

SCAMPI v1.3 Training

Measures Technology LLC June 2011

Purpose



 The purpose of this training is to provide information to our clients about what needs to be done to plan and prepare for a SCAMPI appraisal using version 1.3.

Outline



- New Terminology
- Key Changes
- Appraisal Planning and Preparation Activities
 - Analyze Requirements
 - Develop Appraisal Plan
 - Select and Prepare Team
 - Obtain and Inventory Initial Objective Evidence
 - Prepare for Appraisal Conduct



Artifact

A tangible form of objective evidence indicative of work being performed that represents either the primary output of a model practice or a consequence of implementing a model practice.





ARTIFACT



Basic Unit

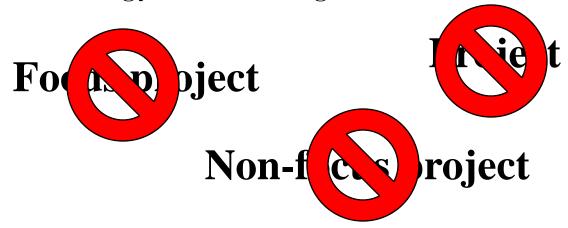
A managed set of interrelated resources which delivers one or more products or services to a customer or end user and typically operates according to a plan. Such a plan is frequently documented and specifies the products or services to be delivered or implemented, the resources and funds to be used, the work to be done, and the schedule of doing the work.

Examples of Basic Units are projects, work groups, and teams.



Focus and Non-focus project

• The concept of focus and non-focus projects has been incorporated into the sampling factors approach. The end result may be that some basic units are "focus" and "non-focus" work, but the terminology is no longer used.





Sampling Factor

Organizational or work context that reflects meaningful differences in the way work is performed across different basic units within the organizational unit. Examples of sampling factors include location, customer, and type of work.

What factors affect the way work is done? These are the sampling factors.



Sampling Factor

- Required sampling factors include:
 - -Location
 - -Customer
 - -Type of Work
 - -Organization Structure
 - -Size

Must consider other possible sampling factors and come to agreement.



Subgroup

Cluster of basic units that share common sampling factor alternatives and exhibit similar process implementations.

There is no limit to the number of possible subgroups.

Outline



- New Terminology
- Key Changes
- Appraisal Planning and Preparation Activities
 - Analyze Requirements
 - Develop Appraisal Plan
 - Select and Prepare Team
 - Obtain and Inventory Initial Objective Evidence
 - Prepare for Appraisal Conduct

Key Changes



- New Terminology
 - New terms were identified in the previous section
- Scoping and Sampling
 - Based on quantitative sampling rules to ensure adequate representation across the OU
- Data Coverage Rules
 - New rules define the amount of evidence required from basic units and support groups within each subgroup
- Data Collection
 - Changes to make data collection more efficient and cost effective
- Team Member Qualifications
 - Requirements for appraisal team selection clarified for team member training, qualification, and experience in the model domains

Outline



- New Terminology
- Key Changes
- Appraisal Planning and Preparation Activities
 - Analyze Requirements
 - Develop Appraisal Plan
 - Select and Prepare Team
 - Obtain and Inventory Initial Objective Evidence
 - Prepare for Appraisal Conduct

Appraisal Planning & Preparation Measures



- Planning and preparation should begin well in advance of the desired time for an appraisal, probably iteratively
- These activities are not always sequential
 - For example, Select Appraisal Team Leader is often done very early because the ATL must discuss and come to agreement with sponsor on many items
- Some activities may be done by designees, but the final result must be agreed to by the Sponsor and Appraisal Team Leader
- All activities have some requirements
- All activities have parameters and limits

Analyze Requirements



Determine Appraisal Objectives

Determine
Data
Collection
Strategy

Determine Appraisal Constraints Determine Appraisal Scope

Determine Appraisal Outputs

Obtain Commitment to Initial Plan

Analyze Requirements



- Analyze Requirements
 - Determine Appraisal Objectives
 - Determine Data Collection Strategy
 - Determine Appraisal Constraints
 - Determine Appraisal Scope
 - Determine Appraisal Outputs
 - Obtain Commitment to Initial Appraisal Plan

Determine Appraisal Objectives Measures



- **Determine Appraisal Objectives**
 - Need to support the business objectives

What is important to the organization? The appraisal should support those goals.

