CMMI Applications in a Small Setting Finance Organization for Process Performance Optimization

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Introduction

Back Ground

- In 2001, the CMMI v.1.1 was released as an integrated model for software development and systems engineering applicable to implementing process improvement for both development and services organizations.

- In 2002, a leadership team in a small setting, facing multiple short and long term business challenges, decided to investigate the feasibility of implementing the practices in the CMMI throughout their organization.

- The recommendations of their feasibility study to implement CMMI practices, was endorsed by their customer, and the small setting began their process improvement journey in 2002.

- Starting in 2003, the small setting has provided yearly presentations describing a wide range of on-going process improvement activities , including planning and implementing of the CMMI process areas, and process performance results.

- This presentation concludes this series of presentations and focuses on the benefits of implementing CMMI based processes into support functions of finance and contracts and subcontractor management.

2003 Business Case Rationale for Implementing Formal Process Improvement Across the Organization

Business Case Rationale in 2003	Key CMMI Category Applicability
1. Infrastructure support is expected to provide more services while minimizing costs over the life cycle of technology programs, such as subcontractor management, cash flow forecasts and staffing projections.	Project Management Process Management Support
2. Agility to successfully respond to rapidly changing business environments and customer priorities and requirements is critical to long term survivability, including a successful re-compete.	Process Management Support
3. Planning and controlling life cycle costs needs to focus on implementing capable/mature processes in the support services as well as the technology programs.	Project Management Process Management Engineering Support
4. Application of the CMMI model practices and SCAMPI^{SM} appraisal methods provide a common framework to achieve process capability and maturity in both the technology programs and infrastructure support functions.	Process Management Engineering

Background of Journey

Rationale for Initiating Journey

This small setting faced extreme challenges of 1) maintaining profitability while managing increasing performance costs, 2) responding to a dynamically changing customer environment and 3) planning for a re-compete of the contract.

Organization Overview

This small setting supported their major customer by performing on-site and off-site engineering and scientific services and product development for space based applications.
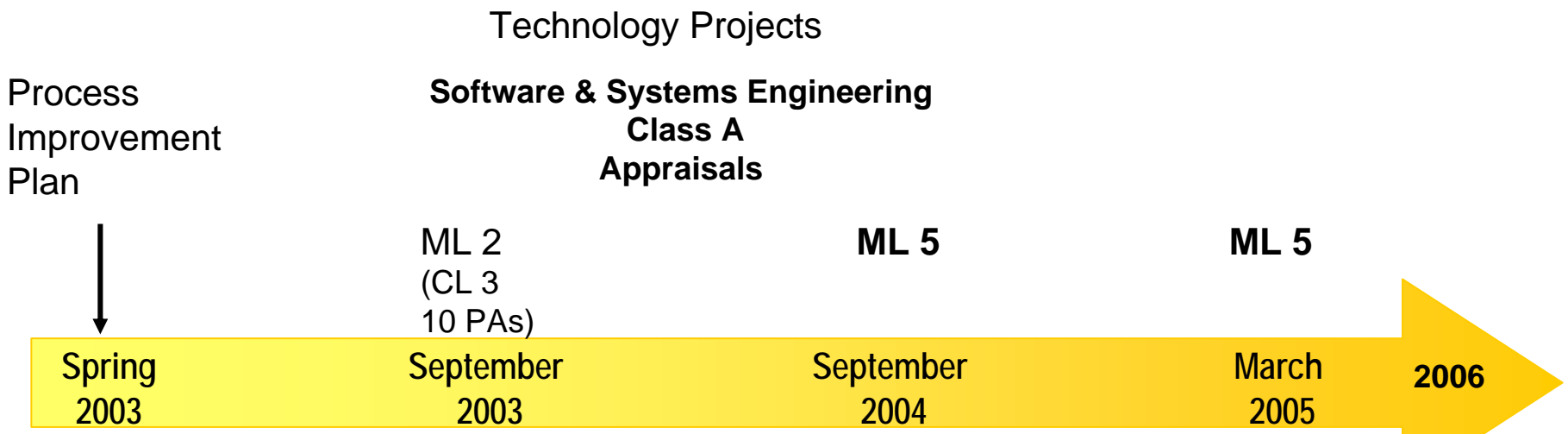
Kick-Off Activity

Multi-domain leadership team assembled to plan the multi-year journey to higher maturity levels. The initial version of the plan launched pilot projects in the small software development organization and concurrent support functions of finance, contracts, procurement and HR.

