The Demarcation Zone: Surviving a CMM Assessment

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A much ignored subject is the preparation for and conduct of CMM®-Based Appraisal for Internal Process Improvement (CBA-IPI) for an organization, referred to in this article as a CMM assessment. That awareness was emphasized while conducting a mini-assessment. There were many weaknesses identified for the organization, but the underlying reason for these weaknesses and inaction to correct them rested directly on the Site Coordinator and the team preparing for the assessment. This team is critical to the success of an assessment. These are the people that are at the line of demarcation or on the front lines fighting to make the organization the best it can possibly be.

When an organization prepares for and conducts a SW-CMM CBA IPI-type of assessment, there must be someone in the driver's seat. Each organization has definitions and roles defined for its process improvement efforts, including a Site Coordinator or lead process engineer. This is the person typically behind the steering wheel.

This role will be referred to as the Site Coordinator throughout this article. Each organization's terminology may differ but the intent is the same. The Site Coordinator is responsible for leading a team of organizational staff members in preparing for an upcoming CMM assessment.

External vs. Internal Assessments

The rules under which a CMM assessment is conducted are open to tailoring by each organization. Some choose to conduct their assessment using a team composed of mostly internal members of the organization, others prefer using members who are outside of the organization. The Software Engineering Institute's (SEI's) Technical Report concerning CBA-IPI [1] states several alternatives to building an assessment team, "as one team member is from the organization being assessed."

There are advantages and disadvantages to using a method where most of the team is external or most of the team is internal. The following figure lists some of the advantages achieved from both methods. An organization must decide which of these are important to its organizational goals.

It is critical that an organization weighs the pros and cons of each approach. They will vary with each organization. The key is to recognize the organization's true culture.

Some argue that a strong assessment lead, Process Asset Library, and organized evidence with a well-versed staff will alleviate many of these problems. That is true to a degree, Even when following a model such as the SW-CMM an organization can implement the various elements in a multitude of different ways. There is only so much time to conduct an organization's assessment. There is not enough time for one or two people to fully understand the organization in order to adequately advise as to how to improve that organization's processes. A good process mentor who works with the organization closely building up to the assessment would help, but he or she must be careful not to become so close to the organization that the mentor overlooks something.

There is a potential for a software capability evaluation (SCE) for organizations working government contracts. In that case, an organization would rely on an external team of assessors to ensure preparedness for a potential SCE.

Most of this author's experience is based on using an external team; this article is written with that premise in mind.

What a Site Coordinator Does

The Site Coordinator is responsible for leading a team of organizational staff members in preparing for an upcoming CMM assessment. This team is typically called the SEPG. For one organization, it was called the Process Group since responsibilities included more than software and engineering. It included all of the processes by which the organization operated or at least a tailored version of the overall organization's processes. The Site Coordinator, along with one or more other team members, normally participates as a member of the assessment team.

Advantages of INTERNAL Team

- Lessons learned from the experience are invaluable
- Able to fully understand what needs to be done to correct problems encountered
- Less costly than bringing in external members
- Less coordination required to bring the team together
- Decreased preparation time for assessment since members familiar with the organization and the process
- More trained staff members in assessing the organization

Advantages of EXTERNAL Team

- No preconceived notions concerning the organization and normally, few or no preconceived notions concerning implementation of the model
- Complete independence from organization - no vested interest or threat of negative consequences based on results of the assessment
- Ability to better prepare the organization for outside assessment by the customer (e.g. SCEs)
- For a service organization, provides more credibility to findings in many customer's view
- Can provide the organization with several best practice perspectives based on their various areas of their expertise
- Many times internal members are too close to the problems to see them where an external team would much more likely be able to readily spot problems

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The Process Group is the team responsible for all aspects of the assessment, from helping the organization prepare for the assessment to working with the assessment team to ensure that it understands how the organization operates based on the SW-

CMM. The Site Coordinator and designated team members prepare the engineers and managers for interviews, as well as the reams of evidence to verify an organization's CMM-related capabilities in addition to other logistical tasks needed for conducting the assessment.

The Site Coordinator and designated team members will explain, define, and at times defend the organization to the assessment team. This is especially true when evidence or processes are not apparent or well understood. In an ideal world, this would not be necessary but experience tells us that the world is not ideal.