 Must have at least one communication between the sponsor and the Appraisal Team Leader, probably will need more

Determine Data Collection Strategy Measures



Determine Data Collection Strategy

The overall Data Collection Strategy has a big impact on:

- The amount of time and effort to prepare for the appraisal
- The ability of the team to make judgments
- The usefulness and accuracy of the results
- The overall cost of the appraisal

Choose 1 Method



Determine Data Collection Strategy Measures



- Determine Data Collection Strategy
 - Must identify when the data will be collected; during appraisal preparation or appraisal on-site
 - Need to identify what collection techniques will be used for artifacts; documents, demonstrations, presentations
 - Need to identify what collection techniques will be used for affirmations; interviews, demonstrations, presentations
 - Must have a high level schedule for collecting data
 - Must define roles and responsibilities for collecting data
 - Must be defined in the Data Collection Plan of the Appraisal Plan

Determine Appraisal Constraints Measures



- **Determine Appraisal Constraints**
 - Initially identified at high level

 Should include all constraints that could impact the appraisal

Cannot have more than 4 people for the team from the organization!

Must have appraisal completed during Q3.

Cannot last more than 3 weeks of time.

 Constraints identified in the Appraisal Plan must be negotiated between the Sponsor and the Appraisal Team Leader



- Determine Appraisal Scope
 - Includes model scope and organizational scope
 - Model scope must be defined early, has impact on many aspects of planning
- Determine Model Scope (Questions to ask?)
 - Which model representation is appropriate; staged or continuous?
 - If Staged representation, which Maturity Level is appropriate?
 - If Continuous representation, which Capability Level is appropriate for each Process Area?
 - Which Process Areas are important to the organization?
 - Which Process Areas are related to the business objectives?
 - Which Process Areas are not related to the work?



- Determine Organizational Scope
 - Determined by selecting support functions and sampling basic units to provide data for the appraisal

Use the sampling factors to reflect meaningful differences in the conditions under which work is performed.

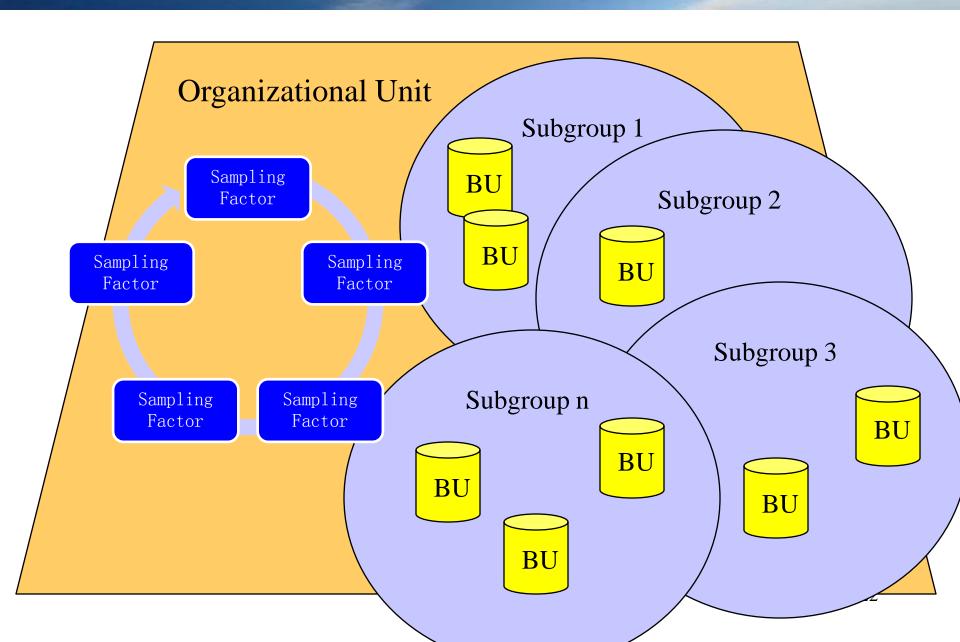
Define subgroups according to the sampling factors.

Sample basic units within the subgroups to represent the organizational unit.

Can be iterative with an initial scope and then perform a rescoping based on the needs of the Sponsor. This iterative cycle is managed by the ATL and the Sponsor.

Must map the Process Areas to the basic units and support functions.







- Candidate Sampling Factors (Required)
 - Location
 - Customer
 - Size (of basic unit or support function)
 - Organizational Structure
 - Type of Work

Other possible sampling factors must be considered.

Potential sampling factors that do not drive differences in the way work is performed may reasonably be excluded.

Each basic unit is allocated into possible subgroups.

All subgroups with 0 basic units may be excluded.



