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Part 12: Guidance on the relationship between ISO/IEC 20000-1:2011 and service management frameworks: CMMI-SVC®

Technologies de l'information — Gestion des services —

Partie 12: Directives sur la relation entre l'ISO/IEC 20000-1:2011 et les cadres de management du service: CMMI-SVC ®

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/IEC JTC 1, *Information technology*, SC 40, *IT Service Management and IT Governance*.

A list of all parts in the ISO/IEC 20000 series can be found on the ISO website and in the Introduction of this document.

Introduction

This document can assist readers in relating the requirements specified in ISO/IEC 20000-1:2011 to supporting text in one of the most commonly used service management frameworks, CMMI-SVC. Service providers can refer to this guidance as a cross-reference between the two documents to help them to plan and implement a service management system (SMS).

ISO/IEC 20000-1:2011 is the International Standard for service management and specifies requirements that can be used as the basis of a conformity assessment. ISO/IEC 20000-1:2011 can be used in different ways, including:

a) as a source of requirements for service providers on the design, transition, delivery and improvement of services and service management capabilities;

b) to establish a consistent approach for an organization to use with all of its service providers, including those in its supply chain;

c) as an unbiased basis to assess, measure and report service delivery and management capabilities including performance of specific service management processes;

d) as a set of criteria for audit and assessment of a service provider's SMS, including service management processes.

ISO/IEC 20000-1:2011 specifies an integrated process approach when the service provider plans, establishes, implements, operates, monitors, reviews, maintains and improves an SMS. The services can be delivered to internal or external customers.

In ISO/IEC 20000-1:2011, a service is defined as a means of delivering value for the customer by facilitating results that the customer wants to achieve. The definition further notes that a service is generally intangible and that a service can also be delivered to the service provider by a supplier, an internal group or a customer acting as a supplier.

The Capability Maturity Model Integration for Services (CMMI-SVC) draws on concepts and practices from other CMMI models and other service-focused frameworks and models. The CMMI-SVC model covers the activities required to establish, deliver, and manage services. As defined in the CMMI context, a service is an intangible, non-storable product. The CMMI-SVC model has been developed to be compatible with this broad definition.

Service providers can implement and improve the SMS using the requirements specified in ISO/IEC 20000-1, the guidance in the other parts of the ISO/IEC 20000 series and CMMI-SVC. Both the ISO/IEC 20000 series and CMMI-SVC provide guidance to identify, plan, design, deliver, and improve services that deliver value to the business and its customers.

ISO/IEC 20000 consists of the following parts, under the general title Information technology — Service management:

— Part 1: *Service management system requirements*

— Part 2: *Guidance on the application of service management systems*

— Part 3: *Guidance on scope definition and applicability of ISO/IEC 20000-1*

— Part 4: *Process reference model* [Technical Report]

— Part 5: *Exemplar implementation plan for ISO/IEC 20000-1* [Technical Report]

— Part 6: *Requirements for bodies providing audit and certification of service management systems*[1)]

— Part 9: *Application of ISO/IEC 20000-1 to cloud services* [Technical Report]

1) To be published.

— Part 10: *Concepts and terminology* [Technical Report]

— Part 11: *Guidance on the relationship between ISO/IEC 20000-1:2011 and service management frameworks: ITIL®*[2] [Technical Report]

— Part 12: *Guidance on the relationship between ISO/IEC 20000-1:2011 and service management frameworks: CMMI-SVC®*[3] [Technical Report]

2) ITIL® is a registered trademark of AXELOS.

3) CMMI® and CMMI-SVC® are registered trademarks of the CMMI Institute.

Information technology — Service management —

Part 12: Guidance on the relationship between ISO/IEC 20000-1:2011 and service management frameworks: CMMI-SVC ®

1 Scope

This document provides guidance on the relationship between ISO/IEC 20000-1:2011 and CMMI-SVC V1.3 (through Maturity Level 3). Service providers can refer to this guidance as a cross-reference between the two documents to help them to plan and implement an SMS. An organization employing the practices in the indicated CMMI-SVC process areas can conform to many of the associated ISO/IEC 20000-1 requirements.

