

Preface

CMMI® (Capability Maturity Model® Integration) models are collections of best practices that help organizations improve their processes. The first CMMI model was developed by a product team from industry, government, and the Software Engineering Institute (SEI) for the application of process improvement in the development of products and services covering the entire product lifecycle from conceptualization through maintenance and disposal. Following the success of CMMI models for development organizations, the need was identified for a CMMI model addressing the acquisition environment.

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General Motors, in collaboration with the SEI and with approval of the CMMI Sponsors and Steering Group, developed the initial draft of the Acquisition constellation as the special report, *Adapting CMMI for Acquisition Organizations: A Preliminary Report* [Dodson 2006].¹ CMMI for Acquisition, Version 1.2 (CMMI-ACQ, V1.2) reflects the refinement of this initial draft. The CMMI-ACQ development team, consisting of members from government, industry, and the SEI, gathered input from those who piloted and reviewed the preliminary report and created CMMI-ACQ, V1.2. This model is included in the CMMI Product Suite.

Deleted: This latest iteration of the model as represented herein integrates bodies of knowledge that are essential for development and maintenance, but that have been addressed separately in the past, such as software engineering, systems engineering, hardware and design engineering, the engineering “ilities,” and acquisition. The prior designations of CMMI for systems engineering and software engineering (CMMI-SE/SW) are superseded by the title “CMMI for Development” to truly reflect the comprehensive integration of these bodies of knowledge and the application of the model within the organization. CMMI for Development (CMMI-DEV) provides a comprehensive integrated solution for development and maintenance activities applied to products and services.[¶] CMMI for Development, Version 1.2 is a continuation and update of CMMI version 1.1 and has been facilitated by the concept of CMMI “constellations” wherein a set of core components can be augmented by additional material to provide application-specific models with highly common content. CMMI-DEV is the first of such constellations and represents the development area of interest.[¶]

Purpose

The CMMI-ACQ, V1.2 model is a collection of best practices that is generated from the CMMI V1.2 Architecture and Framework. This collection includes acquisition best practices from government and industry. CMMI-ACQ is based on the CMMI Model Foundation or CMF (i.e., model components common to all CMMI models and constellations), the CMMI Acquisition Module [Bernard 2005], and the Software Acquisition Capability Maturity Model (SA-CMM) [SEI 2002]. CMMI-ACQ also incorporates work by several acquisition organizations to adapt the Development constellation for use in an acquisition organization.

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Deleted: for Development is to help organizations improve their development and maintenance processes for both products and services. CMMI for Development

Deleted:² The CMMI Framework supports the CMMI Product Suite by allowing multiple models, training courses, and appraisal methods to be generated that support specific areas of interest

¹ A constellation is a collection of components used to construct models, training materials, and appraisal materials in an area of interest (e.g., acquisition and development).

⁴ An appraisal is an examination of one or more processes by a trained team of professionals using a reference model (e.g., CMMI-ACQ) as the basis for determining strengths and weaknesses.

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The CMMI-ACQ model provides guidance for the application of CMMI best practices by the acquirer. Best practices in the model focus on activities for initiating and managing the acquisition of products and services that meet the needs of the customer. Although suppliers may provide artifacts useful to the processes addressed in CMMI-ACQ, the focus of the model is on the processes of the acquirer. CMMI-ACQ integrates bodies of knowledge that are essential for an acquirer.

Deleted: A constellation is a collection of CMMI components that includes a model, its training materials, and appraisal-related documents for an area of interest. Currently there are three planned constellations supported by the version 1.2 model framework: development, services, and acquisition. "Additions" are used to expand constellations for specific additional content.¶
This document contains the CMMI for Development constellation and contains both the base CMMI-DEV as well as CMMI-DEV with the IPPD addition (CMMI-DEV+IPPD).¶
If you are not using IPPD, ignore the information that is marked "IPPD Addition," and you will be using the CMMI for Development model.¶
Unlike CMMI version 1.1, there is but a single model document that describes both the staged and continuous approaches to process improvement versus the prior use of two representations of staged and continuous in separate documents. This consolidated presentation of model material for both approaches was first used in the book, *CMMI: Guidelines for Process Integration and Product Improvement*. Thanks to Peter Gordon, publishing partner at Addison-Wesley Professional, and the book's authors, Mary Beth Chrissis, Mike Konrad, and Sandy Shrum, we were able to use the book's manuscript as the basis for developing CMMI version 1.2 [Chrissis 2003].¶
Acknowledgments¶

