Software.Process.Management
software processes that fit your business needs

Requirements endlich 'richtig'

Moderne Requirements-Tools erfolgreich einführen und nutzen

Handout-Version mit Kommentaren und Anmerkungen

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19. November 2014, München, GI Regionalgruppe München, AK „Requirements“

Agenda

Why tool-based requirements management (RM)?

What is an RM tool?

Advantages of tool-based RM
- Do requirements “right”
- Improve RM practices

How to introduce & use RM tools? – Experiences & case studies

Why Tool-Based Requirements Management (RM)?

Shortcomings of traditional *document-based* RM

Document-based RM using word processors, Wikis, or spread sheet applications as the only tool support usually becomes very inefficient and defect-prone

Especially for large, distributed, or long-running development endeavours, document-based RM can become particularly cumbersome:

- Where is the latest document version? Is somebody else editing it?
- Is a requirements’ identifier still up to date?
- How can I express relationships between requirements?
- How can I find out which requirements in the document are stable?

Also for agile projects, suitable RM tool support can be essential

Why Tool-Based Requirements Management (RM)?

Objectives of good RM tool support

Good RM tool support can, among others, bring the following benefits:

- Always have the latest requirements version at hand, even if a colleague finished editing just one minute ago
- Don’t bother with requirements IDs; focus on requirements contents, instead
- Work with and decide on each individual requirement, while always being able to generate a complete specification document in an instant
- Master requirements structures across different levels, tracing from requirements to code and tests, and enabling efficient requirements reuse
- Monitor and manage projects based on requirements status and regarding contribution to customer value

Why Tool-Based Requirements Management (RM)?

„... a bicycle for our minds“

„What a computer is to me is it‘s the most remarkable tool that we‘ve ever come up with, and it‘s the equivalent of a bicycle for our minds.“

Steve Jobs

What Steve Jobs has demanded from computers: Requirements Managers can demand it from modern RM tools, too

What Is An RM Tool?

Requirements Management Tools Surveys

INCOSE – http://www.incose.org/productspubs/products/rmsurvey.aspx

Volere – http://volere.co.uk/tools.htm

Ian Alexander – http://www.scenarioplus.org.uk/vendors.htm

Making of Software – http://makingofsoftware.com/resources/list-of-rm-tools

- Currently the most comprehensive & most up to date list
- Actively researched & edited by the authors

Source & additional information: http://makingofsoftware.com/2014/lists-of-requirements-tools

The Making of Software

http://makingofsoftware.com/resources/list-of-rm-tools

List of Requirements

Example RM Tools

Blueprint Requirements Center, Blueprint Software Systems, Inc.
CaliberRM, Borland (Micro Focus)
codeBeamer Requirements Management, Intland Software GmbH
HP Quality Center, ALM, Hewlett-Packard
IBM Rational DOORS, IBM
IBM Rational Requirements Composer, IBM
Innovator for Business Analysts, MID GmbH
inteGREAT, eDev Technologies
Jama, Jama Software
Kovair ALM Studio, Kovair Software, Inc.
Polarion Requirements, Polarion Software
PTC Integrity, PTC Integrity
Serena Requirements Manager, Serena Software
TestTrack RM, Seapine Software, Inc.
Visure Requirements, Visure

These tools belong to the list of selected RM tools at the website MakingOfSoftware.com

