

Innovate2010

The Rational Software Conference

Let's **build** a smarter planet.

Improve your Requirements Definition and Management using Rational Requirements Composer

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The premier software and product delivery event.



Agenda

- Requirements are Everywhere
- Customer Feedback
- Rational's Vision for Requirements Definition and Management (RDM)
- Rational Requirements Composer (RRC)
- Traceability
- Just Enough Management Capabilities
- Application Lifecycle Integrations



The usual disclaimer

- Plans are based on best information available and may change in the future
- Don't make purchase decisions based on features not currently in generally available releases.



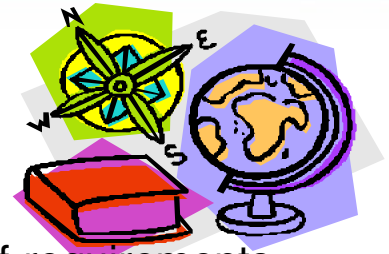
Information

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Requirements are Everywhere

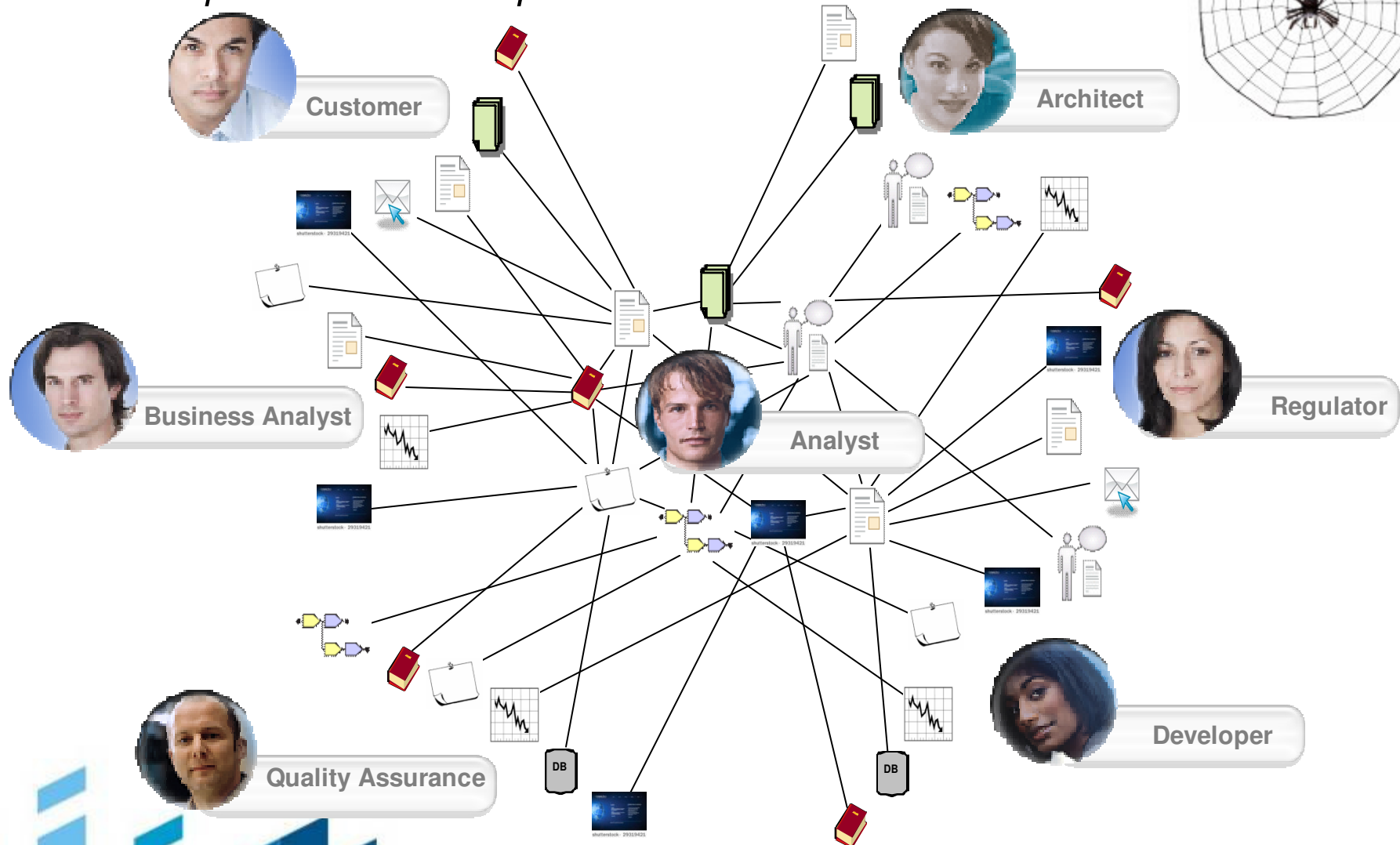
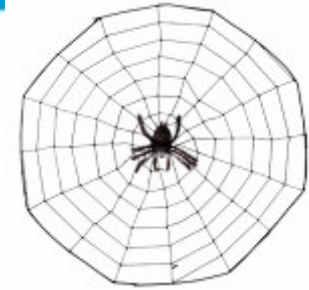
Changing Landscape of Requirements



- **More integrated systems** rather than stand alone systems
 - More interdependence of components hence more interdependence of requirements
- **More stakeholders involved** in projects
 - More requirements sources
 - Business analysts, users, customers, marketing, regulators, architects, domain experts, legacy system experts, development, testing etc.
 - Stakeholders need to validate requirements in a form they can understand
 - Need to leverage diagrams, process flows, screen sketches, use cases etc. as well as textual requirements
 - Need to be able to incorporate these different forms into the requirements process
- **Improved technology** and tools enable us to build more complex systems
 - More complex requirements
 - But users still want solutions to be easy to use!!!

