How to Select a Requirements Management Tool: Selection Criteria and Evaluation

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20th IEEE Requirements Engineering Conference (RE’12) -- September 27, 2012
Let’s agree …

**Requirements management**: The activity concerned with the effective **control** of information related to stakeholder, system and software requirements and, in particular, the preservation of the integrity of that information for the life of the system and with respect to changes in the system and its environment. Requirements management depends upon requirements **traceability** as its enabling mechanism.

**Requirements management tools**: Tools that support requirements management.

Which RM tool?
What kind of tools exist to support the requirements management process?

Which tasks can be supported by requirements management tools?

When should I use a tool for requirements management?

How well do the different categories of tool support the tasks of requirements management?

How can I identify the right tool for my project and my organization?

Which requirements management tool do you recommend?

How can I optimize the tool support?

No-one is using the requirements management tool – what do I do?
What this mini-tutorial WON’T do

- Repeat the earlier tutorial and all the basics
- Recommend a RM tool for you

What this mini-tutorial WILL do

- Suggest a process to help you figure it out *for yourself*
- Describe what one particular company did

Primary audience

- Practitioners who know what RM is and what tools do
- Practitioners looking for a place to start or model to follow
• Motivation, objectives and assumptions
• High-level process guide
• Seilevel’s 3-phase process
• Seilevel’s results (to date)
• Conducting your tool evaluation
- Motivation, objectives and assumptions
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Which do you recommend?
Laundry tablets

Remove stains from your washing

Four Which? Best Buys to pop into your machine. Which? review of pre-measured powder tablets and liquid sachets. Ariel, Bold, Daz, Fairy and Surf face the supermarket brands. How to remove tough stains from your laundry. What detergents are recommended for sensitive skin.

In our full report you can see...

Best Buys
Pick from our Best Buys to obtain better all-round cleaning.

Don’t Buys

Full test results
Discover how well the range of tablet and sachet detergents work.

Sign up to read the full Best Buy review
1 month trial for just £1.00

Existing subscriber?
Log in for full access

www.which.co.uk
Which do you recommend?
www.consumerreports.org
Requirements Management (RM) tools

Accept 360°  Accompa  Arcway  Cockpit  Avenqo PEP  Blueprint  Caliber  CaseSpec  Cognition  Cockpit  Contour  Core  Cradle  DevSpec  Dimensions RM  Dolphin  DOORS  DXL_Editor (for DOORS)  FeaturePlan  Focal Point  GatherSpace  G-Marc  inteGREAT  iRise  IRQA  jUCMNav  Leap SE  LiteRM  MKS Integrity  Objectiver (for KAOS method)  OnTime  OneDesk  Pace  Polarion  PTESY  QPack  RaQuest  Raven  ReMa  RequisitePro  ReQtest  RequirementOne  Requirements  Requirements Management Database  RequirementPro  RESDES  Rhapsody  RMtoo  Rommana  RQA  SpiraTeam  Teamcenter  TopTeam Analyst  Tormigo  TrackStudio

Which do you recommend?