The complete list contains links to more than 100 RM tools

List of RM Tools

Features of Modern RM Tools

Design requirements structures

Manage requirements structures

Reuse & manage requirements across projects

Collaborate on requirements

Visualize & explore requirements information

Integrate requirements across the application lifecycle

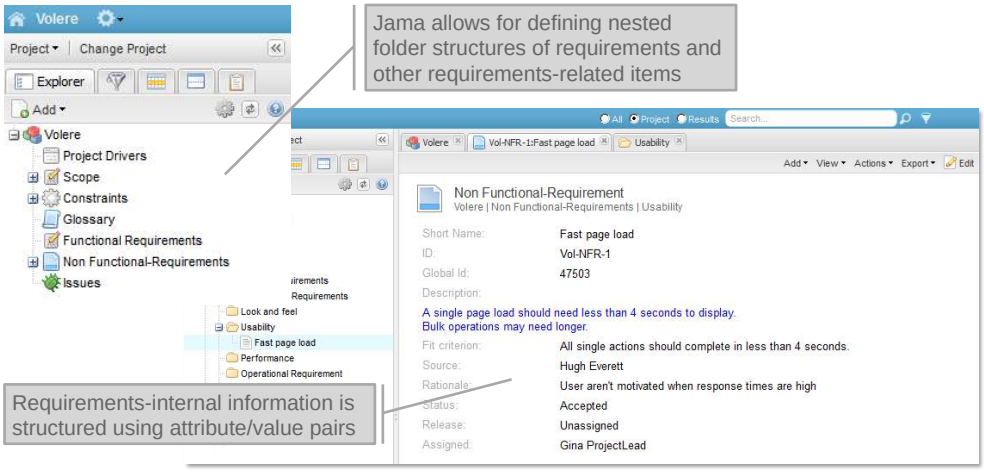
Among the various features of today’s RM tools, these might be the most relevant ones, providing highest value to requirement management

Examples of RM Tool Functionality

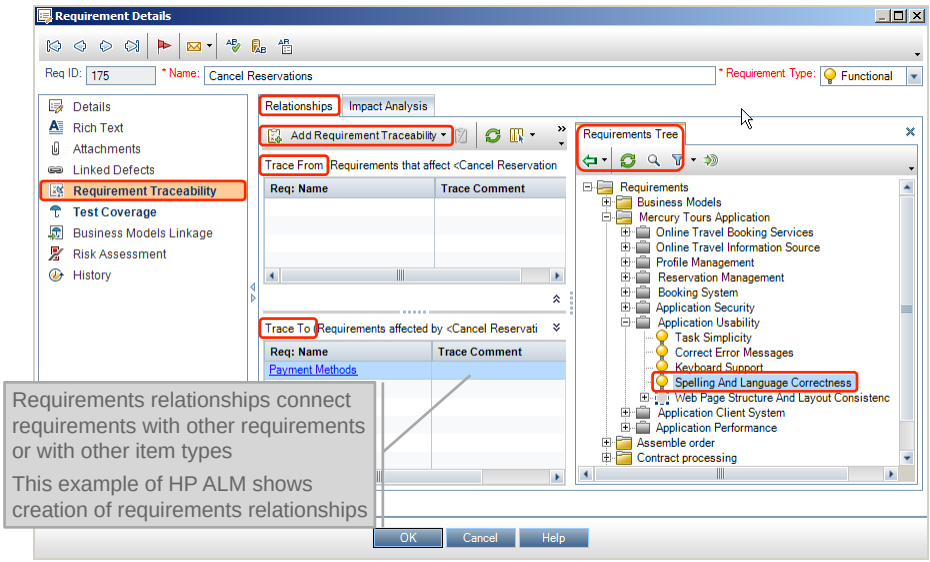
The following slides show examples of modern RM tool functionality using selected tools

The presented tools are good examples but usually by far not the only ones providing such functionality

Design Requirements Structures (Jama)



Design Requirements Structures (HP ALM)



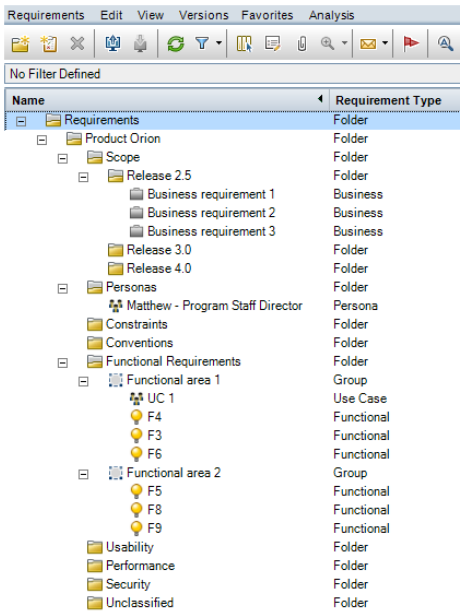
Design Requirements Structure (HP ALM)