Requirements are Everywhere

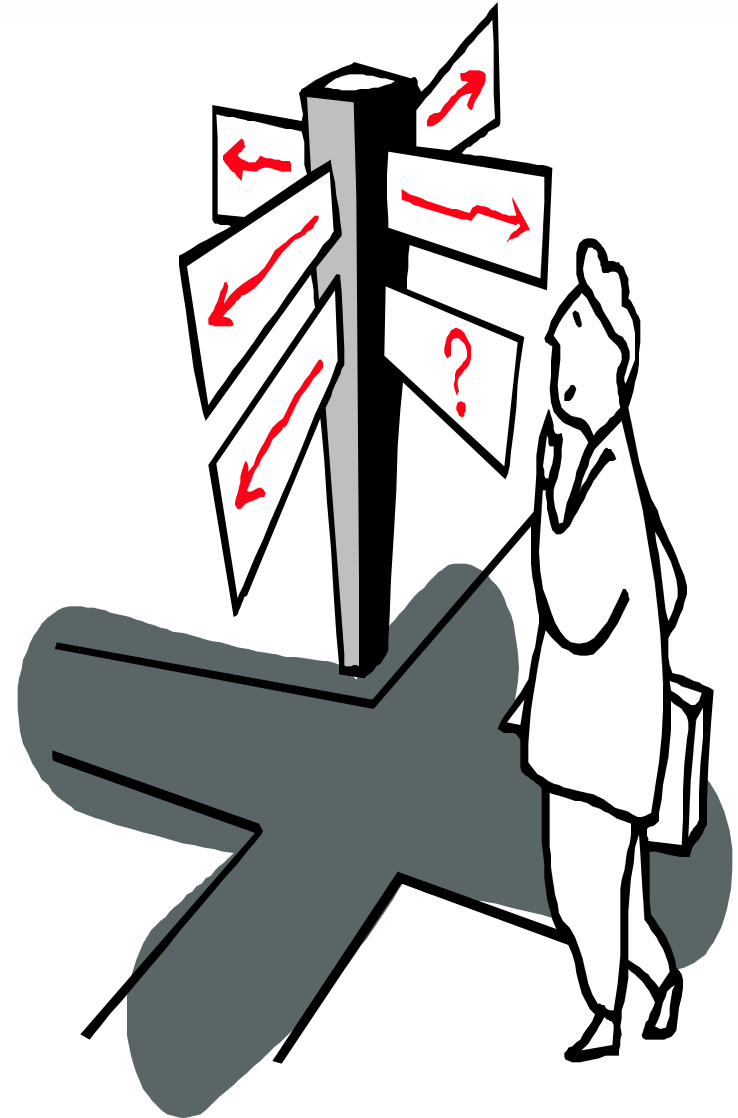
Web of Requirement Interdependencies



Requirements are Everywhere

Motivations for doing more

- Why are requirements important to our customers
 - Gaps in shared understanding between business and IT
 - Uncertainty, driven by perception, knowledge, and communication gaps during the requirements process
- Effects that drive project failure and cost
 - Poorly defining the problem
 - Poorly defining a solution
 - Poorly managing change
- There are opportunities to better address business-driven development beyond what today's Requirements Management (RM) tools can do
 - More focus on discovering requirements in the first place
 - Do more to help validate requirements
 - Support specification techniques beyond text-based



Requirements are Everywhere

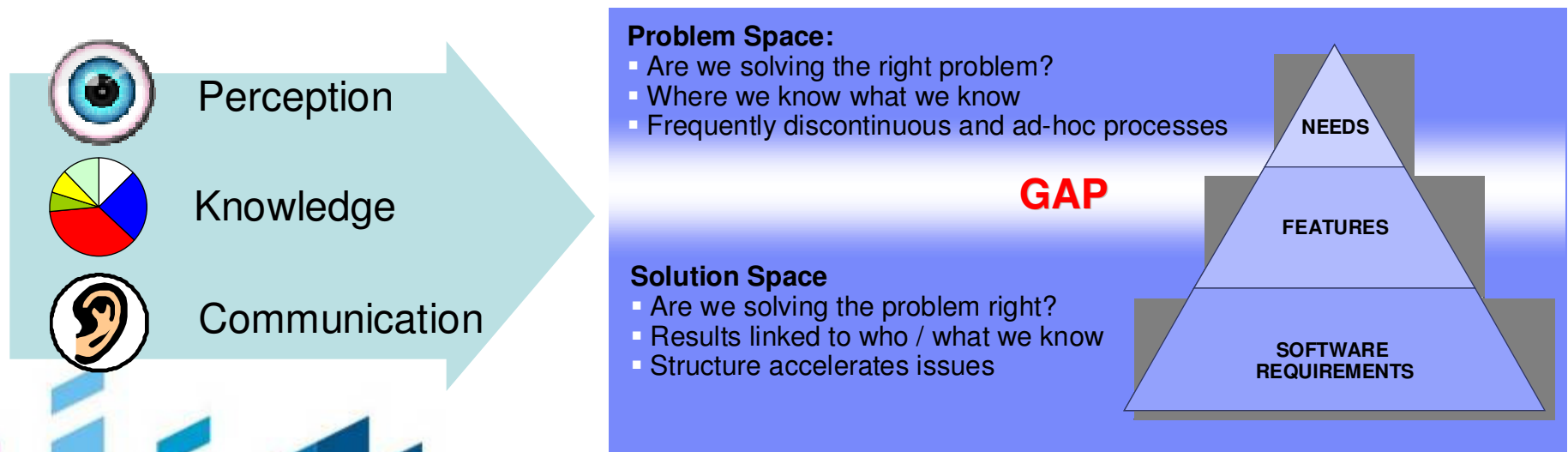
Also Other Challenges for Project Teams

- **Shorter market cycle times**
 - Necessitating more project agility and more frequent requirement changes
- Drive to **reduce cost and schedule**
 - Focus on productivity and value add activities
- Teams and stakeholders are **more geographically distributed**
 - Need better communication and collaboration



Customer Feedback And Market Research

- Requirements are ubiquitous and continue to be labor-intensive. We need to rethink our approach to requirements.
- Business customers are conflicted about requirements. They want more confidence and correctness in requirements, but also more efficiency in the definition process.
- Improving the requirements definition process offers more ROI than incrementally better requirements management for many organizations
- 80-plus percent of software development failures result directly from poor requirements gathering, management, and analysis.
- Need to improve business/IT communication



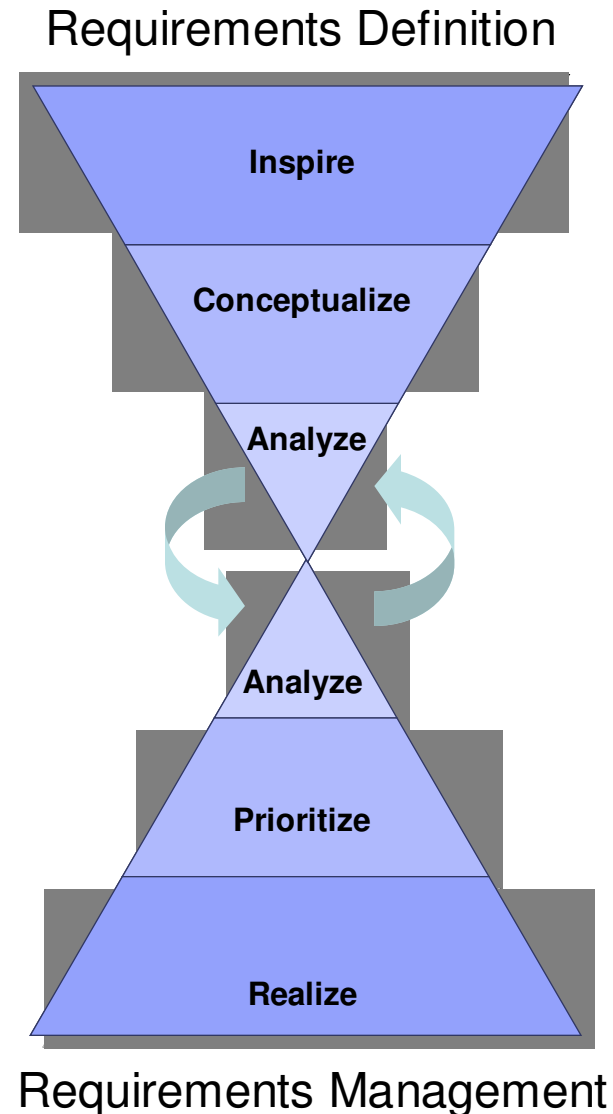
IBM Rational Requirements Definition And Management

