Requirements for Estimation Purposes

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Instructor Introduction

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Leader in IT project modeling. Developed CostXpert. Co-Founded CostXpert Group. Author of multiple books, articles and columns. Regular lecturer at industry conferences. Extensive industry and government benchmark data.

Education: MBA-University of La Verne, BA-University of Illinois.

Certifications: PMI Certified Project Management Professional (PMP), Risk Management Professional (RMP), IFPUG Certified Function Point Counter, SCEA & ISPA Certified Cost Estimation Analyst (CCEA), ISACA Certified in Risk and Information Systems Control (CRISC), ISACA Certified Information System Auditor (CISA).
• Estimation concepts.
• Focused requirement analysis.
• Requirement analysis process.
• Supporting data elements.
• Cost analysis requirement document (CARD).
• Tips and Tricks.
Estimation concepts

• Good estimates are:
  – Accurate.
  – Comprehensive.
  – Credible.
  – Replicable and Auditable.
  – Timely.
  – Traceable.

Source: International Cost Estimating and Analysis Association (ICEAA)
Estimation concepts

• Cost estimating cannot:
  – Be applied with cookbook precision.
  – Produce results that are better than input data.
    • Garbage In, Garbage Out (GIGO).
  – Predict political impacts.
  – Substitute for sound judgment, management, or control.
  – Make final decisions.

Source: International Cost Estimating and Analysis Association (ICEAA)
Estimation Concepts

- Determine estimate purpose.
- Define estimate boundaries:
  - Scope, time, exclusions, constraints.
  - Note that the estimate boundaries may be different from the project boundaries.
- If needed, create an estimate WBS:
  - Breakdown to apply estimation techniques.
  - Breakdown to support analysis and what-if.
  - Breakdown to support acquisition.
  - Breakdown to support Earned Value Management.
  - Estimation often aligns with control points in the WBS.
Estimation Concepts

• Estimation approaches and applicability:
  – Catalog look-up.
  – Learning curve.
  – Analogy.
  – Parametric:
    • High level.
    • Parameterized catalog (High Level Objects, or HLOs).
  – Bottom-up.
Focused requirement analysis

• Three levels of requirement definition:
  – Business goals and objectives.
  – High level business requirements.
  – Technical requirements.
Focused Requirement Analysis

• Characteristics of good high level business requirements:
  – Unifying: Understandable to both business and technical stakeholders.
  – Deliverable focused, not activity focused.
  – Comprehensive: Capture all required delivered functionality.
  – Unique: Avoid redundancy.
  – Aligned: Provide an access point into the estimation methodology.
Focused Requirement Analysis

• Requirement components (may be inferred):
  – What must be delivered? How many?
  – Is this capability new, additional, enhanced, test only, or a repair?
  – How complicated or difficult is the thing being delivered?
    • For counts larger than 30, the central limit theorem can be applied and the values set to average.
  – As a minimum, high level requirements must form a basis for making informed assumptions about these elements.
### Focused Requirement Analysis

### Some Estimation Catalogs

<table>
<thead>
<tr>
<th>SAP</th>
<th>Demo-Financial</th>
<th>IVR</th>
</tr>
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<tbody>
<tr>
<td>Other or Unknown</td>
<td>Unknown</td>
<td>Admin Screen</td>
</tr>
<tr>
<td>Batch</td>
<td>Batch/Service</td>
<td>Call Initiation</td>
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<tr>
<td>Business Requirement</td>
<td>Business Requirement</td>
<td>Call Tree Option</td>
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<tr>
<td>Configuration</td>
<td>Configuration</td>
<td>Interface</td>
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<td>Defect</td>
<td>Consulting-Configuration</td>
<td>Report</td>
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<tr>
<td>Development</td>
<td>Consulting-Other</td>
<td>Security Profile</td>
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<tr>
<td>Interface</td>
<td>Consulting-Performance</td>
<td>Table</td>
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<tr>
<td>Report</td>
<td>Consulting-Security</td>
<td>Voice Message</td>
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<tr>
<td>Screen</td>
<td>Interface</td>
<td>Other IVR Work</td>
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<tr>
<td>Table</td>
<td>Page</td>
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<tr>
<td>Workflow</td>
<td>Report</td>
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<td>Deployment</td>
<td>Software Application</td>
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<tr>
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<td>Workflows</td>
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<td>Other</td>
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<tr>
<th>Agile</th>
<th>FFP</th>
<th>UML</th>
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<tr>
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<td>External Interface Files</td>
<td>Class-Control</td>
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<td>Class-Interface</td>
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<td>Messages</td>
<td>Class-Other</td>
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<td>Logical Internal Tables</td>
<td>Tables</td>
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<tr>
<td></td>
<td></td>
<td>Methods</td>
</tr>
</tbody>
</table>
Requirement analysis process

Collect Documents

Triage Documents

Review Documents

Start Estimation Worksheet

Kick-Off Interview

Obtain Follow-Up Documentation

Conduct Follow-Up Interviews
Supporting Data Elements

**Normally required:**
- Work effort (project, blueprint, build, prototype, etc.).
- Estimator.
- Required environments, tier level, application layer load, data layer load, services/interfaces load.
- Meeting notes.
- Estimation related points of contact.
- Impacted applications/components.
- Impacted work groups or contractors.

**May be optional:**
- Business goals and objectives.
- Benefit streams over time.
- Project descriptors (cost center, objective, region, etc.).
Cost analysis requirement
document (CARD)

- Collects together the basis of the estimate.
- Value:
  - Credible.
  - Replicable and Auditable.
  - Traceable.
  - Supports updates to the estimate.
Tips and Tricks

• Team interview techniques.
• Estimating versus designing.
• Use the “sniff test,” but only at the end.
• When validating, focus on hands-on time at the component level.
• Accuracy versus precision.
• The wisdom of crowds.
Some case studies

• State of California
• Procter and Gamble
• Top 10 bank
Project Risk Management

1. Identify Risks
2. Qualitative Analysis
3. Quantitative Analysis
4. Risk Response Planning
5. Contingency Funds
6. Risk Response Funds
7. Estimate
8. Budget
9. Management Reserve
Interview Workshop
Questions? Feedback?

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