Basic units are selected from each subgroup based on a specific formula

Number of basic units selected from a specific subgroup



Number of subgroups



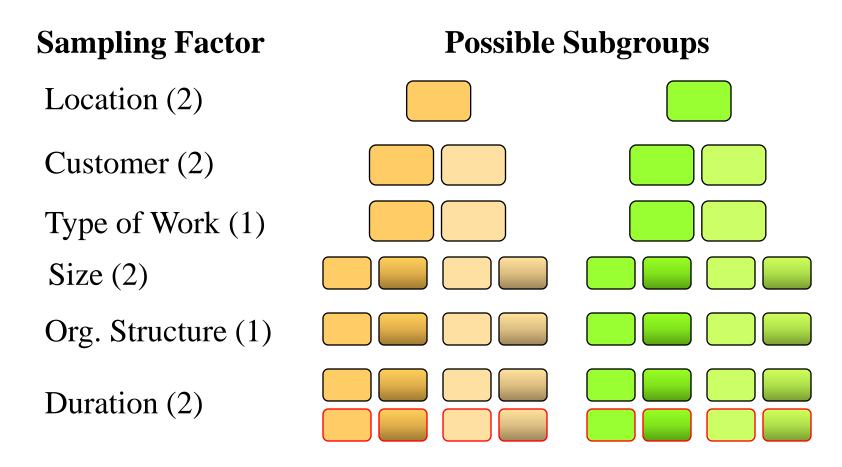
Number of basic units in the specific subgroup

Total number of basic units

- If result is a fraction less than 1, required to have at least 1 basic unit
- If result is fraction greater than 1, standard rounding rules must be followed (e.g. 1.5 becomes 2, and 1.49 becomes 1)

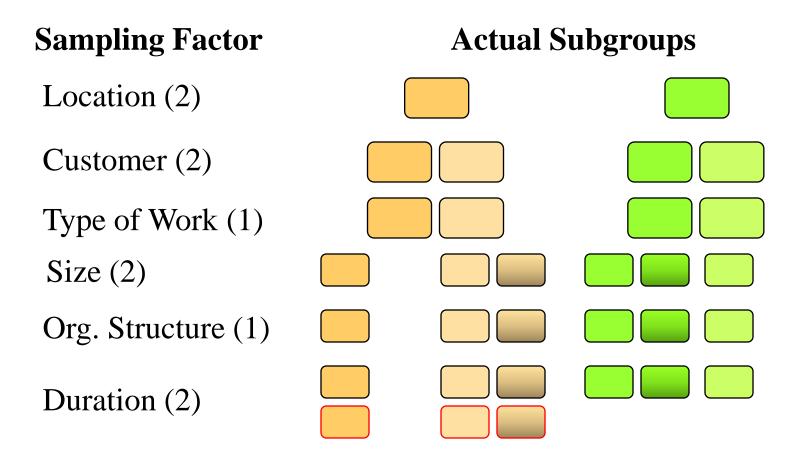


 Example from a fictional company: Super Technology Co., Ltd.





Exclude Possible Subgroups that are not relevant.





- Coverage Rules replace "50% Rule" and "1 Row 1 Column"
- Ensure corroboration of evidence from multiple independent sources across basic units or support functions
- Apply to three areas
 - Process Areas
 - Basic Units
 - Support Functions



Process Areas

- Coverage 1 Objective evidence for a process area must address all practices of that process area. Each basic unit or support function sampled must address all practices in the process area for which they supply data.
- Coverage 2 Process Areas may be implemented by one of the following:
 - An individual basic unit within a subgroup
 - A single support function for the entire organizational unit
 - A set of support functions that serve different parts of the organizational unit
 - Some hybrid of the above where the groupings of basic units in subgroups would be too limiting



Basic Units

 Coverage 1 - For each subgroup, both artifacts and affirmations shall be provided for at least one basic unit for every process area implemented by basic units within that subgroup.

This sampled basic unit shall provide data for all process areas.

Selection of this basic unit must consider the schedule of work (e.g. lifecycle stage) achieved, in order to maximize coverage of the process areas.