Our vision for Requirements Definition and Management (RDM)

Foster focused, natural, real-time, contextual **collaboration** using various techniques and artifact types

Enable:

- improved **requirements definition, validation and management of requirements** change through the software development lifecycle
- more and clearer **communication among business stakeholders & IT delivery teams** wherever they are located
- **less project rework, faster project execution and lower-cost delivery**



How well do you Write Requirements

Real World Advertisement Examples

- Dog for sale: eats anything and is fond of children.
- Dinner Special - Turkey \$2.35; Chicken or Beef \$2.25; Children \$2.00.
- We do not tear your clothing with machinery. We do it carefully by hand.
- Wanted. Man to take care of cow that does not smoke or drink.

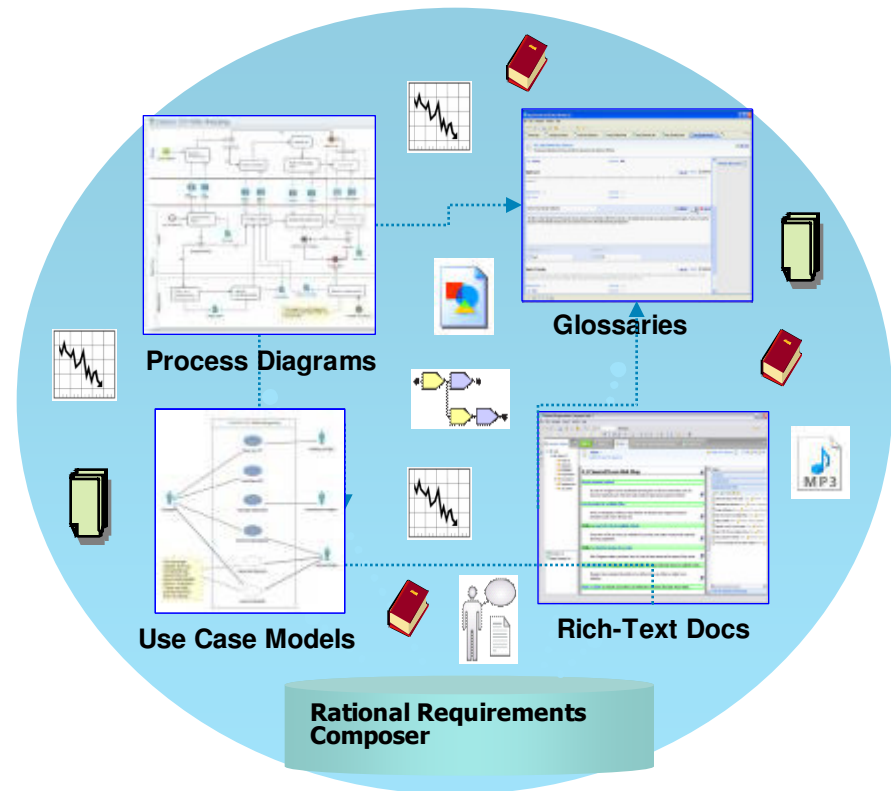


Rational Requirements Composer

Requirements Definition and Just Enough Management



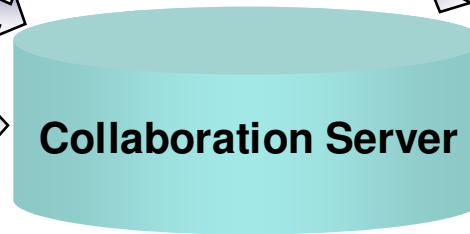
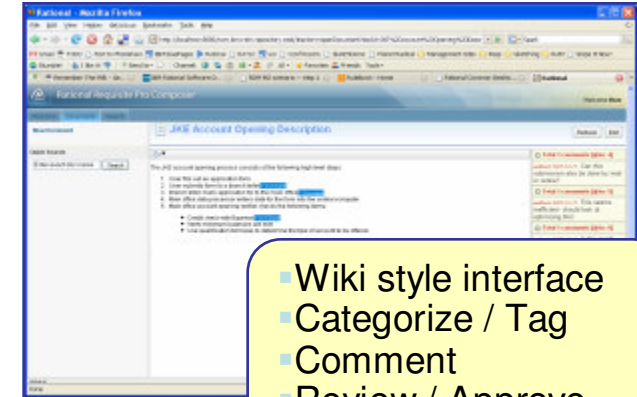
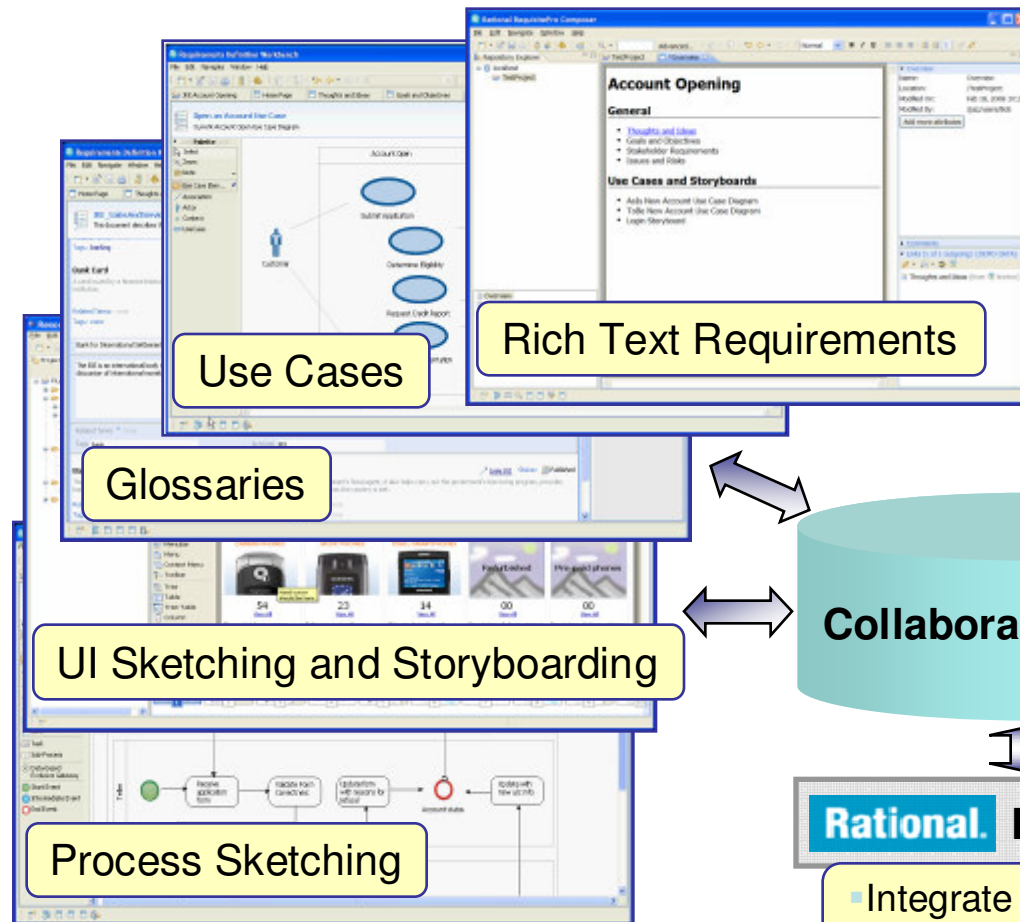
- Rational Requirements Composer **ideally suited to managing different types of requirement information** including:
 - Process flows,
 - User interface sketches
 - Storyboards, Use cases,
 - Rich Text Documents, Glossaries
 - Many other imported artifact types
- Artifacts can be:
 - Categorized/managed
 - Reviewed/commented on
 - Versioned through snapshots/baselines
 - Scoped through collections
 - Linked internally and externally
 - Included in queries/views and reports



