Raytheon

Customer Success Is Our Mission

CMMI 10th Annual Technology Conference

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CMMI Implementation Strategies for Success

Guiding Principles:

The reason to implement CMMI is to improve business performance

The only successful CMMI implementation addresses business needs

The only successful measures connect to business performance needs

Goals of CMMI Implementation

- Using the CMMI should improve quality, cost and schedule (productivity) performance of your organization
- A few published improvements in Defense Industries
  - On-time deliverable increase from 95% to 99.9%
  - 6.35 times less defect discovery and repair hours during system testing
  - Schedule Performance Index increase from .78 to .93 over three years
  - Cost Performance Index increase from .88 to .96 over two years
- See “Benefits of CMMI Within the Defense Industry”
  - Published by Software Engineering Institute, Carnegie Mellon University, Pittsburgh, PA 15213, May 2010 © 2010 Carnegie Mellon University
  - http://www.sei.cmu.edu/library/abstracts/presentations/CMMI-Benefits-to-Defense-Industry.cfm

The only reason to implement CMMI is to improve performance

Steps in Implementation

- Determine where you are as compared to the model
  - "*If you do not know where you are, a map won't help*"- Watts Humphrey
  - Most companies have some practices that are consistent with the model
  - Find the right behaviors in your business and leverage them
- Document your good processes that are in place but are not recorded
  - Use pictures, automated tools, text, cartoons, whatever works
- Implement processes to fill gaps that **address business needs !!!**
  - CMMI practices are not processes
  - Prioritized
  - "Natural" for the environment
  - Integrated into how you do business targeted your value stream
  - You are ready for- maturity means experiencing and then learning
- Monitor penetration and institutionalization
  - Growth in and the consistency of organizational use will support increasing organizational capability

The only successful implementation addresses business needs

CMMI Implementation Success

- Effective Use of CMMI applies processes that enhance the business based upon the model*
  - CMMI is a model for process improvement, not a standard and **not a process**. Adapt to business environment and available resources with a focus on performance and business results
  - Good processes, implemented effectively in an environment of continuous process improvement, increase the likelihood of achieving success
  - CMMI can help resultant processes align with achieving business objectives (Organizations making achievement of CMMI maturity levels their primary business objective may not achieve benefits). Focusing on areas where improvement is needed to achieve business objectives improves acceptance.
  - Advancements in CMMI maturity levels should be based on a business case for improved performance
  - CMMI maturity level ratings are useful for gauging progress in achieving organizational process improvement, but ratings are not alone a predictor of expected project performance. If a project or organization fails to consistently utilize its capability, problems will occur.
  - Do not use CMMI as a supplier selection tool by specifying CMMI maturity levels
  - Employ appraisal methods of various types and levels of formality to identify weaknesses for prioritizing improvements

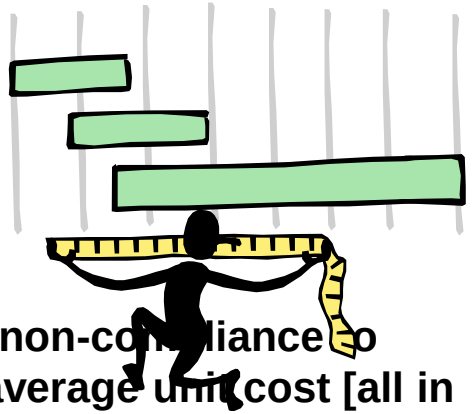
* **Excerpted from "The Economics of CMMI"**
http://www.sei.cmu.edu/library/abstracts/whitepapers/economics-of-cmmi.cfm

- Do not allow outside consultants to "change the way you do business"
- Do not simply copy another's process, it might not work for you

The only successful implementation address business needs

Measures connected to Business Needs

- Using CMMI improves the business
  - Use typical business measures over the long term to determine effectiveness
    - Performance (CPI, SPI)
    - Profitability (Operating Costs versus sales)
    - Competiveness (Win Rate, Sales)
    - Timeliness (Time to Market)
    - Quality
    - **Other measures used successfully: dollarized risk of non-compliance to requirements, first pass yield predictions, predicted average unit cost [all in design phase]**
  - These big measures derive “smaller” measures
    - Eg., productivity and EVMS (Individual work package budget efficiency)
    - Productivity and profitability measures create focus on rework and defect containment in phase
    - Leads to measuring things that can be measured in a smaller time spans
  - Keep the connection from “small” measures to “big” measure visible



The only successful measures address business needs

Measures connected to Business Needs

- Get all your business leaders to champion these measures and the connections
  - Easier said then done?
- Keep measures balanced
  - Efficiency, Quality, Cycle Time, Timeliness
  - Measure all aspects so that one aspect does not override the others
- Increase ROI for CMMI from improving performance (shown in measures) while decreasing the cost of implementation
- Some measures we have used effectively:
  - CPI/SPI
  - Requirements Volatility
  - Defect Containment/Density
  - Rework (Drawing re-release)
  - ROI
  - Drawing Release
  - Design Margin Index
  - Size and Productivity
  - Staffing
  - On-time Delivery

The only successful measures address business needs

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Questions?

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"The most important business indicators are our performance to our business goals, and in most cases, the activities that we mapped to CMMI are the same activities that are strong contributors to our business performance and whether we are meeting those business goals."