www.easyweb.easynet.co.uk/~iany
### Checklists

<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Does the tool support analysis of existing documentation?</td>
<td>Y / N</td>
</tr>
<tr>
<td>2</td>
<td>Does the tool support automatic parsing of documents?</td>
<td>Y / N</td>
</tr>
<tr>
<td>3</td>
<td>Can the tool compare different versions of the same document (detect changes)?</td>
<td>Y / N</td>
</tr>
<tr>
<td>4</td>
<td>Does the tool support the reading of requirements from external tools?</td>
<td>Y / N</td>
</tr>
<tr>
<td>5</td>
<td>Does the tool support requirements traceability?</td>
<td>Y / N</td>
</tr>
<tr>
<td>6</td>
<td>Does the tool have the capability to categorize requirements as they are elicited and documented?</td>
<td>Y / N</td>
</tr>
<tr>
<td>7</td>
<td>Can the tool capture or generate graphical representations (system architecture, analysis graphs, tables, etc.) of the system?</td>
<td>Y / N</td>
</tr>
<tr>
<td>8</td>
<td>Can the tool link requirements to other system elements (use cases, design, code, test cases, etc.)</td>
<td>N / Y</td>
</tr>
<tr>
<td>9</td>
<td>Does the tool support the association of attributes to every requirement?</td>
<td>Y / N</td>
</tr>
<tr>
<td>10</td>
<td>Can the tool detect inconsistencies in requirements (incomplete traceability links, missing attributes, etc.)?</td>
<td>Y / N</td>
</tr>
<tr>
<td>11</td>
<td>Does the tool provide information of requirements verification (whether a requirements was implemented or not, who did it and when)?</td>
<td>Y / N</td>
</tr>
<tr>
<td>12</td>
<td>Does the tool maintain a history of requirements changes?</td>
<td>Y / N</td>
</tr>
<tr>
<td>13</td>
<td>Does the tool have the ability to baseline requirements document and then compare different baseline?</td>
<td>Y / N</td>
</tr>
<tr>
<td>14</td>
<td>Does the tool provide security to prevent inadvertent or malicious modifications to information?</td>
<td>Y / N</td>
</tr>
<tr>
<td>15</td>
<td>Does the tool support the generation of the Software Requirements Specification (SRS) in standardized formats?</td>
<td>Y / N</td>
</tr>
<tr>
<td>16</td>
<td>Does the tool check for inconsistencies (spelling errors, etc.) in the SRS?</td>
<td>Y / N</td>
</tr>
<tr>
<td>17</td>
<td>Does the tool support querying?</td>
<td>Y / N</td>
</tr>
<tr>
<td>18</td>
<td>Does the tool integrate with other CASE tools?</td>
<td>Y / N</td>
</tr>
<tr>
<td>19</td>
<td>Does the tool provide publishable web interfaces?</td>
<td>Y / N</td>
</tr>
<tr>
<td>20</td>
<td>Does the tool support communication among team members?</td>
<td>Y / N</td>
</tr>
<tr>
<td>21</td>
<td>Is support offered for single and multiple concurrent users?</td>
<td>Y / N</td>
</tr>
<tr>
<td>22</td>
<td>Which platforms and operating systems does the tool run on?</td>
<td>Y / N</td>
</tr>
<tr>
<td>23</td>
<td>Does the tool use a commercial or a proprietary database to store requirements?</td>
<td>Y / N</td>
</tr>
<tr>
<td>24</td>
<td>What are the hardware and software requirements for the tool?</td>
<td>Y / N</td>
</tr>
<tr>
<td>25</td>
<td>Does the tool provide an interface for manipulating information?</td>
<td>Y / N</td>
</tr>
<tr>
<td>26</td>
<td>Does the tool manage change by adjusting for a change in all pertinent places?</td>
<td>Y / N</td>
</tr>
<tr>
<td>27</td>
<td>Does the tool support web access to the information stored in the database?</td>
<td>Y / N</td>
</tr>
<tr>
<td>28</td>
<td>Does the tool have a warranty?</td>
<td>Y / N</td>
</tr>
<tr>
<td>29</td>
<td>Are user manuals online or hard copies are provided?</td>
<td>Y / N</td>
</tr>
<tr>
<td>30</td>
<td>What kind of support does the vendor provide?</td>
<td>Y / N</td>
</tr>
</tbody>
</table>

“Requirements Management Tools: A Qualitative Assessment”  
by Sud and Arthur
INCOSE requirements management tools survey

![Table of requirements management tools](www.incose.org/ProductsPubs/products/toolsdatabase.aspx)
Learning from others

Seilevel Requirements Management Tool Evaluation – Part 1

June 27, 2011  Joy Beatty  2 Comments

9/22/11 IMPORTANT NOTE AND UPDATE: We have updated the criteria and tool scores — please go to this post for the most current material. Also, there is a known issue for Excel 2003 users that is fixed in the update - click here for the updated material that addresses this issue.

We have decided to do a requirements management tool research study, much like we did back in 2007. One of the main reasons for doing this is that we have found the tool landscape has changed dramatically in the last 4 years, with many new vendors showing up as strong contenders in this space. In addition, beyond looking for the best tools for Seilevel to use, we actually want to understand how the tools compare against one another in general, beyond just our needs.

With this year’s study, we are making some changes to the process this time around, and our new research approach is:

1. Compile a complete list of possible requirements tools
2. Compile a list of prioritized features for a tool, or "criteria"
3. Filter that tool list down to ones that look like they could be considered requirements management tools (as compared to requirements definition tools, prototyping tools, or agile tools)
4. Evaluate all of the requirements management tools against the first pass criteria (31 items from the full list)
5. Evaluate the top 15-20 tools from the first pass evaluation against the full criteria list (200 items)
6. Have the top 15-20 vendors self-evaluate their tools against our criteria, looking for any discrepancies
7. Publish the results for the industry to review

We are currently in this first phase at step 5 and 6 simultaneously and hope to have the results soon. But before waiting any further, I want to share the criteria and the original tool list with a larger audience, so you can find it on our templates page at Requirements Management Tool Evaluation for Business Analysts. I am certainly interested in any feedback if you find criteria you think are missing or mis-prioritized, as well as any additional tools you think we should be considering but are not. As you look at this list, you may see some

Welcome to the Seilevel Software Requirements Blog.

