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**Information technology — Guidelines  
for the application of ISO 9001:2008  
to IT service management and its  
integration with ISO/IEC 20000-1:2011**

*Technologies de l'information — Lignes directrices pour l'application  
de l'ISO 9001:2008 pour la gestion des services IT et son intégration à  
la norme ISO/CEI 20000-1:2011*

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# Contents

Page

<b>Foreword</b> .....	<b>iv</b>
<b>Introduction</b> .....	<b>v</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>2</b>
<b>3 Terms and definitions</b> .....	<b>2</b>
<b>4 Abbreviated terms</b> .....	<b>3</b>
<b>5 Introduction to ISO 9001 and ISO/IEC 20000-1</b> .....	<b>3</b>
5.1 Introduction to the International Standards.....	3
5.2 The application of ISO 9001 to services and service management.....	7
5.3 The integration of ISO 9001 and ISO/IEC 20000-1.....	7
5.4 Comparison of ISO 9001 and ISO/IEC 20000-1.....	9
<b>6 Management system requirements in ISO 9001 related to ISO/IEC 20000-1</b> .....	<b>13</b>
6.1 Scope.....	13
6.2 Normative references.....	15
6.3 Terms and definitions.....	15
6.4 Quality management system.....	23
6.5 Management responsibility.....	27
6.6 Resource management.....	32
6.7 Product realization.....	35
6.8 Measurement, analysis and improvement.....	49
<b>7 Management system requirements in ISO/IEC 20000-1 and not in ISO 9001</b> .....	<b>57</b>
7.1 Rationale for additional clauses and requirements in ISO/IEC 20000-1.....	57
7.2 Clauses of ISO/IEC 20000-1 not found in ISO 9001.....	57
<b>Annex A (informative) Comparison of requirements between ISO 9001:2008 and ISO/IEC 20000-1:2011</b> .....	<b>58</b>
<b>Annex B (informative) Comparison of requirements between ISO/IEC 20000-1:2011 and ISO 9001:2008</b> .....	<b>63</b>
<b>Annex C (informative) Integration of ISO 9001:2008 and ISO/IEC 20000-1:2011</b> .....	<b>68</b>
<b>Bibliography</b> .....	<b>81</b>

## 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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

In exceptional circumstances, when the joint technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example), it may decide to publish a Technical Report. A Technical Report is entirely informative in nature and shall be subject to review every five years in the same manner as an International Standard.

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.

ISO/IEC/TR 90006 was prepared by the Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software and systems engineering*.

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## Introduction

This Technical Report provides guidelines for the application of ISO 9001:2008 to IT service management. It also provides guidelines for the integration of a quality management system (QMS) and a service management system (SMS).

This Technical Report describes the similarities and differences between the requirements of ISO 9001:2008 and ISO/IEC 20000-1:2011. This Technical Report supports the adoption and audit of management systems developed following the requirements of ISO 9001:2008 alone or of an integrated management system for both ISO 9001:2008 and ISO/IEC 20000-1:2011.

This Technical Report uses the terminology used in ISO 9001:2008 when referring to that International Standard. It uses the terminology used in ISO/IEC 20000-1:2011 when referring to that International Standard. For example, ISO/IEC 20000-1 refers to services and service providers; ISO 9001 refers to products and organizations.

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# Information technology — Guidelines for the application of ISO 9001:2008 to IT service management and its integration with ISO/IEC 20000-1:2011

## 1 Scope

This Technical Report provides guidelines for the application of ISO 9001:2008 to service management for IT services. Examples provided in the guidelines are for service management of IT services.

Because ISO/IEC 20000-1 and ISO 9001 can be applied not only to IT services but to all services, they do not use terminology referring to IT services. Throughout this Technical Report, the terminology of ISO/IEC 20000-1 is used without reference to IT, i.e. service, service management and service provider. The guidelines in this Technical Report can also be useful to support a QMS, SMS or integrated management system for other non-IT services.

Additionally, this Technical Report provides guidelines for the alignment and integration of a QMS and SMS in organizations where services are being delivered to internal or external customers. The guidelines about integration provided in [Annex C](#) can be applicable to a scope including IT services and other non-IT services as required.

This Technical Report provides a comparison of the requirements of ISO 9001:2008 and ISO/IEC 20000-1:2011. It highlights those areas where there is the greatest similarity between the two management systems, and where there are differences between the two.

This Technical Report cites and explains the requirements of ISO 9001:2008 in its application to service management and its integration with ISO/IEC 20000-1:2011, but does not add to or otherwise change the requirements of ISO 9001 or ISO/IEC 20000-1.

The guidelines provided in this Technical Report are not intended to be used as criteria for conformity assessments or audits.

This Technical Report can apply to organizations of all sizes, sectors, and types with different organizational forms or business models.

This Technical Report can be used by:

- a) auditors and assessors looking for guidelines on audits for ISO 9001:2008 with a scope that includes services and service management;
- b) auditors and assessors looking for guidelines on integrated audits for ISO 9001:2008 and ISO/IEC 20000-1:2011 with a scope that includes services and service management;
- c) organizations implementing a QMS with a scope that includes services and service management;
- d) organizations implementing an integrated management system using the requirements of ISO 9001:2008 and ISO/IEC 20000-1:2011.

This Technical Report does not describe the requirements of ISO 9001 or ISO/IEC 20000-1 comprehensively. This Technical Report is intended for use by persons with knowledge of both ISO 9001:2008 and ISO/IEC 20000-1:2011. Text that has been quoted from ISO 9001:2008 is enclosed in a box. Text from ISO 9000:2005 and ISO/IEC 20000-1:2011 is not reproduced extensively. Additional guidance is listed in the bibliography.

[Clause 5](#) of this Technical Report provides an introduction to ISO 9001 and ISO/IEC 20000-1, an overview of their similarities and differences and how they can be used together or separately.

[Clause 6](#) of this Technical Report includes all of the clauses of ISO 9001:2008 with details of related clauses from ISO/IEC 20000-1:2011 and provides guidelines for the application of ISO 9001:2008 to service management.

For ease of use, [Clause 6](#) of this Technical Report is numbered in the sequence of ISO 9001:2008. For example:

- a) [Clause 6.3](#) of this Technical Report relates to Clause 3 in ISO 9001:2008;
- b) [Clause 6.4.1](#) of this Technical Report relates to Clause 4.1 in ISO 9001:2008;
- c) [Clause 6.4.2.2](#) of this Technical Report relates to Clause 4.2.2 in ISO 9001:2008.

[Clause 7](#) of this Technical Report provides information about the clauses in ISO/IEC 20000-1:2011 that do not have corresponding requirements in ISO 9001:2008.

[Annexes A](#) and [B](#) of this Technical Report provide detailed tables showing a comparison between the requirements of ISO 9001:2008 and ISO/IEC 20000-1:2011.

[Annex C](#) of this Technical Report provides guidelines on the integration of a QMS and an SMS.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 9000:2005, *Quality management systems — Fundamentals and vocabulary*

ISO 9001:2008, *Quality management systems — Requirements*

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 9000:2005, ISO/IEC 20000-1:2011 and the following apply.

NOTE 1 Throughout the text of this Technical Report, wherever the term 'product' occurs, it can also mean 'service'.

NOTE 2 [Clause 6.3](#) of this Technical Report provides an analysis of the terms and definitions from ISO 9000:2005 and ISO/IEC 20000-1:2011.

### 3.1 information technology

#### IT

resources required to acquire, process, store and disseminate information

Note 1 to entry: Includes Communication Technology (CT) and the composite term Information and Communication Technology (ICT).

[SOURCE: ISO/IEC 38500:2008]

## 4 Abbreviated terms

IT	Information Technology;
PDCA	Plan-Do-Check-Act;
QMS	Quality Management System (from ISO 9000:2005);
SMS	Service Management System (from ISO/IEC 20000-1:2011).

## 5 Introduction to ISO 9001 and ISO/IEC 20000-1

### 5.1 Introduction to the International Standards

#### 5.1.1 Introduction to ISO 9001

The ISO 9000 series has been developed to assist organizations of all types and sizes to implement and operate an effective QMS. The adoption of a QMS should be a strategic decision for an organization. ISO 9001 specifies requirements for a QMS when an organization wishes to demonstrate its ability to provide products that fulfil customer and applicable statutory and regulatory requirements and aims to enhance customer satisfaction.

The ISO 9000 series includes the following parts:

- ISO 9000:2005, *Quality management systems — Fundamentals and vocabulary*;
- ISO 9001:2008, *Quality management systems — Requirements*;
- ISO 9004:2009, *Managing for the sustained success of an organization — A quality management approach*.

There are other International Standards related to ISO 9001 which are listed in the bibliography e.g. ISO 19011:2011, *Guidelines for auditing management systems*.

The intent of ISO 9001 is to encourage the adoption of a process approach to manage an organization. Organizations that adopt a process approach create confidence in the capability of their products and supporting lifecycle processes. This approach provides a basis for continual improvement and can lead to increased satisfaction of customers and other interested parties, and to the success of the organization. ISO 9001 also encourages the adoption of a systems approach to management which requires process integration and alignment to improve the achievement of desired results. The process approach and systems approach to management are common to the design of both a QMS and an SMS.

The model of a process-based QMS shown in [Figure 1](#) illustrates the process linkages presented in ISO 9001. In addition, the methodology known as 'Plan-Do-Check-Act' (PDCA) can be applied to all processes in ISO 9001. This illustration shows that customers play a significant role in defining requirements as inputs. Monitoring of customer satisfaction requires the evaluation of information relating to customer perception about whether the organization has met the customer requirements.

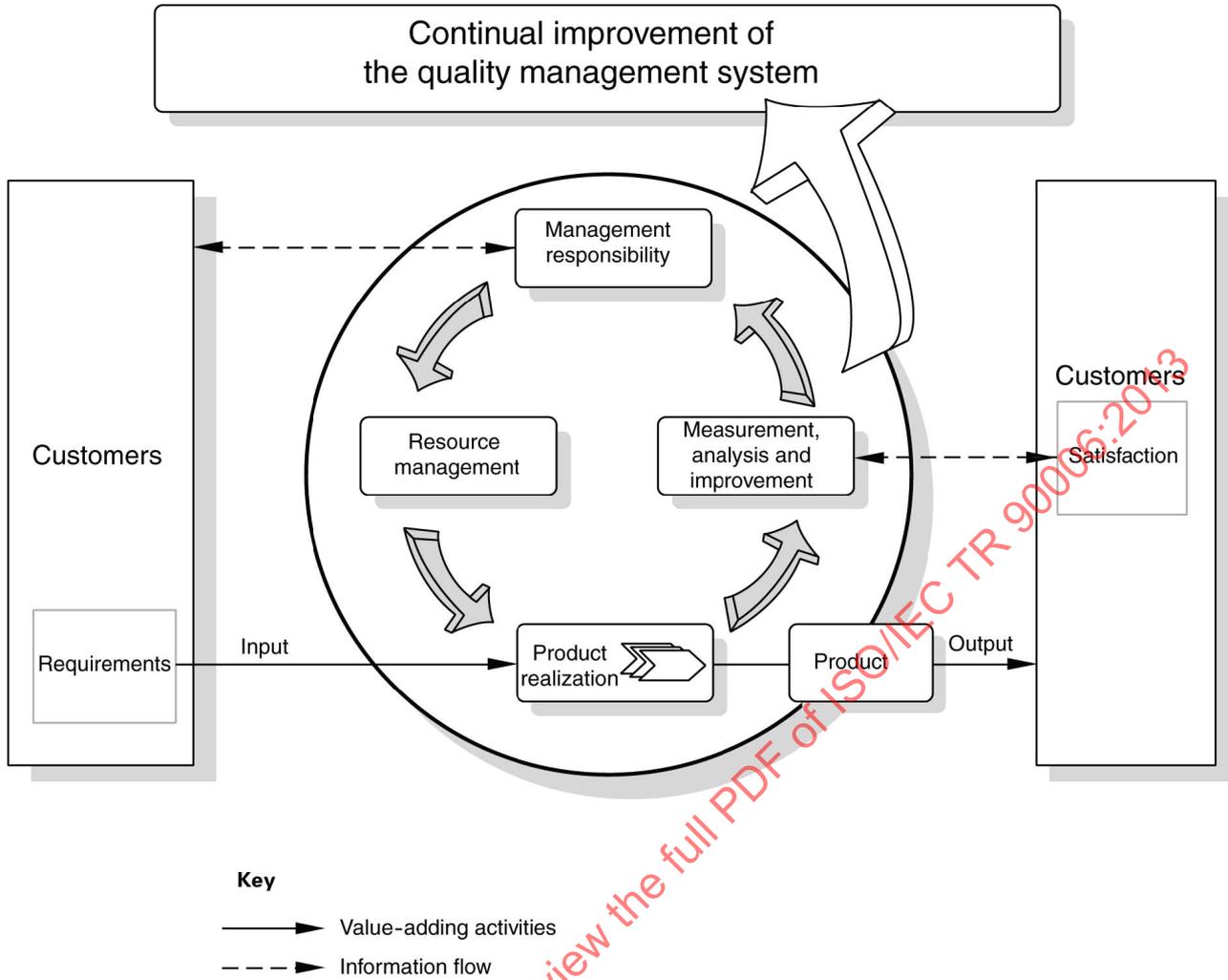


Figure 1 — Model of a process-based quality management system

The parties involved in quality management as defined in ISO 9001 are shown in Figure 2. The organization that supplies products to the customer can be the subject of the requirements of ISO 9001.

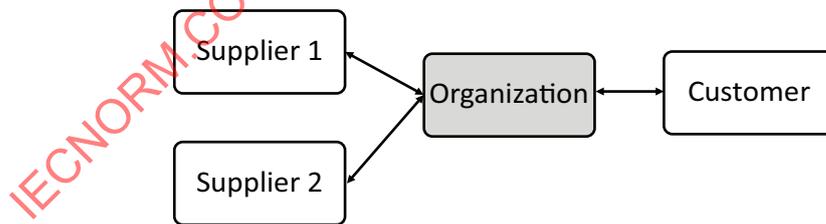


Figure 2 — The parties involved in quality management

While the organization itself can be the subject of the requirements of ISO 9001, mutually beneficial supplier relationships can represent a fundamental quality principle within ISO 9000 which can enhance the ability to create value.

5.1.2 Introduction to ISO/IEC 20000-1

ISO/IEC 20000 is the International Standard for service management. Service management is the set of capabilities, including processes, required to direct and control a service provider’s activities and resources to fulfil service requirements as agreed with their customer. ISO/IEC 20000 includes

requirements for the design, transition, delivery and improvement of services that fulfil service requirements and provide value for both the customer and the service provider. The adoption of an SMS should be a strategic decision for an organization.

In service management, the organization providing services is known as a service provider. The customer should be responsible for defining its service requirements and agreeing the services to be delivered. The user can access and use the service. The customer can also be a user.

In a business environment, the service provider delivers services to the customer. The service provider manages the services to fulfil the customer requirements. For example, a financial business unit customer can access financial application services hosted in the cloud from his desk top computer. The service provider is responsible for designing and developing the service, making the transition from development into the live environment and then operating the service to deliver it to the customers.

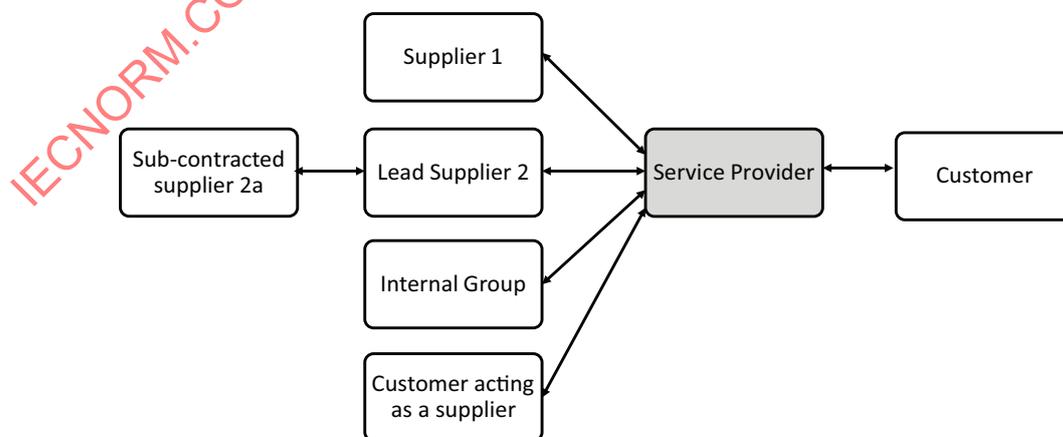
A service can be visible to customers e.g. an email service. A service can also be invisible to customers but necessary to support other services e.g. an infrastructure maintenance service.

ISO/IEC 20000 includes 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 10: Concepts and terminology [Technical Report].

ISO/IEC TR 20000-10 establishes a common framework for helping organizations to understand the purpose of all the parts of ISO/IEC 20000 and the relationships between the parts. It also identifies other documents that have relationships with ISO/IEC 20000-1 and identifies common areas between standards to aid the use and integration of multiple standards in organizations.

The parties that can be involved in service management as defined in ISO/IEC 20000-1 are shown in [Figure 3](#). The service provider should be the part of the organization that delivers services to the customers and can be the subject of the requirements of ISO/IEC 20000-1. Other parties that can support the service provider are suppliers, internal groups or customers acting as suppliers.



**Figure 3 — The parties involved in service management**

ISO/IEC 20000-1 specifies an integrated process approach when the service provider plans, establishes, implements, operates, monitors, reviews, maintains and improves an SMS. ISO/IEC 20000-1 specifies

the application of the methodology known as 'Plan-Do-Check-Act' to all parts of the SMS including the service management processes specified in Clauses 5 to 9 of ISO/IEC 20000-1, and the services. This is shown in [Figure 4](#).

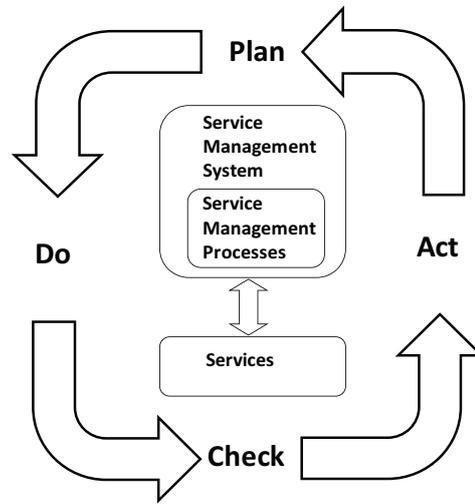


Figure 4 — PDCA methodology applied to service management

### 5.1.3 Defining scope for a QMS and an SMS

ISO 9001 and ISO/IEC 20000-1 differ significantly on the requirements for scope of the management system.

The scope of a QMS can include all or a part of the activities of an organization. The scope of an SMS applies to the design, transition, delivery and improvement of services.

[Figure 5](#) illustrates 3 possible scenarios for the related scope of a QMS and an SMS. Figure 5.1 shows a scope with a partial overlap. Figure 5.2 shows the SMS scope wholly within the scope of the QMS. Figure 5.3 shows the same scope for both the QMS and the SMS. Examples are also provided.

