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A View from the Trenches: Practical Guidance for Appraisal Artifact Management

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Agenda

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  - What goes into an appraisal
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- Description of Artifact Management
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  - Create the artifact management baseline
  - Track and control changes to the baseline
  - Establish and maintain integrity of the baseline
  - Plan, monitor and control artifact management
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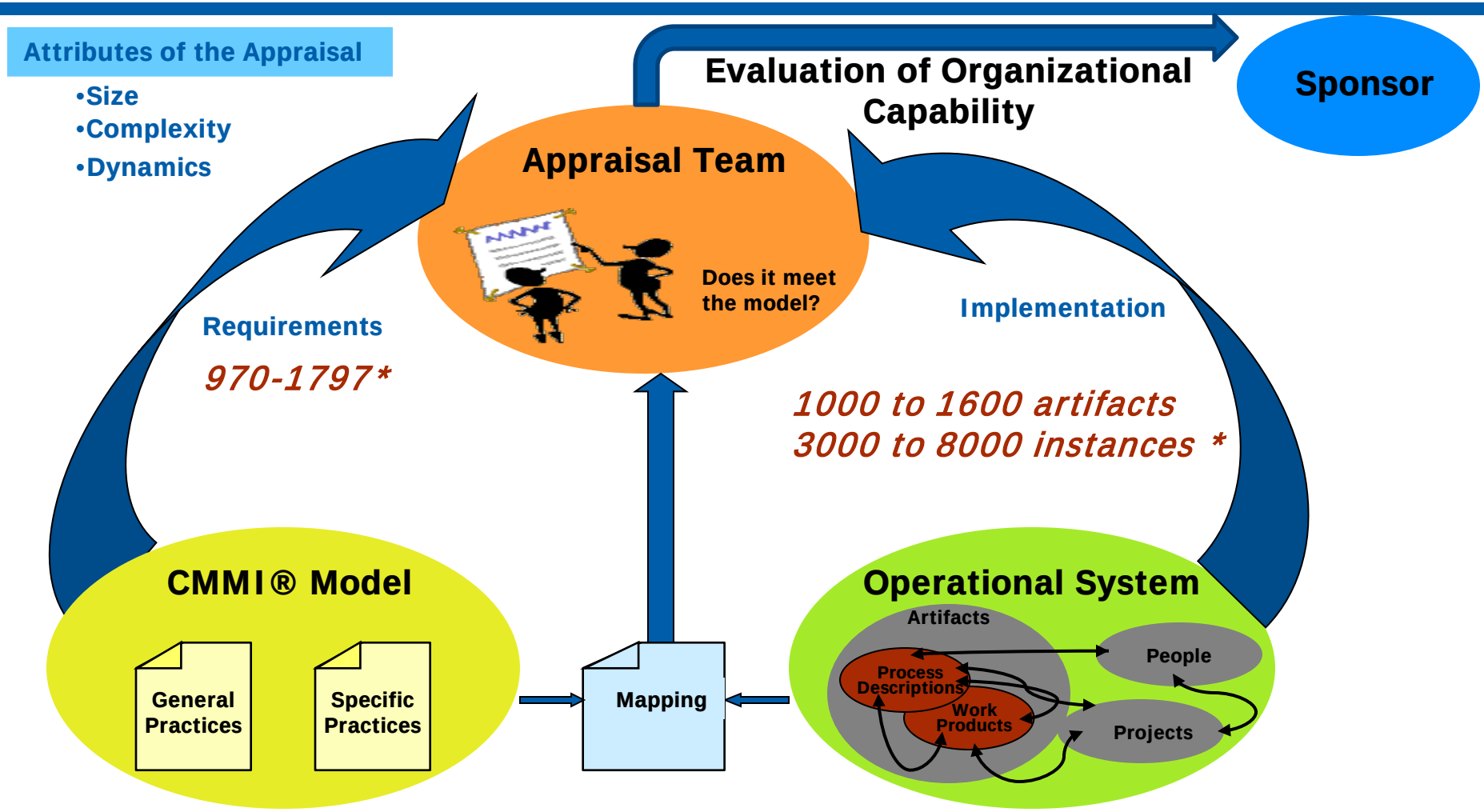
Introduction

What Goes Into an Appraisal



*Assume an appraisal scope of: Levels 3-5, and 3-5 projects plus the organization

Artifacts: Any documented evidence that is used for an appraisal such as Process Descriptions, Work Products and the CMMI® Mapping

Common Pitfalls of Artifact Collection

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- Incomplete set of artifacts (process description and work products)
- Incorrect artifacts
- Outdated artifacts
- Duplicate version of artifacts
- Irrelevant (extra) artifacts
- Inconsistent set artifacts
- Too many artifacts (kitchen sink syndrome)
- Mapping of artifacts to the CMMI® is incorrect
  - This mapping to the CMMI® requirements is the Practice Implementation Indicator (PII)

Artifact Management can prevent these pitfalls

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Description of Artifact Management

Artifact Management Tasks

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Note:
See yellow scrolls for practical guidance

- Identify the configuration items
- Establish the Artifact Management System
- Create the artifact management baseline
- Track and control changes to the baseline
- Establish and maintain integrity of the baseline
- Plan, monitor and control artifact management

Similar to Configuration and Requirements Management Tasks

Identify the Configuration Items

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If you don't know what you need, you probably won't get it