On this blog, we discuss everything about software requirements.

This is your resource for posts on Business Requirements Analysis, Requirements Elicitation, Facilitation and Traceability, and best practices and tips for Business Analysts and Business Architects, direct from the expert practitioners at Seilevel. You’ll find software requirements “how to’s”, opinions, best practices, tips, and information on Requirements Modeling Language (RML), Requirements Object Model (ROM), working with use cases, and other documentation such as BAD/SRS.

This blog features helpful tips on picking Requirements Tools, and even selecting a vendor. We also post on Waterfall and Agile development, and provide helpful advice for requirements planning, tracking and metrics.

If you are a member of IIBA, are a CBAP or CCBA, a new business analyst, or an IT product manager, project manager, requirements analyst, this blog is a great resource for professional growth and career advancement.

And if you’re a business architect or manage business analysts, want to mature your business analyst organization, or want to cut scope while increasing value, you’ve found the right community.

When you’re ready to learn about how Seilevel can help, via training, workshops, or requirements services, let me know. I’m Lori Witzel, Director of Marketing at Seilevel, and we’re ready to help.

www.requirements.seilevel.com/blog
- Motivation, objectives and assumptions
- High-level process guide
- Seilevel’s 3-phase process
- Seilevel’s results (to date)
- Conducting your tool evaluation
High-level process guide

1. Agree on the problem and terminology
2. Understand the problem and commit to tackling it
3. Identify stakeholders
4. Determine requirements and constraints
5. Design the wider requirements management system
6. Assess and select tools
7. Plan for tool introduction, adoption and ongoing use

“Acquiring Tool Support for Traceability” by Gotel and Mäder
1. Agree on the problem and terminology

*Aim:* To discuss and agree on the core problem the organization hopes to address by introducing a RM tool

*Result:* The primary business driver is agreed and stakeholders recognize they are acquiring a tool to support the wider RM system

*Warning:* When there is the perception that a tool is going to solve all the RM-related problems of an organization
WHAT RM can and can’t deliver

- Unambiguous, complete, correct requirements – NO! That’s the realm of writing better requirements, and performing effective reviews and validation

- Reduction in requirements-related defects – NO! That’s reliant on the quality of requirements development practices, so can still deliver the wrong requirements (GIGO)

- Useful analyses – YES! Completeness, coverage, compliance, risk, status, derivation, volatility, likely quality, gaps, criticality, change impact, V&V, complexity, failure probability, etc.

**Agree** the core problem to be solved and scope it!
2. Understand the problem and commit to tackling it

**Aim:** To explore and define the underlying nature of the problem to be tackled and quantify the improvements sought from a new or improved RM system

**Result:** An approved business case for a process improvement initiative that will [re] design the RM process and investigate tool acquisition, with management sponsorship, leadership and team buy-in

**Warning:** When no measurable business goals for a new or improved RM system are articulated
WHAT is typically expected from RM?

- Better quality requirements
- Better ability to plan, estimate, allocate, track and control work
- Better ability to manage changing requirements
- Better ability to branch and backtrack
- Better project memory and continuity
- Better ability to reuse work
- Better ability to (demonstrably) meet contracts
- Better use of time etc.

But how much better?
3. Identify stakeholders

**Aim:** To conduct a systematic analysis of those who have something to gain or lose from a new or improved RM system

**Result:** A prioritized list of stakeholders to guide requirements determination and decision-making

**Warning:** When key stakeholders are not identified and whole constituencies are overlooked
4. Determine requirements and constraints

Aim: To specify the requirements and constraints of those (key) stakeholders involved with establishing and using the products of RM

Result: A set of detailed scenarios of use for the (key) stakeholders, which highlight the artifacts to be managed, the nature of the traceability required, the workflow that needs to be supported and the uses to which the traces need to be put

Warning: When only the desirable features of a RM system have been explored in the requirements gathering process
Lock or baseline all requirements under review

Identify and inform reviewers

Provide access to the requirements for each reviewer

Let reviewer comment on each requirement

Provide aggregated view with all comments on each requirement

Check each requirement has been commented or viewed by each reviewer

Store review board decision on each requirement

Perform changes to requirement
5. Design the wider requirements management system

Aim: To design the new or improved RM system and establish the scope of any potential tool support within it

Result: A systemic solution to RM is created that weaves together people, process and tools

Warning: When the encompassing software and systems development lifecycle, with its supporting tools, is not taken into account in the design process
People and Other Resources

- Generally an underlying database: open, multiple media, multi-user, etc.