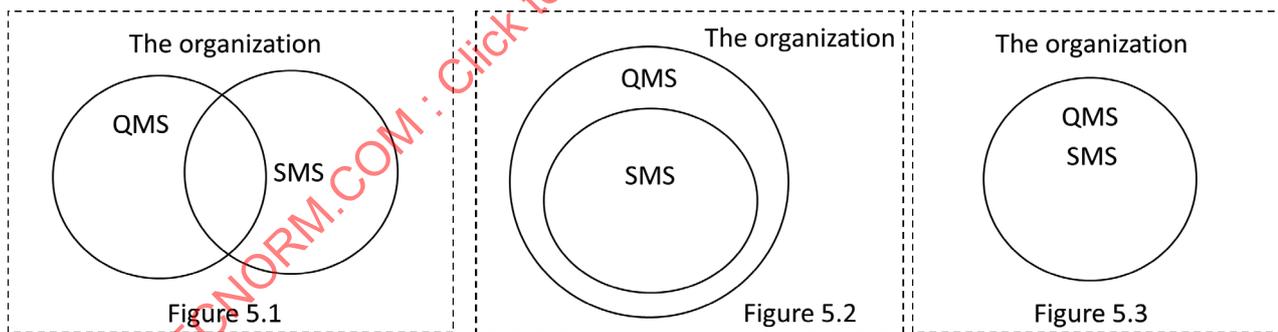


Figure 5 — Scope scenarios for a QMS and an SMS

**EXAMPLE 1** An organization in Figure 5.1 has a QMS for both the manufacturing of products and a service required for the manufacturing process. The organization also has an SMS with a scope of the service for the product manufacturing process and other services. The scope of the SMS overlaps partially with the scope of the QMS.

**EXAMPLE 2** An organization in Figure 5.2 has a QMS for all insurance business processes and all services. The organization also has an SMS for all services. The scope of the SMS is a subset of the scope of the QMS.

**EXAMPLE 3** A service organization in Figure 5.3 has a QMS for all services provided. This organization also has an SMS for all services. The scope is identical for the QMS and the SMS.

NOTE Further guidance on scope for ISO/IEC 20000-1 is available in ISO/IEC 20000-3:2012 – Guidance on scope definition and applicability of ISO/IEC 20000-1.

## 5.2 The application of ISO 9001 to services and service management

Customers can require products with characteristics that satisfy their needs and expectations. In ISO 9001, whenever the term product occurs, it can also mean service. These needs and expectations are expressed in product specifications and can be collectively referred to as customer requirements. Because customer needs and expectations can change and because of competitive pressures and technical advances, organizations should be driven to continually improve their products and processes.

The QMS approach encourages organizations to analyse customer requirements, define the processes that contribute to the achievement of a product which is acceptable to the customer, and keep these processes under control.

ISO 9001 specifies requirements for a QMS that can be used for internal application by organizations, for conformity assessments or for third party audits. It focuses on the effectiveness of the QMS in providing products and services that meet customer requirements.

Clause 4.1 of ISO 9001 includes requirements for the organization to determine the processes required for the QMS. When ISO 9001 is applied to services and service management, the organization can include all or some of the processes from ISO/IEC 20000-1.

ISO 9001 can be applied to service management. The application of ISO 9001 to service management can be useful where an organization wishes to demonstrate conformity of its service management to an International Standard but cannot meet all of the requirements of ISO/IEC 20000-1 e.g. the organization only operates six service management processes and the other service management processes are not operated.

There can also be a scenario where an organization wants to demonstrate conformity to ISO 9001 for all parts of the organization including service management and other activities. It should be possible to incorporate all or some of the requirements of ISO/IEC 20000-1 as customer requirements in the QMS.

Demonstrating conformity to ISO 9001 for a scope including service management may not mean that an organization has demonstrated conformity to all the requirements of ISO/IEC 20000-1. The organization can demonstrate that it meets the requirements of ISO 9001 against the customer requirements for the service management activities included in the scope. For example, the organization can choose to incorporate in the customer requirements, the requirements from the service level management process and incident and service request management process specified in ISO/IEC 20000-1 but can choose not to include the other requirements specified in ISO/IEC 20000-1. Processes from other models can also be used.

[Clause 6](#) of this Technical Report provides guidance on how specific clauses of ISO 9001 can potentially be applied to service management.

## 5.3 The integration of ISO 9001 and ISO/IEC 20000-1

Organizations can benefit from integrating their management systems to create one management system. These benefits can be experienced whether one management system is implemented before the other, or all management systems are implemented simultaneously. Management and organizational processes, in particular, can derive benefit from integrating the similar requirements and defining common objectives for all management systems.

An ideal option for an organization can be to produce a viable integrated management system which enables the organization to demonstrate conformity to ISO 9001 and ISO/IEC 20000-1. The goal is not to compare the two International Standards or to determine which is best or right. Where there is conflict between the two International Standards, this should be resolved in a way which satisfies the requirements of ISO 9001 and ISO/IEC 20000-1, and ensures that the organization achieves continual improvement of its QMS and SMS. The ideal integrated management system should be based on the most effective approach using ISO 9001 and ISO/IEC 20000-1 applied appropriately. This is also supported by use of additional details found in one of the International Standards to supplement the other. Care should be taken to retain everything necessary for conformity to ISO 9001 and ISO/IEC 20000-1

One business benefit of an integrated management system can be that the organization does not have two management systems with duplication and contradictory requirements. Other key benefits of an integrated implementation of quality and service management include:

- a) the credibility of an effective and quality assured service which meets customer requirements for internal or external customers;
- b) the lower cost of setting up, operating and auditing an integrated management system where achieving both high quality and effective service delivery are part of the organization's strategy;
- c) a reduction in implementation time due to the development of integrated processes common to ISO 9001 and ISO/IEC 20000-1;
- d) the avoidance of conflicts and isolated improvements in the organization arising from separate management systems;
- e) a greater understanding of both quality management and service management with one set of objectives leading to more effective and efficient working;
- f) a reduction in implementation time due to complementary requirements so that demonstrating conformity to ISO 9001 means that the organization has fulfilled some of the requirements of ISO/IEC 20000-1;
- g) a reduction in management time with a single management review instead of one for each management system.

An organization should have a good understanding of the characteristics, similarities and differences of ISO 9001 and ISO/IEC 20000-1 before planning an integrated management system that conforms to both International Standards.

ISO 9001 and ISO/IEC 20000-1 have specific requirements and purposes. For example, ISO 9001 does not include specific requirements for information security management.

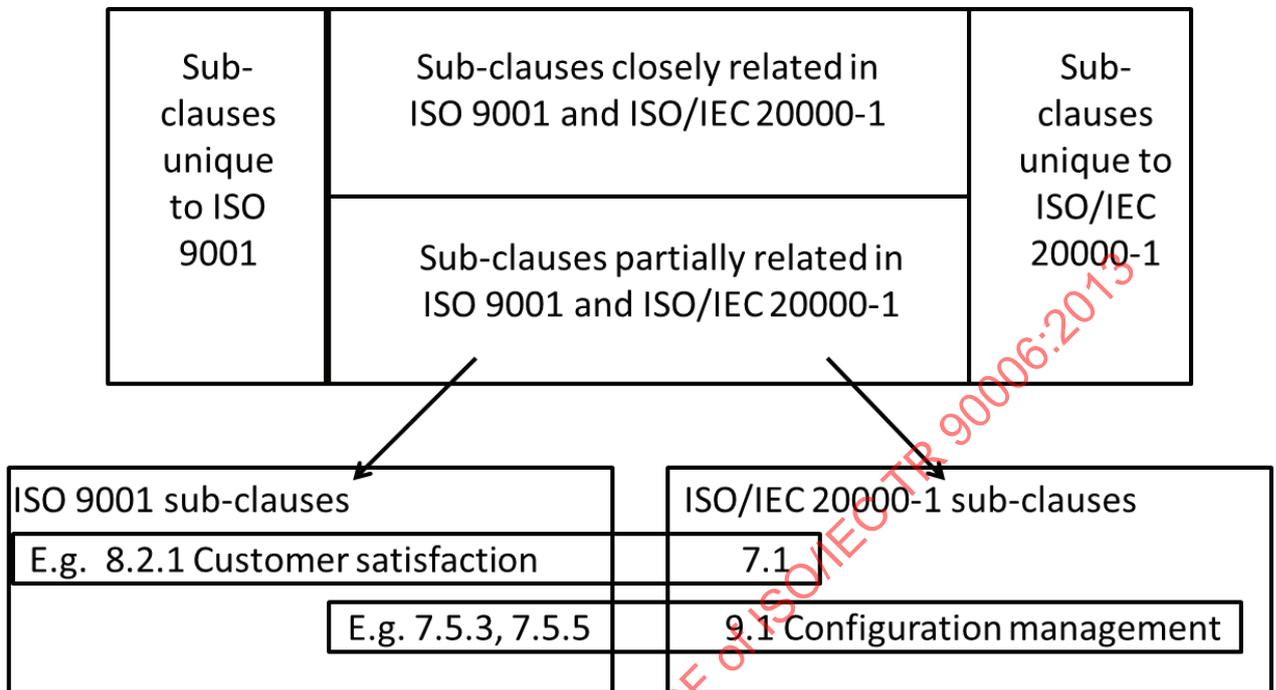
ISO/IEC 20000-1 specifies that it 'enables a service provider to integrate its SMS with other management systems in the service provider's organization. The adoption of an integrated process approach and the PDCA methodology enables the service provider to align or fully integrate multiple management systems. For example, an SMS can be integrated with a QMS based on ISO 9001 or an information security management system based on ISO/IEC 27001'.

Conformity can be demonstrated for ISO 9001 and ISO/IEC 20000-1 independently. To demonstrate conformity to ISO 9001, all the requirements should be fulfilled. Conformity to ISO 9001 for a scope that includes service management may not be sufficient for an organization to claim conformity to all of the requirements of ISO/IEC 20000-1 as ISO/IEC 20000-1 contains differing and additional requirements beyond those specified in ISO 9001.

To demonstrate conformity to ISO/IEC 20000-1, all the requirements should be fulfilled. The organization can choose to name and arrange the requirements into processes in a different way from that shown in ISO/IEC 20000-1. Conformity to ISO/IEC 20000-1 for service management may not be sufficient for an organization to be able to claim conformity to all of the requirements of ISO 9001 as ISO 9001 contains differing and additional requirements beyond those specified in ISO/IEC 20000-1. If an organization cannot meet all the requirements of ISO/IEC 20000-1, the SMS is incomplete and the full benefits of an SMS cannot be realized.

All requirements from ISO 9001 and ISO/IEC 20000-1 can be implemented in an integrated management system which can be used to demonstrate conformity to both ISO 9001 and ISO/IEC 20000-1. There are some clauses which have a lot of requirements in common and some clauses which have a minority of requirements in common. There are some requirements that are in only one of ISO 9001 or ISO/IEC 20000-1. This is illustrated in [Figure 6](#).

This Technical Report identifies the common requirements and requirements which are specified in only one of ISO 9001 or ISO/IEC 20000-1. [Annex C](#) provides further guidance about the integration of ISO 9001 and ISO/IEC 20000-1.



**Figure 6 — The integration of quality management and service management systems**

NOTE ISO/IEC 27013 provides guidance for the integration of ISO/IEC 20000-1 and ISO/IEC 27001.

## 5.4 Comparison of ISO 9001 and ISO/IEC 20000-1

### 5.4.1 Approach to the comparison

The clauses and sub-clauses which contain similar or different requirements between ISO 9001 and ISO/IEC 20000-1 are explained in [Clauses 6](#) and [7](#) of this Technical Report and summarized in [Table 1](#), [Annexes A](#) and [B](#).

There are some clauses which are similar in wording or intent. Other clauses are either unique or different in either wording or intent in ISO 9001 and ISO/IEC 20000-1. A closely related clause means that the majority of the requirements of ISO 9001 and ISO/IEC 20000-1 are similar. For example, Clause 5.3 of ISO 9001, quality policy, is similar to Clause 4.1.2 of ISO/IEC 20000-1, service management policy, because they have similar wording and have the same intent. A partially related clause means that only a minority of the requirements of ISO 9001 and ISO/IEC 20000-1 are similar. For example, Clause 8.2.1 of ISO 9001, customer satisfaction, is similar only to the last paragraph in Clause 7.2 of ISO/IEC 20000-1, business relationship management.

Another example is that there are no requirements in ISO 9001 specifically for budgeting and accounting. Therefore, the ISO/IEC 20000-1 process of budgeting and accounting for services is shown in [Table B.1](#) as not having corresponding requirements with any clauses in ISO 9001. Clause 4.1 of ISO 9001 includes requirements for the organization to determine the processes required for the QMS and these can include budgeting and accounting for services. The organization can also choose to include the requirements from the budgeting and accounting for services process in ISO/IEC 20000-1 as product requirements in Clause 7.2.1 of ISO 9001.

Some requirements in ISO 9001 are shown to be similar to requirements in multiple clauses of ISO/IEC 20000-1. For example, Clause 5.2 of ISO 9001 specifies 'Top management shall ensure that

customer requirements are determined and are met with the aim of enhancing customer satisfaction'. This is similar to some of the requirements of Clauses 4.1.4 and 4.4.1 of ISO/IEC 20000-1.

Another example is in Clause 5.5.2 of ISO 9001 which is similar to some of the requirements of Clauses 4.1.1 and 4.1.4 in ISO/IEC 20000-1. Clause 4.1.4 of ISO/IEC 20000-1 does not include Clause 5.5.2 c) of ISO 9001 requirements for 'the promotion of awareness of customer requirements throughout the organization'. This is in Clause 4.1.1 of ISO/IEC 20000-1. This demonstrates the need for the comparison to sometimes show more than one clause from ISO/IEC 20000-1.

**5.4.2 High level comparison of ISO 9001 and ISO/IEC 20000-1**

As shown in [Table 1](#), [Annexes A](#) and [B](#), ISO 9001 and ISO/IEC 20000-1 both have some unique requirements. A 'nil' in the tables indicates that the requirements of a clause in one International Standard are not found in the other International Standard. Clauses in ISO 9001 and ISO/IEC 20000-1 with no related clause are:

- a) ISO 9001:
  - 5.4.1 Quality objective;
  - 6.4 Work environment;
  - 7.4.2 Purchasing information;
  - 7.5.4 Customer property;
- b) ISO/IEC 20000-1:
  - 6.3 Service continuity and availability management;
  - 6.4 Budgeting and accounting for services;
  - 6.5 Capacity management;
  - 6.6 Information security management.

[Table 1](#) shows a high level comparison between ISO 9001 and ISO/IEC 20000-1. This table shows the comparison of the clauses and sub-clauses down to the first level of ISO 9001 e.g. 4.1. It does not show the comparison for any lower sub-clauses e.g. 4.2.1. Additional details are provided in [Clause 6](#) and [Annexes A](#) and [B](#) of this Technical Report. [Annex B](#) is similar to [Annex A](#), but with ISO/IEC 20000-1 as the base.

**Table 1 — High level comparison of ISO 9001:2008 and ISO/IEC 20000-1:2011**

ISO 9001:2008		ISO/IEC 20000-1:2011	
Scope	1	1	Scope
Normative references	2	2	Normative references
Terms and definitions	3	3	Terms and definitions
Quality management system	4		
General requirements	4.1	4.1.1	Management commitment
		4.2	Governance of processes operated by other parties
		4.4.1	Provision of resources
		4.5.2	Plan the SMS (Plan)
		4.5.3	Implement and operate the SMS (Do)
		4.5.4.1	General (Monitor and review the SMS (Check))
		4.5.5.2	Management of improvements

Table 1 (continued)

ISO 9001:2008		ISO/IEC 20000-1:2011	
Documentation requirements	4.2	4.3 4.5.1 4.5.2 9.1	Documentation management Define scope Plan the SMS (Plan) Configuration management
Management responsibility	5		
Management commitment	5.1	4.1.1	Management commitment
Customer focus	5.2	4.1.4 4.4.1 7.1	Management representative Provision of resources Business relationship management
Quality policy	5.3	4.1.2	Service management policy
Planning	5.4	4.1.1	Management commitment
Responsibility, authority and communication	5.5	4.1.1 4.1.3 4.1.4	Management commitment Authority, responsibility and communication Management representative
Management review	5.6	4.5.4.1 4.5.4.3	General (Monitor and review the SMS (Check)) Management review
Resource management	6		
Provision of resources	6.1	4.4.1	Provision of resources
Human resources	6.2	4.4.2	Human Resources
Infrastructure	6.3	4.4.1	Provision of resources
Work environment	6.4	nil	nil
Product realization	7		
Planning of product realization	7.1	5.1 5.2	General (Design and transition of new or changed services) Plan new or changed services
Customer-related processes	7.2	4.1.3 4.1.4 4.5.2 5.1 5.2 5.3 6.1 6.2 7.1 8.1 9.2	Authority, responsibility and communication Management representative Plan the SMS (Plan) General (Design and transition of new or changed services) Plan new or changed services Design and development of new or changed services Service level management Service reporting Business relationship management Incident and service request management Change management

**Table 1** (continued)

ISO 9001:2008		ISO/IEC 20000-1:2011	
Design and development	7.3	5.1	General (Design and transition of new or changed services)
		5.2	Plan new or changed services
		5.3	Design and development of new or changed services
		5.4	Transition of new or changed services
		9.2	Change management
		9.3	Release and deployment management
Purchasing	7.4	5.1	General (Design and transition of new or changed services)
		5.2	Plan new or changed services
		6.1	Service level management
		7.2	Supplier management
Product and service provision	7.5	4.5.2	Plan the SMS (Plan)
		4.5.3	Implement and operate the SMS (Do)
		5.1	General (Design and transition of new or changed services)
		5.3	Design and development of new or changed services
		5.4	Transition of new or changed services
		9.1	Configuration management
		9.2	Change management
		9.3	Release and deployment management
Control of monitoring and measuring equipment	7.6	4.5.4.1	General (Monitor and review the SMS (Check))
		5.2	Plan new or changed services
		5.3	Design and development of new or changed services
		5.4	Transition of new or changed services
		6.2	Service reporting
		9.3	Release and deployment management
Measurement, analysis and improvement	8		
General	8.1	4.5.2	Plan the SMS (Plan)
		4.5.4.1	General (Monitor and review the SMS (Check))
		4.5.5	Maintain and improve the SMS (Act)
		6.1	Service level management
		6.2	Service reporting
Monitoring and measurement	8.2	4.5.4.1	General (Monitor and review the SMS (Check))
		4.5.4.2	Internal audit
		4.5.5.1	General (Maintain and improve the SMS (Act))
		5.4	Transition of new or changed services
		6.2	Service reporting
		7.1	Business relationship management
		9.3	Release and deployment management

Table 1 (continued)

ISO 9001:2008		ISO/IEC 20000-1:2011	
Control of nonconforming product	8.3	4.5.5.1	General (Maintain and improve the SMS (Act))
		5.4	Transition of new or changed services
		8.1	Incident and service request management
		8.2	Problem management
		9.3	Release and deployment management
Analysis of data	8.4	4.5.4.1	General (Monitor and review the SMS (Check))
		4.5.5.1	General (Maintain and improve the SMS (Act))
		6.2	Service reporting
		7.2	Supplier management
Improvement	8.5	4.5.5	Maintain and improve the SMS (Act)
		8.2	Problem management

## 6 Management system requirements in ISO 9001 related to ISO/IEC 20000-1

### 6.1 Scope

#### 6.1.1 General

##### 1.1 Scope - General

This International Standard specifies requirements for a quality management system where an organization

- a) needs to demonstrate its ability to consistently provide product that meets customer and applicable statutory and regulatory requirements, and
- b) aims to enhance customer satisfaction through the effective application of the system, including processes for continual improvement of the system and the assurance of conformity to customer and applicable statutory and regulatory requirements.

NOTE 1 In this International Standard, the term “product” only applies to

- a) product intended for, or required by, a customer,
- b) any intended output resulting from the product realization processes.