The guidance in Clause 4 describes how CMMI-SVC can support the demonstration of conformity to ISO/IEC 20000-1:2011. A description of the purpose and content of both publications in 4.1 and 4.2 is followed by Clause 5, which relates process areas in CMMI-SVC to clauses in ISO/IEC 20000-1:2011. The tables in Annexes A and B relate terms, clauses, and paragraphs in ISO/IEC 20000-1:2011 to CMMI-SVC. Table B.1 is a simplified summary of the correlation seen in Table 3 for those readers who want an overview. The tables indicate those aspects of ISO/IEC 20000-1:2011 and CMMI-SVC that represent the greatest link between the two sets of documents, from the perspective of a service provider.

This document can be used by any organization or person who wishes to understand how CMMI-SVC can be used with ISO/IEC 20000-1:2011, including the following:

a) a service provider that intends to demonstrate conformity to the requirements of ISO/IEC 20000-1:2011 and is seeking guidance on the use of CMMI-SVC to establish and maintain the SMS and the services;

b) a service provider that has demonstrated conformity to the requirements of ISO/IEC 20000-1:2011 and is seeking guidance on ways to use CMMI-SVC to improve the SMS and the services;

c) a service provider that already uses CMMI-SVC and is seeking guidance on how CMMI-SVC can be used to support efforts to demonstrate conformity to the requirements specified in ISO/IEC 20000-1:2011;

d) an appraiser or assessor who wishes to understand the use of CMMI-SVC as support for the requirements specified in ISO/IEC 20000-1:2011.

This document can also be used with the other parts of the ISO/IEC 20000 series.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 20000-1:2011, *Information technology — Service management — Part 1: Service management system requirements*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 20000-1:2011 and ISO/IEC/TR 20000-10:2015 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

4 Use of ISO/IEC 20000-1:2011 and CMMI-SVC

4.1 Introduction to ISO/IEC 20000-1:2011

ISO/IEC 20000-1:2011 specifies the general requirements for an SMS in Clause 4. In ISO/IEC 20000-1:2011, Clauses 5 to 9, it specifies the service management processes, as shown in Table 1.

Table 1 — Service management processes in ISO/IEC 20000-1:2011

Process group	Clause	Process
—	5	Design and transition of new or changed services
Service delivery processes	6	Service level management Service reporting Service continuity and availability management Budgeting and accounting for services Capacity management Information security management
Relationship processes	7	Business relationship management Supplier management
Resolution processes	8	Incident and service request management Problem management
Control processes	9	Configuration management Change management Release and deployment management

ISO/IEC 20000-1:2011 requires the application of the methodology known as “Plan–Do–Check–Act” (PDCA) to all parts of the SMS and the services. Figure 1 illustrates how the PDCA methodology can be applied to the SMS, including the service management processes specified in ISO/IEC 20000-1:2011, Clauses 5 to 9 and the services. The PDCA methodology can be briefly described as follows:

Plan: establishing, documenting and agreeing the SMS. The SMS includes the policies, objectives, plans and processes to fulfil the service requirements.

Do: implementing and operating the SMS for the design, transition, delivery and improvement of the services.

Check: monitoring, measuring and reviewing the SMS and the services against the policies, objectives, plans and service requirements and reporting the results.

Act: taking actions to continually improve performance of the SMS and the services.

