SCAMPI Appraisals

9

Key Topics

› Appraisal Plan
› Conducting an Appraisal
› Objective Evidence
› SCAMPI (Class A, B, C) Appraisals
› Reporting the Results

9.1 Introduction

Appraisals play an essential role in the software process improvement programme. They allow an organization to understand its current software process maturity, including the strengths and weaknesses in its processes. An initial appraisal is conducted at the start of the initiative to allow the organization understand its current process maturity and to plan and prioritize improvements for the first improvement cycle. Improvements are then implemented, and an appraisal is typically conducted at the end of the cycle to confirm progress (Fig. 9.1).

An appraisal is an independent examination of the software engineering and management practices in the organization and is conducted using the SCAMPI[1] appraisal methodology [SCA:06]. The appraisal will identify strengths and weaknesses in the processes and any gaps that exist with respect to the CMMI practices.

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[1] There are three classes of SCAMPI appraisals and these are termed Class A, B, C. They differ in the level of formality, the cost and duration, and the reporting of the appraisal results.
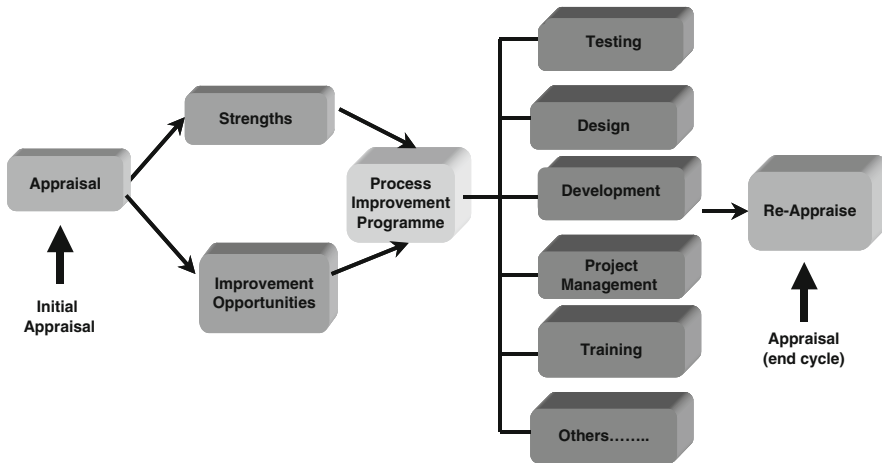
Fig. 9.1 Appraisals and process improvement

The appraisal leader kicks off the appraisal with an opening presentation. This allows the appraisal leader to introduce the appraisal team[2] and to summarize the activities that will be carried out in the days ahead. These will include presentations, interviews, reviews of project documentation, and detailed analysis to determine the extent to which the specific and generic practices have been implemented and whether the specific and generic goals for each process area within the scope of the appraisal are satisfied.

Sample output[3] from a SCAMPI Class A CMMI level 3 appraisal is presented in Fig. 9.2. Each column represents a CMMI process area and each row represents a specific or generic practice. Colour coding is employed to indicate the extent to which the specific or generic practices have been implemented. The extent of implementation may be

- Fully satisfied
- Largely satisfied
- Partially satisfied

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[2]The appraisal team could be the CMMI project manager only (if the project manager is a SCAMPI trained appraiser); alternatively, it could be an external appraiser and the CMMI project manager. A SCAMPI Class A appraisal could involve a large team of four to nine appraisers (including a SCAMPI lead appraiser) for a large organization. There is a strict qualification process to become a SCAMPI lead appraiser, and it requires attending the official SEI CMMI and SCAMPI training and conducting two appraisals under the direction of a qualified SCAMPI lead appraiser.