HP ALM structural concepts

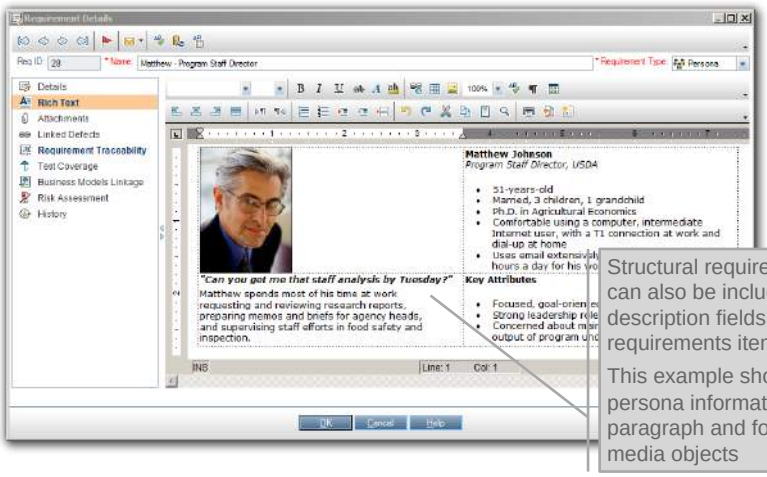
- Folders, Groups
- Requirements Types

HP ALM also offers nested requirements folders and requirements groups that can contain requirements items

As in most RM tools, arbitrary requirements types can be defined by tool administrators – examples are business requirements, use cases, and functional requirements



Design Requirements Structures (HP ALM)



Structural requirements information can also be included into rich-text description fields at each requirements item

This example shows definition of persona information using tables, paragraph and font layout, and multi-media objects

Manage Requirements Structures

Modify requirements contents

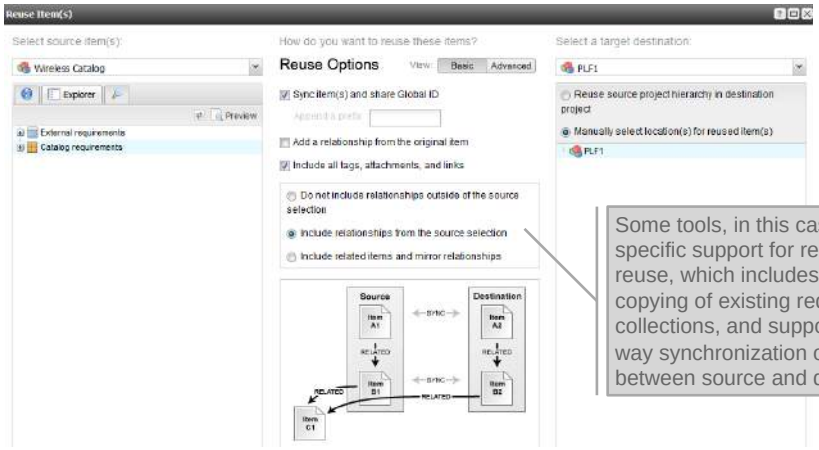
Modify requirements structure

Search requirements

Filter requirements

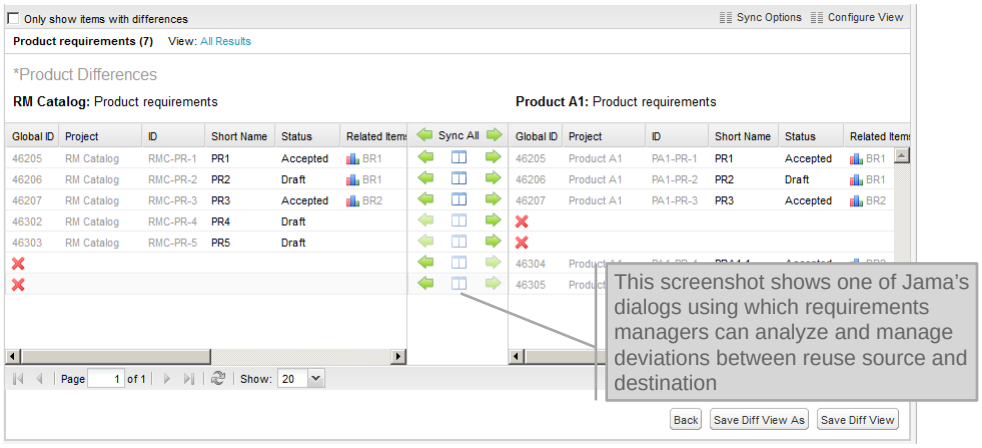
Conduct bulk edit operations

Reuse Requirements (Jama)