Basic Units

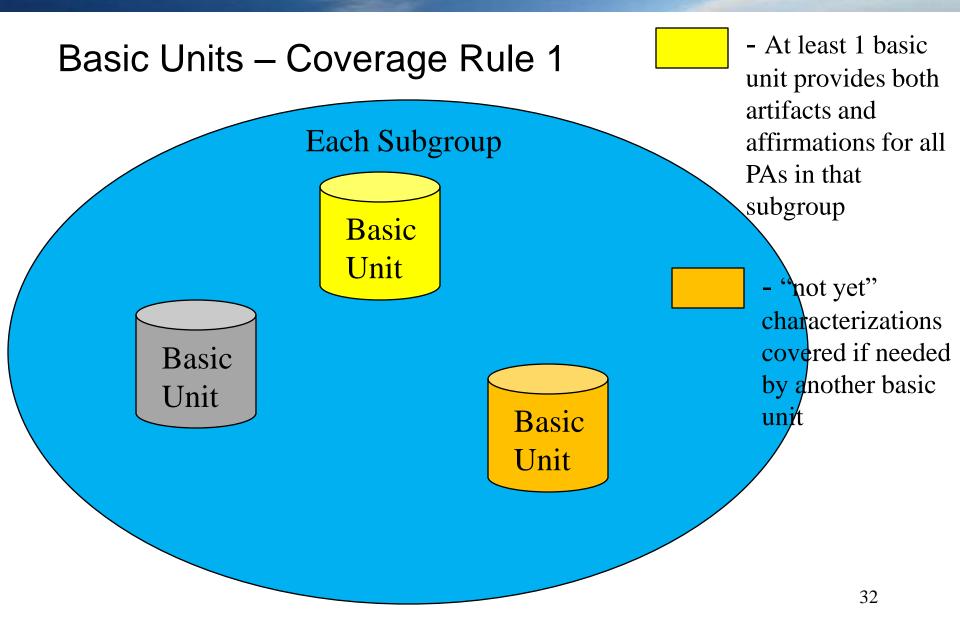
- Coverage 1 (continued) In cases where this sampled basic unit would have "not yet" characterizations in a process area, additional basic units must be sampled to cover that process area (unless no other basic units remain to be sampled in the subgroup).
- Coverage 2 For at least 50% of the sampled basic units in each subgroup, both artifacts and affirmations shall be provided for at least one process area implemented by basic units within that subgroup.



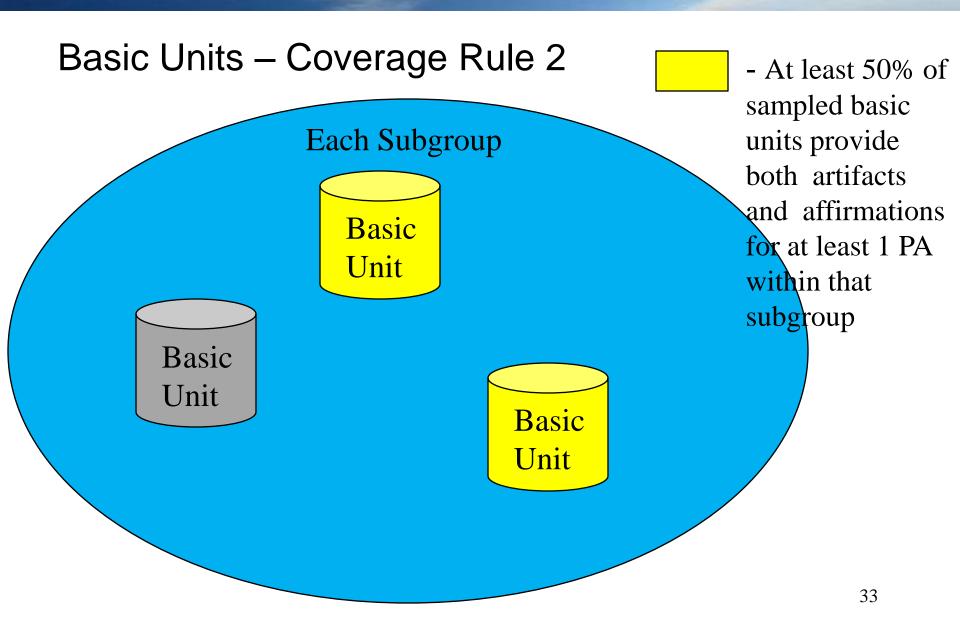
Basic Units

 Coverage 3 – For all sampled basic units in each subgroup either artifacts or affirmations shall be provided for at least one process area implemented by basic units within that subgroup.