Data Repository

- How the various RM activities are to be performed and supported

Process

- Policies and procedures to weave people and activities together

An RM system

- Clear roles and responsibilities for undertaking the activities

Techniques, Methods and Tools
6. Assess and select tools

**Aim:** To assess which category of tool best supports the new or improved RM system and its organizational context, if any, and evaluate and select among options

**Result:** A decision with respect to tool support for the new or improved RM system

**Warning:** When a tool is selected based on it having the most plentiful or attractive features, or simply because it is open-source and misconstrued as free
Vendor details:
- Company background & financials
- Capabilities & resources

Product details:
- Market share
- Strategy roadmap & stage in lifecycle
- Development paradigm supported
- Features & traceability questions (Fig. 5)
- Platform & infrastructure requirements
- Integration & extensibility

Fit criteria:
- Ranked requirements & scenarios of use
- Context fit, constraints & prior knowledge

Implementation details:
- Project plan – team, preparation, installation, ongoing...
- Service level agreements – training, consulting...
- Total cost of ownership – initial, operating, recurring...

Reference customers & sites:
- Challenges & lessons
7. Plan for tool introduction, adoption and ongoing use

*Aim:* To plan and manage a tool’s introduction, adoption and ongoing viability as part of a new or improved RM system

*Result:* The wider environment for tool introduction, adoption and ongoing use is prepared; people are trained in the process and tool, roles and responsibilities are defined, mentors are assigned, and stakeholders are motivated and incentivized

*Warning:* When a tool is introduced on a high-profile project without sufficient attention to preparing the people in the process that is needed to make it succeed
High-level process guide

1. Agree on the problem and terminology
2. Understand the problem and commit to tackling it
3. Identify stakeholders
4. Determine requirements and constraints
5. Design the wider requirements management system
6. Assess and select tools
7. Plan for tool introduction, adoption and ongoing use

“Acquiring Tool Support for Traceability” by Gotel and Mäder
- Motivation, objectives and assumptions
- High-level process guide
- Seilevel’s 3-phase process
- Seilevel’s results (to date)
- Conducting your tool evaluation
1. Agree on the problem and terminology
What was the motivation?

- In 2007 Seilevel conducted RM tool evaluation
- Tool landscape has changed dramatically since
  - Over 100 tools in the market now that promote RM support
- Each tool differs on:
  - Price (e.g., $8000 per license vs. free)
  - Feature set (e.g., multi-user access control, bulk-entry of requirements, dashboard metrics, custom tracing models)
  - Infrastructure (e.g., web-based vs. desktop application)
  - Training needed (e.g., on-site consultants vs. none offered)
  - Service and warranty (e.g., multi-years of tool customizations and service packs vs. no warranty or support).

-> Extremely challenging to select right RM tool!
Seilevel is a requirements consulting company.

Services include: supporting requirements development, RE process improvement, advise on RM tools and RE training.

Two needs for RM tool evaluation:

1. Improved consulting service to customers to advise on RM tool selection
2. Many customers still use MS Word and Excel for RM tooling
3. Select general purpose tool to use “in-house” for requirements development
2. Understand the problem and commit to tackling it
RM tool problems

- RM tools did not facilitate fast drafting of requirements (like in Excel)
- Lack of integrated requirements modeling, especially process flows
- Time consuming to capture customer source information, especially for changes to requirements (e.g., e-mails, meeting minutes, notes, memos, phone calls)
- Requirements review workflows and validation sessions not well integrated in tools
- Time consuming and overtly complex to setup “requirements architecture”
- Difficult to customize reports and metrics for requirements and project managers
Seilevel’s RM process

- RM process is highly dependent on customer project – no standard process used
- Caliber RM was tool of choice after 2007 evaluation
- Last couple of years no standard tools were used
- Needed general-purpose tool that could fit variety of projects and addressed key problems
3. Identify stakeholders
Key stakeholders

• Most Seilevel employees are business analysts so the main stakeholder role is business analyst

• Also considered:
  • Requirements managers
  • Project managers
  • Tool administrators
  • V&V
  • Developers
Stakeholder engagement

- Stakeholders were interviewed throughout the process to determine RM tool criteria, priority and to validate results

- Stakeholder representatives came from:
  - Seilevel employees
  - Customer representatives
  - Tool vendors
  - Colleagues from other organizations
4. Determine requirements and constraints
Elicitation process