NOTE 2 Statutory and regulatory requirements can be expressed as legal requirements.

The intent of this clause in ISO 9001 is to provide general information about the scope and usage of the International Standard.

The related clause in ISO/IEC 20000-1 is:

- 1.1 General (Scope).

This is a standard clause for International Standards. Both ISO 9001 and ISO/IEC 20000-1 are specific about their scope in this clause.

As described in [Clause 3](#) of this Technical Report, when applying ISO 9001 to service management, the term ‘service’ can be substituted for ‘product’ in the ISO 9001 requirements.

ISO/IEC 20000-1 includes a specific set of processes for service management in Clauses 5 to 9, which are part of the SMS. The ISO/IEC 20000-1 processes are shown in [Figure 7](#) which is from Clause 1.1 of ISO/IEC 20000-1.

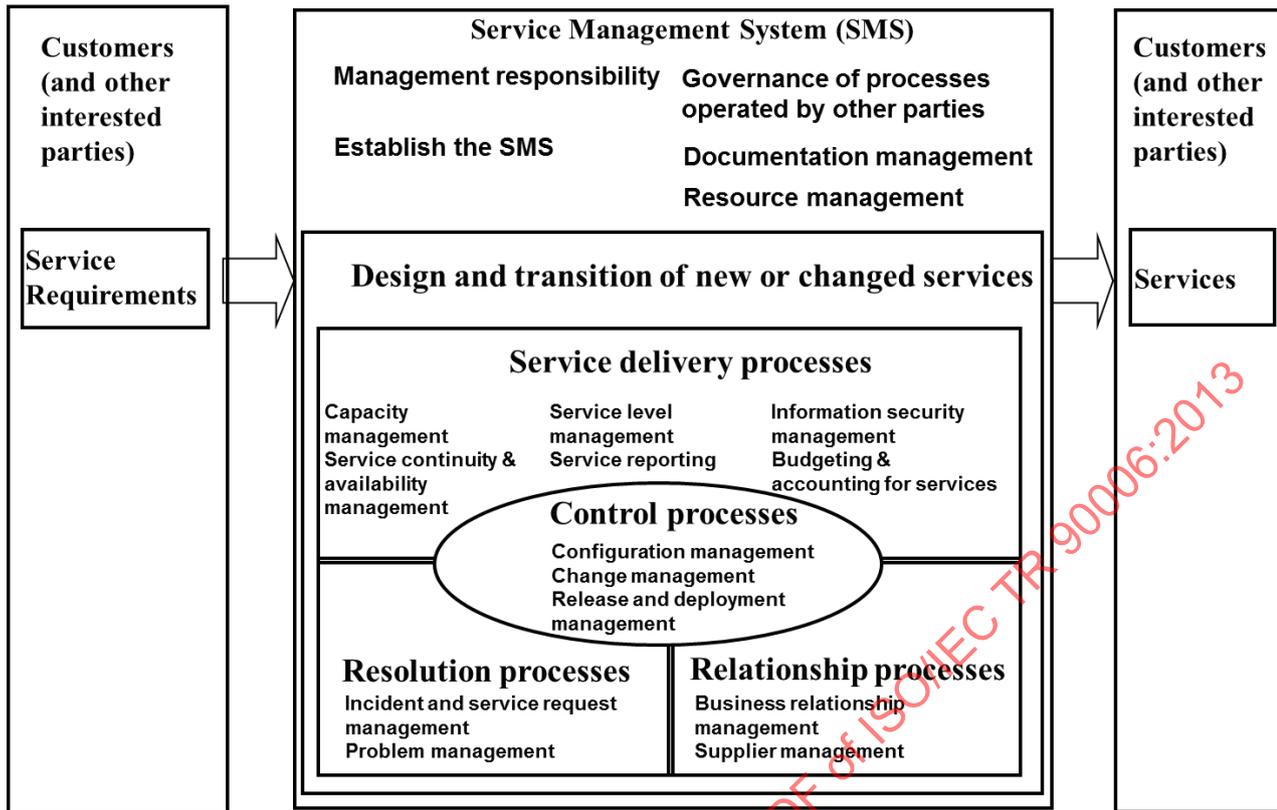


Figure 7 — Service management system

6.1.2 Application

1.2 Application

All requirements of this International Standard are generic and are intended to be applicable to all organizations, regardless of type, size and product provided.

Where any requirement(s) of this International Standard cannot be applied due to the nature of an organization and its product, this can be considered for exclusion.

Where exclusions are made, claims of conformity to this International Standard are not acceptable unless these exclusions are limited to requirements within Clause 7, and such exclusions do not affect the organization's ability, or responsibility, to provide product that meets customer and applicable statutory and regulatory requirements.

The intent of this clause in ISO 9001 is to provide information about where the International Standard can be applied and any possible exclusions.

The related clause in ISO/IEC 20000-1 is:

— 1.2 Application.

ISO 9001 and ISO/IEC 20000-1 are specific about how they can be applied. ISO 9001 and ISO/IEC 20000-1 can apply to any type or size of organization.

While ISO 9001 allows some exclusions, restricted to Clause 7 in certain circumstances, ISO/IEC 20000-1 does not allow any exclusions. If the service management activities in scope for the QMS use some of the processes from ISO/IEC 20000-1, the application of any exclusion for Clause 7 of ISO 9001 can apply to the related processes from ISO/IEC 20000-1. (See Annex A for correspondence between ISO 9001 and ISO/IEC 20000-1). If the organization is seeking to demonstrate conformity to ISO/IEC 20000-1, no exclusions are allowed from the requirements of ISO/IEC 20000-1.

ISO/IEC 20000-1 is specific that it is the service provider that should demonstrate conformity to Clause 4. It is also specific about how conformity to the requirements can be demonstrated when some of the processes and activities are operated by other parties as specified in Clause 4.2 of ISO/IEC 20000-1. Clause 4.1 of ISO 9001 includes requirements to ensure control over any processes which are outsourced.

## 6.2 Normative references

### 2 Normative references

The following referenced documents are indispensable for the application 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 9000:2005, *Quality management systems — Fundamentals and vocabulary*

The intent of this clause in ISO 9001 is to list the essential documents to be read with ISO 9001.

The related clause in ISO/IEC 20000-1 is:

— 2 Normative references.

This is a standard clause for an International Standard. Although the clause title is the same, there are no normative references in ISO/IEC 20000-1.

## 6.3 Terms and definitions

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 9000 apply.

Throughout the text of this International Standard, wherever the term “product” occurs, it can also mean “service”.

### 6.3.1 Introduction to terms and definitions

The intent of this clause in ISO 9001 is to define the terms used in the International Standard.

The related clause in ISO/IEC 20000-1 is:

— 3 Terms and definitions.

This is a standard clause for an International Standard.

This Technical Report does not list all of the terms used in ISO 9001:2008 as defined in ISO 9000:2005, or the terms used and defined in ISO/IEC 20000-1:2011. Instead it lists and explains defined terms and other words which are aligned, adapted or can cause conflict.

If a word or term has not been defined in an International Standard, it is used as defined in commonly available English language dictionaries. For example, ‘service management plan’ has a meaning based on ‘service management’ as defined in ISO/IEC 20000-1:2011, definition 3.30 and the word ‘plan’ used in its normal English sense.

For implementation, a conformity assessment or an audit against ISO 9001:2008, the terms from ISO 9000:2005 should be used. For implementation, a conformity assessment or an audit against ISO 9001 and ISO/IEC 20000-1, the relevant terms from ISO 9000:2005 or ISO/IEC 20000-1:2011 should be used. Guidance on the differences between terms and definitions in ISO 9000:2005 and ISO/IEC 20000-1:2011 with the impact this can have is provided in [Tables 2](#) and [3](#).

6.3.2 Terms used in both ISO 9001 and ISO/IEC 20000-1

The terms defined in ISO/IEC 20000-1:2011 which are copied exactly from ISO 9000:2005 are:

- a) effectiveness;
- b) nonconformity;
- c) organization;
- d) procedure;
- e) process.

The terms defined in ISO/IEC 20000-1:2011 which are adapted from ISO 9000:2005 are shown with the adapted definition and reason for the adaptation in [Table 2](#).

**Table 2 — Defined terms in ISO/IEC 20000-1:2011 adapted from ISO 9000:2005**

Defined term in ISO/IEC 20000-1:2011	Definition in ISO/IEC 20000-1 which has been adapted from ISO 9000:2005	Commentary
<b>Continual improvement</b>	recurring activity to increase the ability to fulfil service requirements	'Requirements' in the ISO 9000 definition has been replaced by 'service requirements' which is a defined term in ISO/IEC 20000-1.
<b>Corrective action</b>	action to eliminate the cause or reduce the likelihood of recurrence of a detected nonconformity or other undesirable situation	The adaptation has added 'or reduce the likelihood of recurrence' as it is not always possible or justifiable to eliminate the cause of a detected nonconformity in service management.  When ISO 9001 is being implemented alone, the definition from ISO 9000 should be used. When applying ISO 9001 to service management, this means that there can be some failure to do corrective action as defined in ISO 9000 if it is not possible or beneficial to go as far as eliminating the cause. This can result in a nonconformity to ISO 9001.
<b>Customer</b>	organization or part of an organization that receives a service(s)  NOTE 1 A customer can be internal or external to the service provider's organization.	'Person' in the ISO 9000 definition has been replaced by 'part of an organization'. 'Product' in the ISO 9000 definition has been replaced by 'service'.  The examples shown in ISO 9000 have been omitted in ISO/IEC 20000-1 as they are not all relevant to service management.  Note 1 has been changed to refer to the 'service provider's organization' instead of the 'organization'. The service provider can be a whole organization or part of a wider organization.

Table 2 (continued)

Defined term in ISO/IEC 20000-1:2011	Definition in ISO/IEC 20000-1 which has been adapted from ISO 9000:2005	Commentary
<b>Document</b>	<p>information and its supporting medium</p> <p>EXAMPLE Policies, plans, process descriptions, procedures, service level agreements, contracts or records.</p> <p>NOTE 1 The documentation can be in any form or type of medium.</p> <p>NOTE 2 In this International Standard, documents, except for records, state the intent to be achieved.</p>	<p>The definition is the same as in ISO 9000. The example and Note 1 have been adapted to be specific to service management. Notes 2 and 3 from ISO 9000 have not been used. A new Note 2 has been added for ISO/IEC 20000-1.</p> <p>The definitions of document and record have the same intent in ISO 9001 and ISO/IEC 20000-1.</p>
<b>Interested party</b>	<p>person or group having a specific interest in the performance or success of the service provider's activity(ies)</p> <p>EXAMPLE Customers, owners, management, people in the service provider's organization, suppliers, bankers, unions or partners.</p> <p>NOTE 1 A group can comprise an organization, a part thereof, or more than one organization.</p>	<p>Interest in the 'organization' in the ISO 9000 definition has been replaced by interest in the 'service provider's activities'. The example has been adapted to change 'people in an organization' to 'people in a service provider's organization' and delete 'or society'.</p> <p>The term 'interested party' is not used in ISO 9001.</p>
<b>Preventive action</b>	<p>action to avoid or eliminate the causes or reduce the likelihood of occurrence of a potential nonconformity or other potential undesirable situation</p>	<p>The adaptation has added 'action to avoid or reduce the likelihood of occurrence' as it is not always possible or justifiable to eliminate the cause of a potential nonconformity in service management.</p> <p>When ISO 9001 is being implemented alone, the definition from ISO 9000 should be used. When applying ISO 9001 to service management, this means that there can be some failure to do complete preventive action as defined in ISO 9000 if it is not possible or beneficial to go as far as eliminating the cause of a potential nonconformity.</p>
<b>Record</b>	<p>document stating results achieved or providing evidence of activities performed</p> <p>EXAMPLE Audit reports, incident reports, training records or minutes of meetings.</p>	<p>The definition is the same as in ISO 9000. The notes from ISO 9000 have not been used. Relevant examples have been added.</p>

**Table 2 (continued)**

Defined term in ISO/IEC 20000-1:2011	Definition in ISO/IEC 20000-1 which has been adapted from ISO 9000:2005	Commentary
<p><b>Service management system</b> <b>SMS</b></p>	<p>management system to direct and control the service management activities of the service provider</p> <p>NOTE 1 A management system is a set of interrelated or interacting components to establish policy and objectives and to achieve those objectives.</p> <p>NOTE 2 The SMS includes all service management policies, objectives, plans, processes, documentation and resources required for the design, transition, delivery and improvement of services and to fulfil the requirements in this part of ISO/IEC 20000.</p>	<p>The definition is adapted from the definition of 'quality management system' in ISO 9000 to refer to service management activities of the service provider.</p> <p>Note 1 has been added to provide clarity on the term 'management system'. The words are taken directly from the ISO 9000 definitions of 'system' and 'management system'.</p> <p>Note 2 has been added to provide clarity on the contents of an SMS.</p>
<p><b>Top management</b></p>	<p>person or group of people who direct and control the service provider at the highest level</p>	<p>'Organization' in the ISO 9000 definition has been replaced by 'service provider' in ISO/IEC 20000-1. This makes it clear that 'top management' is part of the service provider's organization and can, in some cases, not be the top management of the whole organization.</p>

**6.3.3 Terms which differ in use between ISO 9001 and ISO/IEC 20000-1**

There are some defined terms and other words used in ISO/IEC 20000-1:2011 which differ from the definitions in ISO 9000:2005 and usage in ISO 9001:2008 which can cause conflict. These are shown with a commentary in [Table 3](#).

Table 3 — Terms which differ in use between ISO 9001:2008 and ISO/IEC 20000-1:2011

ISO/IEC 20000-1:2011 term	ISO/IEC 9001:2008 term	Commentary
<p><b>Incident</b></p> <p>unplanned interruption to a service, a reduction in the quality of a service or an event that has not yet impacted the service to the customer</p>	<p><b>Defect</b></p> <p>non-fulfilment of a requirement related to an intended or specified use</p> <p>NOTE 1 The distinction between the concepts defect and nonconformity is important as it has legal connotations, particularly those associated with product liability issues. Consequently, the term 'defect' should be used with extreme caution.</p>	<p>The term 'defect' is defined in ISO 9000 but not used in ISO 9001 or ISO/IEC 20000-1. The term 'deficiency' is used in Clause 7.5.2 of ISO 9001 but is not a defined term. The term 'incident' is not used in ISO 9001 but is used extensively in ISO/IEC 20000-1, especially in the incident and service request management process.</p> <p>The concept and purpose of an incident and a defect differ in some aspects. An incident is an event that is an unexpected failure of a service or service component. A defect is a deviation from a product requirement, or a flaw in a component or system that is not apparent until after the product is in use or the service is delivered. A defect can be undetected for a long time until a certain set of circumstances occur which show up the defect either as an incident or during a verification or validation exercise. Not every incident is caused by a defect e.g. an activity fails due to the failure of a power supply which is a failure of a component outside the scope of the SMS.</p> <p>The focus and priorities of defect management and incident management also differ in some aspects. Defect management focuses on correcting the product or service to conform to the agreed product specification. Corrections should be prioritized to address defects based upon agreed criteria including business objectives.</p> <p>Incident management focuses on returning the service to normal operation as quickly as possible and minimizing the impact of the incident on the customer. Incidents should be prioritized based upon a defined and agreed understanding of the impact and urgency of the incident for the customer. In ISO/IEC 20000-1, problem management is used to investigate and correct the underlying cause of incidents and known errors are recorded for problems that are not yet corrected and have a method of working around the problem. The use of problem management should be considered to support the removal of defects in services.</p> <p>As in Note 1 of the definition of 'defect', the term 'defect' can have legal connotations. The term 'incident' can also have legal connotations. Incidents usually have specified time targets for resolution in a service level agreement which can be legally binding if these are specified in a contract when the service provider is external to the customer. Incidents can also show a failure of other legal requirements e.g. data protection.</p>
<p><b>Release</b></p> <p>collection of one or more new or changed configuration items deployed into the live environment as a result of one or more changes</p>	<p><b>Release</b></p> <p>permission to proceed to the next stage of a process</p>	<p>In ISO 9001, 'release' is a verb; in ISO/IEC 20000-1, 'release' is a noun.</p> <p>Although a 'release' in ISO/IEC 20000-1 is deployed into the next stage which is the live environment, the term is not used to give permission to make this move.</p> <p>When ISO 9001 is being implemented alone, the definition from ISO 9000 should be used. When applying ISO 9001 to service management, care needs to be taken to distinguish between the two terms which can both be used.</p>
<p><b>Scope of the SMS</b> (not a defined term)</p>	<p><b>Scope of the QMS</b> (not a defined term)</p>	<p>The term 'scope' is used in the same way in ISO 9001 and ISO/IEC 20000-1 as indicated in their respective Clause 1 descriptions.</p> <p>Additionally in ISO/IEC 20000-1, there are specific requirements about defining scope of the SMS in Clause 4.5.1.</p>

Table 3 (continued)

ISO/IEC 20000-1:2011 term	ISO/IEC 9001:2008 term	Commentary
<p><b>Service</b></p> <p>means of delivering value for the customer by facilitating results the customer wants to achieve</p> <p>NOTE 1 Service is generally intangible.</p> <p>NOTE 2 A service can also be delivered to the service provider by a supplier, an internal group or a customer acting as a supplier.</p>	<p><b>Product</b></p> <p>result of a process</p> <p>NOTE 1 There are four generic product categories: services, software, hardware, processed materials.</p> <p>Many products comprise elements belonging to different generic product categories. Whether the product is then called services, software, hardware or processed materials depends on the dominant element.</p> <p>NOTE 2 Service is the result of at least one activity necessarily performed at the interface between the supplier and customer and is generally intangible.</p> <p>Software consists of information and is generally intangible and can be in the form of approaches, transactions or procedures e.g. computer program, dictionary. Hardware is generally tangible and its amount is a countable characteristic e.g. tyres.</p>	<p>Clause 3 of ISO 9001 includes the sentence: ‘Throughout the text of this International Standard, wherever the term “product” occurs, it can also mean “service”.’</p> <p>Examples of hardware in ISO/IEC 20000-1 include computers or network equipment. Examples of software in ISO/IEC 20000-1 include computer programs.</p>
<p><b>Service management</b></p> <p>set of capabilities and processes to direct and control the service provider’s activities and resources for the design, transition, delivery and improvement of services to fulfil the service requirements</p>	<p><b>Quality management</b></p> <p>co-ordinated activities to direct and control an organization with regard to quality</p>	<p>The terms differ primarily in focus as shown in the definitions.</p>
<p><b>Service management plan</b></p> <p>(not a defined term)</p>	<p><b>Quality manual</b></p> <p>document specifying the quality management system of an organization</p>	<p>In ISO 9001, the ‘quality manual’ is the primary document. Similarly in ISO/IEC 20000-1, the ‘service management plan’ is a primary document. These two documents have some equivalent contents. However, ISO/IEC 20000-1 includes additional requirements for the contents of the ‘service management plan’ as well as the requirements that ISO 9001 includes for the ‘quality manual’.</p>
<p><b>Service provider</b></p> <p>organization or part of an organization that manages and delivers a service or services to the customer</p>	<p><b>Organization</b></p> <p>group of people and facilities with an arrangement of responsibilities, authorities and relationships</p>	<p>In ISO 9001, the ‘organization’ is the subject of the requirements. In ISO/IEC 20000-1, the ‘service provider’ is the subject of the requirements.</p> <p>Depending on the context, the term ‘service provider’s organization’ is also used in ISO/IEC 20000-1 to mean the wider ‘organization’ that the service provider is part of. The service provider’s organization is not the subject of the requirements of ISO/IEC 20000-1.</p>

