An Agile Triple Play: Business Process Reengineering Meets SOA Meets Large-Scale Agile

Denis Doelling & Edward Goldgehn
What is SOA?

A Service
A repeatable business task – e.g., check customer credit; open new account

Service Orientation
A way of thinking about your business through linked services and the outcomes that they bring

Service Oriented Architecture (SOA)
An business-centric architectural approach based on service oriented principles

TOGAF SOA Reference Architecture Technical Standard

Business Process Re-Engineering Interactions using SOA RA

Only Verbal Communication and Backlogs?
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LIGHTWEIGHT DOCUMENTATION... NOT LIGHTWEIGHT THINKING

WRITTEN BY MIKE COTTMEYER

Working software over comprehensive documentation... this line in the manifesto has been used to justify all manner of undisciplined thinking over the years. Just because we value working software over comprehensive documentation, doesn’t mean we don’t ever write anything down... and it especially doesn't mean that we don't think through problems. It doesn’t mean that we don’t do the discovery, analysis, and design that often was captured in all that comprehensive documentation.
<table>
<thead>
<tr>
<th>Development Elements</th>
<th>Presentation Tier / Traditional Agile</th>
<th>SOA / N-Tier Agile</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-level design &amp; functional</td>
<td>• Business function flows&lt;br&gt;• Wire frames&lt;br&gt;• User interactions</td>
<td>• Business process flows&lt;br&gt;• Business function models&lt;br&gt;Service Layer interactions (includes API contracts)</td>
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<tr>
<td>requirements</td>
<td></td>
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<tr>
<td>Performance criteria and non-</td>
<td>• UI response time SLAs&lt;br&gt;• Business function SLAs</td>
<td>• Individual service response times&lt;br&gt;• Business function SLAs&lt;br&gt;Business process (end-to-end) SLAs</td>
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<tr>
<td>functional requirements</td>
<td></td>
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<tr>
<td>Story authoring</td>
<td>• Specific user-centric (actor) focus&lt;br&gt;• User functions&lt;br&gt;• Back-end API interaction</td>
<td>• General consumer-centric focus&lt;br&gt;• Business function decomposition&lt;br&gt;Techno-functional decomposition&lt;br&gt;SOA Layer interactions</td>
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<tr>
<td>Testing strategy</td>
<td>• User interface actions validation&lt;br&gt;• User workflow&lt;br&gt;• User management and security</td>
<td>• Stand-alone service operations&lt;br&gt;• Integrated service interactions&lt;br&gt;Business function operations&lt;br&gt;End-to-end business process&lt;br&gt;Policy management and access control</td>
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<td>Build and deploy</td>
<td>• Source configuration management&lt;br&gt;• Environment deployment scripts</td>
<td>• Source configuration management per tier and per service&lt;br&gt;Data configuration management&lt;br&gt;Decision service deployment management&lt;br&gt;Policy/access control management&lt;br&gt;Environment deployment scripts</td>
</tr>
<tr>
<td>DevOps</td>
<td>• HTTP access and error monitoring&lt;br&gt;• Presentation Tier load monitoring&lt;br&gt;Back-end API monitoring</td>
<td>• HTTP access and error monitoring&lt;br&gt;Decision rules monitoring&lt;br&gt;Service Layer interaction monitoring&lt;br&gt;Service load monitoring&lt;br&gt;Service component monitoring (includes Operational Systems Layer)&lt;br&gt;End-to-end QoS monitoring</td>
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</table>
Create Maps to Drive the Conversations
Agile Design and Elaboration (ADE) Framework

• Create contextual diagrams to support iterative, recursive and collaborative design discussions

• Light-weight documentation to capture team discovery, analysis and design decisions

• Leverage the Portfolio / Story Hierarchy

• Answers the question “What is the impact?” with no extra effort

• Business and IT can determine what will change in the software when a change is made in the enterprise business process
Epic Design Package - Business Capability View

RELEASE LEVEL 1 – R4.1 (Rally EPIC)

Material Forecasting
- Create fully constrained pseudo demand
- Create dependent demand (mix rates)
- Create unconstrained pseudo orders
- What-If Scenario Analysis
- Generate Test Market Forecasts
- Generate Pre-Production Forecasts

Demand Forecasting
- Market Order Estimates
- Market Wholesale Order Estimates
- Generate Market Level Unallocated Demand
- Allocated Wholesale Order Forecasts
- Cross business unit order forecasts