Rational Requirements Composer – Authoring and Reviewing

Rich Authoring Environment

Web Review and Approval



- Wiki style interface
- Categorize / Tag
- Comment
- Review / Approve

- Share work instantly
- Users / teams / authorizations
- Linking between all artifacts
- Versioning

- Integrate requirements across the application lifecycle

Elaborate scenarios to uncover customer needs

1. Brief Description

A registered customer has applied to open a new **Account**. Based on existing **Customer** information, the eligibility system will use predefined heuristics to determine whether or not the customer is eligible. In certain circumstances, intervention by the **Branch Manager** may be necessary.

2. Basic Flow of Events

2.1 BEGIN

The use case starts when the bank's web portal has validated the contents of a new **Account** application form filled out by the **Customer**.

RETRIEVE CUSTOMER RECORDS

The **Eligibility Subsystem** retrieves existing banking records from the bank's files. Depending on the type of account being requested, third parties may also be consulted (eg: the credit bureau if the account is a line of credit, etc.)

APPLY HEURISTICS

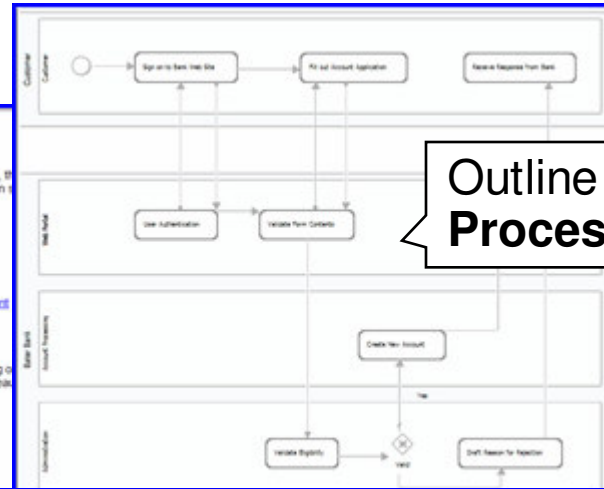
The **Eligibility Subsystem** applies its predefined heuristics to the available data based on account type requested, banking history, **Credit History** etc. Based on this information the system either decides to automatically approve or automatically reject the application.

The use case ends when the application has been either approved or rejected.

Alternative Flows

Branches

There are multiple alternative flows related to a single area of functionality (approval facilities, card handling or receipt handling for the Withdraw Cash Use Case). It improves readability if these conceptually related sets of flows are grouped together.



Outline flows with **Process Diagrams**

Describe flows and capture requirements in **Rich-text Documents**

Define and reuse common terminology in **Glossaries**



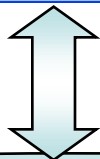
Visualize scenarios with **Storyboards** and **Screen Flows**

Extract Requirements - Clarity, Collaboration, Correctness

Correctness



Collaboration



RequisitePro v7.1.1

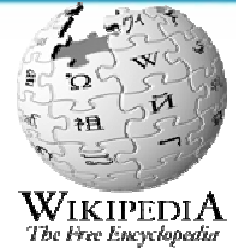
- Traceability between related requirements and other artifacts
- Impact and coverage analysis

Clarity

Clarity

What is Traceability?

Requirements Specific Definitions



A much cited definition of requirements traceability:

"Refers to the ability to **describe and follow** the **life of a requirement**, in both **forwards and backwards** direction."

Another definition of requirements traceability stressing relationships between many kinds of development artifacts:

"Refers to the ability to **define, capture and follow** the **traces left by requirements** on other **elements of the software development environment** and the **trace left by those elements** on **requirements**."

What is Traceability?

Benefits

- **Process visibility** and auditing
 - Understand where a requirement came from, its importance, how it was implemented, and how it was tested.
- Build the **right system**
 - Verify that all stakeholder needs are implemented and adequately tested or validated.
 - Verify that there are no “extra” system behaviors that cannot be traced to a stakeholder requirement.
- Project **management and maintenance**
 - Understand requirements and project status
 - Understand the impact of changes and manage the implementation of changes
 - Keep the project team in sync