[3]The type of output to be provided is agreed in discussions between the appraisal sponsor and the appraisal leader. The output may just be the strengths and improvement opportunities identified. In other cases, the ratings may just be of the specific and generic goals rather than of the practices.
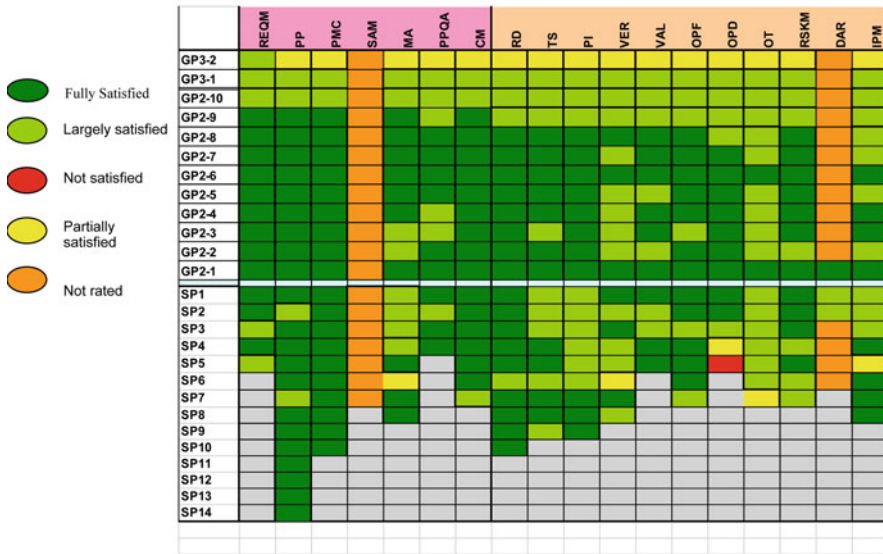
Fig. 9.2 CMMI L3 rating of practices

- Not satisfied
- Not rated

The appraisal leader will present the appraisal findings, and the appraisal output may include a presentation and an appraisal report. The appraisal output summarizes the identified strengths and opportunities for improvement. Ratings of the process areas will be provided when ratings are part of the scope of the appraisal. The ratings will indicate the current maturity of the organization's processes and any gaps that exist with respect to the targeted CMMI maturity level.

The appraisal findings allow the CMMI project manager to plan and schedule the next improvement cycle and to continue with the CMMI improvement programme. Appraisals allow an organization to

- Understand its current maturity (including strengths and weaknesses of its processes)
- Relate its strengths and weaknesses to the CMMI specific and generic practices
- Prioritize its improvements for the next improvement cycle
- Benchmark itself against other organizations (SCAMPI Class A)

There are three phases in an appraisal (Table 9.1).

Table 9.1   Phases in a CMMI appraisal

Phase	Description
Planning and preparation	This involves identifying the sponsor's objectives and the requirements for the appraisal. A good appraisal plan is fundamental to the success of the appraisal
Conducting the appraisal	The appraisal team interviews the participants and examines data to judge the extent to which the CMMI is implemented in the organization
Reporting the results	The results of the appraisal are reported back to the sponsor. This will usually include a presentation of the findings and an appraisal report

9.2
Planning and Requirements for the Appraisal

Good planning is essential to the success of the appraisal. The appraisal leader[4] will determine the appraisal objectives in discussions with the sponsor. The type of appraisal to be conducted is determined, and an appraisal plan is developed to meet the sponsor's requirements. The appraisal leader then forms a team to conduct the appraisal.

There are three classes of SCAMPI appraisals [ARC:06] that may be conducted, and they vary in formality; the appraisal findings to be generated; and the output, duration, and cost. The three classes of SCAMPI appraisals (Class A, B, and C) are defined in Fig. 9.3.

Requirements	Class A	Class B	Class C
Type of objective evidence	Documents and interviews	Documents and interviews	Documents or interviews
Ratings generated	Goal ratings required	Not allowed	Not allowed
Organizational unit coverage	Required	Not required	Not required
Minimum team size	4	2	1
Appraisal team leader requirements	Lead appraiser	Person trained and experienced	Person trained and experienced

Fig. 9.3   SCAMPI (classes of appraisals)

[4]For a formal SCAMPI Class A appraisal the appraisal team leader will need to be a qualified SEI SCAMPI lead appraiser.

The initial evidence provided by the organization will often consist of questionnaires and Practice Implementation Indicator Descriptions (PIIDs[5]). The appraisal leader will analyse the initial evidence to get a preliminary understanding of the organization's processes and maturity.

