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Método SCAMPI para Avaliação CMMI® (*Capability Maturity Model Integration*) e CBA-IPI para SW-CMM

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Avaliação de Processo

An examination of one or more processes by a trained team of professionals using an appraisal reference model as the basis for determining, as a minimum, strengths and weaknesses. [ARC v1.1]

Contexto:

Melhoria Contínua: avaliação identifica oportunidades de melhoria

Determinação da Capacidade: avaliação identifica riscos com o fornecedor

Terminologia SW-CMM e CMMI

Requisitos para Métodos de Avaliação:

CMM: CAF (CMM Appraisal Framework)

CMMI:ARC (Assessment Requirements for CMMI)

Métodos de Avaliação:

CMM: Capability Maturity Model® (CMM®)-Based Appraisal for Internal Process Improvement (CBA-IPI), e

Software Capability Evaluation (SCE)

CMMI:SCAMPI (Standard CMMI Assessment Method for Process Improvement)

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Classes de Metodos de Avaliação

(ARC: *Assessment Requirements for CMMI*)

Característica	Classe A	Classe B	Classe C
Quantidade de evidências objetivas	Alto	Médio	Baixo
Geração de pontuação	Sim	Não	Não
Recursos necessários	Alto	Médio	Baixo
Tamanho da equipe	Grande	Médio	Pequeno
Requisito para o líder da equipe de avaliação	<i>Lead Appraiser (LA)</i>	LA ou pessoa treinada e experiente	Pessoa treinada e experiente

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Exemplo: SCAMPISM

Standard CMMISM Appraisal Method for Process Improvement (SCAMPISM)

- Método de avaliação de processo para os modelos CMMI
- Método Classe A (ARC), também para ISO/IEC 15504
- Fases:
 - planeja e prepara a avaliação
 - conduz a avaliação
 - reporta os resultados
- Referência: CMU/SEI-2001-HB-001 **Standard CMMISM Appraisal Method for Process Improvement (SCAMPISM), Version 1.1: Method Definition Document**

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Formação de Lead Assessor

- Curso Introduction to CMMI
- Membro da Equipe de Avaliação em duas avaliações
- Curso Intermediário sobre CMMI
- Curso/Workshop Lead Assessor
- Lead Assessor de uma avaliação supervisionada
- Filiação a um SEI Transient Partner

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Nota: Os slides a seguir foram selecionados dos apresentados no Silicon Valley SPIN (Califórnia, EUA) em 29/05/2002 por Diane McDonald.

Capability Maturity Model® (CMM®) IntegrationSM Appraisals Methods - What's New?

Presented to the
Silicon Valley SPIN -5/29/02
Diane McDonald



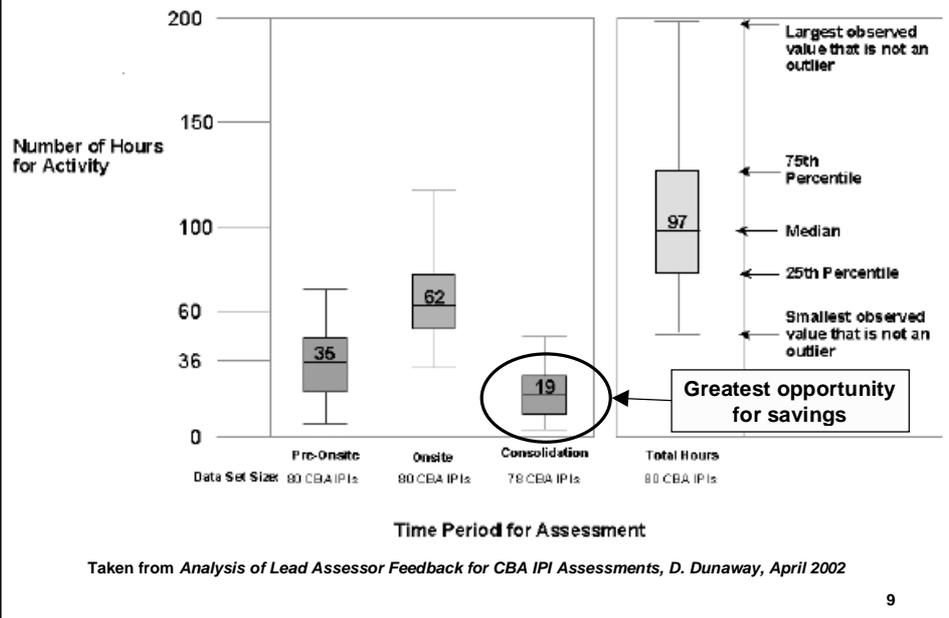
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SCAMPI Objectives