- 2007 evaluation had list of 100+ RM tool features that were determined from stakeholders
  - Interviews with stakeholders were conducted
    - Focused on “pain points” when working with existing RM tools
  - Observations from business analysts working in practice were recorded
  - High-level use cases were explored with stakeholders
5. Design the wider requirements management system
Wider RM system

- RM tool also had to integrate with other customer tools (E.g., MS products, TFS, HP QC, Development Environments)

- RM tool had to integrate with other lifecycle processes (e.g., project management, release management, development, V&V)

- Selection criteria were then based on RM tooling needs and interaction with other tools and processes
Design of evaluation criteria

- RM tool use cases were categorized (e.g., review, writing requirements, requirements architecture, analysis, modeling)
  - Each use case was associated with specific features (i.e., the criteria)
- The use cases and features were separately prioritized
- Prioritization was validated by stakeholders
- Result: 200+ features associated with approximately 40 use cases
## Sample RM tool criteria

<table>
<thead>
<tr>
<th>ID</th>
<th>Use Case</th>
<th>UC Priority</th>
<th>Category</th>
<th>First Pass</th>
<th>Feature</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BA adds new requirements individually</td>
<td>3</td>
<td>Edits</td>
<td>obvious?</td>
<td>Add new requirement</td>
<td>3</td>
</tr>
<tr>
<td>11</td>
<td>BA makes updates to requirements</td>
<td>3</td>
<td>Edits</td>
<td>obvious?</td>
<td>Edit requirements</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>BA adds a bulk of new requirements at once</td>
<td>3</td>
<td>Import</td>
<td>yes</td>
<td>Automatically identify requirements from external text document by keywords, structure, etc. (e.g., specify what keywords to search for in the doc and import based on those)</td>
<td>3</td>
</tr>
<tr>
<td>9</td>
<td>BA adds a bulk of new requirements at once</td>
<td>3</td>
<td>Import</td>
<td>yes</td>
<td>Batch import structured data as new requirements from Excel (e.g., import Excel file of previously developed requirements into the new managed system)</td>
<td>3</td>
</tr>
<tr>
<td>13</td>
<td>BA is trying to find gaps in requirements</td>
<td>3</td>
<td>Traceability</td>
<td>yes</td>
<td>Create links between requirements of the same type</td>
<td>3</td>
</tr>
<tr>
<td>15</td>
<td>Look at a set of requirements to take action on a group of them</td>
<td>1</td>
<td>Custom views</td>
<td>yes</td>
<td>Filter a view of requirements by criteria (e.g., view all requirements in Draft status)</td>
<td>3</td>
</tr>
<tr>
<td>25</td>
<td>BA is trying to find gaps in requirements</td>
<td>3</td>
<td>Traceability</td>
<td>yes</td>
<td>Traceability analysis to identify missing links within the requirements (e.g., funcional requirement orphans not linked to a use case)</td>
<td>3</td>
</tr>
<tr>
<td>31</td>
<td>BA exports requirements for review outside the tool</td>
<td>3</td>
<td>Export</td>
<td>yes</td>
<td>Export requirements to Word (doc or rft)</td>
<td>3</td>
</tr>
<tr>
<td>36</td>
<td>Requirements architect wants to setup information management structure for the project</td>
<td>3</td>
<td>Requirements architecture</td>
<td>yes</td>
<td>Define what data should be captured for each type of requirement (i.e., create custom data fields, specify if the information is required/optional, etc.)</td>
<td>3</td>
</tr>
<tr>
<td>39</td>
<td>Requirements architect wants to setup information management structure for the project</td>
<td>3</td>
<td>Requirements architecture</td>
<td>yes</td>
<td>Group requirements by project (i.e., system supports multiple projects)</td>
<td>3</td>
</tr>
<tr>
<td>41</td>
<td>BA rolls back/Reviews a prior set of requirements</td>
<td>2</td>
<td>Baselines</td>
<td>yes</td>
<td>Create baselines of the requirements</td>
<td>3</td>
</tr>
<tr>
<td>46</td>
<td>BA wants to understand what changes were made to a requirement</td>
<td>2</td>
<td>History</td>
<td>yes</td>
<td>Automatically maintain audit trail for requirement changes (user, time/date, annotation of change, and change detail)</td>
<td>1</td>
</tr>
<tr>
<td>58</td>
<td>IT enhances functionality of the RM tool</td>
<td>1</td>
<td>Extensibility</td>
<td>yes</td>
<td>External API available</td>
<td>1</td>
</tr>
<tr>
<td>61</td>
<td>BA is offline and needs to continue work on the requirements</td>
<td>3</td>
<td>Offline/Online</td>
<td>yes</td>
<td>Provide ability to work disconnected (i.e., no connection to requirements repository) and merge changes upon reconnecting (may require user to trigger)</td>
<td>1</td>
</tr>
<tr>
<td>75</td>
<td>BA wants help on how to use the tool</td>
<td>2</td>
<td>Help</td>
<td>yes</td>
<td>Availability of documentation (either online, soft-copy, or hard-copy)</td>
<td>1</td>
</tr>
</tbody>
</table>
6. Assess and select tools
## Evaluation approach

