CAPABILITY MATURITY MODEL INTEGRATION: TECHNICAL WRITERS NEEDED

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We all know that written policies and procedures reduce training time, improve communication and coordination, set expectations for performance, and help prevent potential legal problems. But did you know that they can also help your company increase productivity and earn revenue? Companies that leverage the corporate assets of policies and procedures can attract more business. One way that information technology (IT) companies can leverage these assets is through Capability Maturity Model Integration (CMMI®) certification.

For a decade or so, CMM® (a forerunner) and CMMI have been helping IT companies document and improve processes and best practices. CMMI has become a catchphrase for quality as well as a requirement for contracting with the U.S. government. The CMMI model focuses on process improvement—the effort to document and improve the way you do things. The key to CMMI certification is to put all policies and procedures in writing. For this reason, CMMI is expanding opportunities for technical writers and editors.

The five levels of CMMI certification represent increasingly thorough efforts to improve processes. Today, to do business with the U.S. government, many contracts require CMMI level 2 or 3 certification; non-certified companies can't even get to the table. This article provides an overview of CMMI, discusses the communication skills needed to contribute to CMMI efforts, and suggests ways that technical writers and editors can get involved in CMMI. Although I focus on IT companies, CMMI is also appropriate for many companies in manufacturing, software, hardware, and other industries.

Maturity

The impetus behind CMM, the earliest CMMI model, was the notorious difficulty of predicting the success, cost, and even the valid completion dates of systems and software projects. The U.S. Department of Defense asked the Software Engineering Institute (SEI℠) Carnegie Mellon University to investigate the qualities of successful and predictable processes. The key to success, SEI found, was "maturity," or how well processes are documented, communicated, and controlled. (It strikes me as funny that SEI, a bunch of engineers, came up with a solution that makes documentation and technical writers a very important part of the IT team. Our profession has been trying to convince engineers of our value for years!)

The levels of CMMI certification refer to the five levels of maturity:

Level 1: Initial. Describes processes that are incomplete or nonexistent. Success depends upon the heroic efforts of individuals.

Level 2: Managed. Puts processes in place for individual projects. Major improvements in consistency and success can be gained at this level.

Level 3: Defined. Marked by greater involvement of management. Each project must have a project plan and schedule, as well as some method for analyzing risk. This level is the goal of most companies that pursue CMMI certification. Companies certified at level 3 start to see budget and schedule predictability.

Level 4: Quantitatively Managed. Quality and process performance objectives are set at this level and statistically analyzed.

Level 5: Optimizing. This final level allows continual improvement and analysis of areas of failure. Companies whose products are intended to save lives (air bags, for example) might want to try for level 5 certification.

Level 1 is the starting point of all companies. Levels 2 through 5 are granted only after a rigorous third-party audit focusing on evidence that a company's practices comply with the model.

How Companies Earn CMMI Certification

Companies interested in CMMI certification should first visit the SEI Web site ***(www.sei.cmu.edu/cmmi/)***, which will give them an idea of what they're in for and how to get started. The site contains white papers, tool reviews, advice, and other resources. Also essential to a company's certification effort is *CMMI: Guidelines for Process Integration and Product Improvement* (Addison-Wesley, 2003), a detailed description of the CMMI model. The book can be purchased from the Addison-Wesley Web site ***(www.awprofessional.com)***.

Companies that decide to pursue certification confront two important choices. The first choice is between buying "CMMI in a box" and hiring a consultant. Buying CMMI templates and processes is expensive and does not ensure certification. For this reason I recommend hiring a consultant, especially for small- to medium-sized companies. A CMMI consultant can give your company individualized attention; most consultants are also SEI-authorized evaluators who can arrange for your final certification test. Companies can take from six months to three years to prepare for this test, which is conducted over five to seven days by a team of evaluators. The evaluators interview company representatives in all process areas and compare their responses to the processes and documentation.

The second choice is between process area certification and overall certification. Each level of CMMI certification is broken into associated process areas; for example, two of the process areas for level 3 are Configuration Management, which concerns how assets are controlled and delivered, and Process and Product Quality Assurance, which concerns whether processes are being followed. Process area certification allows companies to be assessed in certain areas and to focus their improvement efforts only on those areas. I don't recommend process area certification because it runs counter to the goal of CMMI, which is overall improvement and cohesiveness. Also, the federal government is said to favor overall certification rather than certification by process area.

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The Process Asset Library

The documentation you create for CMMI certification contains your company's process assets—that is, the corporate knowledge about how your company does business. Once you have created the documentation, the next step is to make those documents available to everyone who needs them through a Process Asset Library (PAL)—a storage place for processes, procedures, policies, and templates. My company's PAL has helped us do the following:

- Reduce the total number of documents by encouraging use of templates and approved processes.
- Reduce duplication of effort by allowing higher visibility of all process assets.
- Provide mechanisms for sharing knowledge and best practices, and for reusing organizational investments (another name for process assets).
- Evaluate the collected best practices and measurements, providing current and future business value.
- Provide a basis for making decisions about evolving processes.
- Support organizational learning and learning for new employees.
- Increase employee adherence to organizational processes.

