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"CBA IPI® vs. SCAMPI℠ Appraisal Methods: Key Differences"

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What is the Standard CMMI Assessment Method for Process Improvement (SCAMPI)?

The SCAMPI Class A Method is:

- Similar to CBA IPI method used for benchmarking
  - Led by authorized Lead Appraiser
  - Tailorable to organization and model scope

NOTE: Whereas; the CBA IPI focuses on the software development capability – SCAMPI *extends the scope* to include Software Engineering, Systems Engineering, Integrated Process and Product Development, and Supplier Sourcing.

CBA IPI vs. SCAMPI Method

CBA IPI

- Provide an accurate picture relative to the CMM
  - Collect process data to understand the current implemented process
  - Identify process strengths and improvement opportunities, including non-CMM issues
  - Determine the degree of satisfaction of the CMM Key Process Areas investigated
- Facilitates continued commitment to SPI
  - Motivates — obtain the “buy-in”
  - Builds ownership of results
  - Provides a framework and catalyst for action
  - Sustains sponsorship and establish commitment

SCAMPI

- Presents a clear picture relative to the CMMI
  - Against model representation (Staged vs. Continuous)
  - Against model suite (CMMI SE/SW, IPPD, or SS)
- Facilitates continued commitment to SPI
  - Provides a continuous approach allows for logical, and tactical approach to implementation
  - Provides a common, integrated appraisal method capable of supporting appraisals in the context of internal process improvement, supplier selection, and process monitoring
  - Provides an efficient appraisal method capable of being implemented within reasonable performance constraints.

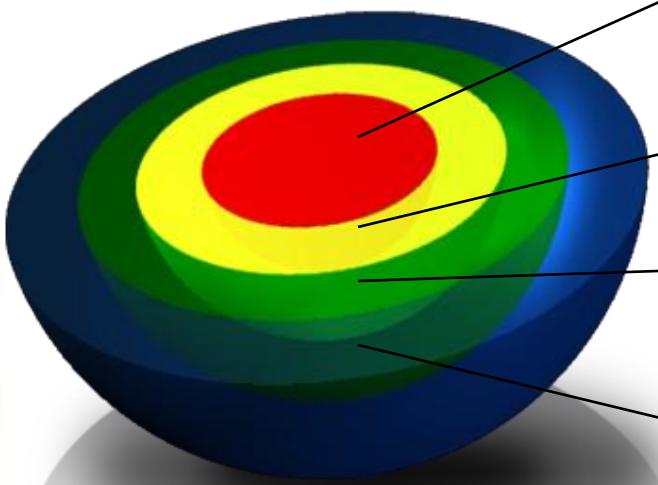
CBA IPI vs. SCAMPI: Estimated Effort Comparison

Model Size (ML3) CMM and CMMI SE/SW v1.1	Key Process Areas = 13 Goals: 37 Practices: Key = 229	Process Areas = 18 Goals: Specific (40) + Generic (36)=76 Practices: Specific (136) + Generic (216) = 352
Data Items	229 * 4 * 2 = 1832 items (Factors = 4 projects, 2 data sources) (note: sampling may occur at the discretion of the LA)	352 * 4 * 2 * 3 = 8448 items (Factors = 4 projects, 2 disciplines, 3 Objective Evidence categories)
Est. Data Collection Time (optimum)	1832 * 1 minute / 4 mini-teams = 7.6 hours/team	8448 * 1 minute / 4 mini-teams = 35.2 hours/team
Est. Consensus Voting	229 * 4 votes * ½ minute = 7.6 hours	352 * 4 votes * ½ minute = 11.7 hours

Shifting focus

- Shift appraisal team focus from *discovery* to *verification*
  - Leverage pre-onsite 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)

