Transitioning from CBA-IPI to SCAMPI Appraisals: Lessons Learned

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Purpose

- Share the lessons learned from an appraiser's perspective and an organizational perspective after performing their first CMMI appraisal. Stress the holistic approach to transitioning by considering what is going to be required by the SCAMPI appraisal method when transitioning process assets and creating new process architectures.
- Hopefully, provoke thinking on how you might get it right the first time.

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Credits and Acronyms

The Models

- Software Capability Maturity Model (SW-CMM)
- Systems Engineering/Software Engineering/ Integrated Product and Process Development/ Source Selection Capability Maturity Model Integrated (SE/SW/IPPD/SS CMMI ®)

The Methods

- CMM Based Assessment for Internal Process Improvement (CBA – IPI)
- Standard CMMI Appraisal Method for Process Improvement (SCAMPI[SM]))
  - Appraisal Requirements for CMMI, V1.1 (ARC V1.1)

[SM] SEI, SCAMPI and SCAMPI Lead Appraiser are service marks of Carnegie Mellon University.

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Topics

- Differences in the Methods
- Pre-Onsite Planning Activities
- Onsite Training and Appraisal Activities
- What went Wrong (aka Opportunity for Improvement)
- What went Right (aka pat on the back)
- Summary

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The Methods <u>are</u> Different

- **CBA- IPI**
  - Discovery – Observation Based
  - Document Maps, Project Notebooks, Interviews
  - Many,Many Observations, both Strengths and Weaknesses
  - 50::50 Documentation:: Verbal
  - Team decision on every key practice (S or W)

- **SCAMPI (ARC V1.1 Class A)**
  - Verification - Process Implementation Indicator based
  - Objective Evidence (Direct, Indirect, Affirmation)
  - 1::0.5::0.5 (Direct::Indirect::Affirmation)
  - Mini-Team characterization at the practice instantiation level for both Specific and Generic practices (FI,LI,PI,NI)

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Process Implementation Indicators

- Direct – tangible outputs resulting directly from implementation of a specific or generic practice

- Indirect - artifacts that are a consequence of performing a specific or generic practice or substantiate its implementation, but which are not the purpose for which the practice is performed.

- Affirmation – oral or written statements supporting the implementation of a specific or generic practice

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Instantiation Characterization Rules

Rules for Practice Characterization at the Instantiation Level	
Characterization Value	**Criteria**
Fully Implemented **FI**	• Direct artifacts present and appropriate • Supported by indirect artifact and/or affirmation • No Weaknesses noted
Largely Implemented **LI**	• Direct artifacts present and appropriate • Supported by indirect artifact and/or affirmation • One or more weaknesses noted
Partially Implemented* **PI**	• Direct artifacts absent or judged inadequate • Artifacts or affirmations indicate some aspects of the practice are implemented • One or more weaknesses noted
Not Implemented **NI**	• Any situation not covered by above
* projects that have not reached the point in the life cycle to have produced the necessary direct artifacts are rated PI and this would be accounted for when the instantiations are aggregated at the OU level practice rating.	

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How many artifacts are required?

- Organization + 1 Project
  - (187 SPs + 300 GPs) X 2 artifacts (Direct and Indirect or Affirmation) = 974
- Each Additional Project:
  - (156 SPs + 240 GPs) X 2 = 792
- Level 5 SCAMPI with three projects (974+792+792)
  - Minimum objective evidence = 2558 artifacts
  - Some of the practices require evidence over time
  - Some practices require multiple artifacts to be verified

A Significant Number!

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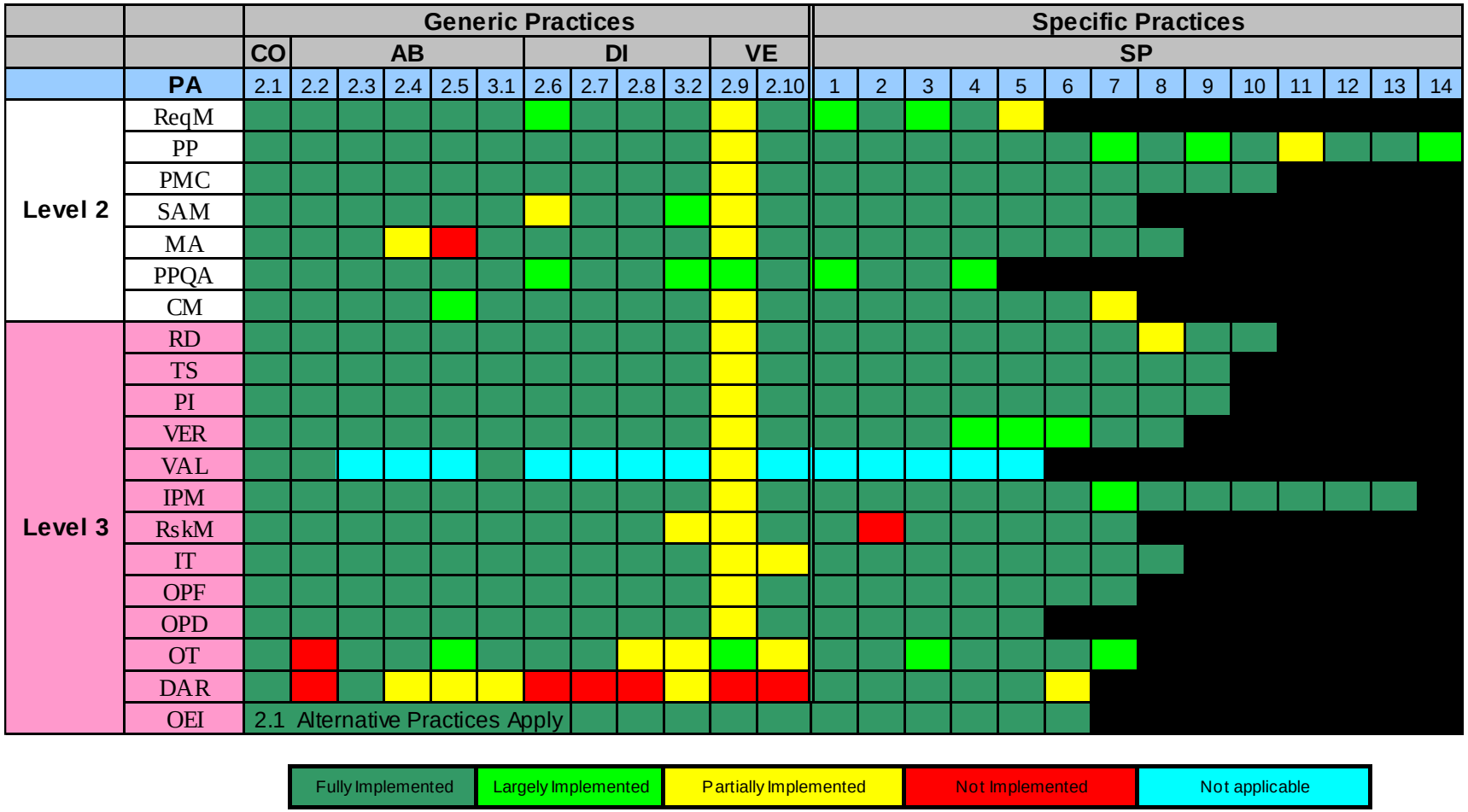
Example:
Organizational Unit Practice Characterization