By integrating these bodies of knowledge, CMMI-ACQ provides a comprehensive set of best practices for acquiring products and services. CMMI for Development (CMMI-DEV) may be treated as a reference for supplier-executed activities for systems engineering, software development, and hardware design work in an acquisition initiative [SEI 2006a]. In those cases where the acquirer also has a role as a product or service developer (e.g., taking responsibility for the first few layers of product development and integration), CMMI-DEV (in particular the Requirements Development, Technical Solution, and Product Integration process areas) should also be used to improve the acquirer's product or service development processes.

Acknowledgements

Many talented people were involved in the development of the CMMI v1.2 Product Suite. Three primary groups involved in this development were the Steering Group, Product Team, and Configuration Control Board.

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The Steering Group guided and approved plans of the Product Team, provided consultation on significant CMMI project issues, and ensured involvement from a variety of interested communities.

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The Steering Group initiated the development of the Acquisition constellation, recognizing the importance of providing best practices to acquirers. The Steering Group provided guidance for the development of the CMMI-ACQ model and its accompanying training materials.

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The Product Team wrote, reviewed, revised, discussed, and agreed on the structure and technical content of the CMMI Product Suite, including the framework, models, training, and appraisal materials. Development activities were based on multiple inputs. These inputs included an A-Specification and guidance specific to each release provided by the Steering Group, source models, change requests received from the user community, and input received from pilots and other stakeholders.

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The CMMI Configuration Control Board (CCB) is the official mechanism for controlling changes to CMMI models and *Introduction to CMMI* training. As such, this group ensures integrity over the life of the product suite by reviewing all proposed changes to the baseline and approving only those changes that satisfy identified issues and meet criteria for the upcoming release.

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The Acquisition Advisory Board acted as the configuration control board for the Acquisition constellation, approving all changes to the Acquisition constellation. Consisting of experts in the field of acquisition, this group ensured the integrity of the constellation using the same review process as the CMMI CCB.

Members of the groups involved in developing CMMI-ACQ, V1.2, are listed in Appendix C.

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Audience

The audience for CMMI-ACQ is anyone interested in process improvement in an acquisition environment. Whether you are familiar with the concept of Capability Maturity Models or are seeking information to get started on your improvement efforts, CMMI-ACQ will be useful to you. This model is also intended for organizations who want to use a reference model for an appraisal of their acquisition-related processes.⁴

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Organization of this Document

This document is organized into three main parts:

- Part One—About CMMI for Acquisition
- Part Two—Generic Goals and Generic Practices, and the Process Areas
- Part Three—The Appendices and Glossary

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Part One, "About CMMI for Acquisition," consists of five chapters:

- Chapter 1, "Introduction," offers a broad view of CMMI and the Acquisition constellation, concepts of process improvement, the history of models used for process improvement, and different process improvement approaches.
- Chapter 2, "Process Area Components," describes all of the components of the CMMI-ACQ process areas.
- Chapter 3, "Tying It All Together," assembles the model components and explains the concepts of maturity levels and capability levels.
- Chapter 4, "Relationships Among Process Areas," provides insight into the meaning and interactions of the CMMI-ACQ process areas.
- Chapter 5, "Using CMMI Models," describes paths to adoption and the use of CMMI-ACQ for process improvement and benchmarking of practices in an acquisition organization.

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Part Two, "Generic Goals and Generic Practices, and the Process Areas," contains all of this CMMI model's required and expected components. It also contains related informative components, including subpractices, notes, examples, and typical work products.

