Debating the Tough Change Requests: Appraisal Perspectives

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Agenda

• Organizational Background

• Challenges Solved
  – Reducing SCAMPI A Costs
  – Dealing with Ambiguity in the CMMI Model

• Remaining Challenges
Northrop Grumman Mission Systems

- A leading integrator of complex, mission-enabling systems
- 2003 Sales - ~$4.1B
- 18,000 employees in 50 states and in 23 countries
- 1500 active contracts
- Deep, legacy domain expertise in priority, high-growth segments
- Premier provider of mission critical end-to-end solutions

Focused on program performance
Applying Six Sigma To Appraisals

• Several Six Sigma projects were conducted to optimize the SCAMPI appraisal process

• Collected metrics on time spent on various appraisal activities, defects

• Used Pareto chart to identify bottlenecks, opportunities for improvement

• Used individuals charts to study variation in the appraisal process

• Used fishbone charts and other causal analysis methods to identify potential improvements

Reducing Appraisal Time by Better Preparation

Most appraisal time is spent mapping evidence to CMMI practices

A Self-Assessment Tool was created to organize the mapping
  – Serves as the PIID

Can generate compliance statistics across any level of the organization

Used to generate evidence review and interview worksheets for the appraisal team
Reducing Variation in Evidence Review

- The time it takes to review evidence is predictable
  - Some variation by process area

- The mean review time and variation is much higher among inexperienced appraisers
  - At least half of the appraisers on the team should be experienced

- Review time is driven by the clarity with which evidence is assembled and mapped to the CMMI practices
  - Ensure thorough evidence scrub prior to on-site period
  - Bad evidence ("defects") causes unexpected schedule overruns
Optimizing Interviews by Using SCAMPI Philosophy

• **To reduce cost:**
  – Used pre-scripted interview questions
  – Conducted interviews simultaneously in mini-teams
  – Scheduled one interview per practice & instantiation (no SCAMPI requirement for multiple interview sources like in CBA IPI)

• **Maintain appraisal accuracy by emphasis on direct evidence**
  – Interviews simply confirm that the evidence is “real”
  – Interviews are not a test of how well someone remembers the practice
Reducing Consolidation Time

Crafting observations

- Voice of Customer data indicates organizations and projects simply want to know which practices they do not comply with
  - Consistent with Verification mode
  - No need to wordsmith charts

✓ Created an Appraisal Findings tool to capture the ratings at the instantiation level (every project, every practice)
  - Simplifies data consolidation, team discussion

Reviewing as a team

- Most of the time is spent arguing about how to interpret a few CMMI practices
  - Especially Generic Practices

✓ Created “CMMI Interpretation” training which clarifies how ambiguous practices will be evaluated
  - Driven by areas where disagreement occurred
  - Useful in reaching team (and organizational) consensus
Ten Most Misinterpreted CMMI Practices

- **Requirements Management**
  SP 1.4 Maintain Bidirectional Traceability of Requirements

- **Project Planning**
  SP 1.2 Establish Estimates of Work Product and Task Attributes

- **Project Monitoring and Control**
  SP 1.1 Monitor Project Planning Parameters

- **Measurement and Analysis**
  SP 1.1 Establish Measurement Objectives

- **Configuration Management**
  SP 3.2 Perform Configuration Audits

- **Verification**
  SP 2.2 Conduct Peer Reviews
  SP 2.3 Analyze Peer Review Data

- **Risk Management**
  SP 1.1 Determine Risk Sources and Categories
  SP 1.3 Establish a Risk Management Strategy

- **Generic Practices**


Measured Success

• We are typically conducting Level 5 SCAMPI appraisals in 5-6 days
  – Based on over 30 SCAMPI A appraisals
  – 3-4 projects, 6-9 appraisers, 3 mini-teams, 10 hour days
  – Significant cost savings

• Post-appraisal follow-up indicates >95% accuracy rate

• We are continuing to look at ways to decrease the preparation time
  – Evidence notebook organization
  – On-line evidence
Remaining Challenges

• Overcoming the industry perception that SCAMPI A’s require 2-3 weeks of 16 hour days
  – We’ve proven that 1 week of 10 hour days are possible, given training, tools, and experience

• Establishing ethical industry standards for sampling projects
  – We do not sample – we assess ALL projects

• Educating the customer on how to evaluate appraisal results
  – Customers should request and know how to read an Appraisal Disclosure Statement
  – B and C methods are not as accurate as SCAMPI A’s