Shifting Focus: Determining Implementation



Levels of Consensus

Full Team
Capability Level and/or
Maturity Level Ratings

Full Team
Goal satisfaction ratings

Full Team
Practice Implementation Characterizations
Organizational Unit Level

Mini-Team
Practice Implementation Characterizations
Practice Instantiation Level

Contrasting the Appraisal Methods

Appraisal Method Feature	CBA IPI	SCAMPI
Fundamental Approach / Data Collection Mechanism	Observation-driven (statements)	Practice Implementation Indicator driven
Assessment Team Emphasis	Discovery	Verification
Finding Statements Generated	All strengths and weaknesses	Primarily for weaknesses; avoids crafting of “gratuitous” observations for strengths
Corroboration	2 different sources for valid observations, 2 different data gathering sessions, at least 1 data point reflecting actual work.	Corroboration built into the appraisal data types (direct, indirect, affirmation)

Appraisal Process Overview

Phase 1: Plan and Prepare

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Phase 1 - Plan & Prepare (SCAMPI)

Analyze Requirements

Determine Appraisal objectives, constraints, outputs; obtain commitment

Develop the Appraisal Plan

Tailoring, cost, schedule, resources, estimates, risks

Select and Prepare Team

Provide Team Training
Provide Orientation for Participants

Obtain/analyze Initial Objective Evidence (OE)

Obtain info. that facilitates site-specific activities. Questionnaires, tools, database

Prepare for Collection of OE

Conduct readiness review; develop Data Collection Plan

Conduct appraisal

Incorporates lessons learned from CBA IPI. Prepare for onsite Phase from CBA IPI, expands to address issues with *consolidation*

Select and Prepare the Team

For CBA IPI, required training consists of:

- Introduction to the SW-CMM
- Assessment Team Training

With the SCAMPI, required training consists of:

- Introduction to the CMMI
- Assessment Team Training

However – effective and efficient team behaviors are paramount to SCAMPI process success.

- Team dynamics is much more critical based upon volume of information:
  - Introduction to and reliance on effective team practices to meet SCAMPI required characteristics
  - Verification-based approach
  - Effective data management

CBA IPI vs. SCAMPI: Obtaining Evidence

CBA IPI

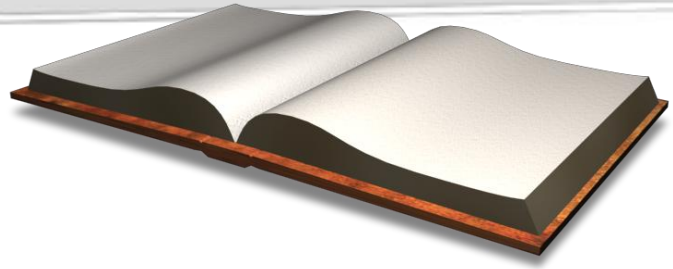
- Assessment data is collected from four data collection sources (instruments, presentations, interviews, and documents)
- Data collection and analysis activities performed *during* the onsite period
- Data collection activities are performed with all members of the assessment team participating as a group
- Validation of evidence performed via team consensus *during* the onsite period

SCAMPI

- Preparation of objective evidence performed *prior* to onsite period
  - Analysis of this preliminary data is critical to the efficiency of the SCAMPI
  - Teams are empowered to conduct characterization at the practice implementation level
- Focus on immediate and *continuous* data consolidation
- Relies upon an aggregation of evidence that is collected via instruments, presentations, documents, and interviews

These activities are initiated in the earliest phases of SCAMPI preparation serving to create an "information processing" mechanism via a Data Collection Plan.

Preparing for Data Collection



The SCAMPI Data Collection Plan includes:

- Assignment of PAs to team members
- Summary of initial Objective Evidence provided by the organization
- Identification of highest priority data needs
- Initial allocation of data needs to data-gathering events
- Identification of instruments to be administered
- Identification of participants to be interviewed
- Interview schedule, revised to include more detail
- Identification of a starter set of interview questions
- Identification of documents still needed (if any)
- Risks associated with the sufficiency of the data and the adequacy of the schedule

For every instantiation of every model practice, the data collection plan must specify how, when, and by whom the Objective Evidence will be verified.