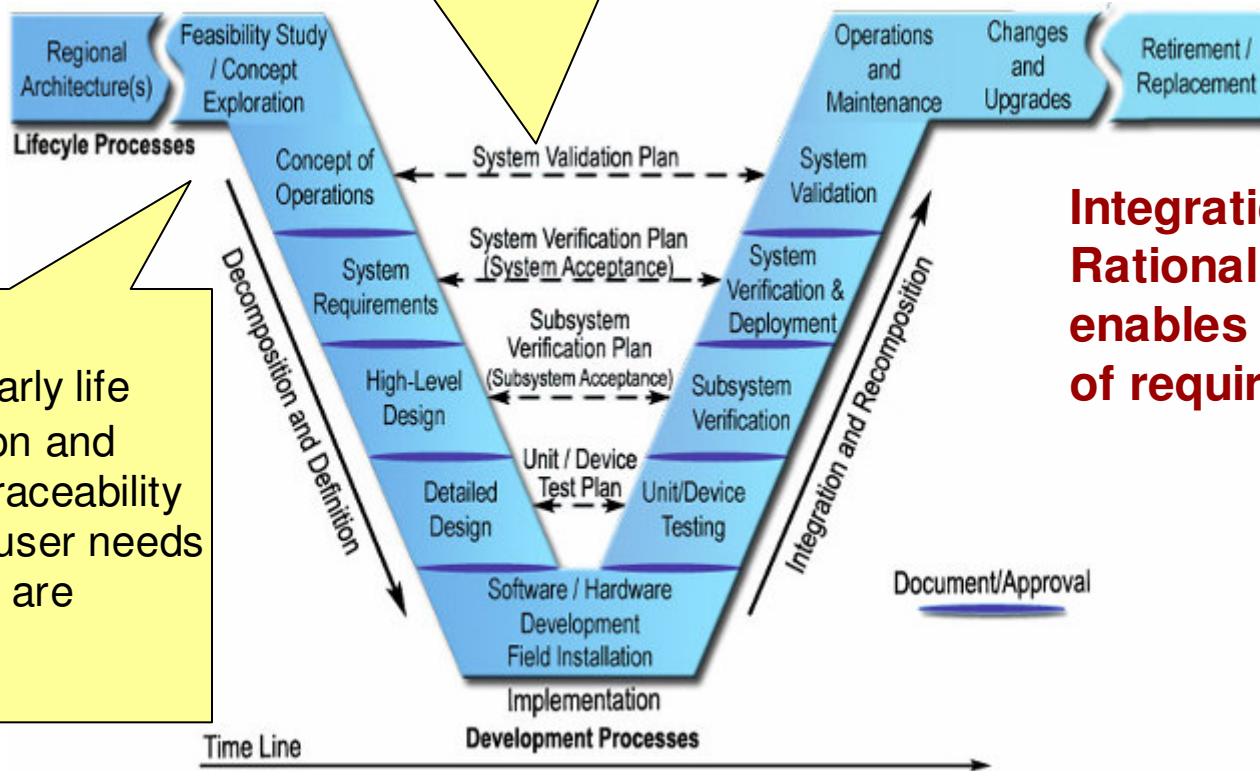
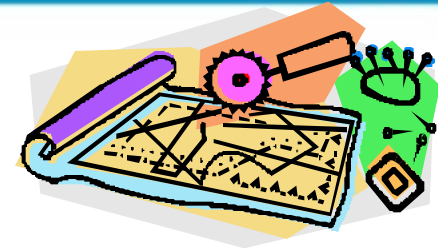


Rational Requirements Composer

Traceability Focus

RRC focuses on early life cycle informal traceability

Validation – Application Life Cycle Traceability ensures that system and sub-system requirements are fully verified.



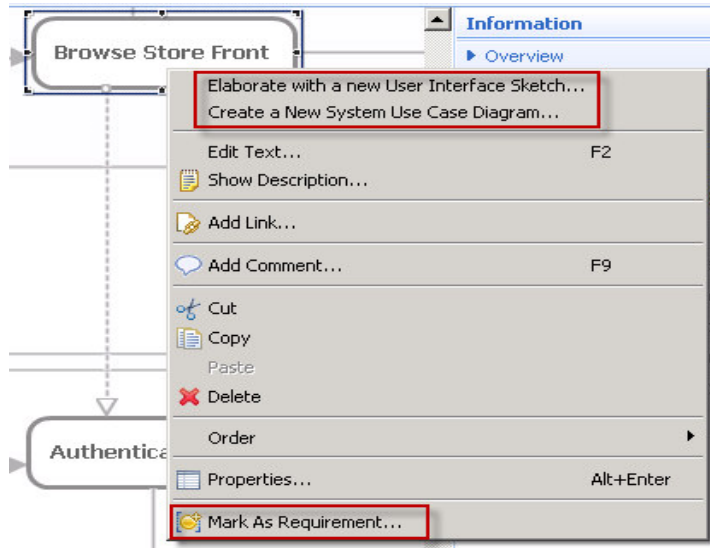
Origin – Early life cycle elicitation and stakeholder traceability ensures that user needs and concepts are addressed

Integration with other Rational products enables validation of requirements

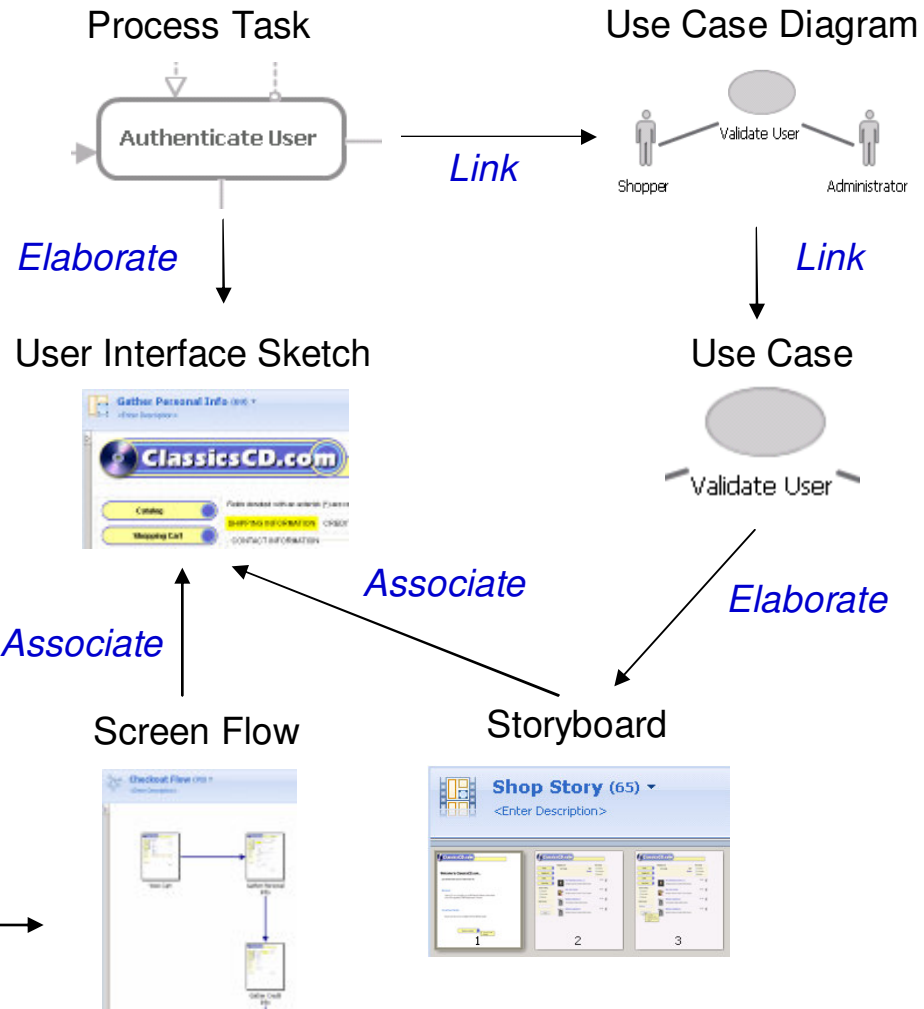
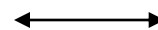
Rational Requirements Composer

