TECHNICAL SPECIFICATION

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Information technology — Process assessment — Process reference model for service management

Technologie de l'information — Évaluation des processus — Modèle de référence de processus pour la gestion des services

Contents

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.

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

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

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

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

This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information Technology*, Subcommittee SC 7, *Systems and Software Engineering*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document facilitates the development of a process assessment model (PAM) for service management described in ISO/IEC TS 33074.

A process reference model is a model comprising definitions of processes described in terms of process purpose and outcomes, together with an architecture describing the relationships between the processes. Using the process reference model in a practical application can require additional elements suited to the environment and circumstances.

The process reference model specified in this document describes the processes including the service management system (SMS) processes implied by ISO/IEC 20000-1. Each process of this process reference model provides traceability to requirements. The process reference model does not attempt to place the processes in any specific environment nor does it pre-determine any level of process capability required to fulfil the ISO/IEC 20000-1 requirements. The process reference model does not provide the evidence required to be conformant to the evidence requirements of ISO/IEC 20000-1. The process reference model is not intended to be used for a conformity assessment audit or as a process implementation reference guide.

ISO/IEC 33001 describes the concepts and terminology used for process assessment. ISO/IEC 33002 describes the requirements for conducting an assessment. ISO/IEC 33004 describes the requirements for process reference, process assessment and maturity models. ISO/IEC 33020 describes the measurement scale for assessing the process quality characteristic of process capability. ISO/IEC TR 24774 describes the common elements of processes.

The relationships between ISO/IEC 20000-1, ISO/IEC TR 24774, ISO/IEC 33002, ISO/IEC 33004, ISO/IEC 33020, this document and ISO/IEC TS 33074 are shown in Figure 1.
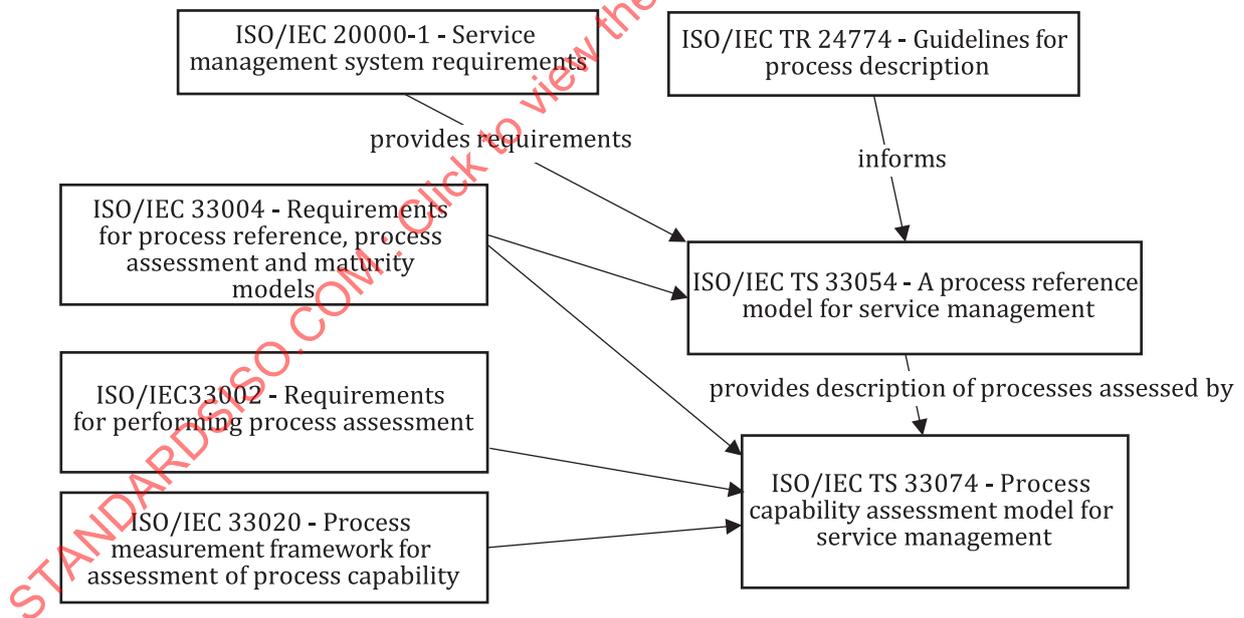
Figure 1 — Relationships between relevant standards

Clause 4 provides an overview of the process reference model.

Clause 5 describes the processes in the process reference model.

Annex A describes the relationship between management system requirements and process model elements.

Annex B provides the statement of conformity in accordance with ISO/IEC 33004.

This document replaces ISO/IEC TR 20000-4.

Information technology — Process assessment — Process reference model for service management

1   Scope

This document defines a process reference model for the domain of service management.

The model specifies a process architecture for the domain and comprises a set of processes. Each process is described in terms of process purpose and outcomes.

The process reference model in this document is directed at assessment sponsors and competent assessors who wish to select a model, and associated documented process method, for assessment (for either capability determination or process improvement).

2   Normative references

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

ISO/IEC 20000-10, *Information technology — Service management — Part 10: Concepts and vocabulary*

ISO/IEC 33001, *Information technology — Process assessment — Concepts and terminology*

3   Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 33001 and ISO/IEC 20000-10 apply.

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

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

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

4   Overview of the process reference model

This clause describes the structure of a process reference model to support service management. The process reference model includes processes, which can already exist in the context of a service management system of a service provider.

Figure 2 identifies the processes derived from ISO/IEC 20000-1 requirements.

Processes are grouped according to their primary purpose, namely, generic processes associated with the management system implementation, processes associated with technical aspects of service management, and organisational processes associated with management of service management activities.

NOTE   The model shown in Figure 2 covers all the requirements of ISO/IEC 20000-1 but the grouping is different.

The term "common processes" refers to those processes identified with the text within the management system sub-clauses that is common to all management system standards. The "leadership" process is also common to all management system standards.

Technical processes include those associated with the following groups:

— service delivery processes;

— service design, build and transition processes;

— resolution and fulfilment processes;

— service control processes;

— supply and demand processes;

— service assurance processes.

Organizational processes are those that include processes in the group "relationship and agreement processes".

Table A.2 shows the detailed traceability from ISO/IEC 20000-1:2018 to the process reference model outcomes.

Users of this document may freely reproduce the detailed descriptions contained in this process reference model as part of any tool or other material to support the performance of process assessments, so that it can be used for its intended purpose.

Leadership process
TOP.1 Leadership

Common processes

COM.01 Communication management	COM.02 Documentation management
COM.03 Human resource management	COM.04 Improvement
COM.05 Internal audit	COM.06 Management review
COM.07 Non-conformity management	COM.08 Operational planning
COM.09 Operational implementation and control	COM.10 Performance evaluation
COM.11 Risk management	

Relationship and agreement processes

RAA.1	Business relationship management	RAA.2	Service level management
RAA.3	Service reporting	RAA.4	Supplier management
RAA.5	Service catalogue management		

Service delivery process

SDE.1 Service delivery

Service design, build and transition processes

SDB.1	Service requirements
SDB.2	Service design
SDB.3	Service build and transition
SDB.4	Release and deployment management

Service control processes

SPC.1	Change management
SPC.2	Configuration management

Supply and demand processes

SAD.1	Budgeting and accounting for services
SAD.2	Demand management
SAD.3	Capacity management

Resolution and fulfilment processes

RAF.1	Incident management
RAF.2	Service request management
RAF.3	Problem management

Service assurance processes

SAS.1	Service availability management
SAS.2	Service continuity management
SAS.3	Information security management

Figure 2 — Processes in the process reference model

5 Process descriptions

5.1 General

The process descriptions in this process reference model are defined following the guidance provided in ISO/IEC TR 24774.

Each process in the process reference model has the following descriptive elements:

a) Process ID: Each process belonging to a group is identified with a process identifier consisting of the group abbreviated name and a sequential number of the process in that group.

b) Name: the name of a process is a short phrase that summarizes the scope of the process, identifying the principal concern of the process, and distinguishes it from other processes within the scope of the process reference model.

c) Purpose: the purpose of the process is a high level, overall goal for performing the process.

d) Outcomes: an outcome is an observable result of the successful achievement of the process purpose. Outcomes are measurable, tangible, technical or business results that are achieved by a process. Outcomes are observable and assessable.

e) Requirements traceability: the outcomes are based on the requirements of ISO/IEC 20000-1. The references identify the applicable subclauses of ISO/IEC 20000-1, the subclause heading, and the outcomes that are supported. (See A.6).

f) Number of outcomes: the set of process outcomes are necessary and sufficient to achieve the purpose of the process.

In 5.2 to 5.34, all entries in the requirements traceability row end with numbers in square brackets, (i.e. [n]). Each number in the square brackets is a reference to a numbered outcome. These outcomes are directly linked to the requirements of ISO/IEC 20000-1.

Some outcomes are shown in square brackets. These are only indirectly linked to requirements of ISO/IEC 20000-1. The outcomes in square brackets are not referenced by any of the entries in the requirements traceability row. These additional outcomes have been included because they are considered necessary in order for this type of process reference model to serve as the basis of the PAM (ISO/IEC TS 33074). With these additional outcomes, the process is complete and the process purpose can be achieved.

5.2 COM.01 Communication management

Process ID	COM.01
Name	Communication management
Purpose	The purpose of communication management is to produce timely and accurate information products to support effective communication and decision making.
Outcomes	As a result of successful implementation of this process: 1. Information content is defined in terms of identified communication requirements. 2. Parties to communicate with are identified. 3. The party responsible for the communication is identified. 4. Events that require communication actions are identified. 5. The channel for the communication is selected. 6. Information products are communicated to relevant interested parties.
Requirements traceability	ISO/IEC 20000-1:2018, 5.2.2 Communicating the service management policy [6] ISO/IEC 20000-1:2018, 6.2.1 Establish objectives [6] ISO/IEC 20000-1:2018, 7.4 Communication [1,2,3,4,5] ISO/IEC 20000-1:2018, 8.5.1.3 Change management activities [6] ISO/IEC 20000-1:2018, 8.5.2.3 Build and transition [6] ISO/IEC 20000-1:2018, 8.6.1 Incident management [6] ISO/IEC 20000-1:2018, 8.7.3.1 Information security policy [6] ISO/IEC 20000-1:2018, 9.2.2 [6] ISO/IEC 20000-1:2018, 9.4 Service reporting [6]

