Measurement & Analysis for the Acquirer

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Goals for Presentation

- How to approach developing an acquirer measurement system
- How to relate supplier measures to acquirer measures
- Sample acquirer measures
- Sample collection approaches
- Ways to communicate measurement results to stakeholders
Need for Measurement

• Acquirer status – how am I doing on my activities?
• Supplier status – how is the supplier doing in relation to their commitments in the contract?
• How is the product doing as it evolves?

• Specific Drivers for Measurement
  • Project objectives
  • Organizational objectives
  • Business Needs
Measurement Program

- Align measurement activities
  - Know objectives (What are we measuring and why)
  - Relate measures to defined objectives
  - Determine how to collect and manage data
  - Determine what analysis is required
- Provide results – make it visible
  - Collect
  - Analyze
  - Store
  - Communicate… Communicate… Communicate…
Examples of Goals/Objectives to Measure

- Reduce time to delivery
- Reduce total lifecycle cost
- Deliver specified functionality completely
- Improve prior levels of quality
- Improve prior customer satisfaction ratings
- Maintain and improve the acquirer/supplier relationships
Measures Needed at Multiple Management Levels

- Measures focused on project level
  - Useful to project teams and project manager

- Programs also need measures
  - Cross-project trends, program performance
  - Information to answer questions of the business about quality, dependencies, delivery milestones, etc.

- Executives need measures of business performance
  - Across the portfolio (financial, schedule, customer satisfaction)
  - Internal measures of process compliance and resource alignment to match needs
### Example – Measures for an Acquirer to Use

#### Acquirer Work
- **Schedule:**
  - Milestones & Deliverables
- **Effort:**
  - Hours at Activity Level
- **Cost:**
  - Project/Program/Portfolio
- **Quality:**
  - First-Time Deliverable Acceptance
  - Customer Satisfaction Survey
- **Stability & Size:**
  - Business Requirements Volatility
  - System Requirements Volatility

#### Supplier Work
- **Schedule:**
  - Contractual Milestones & Deliverables
- **Effort:**
  - Earned Value
- **Quality:**
  - Supplier Deliverable Acceptance
  - Pre Production Testing Quality (System Integration Testing - SIT, UAT)
  - Post Production Testing Quality (Warranty)
  - Defect Density (SIT, UAT, Warranty)
  - Supplier Report Card
- **Size:**
  - LOC (to support Defect Density)
# CMMI for Acquisition, Version 1.2

<table>
<thead>
<tr>
<th><strong>Example Measurement Objectives</strong></th>
<th><strong>Measurement Information Categories</strong></th>
<th><strong>Example Base Measures</strong></th>
<th><strong>Example Derived Measures</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Shorter Time to Delivery</td>
<td>Schedule and Progress</td>
<td>Estimated and Actual Start and End Dates by Task Estimated and Actual Start and End Dates of Acquisition Tasks</td>
<td>Milestone Performance Percentage of Project on Time Schedule Estimation Accuracy</td>
</tr>
<tr>
<td>Reduced Total Lifecycle Cost</td>
<td>Effort and Cost</td>
<td>Estimated and Actual Effort Hours</td>
<td>Return on Investment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Estimated and Actual Cost</td>
<td>Cost Variance</td>
</tr>
</tbody>
</table>
### Measurement Information Categories

<table>
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<th>Example Base Measures</th>
<th>Example Derived Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deliver Specified Functionality Completely</td>
<td>Size and Stability</td>
<td>Requirements Count</td>
<td>Requirements Volatility</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Size Estimation Accuracy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Function Point Count</td>
<td>Estimated and Actual Function Points Completed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lines of Code Count</td>
<td>Amount of New, Modified, and Reused Code</td>
</tr>
<tr>
<td>Improve Levels of Quality</td>
<td>Quality</td>
<td>Product Defects Count</td>
<td>Defect Removal Efficiency</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Number of Defects Per Phase</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Total Unresolved Defects</td>
</tr>
<tr>
<td></td>
<td>Customer Satisfaction Survey Scores</td>
<td></td>
<td>Customer Satisfaction Trends</td>
</tr>
<tr>
<td></td>
<td>Supplier Performance and Relationship Scores</td>
<td></td>
<td>Supplier Performance and Relationship Trends</td>
</tr>
<tr>
<td></td>
<td>Web Site Response Time</td>
<td></td>
<td>Variance from Throughput Target</td>
</tr>
</tbody>
</table>
## Example Project “Dashboard”
For Acquirerer Work