Inherent Relationships

- Rational Requirements Composer inherent right click linking support



Requirements,
Internal Artifacts,
External Artifacts



Just enough management - Organization and collaboration creates higher quality requirements

- Customize and share queries and views
- Customize and share dashboards that instantly show progress or problems
- View linkages between requirements and analyze impact
- Quickly search and find

The screenshot displays the IBM Rational Requirements Manager interface for a project named 'Test Project'. The main window shows a list of artifacts with columns for Name, Last Modified By, and Origin:Status. The artifacts are categorized into Screen Flow (2), Storyboard (1), User Interface Part (7), and User Interface Sketch (8). The left sidebar contains filter panels for 'Selected Filters', 'Saved Filters', 'Filter Display by Tag', 'Filter Display by Attribute', and 'Filter Display by Folder'. The right sidebar shows 'Information' for the selected artifact, including project details, reviews, and recent comments.

Name	Last Modified By	Origin:Status
Screen Flow (2)		
Checkout Flow	George DeCandio	Sep 20, 2009 4:14:10 PM
Shop	George DeCandio	Sep 14, 2009 11:06:48 PM
Storyboard (1)		
Shop Story	George DeCandio	Sep 14, 2009 11:06:48 PM
User Interface Part (7)		
Cart List Item	George DeCandio	Sep 14, 2009 11:06:49 PM
Catalog List Item	George DeCandio	Sep 20, 2009 4:13:00 PM
Mini Cart	George DeCandio	Sep 14, 2009 11:06:52 PM
Quick Search	George DeCandio	Sep 14, 2009 11:06:47 PM
rrc6	George DeCandio	Sep 14, 2009 11:06:45 PM
Side Bar	George DeCandio	Sep 14, 2009 11:06:51 PM
Side Navigation	George DeCandio	Sep 14, 2009 11:06:51 PM
User Interface Sketch (8)		
Catalog	George DeCandio	Sep 20, 2009 4:11:37 PM
CD Details	George DeCandio	Sep 20, 2009 4:13:22 PM
Checkout Confirmation	George DeCandio	Sep 20, 2009 4:13:45 PM

Just enough management - Review and approval ensures stakeholder buy-in and increases requirement quality

- Effectively engage stakeholders and guide them to consensus with web based review and approval
- Create permanent, auditable record of key reviewers' approval and comments
- Informally and efficiently review requirements and other artifacts with teammates

NewReview >
<Enter description>

Overall Review → Draft → **Paused** → Continue Review → Reviewed → Final

Modify the review as necessary and click "Continue Review" to continue. If artifacts have been modified, click "Get latest version of artifacts" to update them in the review. Participants can not review artifacts while the review is paused.

Due Date: 8/19/09

Instructions for reviewers:

Reviewers

Name	Type	Status
Dave	Approver	⏸ ⏸
Donald	Approver	⏸ ⏸

Artifacts

Artifacts captured on: Aug 12, 2009 8:23:08 PM [Get Latest Versions of Artifacts](#)

Artifact	Version	Status
sketch1	Aug 12, 2009 12:56:45 PM	Not started
Sketch With LInks	Aug 12, 2009 4:26:35 PM	Not started

Information >
Overview
Comments (0 of 0)

Just enough management - Effectively scope and plan

- Create collections of requirements to scope and plan
 - E.g. Requirements for Release 1
- Collaborate around plans
- Version and lock plans to manage change
- Snapshot plans to create permanent history
- Simplify linking with test plans and work items

Name	Type	Created By	Last Modified Date
Browser Compliance		JazzAdmin1	Aug 17, 2009 8:53:45 PM
Check Order Status	Requirement	TestJazzAdmin1	Aug 15, 2009 12:39:45 PM
Catalog size	Requirement	TestJazzAdmin1	Aug 15, 2009 12:39:46 PM
Check the status of an order	Requirement	TestJazzAdmin1	Aug 15, 2009 12:39:53 PM
Common User Access (CUA)	Requirement	TestJazzAdmin1	Aug 15, 2009 12:39:46 PM

Just enough management - Baselines ensure project integrity over time

- Create snapshots of projects or subsets of projects to permanently record state
- View snapshots online and in complete context
- Compare snapshots to quickly understand what has changed
- Report against baselines to get a better understanding of the project at a point in time
- Do parallel requirements development

The screenshot displays the Rational software interface. The top window, titled "Compare Collection Versions", shows a comparison between "My Collection" and "My Collection version2". It features a table with columns for "Artifact", "User", and "Date".

Artifact	User	Date
Deleted between versions (0)		
Added between versions (2)		
Artifact10	Bob	02/06/2009 09:15:05 PM
Item 8	Abe	02/06/2009 09:15:05 PM
Changed between versions		
Artifact20 (2)		
Artifact20	Bob	02/06/2009 09:15:05 PM
Artifact20	Abe	01/26/2009 10:21:10 AM
Artifact20	Bob	02/06/2009 09:15:05 PM

Below this, several dialog boxes are open: "New Collection" (Name: MyCollection), "Associate Project Snapshot" (Select a Project Snapshot: SVD Snap L-1 (Aug 15, 2009 1:03:32 PM)), and "Snapshot" (Name: Aug 17, 2009 8:44:20 PM, Date: Aug 17, 2009 8:44:20 PM, Description: This is my initial baseline). The background shows a project browser for "Leong_Sample" with a list of requirements.