<table>
<thead>
<tr>
<th>Evaluation Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Create a complete list of possible requirements tools for evaluation</td>
</tr>
<tr>
<td>2 Create a prioritized list of criteria for the tools</td>
</tr>
<tr>
<td>3 Select a shorter list of “first pass” criteria</td>
</tr>
<tr>
<td>4 Filter tool list for strict RM tools</td>
</tr>
<tr>
<td>5 Publish the RM tool criteria and list for industry review</td>
</tr>
<tr>
<td>6 Evaluate the full RM tool list against the “first pass” criteria</td>
</tr>
<tr>
<td>7 Evaluate top 17 tools from initial evaluation against full criteria list</td>
</tr>
<tr>
<td>8 Have vendors evaluate their tools against the same criteria</td>
</tr>
<tr>
<td>9 Publish the detailed RM tool evaluation results for industry review</td>
</tr>
<tr>
<td>10 Evaluate the top 3-4 tools on customer projects</td>
</tr>
<tr>
<td>11 Publish the RM tool evaluation results from on-project use</td>
</tr>
</tbody>
</table>
Evaluators

- Seilevel employees and external consultants not affiliated with any vendor
  - Unlike INCOSE survey where only the vendors provide the evaluations
- Vendors also evaluate their own tool
Create initial list of candidate tools

- Initial list of RM tools was based on:
  - Past knowledge about RM tools
  - INCOSE RM tool survey
  - Internet search results for tools that promote RM features
  - Colleagues and tool vendor representatives
  - Customers’ existing RM tools

- Approximately 125 RM tools on initial list

- Quick analysis revealed that approximately 60 tools dealt more with requirements definition, mockups and agile-specific

- Exclusions resulted in list of approx. 60 tools
Reduce initial RM tool list

- Not feasible to evaluate 60 tools against 200+ criteria
- 30 “first pass” criteria (e.g., essential features) were identified which the 60 tools were evaluated against
- Resulted in shorter list of 17 tools which were evaluated on all 200+ criteria
- All 200+ criteria grounded in business priorities and use cases
# Short list of tools

<table>
<thead>
<tr>
<th>IBM Rational DOORS</th>
<th>HP Quality Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>Siemens Teamcenter</td>
<td>Orcanos Qpack</td>
</tr>
<tr>
<td>Blueprint Requirements Center</td>
<td>TraceCloud</td>
</tr>
<tr>
<td>eDevTech inteGREAT Requirements Studio</td>
<td>Sparx Systems Enterprise Architect</td>
</tr>
<tr>
<td>IBM Rational Composer</td>
<td>Kovair Application Lifecycle Management</td>
</tr>
<tr>
<td>3SL Cradle</td>
<td>TechnoSolutions TopTeam Analyst</td>
</tr>
<tr>
<td>Microsoft Team Foundation Server</td>
<td>MKS Integrity</td>
</tr>
<tr>
<td>Jama Software Contour</td>
<td>Micro Focus Caliber RM/RDM</td>
</tr>
<tr>
<td>Polarion Requirements</td>
<td></td>
</tr>
</tbody>
</table>
Scoring process

For each tool, each of the criteria was given a score based on the following scale:

<table>
<thead>
<tr>
<th>Score</th>
<th>Feature Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Fully supported in the tool</td>
</tr>
<tr>
<td>2</td>
<td>Supported but minor workarounds required or detailed functionality missing</td>
</tr>
<tr>
<td>1</td>
<td>Only slightly supported with major workarounds needed</td>
</tr>
<tr>
<td>0</td>
<td>No Support</td>
</tr>
</tbody>
</table>
Tool scores calculated from following formulas:

Weighted Score of Criteria = 

Criteria Priority X Tool Score for Criteria

Total Score of Tool = 

Sum of Weighted Scores for all Criteria
Vendor evaluation

- Vendors could also evaluate their own tool against the 200+ criteria
  - This ensured Seilevel evaluators did not miss features
  - Where discrepancies, Seilevel evaluators followed up for further demonstration from the vendor
7. Plan for tool introduction, adoption and ongoing use
What to do next?