Table 3 (continued)

ISO/IEC 20000-1:2011 term	ISO/IEC 9001:2008 term	Commentary
<p><b>Service requirement</b> needs of the customer and the users of the service, including service level requirements, and the needs of the service provider</p>	<p><b>Requirement</b> need or expectation that is stated, generally implied or obligatory</p> <p>NOTE 1 “Generally implied” means that it is custom or common practice for the organization, its customers and other interested parties, that the need or expectation under consideration is implied.</p> <p>NOTE 2 A qualifier can be used to denote a specific type of requirement, e.g. product requirement, quality management requirement, customer requirement.</p> <p>NOTE 3 A specified requirement is one that is stated, for example in a document (3.7.2).</p> <p>NOTE 4 Requirements can be generated by different interested parties (3.3.7).</p> <p>NOTE 5 This definition differs from that provided in 3.12.1 of ISO/IEC Directives, Part 2:2004.</p>	<p>The definition of ‘service requirement’ in ISO/IEC 20000-1 is much more specific than the definition of ‘requirement’ in ISO 9000.</p> <p>When ISO 9001 is being implemented alone, the definition from ISO 9000 should be used. When applying ISO 9001 to service management, the ‘requirement’ can also include the elements listed in the definition of ‘service requirement’.</p>
<p><b>Supplier</b> organization or part of an organization that is external to the service provider’s organization and enters into a contract with the service provider to contribute to the design, transition, delivery and improvement of a service or services or processes</p>	<p><b>Supplier</b> organization or person that provides a product</p>	<p>The ISO/IEC 20000-1 definition effectively incorporates the ISO 9000 definition but then goes on to be very specific about where a ‘supplier’ fits in relation to a service provider and that a contract is required.</p> <p>When ISO 9001 is being implemented alone, the definition from ISO 9000 should be used. When applying ISO 9001 to service management, an internal group as defined in ISO/IEC 20000-1 that is providing a product or service can also be classified as a supplier in ISO 9001.</p>

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**Table 3** (continued)

ISO/IEC 20000-1:2011 term	ISO/IEC 9001:2008 term	Commentary
<p><b>Verify, Verification, Test</b> (not defined terms)</p>	<p><b>Verification</b> confirmation, through the provision of objective evidence that specified requirements have been fulfilled</p> <p>NOTE 1 The term “verified” is used to designate the corresponding status.</p> <p>NOTE 2 Confirmation can comprise activities such as</p> <ul style="list-style-type: none"> <li>— performing alternative calculations,</li> <li>— comparing a new design specification with a similar proven design specification,</li> <li>— undertaking tests and demonstrations, and</li> <li>— reviewing documents prior to issue.</li> </ul>	<p>ISO/IEC 20000-1 does not define the term ‘verification’. ISO/IEC 20000-1 uses the term ‘test’ in many places as a method of ‘verification’.</p> <p>ISO 9001 defines ‘test’ as ‘determination of one or more characteristics according to a procedure’. ISO 9001 recognises tests as a type of confirmation activity which can support verification.</p>
<p><b>Verify, Test</b> (not defined terms)</p>	<p><b>Validation</b> confirmation, through the provision of objective evidence that the requirements for a specific intended use or application have been fulfilled</p> <p>NOTE 1 The term “validated” is used to designate the corresponding status.</p> <p>NOTE 2 The use conditions for validation can be real or simulated.</p>	<p>ISO/IEC 20000-1 does not use the term ‘validation’. ISO/IEC 20000-1 uses the terms ‘verify’ and ‘test’ in many places to mean either ‘verification’ or ‘validation’, depending on the context.</p> <p>ISO 9001 defines ‘test’ as ‘determination of one or more characteristics according to a procedure’. ISO 9001 recognises tests as a type of confirmation activity which can support validation.</p>

## 6.4 Quality management system

### 6.4.1 General requirements

#### 6.4.1.1 General requirements (1st part)

##### 4.1 General requirements

The organization shall establish, document, implement and maintain a quality management system and continually improve its effectiveness in accordance with the requirements of this International Standard.

The organization shall

- a) determine the processes needed for the quality management system and their application throughout the organization (see 1.2),
- b) determine the sequence and interaction of these processes,
- c) determine criteria and methods needed to ensure that both the operation and control of these processes are effective,
- d) ensure the availability of resources and information necessary to support the operation and monitoring of these processes,
- e) monitor, measure where applicable, and analyse these processes, and
- f) implement actions necessary to achieve planned results and continual improvement of these processes.

These processes shall be managed by the organization in accordance with the requirements of this International Standard.

NOTE 1 Processes needed for the quality management system referred to above include processes for management activities, provision of resources, product realization, measurement, analysis and improvement.

The intent of this clause in ISO 9001 is to establish and maintain a QMS for an organization based on the concept of process. This clause is associated with the process approach and system approach to management, two of the eight principles of quality management.

The related clauses in ISO/IEC 20000-1 are:

- 4.1.1 Management commitment;
- 4.4.1 Provision of resources;
- 4.5.2 Plan the SMS (Plan);
- 4.5.3 Implement and operate the SMS (Do);
- 4.5.4.1 General (Monitor and review the SMS (Check));
- 4.5.5 Management of improvements (Act).

ISO 9001 and ISO/IEC 20000-1 provide general information about their respective management systems. The clause in ISO 9001 relates to only some requirements of the related clauses in ISO/IEC 20000-1.

Clause 4.1.1 of ISO/IEC 20000-1 includes requirements for top management to establish, implement, maintain and improve an SMS including ensuring the provision of resources. Clause 4.4.1 of ISO/IEC 20000-1 includes requirements for the service provider to determine and provide resources. Clause 4.5.2 of ISO/IEC 20000-1 includes requirements for the service management plan to contain details of the interfaces between processes and their interaction with other components of the SMS as well as criteria and methods for the successful operation of the SMS and the services. The processes in ISO/IEC 20000-1 are not determined as in ISO 9001 but are specified in Clauses 5 – 9 of ISO/IEC 20000-1.

Clause 4.5.3 of ISO/IEC 20000-1 includes requirements for the service provider to operate, monitor and report on the performance of the service management activities. Clause 4.5.4.1 of ISO/IEC 20000-1 includes requirements for the objectives of internal audits and management reviews to be determined. The objectives should include the requirements of ISO/IEC 20000-1 and service requirements agreed with the customer. Clause 4.5.5.2 of ISO/IEC 20000-1 includes requirements for the prioritization and management of approved improvements.

The processes determined for service management (as in Clause 4.1 a) of ISO 9001) should be selected from those specified in ISO/IEC 20000-1. The sequence and interaction of processes (as in Clause 4.1 b) of ISO 9001) should be taken from the interfaces in ISO/IEC 20000-1.

#### 6.4.1.2 General requirements (continued)

##### 4.1 General requirements

Where an organization chooses to outsource any process that affects product conformity to requirements, the organization shall ensure control over such processes. The type and extent of control to be applied to these outsourced processes shall be defined within the quality management system.

NOTE 2 An “outsourced process” is a process that the organization needs for its quality management system and which the organization chooses to have performed by an external party.

NOTE 3 Ensuring control over outsourced processes does not absolve the organization of the responsibility of conformity to all customer, statutory and regulatory requirements. The type and extent of control to be applied to the outsourced process can be influenced by factors such as the potential impact of the outsourced process on the organization’s capability to provide product that conforms to requirements, the degree to which the control for the process is shared, the capability of achieving the necessary control through the application of 7.4.

The intent of this clause in ISO 9001 is to control processes which have been outsourced.

The related clause in ISO/IEC 20000-1 is:

- 4.2 Governance of processes operated by other parties.

ISO/IEC 20000-1 also recognizes that many service providers use other parties to operate processes within the SMS. It recognizes that there should be control over these processes. ISO/IEC 20000-1 has a different name for the control of outsourced processes – governance of processes operated by other parties. The other parties can be suppliers, internal groups or customers acting as suppliers.

In ISO/IEC 20000-1, the relationship with suppliers should be managed through the supplier management process while the relationship with internal groups and customers acting as a supplier should be managed through the service level management process.

When ISO 9001 is applied to service management, conformity should be shown by documenting the required controls, or governance of processes, in the QMS. There are four controls written as requirements in Clause 4.2 a) – d) of ISO/IEC 20000-1 which should be adapted for use with ISO 9001.

## 6.4.2 Documentation requirements

### 6.4.2.1 General

#### 4.2.1 Documentation requirements - General

The quality management system documentation shall include

- a) documented statements of a quality policy and quality objectives,
- b) a quality manual,
- c) documented procedures and records required by this International Standard, and
- d) documents, including records, determined by the organization to be necessary to ensure the effective planning, operation and control of its processes

NOTE 1 Where the term “documented procedure” appears within this International Standard, this means that the procedure is established, documented, implemented and maintained. A single document may address the requirements for one or more procedures. A requirement for a documented procedure may be covered by more than one document.

NOTE 2 The extent of the quality management system documentation can differ from one organization to another due to

- a) the size of organization and type of activities,
- b) the complexity of processes and their interactions, and
- c) the competence of personnel.

NOTE 3 The documentation can be in any form or type of medium.

The intent of this clause in ISO 9001 is to identify the documentation required for a QMS.

The related clause in ISO/IEC 20000-1 is:

- 4.3.1 Establish and maintain documents.

ISO/IEC 20000-1 lists the minimum set of documents required to ensure effective planning, operation and control of the SMS.

The list of requirements in ISO/IEC 20000-1 includes some additional documents specific to service management, such as the catalogue of services and service level agreements. These should be considered as documents ‘necessary to ensure the effective planning, operation and control of the processes’ for Clause 4.2.1 d) of ISO 9001.

### 6.4.2.2 Quality manual

#### 4.2.2 Quality manual

The organization shall establish and maintain a quality manual that includes

- a) the scope of the quality management system, including details of and justification for any exclusions (see 1.2),
- b) the documented procedures established for the quality management system, or reference to them, and
- c) a description of the interaction between the processes of the quality management system.

The intent of this clause in ISO 9001 is to establish and maintain a quality manual to document the QMS.

The related clauses in ISO/IEC 20000-1 are:

- 4.5.1 Define scope;

— 4.5.2 Plan the SMS (Plan).

Clause 4.5.2 of ISO/IEC 20000-1 includes requirements for a service management plan. The service management plan can have overlapping content with the quality manual in ISO 9001. The contents of the service management plan should include the scope of the SMS as required by Clause 4.5.1 of ISO/IEC 20000-1.

Organizations can supplement the quality manual with information listed in Clause 4.5.2 of ISO/IEC 20000-1 which includes a more comprehensive list of requirements, compliant with ISO 9001, but specifically related to service management.

**6.4.2.3 Control of documents**

**4.2.3 Control of documents**

Documents required by the quality management system shall be controlled. Records are a special type of document and shall be controlled according to the requirements given in 4.2.4.

A documented procedure shall be established to define the controls needed

- a) to approve documents for adequacy prior to issue,
- b) to review and update as necessary and re-approve documents,
- c) to ensure that changes and the current revision status of documents are identified,
- d) to ensure that relevant versions of applicable documents are available at points of use,
- e) to ensure that documents remain legible and readily identifiable,
- f) to ensure that documents of external origin determined by the organization to be necessary for the planning and operation of the quality management system are identified and their distribution controlled, and
- g) to prevent the unintended use of obsolete documents, and to apply suitable identification to them if they are retained for any purpose.

The intent of this clause in ISO 9001 is to control documents required by the QMS.

The related clauses in ISO/IEC 20000-1 are:

- 4.3.2 Control of documents;
- 9.1 Configuration management.

Clause 4.3.2 of ISO/IEC 20000-1 is almost identical to the ISO 9001 clause. Clause 9.1 of ISO/IEC 20000-1 includes a requirement that master copies of configuration items, including documents, should be stored in secure physical or electronic libraries.

The requirements of ISO 9001 can be applied to service management documents.

**6.4.2.4 Control of records**

**4.2.4 Control of records**

Records established to provide evidence of conformity to requirements and of the effective operation of the quality management system shall be controlled.

The organization shall establish a documented procedure to define the controls needed for the identification, storage, protection, retrieval, retention and disposition of records.

Records shall remain legible, readily identifiable and retrievable.

The intent of this clause in ISO 9001 is to control records required by the QMS.

The related clause in ISO/IEC 20000-1 is:

- 4.3.3 Control of records.

The ISO/IEC 20000-1 clause is almost identical to the ISO 9001 clause.

The ISO 9001 requirements can be applied to service management records.

## 6.5 Management responsibility

### 6.5.1 Management commitment

#### 5.1 Management commitment

Top management shall provide evidence of its commitment to the development and implementation of the quality management system and continually improving its effectiveness by

- a) communicating to the organization the importance of meeting customer as well as statutory and regulatory requirements,
- b) establishing the quality policy,
- c) ensuring that quality objectives are established,
- d) conducting management reviews, and
- e) ensuring the availability of resources.

The intent of this clause in ISO 9001 is for top management to demonstrate commitment to the QMS. This clause is associated with leadership, one of the eight principles of quality management.

The related clause in ISO/IEC 20000-1 is:

- 4.1.1 Management commitment.

ISO/IEC 20000-1 includes requirements for top management to demonstrate a similar commitment for service management. There is an additional requirement in ISO/IEC 20000-1 to assess and manage risks to services.

The requirements for management commitment in ISO 9001 can be applied to service management.

### 6.5.2 Customer Focus

#### 5.2 Customer focus

Top management shall ensure that customer requirements are determined and are met with the aim of enhancing customer satisfaction (see 7.2.1 and 8.2.1).

The intent of this clause in ISO 9001 is for top management to ensure customer focus, one of the eight principles for quality management.

The related clauses in ISO/IEC 20000-1 are:

- 4.1.4 Management representative;
- 4.4.1 Provision of resources;
- 7.1 Business relationship management.

The corresponding further references to those shown in brackets in ISO 9001 are to Clauses 5.2 and 7.1 in ISO/IEC 20000-1.

ISO/IEC 20000-1 also has a customer focus. Clause 4.1.4 a) of ISO/IEC 20000-1 includes requirements for the top management's representative to determine the service requirements. Clause 4.4.1 of

ISO/IEC 20000-1 includes requirements for the service provider to provide resources needed to 'enhance customer satisfaction by delivering services that fulfil service requirements'. Clause 7.1 of ISO/IEC 20000-1 includes requirements for the service provider to understand the customer's business environment and any new or changed service requirements as well as measuring customer satisfaction.

The requirements of ISO 9001 for customer focus can be applied to service management.

### 6.5.3 Quality policy

#### 5.3 Quality policy

Top management shall ensure that the quality policy

- a) is appropriate to the purpose of the organization,
- b) includes a commitment to comply with requirements and continually improve the effectiveness of the quality management system,
- c) provides a framework for establishing and reviewing quality objectives,
- d) is communicated and understood within the organization, and
- e) is reviewed for continuing suitability.

The intent of this clause in ISO 9001 is for top management to ensure that the quality policy is established. The clause also specifies the mandatory content of the policy.

The related clause in ISO/IEC 20000-1 is:

- 4.1.2 Service management policy.

ISO/IEC 20000-1 establishes a service management policy which should meet specific requirements in Clause 4.1.2 of ISO/IEC 20000-1 in order to ensure its effectiveness. There is an additional requirement in ISO/IEC 20000-1 to ensure that the service management policy is aligned with the policy for continual improvement.

ISO 9001 includes requirements for a quality management policy. If there is a service management policy, this can be adapted for quality management. If the service management policy has been written according to the requirements of Clause 4.1.2 of ISO/IEC 20000-1, this can require little change since the requirements in ISO 9001 and ISO/IEC 20000-1 are very similar.

### 6.5.4 Planning

#### 6.5.4.1 Quality Objectives

##### 5.4.1 Quality objectives

Top management shall ensure that quality objectives, including those needed to meet requirements for product [see 7.1 a], are established at relevant functions and levels within the organization. The quality objectives shall be measurable and consistent with the quality policy.

The intent of this clause in ISO 9001 is for top management to ensure the establishment of measurable quality objectives for relevant functions and levels within an organization in order to set direction consistent with the quality policy.

There is no related clause in ISO/IEC 20000-1 with these specific requirements.

Clause 4.1.1 of ISO/IEC 20000-1 includes requirements for service management objectives to be established by top management. Sometimes the service management objectives can be considered to be quality objectives. However, there are no requirements in ISO/IEC 20000-1 specifically for objectives to be established for 'relevant functions and levels within the organization' as specified in Clause 5.4.1 of ISO 9001.

The requirements of ISO 9001 for quality objectives can be applied to service management. Examples of functional areas or departments performing service management activities can include a service desk, an application management or technical management team, or an operations management department. The quality objectives can be applied to each service management process or to the services.

#### 6.5.4.2 Quality management system planning

##### 5.4.2 Quality management system planning

Top management shall ensure that

- a) the planning of the quality management system is carried out in order to meet the requirements given in 4.1, as well as the quality objectives, and
- b) the integrity of the quality management system is maintained when changes to the quality management system are planned and implemented.

The intent of this clause in ISO 9001 is for top management to ensure that the QMS is planned in line with the quality objectives and is maintained when changes are applied.

The related clause in ISO/IEC 20000-1 is:

- 4.1.1 Management commitment.

ISO 9001 and ISO/IEC 20000-1 include requirements about planning the QMS or the SMS respectively. Clause 5.4.2 of ISO 9001 relates only to the QMS, and not the product, whereas Clause 4.1.1 of ISO/IEC 20000-1 relates both to the services provided and to the SMS.

The requirements in ISO 9001 for QMS planning can be applied to service management. In ISO/IEC 20000-1, top management have responsibility to ensure that a service management plan is created, implemented and maintained. The requirements for the service management plan are detailed in Clause 4.5.2 of ISO/IEC 20000-1. Maintaining the integrity of the QMS for service management when changes are made should be performed using the change management process, Clause 9.2 of ISO/IEC 20000-1, including assessing the impact of requests for change on the QMS.

#### 6.5.5 Responsibility, authority and communication

##### 6.5.5.1 Responsibility and authority

##### 5.5.1 Responsibility and authority

Top management shall ensure that responsibilities and authorities are defined and communicated within the organization.

The intent of this clause in ISO 9001 is for top management to ensure that responsibilities and authorities are defined and communicated within the scope of the QMS.

The related clause in ISO/IEC 20000-1 is:

- 4.1.3 Authority, responsibility and communication.

ISO 9001 and ISO/IEC 20000-1 include requirements for responsibility and authority. ISO/IEC 20000-1 also requires that communication procedures be documented which should be used by Clause 5.5.3 of ISO 9001.

The requirements of ISO 9001 can be applied to responsibility and authority in service management.

### 6.5.5.2 Management representative

#### 5.5.2 Management representative

Top management shall appoint a member of the organization's management who, irrespective of other responsibilities, shall have responsibility and authority that includes

- a) ensuring that processes needed for the quality management system are established, implemented and maintained,
- b) reporting to top management on the performance of the quality management system and any need for improvement, and
- c) ensuring the promotion of awareness of customer requirements throughout the organization.

NOTE The responsibility of a management representative can include liaison with external parties on matters relating to the quality management system.

The intent of this clause in ISO 9001 is for top management to appoint a management representative with the responsibility and authority to implement and manage the QMS and to ensure its effective operation.

The related clauses in ISO/IEC 20000-1 are:

- 4.1.1 Management commitment;
- 4.1.4 Management representative.

ISO/IEC 20000-1 also includes requirements for a management representative to be appointed.