9.2.1
Analyse Requirements

The appraisal leader will determine the goals and objectives of the appraisal in discussions with the sponsor. The appraisal leader may give an overview of the CMMI and appraisals to the sponsor and relevant members of the organization. This is to ensure that the purpose of appraisals, the various types of appraisals that may be conducted, and the output that may be produced are understood. This is essential when the organization is relatively new to software process improvement.

It will be explained where appraisals fit into software process improvement and how the output from the appraisal is used in the next improvement cycle. The objectives of the appraisal should be realistic and constraints such as cost, schedule, and effort determined.

The business goals of the software process improvement initiative may influence the scope and type of appraisal to be conducted. The business goals may include

– Reducing costs of software development
– Delivery software consistently on time
– Delivering high-quality software
– Delivering software fast to market ahead of competitors
– Marketing benefit of CMMI maturity level as a differentiator to its competitors

A software process improvement initiative will generally focus on improvements to those processes in the organization that will lead to the greatest business benefit. The appraisal is an objective way to determine if these processes have actually improved, as well as determining their actual maturity. Some companies may be interested in the marketing benefit of a CMMI maturity level rating and may wish to benchmark themselves against other companies. They will generally be interested in a formal SCAMPI Class A appraisal.

The scope of the appraisal determines the CMMI process areas that will be appraised; the parts of the organization to be examined; the participants; and the projects and support functions involved.

The sponsor will decide on the appraisal outputs to be produced, and this may include strengths and weaknesses in the processes; ratings of the process areas appraised; a final

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[5]The PIID is a mapping between the specific and generic practices in the CMMI model and the processes employed in the organization. It shows how the organization has implemented the CMMI. It is produced prior to the appraisal.

findings presentation with recommendations; and an appraisal report. The appraisal input gathered from the discussions will include

– Identity of appraisal sponsor
– Appraisal leader and team
– Participants in appraisal
– Objectives of appraisal
– Scope of appraisal
– Selected projects
– Constraints
– Confidentiality requirements
– Appraisal outputs

   The sponsor and appraisal leader verbally agree the appraisal input which is then documented in the appraisal plan.

9.2.2
Develop Appraisal Plan

The appraisal plan is prepared by the appraisal leader, and it describes the scope of the appraisal and how it will be conducted. It will include input gathered in discussions with the appraisal sponsor and the plan documents

– Identity of appraisal sponsor
– Appraisal leader and team
– Scope of the appraisal
– Objectives and constraints
– Projects to be examined
– Participants
– Appraisal schedule
– Risks to success
– Appraisal outputs

   The plan will detail the effort required, cost involved, and the schedule for the appraisal. It will also document how the appraisal will be conducted as well as the resources required. The key personnel involved will include the appraisal leader, the appraisal team, the on-site coordinator, and the participants.

   The logistics requirements for the appraisal need to be determined and documented in the appraisal plan. These may include accommodation and meals, transportation, and access to rooms and equipment. The appraisal plan will describe how data are collected and validated. A sample appraisal schedule for a SCAMPI Class C appraisal is given in Fig. 9.4.

   The risks to the success of the appraisal need to be identified and managed. Finally, once the appraisal plan is complete it is reviewed and approved by the appraisal sponsor.

	Day 1	Day 2	Day 3
TIME			
9:00	Site Briefing (Kick Off)	Team Planning	Consolidate Feedback
		Interview Project	Produce
10:00	Interview Project	Manager 3	(Informal Ratings)
	Manager 1	Consolidate Notes	Prepare Feedback
11:00	Consolidate Notes	Interview Project	Presentation
	Interview Project	Team 3	
12:00	Team 1	Consolidate Notes	Feedback
	Consolidate Notes / Lunch		
		Lunch	Presentation
13:00			
	Interview Project	Demo VSS / Intranet	
14:00	Manager 2		
	Consolidate Note	Consolidate Notes	
15:00	Interview Project	Interview QA/SEPG	
	Team 2	Consolidate Notes	
16:00	Interview Support Team	Conduct Extra	
	Team	Interviews	
17:00	Consolidate Notes	Consolidate Notes	

Fig. 9.4 Sample schedule for SCAMPI Class C appraisal

9.2.3
Select and Prepare Team

The appraisal leader is responsible for ensuring that the appraisal is conducted in accordance with the appraisal methodology. The leader will determine the size[6] and composition of the team and will select team members who are appropriately qualified and have sufficient knowledge and experience to conduct the appraisal effectively. Any knowledge and skill gaps will need to be identified and addressed by training[7] prior to the appraisal.