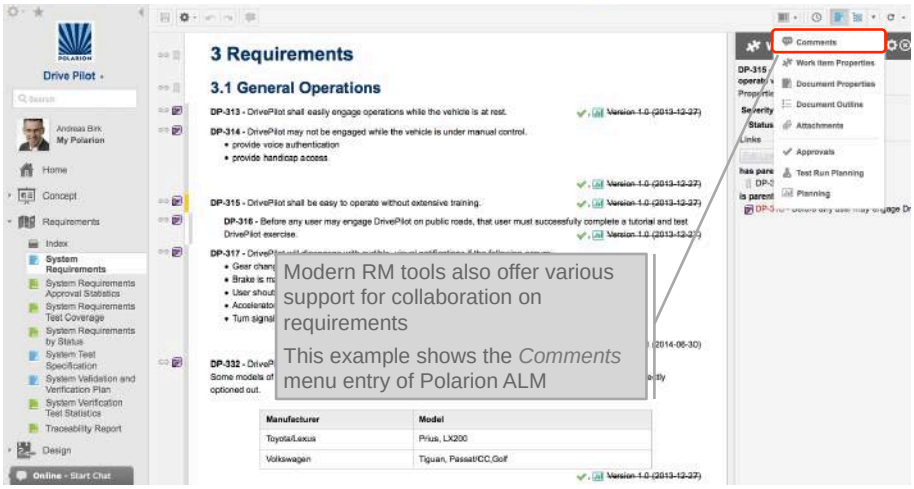


Some tools, in this case Jama, offer specific support for requirements reuse, which includes well-controlled copying of existing requirements collections, and support for later two-way synchronization of requirements between source and destination

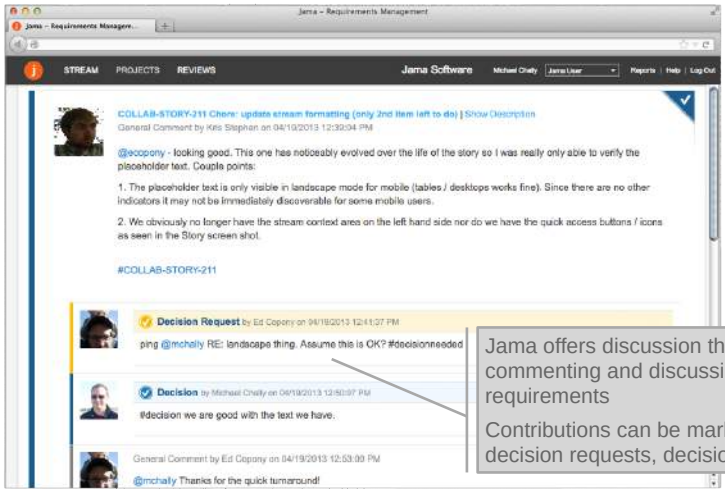
Manage Reused Requirements (Jama)



Collaborate on Requirements (Polarion ALM)



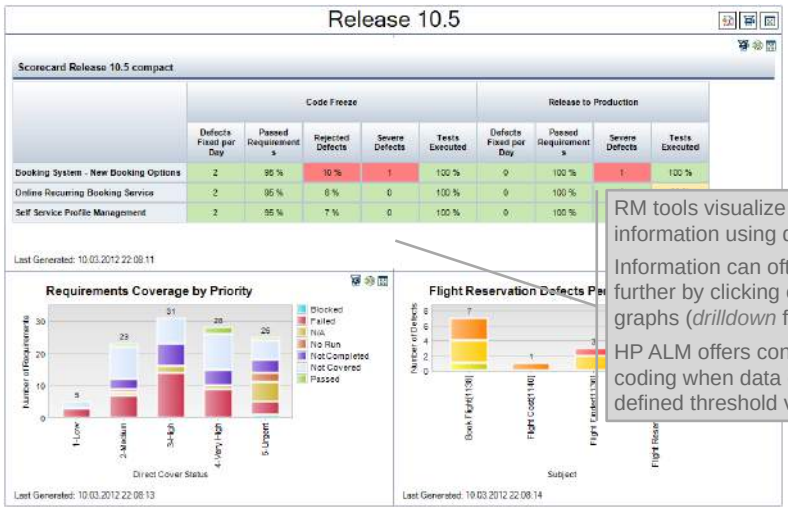
Collaborate on Requirements (Jama)



Jama offers discussion threads for commenting and discussing requirements

Contributions can be marked as decision requests, decisions etc.