ISO/IEC 20000-1 includes requirements that assign additional responsibilities and authorities to the management representative for ensuring service fulfilment, integration of service management processes and the management of assets including licenses. ISO/IEC 20000-1 does not specifically require that the management representative has the responsibility and authority for ensuring the promotion of the customer requirements throughout the organization as required by Clause 5.5.2 c) of ISO 9001. Instead, top management has the responsibility for communicating the importance of fulfilling service requirements in Clause 4.1.1 c) of ISO/IEC 20000-1.

When applying ISO 9001 to service management, an organization should appoint a member of management and ensure that this person has the authority and responsibilities included in ISO 9001.

### 6.5.5.3 Internal communication

#### 5.5.3 Internal communication

Top management shall ensure that appropriate communication processes are established within the organization and that communication takes place regarding the effectiveness of the quality management system.

The intent of this clause in ISO 9001 is for top management to ensure the establishment of communication processes and communicate internally about the effectiveness of the QMS.

The related clause in ISO/IEC 20000-1 is:

- 4.1.3 Authority, responsibility and communication.

Clause 4.1.3 b) of ISO/IEC 20000-1 includes requirements for documented procedures for communication. The communication methods can be meetings, bulletin boards, reports or other appropriate methods.

The exact communication to be made is not detailed in Clause 4.1.3 of ISO/IEC 20000-1 but is covered in other clauses in ISO/IEC 20000-1. For example, Clause 6.2 service reporting, includes requirements to report on performance against service targets and detected nonconformities; Clause 8.1 incident and service request management, includes requirements to keep the customer informed of the progress of their incident.

The requirements of ISO 9001 for internal communication can be applied to service management. The information communicated can include major incident reports, customer satisfaction analysis, service level performance and internal audit results.

## 6.5.6 Management review

### 6.5.6.1 General

#### 5.6.1 Management review - General

Top management shall review the organization's quality management system, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness. This review shall include assessing opportunities for improvement and the need for changes to the quality management system, including the quality policy and quality objectives.

Records from management reviews shall be maintained (see 4.2.4).

The intent of this clause in ISO 9001 is for top management to conduct reviews of the QMS to ensure suitability, adequacy and effectiveness, and assess opportunities for improvement.

The related clauses in ISO/IEC 20000-1 are:

- 4.5.4.1 General (Monitor and review the SMS (Check));
- 4.5.4.3 Management review.

ISO/IEC 20000-1 also includes requirements for management reviews to be conducted by top management. ISO/IEC 20000-1 requires a review of services as well as the SMS. Clause 4.5.4.3 of ISO/IEC 20000-1 has similar requirements to ISO 9001 for management review. Clause 4.5.4.1 of ISO/IEC 20000-1 includes requirements that management reviews ensure adequacy is demonstrated through 'the ability of the SMS and the services to achieve service management objectives and fulfil service requirements'.

The ISO 9001 requirements for management review can be applied to service management.

### 6.5.6.2 Review input

#### 5.6.2 Review input

The input to management review shall include information on

- a) results of audits,
- b) customer feedback,
- c) process performance and product conformity,
- d) status of preventive and corrective actions,
- e) follow-up actions from previous management reviews,
- f) changes that could affect the quality management system, and
- g) recommendations for improvement

The intent of this clause in ISO 9001 is to ensure a minimum list of inputs to the management review.

The related clause in ISO/IEC 20000-1 is:

- 4.5.4.3 Management review.

ISO/IEC 20000-1 management review inputs include all the inputs required by ISO 9001 as well as some additional inputs.

The ISO 9001 requirements for management review inputs can be applied to service management. Product conformity in Clause 5.6.2 c) of ISO 9001 should be demonstrated as conformity to the service requirements.

Additional inputs related to resource management, human and technical capabilities and identified risks are included in ISO/IEC 20000-1. These can be useful additions to a management review in ISO 9001 for service management and also for other activities in the scope of the QMS.

### **6.5.6.3 Review output**

#### **5.6.3 Review output**

The output from the management review shall include any decisions and actions related to

- a) improvement of the effectiveness of the quality management system and its processes,
- b) improvement of product related to customer requirements, and
- c) resource needs.

The intent of this clause in ISO 9001 is to ensure a minimum list of outputs from a management review.

The related clause in ISO/IEC 20000-1 is:

- 4.5.4.3 Management review.

ISO/IEC 20000-1 management review outputs include all the outputs required by ISO 9001.

The service provider using ISO 9001 should apply the same outputs, remembering that products in service management are services. There should be agreement on the use of the term 'resources' which is not defined in ISO 9000. In service management, resources can be human, technical, information or financial resources.

## **6.6 Resource management**

### **6.6.1 Provision of resources**

#### **6.1 Provision of resources**

The organization shall determine and provide the resources needed

- a) to implement and maintain the quality management system and continually improve its effectiveness, and
- b) to enhance customer satisfaction by meeting customer requirements.

The intent of this clause in ISO 9001 is to provide resources required to implement, maintain and improve the QMS and to enhance customer satisfaction.

The related clause in ISO/IEC 20000-1 is:

- 4.4.1 Provision of resources.

The ISO/IEC 20000-1 clause is almost identical to the ISO 9001 clause.

The ISO 9001 requirements for provision of resources can be applied to service management. There should be agreement on the use of the term 'resources' which is not defined in ISO 9000. In service management, resources can be human, technical, information or financial resources.

## 6.6.2 Human resources

### 6.6.2.1 General

#### 6.2.1 Human resources - General

Personnel performing work affecting conformity to product requirements shall be competent on the basis of appropriate education, training, skills and experience.

NOTE Conformity to product requirements can be affected directly or indirectly by personnel performing any task within the quality management system.

The intent of this clause in ISO 9001 is to ensure that personnel working within the scope of the QMS are competent to fulfil product requirements.

The related clause in ISO/IEC 20000-1 is:

- 4.4.2 Human resources.

The ISO/IEC 20000-1 clause is almost identical to the ISO 9001 clause.

The ISO 9001 requirements for human resources can be applied to service management. All the personnel performing work affecting service requirements should be included.

### 6.6.2.2 Competence, awareness and training

#### 6.2.2 Competence, awareness and training

The organization shall

- a) determine the necessary competence for personnel performing work affecting conformity to product requirements,
- b) where applicable, provide training or take other actions to achieve the necessary competence,
- c) evaluate the effectiveness of the actions taken,
- d) ensure that its personnel are aware of the relevance and importance of their activities and how they contribute to the achievement of the quality objectives, and
- e) maintain appropriate records of education, training, skills and experience (see 4.2.4).

The intent of this clause in ISO 9001 is to determine the required competence and manage the activities to achieve competence for personnel. This clause is associated with the involvement of people, one of the eight principles of quality management.

The related clause in ISO/IEC 20000-1 is:

- 4.4.2 Human resources.

The ISO/IEC 20000-1 clause is almost identical to the ISO 9001 clause.

The ISO 9001 requirements for competence, awareness and training can be applied to service management.

### 6.6.3 Infrastructure

#### 6.3 Infrastructure

The organization shall determine, provide and maintain the infrastructure needed to achieve conformity to product requirements. Infrastructure includes, as applicable,

- a) buildings, workspace and associated utilities,
- b) process equipment (both hardware and software), and
- c) supporting services (such as transport, communication or information systems).

The intent of this clause in ISO 9001 is to determine, provide and maintain the infrastructure required to achieve conformity to product requirements.

The related clause in ISO/IEC 20000-1 is:

- 4.4.1 Provision of resources.

ISO/IEC 20000-1 does not have one single clause about infrastructure. ISO/IEC 20000-1 uses the term infrastructure once in Clause 5.4 where it is used as an example of a service component. The term infrastructure is not defined in ISO/IEC 20000-1 which means it is used in its normal dictionary usage.

Clause 4.4.1 of ISO/IEC 20000-1 includes requirements to determine and provide resources. These resources include technology resources which can be considered to be part of the infrastructure to deliver a service. ISO/IEC 20000-1 uses the PDCA methodology specified in Clause 4.5 to establish and improve the SMS and services which can include the planning, operating, monitoring and improving of infrastructure.

There are additional processes in ISO/IEC 20000-1 with requirements which can be considered as infrastructure requirements. These are:

- a) Service continuity and availability management (Clause 6.3);
- b) Capacity management (Clause 6.5);
- c) Information security management (Clause 6.6).

Clauses 6.3, 6.5 and 6.6 of ISO/IEC 20000-1 have not been included as related clauses because ISO 9001 does not cover the specific requirements of these processes.

Applying ISO 9001 to infrastructure for service management can include, for example, workspace for personnel involved in service management processes and service delivery, data centres, hardware, software and networks. Some of these infrastructure components can be provided by suppliers, internal groups or customers acting as suppliers.

### 6.6.4 Work environment

#### 6.4 Work environment

The organization shall determine and manage the work environment needed to achieve conformity to product requirements.

NOTE The term “work environment” relates to those conditions under which work is performed including physical, environmental and other factors (such as noise, temperature, humidity, lighting or weather).

The intent of this clause in ISO 9001 is to determine and manage the work environment required to achieve conformity to product requirements.

There is no related clause in ISO/IEC 20000-1 with these specific requirements.

ISO/IEC 20000-1 focuses on the services, the processes and the accountabilities and responsibilities. It does not focus on the work environment to produce or deliver the services and has no specific requirement for the work environment.

The work environment for service management can include a data centre which has conditions for technical hardware housed within it (e.g. temperature and humidity). It can also include the environment of the staff providing service management activities in an office environment (e.g. noise and lighting).

NOTE Services and data centres can be required to demonstrate an awareness, contribution or conformity to environmental regulations and International Standards such as ISO 14001.

## 6.7 Product realization

### 6.7.1 Planning of product realization

#### 7.1 Planning of product realization

The organization shall plan and develop the processes needed for product realization. Planning of product realization shall be consistent with the requirements of the other processes of the quality management system (see 4.1).

In planning product realization, the organization shall determine the following, as appropriate:

- a) quality objectives and requirements for the product;
- b) the need to establish processes and documents, and to provide resources specific to the product;
- c) required verification, validation, monitoring, measurement, inspection and test activities specific to the product and the criteria for product acceptance;
- d) records needed to provide evidence that the realization processes and resulting product meet requirements (see 4.2.4).

The output of this planning shall be in a form suitable for the organization's method of operations.

NOTE 1 A document specifying the processes of the quality management system (including the product realization processes) and the resources to be applied to a specific product, project or contract can be referred to as a quality plan.

NOTE 2 The organization may also apply the requirements given in 7.3 to the development of product realization processes.

The intent of this clause in ISO 9001 is to plan for the development and production of products.

The related clauses in ISO/IEC 20000-1 are:

- 5.1 General (Design and transition of new or changed services);
- 5.2 Plan new or changed services.

ISO/IEC 20000-1 includes a process called design and transition of new or changed services. This is split into general requirements followed by requirements for planning, design, development and transition stages. It applies to new services being developed or changes with the potential to have a major impact on services or customers. The design and transition of new or changed services process in ISO/IEC 20000-1 has some similar requirements to the product realization process in ISO 9001.

Planning of the new or changed services includes planning for testing. This testing can be interpreted as requiring the planning of verification and validation activities.

The requirements of ISO 9001 for planning of product realization can be applied to service management. In service management, product realization means planning for a service to be designed, developed, deployed into the live environment and delivered to the customer.

## 6.7.2 Customer-related processes

### 6.7.2.1 Determination of requirements related to the product

#### 7.2.1 Determination of requirements related to the product

The organization shall determine

- a) requirements specified by the customer, including the requirements for delivery and post-delivery activities,
- b) requirements not stated by the customer but necessary for specified or intended use, where known,
- c) statutory and regulatory requirements applicable to the product, and
- d) any additional requirements considered necessary by the organization.

NOTE Post-delivery activities include, for example, actions under warranty provisions, contractual obligations such as maintenance services, and supplementary services such as recycling or final disposal.

The intent of this clause in ISO 9001 is to define the requirements for products.

The related clauses in ISO/IEC 20000-1 are:

- 4.1.4 Management representative;
- 4.5.2 Plan the SMS (Plan);
- 5.2 Plan new or changed services;
- 5.3 Design and development of new or changed services;
- 6.1 Service level management;
- 7.1 Business relationship management.

ISO/IEC 20000-1 includes requirements for the service provider to determine service requirements across several different clauses. The clause in ISO 9001 relates to only some requirements of the related clauses in ISO/IEC 20000-1. The service requirements including those agreed with the customer, statutory and regulatory requirements are determined for new or changed services in Clause 5.2 of ISO/IEC 20000-1 and documented in the service management plan in Clause 4.5.2 of ISO/IEC 20000-1. The catalogue of services referred to in Clause 6.1 of ISO/IEC 20000-1 documents the services and their dependencies. Notification of potential new or changed service requirements can also be determined during the communication with the customer in Clause 7.1 of ISO/IEC 20000-1.

The requirements of ISO 9001 for determination of requirements related to product can be applied to service management. The 'additional requirements considered necessary by the organization' in Clause 7.2.1 d) of ISO 9001 and 'requirements not stated by the customer but necessary for specified or intended use, where known' in Clause 7.2.1 b) of ISO 9001 can also include those relevant requirements from ISO/IEC 20000-1:

- a) the management of assets, including licences, in Clause 4.1.4 d) of ISO/IEC 20000-1;
- b) human, financial, information and technical resources to deliver the services, in Clause 5.3 of ISO/IEC 20000-1.

### 6.7.2.2 Review of requirements related to the product

#### 7.2.2 Review of requirements related to the product

The organization shall review the requirements related to the product. This review shall be conducted prior to the organization's commitment to supply a product to the customer (e.g. submission of tenders, acceptance of contracts or orders, acceptance of changes to contracts or orders) and shall ensure that

- a) product requirements are defined,
- b) contract or order requirements differing from those previously expressed are resolved, and
- c) the organization has the ability to meet the defined requirements.

Records of the results of the review and actions arising from the review shall be maintained (see 4.2.4).

Where the customer provides no documented statement of requirement, the customer requirements shall be confirmed by the organization before acceptance.

Where product requirements are changed, the organization shall ensure that relevant documents are amended and that relevant personnel are made aware of the changed requirements.

NOTE In some situations, such as internet sales, a formal review is impractical for each order. Instead the review can cover relevant product information such as catalogues or advertising material.

The intent of this clause in ISO 9001 is to review the predefined requirements of the product for adequacy before committing to supply the product.

The related clauses in ISO/IEC 20000-1 are:

- 5.1 General (Design and transition of new or changed services);
- 5.2 Plan new or changed services;
- 6.1 Service level management;
- 7.1 Business relationship management;
- 9.2 Change management.

ISO/IEC 20000-1 includes requirements related to the service across multiple service management processes to ensure that services are designed, developed, tested, managed and improved in alignment with service requirements. The clause in ISO 9001 relates to only some requirements of the related clauses in ISO/IEC 20000-1. ISO/IEC 20000-1 is very strong in identifying changes, assessing the impact of changes and controlling changes to requirements.

Clause 5.1 of ISO/IEC 20000-1 includes requirements for the assessment and approval of the new or changed services through the change management process of ISO/IEC 20000-1. The requirements for assessment and approval in Clause 9.2 of ISO/IEC 20000-1 include reviewing the risk and impact of the new or changed service requirements on existing services as well as reviewing the business benefit, technical feasibility and financial impact of the change. Clause 5.2 of ISO/IEC 20000-1 includes requirements for the evaluation of the ability to fulfil service requirements of other parties that contribute to the provision of service components for new or changed services. Clauses 6.1 and 7.1 of ISO/IEC 20000-1 can identify changes to service requirements.

The requirements of ISO 9001 to review requirements related to product can be applied to service management. In service management, this review should apply to service requirements which can come from a new or changed service, through requests for change or from a customer via the business relationship manager. Any changes identified should be controlled using the change management process.

### 6.7.2.3 Customer communication

#### 7.2.3 Customer communication

The organization shall determine and implement effective arrangements for communicating with customers in relation to

- a) product information,
- b) enquiries, contracts or order handling, including amendments, and
- c) customer feedback, including customer complaints.

The intent of this clause in ISO 9001 is to communicate effectively with customers about products, enquiries, orders and feedback. This clause is associated with the concept of customer focus, one of the eight principles of quality management.

The related clauses in ISO/IEC 20000-1 are:

- 4.1.3 Authority, responsibility and communication;
- 6.1 Service level management;
- 6.2 Service reporting;
- 7.1 Business relationship management;
- 8.1 Incident and service request management.

The clause in ISO 9001 relates to only some requirements of the related clauses in ISO/IEC 20000-1. Clause 4.1.3 of ISO/IEC 20000-1 specifies a requirement for documented procedures for communication. The service catalogue in Clause 6.1 of ISO/IEC 20000-1 provides service information which is equivalent to the product information in ISO 9001. Service reporting in Clause 6.2 of ISO/IEC 20000-1 is one method of communication providing service information. Enquiries, customer feedback and complaints are handled through the business relationship management process in Clause 7.1 of ISO/IEC 20000-1. Service requests can be used to handle enquiries, orders and general communication with the customer using Clause 8.1 of ISO/IEC 20000-1.

In addition to these related clauses, some other processes in ISO/IEC 20000-1 include requirements for communication or feedback to customers or interested parties for other purposes. For example, Clause 5.4 of ISO/IEC 20000-1 requires the service provider to report to interested parties on the outcomes achieved against expected outcomes for new or changed services, Clause 8.1 of ISO/IEC 20000-1 requires the service provider to keep the customer informed of the progress of their reported incident.

Clause 7.2.3 of ISO 9001 is about communication with the customer. Internal communication is covered in Clause 5.5.3 of ISO 9001. This distinction is not made in ISO/IEC 20000-1.

The requirements of ISO 9001 for customer communication can be applied to service management. The service reports from the service reporting process in service management can be the primary method of communication with the customer. The business relationship management process should be used as the communication mechanism for orders, contracts, customer satisfaction and complaints. The enquiries from customers should be handled through the incident and service request management process. The service catalogue should be used to provide details of the services available to the customers.

### 6.7.3 Design and development

#### 6.7.3.1 Design and development planning

##### 7.3.1 Design and development planning

The organization shall plan and control the design and development of product.

During the design and development planning, the organization shall determine

- a) the design and development stages,
- b) the review, verification and validation that are appropriate to each design and development stage, and
- c) the responsibilities and authorities for design and development.

The organization shall manage the interfaces between different groups involved in design and development to ensure effective communication and clear assignment of responsibility.

Planning output shall be updated, as appropriate, as the design and development progresses.

NOTE Design and development review, verification and validation have distinct purposes. They can be conducted and recorded separately or in any combination, as suitable for the product and the organization.

The intent of this clause in ISO 9001 is to plan and control the activities for the design and development of products.

The related clause in ISO/IEC 20000-1 is:

- 5.2 Plan new or changed services.

ISO/IEC 20000-1 is intentionally not as comprehensive as ISO 9001 for product realization. Clause 5.3 of ISO/IEC 20000-1 includes the following note: 'For further information about design; see the design and development process in ISO 9001, Clause 7.3'.

The requirements of ISO 9001 for design and development planning can be applied to service management. Service management distinguishes between planning for new services, major changes to services and minor changes to services. Removal of services due to their retirement or transfer to another party are also changes which should be planned. ISO/IEC 20000-1 includes requirements for all of these activities which should be considered during the planning of design and development.

#### 6.7.3.2 Design and development inputs

##### 7.3.2 Design and development inputs

Inputs relating to product requirements shall be determined and records maintained (see 4.2.4). These inputs shall include

- a) functional and performance requirements,
- b) applicable statutory and regulatory requirements,
- c) where applicable, information derived from previous similar designs, and
- d) other requirements essential for design and development.