Appraisal Process Flow

Phase 2: Conduct the Appraisal

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Determining Readiness for Onsite Period

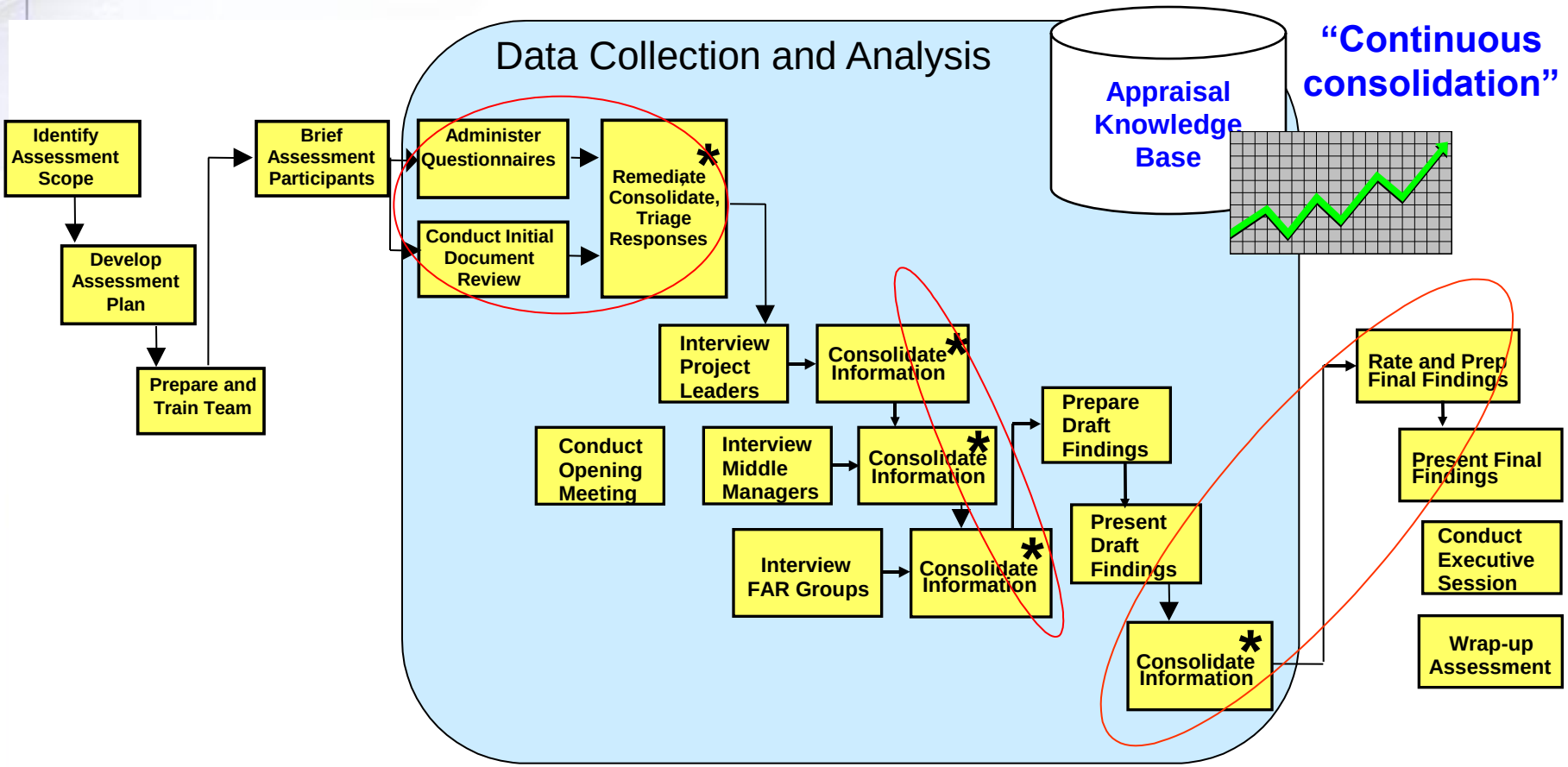
CBA IPI:

Readiness determined informally by team

SCAMPI:

Readiness criteria is defined in a required SCAMPI activity conducted before the onsite appraisal period to mitigate the risk of insufficient data, or the inability to achieve appraisal objectives

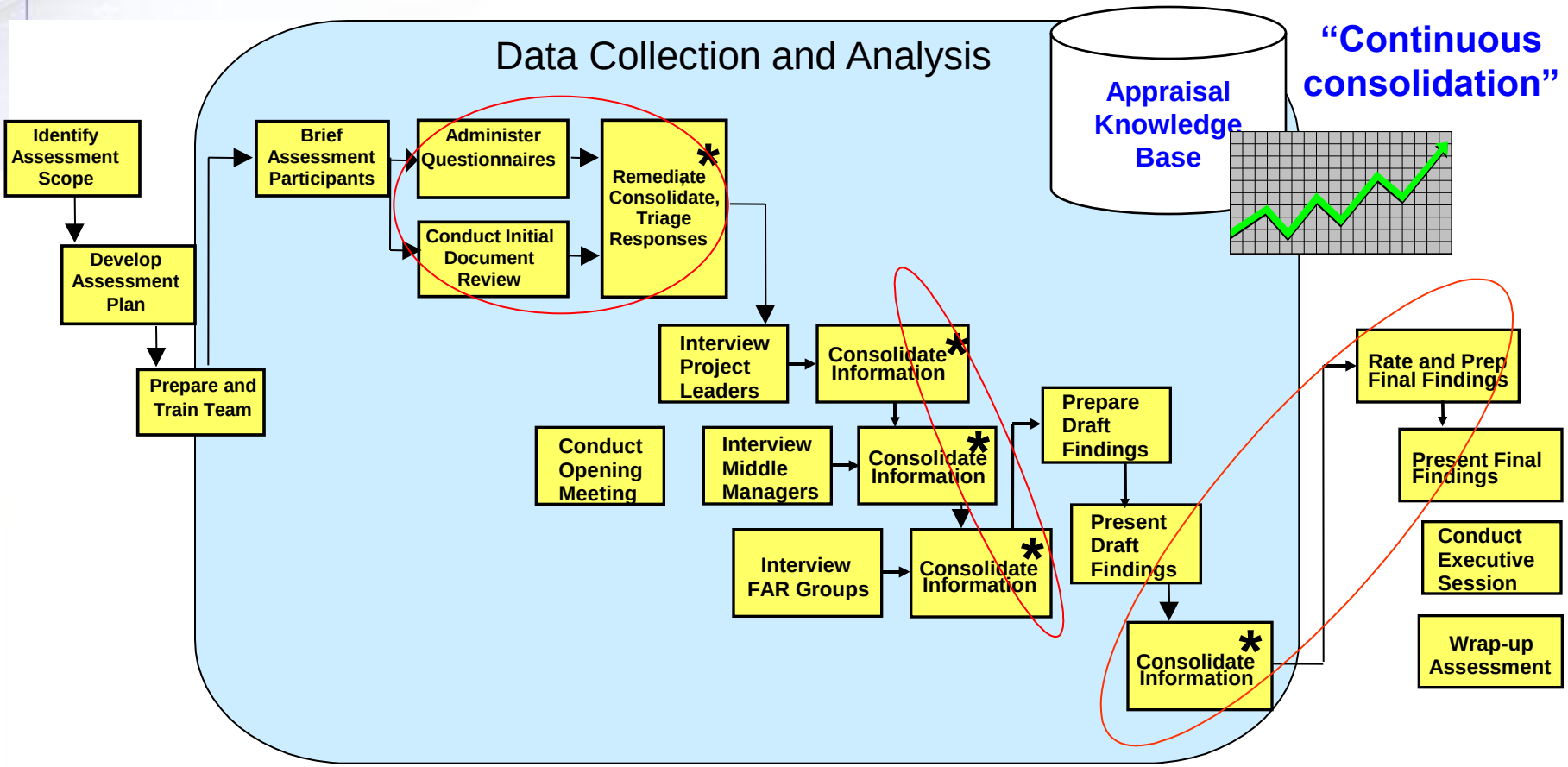
CBA IPI: Consolidation Efforts



* Focused Consolidation and Practice Satisfaction

SCAMPI: Consolidation Efforts

Triage: analysis of pre-onsite data collection (e.g., documentation, questionnaire responses) to focus further on-site investigation (e.g., interviews) for continuous consolidation and feedback.