Initial Obstacles

The small setting faced initial obstacles of trained resources to implement planned process improvements such as processes to integrate key program and technical functions as well as staff training in the CMMI® , performance measurement, and SPC techniques.

Progress Improvement Planned Timeline
2003 - 2006

Technology Projects

Software & Systems Engineering
Class A
Appraisals

Process
Improvement
Plan

	ML 2 (CL 3 10 PAs)	**ML 5**	**ML 5**	
Spring 2003	September 2003	September 2004	March 2005	**2006**

Leadership
Team

Infrastructure Services

Quantitative Management
Technology
Transfers

Finance

Contract
Award

Finance Organization CMMI Maturity Level 5 Thumbnails

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Organization Size	Seven staff
Process Training Sessions	Three day Introduction to the CMMI (2004), Statistical Process Control (SPC) and optimization (2004) In-house SPC resource provided mentoring (2004 – 2005)
Scope of Model (CMMI-SE/SW Version 1.1 (Continuous)	Implemented practices from all Maturity Level 5 process areas Achieved Maturity Level 5 via equivalent staging
Process Model	The basis for the process model was the established and maintained corporate financial processes. Extensions, consistent with the corporate accounting processes, included an Excel implementation of revenue optimization providing forecasting intervals for: 1. Monthly headcount and spend rate 2. Accuracy of an invoicing report
Measurements	Implemented existing required corporate financial performance measurements and FTE headcount, spend rate and invoicing accuracy forecasting intervals.

Finance Organization CMMI Maturity Level 5 Thumbnails (Continued)

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Process Resources	1.25 process improvement staff and SPC resource One member of the finance organization was the CMMI coordinator The revenue optimization model developed by the manager of the finance organization using individuals and moving range.
Formal appraisals	Class C – Spring, 2004, Class B – Summer, 2004 Class A – March, 2005
Appraisal Team Domain Composition (7 team members)	Systems Engineering, Project Control (Finance), HR, Organization Process Improvement Lead
Example of a Services Interpretation of the Validation Process Area	The Validation Process Area was implemented using the monthly customer Performance Management Review (PMR) session to validate the accuracy of the receivable report as part of the delivery activity. Before the receivable report could function successfully in the customer's environment (integrated into the customer's financial MIS), the PMR was conducted to validate the accuracy and format of this report.
Body of Evidence	12 affirmation sessions 500 artifacts/280 affirmations

Summary of Experiences

Program control
(project performance)
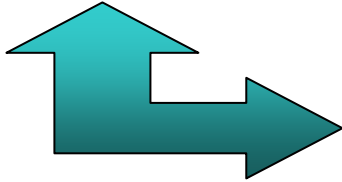
Contracts/subcontracts
(subcontracting quality and schedule)
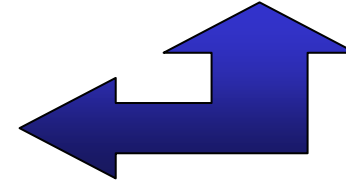
Finance Forecasting Model

Functioned using a legacy of formal process models for revenue and profit and standard performance measurements at the beginning of the CMMI journey in 2003.

Implemented improvements on existing processes, revenue models and measurements to expedite journey to develop an integrated process model to forecast accuracy of monthly invoice.

Process performance model included a risk assessment of subcontractor performance and project performance.