- CMMI® requirements (practices)
  - Based model version and scope
- Artifacts (just those needed for the appraisal)
  - Process descriptions
    - Organization processes
    - Each of the project's defined process (tailoring)
  - Work products
    - Organizational work products
    - Each of the project's set of work products
      - based on current project life cycle, focus vs. non-focus
- Relationships (PII)
  - Work products to process descriptions
  - Artifacts to the CMMI® requirements
  - Mapping rationale

Establish the Artifact Management System

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- Determine method to trace work products to process descriptions and all artifacts to the CMMI® requirements
  - Database
    - Home grown
    - Tools
  - Spreadsheets
- Determine method for how artifacts are to be identified, collected, organized and stored
  - Define the identification scheme for artifacts (e.g., naming conventions)
  - Define collection methods
    - "live" data – Easy to keep current
    - "captive" data – Easy to control
  - Define version control mechanisms
    - "live" data – leverage existing CM system
    - "captive" data – develop own version mechanism
  - Define storage repository
    - "live" data – virtual repository (hyperlinks)
    - "captive" data – physical repository
- Determine how classified/sensitive data will be handled

Keep your artifact id scheme simple - don't waste time trying to tie it to the process area/practice/sub-practice/phase of the moon/etc.

Create the Artifact Management Baseline

- Define baselines for configuration items
  - Organizational process descriptions
  - Each project set of tailored process descriptions
  - Organizational work products
  - Each project set of work products
- Collect the artifacts for the baselines
- Store artifacts in the storage repository
- Establish relation among baseline components
  - Generate/Update the PII

If someone says "I need to update this before I give it to you" - take what they have and get the update later. An incomplete artifact is better than no artifact.

If using "captive" data then Try to maintain a single instance of each artifact

Get CM rep from the project to help locate and collect artifacts

Track and Control Changes to the Baseline

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- Track change request for artifacts
  - Maintain records of changes
  - Analyze change requests to verify consistency to baseline maintained
  - Review change request
  - Track status of change request until closure
- Control changes to the artifacts
  - Control changes while executing appraisals
  - Verify change request before changes occur
  - Check artifacts in and out of the Artifact Management System
  - Perform reviews on artifact management baseline
  - Record changes to artifacts and reasons for changes as appropriate

You don't always need the latest artifact - don't get bogged down in trying to keep up with the project - a six month old SEMP is probably as good as yesterday's SEMP

Establish and Maintain the Integrity of the Baseline

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- Consistency of artifacts
  - Versions work products to process descriptions
  - Work products across projects
- Traceability (PII)
  - Work products to process descriptions
  - Process descriptions to CMMI® practices
- Mapping rationale
  - Specific work products to process descriptions per CMMI® practice
  - Process descriptions to CMMI® practices
- Verification of integrity
  - Appraisal dry run

Verify that "someone else" can access the data (check permissions)

Get people from QA to help verify artifacts - especially if they are associated with the projects being appraised

Note: You may have to give them some CMMI® training

Plan, Monitor and Control Artifact Management

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- Estimate budget and resources for managing the artifacts
- Assign responsibility for identifying, collecting, organizing, verifying
  - What disciplines Subject Matter Experts are needed
    - Project Management, Process Management, Supplier Management, Engineering etc
  - Trade off organization vs. project resources
    - Identify how much project support is needed for indentifying/collecting project artifacts
      - Identify who are project POCs to be used for collecting
- Identify how status will be reported
  - % of artifacts collected
  - % of practices complete (all artifacts mapped against it have been collected)
  - % of practices verified
- Project management
  - Lay out schedule with milestones
  - Track against schedule and budget
  - Report status to sponsor

Report status to management often - keep it simple (with backup) - e.g. 55% done - ask for help with resources before you get into trouble

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Benefits of Artifact Management

Benefits for Artifact Collection

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- Complete — Sufficient set of artifacts
- Streamlined — Not more than what is sufficient
- Justifiable — Rationale of artifact inclusion
- Current — Updated versions
- Consistent — Across projects, work products to associated process descriptions
- Traceable — Work products to process description to CMMI® requirements
- Maintained — Accommodate changes

Benefits for the Appraisal

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- Allows the appraisal team to be able to evaluate the artifacts faster with a more complete understanding
- Presents the most accurate view of the organizational capability
- Increases the value of the feedback from the appraisal team to the organization
  - Feedback is about the organization capability rather than being about the artifact mismanagement

Conclusions

- The number of artifacts presented in an appraisal can be large and complex
- An Artifact Management System approach can be used to manage them
- This will help the on-site appraisal to be efficient and help to provide a more accurate view of the organization
- Since appraisals are periodic, the Artifact Management System should be maintained as an organizational process asset

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Back-up Slides

Artifact Calculation

- CMMI® Scope (Requirements equals SPs + GPs)
  - Level 3 is 364 requirements
    - 61 Organizational Requirements + 303 Project Requirements
  - Level 5 is 437 requirements
    - 97 Organizational Requirements + 340 Project Requirements
  - With 3 - 5 projects plus the organization for level 3 or level 5 ranges from **970 to 1797 process requirements**
- Artifacts (1000 to 1600 unique artifacts, instances of artifacts 3000 to 8000)
  - 150 to 200 unique process descriptions (procedures, forms, manuals, ...)
    - 450 to 1000 instances
  - 100 to 150 unique organizational work products - evidence of implementation
    - 300 to 750 instances
  - 750 to 1250 unique project work products (3 to 5 projects) - evidence of implementation
    - 2250 to 6250 instances


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