Creating and using a PAL allowed us to reduce the number of our documents by more than one-third. Even in cases where more documents are created, a PAL helps organize them logically so that they are easier to locate. There are many ways to create a PAL; one way that I particularly like was described by Barbara M. Block in the cover story of the April 2005 *Intercom* ("Building an Electronic Documentation Repository").

Why Your Company Needs You

CMMI: Guidelines for Process Integration and Product Improvement details all aspects of the CMMI model, certification levels, and process areas. Your job is to help your company translate the concepts in the book into concrete processes and templates.

Even if your company already has good policies and procedures, it can benefit from bringing a technical writer on board to ensure consistency across documents. When management at my company started looking at process improvement in 2003 as new federal contracting requirements were being discussed, they realized that a technical writer could help them analyze the company's policies and procedures and prepare templates for engineers based on jobs they needed to perform. Working with internal and external groups, I realized that the final result of all this work would be fewer documents. Although ours was a small company (fewer than fifty employees), we were not starting in a vacuum: We had lots of documentation. However, many of the documents were repetitive, contradictory, or simply out of date.

As a senior technical writer in a company that realizes the contributions I can make, I find that my suggestions and advice often provide a very different perspective than those of engineers and management. Most technical writers and editors can provide this kind of

assistance, and probably already have many of the skills needed to create good policies and procedures. The following qualities are particularly helpful.

Consistency. Process improvement works best when style, terminology, and methods are consistent. You have the skills to help your company identify areas of inconsistency. Suggest implementing a corporate style guide if one does not exist, or offer to update the existing one.

Attention to detail. Good editing skills are essential for effective policies and procedures. Keeping the small details consistent from one document to the next is one aspect of CMMI that allows reduction of overall documentation.

Layout and design expertise. If everyone is creating process documents, someone with layout skills has to update them. A better method is to create easy-to-use templates that alleviate some of the look-and-feel work at the end of this process.

Knowledge of "threading." Even if you aren't familiar with the concept of threading, chances are you already do it. Threading means following a train of thought from one document to the next through an entire process or group of processes. For example, your company may have a policy document that calls for the creation of a particular process. Someone has to verify, starting from this policy (the "thread's" beginning), that the document detailing the procedure exists. For CMMI certification, a company must also verify that the process is used, measured, and audited.

Organization skills. Making sure that policy and procedure documents are logically organized cuts down on repetition, wordiness, and the habit of creating new documents when a piece of information can't be found. These skills are also crucial to developing a working PAL.

Research skills. Technical writers and editors tend to be excellent researchers. Sometimes research involves finding information in one of your company's documents; sometimes it involves finding a particular kind of document outside the company and using it as an example for your own documents.

Ability to create and follow document standards. Document standards help everyone maintain a common language, terminology, usages, and styles. The CMMI effort is often a huge one, with many people pressed into service. Engineers will be writing documents; you'll eventually get a chance to clean them up, but in the meantime, document standards coupled with templates help ensure a minimum level of quality.

Experience interviewing subject matter experts (SMEs). Every technical writer and many editors draw important information from SMEs. As the bridge between the expert and the user (even when that user is another expert), you help add important details that experts often brush aside as "obvious."

How to Get Involved

If you're interested in working on CMMI policies and procedures, the following suggestions will help you get your foot in the door:

- Find out which policies and procedures currently exist at your company. Look for areas where they can be improved.
- Check out ***www.sei.cmu.edu/cmmi/*** for more information on CMMI.
- Set a good example: Be sure your processes are well documented before trying to get involved with CMMI.
- If your IT company (or one you are interested in) isn't talking CMMI, ask why. Getting in on the ground floor of an idea has advantages.
- If CMMI is a topic of interest at your company, ask how you can get involved. Know which skills you bring to the table—they are needed!
- Ask your boss how you can get more involved in policies and procedures writing. Remember, this is a broad field.
- If you see a process that hasn't been documented, volunteer to document it, or share documents you've written for your own use.
- Offer to edit existing documents. Even if nothing new has been added, these documents need to be refreshed periodically. Becoming familiar with existing policies and procedures also helps you learn.
- Offer to help with the corporate intranet. Once the corporate policies and procedures are established, the company needs to make them available to employees. The intranet can easily become your PAL.

You are a key resource for your company because of your skills and experience. As a technical communicator, you are the bridge between management, technical staff, and support staff. Your knowledge and assistance are necessary to address the many aspects of CMMI, achieve process improvement, and create useful documentation. CMMI requires a lot of effort, and the benefits can be hard to see at first. But even the engineers will see the benefit to the entire company when you are done.

Suggested Readings

Chrissis, Mary Beth, Mike Konrad, and Sandy Shrum. CMMI: *Guidelines for Process Integration and Product Improvement.* Boston: Addison-Wesley, 2003.

Official SEI and CMMI Web site: ***www.sei.cmu.edu/cmmi/***

SEI Repository—public and account areas of information: ***seir.sei.cmu.edu/seir/seir-home.html***

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