The inputs shall be reviewed for adequacy. Requirements shall be complete, unambiguous and not in conflict with each other.

The intent of this clause in ISO 9001 is to ensure consistent and adequate input to the design and development of products.

The related clauses in ISO/IEC 20000-1 are:

- 5.1 General (Design and transition of new or changed services);
- 5.2 Plan new or changed services;
- 5.3 Design and development of new or changed services.

ISO/IEC 20000-1 does not split the requirements between design and development inputs and outputs but specifies them in the requirements for the design and transition of new or changed services process. Details of service requirements for new or changed services can be initially stated in the request for change which comes from the change management process to Clause 5.1 of ISO/IEC 20000-1. Clause 5.2 of ISO/IEC 20000-1 determines the service requirements in detail and Clause 5.3 of ISO/IEC 20000-1 specifies the design of the service.

The requirements of ISO 9001 for design and development inputs can be applied to service management. For 'other requirements essential for design and development' as in Clause 7.3.2 d) of ISO 9001, the more specific requirements of ISO/IEC 20000-1 for inputs should be considered.

### **6.7.3.3 Design and development outputs**

**7.3.3 Design and development outputs**

The outputs of design and development shall be in a form suitable for verification against the design and development input and shall be approved prior to release.

Design and development outputs shall

- a) meet the input requirements for design and development,
- b) provide appropriate information for purchasing, production and service provision,
- c) contain or reference product acceptance criteria, and
- d) specify the characteristics of the product that are essential for its safe and proper use.

NOTE Information for production and service provision can include details for the preservation of product.

The intent of this clause in ISO 9001 is to ensure consistent and verifiable outputs from the design and development activities are approved prior to release.

The related clauses in ISO/IEC 20000-1 are:

- 5.1 General (Design and transition of new or changed services);
- 5.2 Plan new or changed services;
- 5.3 Design and development of new or changed services.

ISO/IEC 20000-1 does not split the requirements between design and development inputs and outputs but specifies them in the requirements for the design and transition of new or changed services process. Clause 5.1 of ISO/IEC 20000-1 includes requirements to review the outputs from the planning and design activities for new or changed services against the service requirements and relevant requirements in Clause 5.3 and 5.4 of ISO/IEC 20000-1. Clause 5.2 provides an output of a plan for the new or changed service. Clause 5.3 provides an output of a documented design and a developed service.

ISO/IEC 20000-1 does not include specific requirements for safety although safety requirements can be part of the service requirements. Some requirements for information security or service continuity can also be considered to be safety requirements.

The requirements of ISO 9001 for design and development outputs can be applied to service management. For the 'characteristics of the product that are essential for its safe and proper use' as in Clause 7.3.3 d) of ISO 9001, the more specific requirements of ISO/IEC 20000-1 for outputs should be considered.

#### 6.7.3.4 Design and development review

##### 7.3.4 Design and development review

At suitable stages, systematic reviews of design and development shall be performed in accordance with planned arrangements (see 7.3.1)

- a) to evaluate the ability of the results of design and development to meet requirements, and
- b) to identify any problems and propose necessary actions.

Participants in such reviews shall include representatives of functions concerned with the design and development stage(s) being reviewed. Records of the results of the reviews and any necessary actions shall be maintained (see 4.2.4).

The intent of this clause in ISO 9001 is to conduct planned systematic reviews of design and development to evaluate capability to meet requirements.

The related clauses in ISO/IEC 20000-1 are:

- 5.1 General (Design and transition of new or changed services);
- 5.2 Plan new or changed service;
- 5.3 Design and development of new or changed services.

ISO/IEC 20000-1 includes requirements to review the design and development of new or changed services. Clause 5.1 of ISO/IEC 20000-1 includes requirements to review the outputs from the planning and design activities for new or changed services against the service requirements and relevant requirements in Clause 5.3 and 5.4 of ISO/IEC 20000-1. Clause 5.2 includes requirements for other parties that are contributing to the provision of service components to be evaluated. ISO/IEC 20000-1 does not specify who should attend the reviews. Clause 5.3 of ISO/IEC 20000-1 includes requirements to ensure that the design of the new or changed services can fulfil the service requirements.

The requirements of ISO 9001 for design and development review can be applied to service management. The 'systematic reviews' in Clause 7.3.4 of ISO 9001 should use the review requirements in ISO/IEC 20000-1.

#### 6.7.3.5 Design and development verification

##### 7.3.5 Design and development verification

Verification shall be performed in accordance with planned arrangements (see 7.3.1) to ensure that the design and development outputs have met the design and development input requirements. Records of the results of the verification and any necessary actions shall be maintained (see 4.2.4).

The intent of this clause in ISO 9001 is to ensure that the design and development outputs meet the design and development input requirements for the product.

The related clauses in ISO/IEC 20000-1 are:

- 5.3 Design and development of new or changed services;
- 5.4 Transition of new or changed services;
- 9.3 Release and deployment management.

In ISO 9001, verification is an activity intended to check that the outputs of a stage of design and development fulfil the input requirements for that stage, before proceeding to the next stage. This is in order to minimize the propagation of errors through various stages of design and development. See [Table 3](#) for an explanation of how the use of the terms verification and testing differ between ISO 9001 and ISO/IEC 20000-1.

Clause 5.3 of ISO/IEC 20000-1 includes requirements to ensure that the design of the new or changed services fulfils the service requirements and that they are developed in accordance with the documented design. Clause 5.4 of ISO/IEC 20000-1 includes requirements for new or changed services to be tested to verify that they fulfil the service requirements and documented design. Clause 9.3 of ISO/IEC 20000-1 includes requirements for the release to be verified against agreed acceptance criteria.

The requirements of ISO 9001 for design and development verification can be applied to service management. In service management, testing is the most common method of verification. There should be various levels of testing at different stages. There should be two sets of acceptance criteria to be verified for service management – for the new or changed service and for the release.

#### 6.7.3.6 Design and development validation

##### 7.3.6 Design and development validation

Design and development validation shall be performed in accordance with planned arrangements (see 7.3.1) to ensure that the resulting product is capable of meeting the requirements for the specified application or intended use, where known. Wherever practicable, validation shall be completed prior to the delivery or implementation of the product. Records of the results of validation and any necessary actions shall be maintained (see 4.2.4).

The intent of this clause in ISO 9001 is to ensure that the product meets product requirements for its specified application or intended use.

The related clauses in ISO/IEC 20000-1 are:

- 5.4 Transition of new or changed services;
- 9.3 Release and deployment management.

ISO/IEC 20000-1 does not use the term validation. In Clause 5.4 of ISO/IEC 20000-1, the new or changed services should be verified against service acceptance criteria before they are approved to be deployed into the live environment using the release and deployment management process. In Clause 9.3 of ISO/IEC 20000-1, there are requirements for releases to be built and tested prior to deployment in a controlled acceptance test environment. If the test environment simulates an operational environment, it corresponds with the term 'validation'.

See [Table 3](#) for an explanation of how the use of the terms validation and testing differ between ISO 9001 and ISO/IEC 20000-1.

The requirements of ISO 9001 for design and development validation can be applied to service management. In service management, testing is the most common method of validation. Testing should be conducted in a controlled test environment which simulates the intended operational environment where possible.

#### 6.7.3.7 Control of design and development changes

##### 7.3.7 Control of design and development changes

Design and development changes shall be identified and records maintained. The changes shall be reviewed, verified and validated, as appropriate, and approved before implementation. The review of design and development changes shall include evaluation of the effect of the changes on constituent parts and product already delivered. Records of the results of the review of changes and any necessary actions shall be maintained (see 4.2.4).

The intent of this clause in ISO 9001 is to control changes to design and development.

The related clauses in ISO/IEC 20000-1 are:

- 5.1 General (Design and transition of new or changed services);

— 9.2 Change management.

ISO/IEC 20000-1 requires that assessment, approval, scheduling and reviewing of new or changed services is controlled by the change management process according to the change management policy. Clause 9.2 of ISO/IEC 20000-1 requires that changes are tested. In addition, all changes going through Clause 5 should be subject to verification and validation activities required during design and transition of new or changed services.

The requirements of ISO 9001 for control of design and development changes can be applied to service management. If the service provider has a change management process, this can meet the requirements of ISO 9001.

## 6.7.4 Purchasing

### 6.7.4.1 Purchasing process

#### 7.4.1 Purchasing process

The organization shall ensure that purchased product conforms to specified purchase requirements. The type and extent of control applied to the supplier and the purchased product shall be dependent upon the effect of the purchased product on subsequent product realization or the final product.

The organization shall evaluate and select suppliers based on their ability to supply product in accordance with the organization's requirements. Criteria for selection, evaluation and re-evaluation shall be established.

Records of the results of evaluations and any necessary actions arising from the evaluation shall be maintained (see 4.2.4).

The intent of this clause in ISO 9001 is to ensure that the organization purchases products which conform to specified requirements from qualified suppliers. This clause is associated with a mutually beneficial supplier relationship, one of the eight principles of quality management.

The related clauses in ISO/IEC 20000-1 are:

- 5.2 Plan new or changed services;
- 6.1 Service level management;
- 7.2 Supplier management.

As noted in Clause 7.2 of ISO/IEC 20000-1, the scope of the supplier management process in ISO/IEC 20000-1 specifically excludes the selection of suppliers and the procurement of services.

In ISO/IEC 20000-1, other parties can contribute to the design, development or delivery of services. The other parties can be suppliers, internal groups or customers acting as suppliers. Suppliers should be managed through the supplier management process using a contract. Internal groups and customers acting as suppliers should be managed through the service level management process using a documented agreement. Though it is not a specified requirement of ISO 9001, the organization should ensure that sub-contracted suppliers are managed by the lead supplier as in Clause 7.2 of ISO/IEC 20000-1.

For new or changed services, ISO/IEC 20000-1 includes requirements for the service provider to evaluate any other parties that contribute to a service. The evaluation covers their ability to fulfil the service requirements and there is a requirement to record the results of the evaluation and ensure any necessary action is taken.

The requirements of ISO 9001 for purchasing can be applied to service management. For service management, the evaluation of suppliers and other parties is treated as an ongoing activity involving continual monitoring during service delivery.

#### 6.7.4.2 Purchasing information

##### 7.4.2 Purchasing information

Purchasing information shall describe the product to be purchased, including, where appropriate,

- a) requirements for approval of product, procedures, processes and equipment,
- b) requirements for qualification of personnel, and
- c) quality management system requirements.

The organization shall ensure the adequacy of specified purchase requirements prior to their communication to the supplier.

The intent of this clause in ISO 9001 is to ensure that the organization adequately defines the product requirements prior to purchase.

There are no related clauses in ISO/IEC 20000-1 with these specific requirements because ISO/IEC 20000-1 explicitly excludes procurement.

The requirements of ISO 9001 for purchasing information can be applied to service management. The contents list for a contract in Clause 7.2 of ISO/IEC 20000-1 should be used as a guide for producing purchasing information for service management. Supplies required for services should also be considered as part of the purchasing information e.g. printer cartridges.

Monitoring of suppliers in a service management environment should focus on service targets, ensuring that they are providing the agreed level and quality of service on an ongoing basis.

#### 6.7.4.3 Verification of purchased product

##### 7.4.3 Verification of purchased product

The organization shall establish and implement the inspection or other activities necessary for ensuring that purchased product meets specified purchase requirements.

Where the organization or its customer intends to perform verification at the supplier's premises, the organization shall state the intended verification arrangements and method of product release in the purchasing information.

The intent of this clause in ISO 9001 is to verify purchased product through inspection or other methods to ensure it meets specified purchase requirements.

The related clauses in ISO/IEC 20000-1 are:

- 5.1 General (Design and transition of new or changed services);
- 6.1 Service level management;
- 7.2 Supplier Management.

At planned intervals, ISO/IEC 20000-1 requires the service provider to measure the supplier or other party's performance against service targets and any other contractual obligations. For external suppliers, this should be controlled through the supplier management process. For internal groups or customers acting as suppliers, this should be controlled through the service level management process. For new or changed services, service components provided by all parties should be reviewed as part of the design and transition of new or changed services process. There is no requirement in ISO/IEC 20000-1 to state verification arrangements for supplier's premises.

The requirements of ISO 9001 for verification of purchased product can be applied to service management. For new or changed services, service components provided by all parties should be reviewed and accepted or rejected. For many products in the scope of ISO 9001, a 'goods in' style of pass/fail inspection is used.

An ongoing service being managed using a QMS or an SMS requires continual monitoring of the supplier and other parties throughout the period of the supplier's participation in the delivery of the service.

## 6.7.5 Production and service provision

### 6.7.5.1 Control of production and service provision

#### 7.5.1 Control of production and service provision

The organization shall plan and carry out production and service provision under controlled conditions.

Controlled conditions shall include, as applicable,

- a) the availability of information that describes the characteristics of the product,
- b) the availability of work instructions, as necessary,
- c) the use of suitable equipment,
- d) the availability and use of monitoring and measuring equipment,
- e) the implementation of monitoring and measurement, and
- f) the implementation of product release, delivery and post-delivery activities.

The intent of this clause in ISO 9001 is to plan and ensure that controlled conditions are provided to carry out the production or service provision to achieve the required quality.

The related clause in ISO/IEC 20000-1 is:

- 4.5.3 Implement and operate the SMS (Do).

ISO/IEC 20000-1 controls the delivery, management and improvement of services through the implementation and operation of the SMS. Clause 4.5.3 of ISO/IEC 20000-1 specifies requirements for the management of all the service management processes.

The requirements of ISO 9001 for control of production and service provision can be applied to service management. The production and service provision should be driven by the service management plan.

### 6.7.5.2 Validation of processes for production and service provision

#### 7.5.2 Validation of processes for production and service provision

The organization shall validate any processes for production and service provision where the resulting output cannot be verified by subsequent monitoring or measurement and, as a consequence, deficiencies become apparent only after the product is in use or the service has been delivered.

Validation shall demonstrate the ability of these processes to achieve planned results.

The organization shall establish arrangements for these processes including, as applicable,

- a) defined criteria for review and approval of the processes,
- b) approval of equipment and qualification of personnel,
- c) use of specific methods and procedures,
- d) requirements for records (see 4.2.4), and
- e) revalidation.

The intent of this clause in ISO 9001 is to validate processes for production and service provision to provide the assurance of quality of product or service where inspection and testing is not possible and deficiencies become evident only after the product is in use or the service has been delivered.

The related clauses in ISO/IEC 20000-1 are:

- 4.5.2 Plan the SMS (Plan);
- 5.3 Design and development of new or changed services;
- 5.4 Transition of new or changed services;
- 9.2 Change management;
- 9.3 Release and deployment management.

The clause in ISO 9001 relates to only some requirements of the related clauses in ISO/IEC 20000-1. The emphasis in ISO 9001 is on designing and testing production processes where the product or service cannot be tested before the product or service is delivered. ISO/IEC 20000-1 does not focus purely on validation of processes but on the SMS, which includes the service management processes, and the services.

Clause 4.5.2 of ISO/IEC 20000-1 includes requirements for the service management plan to specify 'how the effectiveness of the SMS and the services will be measured, audited, reported and improved'. It also includes requirements for the service management plan and other process plans to be reviewed at planned intervals and, if applicable, updated. Clause 5.3 of ISO/IEC 20000-1 includes requirements for the design and development of any new or changed processes with a requirement to ensure that the design enables the fulfilment of service requirements. Clause 5.4 of ISO/IEC 20000-1 includes requirements for testing the processes against service acceptance criteria. Clause 9.2 of ISO/IEC 20000-1 includes requirements to develop and test changes. Clause 9.3 of ISO/IEC 20000-1 includes requirements to build and test the release in a controlled test environment prior to deployment into the live environment.

The requirements of ISO 9001 for validation of processes for production and service provision can be applied to service management. The processes to be validated can be the service management processes specified in ISO/IEC 20000-1 as well as other service delivery processes in the QMS.

### 6.7.5.3 Identification and traceability

#### 7.5.3 Identification and traceability

Where appropriate, the organization shall identify the product by suitable means throughout product realization.

The organization shall identify the product status with respect to monitoring and measurement requirements throughout product realization.

Where traceability is a requirement, the organization shall control the unique identification of the product and maintain records (see 4.2.4).

NOTE In some industry sectors, configuration management is a means by which identification and traceability are maintained.

The intent of this clause in ISO 9001 is to identify and maintain records of the product and its status to enable traceability.

The related clauses in ISO/IEC 20000-1 are:

- 5.1 General (Design and transition of new or changed services);
- 9.1 Configuration management;
- 9.2 Change management;
- 9.3 Release and deployment management.

The clause in ISO 9001 relates to only some requirements of the related clauses in ISO/IEC 20000-1.

As highlighted in the note in ISO 9001, configuration management is the key to identifying and tracing all components of a service. The change management process in Clause 9.2 of ISO/IEC 20000-1 includes requirements for maintaining the integrity of the configuration information. The release and deployment management process in Clause 9.3 of ISO/IEC 20000-1 includes requirements for maintaining the integrity of all service components during deployment. Clause 5.1 of ISO/IEC 20000-1 also includes requirements for information about the components supporting new or changed services to be included in the configuration management database. Clause 9.1 of ISO/IEC 20000-1 includes requirements for configuration management including identification, control and integrity.

Additionally, Clause 6.1 of ISO/IEC 20000-1 includes requirements for a catalogue of services. This contains high level details about the services and their dependencies but is not as detailed as required by Clause 7.5.3 of ISO 9001.

Product realization is a process that continues through the life of the service, and for each change and release. In this context, the requirements of ISO 9001 above should be satisfied by the configuration management, change management and release and deployment management processes for service management. Organizations should ensure that the emergency change procedure for service management also includes the requirements from ISO 9001.

#### 6.7.5.4 Customer property

##### 7.5.4 Customer property

The organization shall exercise care with customer property while it is under the organization's control or being used by the organization. The organization shall identify, verify, protect and safeguard customer property provided for use or incorporation into the product. If any customer property is lost, damaged or otherwise found to be unsuitable for use, the organization shall report this to the customer and maintain records (see 4.2.4).

NOTE Customer property can include intellectual property and personal data.

The intent of this clause in ISO 9001 is to manage and safeguard customer property while it is under the organization's control or being used by the organization.

There is no related clause in ISO/IEC 20000-1 with these specific requirements.

The organization should not rely on ISO/IEC 20000-1 requirements to provide guidance for an assessment of Clause 7.5.4 of ISO 9001. In ISO/IEC 20000-1, all assets used by the service, regardless of ownership, are placed under appropriate controls such as configuration management, information security management and change management. However, ISO/IEC 20000-1 does not distinguish its requirements by ownership of property and it contains no specific requirements about customer property.

The requirements of ISO 9001 for customer property can be applied to service management. The ownership of property such as hardware, software and other assets used to deliver the service should be identified. This information can be maintained and made available from the configuration management database. A conformity assessment of Clause 7.5.4 of ISO 9001 should only include evidence for customer-owned items used to deliver the service in the scope of the QMS.

#### 6.7.5.5 Preservation of product

##### 7.5.5 Preservation of product

The organization shall preserve the product during internal processing and delivery to the intended destination in order to maintain conformity to requirements. As applicable, preservation shall include identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.

The intent of this clause in ISO 9001 is to preserve products and their constituent parts during internal processing and delivery to maintain conformity to requirements.

The related clauses in ISO/IEC 20000-1 are:

- 5.1 General (Design and transition of new or changed services);
- 5.4 Transition of new or changed services;
- 9.1 Configuration management;
- 9.3 Release and deployment management.