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Part Two contains 23 sections. The first section contains the generic goals and practices. The remaining 22 sections each represent one of the CMMI-ACQ process areas.⁶

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To make these process areas easy to find, they are organized alphabetically by process area acronym. Each section contains descriptions of goals, best practices, and examples.

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Part Three, "The Appendices and Glossary," consists of four sections:

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- Appendix A, "References," contains references you can use to locate documented sources of information such as reports, process improvement models, industry standards, and books that are related to CMMI-ACQ.
- Appendix B, "Acronyms," defines the acronyms used in the model.
- Appendix C, "CMMI for Acquisition Project Participants," contains lists of team members and their organizations who participated in the development of CMMI-ACQ, Version 1.2.
- Appendix D, "Glossary," defines many of the terms used in CMMI-ACQ.

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⁶ A process area is a cluster of related best practices in an area, which when implemented collectively, satisfies a set of goals considered important for making significant improvement in that area. This concept is covered in detail in Chapter 2.

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How to Use this Document

Whether you are new to process improvement, new to CMMI, or already familiar with CMMI, Part One can help you understand why CMMI-ACQ is the guide to use for improving your acquisition processes.

Readers New to Process Improvement

If you are new to process improvement or new to the Capability Maturity Model (CMM®) concept, we suggest that you read Chapter 1, "Introduction," first. Chapter 1 contains an overview of process improvement that explains what CMMI is all about.

Next, skim Part Two, including generic goals and practices and specific goals and practices, to get a feel for the scope of the best practices contained in the model. Pay close attention to the purpose and introductory notes at the beginning of each process area.

In Part Three, look through the references in Appendix A and select additional sources you think would be beneficial to read before moving forward with using CMMI-ACQ. Read through the acronyms and glossary to become familiar with the language of CMMI. Then, go back and read the details of Part Two.

Readers Experienced with Process Improvement

If you are new to CMMI but have experience with other process improvement models, such as the Software Acquisition CMM, you will immediately recognize many similarities in their structure and content.

We recommend that you read Part One to understand how CMMI is different from other process improvement models. If you have experience with other models, you may want to select which sections to read first. Read Part Two with an eye for best practices you recognize from the models that you have already used. By identifying familiar material, you will gain an understanding of what is new and what has been carried over, or is familiar from the models you already know.

Next, review the glossary to understand how some terminology may differ from that used in the process improvement models you know. Many concepts are repeated, but they may be called something different.

Readers Familiar with CMMI

If you have reviewed or used a CMMI model before, you will quickly recognize the CMMI concepts discussed and the best practices presented.

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The following improvements were made to version 1.2:¶
<#>Both representations are presented together.¶
<#>The advanced practice and common feature concepts have been removed.¶
<#>The generic goal and practice descriptions were moved to Part Two.¶
<#>Hardware amplifications were added.¶
<#>All definitions were consolidated in the glossary.¶
<#>IPPD practices were consolidated and simplified. There are no longer any separate IPPD process areas.¶
<#>Supplier Agreement Management (SAM) and Integrated Supplier Management (ISM) were consolidated and Supplier Sourcing was removed.¶
<#>Generic practice (GP) ¶

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Additional Information and Reader Feedback

~~There are many sources of~~ information about CMMI, such as the background and history of the CMMI models, as well as the benefits of using CMMI models. Many of these sources are listed in Appendix A and are also published on the CMMI Web site—
<http://www.sei.cmu.edu/cmml/>.

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~~Your suggestions~~ for improving CMMI are welcome. For information on how to provide feedback, see the CMMI Web site at <http://www.sei.cmu.edu/cmml/models/change-requests.html>. If you have questions about CMMI, send email to cmml-comments@sei.cmu.edu.

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Supplier Agreement Management (SAM) and Integrated Supplier Management (ISM) were consolidated and Supplier Sourcing was removed.

Generic practice (GP) elaborations were added to the level 3 GPs.

An explanation of how process areas support the implementation of GPs was added.

Material was added to ensure that standard processes are deployed to projects at their startup.