The CMMI\textsuperscript{SM} and the Bottom Line

description to the

CMMI\textsuperscript{SM} Technology Conference and User Group

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What is NOT Included

- Selection of quality model (CMMI, ISO, etc.)
- Selection of CMMI model(s) or approaches
  - Domain models
  - TSP, PSP
  - Staged or continuous representations
What IS Included

- Basic decision process for CMMI investment
- Importance of quality or performance goals
- Understanding of Value Domains
- Understanding of Contract Types
- Calculation of Return on Investment

Presentation is based on Paper which is available in Conference Proceedings.
Specify Organizational Quality and Performance Goals

Decide which engineering quality model is appropriate

Plan structure and content of potential CMMI Program

Identify level of investment necessary to achieve CMMI compliance

Estimate multi-year ROI for type of contract expected

Is ROI Sufficient?

No

Yes

Consider Investment
Importance of Quality or Performance Goals

(For equal levels of investment)

Sharp focus on organizational performance and quality goals

Little or no focus on organizational performance and quality goals

Focus on Organizational Performance and Quality Goals

Level 2  Level 3  Level 4  Level 5
## Value Domains

<table>
<thead>
<tr>
<th>Domain</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Life Cycle</strong></td>
<td>Increased productivity, reduced time to market, higher product quality, reduced costs</td>
</tr>
<tr>
<td><strong>Marketing</strong></td>
<td>&quot;Level 3 requirement&quot;, customer perception of schedule and cost predictability</td>
</tr>
<tr>
<td><strong>Intrinsic Value</strong></td>
<td>Responsive infrastructure, highly knowledgeable employees</td>
</tr>
</tbody>
</table>
Value Relationship to Contract Types

Perceived Value

- FFP/Commercial
- Cost Plus Award Fee
- Time and Materials

Life Cycle
- Marketing
- Intrinsic
Introduction to Life Cycle ROI

• “Traditional” presentation of CMM/CMMI ROI
  – SEI data analysis
  – Data and Analysis Center for Software

• Includes:
  – Productivity gains
  – Reduction in cycle time
  – Reduction in post-release defects
  – Reduction in calendar time
Life Cycle ROI

- 9 – 67% increase in productivity
- 15 – 23% cycle time reduction
- 10 – 94% reduction in latent defects
- Life cycle ROI of 400 to 800%
Introduction to Marketing ROI

• Increased number of opportunities
  – CMMI “compliance gate”
  – Efforts where CMM/CMMI compliance is rewarded
  – Compliance in specific domains

• Increased probability of win
  – Schedule predictability and adherence
  – Improved quality
  – Reduced costs
  – Faster time to completion
Marketing ROI

Approx. 150% ROI based on business case estimates

E.G.: \( P(\text{WIN}) \) is 80%, Contribution of CMMI compliance est. at 25%. After win, 32% of contract profit attrib. to CMMI Compliance.
Intrinsic ROI

- Reduced turnover measurable
- Contributions to marketing and engineering performance

Relative ROI

Life Cycle | Marketing | Intrinsic Value

Legend:
- FFP/Comm.
- Cost Plus
- T&M
Calculation of Final ROI

• Actuarial plan needed
  – Investment amortized over time frame
  – Life cycle, marketing, and intrinsic ROI applied to appropriate phase
• Calculate individual ROI
• Apply against investment across time frame
• Sum ROI from all Value Domains across time frame
Sample “Bottom Line” Investment vs ROI

- CMMI Investment
- Reduced Turn-Over
- FFP Software Contract
- CPAF Systems Engr. Contract
- Life cycle ROI
- Marketing ROI

Year 1       Year 2       Year 3       Year 4       Year 5

Dollars