- Gain insight into an organization's engineering capability by identifying the strengths and weaknesses of its current processes
 - Relate these strengths and weaknesses to the CMMI model
- Prioritize improvement plans
 - Focus on improvements (correct weaknesses that generate risks) that are most beneficial to the organization given its current level of organizational maturity or process capabilities
- Derive capability level ratings, as well as a maturity level rating
- Identify development/acquisition risks relative to capability/maturity determinations

Lessons Learned from CBA IPIs



Verification vs. Discovery

- Shift appraisal team focus from discovery to verification
 - Leverage pre-on-site analysis of organization model implementation, e.g.,
 - Documentation (policies, process descriptions, project plans)
 - Mapping and traceability tables (processes to the CMMI)
 - Verification and oversight activities (e.g., internal appraisals, QA audits, status reports)
 - Tools and resources (e.g., databases, measurement repositories, configuration management tools)
- Mappings generated and reviewed prior to the on-site period
 - Readiness review conducted to:
 - Determine readiness to proceed
 - Re-evaluate the time required for the on-site period

Objective Evidence Sources

- Instruments
 - Organizational assets reflecting evidence of implementation of CMMI practices (e.g., mapping tables)
 - questionnaires, surveys
- Presentations
 - Overview briefings, tool demonstrations
- Documents
 - Organizational policies, procedures, and implementation-level artifacts
 - Hardcopy, softcopy, hyperlinks
- Interviews
 - Structured interviews, on-call interviews, follow-up interviews
 - Project leaders, managers, practitioners, users

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Practice Implementation Indicators

- Practice implementation indicators (PIIs) - the “footprints” that are the necessary or incidental consequence of practice implementation
 - Include artifacts as well as information gathered from interviews with managers and practitioners
- PII-based process appraisal uses PIIs as the focus for verification of practice implementation
 - This is in contrast to an observation-based approach (CBA IPI) that relies on the crafting of observations that pertain to model implementation strengths or weaknesses

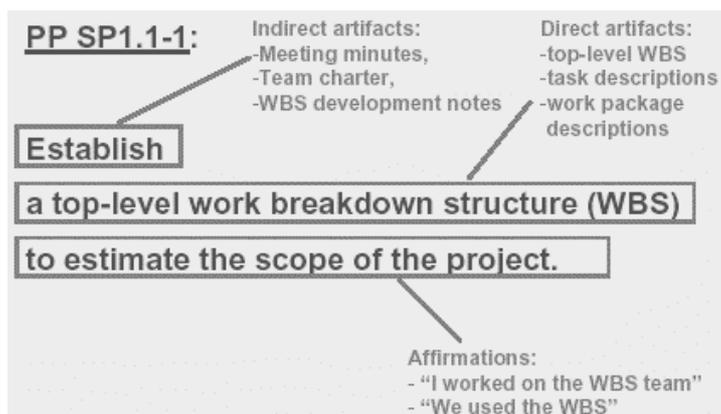
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Practice Implementation Indicator Types

- Direct Artifacts
 - Tangible outputs resulting directly from implementation of a practice; CMMI's "typical work products"
 - e.g., project plan, project performance measures
- Indirect Artifacts
 - Artifacts that are a side-effect or indicative of performing a practice
 - e.g., meeting minutes, reviews, logs, reports
- Affirmations
 - Oral or written statements confirming or supporting implementation of the practice
 - e.g., interviews, questionnaires

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Example of PII Use



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Rules for Characterizing Practice Implementation - Instantiation Level

Label	Meaning
Fully Implemented (FI)	Direct artifacts present & appropriate <ul style="list-style-type: none"> • Supported by indirect artifact &/or affirmation • No weaknesses noted
Largely Implemented (LI)	<ul style="list-style-type: none"> • Direct artifacts present & appropriate • Supported by indirect artifact &/or affirmation • One or more weaknesses noted
Partially Implemented (PI)	Direct artifacts absent or judged inadequate <ul style="list-style-type: none"> • 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

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Process Area & Capability Profile Ratings

- Process Area (PA) ratings (CMMI staged representation) are based on goal satisfaction
 - A PA is rated Unsatisfied, if any goal is rated as Unsatisfied
- Capability Profile (CMMI continuous representation)
 - The capability level for each PA is based upon the highest level and all levels below for which its specific goals (within the appraisal scope) are Satisfied
 - A capability level (CL) rating (0-5) is assigned to each PA

PA and Capability Profile ratings are optional

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Data Collection & Rating Concepts

- Corroboration
 - Must have direct artifacts for each practice and for each instance, combined with either indirect artifact or affirmation
- Coverage
 - Must have sufficient objective evidence for implementation of each practice, for each instance
 - Must have face-to-face affirmations (to avoid “paper-only appraisals”)