The clause in ISO 9001 relates to only some requirements of the related clauses in ISO/IEC 20000-1. The configuration management and release and deployment management processes in Clauses 9.1 and 9.3 of ISO/IEC 20000-1 relate to the preservation of the integrity of services before deployment. For new or changed services, this is managed through the design and transition of new or changed services process in Clauses 5.1 and 5.4 of ISO/IEC 20000-1.

The requirements of ISO 9001 for preservation of product can be applied to service management. In a service context, there is an overlap between product realization and product delivery. Where an existing service is being changed, the change can be introduced into a live environment that is already delivering the service. This requires an approach that encompasses the change management, configuration management and release and deployment management processes similar to those in ISO/IEC 20000-1 which can be built from the requirements of ISO 9001. Organizations should ensure that the emergency release procedure for service management includes the requirements from ISO 9001.

#### 6.7.6 Control of monitoring and measuring equipments

##### 7.6 Control of monitoring and measuring equipments

The organization shall determine the monitoring and measurement to be undertaken and the monitoring and measuring equipment needed to provide evidence of conformity of product to determined requirements.

The organization shall establish processes to ensure that monitoring and measurement can be carried out and are carried out in a manner that is consistent with the monitoring and measurement requirements.

Where necessary to ensure valid results, measuring equipment shall

- a) be calibrated or verified, or both, at specified intervals, or prior to use, against measurement standards traceable to international or national measurement standards; where no such standards exist, the basis used for calibration or verification shall be recorded (see 4.2.4);
- b) be adjusted or re-adjusted as necessary;
- c) have identification in order to determine its calibration status;
- d) be safeguarded from adjustments that would invalidate the measurement result;
- e) be protected from damage and deterioration during handling, maintenance and storage.

In addition, the organization shall assess and record the validity of the previous measuring results when the equipment is found not to conform to requirements. The organization shall take appropriate action on the equipment and any product affected.

Records of the results of calibration and verification shall be maintained (see 4.2.4).

When used in the monitoring and measurement of specified requirements, the ability of computer software to satisfy the intended application shall be confirmed. This shall be undertaken prior to initial use and reconfirmed as necessary.

NOTE Confirmation of the ability of computer software to satisfy the intended application would typically include its verification and configuration management to maintain its suitability for use.

The intent of this clause in ISO 9001 is to determine and control monitoring and measurement requirements, equipment and processes. Equipment can include computer software.

The related clauses in ISO/IEC 20000-1 are:

- 4.5.4.1 General (Monitor and review the SMS (Check));
- 5.2 Plan new or changed services;
- 5.3 Design and development of new or changed services;
- 5.4 Transition of new or changed services;
- 6.2 Service reporting;
- 9.3 Release and deployment management.

The clause in ISO 9001 relates to only some requirements of the related clauses in ISO/IEC 20000-1. Clause 4.5.4.1 of ISO/IEC 20000-1 includes requirements for the monitoring and measurement of the SMS and the services. ISO/IEC 20000-1 does not specifically require verification of the accuracy and capability of measurement. Service reporting in Clause 6.2 of ISO/IEC 20000-1 includes requirements for reporting on performance against targets that have already been agreed with the customer, together with reporting of any nonconformities against the SMS requirements or the service requirements. Service reporting relies on the integrity of the data and therefore the accuracy and capabilities of the measuring tools should be considered.

Clauses 5.2, 5.3 and 5.4 of ISO/IEC 20000-1 include requirements for monitoring, measurement and testing to be carried out for the planning, design and transition of new or changed services. Clause 9.3 of ISO/IEC 20000-1 includes requirements for the testing of releases in a controlled test environment prior to their deployment into the live environment.

The requirements of ISO 9001 for control of monitoring and measuring equipment can be applied to service management. Monitoring and measuring equipment in service management can include software tools. Useful information is provided in the note in ISO 9001 about the required controls to apply to computer software. This can also be applied to computer hardware which is an equally important part of a service. The use of the phrase 'at specified intervals' reminds us that this is an iterative process. In the service management context, monitoring tools should be re-verified after major changes or the introduction of new services.

## 6.8 Measurement, analysis and improvement

### 6.8.1 General

#### 8.1 Measurement, analysis and improvement - General

The organization shall plan and implement the monitoring, measurement, analysis and improvement processes needed

- a) to demonstrate conformity to product requirements,
- b) to ensure conformity of the quality management system, and
- c) to continually improve the effectiveness of the quality management system.

This shall include determination of applicable methods, including statistical techniques, and the extent of their use.

The intent of this clause in ISO 9001 is to plan and implement processes to monitor, measure, analyse and improve the product and the QMS.

The related clauses in ISO/IEC 20000-1 are:

- 4.5.2 Plan the SMS (Plan);
- 4.5.4.1 General (Monitor and review the SMS (Check));

- 4.5.5.1 General (Maintain and improve the SMS (Act));
- 4.5.5.2 Management of improvements;
- 6.1 Service level management;
- 6.2 Service reporting.

The clause in ISO 9001 relates to only some requirements of the related clauses in ISO/IEC 20000-1. Although in ISO/IEC 20000-1, the term 'analysis' is not used, the intent of ISO 9001 and ISO/IEC 20000-1 is similar. ISO/IEC 20000-1 includes requirements for the monitoring and measurement of the fulfilment of service requirements, and uses information collected to improve both the service and the SMS. The use of statistical techniques is not a specific requirement of ISO/IEC 20000-1 although these can be suitable to use for some types of measurement.

The service management plan, as specified in Clause 4.5.2 l) of ISO/IEC 20000-1, includes 'how the effectiveness of the SMS and the services will be measured, audited, reported and improved'. Clause 4.5.4.1 of ISO/IEC 20000-1 includes requirements for the service provider to 'use suitable methods for monitoring and measuring the SMS and the services'. Clauses 4.5.5.1 and 4.5.5.2 of ISO/IEC 20000-1 include requirements to manage improvements against the policy for continual improvement for the SMS and the services. Clause 6.1 of ISO/IEC 20000-1 includes requirements to monitor and review trends and performance against service targets. Clause 6.2 of ISO/IEC 20000-1 includes requirements to provide service reports on the performance of the SMS and the services.

The requirements of ISO 9001 for measurement, analysis and improvement can be applied to service management. The requirements of ISO/IEC 20000-1 can provide useful techniques for a QMS with a scope of services and service management. For example, service reporting can report on conformity and service level management can monitor and measure performance against the service level targets which are part of the service requirements.

## 6.8.2 Monitoring and measurement

### 6.8.2.1 Customer satisfaction

#### 8.2.1 Customer satisfaction

As one of the measurements of the performance of the quality management system, the organization shall monitor information relating to customer perception as to whether the organization has met customer requirements. The methods for obtaining and using this information shall be determined.

NOTE Monitoring customer perception can include obtaining input from sources such as customer satisfaction surveys, customer data on delivered product quality, user opinion surveys, lost business analysis, compliments, warranty claims and dealer reports.

The intent of this clause in ISO 9001 is to monitor customer perception as part of monitoring the effectiveness of the QMS.

The related clauses in ISO/IEC 20000-1 are:

- 6.2 Service reporting;
- 7.1 Business relationship management.

The last paragraph of Clause 7.1 of ISO/IEC 20000-1 includes requirements for the measurement, analysis and review of customer satisfaction. This can provide useful additional information about the method for obtaining measurement of customer satisfaction based on a representative sample of customers and users. Clause 6.2 f) of ISO/IEC 20000-1 includes requirements for reporting on customer satisfaction measurements and analysis.

The measurement, analysis and review of results to identify improvements and reporting should be used as the basis for an assessment of Clause 8.2.1 of ISO 9001.

### 6.8.2.2 Internal audit

#### 8.2.2 Internal audit

The organization shall conduct internal audits at planned intervals to determine whether the quality management system

- a) conforms to the planned arrangements (see 7.1), to the requirements of this International Standard and to the quality management system requirements established by the organization, and
- b) is effectively implemented and maintained.

An audit programme shall be planned, taking into consideration the status and importance of the processes and areas to be audited, as well as the results of previous audits. The audit criteria, scope, frequency and methods shall be defined. The selection of auditors and conduct of audits shall ensure objectivity and impartiality of the audit process. Auditors shall not audit their own work.

A documented procedure shall be established to define the responsibilities and requirements for planning and conducting audits, establishing records and reporting results.

Records of the audits and their results shall be maintained (see 4.2.4).

The management responsible for the area being audited shall ensure that any necessary corrections and corrective actions are taken without undue delay to eliminate detected nonconformities and their causes.

Follow-up activities shall include the verification of the actions taken and the reporting of verification results (see 8.5.2).

NOTE See ISO 19011 for guidance.

The intent of this clause in ISO 9001 is to conduct internal audits to ensure the effectiveness of the implementation and maintenance of the QMS and conformity to ISO 9001.

The related clauses in ISO/IEC 20000-1 are:

- 4.5.4.1 General (Monitor and review the SMS (Check));
- 4.5.4.2 Internal audit.

The requirements in ISO/IEC 20000-1 are almost identical to the ISO 9001 clause but are spread across two sub-clauses.

The requirements of ISO 9001 for internal audit can be applied to service management. ISO/IEC 20000-1 applies the internal audit to the SMS and the services.

ISO/IEC 20000-1 includes requirements for two other types of audits with a purpose which differs from but can support internal audits. In Clause 6.6.1 of ISO/IEC 20000-1, there is a requirement for information security audits to ensure that the information security policy and process are being followed. In Clause 9.1 of ISO/IEC 20000-1, there is a requirement for an audit of records in the configuration management database to ensure that they are accurate. These additional audits are usually carried out by specialists in those fields rather than independent auditors (unless the independent auditors have the skills for these audits). These audits can also identify opportunities for improvement and nonconformities.

### 6.8.2.3 Monitoring and measurement of processes

#### 8.2.3 Monitoring and measurement of processes

The organization shall apply suitable methods for monitoring and, where applicable, measurement of the quality management system processes. These methods shall demonstrate the ability of the processes to achieve planned results. When planned results are not achieved, correction and corrective action shall be taken, as appropriate.

NOTE When determining suitable methods, it is advisable that the organization consider the type and extent of monitoring or measurement appropriate to each of its processes in relation to their impact on the conformity to product requirements and on the effectiveness of the quality management system.

The intent of this clause in ISO 9001 is to monitor and, where applicable, measure the QMS processes to ensure they are performed effectively and appropriate actions are taken.

The related clauses in ISO/IEC 20000-1 are:

- 4.5.4.1 General (Monitor and review the SMS (Check));
- 4.5.5.1 General (Maintain and improve the SMS (Act)).

Although ISO/IEC 20000-1 does not specify process measurement in the same way as ISO 9001, it includes requirements for process performance measurements to be input to management reviews. ISO/IEC 20000-1 specifies the monitoring and measurement of the SMS and the services unlike ISO 9001 which focuses on the QMS processes.

The requirements of ISO 9001 for monitoring and measurement of processes can be applied to service management. ISO/IEC 20000-1 is concerned with the service provided to the customer and the measurement of the SMS through internal audit and management review, as well as the processes themselves. Therefore in service management, the planned results should include the fulfilment of service requirements and delivery of services.

### 6.8.2.4 Monitoring and measurement of product

#### 8.2.4 Monitoring and measurement of product

The organization shall monitor and measure the characteristics of the product to verify that product requirements have been met. This shall be carried out at appropriate stages of the product realization process in accordance with the planned arrangements (see 7.1). Evidence of conformity with the acceptance criteria shall be maintained.

Records shall indicate the person(s) authorizing release of product for delivery to the customer (see 4.2.4).

The release of product and delivery of service to the customer shall not proceed until the planned arrangements (see 7.1) have been satisfactorily completed, unless otherwise approved by a relevant authority and, where applicable, by the customer.

The intent of this clause in ISO 9001 is to monitor and measure the products against product requirements and acceptance criteria and to record the authorization of the release of the product.

The related clauses in ISO/IEC 20000-1 are:

- 4.5.4.1 General (Monitor and review the SMS (Check));
- 5.4 Transition of new or changed services;
- 6.2 Service reporting;
- 9.3 Release and deployment management.

There are requirements in Clause 4.5.4.1 of ISO/IEC 20000-1 for monitoring and measurement of the service. The deployment of releases is controlled through transition of new or changed services in Clause 5.4 of ISO/IEC 20000-1 and release and deployment management in Clause 9.3 of ISO/IEC 20000-1. Service reporting in Clause 6.2 of ISO/IEC 20000-1 provides the results of monitoring and measurement of services undertaken by many of the service management processes. Clause 5.4 of ISO/IEC 20000-1 includes requirements to verify the new or changed services against acceptance criteria.

The requirements of ISO 9001 for monitoring and measurement of product can be applied to service management. ISO/IEC 20000-1 has additional requirements which should support the monitoring, measuring and improvement of services. Releases are controlled during the transition of new or changed services and as part of the release and deployment management process.

### 6.8.3 Control of nonconforming product

#### 8.3 Control of nonconforming product

The organization shall ensure that product which does not conform to product requirements is identified and controlled to prevent its unintended use or delivery. A documented procedure shall be established to define the controls and related responsibilities and authorities for dealing with nonconforming product.

Where applicable, the organization shall deal with nonconforming product by one or more of the following ways:

- a) by taking action to eliminate the detected nonconformity;
- b) by authorizing its use, release or acceptance under concession by a relevant authority and, where applicable, by the customer;
- c) by taking action to preclude its original intended use or application;
- d) by taking action appropriate to the effects, or potential effects, of the nonconformity when nonconforming product is detected after delivery or use has started.

When nonconforming product is corrected it shall be subject to re-verification to demonstrate conformity to the requirements.

Records of the nature of nonconformities and any subsequent actions taken, including concessions obtained, shall be maintained (see 4.2.4).

The intent of this clause in ISO 9001 is to control nonconforming products including prevention of use or delivery, except under concession to the customer or by re-verification after correction activities.

The related clauses in ISO/IEC 20000-1 are:

- 4.5.5.1 General (Maintain and improve the SMS (Act));
- 5.4 Transition of new or changed services;
- 8.1 Incident and service request management;
- 8.2 Problem management;
- 9.3 Release and deployment management.

This clause in ISO 9001 is product oriented and is easy to relate to hardware, software and industrial processes, but harder to relate to ongoing service delivery. Clause 4.5.5.1 of ISO/IEC 20000-1 includes requirements for the service provider to correct the cause of identified nonconformities and use corrective and preventive action as appropriate.

ISO/IEC 20000-1 includes the management of incidents and problems in Clauses 8.1 and 8.2 of ISO/IEC 20000-1. An incident is defined in ISO/IEC 20000-1 as 'unplanned interruption to a service, a reduction in the quality of a service or an event that has not yet impacted the service to the customer'. A

problem is defined as 'root cause of one or more incidents'. Nonconforming services are also controlled in other clauses as indicated.

The requirements of ISO 9001 for control of nonconforming product can be applied to service management. An existing service that does not meet the service requirements can be identified through measurement against service targets in service level management, through customer satisfaction measurement in the business relationship management process and through internal audit. Existing services which fail are captured and corrected through the incident and service request management process. The problem management process should be used to identify the root cause and the solution to prevent the recurrence of the nonconformity. New or changed services which do not conform to requirements are ideally captured and managed during the design or transition of the new or changed services in Clause 5.4 of ISO/IEC 20000-1 or in the release and deployment management process in Clause 9.3 of ISO/IEC 20000-1. Any changes made due to nonconforming products are subject to re-verification through Clause 5, 9.2 or 9.3 of ISO/IEC 20000-1.

#### 6.8.4 Analysis of data

##### 8.4 Analysis of data

The organization shall determine, collect and analyse appropriate data to demonstrate the suitability and effectiveness of the quality management system and to evaluate where continual improvement of the effectiveness of the quality management system can be made. This shall include data generated as a result of monitoring and measurement and from other relevant sources.

The analysis of data shall provide information relating to

- a) customer satisfaction (see 8.2.1),
- b) conformity to product requirements (see 8.2.4),
- c) characteristics and trends of processes and products, including opportunities for preventive action (see 8.2.3 and 8.2.4), and
- d) suppliers (see 7.4).

The intent of this clause in ISO 9001 is to determine, collect and analyse appropriate data to demonstrate the suitability and effectiveness of the QMS and to identify improvements. This clause is associated with a factual approach to decision making, one of the eight principles of quality management.

The related clauses in ISO/IEC 20000-1 are:

- 4.5.4.1 General (Monitor and review the SMS (Check));
- 4.5.5.1 General (Maintain and improve the SMS (Act));
- 6.2 Service reporting;
- 7.2 Supplier management.

Although there is no single clause in ISO/IEC 20000-1 for analysis of data, data identified in various clauses in ISO/IEC 20000-1 requires analysis and contributes to the effectiveness of the SMS. The results of the analysis of data are reported in the service reporting process. Clause 4.5.4.1 of ISO/IEC 20000-1 requires the collection of data from internal audits and management reviews. Clause 4.5.5.1 of ISO/IEC 20000-1 includes requirements for the collection of data about opportunities for improvement. Clause 6.2 of ISO/IEC 20000-1 includes requirements for service reporting using information from the delivery of services and the SMS activities. Clause 7.2 of ISO/IEC 20000-1 includes requirements for the recording of information about the performance of suppliers.

In addition to the processes listed, there are other clauses in ISO/IEC 20000-1 where reviews take place to analyse data which can identify opportunities for improvement to be managed by Clause 4.5.5.1 of ISO/IEC 20000-1. For example, the change management process analyses requests for change and the capacity management process analyses capacity data.

The requirements of ISO 9001 for analysis of data can be applied to service management. Data in service management is measured and analysed in various processes which can support the requirements of ISO 9001.

## 6.8.5 Improvement

### 6.8.5.1 Continual improvement

#### 8.5.1 Continual improvement

The organization shall continually improve the effectiveness of the quality management system through the use of the quality policy, quality objectives, audit results, analysis of data, corrective and preventive actions and management review.

The intent of this clause in ISO 9001 is to continually improve the effectiveness of the QMS. This clause is associated with continual improvement, one of the eight principles of quality management.

The related clauses in ISO/IEC 20000-1 are:

- 4.5.5.1 General (Maintain and improve the SMS (Act));
- 4.5.5.2 Management of improvements.

ISO/IEC 20000-1 also includes the concept of continual improvement as a fundamental principle. Clause 4.5.5.1 of ISO/IEC 20000-1 includes a requirement for a policy on continual improvement and a procedure for managing improvements. Clause 4.5.5.2 of ISO/IEC 20000-1 specifies requirements to prioritize, evaluate, plan and implement approved improvements.

In addition to the processes listed, there are other clauses in ISO/IEC 20000-1 where reviews take place to analyse data which can identify opportunities for improvement to be managed by Clause 4.5.5.1 of ISO/IEC 20000-1. For example, Clause 6.6.3 requires the service provider to review information security incidents to identify opportunities for improvement.

The requirements of ISO 9001 for continual improvement can be applied to service management.

### 6.8.5.2 Corrective action

#### 8.5.2 Corrective action

The organization shall take action to eliminate the causes of nonconformities in order to prevent recurrence. Corrective actions shall be appropriate to the effects of the nonconformities encountered.

A documented procedure shall be established to define requirements for

- a) reviewing nonconformities (including customer complaints),
- b) determining the causes of nonconformities,
- c) evaluating the need for action to ensure that nonconformities do not recur,
- d) determining and implementing action needed,
- e) records of the results of action taken (see 4.2.4), and
- f) reviewing the effectiveness of the corrective action taken.