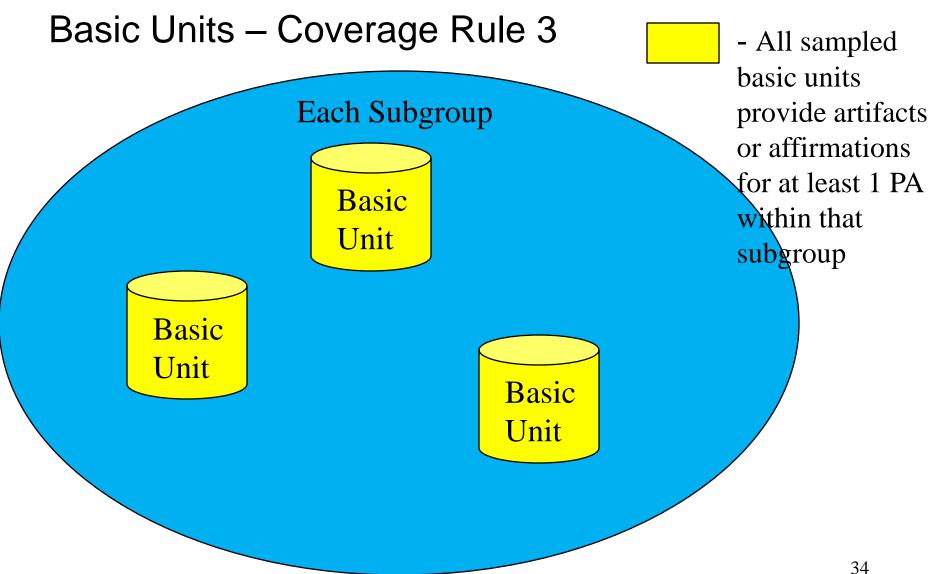














Support Groups

- Coverage 1 Both artifacts and affirmations are provided for each support function for all process areas relating to the work performed by that support function.
- Coverage 2 Artifacts and affirmations provided by support functions shall demonstrate the work performed for basic units for at least one sampled basic unit in each subgroup. This applies for each process area relating to the work performed by that support function for basic units.



Support Groups

 Coverage 3 – Where multiple support functions exist within the organizational unit, all instances of the support function shall be included in the appraisal scope.

For example, if division level Configuration Management groups exist, every CM group in each division included in the organizational unit must be sampled.

Determine Appraisal Scope



Items Required to be Defined and Documented in Appraisal Plan

- Organizational Unit size number of people and number of basic units
- Sizes of basic units number of people in each BU
- Population percentage number of people in the organizational scope / number of people in the organizational unit (x100)
- Basic Unit percentage number of basic units in the organizational scope / number of basic units in the organizational unit (x100)
- Basic Units that are specifically excluded from the appraisal that are within the organizational unit and also documented in the ADS with justification for exclusion

Determine Appraisal Outputs



- Determine Appraisal Outputs
 - Some outputs are required, and some are tailorable
 - Some outputs are dependent on reference models used

What ratings will be generated?

Does the co

Will a final report need to be Written, or is the final presentation sufficient?

Does the customer want recommendations on how to address the findings?

- All process area goals within the appraisal scope must be rated
- Ratings for individual disciplines or individual basic units is not allowed, unless the basic unit is the organizational unit.

Obtain Commitment to Plan



- Obtain Commitment to Initial Appraisal Plan
 - An Initial Appraisal Plan must be created for the Sponsor and Appraisal Team Leader to review and be approved by the Sponsor
 - The minimum required information in the Initial Appraisal Plan will be developed into a template and made available in the near future.

Develop Appraisal Plan



Tailor Method

Identify
Needed
Resources

Develop Data Collection Plan Obtain
Commitment to
Appraisal
Plan

Document and Manage Risks

Plan and Manage Logistics

Determine Cost and Schedule

Develop Appraisal Plan



- Develop Appraisal Plan
 - Tailor Method
 - Identify Needed Resources
 - Develop Data Collection Plan
 - Determine Cost and Schedule
 - Plan and Manage Logistics
 - Document and Manage Risks
 - Obtain Commitment to Appraisal Plan

Tailor Method



- Tailor Method
 - Many tailoring choices are based on the organizational scope and model scope decisions that are made
 - Some selection of choices may be made within the Required Practices (e.g. Executive Briefing)
 - Some parameters may vary within the Parameters and Limits section of the MDD

The Appraisal Team Leader will document all tailoring options in the Appraisal Plan

Identify Needed Resources

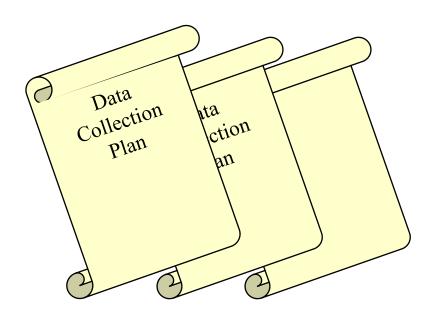


- Identify Needed Resources
 - Identification of needed resources includes
 - Identify appraisal team members
 - Identify appraisal participants
 - Identify equipment and facilities
 - Identify any other appraisal resources needed
 - All of the needed resources must be defined in the Appraisal Plan
 - The Appraisal Team Leader will identify the needed resources and it will be based on discussions with the Sponsor

