

# Preface

CMMI® (Capability Maturity Model® Integration) ~~is models are~~ collections of best practices that help organizations to 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 maturity model for in the development of products and services. ~~It consists of best practices that address development and maintenance activities that cover the covering the entire~~ product lifecycle from conception conceptualization through delivery maintenance and maintenance.

~~This latest iteration of the model as represented herein integrates bodies disposal. Following the success of knowledge that are essential CMMI models 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 The prior designations of CMMI for systems engineering and software engineering (CMMI SE/SW) are superseded by the title “CMMI for Development” to truly reflect the comprehensive integration of these bodies of knowledge and the application of the model within the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 organizations, the need was identified for a CMMI model addressing the service industry.~~

~~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.~~

~~The service industry is a significant driver for worldwide economic growth. Guidance on developing and improving mature service practices is a key contributor to the performance, customer satisfaction, and profitability of the economic community. This CMMI for Services (CMMI-SVC) model is designed to begin meeting that need.~~

~~Northrop Grumman sponsored and led a volunteer industry team with the approval of the CMMI Steering Group. This team, collaborating with the SEI, developed the initial draft of the Services constellation.~~

## Purpose

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The purpose of CMMI for Development is to help organizations improve their development and maintenance processes for both products and services. CMMI for Development CMMI-SVC, V1.2 model is a collection of best practices that is generated from the CMMI V1.2 Architecture and Framework.<sup>+</sup> 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.

A constellation is a . This collection of CMMI includes services best practices from government and industry. CMMI-SVC is based on the “CMMI Model Foundation” or “CMF” (i.e., model components that includes a model, its training materials, and appraisal related documents for an area of interest. Currently there are three planned common to all CMMI models and 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-) and incorporates work by several service organizations to adapt CMMI for 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] the service industry.

## Acknowledgments

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The CMMI-SVC model provides guidance for the application of CMMI best practices by the service provider organization. Best practices in the model focus on activities for providing quality services to the customer and end users. CMMI-SVC integrates bodies of knowledge that are essential for a service provider.

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<sup>+</sup> The CMMI Framework is the basic structure that organizes CMMI components and combines them into CMMI constellations and models.

By integrating these bodies of knowledge, CMMI-SVC provides a comprehensive set of best practices for providing services. CMMI for Development (CMMI-DEV) may be treated as a reference for the development of the service system, which supports delivery of the service [SEI 2006a]. In those cases where the service system is large and complex, the CMMI-DEV model can be effectively used to develop such a system. (See the definition of “service system” in the glossary.)

## **Acknowledgements**

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Many talented people were involved ~~as part in the development~~ of the ~~product team for the CMMI v1-V1.2 CMMI~~ Product Suite. Three primary groups involved in this development were the CMMI Steering Group, Product Team, and ~~Configuration Control Board~~Services Advisory Group.

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

The Steering Group oversaw the development of the Services constellation, recognizing the importance of providing best practices to service providers. The Steering Group also provided guidance for the development of the CMMI-SVC model and its accompanying training materials.

The Product Team ~~writes, reviews, revises, discusses, and agrees~~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 ~~are~~were based on multiple inputs. These inputs ~~include~~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 ~~[SEI 2004]~~.

The Services Advisory Group acted as a source of advice for important design decisions the Product Team had to make during the final development of CMMI-SVC. Consisting of experts in the service industry, this group ensured the direction of the Product Team met the needs of the service industry, which span many types of services and organizations.

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

After the release of CMMI-SVC, the CMMI Configuration Control Board is (CCB) will be the official mechanism for controlling changes to ~~the~~ it and to all CMMI models, the Standard CMMI Appraisal Method for Process Improvement Method Definition Document (SCAMPI MDD), 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 the identified issues and meet the criteria for the upcoming release.

~~Members of these groups that were involved in developing CMMI v1.2, are listed in Appendix C.~~

## Audience

The audience for ~~this model includes~~ CMMI-SVC is anyone interested in process improvement in a ~~development and maintenance service provider~~ environment. Whether you are familiar with the concept of Capability Maturity Models or ~~whether you~~ are seeking information to get started on your improvement efforts, ~~this document~~ CMMI-SVC will be useful to you.

~~This model is also intended for people who organizations that want to use a reference model for an appraisal<sup>2</sup> to see where they are, those who already know what they want to improve, and those who are just getting started and want to develop a general understanding of the CMMI for Development constellation their service-related processes.<sup>3</sup>~~

## Organization of ~~This~~ ~~this~~ Document

This document is ~~available on the SEI Web site<sup>4</sup> and serves as a guide for improvement of organizational processes. It is~~ organized into three main parts:

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

Part One, “About CMMI for ~~Development,~~”~~Services,~~ consists of five chapters:

- Chapter 1, “Introduction,”~~1~~ offers a broad view of CMMI and the ~~CMMI for Development Services~~ constellation. ~~It introduces you to the,~~<sup>5</sup> concepts of process improvement, ~~and describes~~ the history of models used for process improvement,~~1~~ and different process improvement approaches.