<table>
<thead>
<tr>
<th>Milestone/Deliverable Performance</th>
<th>Effort Performance</th>
<th>Cost Variance Budget vs. Actual Cost</th>
<th>Deliverable Acceptance</th>
<th>Customer Satisfaction</th>
<th>Requirements Volatility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schedule</td>
<td>Effort &amp; Cost</td>
<td>Quality</td>
<td>Size &amp; Stability</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Example Project “Dashboard”
For Supplier Work

<table>
<thead>
<tr>
<th>Supplier Milestone/ Deliverable Performance</th>
<th>Supplier Earned Value Performance</th>
<th>Supplier Deliverable Acceptance</th>
<th>Supplier First Time Quality: Pre &amp; Post Prod</th>
<th>Supplier Report Card</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schedule</td>
<td>Effort &amp; Cost</td>
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<td></td>
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</table>

![Graphs and Charts]
# Acquirer Schedule Variance

## Purpose (Measurement Objective)

Monitor Acquirer’s ability to meet its Milestone and Deliverable commitments.

## Measures Collected by Acquirer

- Milestones
- Deliverables
- Baseline Date
- Forecast Date
- Actual Date

## Key Assumptions:

- Milestones and Deliverables have been defined by the PM Work stream to support this measure
- Measure will be collected monthly
- The thresholds for red/yellow/green are aligned with business objectives

## Target Limits

Green: < or = 14 days  
Yellow: 15-28 days  
Red: > or =28 days

<table>
<thead>
<tr>
<th>Milestones and Deliverables</th>
<th>Original Date</th>
<th>Rebaseline Date</th>
<th>Forecast Date</th>
<th>Actual Date</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus Requirements Doc</td>
<td>1/1/2006</td>
<td></td>
<td>1/5/2006</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Systems Req Spec</td>
<td>2/1/2006</td>
<td>01/20/06</td>
<td>1/20/2006</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Define Phase Tollgate</td>
<td>4/1/2006</td>
<td></td>
<td>4/20/2006</td>
<td>19</td>
<td></td>
</tr>
</tbody>
</table>
Collection, Analysis, Reporting

• **Collection**
  - Can use a simple spreadsheet or a more structured project tracking system
  - Define milestones, deliverables and dates; capture data using a specified cycle

• **Analysis**
  - Chart the data to do relevant comparisons

• **Reporting**
  - Communicate through simple spreadsheet, PowerPoint slides, or project management tool

**Challenges:**
- Establishing baselines
- Re-baselining
Supplier Milestone/Deliverable Performance

Key Assumptions:

- These are Contractual Milestones and Deliverables
- These Milestones and Deliverables may be entered into a tool for tracking

Purpose (Measurement Objective)

Monitor and understand Supplier’s ability to deliver as agreed to in the contract.

Target Limits

Green: < or = 14 days
Yellow: 15-28 days
Red: > or =28 days

Measures collected by Acquirer

- Supplier Contractual Milestones
- Supplier Contractual Deliverables
- Baseline (Due Date)
- Forecast Date
- Actual (Approval) Date
Collection, Analysis, Reporting

• Collection
  • From simple spreadsheet to project management tool; input and track supplier committed deliverables, milestones by baseline, forecast and actual for completion

• Analysis
  • Compare baseline, forecast and actual data around specific delivery

• Reporting
  • Communicate through simple spreadsheet, PowerPoint slide or reporting from project management tool

Challenges:
• Managing baselines and re-baselines in context of contract
Acquirer Deliverable Acceptance

Key Assumptions:

- A set of Supplier and Acquirer deliverables will be defined which have associated acceptance criteria.

Measures Collected from Acquirer

- Total Acceptance Criteria Reviewed for Deliverable
- Total Acceptance Criteria Failed for Deliverable

Purpose (Measurement Objective)

Understand the deliverable acceptance (or First Time Quality) provided from Acquirer. Acceptance of deliverables is an indicator of potential defects in the final software product.

