

Process Improvement Experiences in Government Agencies

John J Marciniak &
Matthew J Fisher



NO WARRANTY

This Carnegie Mellon University and Software Engineering Institute material is furnished on an "as-is" basis. Carnegie Mellon University makes no warranties of any kind, either expressed or implied, as to any matter including, but not limited to, warranty of fitness for purpose or merchantability, exclusivity, or results obtained from use of the material. Carnegie Mellon University does not make any warranty of any kind with respect to freedom from patent, trademark, or copyright infringement.

Use of any trademarks in this presentation is not intended in any way to infringe on the rights of the trademark holder.

This Presentation SHALL NOT be reproduced or used in any manner without requesting formal permission. Requests for permission should be directed to the Software Engineering Institute at permission@sei.cmu.edu.

This work was created in the performance of Federal Government Contract Number FA8721-05-C-0003 with Carnegie Mellon University for the operation of the Software Engineering Institute, a federally funded research and development center. The Government of the United States has a royalty-free government-purpose license to use, duplicate, or disclose the work, in whole or in part and in any manner, and to have or permit others to do so, for government purposes pursuant to the copyright license under the clause at 252.227-7013.



Outline

Background

Problems/Issues

Techniques Used

Benefits

Summary



Outline

- ➔ Background
- Problems/Issues
- Techniques Used
- Benefits
- Summary



Background

Agencies

- SSA, Customs, HUD, DoD, SBA, DoEd, IRS, FAA, JASDF

Period

- 2000 to Present

Involvement

- Models: SA-CMM, SW-CMM, CMMI-DEV, FAA-iCMM, CMMI-ACQ, Acquisition Module
- Appraisals/Assessments: approximately 12 formal

CMM, CMMI, and Capability Maturity Model are registered in the U.S. Patent and Trademark Office by Carnegie Mellon University; SCAMPI is a trademark of Carnegie Mellon University



Outline

Background

➔ Problems/Issues

Techniques Used

Benefits

Summary



Common Problems/Issues with Process Improvement (PI) Implementations - 1

Sponsorship

- Real or Imagined - It is difficult to determine whether management really supports PI
- Consistency – Management picks its places or times to provide support

Government/Contractor Relationships

- Government unnecessarily excludes contractors from some activities (e.g., Process Management Groups) inhibiting communications

Small Team Environment

- Small project teams (2-3 people) make it difficult to promote PI

Culture

- “Why should I improve? I’m doing OK. Contractors should improve.”

Note: All these problems/issues may have some interaction among themselves



Common Problems/Issues with Process Improvement (PI) Implementations - 2

Maturity Level Driven

- Maturity level focus promotes wrong motivations
- Causes wide-spread cynicism which in turn leads to grass roots resistance – a backlash – to process improvement

Contractor Prepared Process Documentation

- Does not represent Government practice

PI Personnel Motivation

- Process discipline and improvement is done for its own sake, and the consequence is that the organization's mission performance (whether acquisition or development) suffers*

*West, M. “Applying Systems Thinking to Process Improvement”, CrossTalk, Mar 2004.



Common Problems/Issues with Process Improvement (PI) Implementations - 3

Process Improvement is not aligned with Business Goals

- Process improvement activities are not targeted to improve the quality of the products or services that are sold to the customer

Policies and Procedures

- Frequently mimic those practices in process reference models, (e.g., CMMI) instead of defining the organization's processes
- Procedures reflect “to be” instead of “as is”; practice does not agree with documentation (basis for improvement does not exist)



Common Problems/Issues with Process Improvement (PI) Implementations - 4

Implementation

- Reporting progress or success focuses on just the percentage of practices satisfied and not the status against all process improvement goals
- Too much a focus on Process while ignoring other problems which might not “neatly” fall into a model practice



Outline

Background

Problems/Issues

➔ Techniques Used

Benefits

Summary



Techniques Used

Some techniques applied by the organizations

- Formal Appraisals/Assessments
- Desk Audits - mini assessments
- Questionnaire-Based Appraisals
- Spreadsheet Process Checklists
- Document Inspections (SCAMPI C like)
- SCAMPI B
- Pre-formed Documents
- Others