Visualize & Explore Requirements Information (HP ALM)

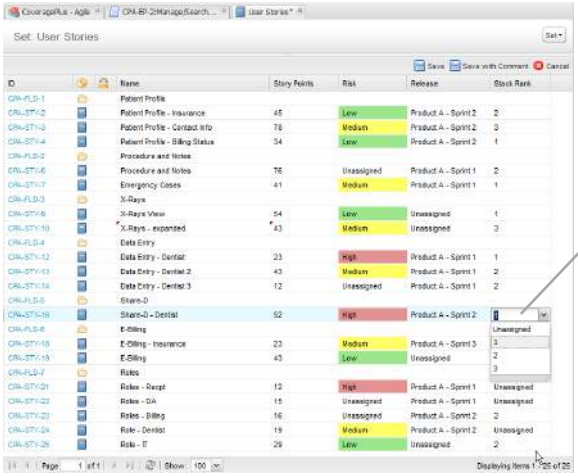


RM tools visualize requirements information using dashboards

Information can often be explored further by clicking on interactive graphs (*drilldown* functionality)

HP ALM offers conditional color coding when data exceeds user-defined threshold values

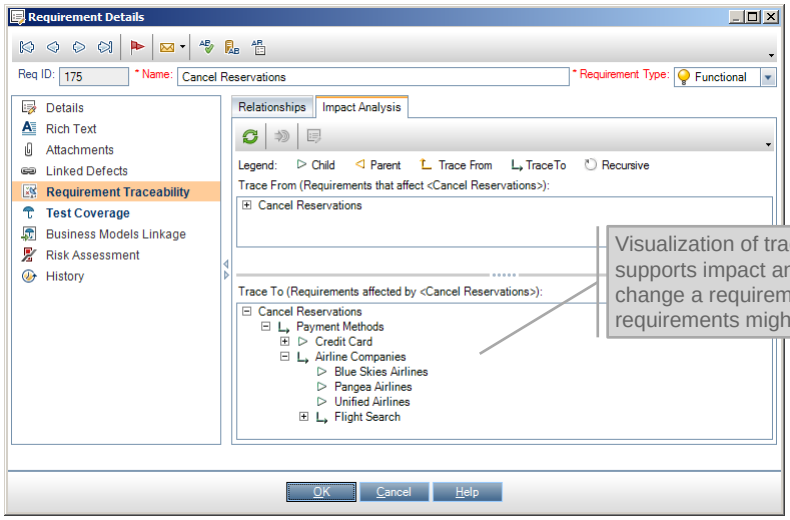
Visualize & Explore Requirements Information (Jama)



Jama provides a list view that can be enriched by color coding of picklist values

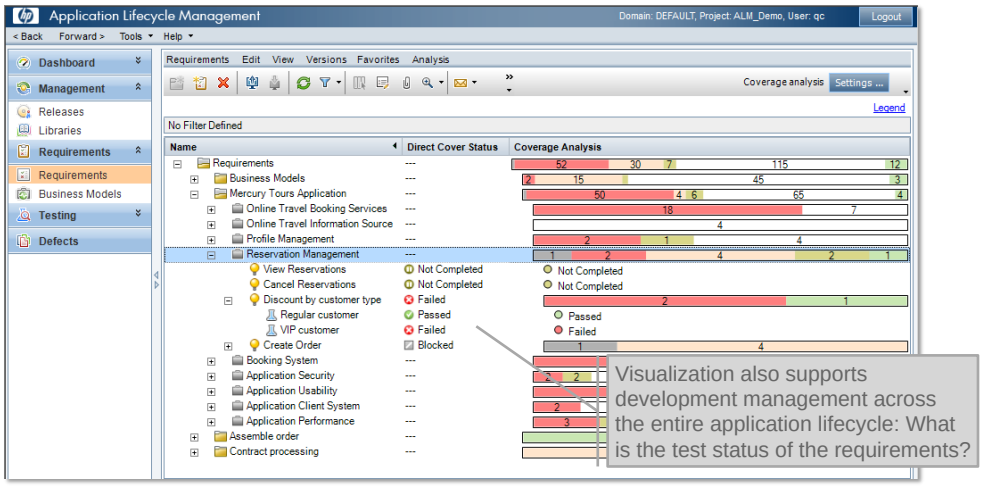
Users can directly edit requirements data within this view