5.3 COM.02 Documentation management

Process ID	COM.02
Name	Documentation management
Purpose	The purpose of documentation management is to provide relevant, timely, complete, valid documented information to designated parties.
Outcomes	As a result of successful implementation of this process: 1. Documented information to be documented is identified. 2. The forms of documented information representation are defined. [3. The documented information content status is known.] 4. Documented information is current, complete and valid. 5. Documented information is released according to defined criteria. 6. Documented information is available to relevant interested parties. 7. Documented information is archived, or disposed of, as required.
Requirements traceability	ISO/IEC 20000-1:2018, 4.3 — Determining the scope of the service management system [4,6] ISO/IEC 20000-1:2018, 5.2.2 — Communicating the service management policy [1] ISO/IEC 20000-1:2018, 6.1.2 — [1] ISO/IEC 20000-1:2018, 6.2.1 — Establish objectives [1] ISO/IEC 20000-1:2018, 7.2 — Competence [1] ISO/IEC 20000-1:2018, 7.5.2 — Creating and updating documented information [1,2,4] ISO/IEC 20000-1:2018, 7.5.3.1 — [6] ISO/IEC 20000-1:2018, 7.5.3.2 — [1,4,6,7] ISO/IEC 20000-1:2018, 7.5.4 — Service management system documented information [1] ISO/IEC 20000-1:2018, 7.6 — Knowledge [1,4,6] ISO/IEC 20000-1:2018, 8.1 — Operational planning and control [1] ISO/IEC 20000-1:2018, 8.2.2 — Plan the services [1] ISO/IEC 20000-1:2018, 8.2.3.1 — [1] ISO/IEC 20000-1:2018, 8.2.4 — Service catalogue management [4,6] ISO/IEC 20000-1:2018, 8.2.6 — Configuration management [1,6] ISO/IEC 20000-1:2018, 8.3.2 — Business relationship management [1] ISO/IEC 20000-1:2018, 8.3.3 — Service level management [1] ISO/IEC 20000-1:2018, 8.3.4.1 — Management of external suppliers [1] ISO/IEC 20000-1:2018, 8.3.4.2 — Management of internal suppliers and customers acting as a supplier [1] ISO/IEC 20000-1:2018, 8.4.3 — Capacity management [1,4] ISO/IEC 20000-1:2018, 8.5.1.1 — Change management policy [1] ISO/IEC 20000-1:2018, 8.5.1.3 — Change management activities [1] ISO/IEC 20000-1:2018, 8.5.2.2 — Design [1] ISO/IEC 20000-1:2018, 8.5.3 — Release and deployment management [1,6] ISO/IEC 20000-1:2018, 8.6.1 — Incident management [4] ISO/IEC 20000-1:2018, 8.6.2 — Service request management [4,6] ISO/IEC 20000-1:2018, 8.6.3 — Problem management [4,6]

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Process ID	COM.02	
	ISO/IEC 20000-1:2018, 8.7.1	Service availability management [1]
	ISO/IEC 20000-1:2018, 8.7.2	Service continuity management [1,6]
	ISO/IEC 20000-1:2018, 8.7.3.1	Information security policy [1,5]
	ISO/IEC 20000-1:2018, 8.7.3.2	Information security controls [1,5]
	ISO/IEC 20000-1:2018, 9.1	Monitoring, measurement, analysis and evaluation [1]
	ISO/IEC 20000-1:2018, 9.2.2	[1]
	ISO/IEC 20000-1:2018, 9.3	Management review [1]
	ISO/IEC 20000-1:2018, 10.1.2	[1]
	ISO/IEC 20000-1:2018, 10.2	Continual improvement [1]

5.4 COM.03 Human resource management

Process ID	COM.03	
Name	Human resource management	
Purpose	The purpose of human resource management is to provide the organization with necessary competent human resources and to improve their competencies, in alignment with business needs.	
Outcomes	As a result of successful implementation of this process:	
	1. The competencies required by the organization to produce products and services are identified.	
	2. Identified competency gaps are filled through training or recruitment.	
	3. Understanding of roles and activities in achieving organisational objectives in product and service provision is demonstrated by each person.	
Requirements traceability	ISO/IEC 20000-1:2018, 7.2	Competence [1,2]
	ISO/IEC 20000-1:2018, 7.3	Awareness [3]

5.5 COM.04 Improvement

Process ID	COM.04	
Name	Improvement	
Purpose	The purpose of improvement is to continually improve the management system, its processes, products and services.	
Outcomes	As a result of successful implementation of this process:	
	1. Opportunities for improvement are identified.	
	2. Opportunities for improvement are evaluated against defined criteria.	
	3. Improvements are prioritised.	
	4. Improvements are implemented.	
	5. The effectiveness of implemented improvements is evaluated.	
Requirements traceability	ISO/IEC 20000-1:2018, 8.3.2	Business relationship management [1]
	ISO/IEC 20000-1:2018, 8.3.3	Service level management [1]
	ISO/IEC 20000-1:2018, 8.3.4.1	Management of external suppliers [1]
	ISO/IEC 20000-1:2018, 8.3.4.2	Management of internal suppliers and customers acting as a supplier [1]
	ISO/IEC 20000-1:2018, 8.5.1.3	Change management activities [1]
	ISO/IEC 20000-1:2018, 8.5.3	Release and deployment management [1]

Process ID	COM.04	
	ISO/IEC 20000-1:2018, 8.6.1	Incident management [1]
	ISO/IEC 20000-1:2018, 8.7.3.3	Information security incidents [1]
	ISO/IEC 20000-1:2018, 10.2	Continual improvement [2,3,4,5]

5.6 COM.05 Internal audit

Process ID	COM.05	
Name	Internal audit	
Purpose	The purpose of internal audit is to independently determine conformity of the management system, products, services, and processes to the requirements, policies, plans and agreements, as appropriate.	
Outcomes	As a result of successful implementation of this process: 1. The scope and purpose of each audit is defined. 2. The objectivity and impartiality of the conduct of audits and selection of auditors are assured. 3. Conformity of selected services, products and processes with requirements, plans and agreements is determined.	
Requirements traceability	ISO/IEC 20000-1:2018, 9.2.1	[3]
	ISO/IEC 20000-1:2018, 9.2.2	[1,2]

5.7 COM.06 Management review

Process ID	COM.06	
Name	Management review	
Purpose	The purpose of management review is to assess the performance of the management system, to identify and make decisions regarding potential improvements.	
Outcomes	As a result of successful implementation of this process: 1. The objectives of the review are established. 2. The status and performance of an activity or process are assessed in terms of the established objectives. 3. Risks, problems and opportunities for improvement are identified.	
Requirements traceability	ISO/IEC 20000-1:2018, 5.3	Organizational roles, responsibilities and authorities [2]
	ISO/IEC 20000-1:2018, 9.3	Management review [1,2,3]

5.8   COM.07 Non-conformity management

Process ID	COM.07
Name	Non-conformity management
Purpose	The purpose of the non-conformity management process is to resolve non-conformities and to eliminate their causes when appropriate.
Outcomes	As a result of successful implementation of this process: 1. Non-conformities are identified. 2. Non-conformities are resolved and closed. 3. The cause(s) of selected non-conformities is determined. 4. The need for action to eliminate the causes of non-conformities is evaluated. 5. A selected action proposal is implemented. 6. The effectiveness of changes to eliminate the non-conformities is confirmed.
Requirements traceability	ISO/IEC 20000-1:2018, 10.1.1 [1,2,3,4,5,6]

5.9   COM.08 Operational planning

Process ID	COM.08
Name	Operational planning
Purpose	The purpose of operational planning is to define the characteristics of all operational and organizational processes, and to plan their execution.
Outcomes	As a result of successful implementation of this process: 1. Process requirements are identified. [2. Process input and output products are determined.] 3. The set of activities that transform the inputs into outputs is determined. 4. The sequence and interaction of the process with other processes is determined. 5. The required competencies and roles for performing the process are identified. 6. The required resources for performing the process are identified. 7. Methods for monitoring the effectiveness and suitability of the process are determined. 8. Plans for the deployment of the process are developed.
Requirements traceability	ISO/IEC 20000-1:2018, 5.1 Leadership and commitment [4,5,6] ISO/IEC 20000-1:2018, 6.1.2 [1] ISO/IEC 20000-1:2018, 6.1.3 [4,8] ISO/IEC 20000-1:2018, 6.2.2 Plan to achieve objectives [1,4,6,7] ISO/IEC 20000-1:2018, 6.3 Plan the service management system [5,6,7,8] ISO/IEC 20000-1:2018, 7.1 Resources [6] ISO/IEC 20000-1:2018, 8.1 Operational planning and control [7] ISO/IEC 20000-1:2018, 8.2.6 Configuration management [8] ISO/IEC 20000-1:2018, 8.3.2 Business relationship management [8] ISO/IEC 20000-1:2018, 8.3.3 Service level management [8] ISO/IEC 20000-1:2018, 8.3.4.1 Management of external suppliers [8]

Process ID	COM.08	
	ISO/IEC 20000-1:2018, 8.3.4.2	Management of internal suppliers and customers acting as a supplier [8]
	ISO/IEC 20000-1:2018, 8.4.1	Budgeting and accounting for services [8]
	ISO/IEC 20000-1:2018, 8.4.2	Demand management [8]
	ISO/IEC 20000-1:2018, 8.5.1.2	Change management initiation [1]
	ISO/IEC 20000-1:2018, 8.5.1.3	Change management activities [8]
	ISO/IEC 20000-1:2018, 8.5.2.1	Plan new or changed services [8]
	ISO/IEC 20000-1:2018, 8.5.2.3	Build and transition [1]
	ISO/IEC 20000-1:2018, 8.5.3	Release and deployment management [8]
	ISO/IEC 20000-1:2018, 8.6.3	Problem management [1,3,7,8]
	ISO/IEC 20000-1:2018, 8.7.1	Service availability management [8]
	ISO/IEC 20000-1:2018, 8.7.2	Service continuity management [8]
	ISO/IEC 20000-1:2018, 8.7.3.2	Information security controls [8]
	ISO/IEC 20000-1:2018, 9.1	Monitoring, measurement, analysis and evaluation [1]
	ISO/IEC 20000-1:2018, 9.2.1	[8]
	ISO/IEC 20000-1:2018, 9.2.2	[8]
	ISO/IEC 20000-1:2018, 9.3	Management review [8]
	ISO/IEC 20000-1:2018, 10.2	Continual improvement [1,7]

5.10 COM.09 Operational implementation and control

Process ID	COM.09	
Name	Operational implementation and control	
Purpose	The purpose of operational implementation and control is to deploy and control the execution and performance of operational and organizational processes.	
Outcomes	As a result of successful implementation of this process:	
	1. The required roles, responsibilities and authorities are allocated.	
	2. The required resources are allocated and applied.	
	3. Actions required to achieve the management system objectives are implemented.	
	4. Suitability and effectiveness of the actions taken to achieve the management system objectives are reviewed.	
	5. Deviations from planned arrangements are corrected when targets are not achieved.	
	6. Data is collected and analysed as a basis for understanding the behaviour of, and to demonstrate the suitability and effectiveness of the processes.	
Requirements traceability	ISO/IEC 20000-1:2018, 5.1	Leadership and commitment [1]
	ISO/IEC 20000-1:2018, 5.3	Organizational roles, responsibilities and authorities [1]
	ISO/IEC 20000-1:2018, 6.1.1	[3]
	ISO/IEC 20000-1:2018, 6.2.2	Plan to achieve objectives [1]
	ISO/IEC 20000-1:2018, 7.1	Resources [2]
	ISO/IEC 20000-1:2018, 8.1	Operational planning and control [3,5]
	ISO/IEC 20000-1:2018, 8.2.1	Service Delivery [3]
	ISO/IEC 20000-1:2018, 8.3.2	Business relationship management [1,5]
	ISO/IEC 20000-1:2018, 8.3.4.1	Management of external suppliers [1]
	ISO/IEC 20000-1:2018, 8.5.1.3	Change management activities [4,5]