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[6]The minimum acceptable team size for a SCAMPI Class A appraisal (as in Fig. 9.3) is four and the maximum is nine. The minimum team size for Class A is one and for Class B is two.

[7]The appraisers need to have received appropriate training on the CMMI reference model and on the SCAMPI appraisal methodology.

The methodology requires that the team has sufficient software engineering and management experience. Team members also need good verbal and written communication skills to enable them to carry out their roles effectively.

The appraisal leader will introduce the team members to one another and will give the team an overview of the goals of the appraisal; its scope; the appraisal plan; and the approach to the appraisal. This orientation will enable the appraisal team to carry out their assigned roles effectively.

The initial information provided by the organization (e.g. completed questionnaires and PIIDs) will be analysed and the data collection and validation methods and tools to be employed during the appraisal discussed. There are confidentiality requirements to be preserved during an appraisal. For example, everything that is said by individuals during the interviews is treated in the strictest confidence, and appraisal findings are not attributed to individuals.

There are several roles involved in the appraisal including the *on-site coordinator*[8] who takes care of the logistics to support the appraisal team leader; the *librarian* who manages the inventory of appraisal documents; *mini-teams* who are responsible for data collection for their assigned process areas; *facilitators* who conduct the interviews; and *timekeeper* who keeps the interview on time.

9.2.4
Obtain and Analyse Initial Evidence

The organization will provide initial information to the appraisal leader prior to the appraisal to show how it has implemented the CMMI. This helps the appraisal team to understand how the organization has implemented the various practices in the CMMI model and assists the team in preparing a data collection plan to verify the implementation. The initial evidence may include completed questionnaires, relevant presentations, and a PIID mapping between the CMMI specific and generic practices and the process assets of the organization.

This initial evidence is analysed by the team to enable them to understand the objective evidence available for the specific and generic practices. An inventory of the evidence available for the various CMMI practices is prepared, and the adequacy and completeness of the information provided is determined. This may result in the need for additional data which are then input into the data collection plan.

There is a need for objective evidence to substantiate implementation of every practice within the scope of the appraisal and for every project instance of that practice. The extent to which the practice has been implemented is judged by practice implementation indicators. These are given in Table 9.2.

It is important to collect as much objective evidence as possible prior to the appraisal, as this will reduce the time required for discovery activities during the appraisal. The

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[8]The CMMI project manager is responsible for project managing the CMMI implementation and may carry out the role of on-site coordinator.

Table 9.2 Indicators of practice implementation

Indicator	Description
Direct artefact	Tangible output of the practice (e.g. typical work products in CMMI model)
Indirect artefact	Artefacts that are a consequence of performing the process (e.g. meeting minutes), but not necessarily the purpose for which it is performed
Affirmation	Oral or written statements confirming the performance of a practice

discovery activities are concerned with looking for evidence to support practice implementation, and an efficient on-site appraisal will focus more on verification activities rather than on discovery activities.

9.2.5
Prepare for Conducting Appraisal

The appraisal leader will conduct an appraisal readiness review to judge the extent to which the organization is ready for the appraisal. There is no point in going ahead with the appraisal if the organization is not ready or is insufficiently prepared.

The sponsor and appraisal leader will consider the feasibility of the appraisal plan and will decide on whether to continue with the appraisal as planned, to re-plan accordingly, or in a worst case scenario to cancel the appraisal.

The appraisal leader will judge whether the preliminary data are available and whether the appraisal team has been formed and appropriately trained. The logistics will need to be suitably handled and the risks to the appraisal identified and managed.