The SEI for CMM assessments specifically defines a Site Coordinator's role. The SEI's Technical Report concerning CBA-IPI describes it as:

"The individual responsible for handling the logistics of the assessment. The site coordinator is responsible for developing the schedule, notifying the assessment participants of the schedule, making sure that adequate rooms have been reserved for both the pre-onsite and onsite periods, making and distributing copies of the schedules, making sure that all necessary supplies and equipment are available when needed, scheduling contingency interviews, requesting additional documentation, and ensuring that meals are taken care of. The site coordinator needs to be a member of the assessment team [1]."

This description is accurate for most organizations, but many times the role entails much more that this addresses. According to Ken Dymond in *The Assessment Coordinator's Handbook,* "The Site Coordinator is the person whose efforts are invisible if the assessment goes well and the person blamed if even the smallest planning item, in all the closely scheduled moments of the on-site period, is wrong. Success is transparent, but failure stands out [2]." This is so true. There is so much information to prepare but even the most minute of details can get you in trouble.

Collecting artifacts, also known as evidence, is a daunting task. Many times an organization takes it too lightly. An organization may be fully prepared and in line with all aspects of the SW-CMM Level it is targeting but it must be able to demonstrate that to others—an assessment team. Demonstrating it to others is the tricky part.

Importance of the Site Coordinator's Role

There are numerous key roles in attaining process maturity. These include, but are not limited to senior management, sponsors, middle management, assessment team lead, process improvement mentors, and the Site Coordinator.

In preparing for and during the assessment, especially when most of the team members are external, the Site Coordinator and designated process group team members can make or break an assessment. It is extremely difficult for four to 10 people unfamiliar with an organization to come in and assess where they stand. The Site Coordinator is key to helping them understand how an organization fits into the SW-CMM framework. They must be able to explain to an assessment team how an organization is compliant with a method that is open to many different interpretations due to its very nature.

The SW-CMM was written to provide a guide for an organization, not to tell them how to do it. It describes the characteristics of successful software processes; hence, the varied ways of implementing the SW-CMM are infinite. Guiding the assessment team in understanding the organization's way of doing business is critical. Some assumptions the team makes without that guidance may not be accurate, due to a lack of understanding the organization's culture.

Makeup of a Successful Site Coordinator

Mark Paulk, of the SEI, listed several proverbs in his article *Software Process Proverbs,* including "Competence: The competence of the people who do the work is crucial to project performance and organizational success [3]." We have all heard the saying "one bad apple spoils the batch." That works the other way as well. One good apple can bring more to an organization than a dozen without the proper attributes and skills.

A critical task an organization will face when attempting process improvement is selecting the right person as the Site Coordinator. It is not easy to find people with the attributes necessary to be a successful Site Coordinator. This is not intended to discredit the tried and tested CBA IPI assessment approach, which is valuable. However, this author has seen how an unprepared, unorganized organization can fail with even the most experienced assessment team trying to help the organization improve.

It takes a special attitude to be a successful Site Coordinator, so organizations must be cognizant of whom they select. Conversely, the person must be sure that he or she is up to the challenge, since it will mean many long, sleepless nights and weekends. The frustration level will be so great at times that they will want to throw their hands in the air and leave. All of that frustration is worth it, but the Site Coordinator must understand what he or she is "volunteering" to do.

There are many attributes that make for a good Site Coordinator, but what is good for one organization and assessment team may not be for another. The following table lists the most critical attributes necessary for a successful Site Coordinator, but there may be many more depending upon an organization's unique circumstances. These attributes also can encompass an entire team rather than one person.

Makeup of a Successful Site Coordinator

- Confident without huge ego.
- Proactive and willing to take reasonable chances when necessary.
- Organized/ability to organize without over-organizing (avoid bureaucracy).
- Visible, respected member of the organization.
- Easygoing but not so much that things do not get done.
- Ability to communicate at all levels, from managers to practitioners.
- Ability to interpret explanations made by both management and practitioners (assessment team to interviewee(s) and interviewee(s) to assessment team).
- Nonargumentative.
- Detail oriented.
- Good listener, open to others' opinions.
- Strong without being overbearing.
- Willing to bend when necessary, knowing when it is necessary.