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Process ID	COM.09	
	ISO/IEC 20000-1:2018, 8.5.3	Release and deployment management [4]
	ISO/IEC 20000-1:2018, 8.6.1	Incident management [1,3,4]
	ISO/IEC 20000-1:2018, 8.6.3	Problem management [4]
	ISO/IEC 20000-1:2018, 9.3	Management review [6]
	ISO/IEC 20000-1:2018, 9.4	Service reporting [5]
	ISO/IEC 20000-1:2018, 10.2	Continual improvement [3]

5.11 COM.10 Performance evaluation

Process ID	COM.10	
Name	Performance evaluation	
Purpose	The purpose of performance evaluation is to collect and analyse data that will be used to evaluate the performance of the management system and the business processes in terms of the defined objectives.	
Outcomes	As a result of successful implementation of this process: 1. Performance monitoring and measurement needs are defined. 2. Performance measures, derived from the performance measurement needs, are identified. 3. Performance measurement methods, supportive of the performance measures, are identified. 4. Data is collected using the identified performance measurement methods. 5. The collected performance data is analysed.	
Requirements traceability	ISO/IEC 20000-1:2018, 6.1.3	[5]
	ISO/IEC 20000-1:2018, 6.2.1	Establish objectives [4]
	ISO/IEC 20000-1:2018, 8.2.3.2	[3]
	ISO/IEC 20000-1:2018, 8.3.2	Business relationship management [4,5]
	ISO/IEC 20000-1:2018, 8.5.1.3	Change management activities [5]
	ISO/IEC 20000-1:2018, 8.5.3	Release and deployment management [1,5]
	ISO/IEC 20000-1:2018, 8.7.3.3	Information security incidents [5]
	ISO/IEC 20000-1:2018, 9.1	Monitoring, measurement, analysis and evaluation [2,3,5]

5.12 COM.11 Risk management

Process ID	COM.11
Name	Risk management
Purpose	The purpose of risk management is to identify, analyse, evaluate, treat and monitor risks.
Outcomes	As a result of successful implementation of this process: 1. Criteria for the assessment of risks and the acceptable level of risk are identified. 2. Risks are identified. [3. Identified risks are analysed.] 4. Risks are evaluated against defined criteria. [5. Risks are selected for treatment.] 6. Selected risks are treated.
Requirements traceability	ISO/IEC 20000-1:2018, 6.1.2 [1,2,4] ISO/IEC 20000-1:2018, 6.1.3 [6] ISO/IEC 20000-1:2018, 8.3.4.1 Management of external suppliers [2] ISO/IEC 20000-1:2018, 8.7.1 Service availability management [2] ISO/IEC 20000-1:2018, 8.7.2 Service continuity management [2] ISO/IEC 20000-1:2018, 8.7.3.2 Information security controls [2]

5.13 RAA.1 Business relationship management

Process ID	RAA.1
Name	Business relationship management
Purpose	The purpose of business relationship management is to identify and manage customer needs and expectations, and to manage customer satisfaction.
Outcomes	As a result of successful implementation of this process: 1. Needs and expectations of customers, users and other interested parties are identified. 2. Customer satisfaction is measured. 3. Service complaints are managed through their lifecycle to closure. 4. Service performance trends and outcomes are reviewed.
Requirements traceability	ISO/IEC 20000-1:2018, 4.2 Understanding the needs and expectations of interested parties [1] ISO/IEC 20000-1:2018, 8.3.2 Business relationship management [1,2,3,4]

5.14 RAA.2 Service level management

Process ID	RAA.2
Name	Service level management
Purpose	The purpose of service level management is to ensure that agreed service level targets for each customer are met.
Outcomes	As a result of successful implementation of this process: 1. Service level targets, workload characteristics and exceptions for services are defined in service level agreements. 2. Service performance is monitored against service level agreements.
Requirements traceability	ISO/IEC 20000-1:2018, 8.3.3 Service level management [1,2]

5.15 RAA.3 Service reporting

Process ID	RAA.3	
Name	Service reporting	
Purpose	The purpose of service reporting is to produce timely and accurate service reports to support effective communication and to make informed decisions.	
Outcomes	As a result of successful implementation of this process: 1. The service reporting needs are identified. 2. Service report content is defined to support identified service reporting needs and requirements. 3. Service reports are produced according to the service report requirements.	
Requirements traceability	ISO/IEC 20000-1:2018, 5.3	Organizational roles, responsibilities and authorities [3]
	ISO/IEC 20000-1:2018, 8.3.3	Service level management [3]
	ISO/IEC 20000-1:2018, 8.4.1	Budgeting and accounting for services [3]
	ISO/IEC 20000-1:2018, 8.4.2	Demand management [3]
	ISO/IEC 20000-1:2018, 8.6.3	Problem management [3]
	ISO/IEC 20000-1:2018, 8.7.2	Service continuity management [3]
	ISO/IEC 20000-1:2018, 8.7.3.3	Information security incidents [3]
	ISO/IEC 20000-1:2018, 9.4	Service reporting [1,2]
	ISO/IEC 20000-1:2018, 10.2	Continual improvement [3]

5.16 RAA.4 Supplier management

Process ID	RAA.4	
Name	Supplier management	
Purpose	The purpose of supplier management is to ensure supplier products/services/systems are selected, managed and integrated into the delivered services to meet the agreed requirements	
Outcomes	As a result of successful implementation of this process: 1. Criteria are identified for the selection of suppliers. 2. Services to be provided are defined and negotiated with each supplier. 3. Roles and relationships between suppliers are determined. 4. Supplier obligations to meet requirements are monitored. 5. Supplier performance against agreed criteria is monitored and managed.	
Requirements traceability	ISO/IEC 20000-1:2018, 8.1	Operational planning and control [4]
	ISO/IEC 20000-1:2018, 8.2.3.1	[1,2]
	ISO/IEC 20000-1:2018, 8.3.4.1	Management of external suppliers [2,3,4,5]
	ISO/IEC 20000-1:2018, 8.3.4.2	Management of internal suppliers and customers acting as a supplier [2,5]

5.17 RAA.5 Service catalogue management

Process ID	RAA.5	
Name	Service catalogue management	
Purpose	The purpose of service catalogue management is to create and maintain one or more service catalogues that includes the information required by the organization, customers, users and other interested parties to describe the services, the dependencies and the intended outcomes of the services.	
Outcomes	As a result of successful implementation of this process: 1. Service catalogue content is defined. 2. Service catalogue content is developed.	
Requirements traceability	ISO/IEC 20000-1:2018, 8.2.4	Service catalogue management [1,2]

5.18 RAF.1 Incident management

Process ID	RAF.1
Name	Incident management
Purpose	The purpose of incident management is to restore the service as soon as possible and within agreed service level targets in order to minimize the impact on business operations.
Outcomes	As a result of successful implementation of this process: 1. Incidents are recorded and classified. 2. Criteria are identified for major incidents. 3. Incidents are prioritized. 4. Incidents are escalated, where needed. 5. Incidents are resolved. 6. Incidents are closed.
Requirements traceability	ISO/IEC 20000-1:2018, 8.6.1 Incident management [1,2,3,4,5,6]

5.19 RAF.2 Service request management

Process ID	RAF.2
Name	Service request management
Purpose	The purpose of service request management is to fulfil service requests within agreed service level targets.
Outcomes	As a result of successful implementation of this process: 1. Service requests are recorded and classified. 2. Service requests are prioritized. 3. Service requests are fulfilled. 4. Service requests are closed.
Requirements traceability	ISO/IEC 20000-1:2018, 8.6.2 Service request management [1,2,3,4]

5.20 RAF.3 Problem management

Process ID	RAF.3
Name	Problem management
Purpose	The purpose of problem management is to minimise service disruption by eliminating recurring incidents and minimizing the impact of incidents that cannot be prevented.
Outcomes	As a result of successful implementation of this process: 1. Known errors are recorded. 2. Problems are recorded and classified. 3. Problems are prioritized. 4. Problems are escalated, if needed. 5. Problems are resolved, if possible. 6. The impacts of problems are minimized, where possible. 7. Problems are closed.
Requirements traceability	ISO/IEC 20000-1:2018, 8.6.3 Problem management [1,2,3,4,5,6,7]

5.21 SAD.1 Budgeting and accounting for services

Process ID	SAD.1
Name	Budgeting and accounting for services
Purpose	The purpose of budgeting and accounting for services is to perform activities of budgeting and accounting to ensure visibility and control of financial resources for service provision.
Outcomes	As a result of successful implementation of this process: 1. Budgets are produced using cost estimates. 2. Costs are monitored against budget.
Requirements traceability	ISO/IEC 20000-1:2018, 8.4.1 Budgeting and accounting for services [1,2]

5.22 SAD.2 Demand management

Process ID	SAD.2
Name	Demand management
Purpose	The purpose of demand management is to determine current and future customer demand for services so that the organization can align and adjust capacity as needed.
Outcomes	As a result of successful implementation of this process: 1. Current demand and consumption of services is identified. 2. Future demand for services is forecast. 3. Demand and consumption of services is monitored.
Requirements traceability	ISO/IEC 20000-1:2018, 8.4.2 Demand management [1,2,3]

5.23 SAD.3 Capacity management

Process ID	SAD.3
Name	Capacity management
Purpose	The purpose of capacity management is to ensure that the organization has capacity to meet current and future demands for services and performance requirements.
Outcomes	As a result of successful implementation of this process: 1. Capacity requirements for human, technical, information and financial resources is determined. 2. Current and future capacity is planned to meet the demand. 3. Sufficient capacity is provided to meet capacity and performance requirements. 4. Capacity usage is monitored and analysed.
Requirements traceability	ISO/IEC 20000-1:2018, 8.4.3 Capacity management [1,2,3,4]

5.24 SAS.1 Service availability management

Process ID	SAS.1
Name	Service availability management
Purpose	The purpose of service availability management is to ensure that agreed service availability requirements and targets, based on business requirements, service requirements, service levels and identified risks, will be met.
Outcomes	As a result of successful implementation of this process: 1. Service availability requirements and targets are identified. 2. Service availability is monitored and recorded. 3. Causes of unplanned service non-availability are identified and analysed, and necessary actions taken.
Requirements traceability	ISO/IEC 20000-1:2018, 8.7.1 Service availability management [1,2,3]

5.25 SAS.2 Service continuity management

Process ID	SAS.2
Name	Service continuity management
Purpose	The purpose of service continuity management is to ensure that agreed service continuity requirements can be met within agreed targets and disrupted services can be resumed.
Outcomes	As a result of successful implementation of this process: 1. Service continuity requirements are identified. 2. Service continuity is planned to meet the service continuity requirements. 3. Service continuity plans are tested against service continuity requirements. 4. Service continuity is evaluated against the service continuity requirements. 5. Any identified deficiencies in the service continuity planning are addressed.
Requirements traceability	ISO/IEC 20000-1:2018, 8.7.2 Service continuity management [1,2,3,4,5]