The PIIDs will detail the coverage of the CMMI specific and generic practices, and it is reasonable to expect few significant coverage gaps prior to the appraisal. The PIID will refer to documents and evidence, and these need to be accessible to the appraisers. The appraisers need a verification strategy to verify the objective evidence that is available for practices, as well as a discovery strategy to find objective evidence for practices that have no available objective evidence. The verification and discovery activities to take place during the appraisal are documented in the data collection plan.

The data collection plan may be documented in a variety of deliverables (e.g. interview schedule and participants and scripted interview questions). It may include a spreadsheet with the CMMI practices or questions listed vertically and sources of information listed horizontally. Data on every practice within the scope of the appraisal are required.[9]

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[9]Data are required for every project instantiation for practices addressing processes at the project level. One instantiation is sufficient for practices addressing processes at the organization level.

The appraisal leader will determine the participants required at each interview and the documents to be reviewed. The roles and responsibilities of team members in data collection activities will be documented in the data collection plan.

9.3
Conducting the Appraisal

This phase of the appraisal is concerned with on-site activities to gather data on the extent to which the specific and generic practices have been implemented. It involves gathering and examining the objective evidence, as well as documenting and verifying the data. The preliminary findings are generated and presented to the appraisal participants to get feedback in order to validate the data and findings. Additional data are then gathered and the final appraisal results prepared. The activities involved include

– Prepare participants
– Collect objective evidence
– Examine objective evidence
– Verify objective evidence
– Validate objective evidence
– Generate appraisal findings

The appraisal participants will receive appropriate training on the appraisal process and their role in it. The appraisal team members take notes and gather objective evidence during the various data collection activities. The objective evidence is then reviewed and consolidated, related to the specific and generic practices, critically examined and documented, and verified and validated. The extent to which the CMMI practices are implemented is determined.

Preliminary findings are prepared and validated and the final appraisal results are then prepared.

9.3.1
Prepare Participants

The on-site coordinator (this may be the CMMI project manager) will give appropriate orientation to the appraisal participants prior to the appraisal to ensure that they understand the purpose of the appraisal and their role in it. This will be the first experience of an appraisal for many in the organization, and so the participants need to understand the process and the required behaviours:

– Professional behaviour at all times
– Punctuality in attendance for interviews
– Openness and honesty in answering questions
– Acting promptly on requests to provide additional material

– Awareness of the confidentiality requirements
– Awareness that the appraisal findings will not be attributed to individuals or specific projects

The participants need to be aware of the meetings and interviews that they need to attend. All participants will attend the opening and closing sessions and will attend their own specific interview(s) and the feedback session(s).

The sponsor introduces the appraisal leader at the opening session, and the leader will set the context and expectations for the appraisal and describe the activities that will take place in the days ahead. The leader gives a brief overview to the participants on the appraisal process and schedule, and the appraisal team is introduced. The opening presentation will typically cover

– Overview of appraisal
– Appraisals and process improvement
– Process areas within scope of appraisal
– Projects to be reviewed
– Activities in appraisal
– Participants in appraisal
– Confidentiality
– Appraisal schedule
– Output from appraisal

The information provided by participants will be treated in the strictest confidence by the appraisal team, and that none of the appraisal findings will be attributed to individuals or projects. This is important, as otherwise participants may be reluctant to share information.

9.3.2
Examine Objective Evidence

The accuracy of the appraisal findings is dependent on the accuracy of the information collected by the appraisal team. The team needs to collect adequate information on how the organization does its work needs, and the information gathered needs to be related to the CMMI specific and generic practices. This requires that the appraisal team understands how the organization has implemented the CMMI and has objective evidence of specific and generic practice implementation.

The data collection needs to be well planned and tracked and it will be revised appropriately during the appraisal to reflect new information needs. The data collection plan consists of

– Appraisal schedule
– Interview schedule
– Document list
– Interview questions

The appraisal team will continually manage the data collected and plan new data collection in line with information needs. The data collection sources include

– Interviews with appraisal participants
– Reviews of documentation
– Presentations from staff

The interviews need to be well planned as they have a limited amount of time to determine specific evidence (e.g. oral affirmation on the way the process is performed) from the participants. The planning requires the preparation of scripted questions to ensure that the interview is focused and achieves its objectives within the time constraints. Interviews also allow dynamic data gathering, with the interviewer able to branch off to discuss other related topics.