Visualize & Explore Requirements Information (HP ALM)



Visualization of trace relationships supports impact analysis: If we change a requirement, what other requirements might be affected?

Integrate Requirements across the Application Lifecycle (HP ALM)



Advantages of Tool-Based RM

Do Requirements "Right"

Focus on individual requirements items

Establish clear requirements ownership

Determine requirements status & quality

These principles help ensuring quality of requirements management

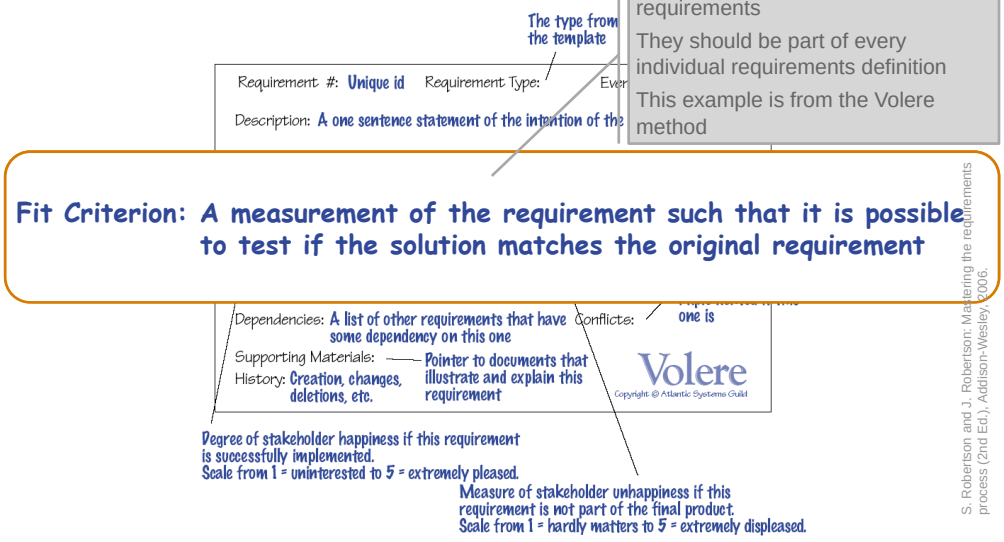
RM tools can significantly ease implementation and practice of these principles

Fit Criterion: Link RM with Testing

Fit criteria establish testable requirements

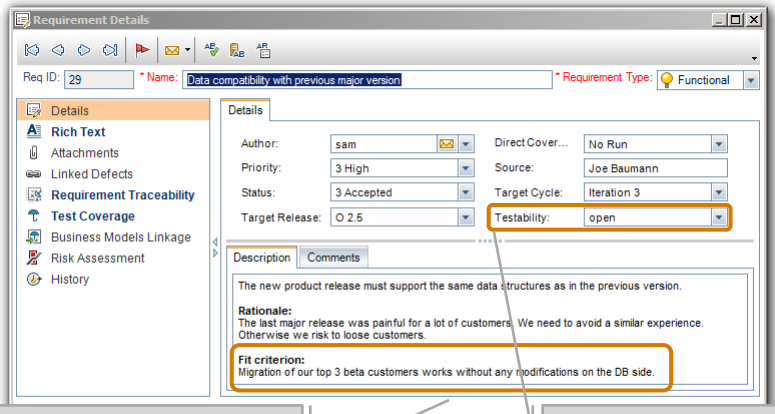
They should be part of every individual requirements definition