Develop Data Collection Plan



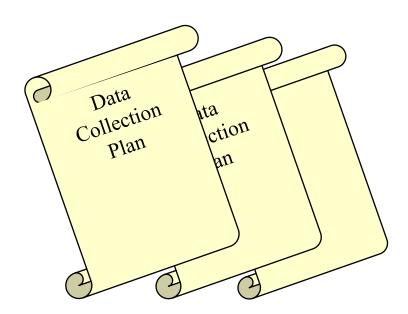
- Develop Data Collection Plan
 - The Data Collection Plan is developed by performing a series of activities during all the planning activities
 - For practices that have objective evidence, a strategy for verifying that evidence will be developed



Develop Data Collection Plan



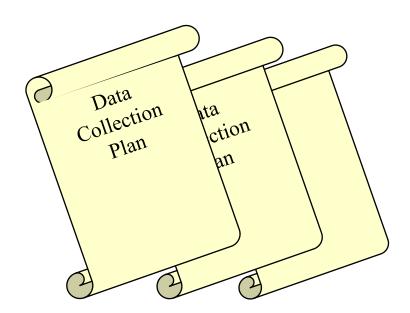
- Develop Data Collection Plan
 - For practices that do not have objective evidence, a strategy for discovering that evidence will be developed
 - Analysis of the Data Collection Plan may lead to risks being identified for the appraisal



Develop Data Collection Plan



- Develop Data Collection Plan
 - For every instantiation of every model practice, the Data Collection Plan must specify how, when, and by whom the objective evidence will be verified. This level of detail will take detailed planning to prepare.



Determine Cost and Schedule



- Determine Cost and Schedule
 - More detailed estimation of cost and schedule are required
 - A top level cost breakdown and schedule must be included in the Appraisal Plan
 - A schedule for each day of the appraisal is required.
 - The Appraisal Team Leader is responsible for preparing these cost and schedule estimates and implementation plans.

Plan and Manage Logistics



- Plan and Manage Logistics
 - Logistical schedules and dependencies should be developed to ensure effective operation of the appraisal
 - Appraisal Team Leader should negotiate needed logistical issues with the Sponsor
 - Appraisal Team Leader should work with the appraisal coordinator and other necessary staff to manage the logistical issues
 - If virtual methods, e.g. videoconferencing, teleconferencing, web-conferencing are to be used during the appraisal they should be clearly identified in the Appraisal Plan

Document and Manage Risks



- Document and Manage Risks
 - Appraisals risks must be identified, documented, and manage
 - The risks and associated mitigation plans should be communicated with the Sponsor and team members
 - The Sponsor and other stakeholders should be kept informed of the appraisal risks status
 - Consideration of appraisal risks must include the following:
 - Personnel
 - Logistic
 - Technical
 - Facilities
 - Schedule

Obtain Commitment to Plan



- Obtain Commitment to Appraisal Plan
 - The Appraisal Plan is documented and reviewed with the Sponsor to obtain their approval
 - The Appraisal Plan should be provided to relevant stakeholders for their review
 - The required contents of the Appraisal Plan include the following, at a minimum:
 - The Initial Appraisal Plan
 - The activities to be performed during the appraisal
 - Resources needed for conducting the appraisal
 - Data Collection Plan
 - Cost and schedule estimates
 - Appraisal logistics
 - Risks and mitigation plans

Obtain Commitment to Plan



- Obtain Commitment to Appraisal Plan
 - Must be a signature block for the Sponsor and the Appraisal Team Leader to indicate their commitment in writing
 - If any changes after approval affect the scope of the appraisal, then the plan must be re-baselined



Select and Prepare Team



Identify
Appraisal
Team Leader

Select Team Members

Document and
Manage
Conflicts of
Interest

Prepare Team Members

Select and Prepare Team



- Select and Prepare Team
 - Identify Appraisal Team Leader
 - Select Team Members
 - Document and Manage Conflicts of Interest
 - Prepare Team

Identify Appraisal Team Leader Measures



Identify Appraisal Team Leader

- A certified SCAMPI Lead Appraiser is selected to lead the appraisal team
- The sponsor should verify the qualifications of the appraisal team leader for experience, knowledge, and skills
- The certification of a SCAMPI Lead Appraiser may be verified on the web at SEI's list of Lead Appraisers: http://www.sei.cmu.edu/partners/directory/individual/ or by contacting SEI directly at: 1-412-568-5800
- Multiple SCAMPI Lead Appraisers may participate on the same appraisal team strengthening the appraisal team. However, there can be only one official appraisal team leader and they may not delegate the leadership responsibilities.