- Totally committed to process improvement, the organization.
- Immense drive/motivation and ability to drive others.
- Ability to work in stressful situations.
- Able to withstand criticism from levels internal and external to the organization.
- Ability to keep a proper perspective (does not get angry).
- Focused Adaptable—be able to roll with the punches.
- Never lose sight of goals.
- Creditability with senior management [1] and, even more importantly, with practitioners.
- Ability to maintain confidentiality.
- Ability to lead and follow, depending on circumstances (must recognize when each is appropriate).
- Ability to become an expert in many different areas not their normal field of expertise—may have to be self-taught.

If an organization finds a person with many of these attributes, the rest will be learned along the way if an organization is to be successful. This person must be committed, proactive, open minded, and hardworking with the appropriate authority to make things happen. It will be a wonderful, irreplaceable learning experience.

Sharing Site Coordinator Responsibilities

It may be necessary to have more than one Site Coordinator to share the responsibilities, depending on the organization's size and the assessment's scope. It is absolutely necessary that these individuals are compatible. They must work cohesively. This was a glaring error this author discovered while performing a mini-assessment of another organization. There was so much dissention between the co-Site Coordinators as well as the entire team preparing for the assessment that it was amazing that they proceeded with the formal assessment.

Not surprising, the result was SW-CMM Level 1. Much of this was due to the team preparing for the assessment, especially the Site Coordinators. Even though they shared a common goal, their methods of achieving it were diametrically opposed. It is critical that the process engineering team is synergistic. It does not matter who is right or wrong, only that the team communicates openly and cordially with a common vision.

What a Site Coordinator Must Know

The Site Coordinator's knowledge base grows increasingly large as he or she prepares for an assessment. Since that person will be in the line of fire, he or she must become expert or close to expert, with as many elements as possible within the organization. There will normally be others to search out for specific answers but the Site Coordinator must know whom else to seek out when necessary.

The site coordinator must: know every piece of paper in every file, know where the bodies are buried, know an organization inside and out, know and fully understand SW-CMM and as many interpretations of it as possible, be able to explain, and, when necessary defend, evidence without being argumentative, be able to explain and, when necessary, defend the organization's programs methods without being argumentative. Normally, the Site Coordinator—along with the process team—is the one who collects or leads the collection of evidence. This is not always the case, so he must know all of the evidence and how it applies to the SW-CMM. This will enable the Site Coordinator to understand the organization's method of meeting each practice for the SW-CMM.

It is equally important to understand the SW-CMM and its many interpretations, since by its very nature it is open for interpretation. Many times an organization will have alternate practices that meet the intent of a SW-CMM practice. The Site Coordinator must understand these and how they fit. There will be wording and terminology differences between SW-CMM, the assessment team members, and the organization. Terms must be clearly explained to the assessment team, including how they relate to the SW-CMM—the Site Coordinator sometimes needs to tie it together for the team.

The Assessment or the Organization: What is Your Real Role?

As an assessment team member, the Site Coordinator and any other internally designated assessment team members must be able to objectively judge the organization as an outsider. This can be difficult since there may be so much at stake for those involved. With government contracts, a future or imminent project may depend upon an assessment's outcome.

Even when not the case, an organization invests a great deal of money in process improvement and fully expect to see successful results. Many times reputations and future opportunities are based upon the outcome of a CMM Assessment. One Site Coordinator said that his next promotion depended upon the results of the CMM Assessment.

The Site Coordinator has an obligation to the organization. It is essential to strike a balance between these two goals. The Site Coordinator must be able to act objectively as an assessment team member and as part of the organization at the same time. What a challenge! There are many human aspects that you must work out. It can be challenging, exhilarating, and painful at the same time.

Bottom Line

It is easy to underestimate how difficult it is to attain a specific process maturity level, regardless of the methodology selected. It is a daunting undertaking. As one who has been at the demarcation zone, it may be the most challenging thing undertaken in a person's entire career.

If asked to be a Site Coordinator, ask yourself what it takes to push your comfort level. Remember the satisfaction and rewards gained are well worth any pain endured.◆

References
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2. Dymond, Kenneth M., *Assessment Coordinator's Handbook: Planning for a Well-Orchestrated Software Appraisal,* Process Transition International Inc., 1997.
3. Paulk, Mark C., Software Process Proverbs, **CROSSTALK**, January 1997.

