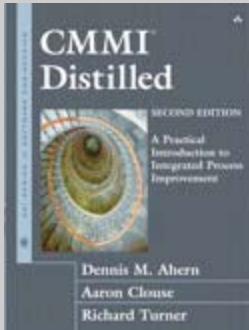


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**CMMI Distilled (2nd Ed.):
A Practical Introduction
to Integrated Process
Improvement**

**Dennis M. Ahern
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305 pages.**

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Reviewed by Paul Harmon

As any reader of *BPTrends* knows, we believe that there are many different ways to approach business process change. We've often suggested that one way of thinking about your organization's options is to think in terms of its process maturity, as measured by the CMMI.

CMMI (Capability Maturity Model Integration) is the culmination of an effort to define the stages that software organizations pass through as they gain better and better control over their processes. The effort was kicked off by the US Department of Defense and undertaken by the Software Engineering Institute (SEI) at Carnegie Mellon University. The original product that most software developers are familiar with is CMM and it was designed to measure the process maturity of a software development organization. In the Nineties, a whole galaxy of quality frameworks emerged, and CMM was divided into versions for software development (SW-CMM) and versions for software engineering (SECM) and product development (IPD-CMM). In the late Nineties, SEI began an effort to integrate all of the approaches to CMM into a common Integrated version - CMMI, which was initially released in 2000. At the same time, SEI has attempted to generalize CMMI so that it can be used to evaluate any organization's ability to manage processes.

Integration turned out to be no mean task. To begin with, there were two general approaches to the evolution of process sophistication within organizations. The original software CMM group had focused on levels. The assumption was that whole sets of activities tended to occur together and in a set order. The engineering CMM group, on the other hand, focused on what is termed "continuous" evolution, stressing that the order wasn't fixed and that different organizations or groups within organizations tend to follow different paths toward achieving maturity. In fact, everyone admits that its a mix of both, and it really is a matter of what you want to emphasize. We prefer the step approach because we want to emphasize that different groups are significantly different in their ability to utilize different business process techniques or approaches. But we readily admit that, in fact, the details vary from one real organization to another.

The CMMI team choose to support both levels and continuous development. To do this, they focused on what they refer to as Process Areas, capabilities that can be identified and evaluated independent of the organizational evolution you choose to emphasize. (We would have termed the "Process Areas" best practices.) CMMI identifies four general categories: Process Management, Project Management, Engineering and Support. (The CMMI team has made a major effort to free CMMI from its software development roots and make it apply to any business processes, but the vocabulary they use continues to reflect their software and engineering background.)



Process Areas That Support CMMI Maturity Levels	Four Process Areas Defined by CMMI			
	Process Management	Project Management	Engineering	Support
<p>Level 5. Optimizing</p> <p><i>Focus on process improvement</i></p>	5. Organizational Innovation & Deployment			6. Causal Analysis & Resolution
<p>Level 4. Managed</p> <p><i>Process measured and controlled</i></p>	4. Organizational Process Performance	8. Quantitative Project Management		
<p>Level 3. Defined</p> <p><i>Process characterized for the organization and is proactive.</i></p>	3. Organizational Training 2. Organizational Process Focus 1. Organizational Process Definition	7. Integrated Supplier Management 6. Integrated Teaming 5. Risk Management 4. Integrated Project Management for IPPD	6. Validation 5. Verification 4. Product Integration 3. Technical Solution 2. Requirements Development	5. Organizational Environment for Integration 4. Decision Analysis & Resolution
<p>Level 2. Repeatable</p> <p><i>Process characterized for projects and is often reactive.</i></p>		3. Supplier Agreement Management 2. Project Monitoring & Control 1. Project Planning	1. Requirements Management	3. Measurement & Analysis 2. Process & Product Quality Assurance 1. Configuration Management
<p>Level 1. Initial</p> <p><i>Processes unpredictable, poorly controlled, and reactive.</i></p>				
	Process Management	Project Management	Engineering	Support

Figure 1. CMMI Levels and CMMI Process Areas

Figure 1 shows the classic CMM levels at the left and indicates which module from which area is associated with each level. Note that the team has identified 5 Process Management Process Areas. Three are mastered by organizations that achieve Level 3, another isn't usually mastered till Level 4 is achieved and the fifth is only mastered when the organization reaches Level 5. In a similar way, the process areas that fall under the other categories are also distributed among the various levels.

Keep in mind that CMMI is about evaluating the process maturity of an organization, and identifying best practices that an organization will need to master to move from one level to another. Most software organizations in the US fall between Level 2 and Level 3. They have some processes defined, but not all.