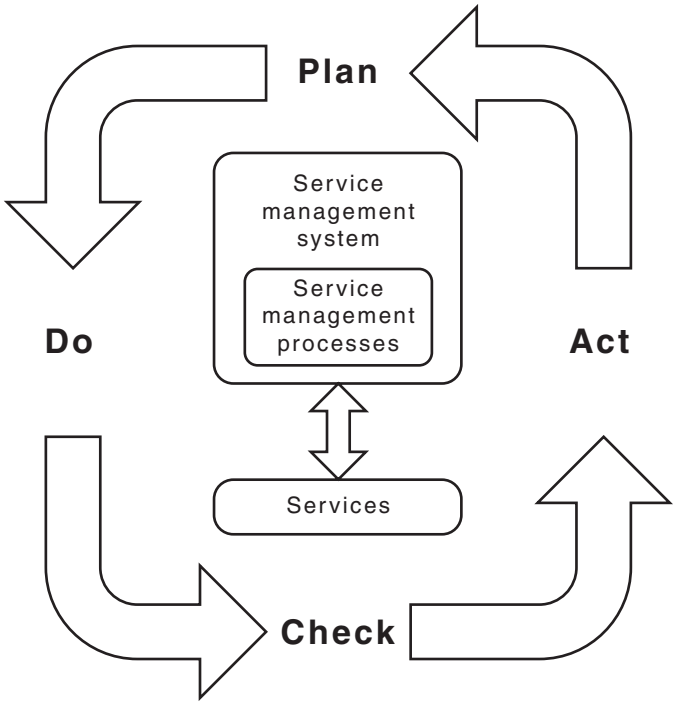

Figure 1 — PDCA methodology applied to service management

Figure 2 illustrates an SMS, including the service management processes. The service management processes and the interfaces between the processes can be implemented in different ways by different service providers. The nature of the relationship between a service provider and the customer, the service management objectives, and the scope of the SMS will influence how the service management processes are implemented.

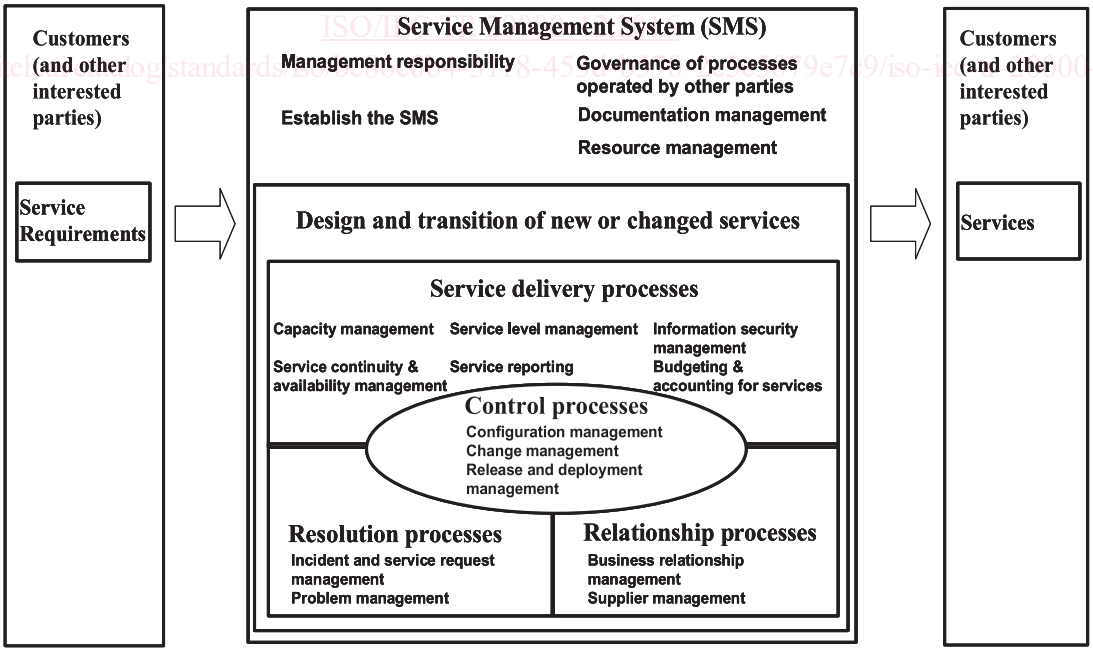

Figure 2 — Service management system

ISO/IEC 20000-1:2011 supports the integration of an SMS with other management systems in the service provider's organization. The adoption of an integrated process approach and the PDCA methodology enables the service provider to align or fully integrate multiple management system standards.

For example, an SMS can be integrated with a quality management system based on ISO 9001 or an information security management system based on ISO/IEC 27001.

For the service provider, the benefits of the SMS are in its application towards fulfilling service requirements and providing services with value both to customers and the service provider.

The ISO/IEC 20000 series contains requirements in ISO/IEC 20000-1:2011 and guidance in other parts. ISO/IEC 20000-2:2012 is an important reference for a service provider implementing the requirements of ISO/IEC 20000-1:2011. Guidance on the way an organization can implement ISO/IEC 20000-1:2011 in phases is provided in ISO/IEC/TR 20000-5:2013. Extensive guidance is also provided in the other parts of the ISO/IEC 20000 series. The service provider can also use a combination of other guidance and its own experience. One example of other guidance is CMMI-SVC.