Select Team Members

- The Appraisal Team Leader is responsible to select the appraisal team members
- The Appraisal Team Leader must ensure the team members selected meet the individual requirements and collectively meet the team requirements
- The qualifications and responsibilities of the appraisal team members are documented in the Appraisal Plan
- The Appraisal Team Leader is the final authority on acceptance of appraisal team members and is responsible for ensuring their qualifications and suitability for the appraisal



Appraisal Team Member Requirements

- Each team member must have completed the SEI introductory course related to every reference model (e.g. CMMI-DEV, CMMI-SRV) in the scope of the appraisal.
- 2. The Appraisal Team overall must have experience related to the content of the reference model.

For each reference model the team must have:

- 3. Each team member must have at least 2 years experience performing the type of work addressed in each reference model.
- 4. An average of at least 6 years experience, excluding the Appraisal Team Leader, related to the content of each reference model.



Appraisal Team Member Requirements

For each reference model the team must have:

5. A team total experience of at least 25 years, excluding the Appraisal Team Leader experience, relating to the content of each reference model.

Overall team requirements:

6. Minimum acceptable team size is four people including the Appraisal Team Leader.



Appraisal Team Member Requirements

Overall team requirements:

- 7. The team must have at least 10 years of management experience, and at least one team member must have at least 6 years of experience as a manager, excluding the Appraisal Team Leader.
- 8. The appraisal team, as a whole, must have members with experience performing practices from all of the process areas included in the appraisal scope.



Appraisal Team Member Requirements

- 9. The Appraisal Team Leader is required to evaluate each team members experience.
- 10. Minimum acceptable team size is four people including the Appraisal Team Leader.
- 11. The selected appraisal team members and their organizational affiliations and qualification must be documented in the Appraisal Plan.



Appraisal Team Member Exception

The Appraisal Team Leader, at their discretion, may accept one team member with no field experience.
 However, this exception must be documented in the Appraisal Plan along with the rationale for this exception. The minimum team requirements for field experience still apply to the rest of the team.



Appraisal Team Member Restrictions

- The appraisal team shall not be comprised entirely of staff who wrote the process being appraised.
- If one or more process authors are included on the team, the Risk Management section of the Appraisal Plan must address how potential conflicts of interest will be handled.
- The Sponsor may not be an appraisal team member.
- A senior manager who has supervisory authority over the entire organizational unit may not be an appraisal team member.



Additional Requirements for High Maturity

- Members of high maturity mini-teams must have high maturity experience.
- A high maturity lead appraiser or appraisal team member with statistical analysis and other high-maturity related training and experience shall be assigned to all mini-teams focused on high-maturity process areas.



Document and Manage Conflicts of Interest

- To manage the potential conflicts of interest the Appraisal Team Leader must:
 - Identify potential conflicts of interest
 - Take steps to avoid those conflicts of interest that can be avoided
 - Develop strategies to manage potential conflicts of interest that cannot be avoided and document those strategies in the Appraisal Plan
 - Monitor the conflicts of interest
 - Take appropriate action when the strategies do not work



The Appraisal Team Leader must evaluate a minimum set of potential conflicts of interest, including:

- Are any team members authors of one or more processes included in the scope of the appraisal?
- Are any members of the organization's process group serving on the appraisal team?
- Are any "process owners" serving as appraisal team members?
- Are staff with supervisory responsibility over one or more parts of the organizational unit on the appraisal team?
- Are people who served on previous appraisals (Class C, B, or A) of the organizational unit serving as appraisal team members?



The Appraisal Team Leader must evaluate a minimum set of potential conflicts of interest, including:

- Are any of the appraisal team members in a direct reporting relationship above any appraisal participants or other appraisal team members?
- Will any of the appraisal team members be interviewed or providing evidence?
- Are members of the appraisal team involved in process or product quality audits?
- If using a translator:
 - Is the translator an appraisal team member?
 - Does the translator work for the appraised company?
 - Does the translator work within the organizational unit?
 - Was the Appraisal Team Leader or any of the appraisal team members providing coaching, consulting, or labor for the OU's project work or process identification, documentation, or creation?



Conflict of Interest Management Actions

- The Appraisal Team Leader must keep the sponsor informed about management of potential conflicts of interest.
- If any conflicts of interest prove unmanageable, or compromise the team objectivity and ability to reach valid conclusions, the Appraisal Team Leader must take appropriate steps, up to and including termination of the appraisal.



- The Appraisal Team Leader needs to:
 - Ensure appraisal team members have received model training.
 - Provide appraisal method training to appraisal team members or ensure that they have received it.
 - Encourage team building and establish team norms.
 - Provide an orientation to team members on the appraisal objectives, plans, and their assigned roles and responsibilities.
 - Ensure that no appraisal activity (performed by team members) begins until after the method training related for that activity has been completed.



