Appraisals and CMMI Gotchas

Lessons in CMMI Use and Appraisal Preparation

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Referenced articles are at www.processgroup.com/newsletter.html
Agenda - Part 1

- Introduction
- CMMI Premise
- Documentation
- Configuration Management
- Measurement and Analysis
- Project Planning
- Project Monitoring and Control
Agenda - Part 2

• Integrated Project Management
• Training
• Equal-weighted Process Area practices?
• Appraisal Preparation - PIIDing
• Appraisal Interview Preparation
CMMI HAZARDS!

Introduction

Using CMMI or preparing for an appraisal?

– Avoid the hazard of creating a **paper factory**, instead focus on organizational results

– Avoid putting the emphasis on the **less important** issues
  
  » e.g., policy recital, training records, emails that say “We assigned this to Fred”

– Spend your time making things better, not on a rote exercise

– Know some **common blind spots**
CMMI Premise

• CMMI practices can:
  – Reduce project risk
  – Reduce rework and costs
  – Improve output quality and predictability
  – Improve productivity through process improvement and process reuse

• CMMI:
  – Can be used to diagnose current state
  – Provides an example roadmap forward
    » Management/project, engineering/organization, statistics/prediction, variation/mean
Hazard: Drowning in Documentation

• Easy to fall into the trap of the paper factory
  – We are developers, so we develop!
  – What we really need is guidance for our jobs
    » Capture best organization engineering and management practices
    » Not necessarily repeat every book known to mankind!

• What problem are we trying to solve?
  – Make engineering easier, quicker, less hassle - NOT MORE

[Newsletter “documentation”]
Configuration Management (CM)

Hazard: over-simplification

- CM looks pretty straightforward, once people start to understand the discipline
- Don’t avoid Configuration audits - make them useful [SP 3.2]
  - Use physical audits to help ensure that products are released correctly, e.g.,
    » Verify differences between source and release = change list
    » Compare checksum value between source and release
- What problem(s) are we trying to solve?
  - Producing the right stuff and getting it to the customer
  - Keeping track of our stuff, protecting ourselves from loss

SP 3.2: Perform configuration audits to maintain integrity of the configuration baselines.
Measurement and Analysis (MA)

Hazard: skip parts or overkill

• Organizations often have metrics but entirely *skip the first half of this Process Area*:
  – Defining: objectives, metrics, analysis, reporting, information storage

• Or *take the other extreme and overdo measurement and goal definitions*:
  – 34 objectives, a procedure for documenting objectives, 82 core metrics

• **Need a good balance for:**
  – Spending enough time to arrive at *appropriate goals*
  – Specifying what *measures* are needed
  – Clarifying how they will be *analyzed and stored*

• **What problem are we trying to solve?**
  – Knowing why we are measuring in order to get the most value out of it and not waste time on useless metrics

[Newsletter “measurement”]
GP 2.8/3.2 and Over-simplified MA
Hazard: I measured it because CMMI SAID I HAD TO!

MA comprises of only 7 PA measures, and GP 2.8 and 3.2 are academic
- What is it telling you?

- What problem are we trying to solve?
  - GP 2.8 (on each PA) – How’s it going this time?
  - GP 3.2 (on each PA) - Are the PA related processes as implemented meeting our needs, getting better or worse?
  - MA should help you run your business, not just CMMI!

GP 2.8: Monitor and control the process against the plan for performing the process and take appropriate corrective action.

GP 3.2: Collect process-related experiences derived from planning and performing the process to support the future use and improvement of the organization’s processes and process assets.
Project Planning (PP)
Hazard: skimping on size estimation and risk management

- Many people either skip size, or don’t spend enough time finding a good use for size or attribute estimation [SP 1.2]
  - “My project size is 2,000 hours”
  - “I estimate Lines of Code, but track effort”
- Others underutilize risk at the project level [SP 2.2]
  - Risks should come from the team, not just the manager
  - Risks should be more than boilerplate “We might not have resources”
  - Risks should be made very visible to customers + management
- What problem are we trying to solve?
  - Clarifying how big the project is
  - Understanding what can really go wrong
  - Thinking through potential issues ahead, while there is time to react / recover

SP 1.2 Establish and maintain estimates of work product and task attributes.
SP 2.2 Identify and analyze project risks.