4.2 Introduction to CMMI-SVC

CMMI-SVC is one of three CMMI models, referred to collectively as "CMMI." CMMI-SVC is a model of practices and goals for service organizations of all types. These practices are grouped into process areas (PAs), which are collections of goals and practices on a single topic, such as risk, capacity, or continuity. A PA is the major organizing component of every CMMI model, and in CMMI-SVC, these PAs are used for defining and delivering services, improving processes, evaluating organizational capability or maturity, and benchmarking.

All CMMI models include core PAs (for example, Risk Management) that are common to all CMMI models, and specific PAs (for example, Service Continuity) that are related to one of the three disciplines that CMMI covers: acquisition, development, and services. In addition, CMMI models have generic practices (for example, "Train the people performing or supporting the process as needed."). These generic practices can be used to foster improvement by using them alone or with PAs and applying them to any work or part of an organization. Generic goals (for example, "Institutionalize a Managed Process") and practices are also applied during CMMI appraisals to make judgments about organizational capability.

CMMI PAs have goals, practices, and guidance to use as references when developing and improving processes, but they are not processes or process descriptions. Further, a CMMI appraisal is not an assessment of processes. The guidance (also called "informative content" by CMMI users) for using goals and practices accompanies the expression of goals and practices (CMMI experts refer to these as normative content) and this guidance appears throughout the CMMI document. Guidance or informative CMMI material is integrated rather than separated from normative material.

Because CMMI is used to improve practices and evaluate organizational capability, the CMMI has multiple ways to use PAs. All CMMI documents organize the PAs in alphabetical order by acronym for ease of reference. Organizations can use PAs in prescribed maturity levels, allowing organizations to benchmark by using the CMMI appraisal method. This grouping of PAs is called the "staged representation" in CMMI. Organizations can also choose PAs relevant to their business and use the generic practices to improve and evaluate their capability on the topics most important to them. This way of using PAs is called the continuous representation in CMMI. In addition, Table 2 groups the 24 PAs in CMMI-SVC according to business activities (Doing the Work); this grouping is used in training and overviews.

Table 2 — CMMI-SVC Process Areas

Doing the Work	Process Area
Define, Establish, and Deliver Services	Service Delivery (SD) Requirements Management (REQM) Work Planning (WP) Service System Development (SSD)
Monitor and Control Service and Work Products	Capacity and Availability Management (CAM) Work Monitoring and Control (WMC) Configuration Management (CM)
Ensure Service Mission Success	Incident Resolution and Prevention (IRP) Risk Management (RSKM) Service Continuity (SCON) Service System Transition (SST)
Make Work Explicit and Measureable	Measurement and Analysis (MA) Organizational Process Performance (OPP) Quantitative Work Management (QWM) Causal Analysis and Resolution (CAR) Organizational Performance Management (OPM)
Manage Decisions, Suppliers, and Standard Services	Supplier Agreement Management (SAM) Decision Analysis and Resolution (DAR) Strategic Service Management (STSM)
Create a Culture to Sustain Service Excellence	Process and Product Quality Assurance (PPQA) Organizational Process Definition (OPD) Integrated Work Management (IWM) Organizational Training (OT) Organizational Process Focus (OPF)

Service providers choosing to use CMMI-SVC as their guide to implementing service management processes can support the demonstration of conformity against the requirements specified in ISO/IEC 20000-1:2011. To demonstrate conformity to the requirements specified in ISO/IEC 20000-1:2011, the service provider should implement an SMS that encompasses the following requirements of ISO/IEC 20000-1:2011, Clauses 4 to 9.

a) The SMS general requirements, specified in ISO/IEC 20000-1:2011, Clause 4, demonstrating management commitment, governance of processes operated by other parties, control and management of service management documentation and management of resources. These requirements include the operation of continual improvement of the SMS using the PDCA methodology.

b) Management of the service lifecycle including the design, development, and transition of new services, changing services, closure of services or transfer of services to others in a controlled manner, as specified in ISO/IEC 20000-1:2011, Clauses 5 to 9.

c) For the service management processes specified in ISO/IEC 20000-1:2011, Clauses 5 to 9 all processes should be in place and their documented and measurable performance should demonstrate conformance with the requirements specified in these clauses.