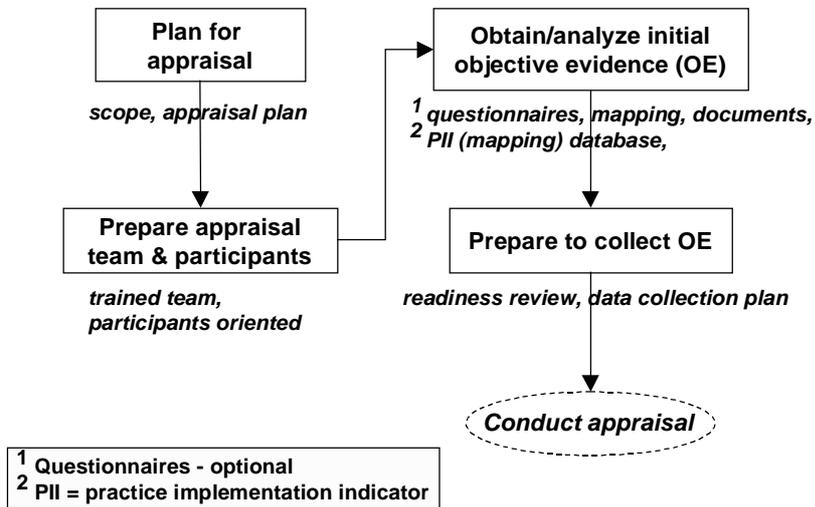
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Generating Findings

- Weaknesses - findings at the OU level that summarize gaps in practice implementation
 - Typically at the goal level
 - No attribution to individual projects
- Strengths - have a different connotation (“above and beyond”) than a CBA IPI
 - Are not recorded if the practices are Fully Implemented

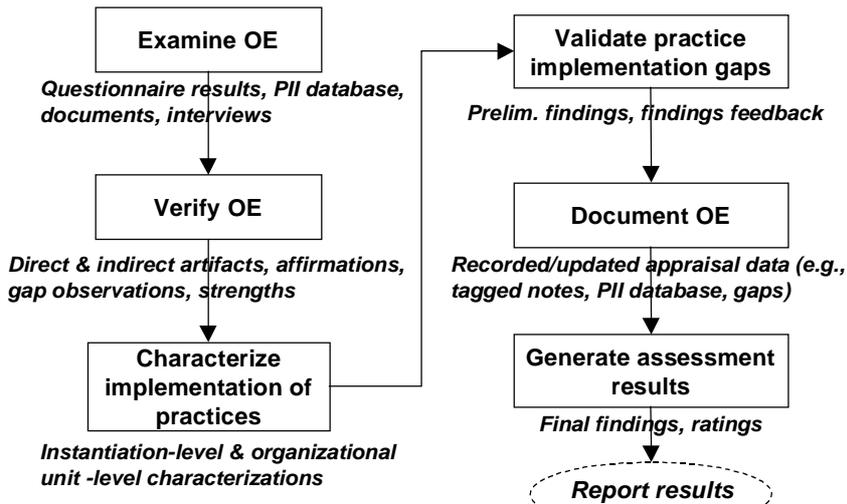
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SCAMPI Process Flow - Plan & Prepare



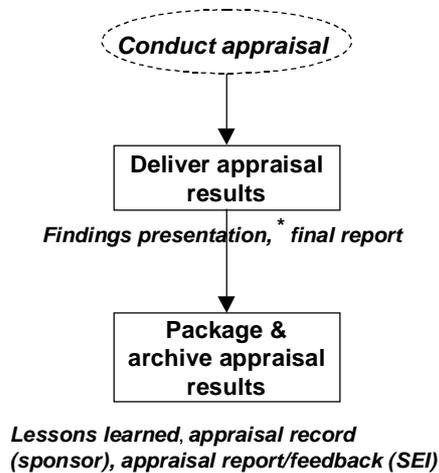
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SCAMPI Process Flow - Conduct



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SCAMPI Process Flow - Report Results



* Final report is optional

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SW-CMM to CMMI Transitioning

- Determine your business objectives for using the CMMI and conducting a SCAMPI
- Learn the CMMI
- Review transition material (available thru the SEI's website)
 - e.g., *The Road to CMMI: Results of the First Technology Transition Workshop*, SEI, Feb. 2002
- Generate mapping table (organizational/project processes to the CMMI)
 - Reference CMM to CMMI model mapping, available thru the Software Technology Support Center, <http://www.stsc.hill.af.mil/cmmi/>
- Determine what appraisal method class is appropriate (A, B, or C)
- SW-CMM sunsetting
 - SEI public training of CMM ceases on Dec. 2003, however Transition Partners may still provide training
 - SCAMPI replaces CBA IPIs and Software Capability Evaluations (SCEs)
 - No more updates to CBA IPI and SCE methods
 - CBA IPI Lead Appraisers and SCE Lead Evaluators trained thru Dec. 2003
 - SCAMPI, the single appraisal method of choice after Dec. 2003

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