The information provided at an interview is treated in the strictest confidence, and the appraisal findings will not be attributed to individuals or projects. There will be separate interviews for

– Project managers
– Project teams
– Functional area representatives (FAR)
– Managers
– Specific groups (SEPG Team, QA, etc.)

Often, one of the appraisal team members will lead the interview with some or all of the other appraisers being present, listening and taking notes. The planned set of interviews will be defined in the data collection plan, and re-planning will take place as appropriate. There may be a need for extra on-call interviews or some of the planned interviews may be cancelled if sufficient objective evidence is available.

Documentation reviews give the appraisal team a clearer understanding of what practices are performed in the organization. This includes insight into how the process is performed, the extent to which it is performed, as well as allowing explicit deliverables produced to be examined. Most of the direct artefacts used as indicators of practice implementation are documents.

There are three levels of documents that will typically be examined during the appraisal. These are

– Organization documents
– Project documents
– Implementation documents

The organization documents include policies, processes, and procedures; the project documents include the deliverables produced during the project for each project instantiation; and the implementation documents provide an audit trail of the processes used. The appraisal team will maintain an inventory of the documents used.

Presentations allow the organization to explain how particular practices are performed.

The appraisal team will need to analyse the information obtained during the various data collection activities to

- Judge if the information collected is acceptable as objective evidence
- Relate it to the corresponding practices in the model
- Relate evidence to the appropriate part of the organization unit

The results of data collection will often be recorded on electronic tools as the inventory of the collected evidence. The appraisal team will closely monitor progress with the data collection activities, and as appraisals have a limited amount of time available it is essential that the data collection activities are focused and efficient.

Finally, once the team has examined, verified, and validated all of the required data it is in a position to generate the appraisal findings and, where applicable, to generate ratings for the organization.

9.3.3
Document Objective Evidence

This part of the appraisal is concerned with note taking; reviewing and consolidating notes; relating the notes to the corresponding practices in the CMMI model; and documenting practice implementation and the strengths and weaknesses identified. The notes taken by the team members during the data gathering sessions are reviewed at the end of each session and significant items relating to one or more practices tagged. The notes record the particular data gathering session as well as the participants.

The consolidation of the notes allows the appraisal team members to have a common understanding of the data collected to date, as well as identifying further data collection needs. For each project instantiation there is a need to determine the presence or absence of objective data for each specific and generic practice for each process area within scope. The gaps identified in the implemented processes with respect to the practices in the CMMI model are documented.

It is essential that the data collection, consolidation, and documentation activities be conducted in a timely manner. An inventory (usually an electronic spreadsheet tool or a manual wall chart tool) of the objective evidence available for each specific and generic practice for each project instantiation within the scope of the appraisal is maintained.

The inventory allows the status of the data collection and consolidation activities to be determined, and this includes the practices for which there is sufficient objective evidence available and those that have insufficient or missing evidence. The data collection plan needs to be updated appropriately to reflect additional data collection needs. The inventory will record

- Project to which data apply
- Specific or generic practice to which it applies
- Type of evidence (direct, indirect, affirmation)
- Whether implies presence or absence of objective evidence

Often, in large formal appraisals, team members are assigned responsibilities for the collection and documentation of objective evidence for one or more process areas. This

usually involves the formation of mini-teams with two or three members to obtain and document the objective evidence for their assigned process areas.

The raw notes taken by the appraisers are treated as confidential information and are not disclosed to anyone outside of the appraisal team. Team members will destroy their notes at the end of the appraisal to ensure that information cannot be attributed to individuals.

9.3.4
Verify Objective Evidence

This is concerned with verifying the implementation of the organization's practices for each project instantiation, as well as determining and documenting the extent to which the practices are implemented. The implementation of each practice is verified for each project instantiation, with exemplary implementations highlighted as strengths to be included in the appraisal findings.