5.26 SAS.3 Information security management

Process ID	SAS.3
Name	Information security management
Purpose	The purpose of information security management is to protect the confidentiality, integrity and availability of information relevant to the services at an agreed level within all service management activities.
Outcomes	As a result of successful implementation of this process: 1. Information security requirements are identified. 2. Criteria for the assessment of information security risks and the acceptable level of risk are identified. 3. Information security controls are defined. 4. Information security controls are implemented. 5. Security incidents are identified, resolved and closed. 6. Information security controls address identified information security risks. 7. The effectiveness of controls is monitored, reviewed and revised.
Requirements traceability	ISO/IEC 20000-1:2018, 6.1.2 [2] ISO/IEC 20000-1:2018, 8.7.3.1 Information security policy [1] ISO/IEC 20000-1:2018, 8.7.3.2 Information security controls [3,4,6,7] ISO/IEC 20000-1:2018, 8.7.3.3 Information security incidents [5]

5.27 SDB.1 Service requirements definition

Process ID	SDB.1
Name	Service requirements definition
Purpose	The purpose of service requirements definition is to establish, agree and maintain the requirements for services and align them with business needs.
Outcomes	As a result of successful implementation of this process: 1. The requirements for the service are defined. 2. The criticality, dependencies and duplication of services is identified. 3. Service requirements are continually aligned with business needs.
Requirements traceability	ISO/IEC 20000-1:2018, 8.2.2　　　Plan the services [1,2,3] ISO/IEC 20000-1:2018, 8.3.2　　　Business relationship management [3]

5.28 SDB.2 Service design

Process ID	SDB.2
Name	Service design
Purpose	The purpose of service design is to design new or changed services that fulfil service requirements.
Outcomes	As a result of successful implementation of this process: 1. New or changed services are designed to meet service requirements. 2. A design specification that defines the attributes of the new or changed service is prepared.
Requirements traceability	ISO/IEC 20000-1:2018, 8.5.2.2　　Design [1,2]

5.29 SDB.3 Service build and transition

Process ID	SDB.3
Name	Service build and transition
Purpose	The purpose of service build and transition is to make the new or changed services operational.
Outcomes	As a result of successful implementation of this process: 1. New or changed services are built according to the design specification. 2. The new or changed services are tested against the service requirements. 3. The new or changed services are accepted in accordance with the service acceptance criteria.
Requirements traceability	ISO/IEC 20000-1:2018, 8.2.2　　　Plan the services [3] ISO/IEC 20000-1:2018, 8.5.2.3　　Build and transition [1,2,3]

5.30 SDB.4 Release and deployment management

Process ID	SDB.4
Name	Release and deployment management
Purpose	The purpose of release and deployment management is to deploy releases into the live environment in a controlled manner.
Outcomes	As a result of successful implementation of this process: 1. Types of releases and their management are defined. 2. Release acceptance criteria are defined. 3. Releases are tested in accordance with defined criteria. 4. Approved releases are deployed.
Requirements traceability	ISO/IEC 20000-1:2018, 8.5.3　　　Release and deployment management [1,2,3,4]

5.31 SDE.1 Service delivery

Process ID	SDE.1
Name	Service delivery
Purpose	The purpose of service delivery is to provide customers with services that meet agreed requirements.
Outcomes	As a result of successful implementation of this process: 1. Customer for a service are identified. 2. A response to the customer's request for services is produced. 3. An agreement between the customer and organization is established. 4. A service is provided according to the agreement. 5. Organizational obligations defined in the agreement are satisfied.
Requirements traceability	ISO/IEC 20000-1:2018, 8.2.1　　　Service delivery [4] ISO/IEC 20000-1:2018, 8.2.2　　　Plan the services [2] ISO/IEC 20000-1:2018, 8.3.2　　　Business relationship management [1] ISO/IEC 20000-1:2018, 8.3.3　　　Service level management [3,5] ISO/IEC 20000-1:2018, 8.5.1.2　　Change management initiation [2]

5.32 SPC.1 Change management

Process ID	SPC.1
Name	Change management
Purpose	The purpose of change management is to ensure all changes are assessed, approved and implemented in a controlled manner.
Outcomes	As a result of successful implementation of this process: 1. Change requests are recorded and classified. 2. Change requests are analysed. 3. Criteria for evaluating changes are defined. 4. Changes are evaluated using defined criteria. 5. Changes that meet defined criteria are implemented and verified. 6. Changes that do not meet defined criteria are reversed or remedied.
Requirements traceability	ISO/IEC 20000-1:2018, 8.1 Operational planning and control [2] ISO/IEC 20000-1:2018, 8.3.4.1 Management of external suppliers [2] ISO/IEC 20000-1:2018, 8.5.1.1 Change management policy [3] ISO/IEC 20000-1:2018, 8.5.1.2 Change management initiation [1,4] ISO/IEC 20000-1:2018, 8.5.1.3 Change management activities [4,5,6]

5.33 SPC.2 Configuration management

Process ID	SPC.2
Name	Configuration management
Purpose	The purpose of configuration management is to identify and control all identified service components and to maintain accurate configuration information to support other service management activities.
Outcomes	As a result of successful implementation of this process: 1. Items requiring configuration management are identified. 2. The relationship between configuration items is determined. 3. The status of configuration items and modifications is identified. 4. Changes to items under configuration management are controlled. 5. The integrity of systems, products/services and product/service components is assured.
Requirements traceability	ISO/IEC 20000-1:2018, 8.2.6 Configuration management [1,2,3,4,5] ISO/IEC 20000-1:2018, 8.5.2.1 Plan new or changed services [1] ISO/IEC 20000-1:2018, 8.5.3 Release and deployment management [4]

5.34 TOP.01 Leadership

Process ID	TOP.01
Name	Leadership
Purpose	The purpose of leadership is to direct the organization in the achievement of its vision, mission, strategy and goals, through assuring the definition of a management system, a management system policy, and management system objectives.
Outcomes	As a result of successful implementation of this process: 1. The context of the organization, including the expectations of its relevant interested parties, are understood and analysed. 2. The scope of management system activities is defined, taking the context of the organization into consideration. 3. The management system policy and objectives are defined. 4. The management system and operational process strategy is determined. 5. Commitment and leadership with respect to the management system is demonstrated.
Requirements traceability	ISO/IEC 20000-1:2018, 4.1 — Understanding the organization and its context [1] ISO/IEC 20000-1:2018, 4.2 — Understanding the needs and expectations of interested parties [1] ISO/IEC 20000-1:2018, 4.3 — Determining the scope of the service management system [2] ISO/IEC 20000-1:2018, 4.4 — Service management system [4] ISO/IEC 20000-1:2018, 5.1 — Leadership and commitment [3,4,5] ISO/IEC 20000-1:2018, 5.2.1 — Establishing the service management policy [3] ISO/IEC 20000-1:2018, 6.1.1 — [4] ISO/IEC 20000-1:2018, 6.2.1 — Establish objectives [3] ISO/IEC 20000-1:2018, 7.5.1 — General [4] ISO/IEC 20000-1:2018, 8.2.3.1 — [5] ISO/IEC 20000-1:2018, 8.2.3.2 — [5] ISO/IEC 20000-1:2018, 8.2.5 — Asset management [4] ISO/IEC 20000-1:2018, 8.3.1 — General [4] ISO/IEC 20000-1:2018, 8.3.2 — Business relationship management [4] ISO/IEC 20000-1:2018, 8.5.1.1 — Change management policy [4] ISO/IEC 20000-1:2018, 8.7.3.1 — Information security policy [4] ISO/IEC 20000-1:2018, 10.2 — Continual improvement [4]

Annex A
(informative)

The relationship between management system requirements and a process reference model

A.1 General

This annex examines the similarities, differences and relationships between a service management system used in ISO/IEC 20000-1 and the process reference model in this document.

ISO/IEC 20000-1 has been prepared to specify requirements for establishing, implementing, maintaining and continually improving an SMS. An SMS supports the management of the service lifecycle, including the planning, design, transition, delivery and improvement of services, which meet agreed requirements and deliver value for customers, users and the organization delivering the services.

Process reference models are used as a basis for developing process assessment models that are used to assess process capability. A consistent description of processes within and across process reference models allows the combination of processes from different reference models that can ease the development of new models and facilitate comparison of models.

A.2 Processes and process models

A.2.1 Process seen in terms of inputs and outputs

For an organization to function effectively, it has to determine and manage numerous linked activities. An activity or set of activities using resources, and managed in order to enable the transformation of inputs into outputs, can be considered a process. Often the output from one process forms the input to the next as shown in Figure A.1.

NOTE   The definition of process in ISO/IEC 20000-1 is a set of interrelated or interacting activities that use inputs to deliver an intended result.
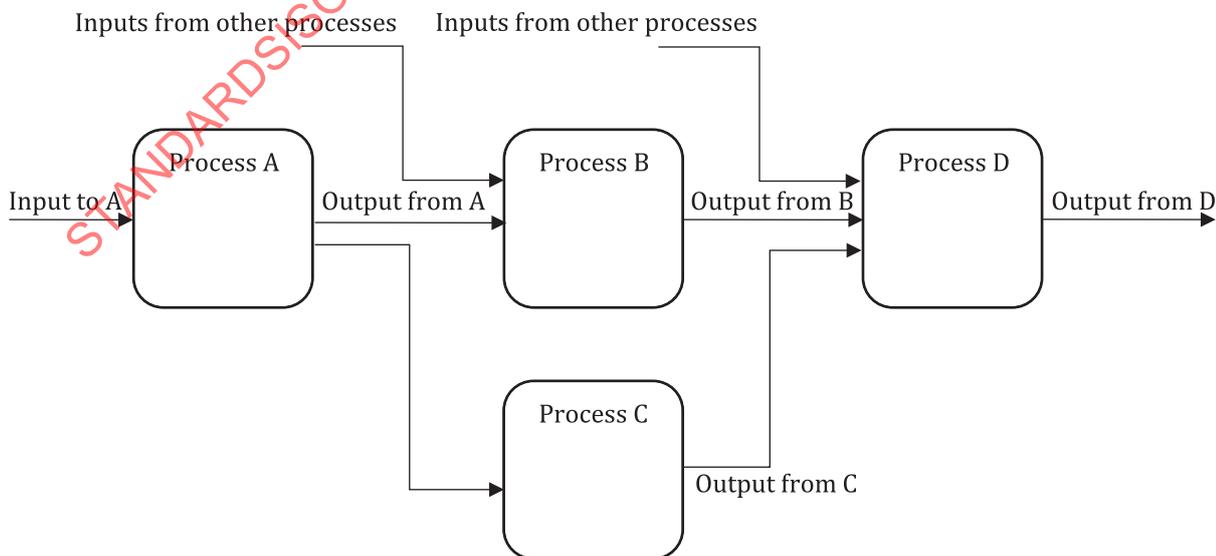
Figure A.1 — Process seen as a transformation of inputs to outputs

A.2.2 Using a process reference model as a basis for understanding capability

Capability is defined in ISO 9000 as the "ability of an object to realize an output that will fulfil the requirements for that output". In ISO/IEC 33020, process capability is considered to be "a characterization of the ability of a process to meet current or projected business goals".