The ISO/IEC 20000 series can be used by an organization looking for guidance on how to improve service management, whether or not it is interested in seeking certification. Regardless of the intended

application of ISO/IEC 20000-1:2011, CMMI-SVC can support a service provider to design, transition, deliver and improve the SMS and services.

4.3 Relationships between ISO/IEC 20000-1:2011 and CMMI-SVC

ISO/IEC 20000-1:2011 and CMMI-SVC through Maturity Level 3 demonstrate similarities in their structure and content. Both can be used to demonstrate conformity. In the case of ISO/IEC 20000-1:2011, it is the SMS that is assessed. In the case of CMMI-SVC, it is the capability or maturity of the organization that is assessed.

ISO/IEC 20000-1:2011 and CMMI-SVC rely on system concepts. The ISO/IEC 20000 series has the SMS and CMMI-SVC has the service system. The components of these systems have a strong similarity. Both systems have requirements and guidance regarding continuity, incidents, service requests, capacity, and availability, as demonstrated in the correlation Tables A.1 and B.1.

ISO/IEC 20000-1:2011 is a management system standard that specifies requirements for an SMS. CMMI-SVC is a model of organizational capability. As a model, it presents a framework for developing and delivering services and for improving processes. CMMI-SVC is interpreted by the user to determine what is needed to successfully enable the service system. ISO/IEC 20000-1:2011 specifies the requirements for the SMS; CMMI-SVC users derive their organizational requirements from goals and practices. This difference carries with it architecture, scope, and purpose differences in each document. CMMI-SVC provides detailed guidance on organization-level activities, measurement of services and processes, decision making and risk management. These are core properties of CMMI that could also be useful in the implementation of an SMS that is based on ISO/IEC 20000-1:2011.

While the content of ISO/IEC 20000-1:2011 and CMMI-SVC is largely consistent, topics are organized into different groups, and the detail in accompanying explanations and guidance varies. ISO/IEC 20000-1:2011 specifies requirements for the SMS and other parts of the ISO/IEC 20000 series, including ISO/IEC 20000-2, contain guidance on many aspects of service management. In contrast, CMMI models have guidance integrated throughout a single document.

Many organizations use both the ISO/IEC 20000 series and CMMI-SVC and find value in using them together.

5 Correlation of CMMI-SVC to ISO/IEC 20000-1:2011

The correlation of ISO/IEC 20000-1:2011 clauses to process areas and associated goals and practices in CMMI-SVC is intended to provide a view of the relationships between the two references. Although this correlation cites normative clauses of ISO/IEC 20000-1:2011 and aligns them with CMMI-SVC goals and practices, the correlation itself is informative, not normative. The user should consult the source documents to determine the applicability of requirements and informative guidance. Not all CMMI-SVC goals and practices referenced in this annex are necessary to fulfil the requirements specified in ISO/IEC 20000-1:2011. Not all the requirements specified in ISO/IEC 20000-1:2011 are covered completely in each of the associated CMMI-SVC process areas.

ISO/IEC 20000-1:2011 specifies requirements for an SMS. ISO/IEC 20000-1:2011 is the International Standard for service management and specifies requirements that can be used as the basis of a conformity assessment. It can be used for improvement, benchmarking and for demonstrating conformity to an SMS.

CMMI-SVC enumerates practices and activities specific to process areas within the process area, similar to the ISO/IEC 20000-1:2015 consideration of processes within the SMS. In ISO/IEC 20000-1:2015, activities that enable the service organization to establish central processes, practices, tasks, and procedures are expressed in clauses. This similar content in CMMI is expressed as institutionalization in the generic practices and organizational PAs such as OPD and OPF.

Table 3 shows the correlation to CMMI-SVC through Maturity Level 3 (by process area, with specific goals and practices when relevant) for ISO/IEC 20000-1:2011, Clauses 4 to 9, respectively. For clarity of correlation, the connections are made at the level of subclauses.