- Select top 3-4 tools from full evaluation
- Contact vendors for full demo versions to use in practice on customer projects
- Evaluate tools against original criteria with additional focus on NF qualities (e.g., usability, performance, reliability, configurability and scalability)
- Look for results to be presented at RE 2013!
Motivation, objectives and assumptions

High-level process guide

Seilevel’s 3-phase process

Seilevel’s results (to date)

Conducting your tool evaluation
## Overall results

<table>
<thead>
<tr>
<th>Tool</th>
<th>Score</th>
<th>Tool</th>
<th>Score</th>
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</thead>
<tbody>
<tr>
<td>eDevTECH inteGREAT Requirements Studio</td>
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<td>4841</td>
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<tr>
<td>Blueprint Requirements Center 2010</td>
<td>5378</td>
<td>Kovair Application Lifecycle Management</td>
<td>4737</td>
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<tr>
<td>TechnoSolutions TopTeam Analyst</td>
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<td>IBM Rational DOORS</td>
<td>4718</td>
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<td>Sparx Systems Enterprise Architect</td>
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<td>HP Application Lifecycle Management</td>
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<td>TraceCloud</td>
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<tr>
<td>Microsoft Team Foundation Server</td>
<td>3438</td>
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</table>

Max. Score is 5753
## Best in categories

<table>
<thead>
<tr>
<th>Requirements Architecture</th>
<th>Score</th>
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<tbody>
<tr>
<td><strong>Kovair</strong></td>
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<td><strong>IBM Rational</strong></td>
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<tr>
<td>Composer</td>
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<td><strong>MKS</strong></td>
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<td>Integrity</td>
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<td><strong>Writing</strong></td>
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<tr>
<td>Caliber RM/RDM</td>
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<td><strong>Orcanos</strong></td>
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<table>
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<td><strong>3SL</strong></td>
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<tr>
<td>Cradle</td>
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<tr>
<td><strong>Kovair</strong></td>
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<td>Application Lifecycle Management</td>
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<table>
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<td><strong>Blueprint</strong></td>
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<td><strong>TechnoSolutions</strong></td>
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<tr>
<td>Top Team Analyst</td>
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</tr>
<tr>
<td>Review &amp; Collaboration</td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------</td>
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<tr>
<td>MKS</td>
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<td>Integrity</td>
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<td>Polarion</td>
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<td>Requirements</td>
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</table>

<table>
<thead>
<tr>
<th>Ease of Use</th>
<th></th>
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<tbody>
<tr>
<td>eDevTech</td>
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<td>Siemens</td>
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<td>Teamcenter</td>
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<tr>
<td>TechnoSolutions</td>
<td>646</td>
</tr>
<tr>
<td>Top Team Analyst</td>
<td></td>
</tr>
</tbody>
</table>
Pros

- Feature rich tool – directly supports almost every feature or only simple workarounds needed
  
  - Excellent support for modeling process flows directly in tool with Visio
  
  - Highly Configurable for any project context

Cons

- Does not support all types of visual models

- Does not come with integration support for many ALM platforms (focused on MS platform)
Pros

• Arguably the best feature set for requirements definition, especially for modeling

• Visual mockups can be created and fully traced to use cases and requirements

• UI is very appealing

Cons

• Lacks workflow engine

• Limited support for automatically detecting traceability inconsistencies
Pros

- Feature rich tool – almost every feature supported
- Vendor is quick to provide updates or customizations for enhanced feature support
- Simple and familiar UI (MS-based) reduces training to learn tool
- Excellent use case support

Cons

- Many types of models cannot be developed within tool
- Modeling not as intuitive as using an external tool such as Visio
Pros

- Strong support for report generation to track requirements project progress
- Customizable requirements data views
- Very good for mockups, simulations, and visual modeling

Cons

- Lack of issue tracking
- Drafting many requirements is slow
- UI is dated compared to newer tools
MKS Integrity

Pros
- Excellent workflow capabilities
- Requirements can be traced and reused across multiple projects in an organization
- Comes with templates for different types of industries

Cons
- High degree of effort to introduce tool in organization
- Slightly dated UI compared to other tools
3SL Cradle

Pros

• Very well-rounded feature set, focuses on breadth of RM

• Best cost-per-feature tool in the evaluation

• Vendor provides on-site training to ensure users can efficiently use tool

Cons

• UI can be difficult to navigate

• BA workflows are slow for many of the tool’s features
Siemens Teamcenter

**Pros**
- Strong project management support directly in tool
- MS Word documents can be worked on directly in tool
- Full ALM suite provides integrated support to other development processes (e.g., development and testing)

**Cons**
- Visual requirements techniques are somewhat lacking (e.g., no storyboard support)
- Traceability features not as rich as other tools
IBM Rational Composer