This example is from the Volere method



S. Robertson and J. Robertson: Mastering the requirements process (2nd Ed.), Addison-Wesley, 2006.

Requirements Definition in HP Quality Center



Here, the fit criteria is a section of a requirements definition template

It could as well be a separate requirements attribute

Testability attributes document review & acceptance of fit criteria

Improve RM Practices & Beyond

Modern RM tools can be an excellent vehicle for improving RM practices

RM tools can help to …

Make RM more effective & efficient

Increase involvement & interaction among RM actors & stakeholders

Integrate activities across the entire development lifecycle, starting with RM

Case Studies: Introduce & Consolidate Tool-Base RM

The following case studies illustrate possible implementations and benefit of RM tool support

Check out the original reports to learn more about them

Intel Mobile Communications: RM Tool Migration & Improvement

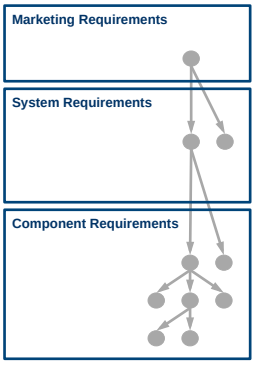
Migrate long-established tool-based RM practices to new tool generation

Continuously improve & align RM practices

Further advance large-scale catalog-based reuse

Request case study report from REConf 2014 by e-mail to info@swpm.de

Requirements Practices at Intel Mobile Communications since 2004



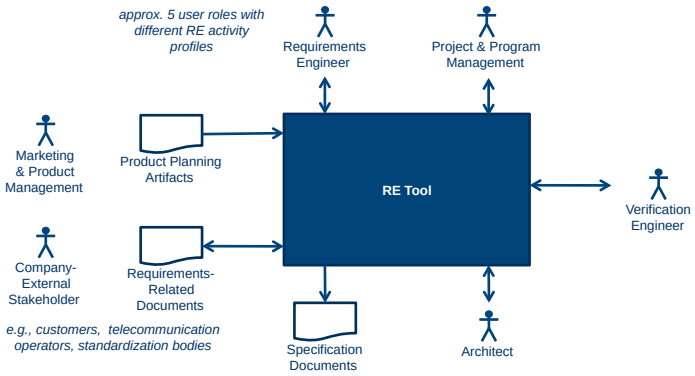
RE Team & Network

Various other user roles working with requirements

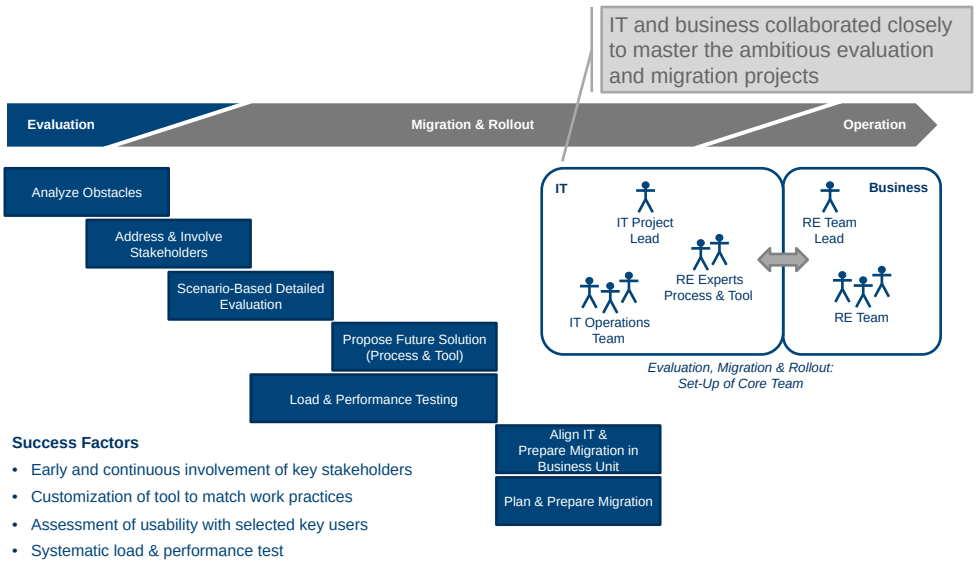
Key Characteristics

- Tool-based RM
- Central repository with several 10K requirements and for several hundreds of users
- Multi-stage requirements hierarchy from marketing requirements via system to component requirements
- Requirements traces from product management to component development and testing