[Newsletter “attributes”]
Project Monitoring and Control (PMC)
Hazard: missing valuable information that could save the day

- No useful way to track actual work progress [SP 1.1], e.g.,
  - Actual work effort (labor)
  - Actual amount of work accomplished (size)

- What problem are we trying to solve?
  - Use data to determine if current resource expenditure (hours or money) can be sustained
  - Know the volume of work and how much each project actually costs
    » How much we lost this time, or how much future projects might cost
  - Proactively manage and identify re-planning points while there is time to recover
    » Identifying large changes in effort or size

SP 1.1 Monitor actual values of project planning parameters against the project plan.

[Newsletter “attributes”]
Integrated Project Management (IPM)

Hazard: not having proactive visibility

- **Not use thresholds to trigger corrective action [SP 1.5]**
  - At Level 3, corrective action and escalation are more **objective** (“We are 10% behind”) than **emotional** (“I think things will speed up”)
  - Organizational and project knowledge are used to establish thresholds

- **Process tailoring not based on organizational learning [SP 1.1]**
  - Level 3 is often interpreted as **Processes are standardized** across all projects,” rather than **Standard processes are tailored** for each project”

- **What problem are we trying to solve?**
  - We have MEANINGFUL data, let’s really use it!
  - Have organizational wisdom available and used

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**SP 1.5 Manage the project using the project plan, other plans that affect the project, and the project’s defined process.**
Integrated Project Management (IPM) Without Historical Data?
Hazard: databases full of data are not enough!

- Organizational Process Definition (OPD) and IPM not well understood
  - OPD sets up a Process Asset Library and measurement repository for use by projects (IPM)
  - Not all Lead appraisers know or communicate this

- What problem are we trying to solve?
  - Run projects based on historical and current data
Do Software Engineers Need Training?
Hazard: trivial training

• Project Planning (SP 2.5)
  – Make sure you have the skills for THIS project

• Organizational Training
  – Make sure you have the skills for current work, and work to come

• What problem are we trying to solve?
  – Engineers and managers don’t have the skills to perform their roles correctly (as per process definition) and/or efficiently
  – Prevent mistakes due to lack of skills
Equal-weighted Process Area practices?
Hazard: each process area practice is treated as EQUAL

• Each CMMI practice should not necessarily be equally weighted during implementation. Example:
  – Policy vs. estimating effort or risk
  – Training records vs. performing validation

• The correct weighting can be given when you:
  – Focus on what you are trying to accomplish (real jobs)
  – Use the CMMI and its components to improve
  – Fix real problems

• What problem are we trying to solve?
  – Real world, day-to-day work gets better (easier, faster, higher quality, less stress, less busy-work, less rework, less risk)
Appraisal Preparation - PII Ding*
Hazard: creating documents to please the appraiser

• As an appraisal date approaches, people find themselves focused on providing required appraisal evidence:
  – A lot of time can be wasted chasing down documents
  – When practices are institutionalized correctly, the evidence needed already exists

• What problem are we trying to solve?
  – Evidence should never be created to please an appraiser
  – Artifacts examined should be the real work of the organization
  – For example, evidence of responsibilities could be an organization chart or a schedule with assignments

*Practice Implementation Indicator
Appraisal Interview Preparation

Hazard: wasting time rehearsing

• Some people prepare using mock interviews
  – Appraisals should be about how you DO YOUR REAL work
  – Interview practice might make folks feel more comfortable, but this can:
    » Induce stress over remembering to say the right answers
    » Focus your people on CMMI terms and rote answers

• What problem are we trying to solve?
  – Time to practice for an appraisal takes away from getting real work done
  – Participants should be able to answer the questions because the answers describe how they do their jobs
Q & A