Target Limits

<table>
<thead>
<tr>
<th>Color</th>
<th>Range</th>
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<tbody>
<tr>
<td>Green</td>
<td>&gt; or =95%</td>
</tr>
<tr>
<td>Yellow</td>
<td>90% - 94%</td>
</tr>
<tr>
<td>Red</td>
<td>&lt; 90%</td>
</tr>
</tbody>
</table>
Collection, Analysis, Reporting

• Collection
  • Leverage standard template to capture acceptance criteria for evaluation; can be simple pass/fail. Capture can be done in a simple spreadsheet or a more structured project management tool

• Analysis
  • Analyze the progress of work completion, based on acceptance criteria. Review acceptance criteria not met to determine why, and identify any patterns that emerge.

• Reporting
  • Communicate through simple spreadsheet, PowerPoint slide or acceptance criteria template.

Challenges:
• Clarity around acceptance criteria
• Communication as to what is behind the measure
Customer Satisfaction Rating

**Purpose (Measurement Objective)**

To understand Customer’s level of satisfaction with the services and products delivered by Acquirer. Results of Customers Satisfaction Survey will be used to identify ongoing process and product improvements.

**Measurements Collected By Acquirer**

- Final Rating for each Survey

**Key Assumptions:**

- Ratings, frequency, target limits and scope based on plan.

**Targets**

- Green: > 3.5
- Yellow: 2.75 – 3.5
- Red: 0 to 2.75
Collection, Analysis, Reporting

• Collection
  • Focus on areas of customer involvement, e.g., customer requirements solicitation, UAT, and post deployment feedback
  • Capture feedback using questionnaires at the completion of each activity

• Analysis
  • Analyze customer ratings based on whatever established scale was used and compare against other projects/deployments.

• Reporting
  • Communicate through simple spreadsheet, PowerPoint slide

Challenges:
• Possible subjectivity based on when survey is taken
• Need to select consistent population for project to project comparisons
Supplier Report Card

Purpose (Measurement Objective)
Monitor and analyze Supplier Performance based on multiple dimensions such as quality, schedule, cost, etc. This is a subjective measure and could be an indicator of the Acquirer/Supplier relationship.

Evaluation Targets
Excellent: 3-5
Satisfactory: 2-2.9
Unacceptable: < 2

Key Assumptions:
- Ratings, frequency, target limits and scope of projects based on SDP

Measures Collected By Acquirer
- Final rating for key Supplier.
Collection, Analysis, Reporting

• Collection
  - Questionnaire completed by key acquirer staff who have first hand knowledge of supplier performance for a single project or a series of projects

• Analysis
  - Analyze feedback based on whatever established scale was used and compare against other feedback for the same supplier, from different competency areas (e.g., design, schedule, quality)

• Reporting
  - Communicate through simple spreadsheet, PowerPoint slide or acceptance criteria template.

Challenges:
- Clarity around acceptance criteria
- Communication as to what is behind the measure
Bringing It All Together - Sample Acquirer Measurement Framework

**Business Value**

- **Financial**
  - Business Value of Results
- **Customer**
  - Portfolio Alignment (Investment)
  - Level of Response to Customers
  - Customer Satisfaction

**Internal Processes**

- Organization Unit Performance
- Organization Unit Capability

**Learning and Growth**

- Job Roles and Skills Development
- Domain and Technology Expertise

**Standard IT Project Performance Measures**

- Cost Performance
- Schedule Performance
- Functionality Performance
- Quality Performance

**Acquirer Data**

- Process Performance
- Technology Effectiveness
- Business Results

**Supplier Data**

- Schedule and Progress
- Product Quality
- Product Size and Stability
- Resources and Cost
- Customer Satisfaction

1. **Categories of Base Measures** – Common measures from suppliers provide a measurement foundation based on industry standards.
2. **Touch Points** – Suppliers report base data, as defined in the contract, to enable monitoring of project progress.
3. **Project Level** – Standard IT Project Performance measures are derived from Supplier and Acquirer base data.
4. **Organizational Level** – Measures aggregate the performance and capability of the organizational unit.
5. **Business Level** – Enterprise level measures based on Quantitative Roll-up and Drill-down capabilities enable Business Value analysis.
In Conclusion.....

- Acquirer uses measurement to manage acquirer work
- Acquirer specifies measures in the contract to have visibility of the supplier execution/work progress
- Acquirer uses measurements from the supplier in combination with acquirer measures to access the overall “health” of the project
- It takes a combination of acquirer and supplier measurements to successfully execute the project
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