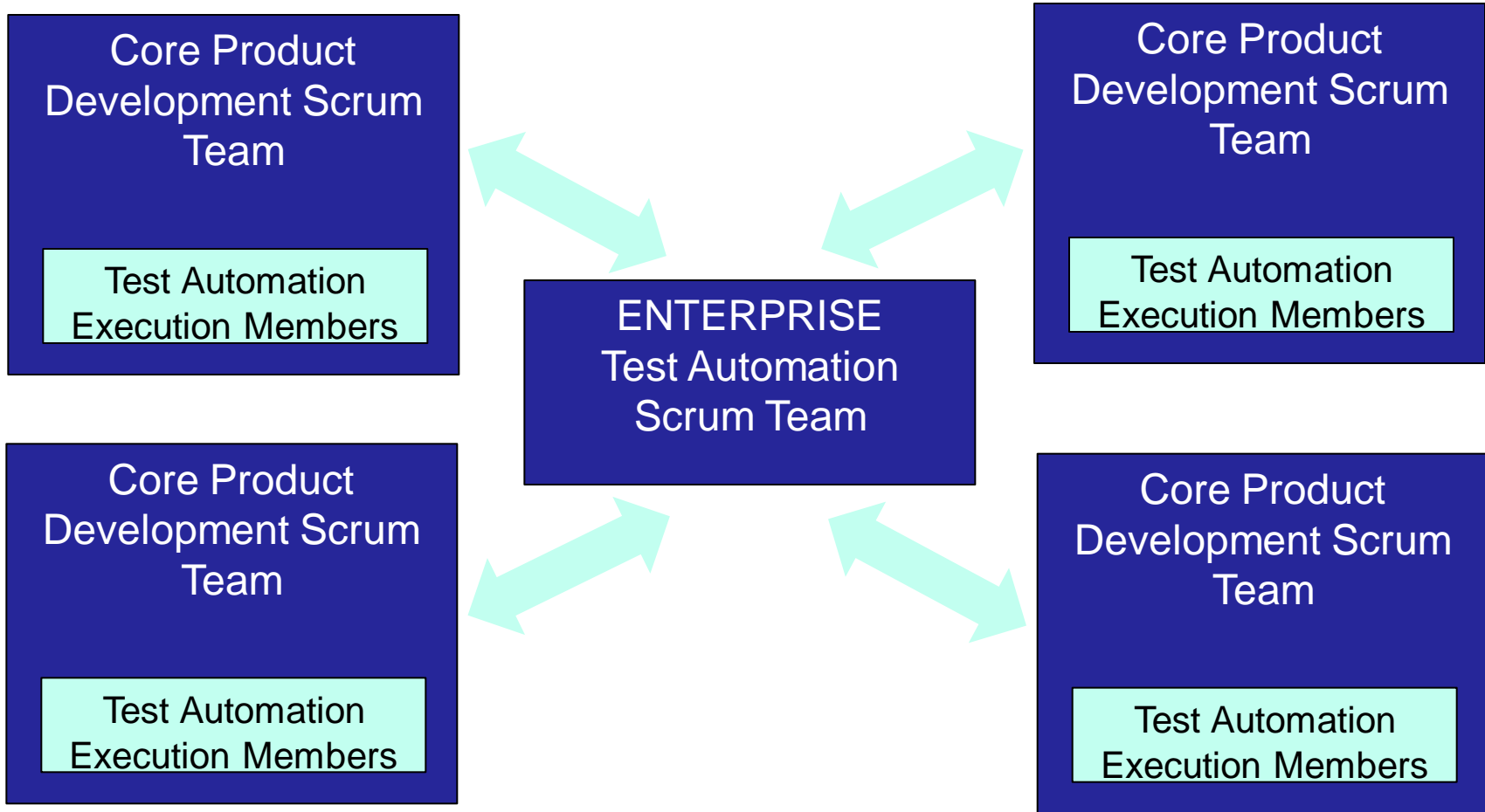
IBM Jazz into the mix – Putting it all together



- RTC
- RRC
- RQM
- RFT



Complex Implementation Scenario – Enterprise Automation Team



Where to Start?

- Form a separate Scrum team for test automation
- Requirements runway: Define high level stories required for test automation
 - ▶ Framework: Build a stable test automation framework: hybrid – keyword and data driven
 - ▶ Test Environment: Dedicated test environment which can easily be reset
 - ▶ Environment Setup Scripts
- Designate a Product Owner. Typically a Development Manager in this case. Remember, this scrum team is to support the core product development scrum team
- Populate the Product Backlog
- Estimate Backlog using Planning Poker
- Prioritize Backlog
 - ▶ Automation framework user stories first
 - ▶ Stable core product functionality to be automated



Where to Start?

- Create Roadmap
- Populate Release Backlog (Optional step: Required only for complex scenario where one test automation scrum team supports multiple core development scrum teams)

-
- Populate Sprint Backlog
 - Identify Task(s) for User Stories
 - Self Assign, Estimate & Commit Task(s)



Demonstration

- Separate core development and test automation backlogs maintained within Rational Team Concert
 - ▶ Separate Team Areas
 - ▶ Different Project Areas
- Requirements maintained and managed with Rational Requirements Composer
- Test Artifacts maintained within Rational Quality Manager
- Test Automation Scrum Team deliverables (Test Scripts) within Rational Functional Tester

Jazz can definitely Rock-n-Roll!!!





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