The intent of this clause in ISO 9001 is to take corrective action to eliminate the causes of nonconformities in order to prevent recurrence.

The related clauses in ISO/IEC 20000-1 are:

- 4.5.5.1 General (Maintain and improve the SMS (Act));
- 4.5.5.2 Management of improvements;

— 8.2 Problem management.

ISO/IEC 20000-1 introduces corrective and preventive action as part of maintenance and improvement of the SMS.

It is important to realize that the definitions of corrective action differ between ISO 9001 and ISO/IEC 20000-1: See [Table 2](#) for an explanation of the differences. ISO/IEC 20000-1 also allows the reduction of the likelihood of recurrence as it is not always possible or justifiable to eliminate the cause of the nonconformity in service management.

The requirements of ISO 9001 for corrective action can be applied to service management. Service related corrective and preventive actions should be identified through the activities of the problem management process. This can identify the need for a change to be made through the change management process to fix the underlying cause of the problem. If the nonconformity is identified when it causes an incident, the incident should be managed using the incident and service request management process with the root cause of the nonconformity investigated using the problem management process. SMS related corrective actions are seen as part of SMS maintenance and improvement, in Clauses 4.5.5.1 and 4.5.5.2 of ISO/IEC 20000-1. Approved corrective actions should be controlled through the change management process.

**6.8.5.3 Preventive action**

**8.5.3 Preventive action**

The organization shall determine action to eliminate the causes of potential nonconformities in order to prevent their occurrence. Preventive actions shall be appropriate to the effects of the potential problems.

A documented procedure shall be established to define requirements for

- a) determining potential nonconformities and their causes,
- b) evaluating the need for action to prevent occurrence of nonconformities,
- c) determining and implementing action needed,
- d) records of results of action taken (see 4.2.4), and
- e) reviewing the effectiveness of the preventive action taken.

The intent of this clause in ISO 9001 is to take preventive action to eliminate the causes of potential nonconformities in order to prevent their occurrence.

The related clauses in ISO/IEC 20000-1 are:

- 4.5.5.1 General (Maintain and improve the SMS (Act));
- 4.5.5.2 Management of improvements;
- 8.2 Problem management.

ISO/IEC 20000-1 introduces corrective and preventive action as part of maintenance and improvement of the SMS. It is important to realize that the definitions of preventive action differ between ISO 9001 and ISO/IEC 20000-1: See [Table 2](#) for an explanation of the differences. ISO/IEC 20000-1 also allows the avoidance or reduction of the likelihood of occurrence as it is not always possible or justifiable to eliminate the cause of a potential nonconformity in service management.

The requirements of ISO 9001 for preventive action can be applied to service management. Service related preventive actions are part of problem management in service management. SMS related preventive actions are part of SMS maintenance and improvement in Clauses 4.5.5.1 and 4.5.5.2 of ISO/IEC 20000-1. Approved preventive actions should be controlled through the change management process.

## 7 Management system requirements in ISO/IEC 20000-1 and not in ISO 9001

### 7.1 Rationale for additional clauses and requirements in ISO/IEC 20000-1

There are some clauses which are similar in wording or intent between ISO 9001 and ISO/IEC 20000-1. Other clauses are either unique or different in either wording or intent in ISO 9001 and ISO/IEC 20000-1. This should be expected since each management system has a different focus as explained in [Clause 5](#) of this Technical Report.

There are no requirements in ISO 9001 specifically for capacity management, information security management, budgeting and accounting for services, and continuity and availability management. An organization can choose to include the requirements from these processes either as part of the processes required for the QMS (Clause 4.1 of ISO 9001) or as product requirements (Clause 7.2.1 of ISO 9001).

The comparison of requirements between ISO 9001 and ISO/IEC 20000-1 is shown in [Annexes A](#) and [B](#) of this Technical Report and a summary is shown in [Table 1](#).

### 7.2 Clauses of ISO/IEC 20000-1 not found in ISO 9001

The clauses in ISO/IEC 20000-1 with no similarity to requirements in ISO 9001 are:

a) ISO/IEC 20000-1, 6.3 Service continuity and availability management:

- 1) ISO 9001 does not include specific requirements for service continuity and availability management. The availability of services is critical. Without availability of the services, the customers cannot use the services to fulfil the service requirements. Service continuity and availability management plans and manages the availability of the services in normal circumstances. Service continuity and availability management also plans and manages availability when there is an abnormal situation preventing the normal access to services e.g. fire preventing usage of the data centre, flood preventing access to the buildings for service management staff;

b) ISO/IEC 20000-1, 6.4 Budgeting and accounting for services:

- 1) ISO 9001 does not include specific financial requirements. It is important to budget and account for services to balance the budget available with the ability to deliver service requirements. This process enables the service provider to make the costs of services visible to top management who can use this information as input to decision making for investment in services and service management;

c) ISO/IEC 20000-1, 6.5 Capacity management:

- 1) ISO 9001 does not include specific requirements for capacity management. Capacity management is essential for services to ensure that there is sufficient capacity to enable the services to be delivered. A lack of capacity can mean that the service stops or performs in a way that does not fulfil requirements. Capacity is considered in terms of human, technical, information and financial resources e.g. number of people to operate the service, network, data storage or budget. Capacity management plans and manages the capacity to ensure that the service can be delivered and that it performs as required;

d) ISO/IEC 20000-1, 6.6 Information security management:

- 1) ISO 9001 does not include specific requirements for information security management. This process in ISO/IEC 20000-1 is closely aligned to ISO/IEC 27001. Information security management requires an information security policy and objectives with risk assessments which drive controls to ensure security of information assets. For example, with so much data held on IT systems, the security of this information is a critical aspect of service management.

## Annex A (informative)

### Comparison of requirements between ISO 9001:2008 and ISO/ IEC 20000-1:2011

[Table A.1](#) shows a high level comparison of ISO 9001:2008 to ISO/IEC 20000-1:2011.

[Table 1](#) in [Clause 5](#) of this Technical Report shows a high level comparison of ISO 9001:2008 to ISO/IEC 20000-1:2011. [Table 1](#) shows the comparison of the clauses and sub-clauses down to the first level of ISO 9001:2008. It does not show the comparison for any lower sub-clauses e.g. 4.2.1, as in [Table A.1](#).

Clauses where there is a similarity of most of the requirements between ISO 9001:2008 and ISO/IEC 20000-1:2011 are in **bold** in [Table A.1](#). A closely related clause means that the majority of the requirements of ISO 9001 and ISO/IEC 20000-1 are similar. For example, Clause 5.3 of ISO 9001, quality policy, is closely related to Clause 4.1.2 of ISO/IEC 20000-1, service management policy, because they are almost the same wording.

Clauses where there is a similarity of only some of the requirements between ISO 9001:2008 and ISO/IEC 20000-1:2011 are in *underlined italics* in [Table A.1](#). A partially related clause means that only a minority of the requirements of ISO 9001 and ISO/IEC 20000-1 are similar. For example, Clause 8.2.1 of ISO 9001, customer satisfaction, is partially related to Clause 7.2 of ISO/IEC 20000-1, business relationship management, because it only relates to the last of 7 paragraphs of this process.

Clauses where there is no similarity between ISO 9001:2008 and ISO/IEC 20000-1:2011 are shown in normal text in [Table A.1](#) with 'nil' in the related columns.

**Table A.1 — Comparison of requirements between ISO 9001:2008 and ISO/IEC 20000-1:2011**

ISO 9001:2008	ISO/IEC 20000-1:2011		
<i>Scope</i>	1	1	Scope
<i>General</i>	1.1	1.1	General (Scope)
<i>Application</i>	1.2	1.2	Application
<i>Normative references</i>	2	2	Normative references
<i>Terms and definitions</i>	3	3	Terms and definitions
Quality management system	4		
<b>General requirements</b>	4.1	4.1.1	Management commitment
		4.2	Governance of processes operated by other parties
		4.4.1	Provision of resources
		4.5.2	Plan the SMS (Plan)
		4.5.3	Implement and operate the SMS (Do)
		4.5.4.1	General (Monitor and review the SMS (Check))
		4.5.5.2	Management of improvements
Documentation requirements	4.2		
<b>General</b>	4.2.1	4.3.1	Establish and maintain documents
<b>Quality manual</b>	4.2.2	4.5.1	Define scope
		4.5.2	Plan the SMS (Plan)

Table A.1 (continued)

ISO 9001:2008		ISO/IEC 20000-1:2011	
<b>Control of documents</b>	4.2.3	4.3.2	Control of documents
		9.1	Configuration management
<b>Control of records</b>	4.2.4	4.3.3	Control of records
Management responsibility	5		
<b>Management commitment</b>	5.1	4.1.1	Management commitment
<b>Customer focus</b>	5.2	4.1.4	Management representative
		4.4.1	Provision of resources
		7.1	Business relationship management
<b>Quality policy</b>	5.3	4.1.2	Service management policy
Planning	5.4		
Quality objective	5.4.1	nil	nil
<b>Quality management system planning</b>	5.4.2	4.1.1	Management commitment
Responsibility, authority and communication	5.5		
<b>Responsibility and authority</b>	5.5.1	4.1.3	Authority, responsibility and communication
<b>Management representative</b>	5.5.2	4.1.1	Management commitment
		4.1.4	Management representative
<b>Internal communication</b>	5.5.3	4.1.3	Authority, responsibility and communication
Management review	5.6		
<b>General</b>	5.6.1	4.5.4.1	General (Monitor and review the SMS (Check))
		4.5.4.3	Management review
<b>Review input</b>	5.6.2	4.5.4.3	Management review
<b>Review output</b>	5.6.3	4.5.4.3	Management review
Resource management	6		
<b>Provision of resources</b>	6.1	4.4.1	Provision of resources
Human resources	6.2		
<b>General</b>	6.2.1	4.4.2	Human Resources
<b>Competence, training and awareness</b>	6.2.2	4.4.2	Human Resources
<i>Infrastructure</i>	6.3	4.4.1	Provision of resources
Work environment	6.4	nil	nil
Product realization	7		
<i>Planning of product realization</i>	7.1	5.1	General (Design and transition of new or changed services)
		5.2	Plan new or changed services
Customer-related processes	7.2		

Table A.1 (continued)

ISO 9001:2008		ISO/IEC 20000-1:2011	
<u>Determination of requirements related to the product</u>	7.2.1	4.1.4 4.5.2 5.2 5.3 6.1 7.1	Management representative Plan the SMS (Plan) Plan new or changed services Design and development of new or changed services Service level management Business relationship management
<u>Review of requirements related to the product</u>	7.2.2	5.1 5.2 6.1 7.1 9.2	General (Design and transition of new or changed services) Plan new or changed service Service level management Business relationship management Change management
<u>Customer communication</u>	7.2.3	4.1.3 6.1 6.2 7.1 8.1	Authority, responsibility and communication Service level management Service reporting Business relationship management Incident and service request management
Design and development	7.3		
<u>Design and development planning</u>	7.3.1	5.2	Plan new or changed services
<u>Design and development inputs</u>	7.3.2	5.1 5.2 5.3	General (Design and transition of new or changed services) Plan new or changed services Design and development of new or changed services
<u>Design and development outputs</u>	7.3.3	5.1 5.2 5.3	General (Design and transition of new or changed services) Plan new or changed services Design and development of new or changed services
<u>Design and development review</u>	7.3.4	5.1 5.2 5.3	General (Design and transition of new or changed services) Plan new or changed services Design and development of new or changed services
<u>Design and development verification</u>	7.3.5	5.3 5.4 9.3	Design and development of new or changed services Transition of new or changed services Release and deployment management
<u>Design and development validation</u>	7.3.6	5.4 9.3	Transition of new or changed services Release and deployment management

Table A.1 (continued)

ISO 9001:2008		ISO/IEC 20000-1:2011	
<i>Control of design and development changes</i>	7.3.7	5.1	General (Design and transition of new or changed services)
		9.2	Change management
Purchasing	7.4		
<i>Purchasing process</i>	7.4.1	5.2	Plan new or changed services
		6.1	Service level management
		7.2	Supplier management
Purchasing information	7.4.2	nil	nil
<i>Verification of purchased product</i>	7.4.3	5.1	General (Design and transition of new or changed services)
		6.1	Service level management
		7.2	Supplier management
Product and service provision	7.5		
<i>Control of production and service provision</i>	7.5.1	4.5.3	Implement and operate the SMS (Do)
<i>Validation of processes for production and service provision</i>	7.5.2	4.5.2	Plan the SMS (Plan)
		5.3	Design and development of new or changed services
		5.4	Transition of new or changed services
		9.2	Change management
		9.3	Release and deployment management
<i>Identification and traceability</i>	7.5.3	5.1	General (Design and transition of new or changed services)
		9.1	Configuration management
		9.2	Change management
		9.3	Release and deployment management
Customer property	7.5.4	nil	nil
<i>Preservation of product</i>	7.5.5	5.1	General (Design and transition of new or changed services)
		5.4	Transition of new or changed services
		9.1	Configuration management
		9.3	Release and deployment management
<i>Control of monitoring and measuring equipment</i>	7.6	4.5.4.1	General (Monitor and review the SMS (Check))
		5.2	Plan new or changed services
		5.3	Design and development of new or changed services
		5.4	Transition of new or changed services
		6.2	Service reporting
		9.3	Release and deployment management
Measurement, analysis and improvement	8		

**Table A.1** (continued)

ISO 9001:2008		ISO/IEC 20000-1:2011	
<i>General</i>	8.1	4.5.2 4.5.4.1 4.5.5.1 4.5.5.2 6.1 6.2	Plan the SMS (Plan) General (Monitor and review the SMS (Check)) General (Maintain and improve the SMS (Act)) Management of improvements Service level management Service reporting
<i>Monitoring and measurement</i>	8.2		
<b>Customer satisfaction</b>	8.2.1	6.2 7.1	Service reporting Business relationship management
<b>Internal audit</b>	8.2.2	4.5.4.1 4.5.4.2	General (Monitor and review the SMS (Check)) Internal audit
<b>Monitoring and measurement of processes</b>	8.2.3	4.5.4.1 4.5.5.1	General (Monitor and review the SMS (Check)) General (Maintain and improve the SMS (Act))
<i>Monitoring and measurement of product</i>	8.2.4	4.5.4.1 5.4 6.2 9.3	General (Monitor and review the SMS (Check)) Transition of new or changed services Service reporting Release and deployment management
<i>Control of nonconforming product</i>	8.3	4.5.5.1 5.4 8.1 8.2 9.3	General (Maintain and improve the SMS (Act)) Transition of new or changed services Incident and service request management Problem management Release and deployment management
<i>Analysis of data</i>	8.4	4.5.4.1 4.5.5.1 6.2 7.2	General (Monitor and review the SMS (Check)) General (Maintain and improve the SMS (Act)) Service reporting Supplier management
<b>Improvement</b>	8.5		
<i>Continual improvement</i>	8.5.1	4.5.5.1 4.5.5.2	General (Maintain and improve the SMS (Act)) Management of improvements
<i>Corrective action</i>	8.5.2	4.5.5.1 4.5.5.2 8.2	General (Maintain and improve the SMS (Act)) Management of improvements Problem management
<i>Preventive action</i>	8.5.3	4.5.5.1 4.5.5.2 8.2	General (Maintain and improve the SMS (Act)) Management of improvements Problem management

## Annex B (informative)

### Comparison of requirements between ISO/IEC 20000-1:2011 and ISO 9001:2008

[Table B.1](#) shows a high level comparison of ISO/IEC 20000-1:2011 to ISO 9001:2008.

Clauses where there is a similarity of most of the requirements between ISO 9001:2008 and ISO/IEC 20000-1:2011 are in **bold** in [Table B.1](#). A closely related clause means that the majority of the requirements of ISO 9001 and ISO/IEC 20000-1 are similar. For example, Clause 5.3 of ISO 9001, quality policy, is closely related to Clause 4.1.2 of ISO/IEC 20000-1, service management policy, because they are almost the same wording.

Clauses where there is similarity of only some of the requirements between ISO 9001:2008 and ISO/IEC 20000-1:2011 are in *underlined italics* in [Table B.1](#). A partially related clause means that only a minority of the requirements of ISO 9001 and ISO/IEC 20000-1 are similar. For example, Clause 8.2.1 of ISO 9001, customer satisfaction, is partially related to Clause 7.2 of ISO/IEC 20000-1, business relationship management, because it only relates to the last of 7 paragraphs of this process.

Clauses where there is no similarity between ISO 9001:2008 and ISO/IEC 20000-1:2011 are shown in normal text in [Table B.1](#) with 'nil' in the related columns.

**Table B.1 — Comparison of requirements between ISO/IEC 20000-1:2011 and ISO 9001:2008**

ISO/IEC 20000-1:2011	1	1	ISO 9001:2008
<i>Scope</i>	1	1	Scope
<i>General</i>	1.1	1.1	General (Scope)
<i>Application</i>	<b>1.2</b>	1.2	Application
<i>Normative references</i>	2	2	Normative references
<i>Terms and definitions</i>	3	3	Terms and definitions
Service management system general requirements	4		
Management responsibility	4.1		
<b>Management commitment</b>	4.1.1	4.1 5.1 5.4.2 5.5.2	General requirements Management commitment Quality management system planning Management representative
<b>Service management policy</b>	4.1.2	5.3	Quality policy
<b>Authority, responsibility and communication</b>	4.1.3	5.5.1 5.5.3 7.2.3	Responsibility and authority Internal communication Customer communication
<b>Management representative</b>	4.1.4	5.2 5.5.2 7.2.1	Customer focus Management representative Determination of requirements related to product
<i>Governance of processes operated by other parties</i>	4.2	4.1	General requirements
Documentation management	4.3		

**Table B.1** (continued)

ISO/IEC 20000-1:2011		ISO 9001:2008	
<b>Establish and maintain documents</b>	4.3.1	4.2.1	General (Documentation requirements)
<b>Control of documents</b>	4.3.2	4.2.3	Control of documents
<b>Control of records</b>	4.3.3	4.2.4	Control of records
Resource management	4.4		
<b>Provision of resources</b>	4.4.1	4.1 5.2 6.1 6.3	General requirements Customer focus Provision of resources Infrastructure
<b>Human Resources</b>	4.4.2	6.2.1 6.2.2	General (Human resources) Competence, training and awareness
Establish and improve the SMS	4.5		
<i>Define scope</i>	4.5.1	4.2.2	Quality manual
<i>Plan the SMS (Plan)</i>	4.5.2	4.1 4.2.2 7.2.1 7.5.2 8.1	General requirements Quality manual Determination of requirements related to product Validation of processes for production and service provision General (Measurement, analysis and improvement)
<i>Implement and operate the SMS (Do)</i>	4.5.3	4.1 7.5.1	General requirements Control of production and service provision
<i>Monitor and review the SMS (Check)</i>	4.5.4		
<b>General</b>	4.5.4.1	4.1 5.6.1 7.6 8.1 8.2.2 8.2.3 8.2.4 8.4	General requirements General (Management review) Control of monitoring and measurement equipment General (Measurement, analysis and improvement) Internal audit Monitoring and measurement of processes Monitoring and measuring of product Analysis of data
<b>Internal audit</b>	4.5.4.2	8.2.2	Internal audit
<b>Management review</b>	4.5.4.3	5.6.1 5.6.2 5.6.3	General (Management review) Review input Review output
Maintain and improve the SMS (Act)	4.5.5		
<i>General</i>	4.5.5.1	8.1 8.2.3 8.3 8.4 8.5.1 8.5.2 8.5.3	General (Measurement, analysis and improvement) Monitoring and measurement of processes Control of nonconforming product Analysis of data Continual improvement Corrective action Preventive action