Channel Demand Forecasts
- Multi-week retail channel forecasts w/ constraints
- Multi-week order forecasts with constraints
- Forecasting for Regions Within Markets

Weekly Demand Forecasts
- Two-pass wholesale and forecast assignment
- Multi-week large retailer order forecasts w/constraints
- Market Group process (> 1 market at a time)
- On Demand Forecasting to Fill Production Gaps

Large Retailer Forecasts
- Weekly Revisions to Previously Forecasted demand (Demand Grooming)

Production Scheduling

Analytics
- Market Product Demand Analytics
- Market Inventory & Order Analytics
- Retail Inventory & Order Analytics
- What-if Mat’l Forecasting Scenario Analysis
- What-if Demand Scenario Analysis
- Evaluate Business Decisions- Plan v Actual, Constrained v Unconstrained
- General Forecast Accuracy

Red Boxes have RL2 (Sub-Epic) Diagrams for the Release
Business Capability Design Package

- Business Capability/Release View Diagram (Release Level 1)

- Business Capability/Release Elaboration
  ✓ Capability Assumptions
  ✓ Capability Functional Requirements
  ✓ Capability Non-Functional Requirements
  ✓ Business Process Flow Diagrams
  ✓ Capability Confirmation Criteria
  ✓ Business Risks and Issues
Swim Lanes are Business Actors Only
Each Box represents a Business Function/Task

- **Green** - Business Function Delivery in this Release (Rally Feature)
- **Light Blue** - Existing Business Function (includes Previous Delivery)
- **Blue** - Manual or Out of Scope Business Function
Business Process Design Package

• Business Process View Diagram (Release Level 2)

• Business Process Elaboration
  ✓ Process Assumptions
  ✓ Functional Process Requirements and Inputs
  ✓ Non-Functional Process Requirements
  ✓ Process Delivery Confirmation Criteria
  ✓ List of Business Functions
  ✓ Process Risks and Issues
  ✓ Potential Debt to Future State (optional)
Feature Design Package – Business Function View

RELEASE LEVEL 3 – R4.1

Set Forecasting Criteria

Pre-Conditions (Stage-1)
- Forecasting System will receive data and trigger process.
- Forecasting data will exist in datastore but may not be current (refresh needed).

«Feature»
Develop Forecasting Rules

«Parent»
Determine Data Refresh Needed

«Feature»
Process Forecasting Data/Rules

«Parent»
Update Forecast Data Set

«Include»
Retrieve Forecasting Rules

«Parent»
Retrieve Market Historical Data

«Reference Only»
Retrieve Forecasting Data
«Include»

«Reference Only»
Send Request to EMS
«Include»

«Reference Only»
Respond to Request

EMS
Business Function Design Package

• Business Function View Diagram (Release Level 3)
• Business Function Elaboration
  ✓ Assumptions
  ✓ Functional and Non-Functional Requirements
  ✓ Sub-Function Diagrams
  ✓ Activity Diagrams and related Design References
  ✓ Delivery Confirmation Criteria by Sub-Function
  ✓ Technical Risks and Issues
  ✓ Relative Sizing by Sub-Function
## Alignment with Rally Hierarchy

<table>
<thead>
<tr>
<th>Agile Design Elaboration Element</th>
<th>Rally Object (Responsible Teams)</th>
<th>Alignment Purpose</th>
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<tbody>
<tr>
<td>Business Capabilities and <em>Release Level 1 Diagram</em></td>
<td><strong>Epic</strong> (Enterprise Architecture &amp; Business Process Alignment)</td>
<td>Report overall statistics for a production release</td>
</tr>
<tr>
<td>Business Processes and <em>Release Level 2 Diagrams</em></td>
<td><strong>Sub-Epic</strong> (Business Process Alignment, Business Process Owners &amp; Meta Team)</td>
<td>Report Cross-Team % of Work Complete</td>
</tr>
<tr>
<td>Business Functions and <em>Release Level 3 Diagrams</em></td>
<td>Feature (Application Architecture &amp; Meta Team)</td>
<td>Report Concept Team % of Work Complete</td>
</tr>
<tr>
<td>Sub-Function RL3 Objects and Diagrams</td>
<td>Parent User Story (Concept Team)</td>
<td>Monitor and Report Delivery Team % of Work Complete</td>
</tr>
<tr>
<td>RL3 Diagram Flow Line (Lines with Arrows)</td>
<td>Potential Test Case for User Story (QA/Test Team)</td>
<td>Track and Report Quality Control by Delivery Team</td>
</tr>
</tbody>
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