ISO/IEC 33002 focuses upon process outcomes, which are defined to be "observable results of a process". ISO/IEC TR 24774 elaborates with a definition of a process outcome as "an observable result of the successful achievement of the process purpose". Outcomes are measurable, tangible, technical or business results that are achieved by a process, for example the results that are used by other processes. Outcomes are observable and assessable for a specific process. ISO/IEC 33004 indicates that "The set of process outcomes shall be necessary and sufficient to achieve the purpose of that process".

A.3 The nature of requirements for a management system

ISO/IEC 20000-10 defines requirements as a "need or expectation that is stated, generally implied or obligatory".

NOTE   In the context of an SMS, service requirements are documented and agreed rather than generally implied. There can also be other requirements such as legal and regulatory requirements.

A.4 The relationship of requirements to a process reference model

The process reference model describes individual processes whereas ISO/IEC 20000-1 specifies requirements for an SMS. Processes are instantiated within an organization — often within a management system.

Management system standards include general requirements and specific requirements. They include specific requirements for a process including requirements for the interaction of processes.

A.5 Illustrative example

A.5.1 General

An example is presented to explain the relationship between the requirements perspective of processes (i.e. from the viewpoint of ISO/IEC 20000-1), and the process perspective of ISO/IEC 33002. The example is that of the internal audit process. This process is well understood in terms of its expected outcomes (i.e. in terms of the needs of conformity assessment) and it also has a comprehensive set of requirements in ISO/IEC 20000-1.

A.5.2 Internal audit requirements and the internal audit process

Each process in 5.2 to 5.33 is supported by a requirements traceability section. This section provides information about requirements that are supported by the process outcomes in this document. In many cases, the process outcomes are supported by requirements from several subclauses, indicating that requirements for a process that is implemented within an SMS are generally wider than the headline subclause associated with it.

Table A.1 illustrates the relationship between the process reference model process perspective (i.e. as indicated by the outcomes) and the requirements perspective, as indicated by the defined requirements.

Table A.1 — The internal audit process: process outcome and requirements perspective

	Requirements perspective	ISO/IEC 20000-1 subclause	Process	Process name and outcome
a)	1) The organization shall conduct internal audits [at planned intervals] to provide information on whether the SMS: a) conforms to: 1) the organization's own requirements for its SMS;	9.2.1	COM.05	**Internal audit** 3. Conformity of selected services, products and processes with requirements, plans and agreements is determined.
a)	2) The organization shall conduct internal audits [at planned intervals] to provide information on whether the SMS: a) conforms to: 2) the requirements of this document;	9.2.1	COM.05	**Internal audit** 3. Conformity of selected services, products and processes with requirements, plans and agreements is determined.
b)	The organization shall conduct internal audits [at planned intervals] to provide information on whether the SMS:b) is effectively implemented and maintained.	9.2.1	COM.05	**Internal audit** 3. Conformity of selected services, products and processes with requirements, plans and agreements is determined.
	[The organization shall conduct internal audits] at planned intervals [to provide information.	9.2.1	COM.08	**Operational planning** 8. Plans for the deployment of the process are developed.
a)	1) The organization shall: a) plan, establish, implement and maintain an audit programme(s), including the frequency, methods, responsibilities, planning requirements and reporting, which shall take into consideration: 1) the importance of the processes concerned;	9.2.2	COM.08	**Operational planning** 8. Plans for the deployment of the process are developed.
a)	2) The organization shall: a) plan, establish, implement and maintain an audit programme(s), including the frequency, methods, responsibilities, planning requirements and reporting, which shall take into consideration: 2) changes affecting the organization;	9.2.2	COM.08	**Operational planning** 8. Plans for the deployment of the process are developed.
a)	3) The organization shall: a) plan, establish, implement and maintain an audit programme(s), including the frequency, methods, responsibilities, planning requirements and reporting, which shall take into consideration: 3) the results of previous audits;	9.2.2	COM.08	**Operational planning** 8. Plans for the deployment of the process are developed.
b)	The organization shall: b) define the audit criteria and scope for each audit;	9.2.2	COM.05	**Internal audit** 1. The scope and purpose of each audit is defined.
c)	The organization shall: c) select auditors and conduct audits to ensure objectivity and the impartiality of the audit process;	9.2.2	COM.05	**Internal audit** 2. The objectivity and impartiality of the conduct of audits and selection of auditors are assured.

Table A.1 *(continued)*

	Requirements perspective	ISO/IEC 20000-1 subclause	Process	Process name and outcome
d)	The organization shall: d) ensure that the results of the audits are reported to relevant management;	9.2.2	COM.01	**Communication management** 6. Information products are communicated to relevant interested parties.
e)	The organization shall: e) retain documented information as evidence of the implementation of the audit programme and the audit results.	9.2.2	COM.02	**Documentation management** 1. Documented information to be documented is identified.

A.6 Mapping of requirements with process outcomes

Table A.2 identifies sub-clauses and singular requirements and associated outcomes.

Table A.2 — Mapping of ISO/IEC 20000-1 requirements with process outcomes

ISO/IEC 20000-1:2018		ISO/IEC TS 33054 process reference model	
Understanding the organization and its context 1.1. The organization shall determine external and internal issues that are relevant to its purpose and that affect its ability to achieve the intended outcome(s) of its SMS.	4.1	TOP.01	**Leadership** 1. 1. The context of the organization, including the expectations of its relevant interested parties, are understood and analysed.
Understanding the needs and expectations of interested parties 1.1.1 The organization shall determine: a the interested parties that are relevant to the SMS and the services;	4.2	TOP.01	**Leadership** 1. 1. The context of the organization, including the expectations of its relevant interested parties, are understood and analysed.
Understanding the needs and expectations of interested parties 2.1.2 The organization shall determine: b) the relevant requirements of these interested parties.	4.2	RAA.1	**Business relationship management** 1. 1. Needs and expectations of customers, users and other interested parties are identified.
Determining the scope of the service management system 1.1. The organization shall determine the boundaries and applicability of the SMS to establish its scope.	4.3	TOP.01	**Leadership** 2. 2. The scope of management system activities is defined, taking the context of the organization into consideration.
Determining the scope of the service management system 2.2.1 When determining this scope, the organization shall consider: a) the external and internal issues referred to in 4.1;	4.3	TOP.01	**Leadership** 2. 2. The scope of management system activities is defined, taking the context of the organization into consideration.
Determining the scope of the service management system 3.2.2 When determining this scope, the organization shall consider: b) the requirements referred to in 4.2;	4.3	TOP.01	**Leadership** 2. 2. The scope of management system activities is defined, taking the context of the organization into consideration.

Table A.2 *(continued)*

ISO/IEC 20000-1:2018			ISO/IEC TS 33054 process reference model
Determining the scope of the service management system 4.2.3 When determining this scope, the organization shall consider: c) the services delivered by the organization.	4.3	TOP.01	**Leadership** 2. 2. The scope of management system activities is defined, taking the context of the organization into consideration.
Determining the scope of the service management system 5.3. The definition of the scope of the SMS shall include the services in scope and the name of the organization managing and delivering the services.	4.3	TOP.01	**Leadership** 2. 2. The scope of management system activities is defined, taking the context of the organization into consideration.
Determining the scope of the service management system 6.4.1 The scope of the SMS shall be available [and be maintained] as documented information.	4.3	COM.02	**Documentation management** 6. 6. Documented information is available to relevant interested parties.
Determining the scope of the service management system 7.4.2 The scope of the SMS shall be [available and be] maintained as documented information.	4.3	COM.02	**Documentation management** 4. 4. Documented information is current, complete and valid.
Service management system 1.1. The organization shall establish, implement, maintain and continually improve an SMS, including the processes needed and their interactions, in accordance with the requirements of this document.	4.4	TOP.01	**Leadership** 4. 4. The management system and operational process strategy is determined.
Leadership and commitment 1.1.1 a) Top management shall demonstrate leadership and commitment with respect to the SMS by: a) ensuring that the service management policy and service management objectives are established and are compatible with the strategic direction of the organization;	5.1	TOP.01	**Leadership** 5. 5. Commitment and leadership with respect to the management system is demonstrated.
Leadership and commitment 2.1.2 b) Top management shall demonstrate leadership and commitment with respect to the SMS by: b) ensuring that the service management plan is created, implemented and maintained in order to support the service management policy, and the achievement of the service management objectives and the service requirements;	5.1	TOP.01	**Leadership** 5. 5. Commitment and leadership with respect to the management system is demonstrated.
Leadership and commitment 3.1.3 c) Top management shall demonstrate leadership and commitment with respect to the SMS by: c) ensuring that appropriate levels of authority are assigned for making decisions related to the SMS and the services;	5.1	COM.09	**Operational implementation and control** 1. 1. The required roles, responsibilities and authorities are allocated.

Table A.2 *(continued)*

ISO/IEC 20000-1:2018		ISO/IEC TS 33054 process reference model		
Leadership and commitment 4.1.4 d) Top management shall demonstrate leadership and commitment with respect to the SMS by: d) ensuring that what constitutes value for the organization and its customers is determined;	5.1	TOP.01		**Leadership** 4. 4. The management system and operational process strategy is determined.
Leadership and commitment 5.1.5 e) Top management shall demonstrate leadership and commitment with respect to the SMS by: e) ensuring there is control of other parties involved in the service lifecycle;	5.1	TOP.01		**Leadership** 4. 4. The management system and operational process strategy is determined.
Leadership and commitment 6.1.6 f) Top management shall demonstrate leadership and commitment with respect to the SMS by: e) ensuring the integration of the SMS requirements into the organization's business processes;	5.1	COM.08		**Operational planning** 4. 4. The sequence and interaction of the process with other processes is determined.
Leadership and commitment 7.1.7 g) Top management shall demonstrate leadership and commitment with respect to the SMS by: f) ensuring that the resources needed for the SMS and the services are available;	5.1	COM.08		**Operational planning** 6. 6. The required resources for performing the process are identified.
Leadership and commitment 8.1.8 h) Top management shall demonstrate leadership and commitment with respect to the SMS by: g) communicating the importance of effective service management, achieving the service management objectives, delivering value and conforming to the SMS requirements;	5.1	TOP.01		**Leadership** 5. 5. Commitment and leadership with respect to the management system is demonstrated.
Leadership and commitment 9.1.9 i) Top management shall demonstrate leadership and commitment with respect to the SMS by: h) ensuring that the SMS achieves its intended outcome(s);	5.1	TOP.01		**Leadership** 3. 3. The management system policy and objectives are defined.
Leadership and commitment 10.1.10 j) Top management shall demonstrate leadership and commitment with respect to the SMS by: i) directing and supporting persons to contribute to the effectiveness of the SMS and the services;	5.1	TOP.01		**Leadership** 5. 5. Commitment and leadership with respect to the management system is demonstrated.
Leadership and commitment 11.1.11 k) Top management shall demonstrate leadership and commitment with respect to the SMS by: j) promoting continual improvement of the SMS and the services;	5.1	TOP.01		**Leadership** 4. 4. The management system and operational process strategy is determined.