Implementation of SPC techniques highly compatible with existing single point variance analysis of revenue generation, contractual performance requirements, project and subcontractor performance.

Efficiently transitioned to the use of the CMMI model definitions and continuous process improvement concepts in improving and implementing forecasting.

CMMI Implementation Success Factors

There are a well documented set of process improvement success factors seemingly invariant of organizational size, such as higher management commitment, resources, appropriate stakeholder involvement in the planning, execution of the pilot projects and a compelling business case.
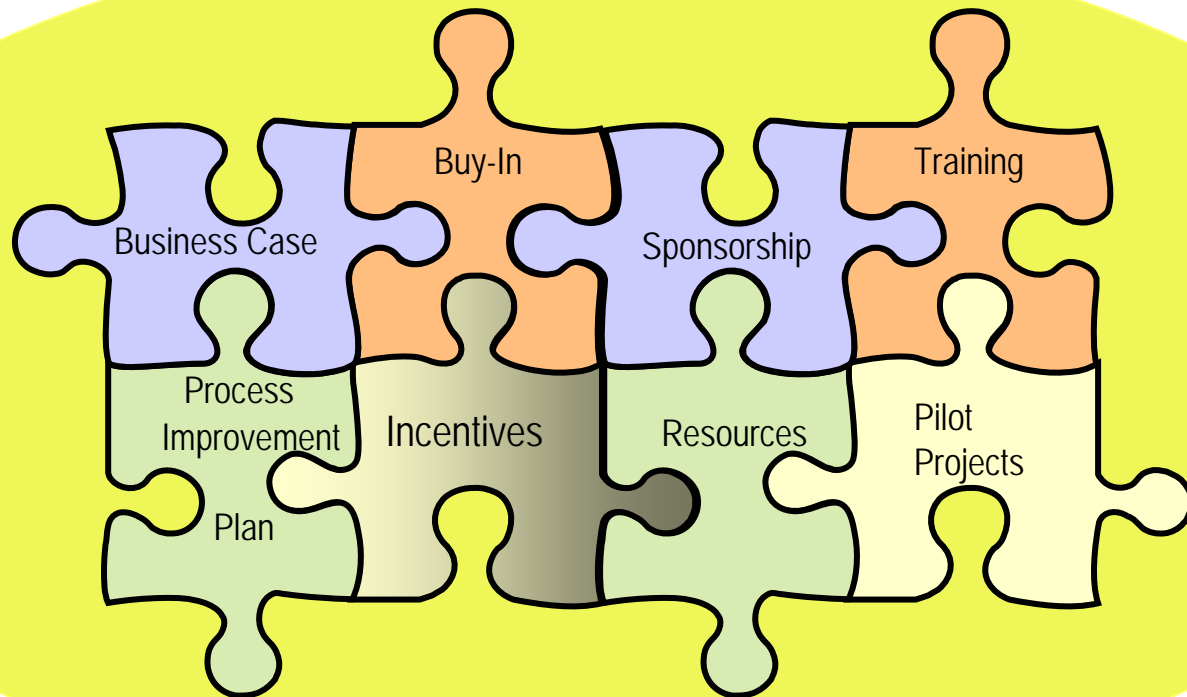
Five Observations of Process Improvement Institutionalization in Small Settings

In 2002 and now in 2006, the published lessons learned describing process improvement success factors focused on larger development and engineering organizations.

From over three years of observations of process improvement institutionalization in this small setting:

1.   Smaller settings have less formality in their chain of command and their service support functions and are usually "one of a kind" closely modeled for a specific customer base.

2.   The resulting flexibility resulting from less organizational formality provides agility to rapidly change to meet emerging business challenges.

3.   A less formal environment is also conducive to open communications and a less formidable decision making process.

4.   Organizations with open communications typically are more receptive to new ideas and have greater motivation to participate in the planning and implementation of new processes.

5.   One direct benefit of openness in communications in small settings is the process performance models are efficient and the on-going modifications during institutionalization periods consume less time.