To give you an idea of what is involved in one of the Process Areas, consider the Management Process Area: Organizational Process Focus. CMMI Distilled



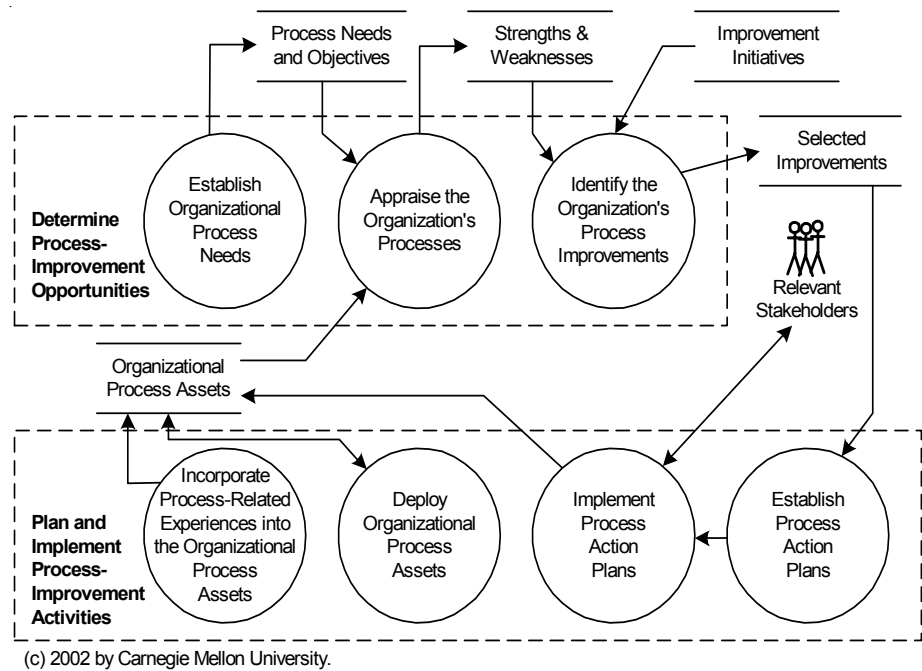


Figure 2. Overview of the Organizational Process Focus Area

defines this area as follows: "The purpose of Organizational Process focus is to plan and implement organizational process improvement based on a thorough understanding of the current strengths and weaknesses of the organization's processes and process assets. CMMI Distilled goes on to provide a diagram of this area, which we picture in Figure 2. In fact, each of the areas is defined by very detailed documentation.

CMMI Distilled was written to provide a general overview of the whole CMMI approach. The second edition is updated to cover the latest release of CMMI (version 1.1 that was released in 2002). It defines the various evolutionary approaches, defines each of the process areas and how they are used with the level and the continuous models, and then considers how CMMI approaches evaluating actual organizations to determine their current maturity.

One innovation that impressed me was their division of appraisals into three types: (A) a comprehensive assessment of an entire organization that provides a maturity level rating for the organization, (B) a less comprehensive approach that focuses on areas needing attention and doesn't result in a maturity rating, and (C) a quick look that focuses on high risk areas that need immediate attention. Clearly this approach provides companies with a lot more flexibility in their use of CMMI as a tool to structure and guide their business process improvement efforts.

CMMI Distilled is by far gentlest introduction to CMMI that I've come across and we recommend it to business managers that want to learn about what CMMI is all about. Lots of organizations have announced their intention to become process-centric, and we suspect that most don't have a very clear idea of what might be



involved in such a transition. CMMI offers a very detailed and well-thought-out definition of what it takes to be truly process-centric and provides a step-by-step plan for achieving it. Not everyone will agree with every part of CMMI, and those more removed from engineering processes will find CMMI more awkward to apply, but almost anyone involved in process change will find the transition plan the CMMI team has come up with thought provoking.

Equally important, too many organizations are focused on improving processes without paying sufficient attention to what's involved in managing processes, once they are redesigned and improved, to assure they perform as designed. If you ignore everything CMMI has to say about Support, Engineering and Project Management, and focus only on what they have to say on Process Management, it will be more than worthwhile to buy and read this book. The CMMI folks have spent a lot of time thinking about how one manages processes, defines objectives, integrates process management efforts, and so forth. Most organizations could use a strong dose of this thinking.

Organizations without well-defined processes need to work on defining their processes and integrating their descriptions. As they get their processes defined, they need to focus on improving them. But once you reach level three, most of the effort shifts to managing the processes you've already defined. You need to measure processes, use the measures to set managerial goals, and develop control systems that react to inadequate performance -- all managerial responsibilities.

As we've mentioned before, the CMMI folks tend to operate in a vacuum. It would be nice to have some discussion in *CMMI Distilled* of how the CMMI models related to the work of the Supply Chain Council and their SCOR reference model, or how it could be integrated with an organization's Six Sigma program. Admittedly, *CMMI Distilled* is only an overview of CMMI, and it would take quite a bit of effort to explain how CMMI intersected with SCOR. It would go beyond evaluation, which is CMMI's focus, and begin to get into more specific business process improvement efforts, but perhaps that's another book.

Managers involved in business process change that don't know about CMMI should consider reading this book and learning more about CMMI.

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Note

To find out more about CMMI online, check the SEI website: www.sei.cmu.edu/cmmi.