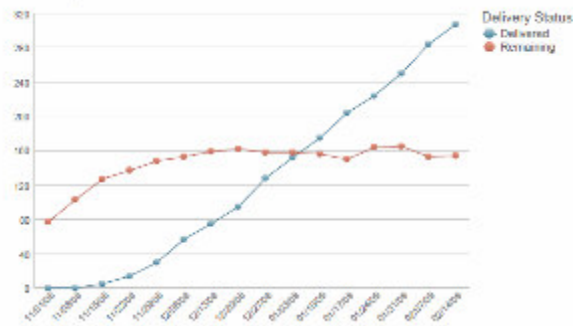
Just enough management - Reporting and document generation give limitless flexibility on viewing requirement data

- Generate pre-configured and custom reports against all requirements data
 - Requirements, use cases, UI sketches....
- Automatically generate specs for handoffs, contracts, and traditional reviews
- Traceability, Requirements Survey, Audit History, UI Specification, Review Summary, Use-case Survey

Requirements Traceability Matrix

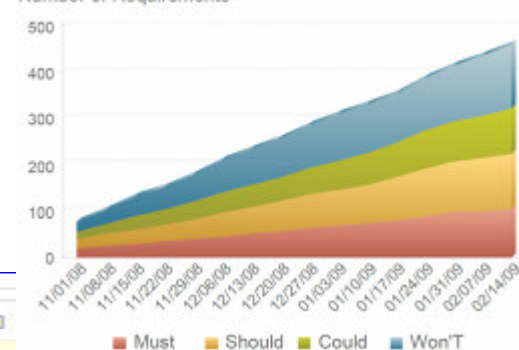
ID	Tag	Name	Status	Priority	High Level Requirement	Related Defects	Related Activities	Related Test Cases
220	UC1779.1	The system shall respond to inquiries within two seconds.	Approved	Should	FEAT1699			
465	UC1779.2	The user assistance will contain instructions on database configuration and extensibility	Validated	Won'T	FEAT32348			Platform support is sufficient so customers are not forced to deploy new operating systems
783	UC1779.4	Fault Tolerance	Validated	Should	FEAT44356			Verify session timeout
142	UC1781	Generate reports	Validated	Could				Edit a data set

Number of Requirements



Smarter Planet Online Auction

Number of Requirements

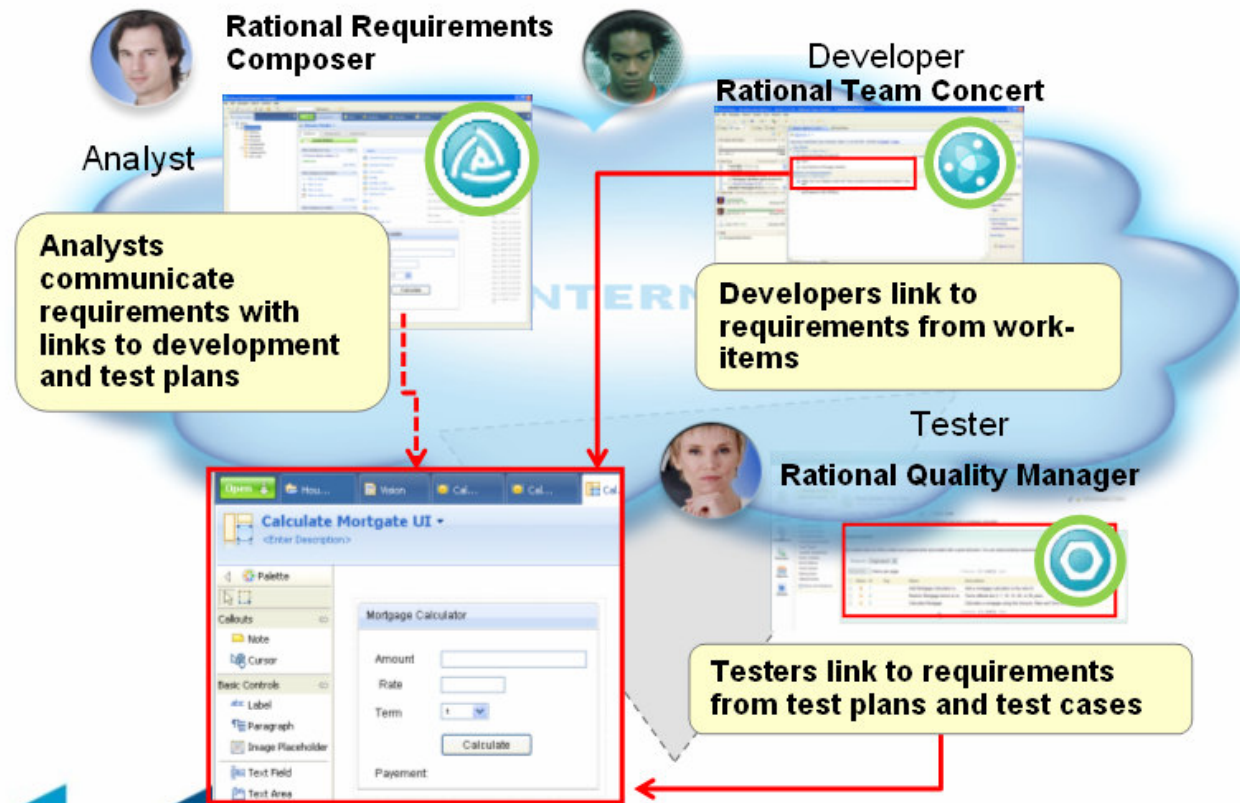


The screenshot displays a 'Shopping Cart' section with a list of items and a 'Requirements' table below it. The requirements table includes columns for ID, Name, and Status, with each row associated with a user profile picture and a status icon.