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Pre-Onsite

- Appraisal Input Record
  - Determine if the CMMI assets were correct
  - Determine if projects are following process
  - Determine if projects are generating artifacts
  - Readiness for a SCAMPI
  - Method defined
- CD-ROM of Process Assets (no implementation assets)
  - Hyperlinked
  - Indexed
- Practice Implementation Indicator Databases (partial)
  - One for Organizational implementation
  - One for a single project
  - Oriented Practice by Practice for each project

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Onsite

- 5 Person Team (External Lead + 4 from Appraised Org.)
- 3 Empowered Mini-Teams (Lead did Organization PAs)
- 2 Days of Training (One day on Method; One Day using Tools)
- 4.5 Days for Appraisal (8:00AM - 5:00PM one night till 7:00PM)
- 45 Extra artifacts asked for (some not available)
- 15 Interviewees
- Findings Presentation (Out briefing at noon on Friday)

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What went Wrong (aka Opportunity for Improvement)

- PIID Tool
  - The database tool was difficult to populate because it was not possible to cut and paste information into the database.
  - There were multiple databases required for the appraisal (Org Assets, Org Implementation, 3 Project Implementation artifact databases.)
  - The ordering of Generic Practices were not in numerical order but in order they appear in the Model Documents.
  - It was difficult to “remember” which database you were working in. This lead to wasted time when looking for process assets when you were actually in the implementation database

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What went Wrong (aka Opportunity for Improvement)

- **Appraisal Tool**
  - The affirmation check for >= 50% should be added to the automatic checking of the tool.
  - There needs to be a way to reference the actual data that was used in the determination of satisfaction. On this appraisal the only method was to go to the DB and try to remember which artifact(s) were involved in the characterization.
  - Remove the automatic OU roll ups in the mini-team tool. This needs to be done at the Team level and not the Mini-Team.
  - Once the team has consensus, the mini-team spreadsheets and the master need to indicate that there has already been consensus.

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What went Wrong (aka Opportunity for Improvement)

- Planning and Onsite
  - The first interview session was too soon (Mon. PM)
  - Make “Prepare for Interviews” explicit time blocks on schedule.
- Team Training
  - The team’s training on the model was “too old” almost a year ago
  - Exercises using the tool set should be more frequent
  - Add to training materials that not all compliance documents are just GP 3.1

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What went Wrong (aka Opportunity for Improvement)

- Team Training
  - Add specific topics to the training that cover in greater detail the following areas:
    - What does stakeholder identification and involvement mean and how they would be observed
    - What does it mean to plan the process and how might that be implemented.
    - GP 2.9 Objectively evaluate adherence and its relationship to PPQA
    - GP 2.1 Commitment Policy and what might be an indirect or affirmation artifact

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What went Right

- Planning and Onsite
  - Extending the original schedule (Tues night by 2 hours) gave the team more confidence in completing the appraisal on time. It was better to finish ahead of schedule instead of behind.
  - It was useful to have team consensus each night both for normalization across mini-teams and provided more accurate tracking of progress.
  - Two person mini-teams seemed ideal from a tools utilization point of view (2 tools- DB and Appraisal tool)
  - Vital to any appraisal is the support or “go-to” person. Our runner knew where to go and who to ask for requested additional information.

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What went Right

- Planning and Onsite
  - Having at least one mini-team PC with the appropriate software tools loaded made it possible to go into DOORS to find information.
  - Absolutely necessary for each team member to have a networked PC
  - Team Lead was given access to pass worded tools and folders
  - Defining the method and risks in the Appraisal Input Record

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What went Right

- Training
  - Two days for training were sufficient. The second day was using tools and allowed each mini-team to establish a process to accomplish their work
  - It was good to have the individual team members “drive” the tool for exercises
  - Using Generic Practices and Support PAs for training helped to “norm” the team

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Summary

- Generic Practices require serious thought from a process architecture and appraisal perspective to optimize the data for organizational usability and appraisals
- Know what is Direct and Indirect Evidence for different contexts. This may require processes to specify and projects to keep more Indirect evidence
- Not having integrated PIID and appraisal tool was a source of frustration for the Team.

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