<sup>2</sup> ~~An appraisal is an examination of one or more processes by a trained team of professionals using a reference model (e.g., CMMI) as the basis for determining strengths and weaknesses.~~

<sup>3</sup> ~~An appraisal is an examination of one or more processes by a trained team of professionals using a reference model (e.g., CMMI-SVC) as the basis for determining strengths and weaknesses.~~

<sup>4</sup> ~~The SEI Web site is located at <http://www.sei.emu.edu>.~~

<sup>5</sup> ~~A “constellation” is defined as a collection of components that are used to construct models, training materials, and appraisal materials in an area of interest (e.g., services and development).~~

- Chapter 2, “Process Area Components,” describes all of the components of the CMMI for Development SVC process areas.
- Chapter 3, “Tying It All Together,” assembles the model components and explains the concepts of maturity levels and capability levels, and outlines important service concepts.
- Chapter 4, “Relationships among Among Process Areas,” provides insight into the meaning and interactions of the CMMI for Development SVC process areas.
- Chapter 5, “Using CMMI Models,” describes paths to adoption and the use of CMMI-SVC for process improvement and benchmarking of practices in a service providing organization.

Part Two, “Generic Goals and Generic Practices, and the Process Areas,” contains all of the this CMMI for Development constellation’s model’s required and expected components. It also contains related informative components, including component names, subpractices, notes, examples, and typical work products.

Part Two contains 2325 sections. The first section contains the generic goals and practices, including a description of how they are used and how they relate to the process areas. The remaining 2224 sections each represent one of the CMMI for Development SVC process areas.<sup>6</sup>

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.

Part Three, “The Appendices and Glossary,” consists of four information resource sections:

- 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 for Development SVC.
- Appendix B, “Acronyms,” defines the acronyms used herein in the model.
- Appendix C, “CMMI for Development Services Project Participants,” contains lists of people team members and their organizations who participated in the development of CMMI for Development SVC, Version 1.2.
- The “Appendix D: Glossary” defines many of the terms used in CMMI-SVC.

<sup>6</sup> 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. We will cover this This concept is covered in detail in Chapter 2.

## How to Use ~~This~~ Document

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Whether you are new to process improvement, new to CMMI, or already familiar with CMMI, Part One can help you understand why CMMI ~~for Development~~-SVC is the ~~best~~-model to use for improving your ~~development and maintenance~~service processes.

### Readers New to Process Improvement

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If you are new to process improvement or new to the Capability Maturity Model (CMM<sup>®</sup>) concept, we suggest that you read Chapter 1, ~~“Introduction,”~~ first. Chapter 1 ~~will give you~~contains an overview of process improvement ~~and explain~~that explains what CMMI is all about.

Next, skim Part Two, including generic goals and practices ~~as well as~~and specific goals and practices, to get a feel for the scope of the best practices contained in the model. Pay ~~closest~~close attention to the purpose and introductory notes at the beginning of each ~~section~~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 ~~for Development~~-SVC. 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

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If you are new to CMMI but have experience with other process improvement models, such as the Software CMM (~~version 1.1~~)-or the Systems Engineering Capability Model (i.e., EIA-731), International Organization for Standardization (ISO) 9000, you will immediately recognize many similarities ~~[EIA-1998]~~in their structure and content.

We recommend that you read Part One to understand how CMMI is different from other process improvement models, ~~but~~. If you have experience with other models, you may want to ~~read some of these~~select which sections ~~more quickly than other~~to read first. Read Part Two with an eye ~~open~~for best practices you recognize from the models ~~that~~ you have already ~~tried~~. Identifying familiar material ~~gives~~, you ~~a feel for~~will gain an understanding of what is new and what has been carried over, ~~or is familiar~~ from the ~~model~~models you already know.

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

### Readers Familiar with CMMI

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

presented. ~~The differences between version 1.2 and version 1.1 are explained in detail on the SEI Web site in the version 1.2 release notes. These differences reflect the enhancements suggested by the users of version 1.1.~~

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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) 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.~~

## **Additional Information and Reader Feedback**

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~~You can find additional~~ There are many sources of information from ~~various other sources~~ 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/cmmi/> ~~[SEI 2] website:~~ [www.sei.cmu.edu/cmmi/](http://www.sei.cmu.edu/cmmi/).

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

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