The appraisal team uses the initial objective evidence provided by the organization to understand how the CMMI practices are implemented in the organization. The appraisal team then gathers data to confirm that the practices are actually implemented as defined, and this may reveal gaps in the implementation that were not apparent in the initial evidence provided. The implemented practices are then compared to the specific and generic practices in the CMMI model, and additional gaps may be identified. The gaps in the implementation are recorded and become part of the appraisal findings.

The appraisal team must verify that each project within the scope of the appraisal has objective evidence of implementation of the specific or generic practices (reflecting project activities). The appraisal team will

- Verify the appropriateness of each direct artefact provided for practices within appraisal scope
- Verify the appropriateness of each indirect artefact provided
- Verify appropriateness of affirmations
- Verify that implementation of each practice (within scope) is supported by direct artefacts and corroborated by indirect artefacts or affirmations
- Obtain oral affirmation corresponding to each specific and generic goal within scope of appraisal
- Generate the preliminary findings including the strengths identified and gaps in the implemented practices

Much of the evidence required to perform verification is provided prior to the appraisal. The main focus of the data collection activities is to allow the appraisal team to verify that the intended practices are implemented across the organization unit and to identify any gaps in the implementation.

The appraisal team then characterizes the extent to which the CMMI practices are implemented for each project instantiation and derives an aggregate rating to characterize the extent of implementation in the organization. The extent of implementation of a practice is

- Fully implemented (FI)
- Largely implemented (LI)
- Partially implemented (PI)
- Not implemented (NI)

The extent of implementation of the practice is judged by

- The presence or absence of direct artefacts and their adequacy
- The presence or absence of indirect artefacts and affirmations to confirm the implementation
- Any weaknesses in practice implementation identified

The aggregate organization rating for each practice is determined from the rating of the practice for each project instantiation. For example, if all project instantiations are fully implemented then the organization rating is fully implemented.

9.3.5
Validate Preliminary Findings

The appraisal team will present preliminary findings to members of the organization to ensure that they are an accurate reflection of the organization. This is mainly a data collection activity, and the goal is to validate the appraisal team's understanding of the processes implemented in the organization. Feedback and additional evidence will be requested and used in the formulation of the final findings.

The preliminary findings detail the practice implementation gaps identified as well as strengths noted by the appraisal team. Every model practice characterized at the organization level as not implemented, partially implemented, or largely implemented will have a preliminary finding associated with it.

The appraisal team will issue a request for further information for areas where the appraisal team has insufficient objective evidence available.

9.3.6
Generate Appraisal Results

The appraisal team will rate specific and generic goal satisfaction based on the extent of practice implementation throughout the organization. The extent of practice implemented is judged by the validated data collected, including direct and indirect artefacts and oral affirmation objective evidence. Once the goals have been rated the process areas may be rated and then the overall maturity level determined.

A goal is considered satisfied if the practices associated with that goal are appropriately implemented. Any gaps are considered and the appraisal team makes a judgement on whether these gaps threaten the ability to achieve the associated goal. All associated practices must be rated as largely or fully implemented and any identified weaknesses must not have a significant impact on goal achievement. For any goals that are rated as not satisfied the appraisal team will detail how the weaknesses identified led to this rating.

Once the goals have been rated the team is then in a position to judge the satisfaction of the process areas within the appraisal scope. Process area satisfaction is closely related to goal satisfaction, and a process area is rated satisfied if all of its specific and generic goals up to the targeted maturity level are rated satisfied.

The appraisal team is then in a position to judge the maturity level of the organization. This is based on the ratings of the process areas within the scope of the appraisal. The maturity level determined is the highest level at which all process areas contained at that maturity level and lower levels are satisfied.[10]

The appraisal team is then in a position to prepare the final appraisal findings including

– Documenting the final findings
– Documenting the ratings (where ratings are part of the appraisal)
– Preparing (where applicable) the Appraisal Disclosure Statement (ADS) for the CMMI Stewart at the SEI

9.4
Reporting the Results

The results of the appraisal are presented to the sponsor and the participants. The strengths and weaknesses of the processes are presented, as well as the ratings of the process areas (where these are part of the appraisal). The appraisal results need to be credible, as they will be used for continuous improvement.