Table A.2 *(continued)*

ISO/IEC 20000-1:2018			ISO/IEC TS 33054 process reference model	
Leadership and commitment 12.1.12 l) Top management shall demonstrate leadership and commitment with respect to the SMS by: k) supporting other relevant management roles to demonstrate their leadership as it applies to their areas of responsibility.	5.1	TOP.01	**Leadership** 5. 5. Commitment and leadership with respect to the management system is demonstrated.	
Establishing the service management policy 1.1.1 a) Top management shall establish a service management policy that: a) is appropriate to the purpose of the organization;	5.2.1	TOP.01	**Leadership** 3. 3. The management system policy and objectives are defined.	
Establishing the service management policy 2.1.2 b) Top management shall establish a service management policy that: b) provides a framework for setting service management objectives;	5.2.1	TOP.01	**Leadership** 3. 3. The management system policy and objectives are defined.	
Establishing the service management policy 3.1.3 c) Top management shall establish a service management policy that: c) includes a commitment to satisfy applicable requirements;	5.2.1	TOP.01	**Leadership** 3. 3. The management system policy and objectives are defined.	
Establishing the service management policy 4.1.4 d) Top management shall establish a service management policy that: d) includes a commitment to continual improvement of the SMS and the services.	5.2.1	TOP.01	**Leadership** 3. 3. The management system policy and objectives are defined.	
Communicating the service management policy 1.1.1 a) The service management policy shall: a) be available as documented information;	5.2.2	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.	
Communicating the service management policy 2.1.2 b) The service management policy shall: b) be communicated within the organization;	5.2.2	COM.01	**Communication management** 2. 2. Parties to communicate with are identified.	
Communicating the service management policy 3.1.3 c) The service management policy shall: c) be available to interested parties, as appropriate.	5.2.2	COM.01	**Communication management** 6. 6. Information products are communicated to relevant interested parties.	

Table A.2 *(continued)*

ISO/IEC 20000-1:2018			ISO/IEC TS 33054 process reference model
Organizational roles, responsibilities and authorities 1.1. Top management shall ensure that the responsibilities and authorities for roles relevant to the SMS and the services are assigned and communicated within the organization.	5.3	COM.09	**Operational implementation and control** 1. 1. The required roles, responsibilities and authorities are allocated.
Organizational roles, responsibilities and authorities 2.2.1 a) Top management shall assign the responsibility and authority for: a) ensuring that the SMS conforms to the requirements of this document;	5.3	COM.06	**Management review** 2. 2. The status and performance of an activity or process are assessed in terms of the established objectives.
Organizational roles, responsibilities and authorities 3.2.2 b) Top management shall assign the responsibility and authority for: b) reporting on the performance of the SMS and the services to top management.	5.3	RAA.3	**Service reporting** 3. 3. Service reports are produced according to the service report requirements.
1.1.1 a) When planning for the SMS, the organization shall consider the issues referred to in 4.1 and the requirements referred to in 4.2 and determine the risks and opportunities that need to be addressed to: a) give assurance that the SMS can achieve its intended outcome(s);	6.1.1	COM.09	**Operational implementation and control** 3. 3. Actions required to achieve the management system objectives are implemented.
2.1.2 b) When planning for the SMS, the organization shall consider the factors referred to in 4.1 and the requirements referred to in 4.2 and determine the risks and opportunities that need to be addressed to: b) prevent, or reduce, undesired effects;	6.1.1	TOP.01	**Leadership** 4. 4. The management system and operational process strategy is determined.
3.1.3 c) When planning for the SMS, the organization shall consider the factors referred to in 4.1 and the requirements referred to in 4.2 and determine the risks and opportunities that need to be addressed to: c) achieve continual improvement of the SMS and the services.	6.1.1	TOP.01	**Leadership** 4. 4. The management system and operational process strategy is determined.
1.1.1 The organization shall determine [and document]: a) risks related to: 1) the organization;	6.1.2	COM.11	**Risk management** 2. 2. Risks are identified.
2.1.2 The organization shall [determine and] document: a) risks related to: 1) the organization;	6.1.2	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
3.1.3 The organization shall determine [and document]: a) risks related to: 2) not meeting the service requirements;	6.1.2	COM.11	**Risk management** 2. 2. Risks are identified.
4.1.4 The organization shall [determine and] document: a) risks related to: 2) not meeting the service requirements;	6.1.2	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.

Table A.2 *(continued)*

ISO/IEC 20000-1:2018			ISO/IEC TS 33054 process reference model
5.1.5 The organization shall determine [and document]: a) risks related to: 3) the involvement of other parties in the service lifecycle;	6.1.2	COM.11	**Risk management** 2. 2. Risks are identified.
6.1.6 The organization shall [determine and] document: a) risks related to: 3) the involvement of other parties in the service lifecycle;	6.1.2	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
7.1.7 The organization shall determine [and document]: b) the impact on customers of risks and opportunities for the SMS and the services;	6.1.2	COM.11	**Risk management** 4. 4. Risks are evaluated against defined criteria.
8.1.8 The organization shall [determine and] document: b) the impact on customers of risks and opportunities for the SMS and the services;	6.1.2	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
9.1.9 The organization shall determine [and document]: c) risk acceptance criteria; (general)	6.1.2	COM.11	**Risk management** 1. 1. Criteria for the assessment of risks and the acceptable level of risk are identified.
10.1.10 The organization shall determine [and document]: c) risk acceptance criteria; (information security)	6.1.2	SAS.3	**Information security management** 2. 2. Criteria for the assessment of information security risks and the acceptable level of risk are identified.
11.1.11 The organization shall [determine and] document: c) risk acceptance criteria;	6.1.2	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
12.1.12 The organization shall determine [and document]: d) approach to be taken for the management of risks.	6.1.2	COM.08	**Operational planning** 1. 1. Process requirements are identified.
13.1.13 The organization shall [determine and] document: d) approach to be taken for the management of risks.	6.1.2	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
1.1.1 The organization shall [plan: a) actions to] address these risks and opportunities and their priorities;	6.1.3	COM.11	**Risk management** 6. 6. Selected risks are treated.
2.1.2 The organization shall plan: a) actions to address these risks and opportunities and their priorities;	6.1.3	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.
3.1.3 The organization shall [plan: b) how to: 1)] integrate and implement the actions into its SMS processes;	6.1.3	COM.08	**Operational planning** 4. 4. The sequence and interaction of the process with other processes is determined.
4.1.4 The organization shall plan: b) how to: 1) integrate and implement the actions into its SMS processes;	6.1.3	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.
5.1.5 The organization shall plan: [b) how to: 2) evaluate the effectiveness of these actions.]	6.1.3	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.

Table A.2 *(continued)*

ISO/IEC 20000-1:2018			ISO/IEC TS 33054 process reference model
6.1.6 The organization shall [plan: b) how to: 2)] evaluate the effectiveness of these actions.	6.1.3	COM.10	**Performance evaluation** 5. 5. The collected performance data is analysed.
Establish objectives 1.1. The organization shall establish service management objectives at relevant functions and levels.	6.2.1	TOP.01	**Leadership** 3. 3. The management system policy and objectives are defined.
Establish objectives 2.2.1 The service management objectives shall: a) be consistent with the service management policy;	6.2.1	TOP.01	**Leadership** 3. 3. The management system policy and objectives are defined.
Establish objectives 3.2.2 The service management objectives shall: b) be measurable;	6.2.1	TOP.01	**Leadership** 3. 3. The management system policy and objectives are defined.
Establish objectives 4.2.3 The service management objectives shall: c) take into account applicable requirements;	6.2.1	TOP.01	**Leadership** 3. 3. The management system policy and objectives are defined.
Establish objectives 5.2.4 The service management objectives shall: d) be monitored;	6.2.1	COM.10	**Performance evaluation** 4. 4. Data is collected using the identified performance measurement methods.
Establish objectives 6.2.5 The service management objectives shall: e) be communicated;	6.2.1	COM.01	**Communication management** 6. 6. Information products are communicated to relevant interested parties.
Establish objectives 7.2.6 The service management objectives shall: f) be updated as appropriate.	6.2.1	TOP.01	**Leadership** 3. 3. The management system policy and objectives are defined.
Establish objectives 8.3. The organization shall retain documented information on the service management objectives.	6.2.1	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
Plan to achieve objectives 1.1.1 a) When planning how to achieve its service management objectives, the organization shall determine: a) what will be done;	6.2.2	COM.08	**Operational planning** 1. 1. Process requirements are identified.
Plan to achieve objectives 2.1.2 b) When planning how to achieve its service management objectives, the organization shall determine: b) what resources will be required;	6.2.2	COM.08	**Operational planning** 6. 6. The required resources for performing the process are identified.
Plan to achieve objectives 3.1.3 c) When planning how to achieve its service management objectives, the organization shall determine: c) who will be responsible;	6.2.2	COM.09	**Operational implementation and control** 1. 1. The required roles, responsibilities and authorities are allocated.

Table A.2 *(continued)*

ISO/IEC 20000-1:2018		ISO/IEC TS 33054 process reference model	
Plan to achieve objectives 4.1.4 d) When planning how to achieve its service management objectives, the organization shall determine: d) when it will be completed;	6.2.2	COM.08	**Operational planning** 4. 4. The sequence and interaction of the process with other processes is determined.
Plan to achieve objectives 5.1.5 e) When planning how to achieve its service management objectives, the organization shall determine: e) how the results will be evaluated.	6.2.2	COM.08	**Operational planning** 7. 7. Methods for monitoring the effectiveness and suitability of the process are determined.
Plan the service management system 1.1. The organization shall create, implement and maintain a service management plan.	6.3	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.
Plan the service management system 2.2. Planning shall take into consideration the service management policy, service management objectives, risks and opportunities, service requirements and requirements specified in this document.	6.3	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.
Plan the service management system 3.3.1 a) The service management plan shall include or contain a reference to: a) list of services;	6.3	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.
Plan the service management system 4.3.2 b) The service management plan shall include or contain a reference to: b) known limitations that can impact the SMS and the services;	6.3	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.
Plan the service management system 5.3.3 c) The service management plan shall include or contain a reference to: c) obligations such as relevent policies, standards, legal, regulatory and contractual requirements , and how these obligations apply to the SMS and the services;	6.3	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.
Plan the service management system 6.3.4 d) The service management plan shall include or contain a reference to: d) authorities and responsibilities for the SMS and the services;	6.3	COM.08	**Operational planning** 5. 5. The required competencies and roles for performing the process are identified.
Plan the service management system 7.3.5 e) The service management plan shall include or contain a reference to: e) human, technical, information and financial resources necessary to operate the SMS and the services;	6.3	COM.08	**Operational planning** 6. 6. The required resources for performing the process are identified.