Pros

- Appealing web-based UI
- Easy to get started – little training required for the basics
- Great support for process flow modeling
- Support for agile artifacts such as user stories and burndown reports

Cons

- No offline support at all
- Process to move requirements in the hierarchy is cumbersome
- Lacking overall RM feature set seen in other tools
Polarion Requirements

Pros

• Excellent synchronization with MS Office and Excel

• Easy to setup and enforce requirements workflows

• Requirements review capabilities better than most tools

Cons

• Cumbersome to navigate certain functions in the tool (this is issue with most web-based tools)

• Not as fully-featured as some other tools
Kovair ALM

**Pros**
- Offers higher degree of customization (data and workspace) than any other web-based RM tool
  - Highly-customizable tracing and policy engine
  - Provides full integration with other development processes

**Cons**
- Limited in its modeling features
- Slightly dated UI and application complexity will lead to high-degree of time to incorporate tool in organization
IBM Rational DOORS

Pros

• Most mature and stable RM tool due to extensive lifecycle
• Very customizable with provided scripting language
• Advanced traceability, reporting and querying capabilities
• Can handle large volumes of data

Cons

• Dated UI compared to newer tools
• Features often buried or requires additional modules or customization
• Limited modeling or visual requirements support
Pros

• Compared to other web-based tools, many functions can be performed quickly with its intuitive UI

• Well-rounded RM and requirements definition feature set

• Strong review and collaboration support

Cons

• Almost no requirements modeling capabilities

• Linking to externally created requirements modeling can be cumbersome
Orcanos QPack

Pros
- Provides standardized templates and project setups for regulatory domains, in particular for healthcare
- Well-rounded RM feature set
- Supports issue tracking and test management

Cons
- No support for visual modeling in tool
- Lack of integration with external visual modeling tools means tracing to models is cumbersome
Pros

• Promotes model-driven development with integrated RM

• Supports wide range of modeling (including requirements and other development processes)

• One of the more cost-effective integrated tools with RM

Cons

• Overall RM functionality is quite limited compared to dedicated RM tools

• MS Excel and Word importing and exporting is cumbersome compared to other tools
Pros

- Excellent integration between testing artifacts and requirements
- Extensive reporting features for test coverage of requirements
- Reliable tool used widely in practice

Cons

- Limited RM tooling support – predominantly testing tool
- Limited requirements modeling support
Tracecloud

Pros

- Very easy to get setup and configured
- Comprehensive feature set for a web-based tool
- Vendor quite active with tool updates

Cons

- Very little integration options with external tools for other development processes
- No API to extend functionality of tool
- UI can be slow
MS Team Foundation Server

**Pros**
- Capability to trace requirements into source code
- For a more development-based platform, does contain RM features such as setting requirements attributes, tracing and metrics
- Integrates RM with project management, development and testing

**Cons**
- Not a RM tool therefore not nearly as feature rich as dedicated RM tools
- Lacks rich text formatting
- Does not support requirements modeling
Motivation, objectives and assumptions
High-level process guide
Seilevel’s 3-phase process
Seilevel’s results (to date)
Conducting your tool evaluation
YOUR tool evaluation

- No “perfect” RM tool to recommend for all organizations
- Don’t select a tool based on it having the most features … think about it supporting *your* goals, *your* context and *your* most valued scenarios (think **7-step process**)
- An RM tool is *not* going to solve *all* your requirements-related problems – know your *drivers*
- Articulate stakeholders, goals and design/select a RM **system** (people, process, tools…) to satisfy them (i.e., generate criteria)
- Seilevel’s tool evaluation process and supporting templates *can* help organizations efficiently determine candidate tools
- But, presented results are based on Seilevel priority, so be sure to **re-examine and re-prioritize** for your organization
- Don’t under-estimate the need to exercise trial versions, gain buy-in, make preparations and the total cost of ownership
Which RM tool?

Tools can EITHER make your RM system more efficient and effective OR lead you to no end of problems… it’s up to you!
Resources & thanks


Seilevel white papers: www.seilevel.com/ba-resources/requirements-tools-reviews/

- “How to Evaluate and Select a Requirements Management Tool” by Joy Beatty and Remo Ferrari

- “Seilevel’s Evaluations of Requirements Management Tools: Summaries and Scores” by Joy Beatty, Remo Ferrari, Balaji Vijayan and Savitri Godugula

- Requirements tool evaluation scores (Excel spreadsheet)

About Seilevel

“Professional services company focused on helping Fortune 1000 clients redefine the way they create software requirements in order to achieve their business objectives”

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