About the Author

Deb Jacobs leads the Project Engineering Management Group at Priority Technologies. She has 26 years of experience working in the Information Technology industry. She began her career in the Air Force as a technician working with computers on B-52's and KC-135s. After completing her bachelor's degree in computer science she continued working with the information technology industry in a broad range of areas, including software engineering, process engineering, and project management. One of her most notable successes was leading the team responsible for achievement a rare CMM Level 3 rating in record time. Jacobs is chairwoman for the CERT Conference Committee; is newsletter editor/originator of the Omaha SPIN Newsletter, SPINOUT; and works with the SEI on the integrated Capability Maturity Model.

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Incredible Suckers

After wrestling for supreme control of the remote the other night, I sat down for some nightly entertainment with my son Matthew. Jumping from channel to channel we searched for a program we both liked. He tossed out "Behind the Music" and I eliminated "The Wild Thornberrys." He scoffed at "SportsCenter" and I vetoed "Doug." We both gagged on "Friends." Finally we hit PBS as the host of "Nature" introduced the program:

"A decade of discoveries has revealed the extraordinary possibility that the prime intelligences in the ocean may not be the swimming mammals (whales and dolphins), but instead a race of "incredible suckers, the cephalopods."

A bag of pretzels, a drink, and suckers . . . count me in. Venturing into the world of chambered nautilus, cuttlefish, octopus, and squid we had found a common interest—gooey squishy things that think.

Halfway through the program and the bag of pretzels, a marine biologist introduced the blue ring octopus, one of the smallest but most deadly of the cephalopods. There was a ring of familiarity as he described the effects of the blue ring's bite.

"The bite of the blue ring is not much of a bite at all. In most cases you don't even know you have been bitten. It is rare to find a puncture wound or the site of the wound. It is almost like they force or inject toxin through the skin. However it administers the toxin, it is effective.

The symptoms of the bite of the blue ring octopus are incredibly consistent. First you feel a kind of numbness around your mouth and lips. Then it becomes very difficult to breathe, followed by a general paralysis of your body. Your knees wobble, you collapse, and you lay on the ground with your eyes fixed and dilated, totally unresponsive to everything around you. You cannot move a muscle. The weird thing, though, is that your mind remains relatively clear. You can hear, understand, and remember what everyone around you is saying. It probably does not help to hear things like, 'that chap's had it.'"

Having never encountered a blue ring octopus, I was curious as to why the symptoms of the blue ring bite were so familiar. Unsuspecting bite, numbness around the mouth, difficult to breathe, paralysis, eyes fixed and dilated, yet your mind remains clear? Staff meeting!

That's it, he's describing the symptoms of a staff meeting—not just any staff meeting but the dreaded Blue Ring Meeting (BRM). The BRM is a gathering with no purpose, leadership, control nor participation. A rendezvous in which otiose information, that could be sent in a quick e-mail message, is stretched over hours of excruciating tedium. A parley for colleagues to out-feign each other's interest in such tedium. It is an event in which you commonly sight lockjaw, doodling, drooling, and the amazing vertical snooze.

They appear to be like any other meeting. You seldom feel the sting, but once bitten it is over. Your mind is clear but you can not move a muscle. Thoughts run rampant. You devise little games to maintain a sense of coherent understanding but it is a losing battle. Try to take some action or cut the meeting short and the BRM embraces you with its tentacles and sucks the life out of you.

If you survive the dreaded BRM, which most of us do, there is one terrible side effect. You start holding your own Blue Ring Meetings. Even though you despised the experience, the helplessness, and the pain you pass the experience of the BRM on. It is a vicious cycle. It is a horror of all horrors. BRMs propagate themselves.

How can we stop this malignant tryst? Many have tried, and there is a plethora of books, videos, and seminars on the subject. Maybe we should organize. Join SWEABRM—Software Engineers Against Blue Ring Meetings. We could organize a Million Engineer March. My advice, when your boss asks you how the meeting went, answer: "Incredible Sucker."

—*Gary Petersen, Shim Enterprise Inc.*