Table A.2 *(continued)*

ISO/IEC 20000-1:2018		ISO/IEC TS 33054 process reference model		
Plan the service management system 8.3.6 f) The service management plan shall include or contain a reference to: f) approach to be taken for working with other parties involved in the service lifecycle;	6.3	COM.08		**Operational planning** 8. 8. Plans for the deployment of the process are developed.
Plan the service management system 9.3.7 g) The service management plan shall include or contain a reference to: g) technology used to support the SMS;	6.3	COM.08		**Operational planning** 8. 8. Plans for the deployment of the process are developed.
Plan the service management system 10.3.8 h) The service management plan shall include or contain a reference to: h) how the effectiveness of the SMS and the services will be measured, audited, reported and improved.	6.3	COM.08		**Operational planning** 7. 7. Methods for monitoring the effectiveness and suitability of the process are determined.
Plan the service management system 11.4. Other planning activities shall maintain alignment with the service management plan.	6.3	COM.08		**Operational planning** 8. 8. Plans for the deployment of the process are developed.
Resources 1.1.1 The organization shall determine [and provide] the human, technical, information and financial resources needed for the establishment, implementation, maintenance and continual improvement of the SMS and the operation of the services to meet the service requirements and achieve the service management objectives.	7.1	COM.08		**Operational planning** 6. 6. The required resources for performing the process are identified.
Resources 2.1.2 The organization shall [determine and] provide the human, technical, information and financial resources needed for the establishment, implementation, maintenance and continual improvement of the SMS and the operation of the services to meet the service requirements and achieve the service management objectives.	7.1	COM.09		**Operational implementation and control** 2. 2. The required resources are allocated and applied.
Competence 1.1.1 The organization shall: a) determine the necessary competence of persons doing work under its control that affects the performance and effectiveness of the SMS and the services;	7.2	COM.03		**Human resource management** 1. 1. The competencies required by the organization to produce products and services are identified.
Competence 2.1.2 The organization shall: b) ensure that these persons are competent on the basis of appropriate education, training or experience;	7.2	COM.03		**Human resource management** 2. 2. Identified competency gaps are filled through training or recruitment.

Table A.2 *(continued)*

ISO/IEC 20000-1:2018			ISO/IEC TS 33054 process reference model
Competence 3.1.3 The organization shall: c) where applicable, take actions to acquire the necessary competence, and evaluate the effectiveness of the actions taken;	7.2	COM.03	**Human resource management** 2. 2. Identified competency gaps are filled through training or recruitment.
Competence 4.1.4 The organization shall: d) retain appropriate documented information as evidence of competence.	7.2	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
Awareness 1.1.1 a) Persons doing work under the organization's control shall be aware of: a) the service management policy;	7.3	COM.03	**Human resource management** 3. 3. Understanding of roles and activities in achieving organisational objectives in product and service provision is demonstrated by each person.
Awareness 2.1.2 b) Persons doing work under the organization's control shall be aware of: b) the service management objectives;	7.3	COM.03	**Human resource management** 3. 3. Understanding of roles and activities in achieving organisational objectives in product and service provision is demonstrated by each person.
Awareness 3.1.3 c) Persons doing work under the organization's control shall be aware of: c) the services relevant to their work;	7.3	COM.03	**Human resource management** 3. 3. Understanding of roles and activities in achieving organisational objectives in product and service provision is demonstrated by each person.
Awareness 4.1.4 d) Persons doing work under the organization's control shall be aware of: d) their contribution to the effectiveness of the SMS, including the benefits of improved performance;	7.3	COM.03	**Human resource management** 3. 3. Understanding of roles and activities in achieving organisational objectives in product and service provision is demonstrated by each person.
Awareness 5.1.5 e) Persons doing work under the organization's control shall be aware of: e) the implications of not conforming with the SMS requirements.	7.3	COM.03	**Human resource management** 3. 3. Understanding of roles and activities in achieving organisational objectives in product and service provision is demonstrated by each person.
Communication 1.1.1 a) The organization shall determine the internal and external communications relevant to the SMS and the services including: a) on what it will communicate;	7.4	COM.01	**Communication management** 1. 1. Information content is defined in terms of identified communication requirements.
Communication 2.1.2 b) The organization shall determine the internal and external communications relevant to the SMS and the services including: b) when to communicate;	7.4	COM.01	**Communication management** 4. 4. Events that require communication actions are identified.
Communication 3.1.3 c) The organization shall determine the internal and external communications relevant to the SMS and the services including: c) with whom to communicate;	7.4	COM.01	**Communication management** 2. 2. Parties to communicate with are identified.

Table A.2 *(continued)*

ISO/IEC 20000-1:2018			ISO/IEC TS 33054 process reference model
Communication 4.1.4 d) The organization shall determine the internal and external communications relevant to the SMS and the services including: d) how to communicate;	7.4	COM.01	**Communication management** 5. 5. The channel for the communication is selected.
Communication 5.1.5 e) The organization shall determine the internal and external communications relevant to the SMS and the services including: e) who will be responsible for the communication.	7.4	COM.01	**Communication management** 3. 3. The party responsible for the communication is identified.
General 1.1.1 The organization's SMS shall include: a) documented information required by this document;	7.5.1	TOP.01	**Leadership** 4. 4. The management system and operational process strategy is determined.
General 2.1.2 The organization's SMS shall include: b) documented information determined by the organization as being necessary for the effectiveness of the SMS.	7.5.1	TOP.01	**Leadership** 4. 4. The management system and operational process strategy is determined.
Creating and updating documented information 1.1.1 a) When creating and updating documented information, the organization shall ensure appropriate: a) identification and description (e.g. a title, date, author, or reference number);	7.5.2	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
Creating and updating documented information 2.1.2 b) When creating and updating documented information, the organization shall ensure appropriate: b) format (e.g. language, software version, graphics) and media (e.g. paper, electronic);	7.5.2	COM.02	**Documentation management** 2. 2. The forms of documented information representation are defined.
Creating and updating documented information 3.1.3 c) When creating and updating documented information, the organization shall ensure appropriate: c) review and approval for suitability and adequacy.	7.5.2	COM.02	**Documentation management** 4. 4. Documented information is current, complete and valid.
1.1.1 a) Documented information required by the SMS and by this document shall be controlled to ensure: a) it is available and suitable for use, where and when it is needed;	7.5.3.1	COM.02	**Documentation management** 6. 6. Documented information is available to relevant interested parties.
2.1.2 b) Documented information required by the SMS and by this document shall be controlled to ensure: b) it is adequately protected (e.g. from loss of confidentiality, improper use, or loss of integrity).	7.5.3.1	COM.02	**Documentation management** 6. 6. Documented information is available to relevant interested parties.

Table A.2 *(continued)*

ISO/IEC 20000-1:2018			ISO/IEC TS 33054 process reference model
1.1.1 a) For the control of documented information, the organization shall address the following activities, as applicable: a) distribution, access, retrieval and use;	7.5.3.2	COM.02	**Documentation management** 6. 6. Documented information is available to relevant interested parties.
2.1.2 b) For the control of documented information, the organization shall address the following activities, as applicable: b) storage and preservation, including preservation of legibility;	7.5.3.2	COM.02	**Documentation management** 4. 4. Documented information is current, complete and valid.
3.1.3 c) For the control of documented information, the organization shall address the following activities, as applicable: c) control of changes (e.g. version control);	7.5.3.2	COM.02	**Documentation management** 4. 4. Documented information is current, complete and valid.
4.1.4 d) For the control of documented information, the organization shall address the following activities, as applicable: d) retention and disposition.	7.5.3.2	COM.02	**Documentation management** 7. 7. Documented information is archived, or disposed of, as required.
5.2.1 Documented information of external origin determined by the organization to be necessary for the planning and operation of the SMS shall be identified as appropriate, [and controlled.]	7.5.3.2	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
6.2.2 Documented information of external origin determined by the organization to be necessary for the planning and operation of the SMS shall be [identified as appropriate, and] controlled.	7.5.3.2	COM.02	**Documentation management** 4. 4. Documented information is current, complete and valid.
Service management system documented information 1.1.1 a) The documented information for the SMS shall include: a) scope of the SMS;	7.5.4	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
Service management system documented information 2.1.2 b) The documented information for the SMS shall include: b) policy and objectives for service management;	7.5.4	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
Service management system documented information 3.1.3 c) The documented information for the SMS shall include: c) service management plan;	7.5.4	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
Service management system documented information 4.1.4 d) The documented information for the SMS shall include: d) change management policy, information security policy and service continuity plan(s);	7.5.4	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
Service management system documented information 5.1.5 e) The documented information for the SMS shall include: e) processes of the organization's SMS;	7.5.4	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.

Table A.2 *(continued)*

ISO/IEC 20000-1:2018			ISO/IEC TS 33054 process reference model
Service management system documented information 6.1.6 f) The documented information for the SMS shall include: f) service requirements;	7.5.4	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
Service management system documented information 7.1.7 g) The documented information for the SMS shall include: g) service catalogue(s);	7.5.4	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
Service management system documented information 8.1.8 h) The documented information for the SMS shall include: h) service level agreement(s) (SLA);	7.5.4	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
Service management system documented information 9.1.9 i) The documented information for the SMS shall include: i) contracts with external suppliers;	7.5.4	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
Service management system documented information 10.1.10 j) The documented information for the SMS shall include: j) agreements with internal suppliers or customers acting as a supplier;	7.5.4	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
Service management system documented information 11.1.11 k) The documented information for the SMS shall include: k) procedures that are required by this document;	7.5.4	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
Service management system documented information 12.1.12 l) The documented information for the SMS shall include: l) records required to demonstrate evidence of conformity to the requirements of this document and the organisation's SMS;	7.5.4	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
Knowledge 1.1.1 The organization shall determine [and maintain] the knowledge necessary to support the operation of the SMS and the services.	7.6	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
Knowledge 2.1.2 The organization shall [determine and] maintain the knowledge necessary to support the operation of the SMS and the services.	7.6	COM.02	**Documentation management** 4. 4. Documented information is current, complete and valid.
Knowledge 3.2.1 The knowledge shall be relevant, usable [and available to appropriate persons.]	7.6	COM.02	**Documentation management** 4. 4. Documented information is current, complete and valid.

Table A.2 *(continued)*

ISO/IEC 20000-1:2018			ISO/IEC TS 33054 process reference model
Knowledge 4.2.2 The knowledge shall be [relevant, usable and] available to appropriate persons.	7.6	COM.02	**Documentation management** 6. 6. Documented information is available to relevant interested parties.
Operational planning and control 1.1.1 a) The organization shall plan, implement and control the processes needed to fulfil requirements, and to implement the actions determined in 6 by: a) establishing performance criteria for the processes based on requirements;	8.1	COM.08	**Operational planning** 7. 7. Methods for monitoring the effectiveness and suitability of the process are determined.
Operational planning and control 2.1.2 b) The organization shall plan, implement and control the processes needed to fulfil requirements, and to implement the actions determined in 6 by: b) implementing control of the processes in accordance with the established performance criteria;	8.1	COM.09	**Operational implementation and control** 3. 3. Actions required to achieve the management system objectives are implemented.
Operational planning and control 3.1.3 c) The organization shall plan, implement and control the processes needed to fulfil requirements, and to implement the actions determined in 6 by: c) keeping documented information to the extent necessary to have confidence that the processes have been carried out as planned.	8.1	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
Operational planning and control 4.2.1 The organization shall control planned changes to the SMS and review the consequences of unintended changes, [taking action to mitigate any adverse effects, as necessary (see 8.5.1).]	8.1	SPC.1	**Change management** 2. 2. Change requests are analysed.
Operational planning and control 5.2.2 [The organization shall control planned changes to the SMS and review the consequences of unintended changes,] taking action to mitigate any adverse effects, as necessary (see 8.5.1).	8.1	COM.09	**Operational implementation and control** 5. 5. Deviations from planned arrangements are corrected when targets are not achieved.
Operational planning and control 6.3. The organization shall ensure that outsourced processes are controlled (see 8.2.3).	8.1	RAA.4	**Supplier management** 4. 4. Supplier obligations to meet requirements are monitored.
Service Delivery 1.1. The organization shall operate the SMS ensuring co-ordination of the activities and the resources.	8.2.1	COM.09	**Operational implementation and control** 3. 3. Actions required to achieve the management system objectives are implemented.
Service Delivery 2.2. The organisation shall perform the activities required to deliver services.	8.2.1	SDE.1	**Service delivery** 4. 4. A service is provided according to the agreement.