Techniques Used - 1

TECHNIQUE	DESCRIPTION	PRO's	CON's
Formal Appraisals/Assessments	Typical SCAMPI type assessments	<ul style="list-style-type: none"> - Gets Management's Attention - Create focus on Process 	<ul style="list-style-type: none"> - May promote "Teaching to the Test" - Places too much emphasis on "passing"
Desk Audits	Informal assessments ala SCAMPI B/C, Desk Audits	<ul style="list-style-type: none"> - Informal, less obtrusive - Has a definitive focus - Requires fewer resources 	<ul style="list-style-type: none"> - May be viewed as a test
Questionnaire-Based Appraisals	Using a controlled and moderated questionnaire	<ul style="list-style-type: none"> - Covers a lot of people in a short time - Easy to provide statistical results 	<ul style="list-style-type: none"> - Can be skewed by customer response (especially if personnel not oriented) - No document review
Spreadsheet Checklists	Matrix of Process Practices against implementation data (e.g., responsibility, schedule)	<ul style="list-style-type: none"> - Provides a good audit tool - Can be comprehensive - Provides easy numeric's/measures 	<ul style="list-style-type: none"> - Can be viewed as a burden - Depends on good knowledge of practices
Document Inspections	SCAMPI C like	<ul style="list-style-type: none"> - Focuses on where the "rubber meets the road" 	<ul style="list-style-type: none"> - Can create a "library" mentality
SCAMPI B	Informal SCAMPI B assessments	<ul style="list-style-type: none"> - Non-officiality promotes usage - Can provide close to SCAMPI A results 	<ul style="list-style-type: none"> - Requires major resource commitment - Can be viewed as a test
PRE-FORMED DOCUMENTS	Use of document templates	<ul style="list-style-type: none"> - Saves documentation time - Helps focus on important topics - Promotes consistency of documentation 	<ul style="list-style-type: none"> - Can be viewed as a "fill in" form



Other

Education/training

- Pro's
 - Mandatory for training personnel in PI and processes used
 - Consistency of information
- Con's
 - Needs careful management

Buy In Techniques (such as competent practitioners involved in PI)

- Pro's
 - Mandatory for changing culture and achieving real improvement
- Con's
 - Needs careful management (Management is good at fooling its own people and the PI team)



Outline

Background

Problems/Issues

Techniques Used

➔ Benefits

Summary



Benefits Realized in Gov't Organizations - 1

Discipline

Achieved structured and disciplined acquirer and supplier organizations - a matched team situation



Communications

Improved communications between the acquirer, software supplier, and the user community with CMMI-ACQ

Stabilized Terminology

The terms that have been solidified and documented in the organizational processes are now regular day to day “lingo”.



Benefits Realized in Gov't Organizations - 2

Repository and Its Implications

PI program mandates a repository; resulted in improved communication and coordination among team mates as well as easier retrieval of artifacts for assessment purposes

Resources

Resource deficiencies – many additional personnel have been brought on board with skills more in line with the role of the acquisition organization (typically raised through assessments with no attribution of source)



Policies, Processes, and Procedures

Processes, procedures, policies, and other work rules have been thought out and documented so the organization understands what is expected of their project teams.

Instilled discipline into the organization's acquisition processes



Benefits Realized in Gov't Organizations - 3

Better Management Skills

Became better at managing; the use of more disciplined approaches, assessments, techniques and acquisition management planning
Captured best-processes expertise before it's gone.



Planning and Use of Plans

Activities are planned out in advance (on paper) in the acquisition management plan.

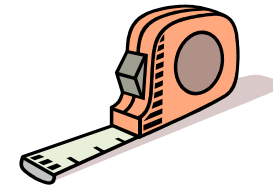
Roles and responsibilities are more clearly understood... team members feel more involved in the program.. not simply bystanders ... expectations are clearly understood... its not just 'the contractor's' problem any more.



Benefits Realized in Gov't Organizations - 4

Measuring and Improving Processes

Because of the acquisition model, the standard organizational processes that were developed have helped procurement organizations in performing root-cause analyses on acquisition problems, characterize the pre-award timeline process and the measures needed to improve it, as well as form the basis for future acquisitions.



Benefits Realized in Gov't Organizations - 5

Intangibles - Feel Goods

- Organizational Pride - “The successes we've had in process improvement have been a source of great pride for our organization.”
- Our oversight groupshave gained confidence in organizational maturity
- We became better at managing; the use of more disciplined approaches, assessments, techniques and management planning
- People in the organization feel empowered because the organization is now clear on who's responsible for what?



Outline

Background

Problems/Issues

Techniques Used

Benefits

➔ Summary



Summary

Process Improvement in Government Acquisition Offices can work and will yield provide benefits if :

- Motivation for PI is correct
- Management is informed and stays involved
- Organizational buy in is achieved
- Education on PI and processes is continuous
- PI techniques used “fit” the organization’s culture