The appraisal findings are intended to promote action and occasionally a separate executive session is conducted with senior management. The purpose of this session is to discuss the appraisal results and to facilitate the preparation of an action to address the findings.

9.4.1
Deliver Appraisal Results

The findings will be presented to the participants in the appraisal. The appraisal sponsor is advised of the appraisal results prior to the presentation as a matter of courtesy and to prevent any surprises. The appraisal leader will provide the appraisal findings to the appraisal sponsor, and the findings will be signed by the appraisal leader and team. The appraisal findings will include

– Summary of appraisal process
– Summary of strengths and weaknesses for each process area
– Ratings (where this is part of appraisal)

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[10]Generic goal 3 must also be rated for all of the level 2 process areas for a level 3 rating.

Any statements of weaknesses will adhere to the confidentiality requirements and will not be attributed to projects or individuals. The appraisal leader and team will sign the appraisal findings to indicate their agreement with them.

An executive session may be conducted between the sponsor and appraisal leader to clarify any issues from the appraisal and to help the sponsor and senior management understand the process weaknesses identified. This helps to ensure that management are sufficiently informed to act appropriately on the findings. An action plan is prepared to act upon the findings.

9.4.2
Archive Appraisal Results

Important data and records from the appraisal will be preserved and confidential information disposed of securely. Any lessons learned from the appraisal will be used to improve the appraisal process.

The information archived will include the appraisal plan and appraisal results. All notes taken by appraisers will be destroyed. The appraisal record will be delivered to the appraisal sponsor and will include

- Dates of the appraisal
- Appraisal input
- Appraisal plan
- Objective evidence to support goal ratings
- Characterization of practice implementation
- Appraisal method
- Final findings
- All ratings (goals, practices, and maturity levels)

The ADS record will be created and submitted to the CMMI Stewart at the SEI for formal SCAMPI Class A appraisals.

9.5
Review Questions

1. Discuss the purpose of appraisals and how they fit into the software process improvement cycle.
2. Discuss the three phases in an appraisal.
3. Discuss the three classes of SCAMPI appraisals.

4. Discuss the difference between data discovery and data verification activities in an appraisal.
5. Describe the activities that take place in planning the appraisal.
6. Describe the activities that take place during the appraisal.

9.6
Summary

Appraisals play a key role in software process improvement and are an essential part of the improvement programme. They allow an organization to understand its current software process maturity, including its strengths and opportunities for improvement. An initial appraisal is generally conducted at the start of the initiative to allow the organization plan and prioritize improvements for the first improvement cycle. Improvements are then implemented, and an appraisal is typically conducted at the end of the cycle to confirm progress.

An appraisal is an independent examination of the software engineering and management practices in the organization and will identify any gaps that exist with respect to the targeted level in the CMMI. There are three phases in an appraisal: planning the appraisal; conducting the appraisal; and reporting the results.

Planning involves identifying the sponsor's objectives and the requirements for the appraisal. The appraisal leader will determine the appraisal objectives in discussions with the sponsor. The type of appraisal to be conducted is determined, and an appraisal plan is developed to meet the sponsor's requirements. The appraisal leader then forms a team to conduct the appraisal and the participants involved in the appraisal receive appropriate training on the appraisal process and their role in it.

Conducting of the appraisal involves on-site activities to gather data to determine the extent to which the CMMI practices within the scope of the appraisal have been implemented. It involves gathering and examining the objective evidence and documenting and verifying the data. The appraisal team makes notes and gathers objective evidence during the various data collection activities (e.g. interviews, presentations, and reviews of documentation). The objective evidence is then reviewed and consolidated, related to the CMMI practices, critically examined and documented, verified and validated. The extent to which the CMMI practices are implemented is determined. Preliminary findings are then prepared and validated by members of the organization. The final appraisal results are then prepared.

The results of the appraisal are then presented to the sponsor and the participants. The strengths and weaknesses identified with the processes will be presented, as well as the ratings of the process areas (where these are part of the appraisal). The appraisal results are used for continuous process improvement. An action plan is prepared to address the appraisal findings.