Interpreting High Maturity Practices for Your Business Objectives

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Background

“To apply CMMI best practices, you must use professional judgment when interpreting them for your situation, needs, and business objectives.”

- *Introduction, CMMI-Dev*

- How do we characterize an organization’s “business objectives”?

- How does this characterization influence the manner in which they implement CMMI practices?

- Can high maturity organizations differ in their implementations, or does everyone need to implement Level 5 exactly the same way?

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Agenda

• A Tale of Two Organizations
• Defining Business Needs and Objectives
• Process Performance Baselines and Models
A Tale of Two Organizations

**Organization A**

- 200 people, one building
- 10 projects for 3 clients; all fixed-price; all developing banking SW
- Deployed ML5 practices as a competitive discriminator during organization stand-up

**Organization B**

- 18,000 people, offices in all 50 states
- 200+ projects for 20+ clients; fixed-price, cost-plus, LOE; SE, SW, HW, services
- CMMI ML5, ISO 9000, AS9100, etc.; continuously re-organizing and acquiring new pieces of the organization

See “How Six Sigma Organizations Implement CMMI Level 5”, Hefner and Parry, 3:00 Thursday
Setting Business Goals

**Commercial Organization**
- Organizational goals - profit (productivity, low fielded defects), growth
- Project goals - same as the organizational goals
- Investment strategy - ROI

**DoD Contractor**
- Organizational goals - satisfy shareholders (growth, stability), consistent project performance
- Project goals - all different because of different domains, different customer needs (training delivery, action item closure, estimation, field support, etc.)
- Investment strategy - customer satisfaction, ability to justify reduced bids
Approaches to Setting Business Objectives - Goal-Question-Metric

The GQM Paradigm

**Conceptual Level**
Measurement goals involve products, processes and/or resources.

**Operational Level**
Questions try to characterize the object of measurement in the context of a quality issue from a particular viewpoint.

**Quantitative Level**
Associated with every question is a set of data, either subjective or objective, that helps provide a quantitative answer.

Approaches to Setting Business Objectives - VDKG Method

“How Not to Short-Circuit your Process Improvement Program”, Poppe, Vaid, Rushton (General Motors), SEPG Europe, 2008
Approaches to Setting Business Objectives - SEI Framework

“The Overall Process to Reach the Goals and Objectives

Vision Statements → Barriers to Vision → Business Goals → Goal Decomposition Matrix → Project Objectives → Drive Baselines and Models

Definitions from CMMI-Dev

organization's business objectives

Senior management developed strategies designed to ensure an organization’s continued existence and enhance its profitability, market share, and other factors influencing the organization’s success. (See also “quality and process performance objectives” and “quantitative objective.”)

Such objectives may include reducing the number of change requests during a system’s integration phase, reducing development cycle time, increasing the number of errors found in a product’s first or second phase of development, and reducing the number of customer-reported defects, when applied to systems engineering activities.

What would be the result of meeting such objectives in a DoD program?
quality and process performance objectives

Objectives and requirements for product quality, service quality, and process performance. Process-performance objectives include quality; however, to emphasize the importance of quality in the CMMI Product Suite, the phrase quality and process-performance objectives is used rather than just process-performance objectives.


By <some date>, our organization will improve <some attribute> from today’s performance baseline of <some distribution> to a new performance baseline of <some distribution> with <some percentage> of confidence without sacrificing <some attribute>.
Pop Quiz #1

• What should a project do in response to an organizational goal?


By 12/31/2011, our organization will improve time to market from today’s performance baseline (a normal distribution with mean=215 days and standard deviation=13 days), to a new performance baseline (a normal distribution with mean=185 days and standard deviation=7 days), with 95% confidence and without sacrificing delivered quality (no more than 0.1 delivered defects per KSLOC).
The Relationship of High Maturity Process Areas

Organizational Objectives

Historical Data

Standard Process

Baselines & Models

Innovations

Organization

Project

QPM, CAR

Project Results

Tailored Process

customer and project objectives
Pop Quiz #2

- Does each project quantitatively manage the same subprocesses as the organization?

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<thead>
<tr>
<th>Organizational Process Performance</th>
<th>Quantitative Project Management</th>
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<tr>
<td>SG 1 Establish Performance Baselines and Models</td>
<td>SG 1 Quantitatively Manage the Project</td>
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<td>SP 1.1 Select Processes</td>
<td>SP 1.1 Establish the Project’s Objectives</td>
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<td>SP 1.2 Establish Process-Performance Measures</td>
<td>SP 1.2 Compose the Defined Process</td>
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<td>SP 1.3 Establish Quality and Process-Performance Objectives</td>
<td>SP 1.3 Select the Subprocesses that Will Be Statistically Managed</td>
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<td>SP 1.4 Establish Process-Performance Baselines</td>
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<td>SP 2.1 Select Measures and Analytic Techniques</td>
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<td>SP 2.2 Apply Statistical Methods to Understand Variation</td>
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<td>SP 2.3 Monitor Performance of the Selected Subprocesses</td>
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<td>SP 2.4 Record Statistical Management Data</td>
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Why the Organization and Project Focus on Different Subprocesses

- The organization builds baselines and models to help projects compose their process AND to identify organizational improvements.
- The projects quantitatively manages subprocesses of importance to their customer - requires separate baselines and models.
Other Questions

• Can quantitative management be applied to short duration projects?

• Can quantitative management be applied to small projects?

• How do we establish the value proposition for high maturity practices?
• Business needs and objectives drive choices in the types and sophistication of Process Performance Baselines and Process Performance Models that add value

• Commercial and DoD contractors have marked differences in their investment strategies, which greatly affect the ways in which PPBs and PPMs are used both the organizational and project level