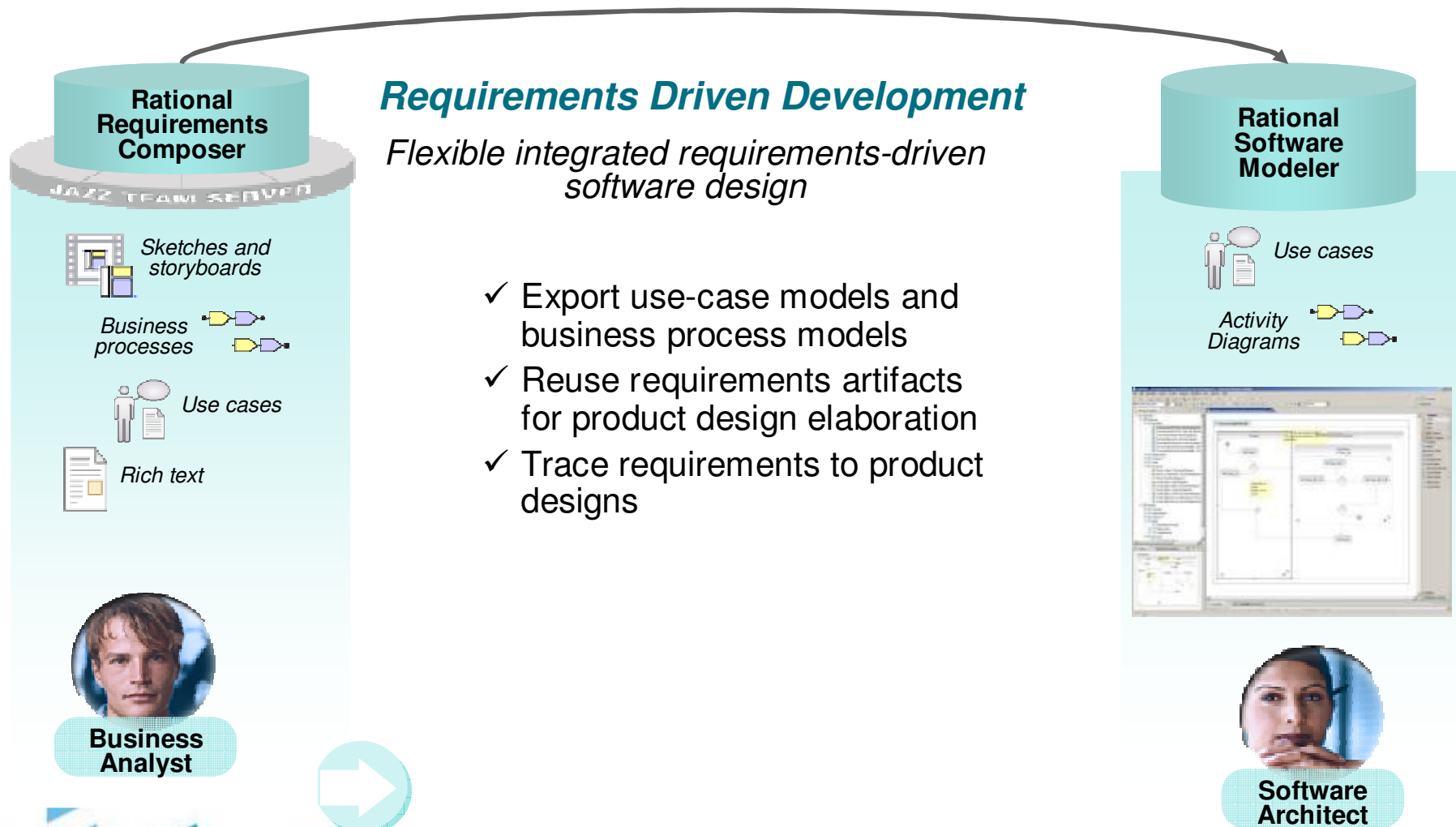
ID	Widget Type	Label	Description	Selected	Enabled	Has Parent	Parent
24	Panel	Panel			False		
2	Picture	Access the catalog			True		
3	Picture	Access the shopping cart			True		
4	Picture	Access the payment information			True		
5	Picture	Check the order status			True		
6	Control				True		

Collaborative ALM integrations provide traceability across Requirements, Work items, and Test cases!

- Attain cross-role alignment by linking requirements to work items and tests
- Link collections and requirements with:
 - **Rational Team Concert** release plans and work items
 - **Rational Quality Manager** test plans and test cases
- Dashboard viewlets show cross repository linkages
 - Requirements under test
 - Requirements being implemented



Requirements Analysis to Solution Design Rational Software Modeler & Architect



See for yourself at jazz.net

- Download Requirements Composer 2.0.0.2 ifix1
- Learn more from the blog and library
- Have discussion with developers and community
- Report defects or request enhancements
- Stay informed!

Projects >

Rational Requirements Composer / Rational DOORS Requirements Professional

Overview


What's New

Integrations **New!**

Release Plan

Related Resources

[Rational Requirements Composer / Rational DOORS Requirements Professional 2.0.0.2 ifix 1 Online Help](#)



Rational Requirements Composer / Rational DOORS Requirements Professional

Collaborative requirements for the whole team

Rational are currently working to provide a complete next-generation requirements platform for better requirements practices and to enable larger sets of stakeholders and team members to participate in a requirements driven development life cycle. This will enable team members to capture, manage, analyze, and report on requirements.

This requirements platform is intended to deliver proven requirements management methods and capabilities for fast-paced, agile-at-scale project teams.

Rational Requirements Composer was the first product built on this platform and provides team members with the ability to define, and elicit user requirements. The next offering, provisionally known as DOORS Requirements Professional will provide market driven project teams with the latest requirements management and analysis capabilities completely over the web and help them achieve the cost saving and management benefits of requirements driven development.

[→ Buy at ibm.com](#)

Download
2.0.0.2 iFix 1
June 30, 2010

Download 3.0 M7a
July 19, 2010
This is a pre-release Early Access Trial milestone of Rational Requirements Composer / Rational DOORS Requirements Professional.

[All Downloads >](#)

Join the conversation

[Ask questions in the forum](#)



<http://jazz.net/projects/rational-requirements-composer/>

Innovate2010

The Rational Software Conference



THANK YOU



Backup



Requirements Composer – Architecture Principles

- Enterprise-Scale
 - Built upon a scalable Internet-based repository supporting artifacts and links
 - Linked artifacts allow for drill-down and query across enterprise-wide artifacts
- Focused on defining correct requirements
 - Elicit and capture requirements using a variety of techniques that can be combined to provide better elaboration of the business context for requirements
 - While artifact-centric the tool emphasizes on the relationship between artifacts to create a network of information to support traceability between requirements and analysis artifacts
- Consumability
 - Appealing visual editors over clearly defined, small and simple artifact models
 - Web-like navigation between artifacts, little need for ‘navigator view’
 - Support a path from more free-form to formal/validated artifacts
- Openness and extensibility
 - Artifacts are stored in an open, extensible information model available over the Internet-based repository
 - Neither tool or repository requires adoption of a particular programming language or framework



Requirements Composer – Data Model Principles

- **Simplicity**
 - The data that tools create/manipulate/display is held in artifacts. There is no data outside of artifacts. Artifacts can be manifested in files, but natively they live on the internet/intranet
 - Artifacts have URIs/URLs that identify them and are used to access them. We follow the usual internet standards and guidelines for this.
 - Artifacts may have within their contents uris of other resources. This is how links/relationships are represented in this model.
- **Extensibility**
 - Artifacts are defined in terms of their textual formats. The way we define artifacts is the same way the rest of the internet community does. Examples are HTML, XML
 - Artifacts are shared between tools to extend an existing artifact by adding additional information to it in a safe manner.
- **Understandability**
 - The ability for a human to be able to understand a artifact structure, even if the artifact is primarily produced/consumed by a tool.
- **Stability**
 - The ability for a artifact "schema" to change over time without impacting clients.



Requirements Composer – Consumability Principles

- Target user is a business person, not a developer/IT person
- Understands the business or business area and much more likely has an MBA not MSc
- No expectation that what they produce will execute (this is not a development tool)
- Familiar with tools like MSOffice, and web-based business applications
- They generally run on last year's laptop, no business need for high-performance machine