Usage Context of RE-Tool



Overview of Evaluation Phase



Success Factors

- Early and continuous involvement of key stakeholders
- Customization of tool to match work practices
- Assessment of usability with selected key users
- Systematic load & performance test

Advantest: Establish New Agile RM Practices

Introduce new tool platform for request management, task management & requirements management (Jira & Jira Agile)

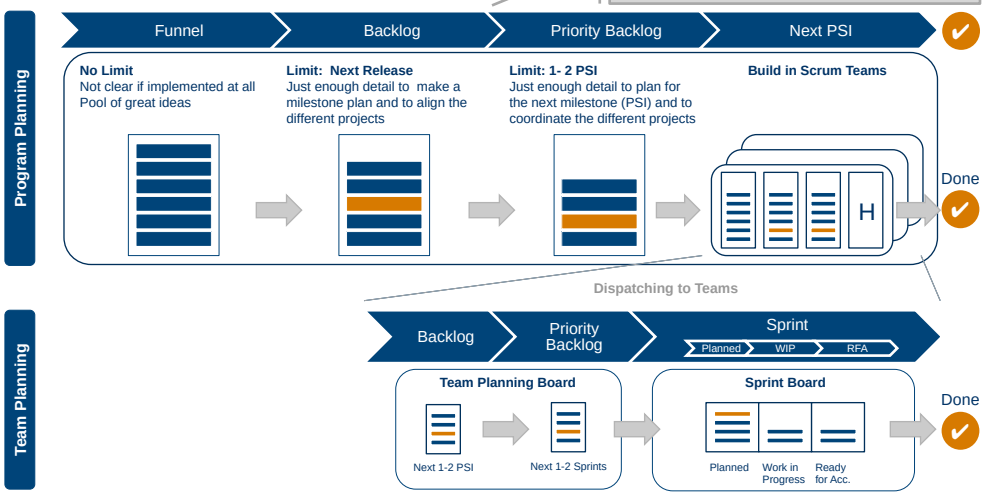
Introduce agile practices

Further integrate planning change for products & requirements

Request case study report from Scrum Day 2013 by e-mail to info@swpm.de

Requirements Structures & Workflow

RM tool effectively supports large-scale development activities across the entire product lifecycle



Establish Dependency Management

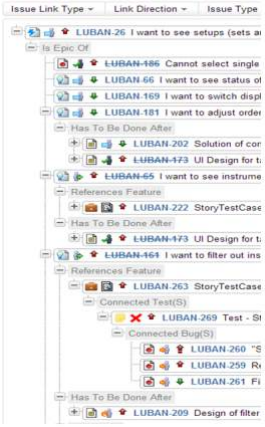
Dependency management could only be implemented with RM tool support

Integrate dependency management into the value chain model

- Identify & manage dependencies across projects
- Mark blocked & blocking items in the backlog
- Generate & visualize dependency trees

Quote of a product owner:

“Dependency management is still one of our most challenging areas, but we could not make it without our tool support.”



Key Achievements & Contributors

Key Achievements …	Due to ...
Transparency & focus across the entire organisation	▪ Requirement abstraction model ▪ Core contributions ▪ PSI planning ▪ Cadence & synchronisation
Effective & easy coordination	▪ User stories ▪ Acceptance tests ▪ Backlog grooming ▪ Using the Scaled Agile Framework
Successful planning & management of dependencies	▪ Synchronization of sprints ▪ Program and Scrum team planning ▪ Early tool support

Most key achievements have only been possible with RM tool support

It‘s All about People

Although modern RM tools can be an excellent support, primarily it is people who count

RM tool support shall be designed so that it helps people achieving their best job results

Let the system grow

Use agile principles that conform with existing culture

Start at the pain points

Keep activities focused on impediments

Try out new ideas & learn

When introducing RM tool support, start with simple solutions that can easily be used

Remove impediments fasts

If needed, extend the solutions

Image Source: Microsoft Clip Art, j0427683.jpg

Summary

Success Factors of Tool-Based RM

Introduce & establish tool-based RM using concrete usage scenarios (not checklist-based evaluation only)

Select application areas on current needs & capabilities

Ensure to integrate process & tool well with each other

Build people-centred support infrastructure & commitment

Improve continuously & grow gradually

Thank you!

Contact

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Blog & Resources
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