- All team members must be trained on the following minimum set of topics using the SCAMPI A team training materials provided by the SEI:
 - SCAMPI A method overview
 - Appraisal planning, including contents of the Appraisal Plan
 - Objective evidence collection and analysis
 - Team decision making
 - Appraisal confidentiality and non-attribution
 - Practice characterization
 - Findings development, verification, and validation
 - Rating
 - Appraisal output requirements



- Appraisal method training may be given in one of three possible configurations:
 - To a single appraisal team
 - To multiple appraisal teams at the same time
 - To a group of potential team members for future appraisals
- Appraisal method training provided to a group of potential team members must cover all the possible tailoring options and allowable variations
- Team members that previously attend appraisal method training are not automatically qualified to participate on another appraisal



- There must be at least one event where the team gathers to establish team norms and make operational decisions about how the team will work during the appraisal
- Any training related waivers must be documented in the Appraisal Plan
- Only SEI-Certified SCAMPI Lead Appraisers and People CMM Appraisers may deliver appraisal method training
- Observers are not permitted to participate in the appraisal processes

Obtain and Inventory Initial Objective Evidence



Obtain
Initial
Objective
Evidence

Inventory Objective Evidence

Obtain and Inventory Initial Objective Evidence



- Obtain and Inventory Initial Objective Evidence
 - Obtain Initial Objective Evidence
 - Inventory Objective Evidence

Obtain Initial Objective Evidence



- Obtain Initial Objective Evidence
 - Data reflecting the implementation of the model practices among sample basic units and support functions within the OU must be obtained
 - The organization must provide, at a minimum, a list of artifacts that are relevant among sample basic units and support functions unless a full discovery-based appraisal has been planned. This list must be mapped to the model practices that are within the scope of the appraisal.
 - This list of the initial objective evidence will be used to evaluation the parameters regarding data collection.

Inventory Objective Evidence



- Inventory Objective Evidence
 - The initial objective evidence must be examined unless a discovery-based appraisal has been selected
 - After examining the initial objective evidence a determination must be made about the extent of additional objective evidence that is needed to obtain adequate coverage of the model practices within the scope of the appraisal
 - In the process of creating the inventory of initial objective evidence alternative practices must be considered
 - The results of this activity may form the basis for a revised schedule estimate to complete the appraisal

Prepare for Appraisal Conduct



Perform
Readiness
Review

Re-plan Data Collection

Prepare for Appraisal Conduct



- Prepare for Appraisal Conduct
 - Perform Readiness Review
 - Re-plan Data Collection



- The Readiness Review is focused on several key points:
 - To determine whether the objective evidence for each instance of each practice in the appraisal scope is adequate to proceed with the appraisal as planned
 - To determine whether the appraisal team is prepared to conduct the appraisal
 - To ensure the appraisal logistics have been arranged and confirmed
 - To review the identified appraisal risks to determine the status and impact to conducting the appraisal as planned
 - To review the feasibility of the Appraisal Plan in light of data readiness, team readiness, logistics readiness, and overall risk



- Perform Readiness Review Requirements
 - The number of Readiness Reviews planned and their dates must be documented in the Appraisal Plan
 - Explicit criteria for readiness must be established by the Appraisal Team Leader and documented in the Data Collection Plan
 - At least one Readiness Review must be conducted
 - If the team members perform document review for the purpose of data collection to support characterization or if any practice characterizations are made, then the "90 day" time period for conducting the appraisal has begun
 - If the "90 day" time period is started during the Readiness Review all team members must be present to participate in those activities



- Perform Readiness Review Requirements
 - A Readiness Review may not be performed to identify weaknesses with the intent to fix them prior to performing the appraisal
 - If the Readiness Review is integrated with a Class B or Class C appraisal, then additional requirements apply:
 - The phase II start date of the Class B or Class C appraisal is taken as the start of the "90 day" period for performing the phase II of the SCAMPI A appraisal
 - The draft Appraisal Plan for the SCAMPI A must be written prior to the start of phase I of the Class B or Class C appraisal.



- Perform Readiness Review
 - The result of the Readiness Review will be to make a decision to continue as planned, re-plan or reschedule, or cancel the appraisal.
 - The Appraisal Team Leader and the Sponsor are responsible for making this decision after the Readiness Review.

Go

No-Go

Re-plan Data Collection



Re-plan Data Collection

- Re-planning Data Collection includes reviewing the current inventory of objective evidence and determining model practices where the objective evidence is inadequate in relation to the Appraisal Plan
- Revise the Data Collection Plan as necessary
- Re-negotiate the Appraisal Plan with the Sponsor if the appraisal cannot proceed as planned

SCAMPI v1.3 Training



End of SCAMPI v1.3 Training