The Economics of Requirements Optimization
2 Key Points

• Implement Agile
• Implement 3D Requirements Process
Trends - Software project success

Project resolution from 2010 CHAOS Research.
$1.00 Software

ONLY

$0.60 Value
82% of application rework is due to requirements errors.

44% of projects are cancelled due to problems with requirements.

50% of requirements defects are due to incorrectness.

50% of requirements defects relate to incompleteness.
How much do you waste on rework – every year?

<table>
<thead>
<tr>
<th>Number of Developers</th>
<th>Your Annual People Cost</th>
<th>Your Annual Waste on Rework</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>$3,750,000</td>
<td>$1,500,000</td>
</tr>
<tr>
<td>50</td>
<td>$6,250,000</td>
<td>$2,500,000</td>
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<tr>
<td>100</td>
<td>$12,500,000</td>
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<tr>
<td>200</td>
<td>$25,000,000</td>
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<tr>
<td>300</td>
<td>$37,500,000</td>
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<td>$62,500,000</td>
<td>$25,000,000</td>
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<tr>
<td>1000</td>
<td>$125,000,000</td>
<td>$50,000,000</td>
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<tr>
<td>3000</td>
<td>$375,000,000</td>
<td>$150,000,000</td>
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</table>
RDM Process
We’ve been talking about Requirements for a very long time...

<table>
<thead>
<tr>
<th>Level</th>
<th>Focus</th>
<th>Key Process Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 5</td>
<td>Optimizing</td>
<td>Defect Prevention, Technology Change Management, Process Change Management</td>
</tr>
<tr>
<td>Level 4</td>
<td>Managed</td>
<td>Quantitative Process Management, Software Quality Management</td>
</tr>
<tr>
<td>Level 3</td>
<td>Defined</td>
<td>Organization Process Focus, Organization Process Definition, Training Program, Integrated Software Management, Software Product Engineering, Intergroup Coordination, Peer Review</td>
</tr>
<tr>
<td>Level 2</td>
<td>Repeatable</td>
<td>Requirements Management, Software Project Planning, Software Project Tracking and Oversight, Software Subcontract Management, Software Quality Assurance, Software Configuration Management</td>
</tr>
</tbody>
</table>
| Level 1 | Initial                                    | Competent people (and invoices)                         

1992 - Software CMM

2001 - CMMI

- Requirements Development (REQM)
- Project Planning (PP)
- Project Planning and Control (PPC)
- Supplier Agreement Management (SAMM)
- Measurement and Analysis (MA)
- Process & Product Quality Assurance (PPQA)
- Configuration Management (CMC)

- Causal Analysis & Resolution (CAR)
- Organizational Transformation & Deployment (OTD)
- Quantitative Process Performance (QPP)
- Quantitative Project Management (QPM)
Next generation RDM

- Requirements Definition
- Requirements Visualization
- Requirements Management

RDM
Stakeholder participation

More & shorter feedback cycles

“Just enough” requirements

Requirements Analysis

Design

Module Design

Coding

Unit Testing

Integration Testing

System Testing

Acceptance Testing
Defects
As many as 70% of defects are injected during requirements and design, and 60% of defects are not found until user acceptance testing, according to the National Institute of Standards and Technology (NIST).
Relative Cost to Correct a Defect

Development Phase:
- Requirements
- Design
- Code
- Test
- Operation

Cost (in arbitrary units)
Agile
What does “Agile” really mean?
Another Agile Myth –
Agile is for small companies or co-located teams...
Really?
The U.S. Navy’s SPAWAR Command relied on agile to develop the Education Benefits Long-term Solution for the Veterans Affairs Department.

VA CIO Roger Baker, “we developed this completely under an agile methodology. What’s important about that is that the subject matter experts and my IT folks worked side-by-side, day-in and day-out to develop the user interface and the workflow to be optimal for the processing of these types of claims by the folks that are the claims examiner...”
Requirements Modernization: Elaboration & Communication

- Iterative
- Business Aligned
- Continuous feedback
- Visualization
- Interactive simulation

Assess & modernize RDM. You will never improve business agility and time to market without optimizing RDM.

Prototyping
With or without you, the industry will transition to Agile

Get over the myths & lazy interpretation of Agile – at least experiment with an Agile pilot project
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