* Focused Consolidation and Practice Satisfaction

Sufficiency of Data: When is enough, enough?

CBA IPI:

Data Collection Plan not required. Inconsistent evaluation of practices for Key Practices across industries.

For CBA IPI, a CMM Key Practice was considered to have sufficient data coverage if the data collected are adequate to:

- Understand the extent of implementation of the practice
- Represent the organizational scope of the assessment
- Represent the life cycle phases in use within the assessment scope

For SCAMPI Appraisal, "coverage" implies:

- "For every instantiation of every model practice, the data collection plan must specify how, when, and by whom the objective evidence will be verified." (MDD v1.1)
  - That there is sufficient data for each model component within the CMMI reference model scope selected by the sponsor
  - AND, that there is sufficient representative sampling of data for ongoing processes across the lifecycle phases.

MEANING: Data and information must be collected from across all practices for each instantiation being appraised within the organization. How well has the practice been implemented across each of the organizational units?

Appraisal Process Flow

Phase 3: Report

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Phase 3: Reporting Results

CBA IPI:

- Reported ratings in terms of ***Maturity Level*** or ***Not Rated***

SCAMPI:

- Flexibility of the model allows for ratings represented in terms of Process Capability or Maturity Level depending upon model representation
- Appraisal Disclosure Statement (ADS) added to report package

- The ADS, the goal ratings, and the associated findings must be documented as a part of the appraisal information returned to the CMMI Steward (includes estimates for effort)
- Appraisal results are delivered to the Sponsor; the delivery of results should facilitate the actions that will be driven by the information

Preparing for the SCAMPI

How can we leverage from best practices?

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Critical Success Factors

- Start smart, start early!
  - Involve a Lead Appraiser for guidance to avoid any **false starts** and **misconceptions** of the SCAMPI process
  - Consider use of CMMI Class C, and Class B methods in preparation for SCAMPI Class A
  - Determine **"boundaries"** for the organization against the model and disciplines
  - Monitor Data collection activities to prevent schedule slippage
  - Avoid unnecessary preparations that **will not contribute** to the overall collection and validation of data
  - Focus collection activities to **respond to information needs**

Organization Impacts

- Planning activities must begin earlier than CBA IPI
  - Selection and assembling the ‘team’ to target preparation activities
  - Involvement of a Lead Appraiser to support SCAMPI activities and provide “course correction” for misinterpretation
- Sponsor’s commitment to a reasonable and realistic appraisal plan
  - Involvement in analyzing the requirements and planning for the appraisal
  - Provide high level cost and schedule constraints
  - Acknowledgement of expanded time frame and personnel requirements for conducting a SCAMPI appraisal
- Data Collection Plan as a required element of the Appraisal Plan

Major impact: Maintaining CMM process improvement successes, while transitioning to CMMI.

Moving to the SCAMPI method?

- **Strategize**
  - What artifacts do we have in place currently?
    - Artifacts mappings
    - Appraisal/SPI plans
    - Team members/SME's
  - What are my resources, and how can I best apply these resources to aid in SCAMPI preparation?
    - Team
    - Tools
    - Technologies

- **Sequence**
  - What is the optimal sequence of activities, what can we reasonably accomplish in the stated time frame?
    - Focus on process area groupings (Process Management, Project Management, Support Processes, Engineering Processes)
    - Data collection activities should become part of the appraisal "pre-work"; consolidation should be a continuous process

Thank You!

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For more information on ProcessVelocity services:

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