Table A.2 *(continued)*

ISO/IEC 20000-1:2018		ISO/IEC TS 33054 process reference model	
Plan the services 1.1.1 The service requirements for existing services, new services and changes to services shall be determined [and documented].	8.2.2	SDB.1	**Service requirements definition** 1. 1. The requirements for services are identified.
Plan the services 2.1.2 The service requirements for existing services, new services and changes to services shall be [determined and] documented.	8.2.2	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
Plan the services 3.2. The organization shall determine the criticality of services based on the needs of the organization, customers, users and other interested parties.	8.2.2	SDE.1	**Service delivery** 2. 2. A response to the customer's request for services is produced.
Plan the services 4.3. The organization shall determine and manage dependencies and duplication between services.	8.2.2	SDB.1	**Service requirements definition** 2. 2. The criticality, dependencies and duplication of services is identified.
Plan the services 5.4. The organization shall propose changes where needed to align the services with the service management policy, service management objectives and service requirements, taking into consideration known limitations and risks.	8.2.2	SDB.3	**Service build and transition** 3. 3. The new or changed services are accepted in accordance with the service acceptance criteria.
Plan the services 6.5. The organization shall prioritize requests for change and proposals for new or changed services to align with business needs and service management objectives, taking into consideration available resources.	8.2.2	SDB.1	**Service requirements definition** 3. 3. Service requirements are continually aligned with business needs.
1.1. The organization shall retain accountability for the requirements specified in this document and the delivery of the services regardless of which party is involved in performing activities to support the service lifecycle.	8.2.3.1	RAA.4	**Supplier management** 5. 5. Supplier performance against agreed criteria is monitored and managed.
2.2. The organization shall determine and apply criteria for the evaluation and selection of other parties involved in the service lifecycle.	8.2.3.1	RAA.4	**Supplier management** 1. 1. Criteria are identified for the selection of suppliers.
3.3. Other parties can be an external supplier, an internal supplier or a customer acting as a supplier.	8.2.3.1	RAA.4	**Supplier management** 2. 2. Services to be provided are defined and negotiated with each supplier.
4.4. Other parties shall not provide or operate all services, service components or processes within the scope of the SMS.	8.2.3.1	RAA.4	**Supplier management** 2. 2. Services to be provided are defined and negotiated with each supplier.
5.5.1 The organization shall determine [and document]: a) services that are provided or operated by other parties;	8.2.3.1	RAA.4	**Supplier management** 2. 2. Services to be provided are defined and negotiated with each supplier.

Table A.2 *(continued)*

ISO/IEC 20000-1:2018		ISO/IEC TS 33054 process reference model	
6.5.2 The organization shall [determine and] document: a) services that are provided or operated by other parties;	8.2.3.1	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
7.5.3 The organization shall determine [and document]: b) service components that are provided or operated by other parties;	8.2.3.1	RAA.4	**Supplier management** 2. 2. Services to be provided are defined and negotiated with each supplier.
8.5.4 The organization shall [determine and] document: b) service components that are provided or operated by other parties;	8.2.3.1	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
9.5.5 The organization shall determine [and document]: c) processes, or parts of processes, in the organization's SMS that are operated by other parties.	8.2.3.1	RAA.4	**Supplier management** 2. 2. Services to be provided are defined and negotiated with each supplier.
10.5.6 The organization shall [determine and] document: c) processes, or parts of processes, in the organization's SMS that are operated by other parties.	8.2.3.1	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
1.1.1 a) The organization shall define and apply controls for other parties that include: a) measurement and evaluation of process performance;	8.2.3.2	TOP.01	**Leadership** 5. 5. Commitment and leadership with respect to the management system is demonstrated.
2.1.2 b) The organization shall define and apply controls for other parties that include: b) measurement and evaluation of the effectiveness of services and service components in the fulfilment of service requirements.	8.2.3.2	COM.10	**Performance evaluation** 3. 3. Performance measurement methods, supportive of the performance measures, are identified.
Service catalogue management 1.1.1 The organization shall create [and maintain] one or more service catalogues.	8.2.4	RAA.5	**Service catalogue management** 2. 2. Service catalogue content is developed.
Service catalogue management 2.1.2 The organization shall [create and] maintain one or more service catalogues.	8.2.4	COM.02	**Documentation management** 4. 4. Documented information is current, complete and valid.
Service catalogue management 3.2. The service catalogue(s) shall include information for the organization, customers, users and other interested parties to describe the services, the intended outcomes and dependencies between the services.	8.2.4	RAA.5	**Service catalogue management** 1. 1. Service catalogue content is defined.
Service catalogue management 4.3. The organization shall provide access to appropriate parts of the service catalogue to its customers, users and other interested parties.	8.2.4	COM.02	**Documentation management** 6. 6. Documented information is available to relevant interested parties.
Asset management 1.1. The organization shall ensure that assets used to deliver services are managed to meet the service requirements and the obligations in 6.3 c).	8.2.5	TOP.01	**Leadership** 4. 4. The management system and operational process strategy is determined.

Table A.2 *(continued)*

ISO/IEC 20000-1:2018			ISO/IEC TS 33054 process reference model
Configuration management 1.1. The types of CI shall be defined. Services shall be classified as CIs.	8.2.6	SPC.2	**Configuration management** 1. 1. Items requiring configuration management are identified.
Configuration management 2.2. Configuration information shall be recorded to a level of detail appropriate to the criticality and type of services.	8.2.6	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
Configuration management 3.3. Access to configuration information shall be controlled.	8.2.6	COM.02	**Documentation management** 6. 6. Documented information is available to relevant interested parties.
Configuration management 4.4.1 a) The configuration information recorded for each CI shall include: a) unique identification;	8.2.6	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
Configuration management 5.4.2 b) The configuration information recorded for each CI shall include: b) type of CI;	8.2.6	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
Configuration management 6.4.3 c) The configuration information recorded for each CI shall include: c) description of the CI;	8.2.6	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
Configuration management 7.4.4 d) The configuration information recorded for each CI shall include: d) relationship with other CIs;	8.2.6	SPC.2	**Configuration management** 2. 2. The relationship between configuration items is determined.
Configuration management 8.4.5 e) The configuration information recorded for each CI shall include: e) status.	8.2.6	SPC.2	**Configuration management** 3. 3. The status of configuration items and modifications is identified.
Configuration management 9.5. CIs shall be controlled.	8.2.6	SPC.2	**Configuration management** 4. 4. Changes to items under configuration management are controlled.
Configuration management 10.6. Changes to CIs shall be traceable and auditable to maintain the integrity of the configuration information.	8.2.6	SPC.2	**Configuration management** 5. 5. The integrity of systems, products/services and product/service components is assured.
Configuration management 11.7. The configuration information shall be updated following the deployment of changes to CIs.	8.2.6	SPC.2	**Configuration management** 4. 4. Changes to items under configuration management are controlled.
Configuration management 12.8.1 [At planned intervals] the organization shall verify the accuracy of the configuration information,	8.2.6	SPC.2	**Configuration management** 5. 5. The integrity of systems, products/services and product/service components is assured.
Configuration management 13.8.2 At planned intervals [the organization shall verify the accuracy of the configuration information].	8.2.6	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.

Table A.2 *(continued)*

ISO/IEC 20000-1:2018		ISO/IEC TS 33054 process reference model		
Configuration management 14.9. Where deficiencies are found, the organization shall take necessary actions.	8.2.6	SPC.2	**Configuration management** 5. 5. The integrity of systems, products/services and product/service components is assured.	
Configuration management 15.10. Configuration information shall be made available for other service management activities as appropriate.	8.2.6	COM.02	**Documentation management** 6. 6. Documented information is available to relevant interested parties.	
General 1.1.1 The organization may use suppliers to: a) operate services;	8.3.1	TOP.01	**Leadership** 4. 4. The management system and operational process strategy is determined.	
General 2.1.2 The organization may use suppliers to: b) provide service components;	8.3.1	TOP.01	**Leadership** 4. 4. The management system and operational process strategy is determined.	
General 3.1.3 The organization may use suppliers to: c) operate service components;	8.3.1	TOP.01	**Leadership** 4. 4. The management system and operational process strategy is determined.	
General 4.1.4 The organization may use suppliers to: d) operate processes, or parts of processes, that are in the organization's SMS.	8.3.1	TOP.01	**Leadership** 4. 4. The management system and operational process strategy is determined.	
Business relationship management 1.1.1 The customers, users and other interested parties of the services shall be identified [and documented].	8.3.2	RAA.1 SDE.1	**Business relationship management** 1. 1. Needs and expectations of customers, users and other interested parties are identified. **Service delivery** 1. 1. Customers for services are identified.	
Business relationship management 2.1.2 The customers, users and other interested parties of the services shall be [identified and] documented.	8.3.2	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.	
Business relationship management 3.3.The organization shall have one or more designated individuals responsible for managing customer relationships and maintaining customer satisfaction.	8.3.2	COM.09	**Operational implementation and control** 1. 1. The required roles, responsibilities and authorities are allocated.	
Business relationship management 4.4. The organization shall establish arrangements for communicating with its customers and other interested parties.	8.3.2	TOP.01	**Leadership** 4. 4. The management system and operational process strategy is determined.	
Business relationship management 5.5. The communication shall promote understanding of the evolving business environment in which the services operate and shall enable the organization to respond to new or changed service requirements.	8.3.2	COM.01	**Communication management** 6. 6. Information products are communicated to relevant interested parties.	

Table A.2 *(continued)*

ISO/IEC 20000-1:2018			ISO/IEC TS 33054 process reference model
Business relationship management 6.6.1 [At planned intervals] the organization shall review the performance trends and the outcomes of the services.	8.3.2	RAA.1	**Business relationship management** 4. 4. Service performance trends and outcomes are reviewed.
Business relationship management 7.6.2 At planned intervals [the organization shall review the performance trends and the outcomes of the services].	8.3.2	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.
Business relationship management 8.7.1 [At planned intervals,] the organization shall measure satisfaction with the services [based on a representative sample of customers.]	8.3.2	RAA.1	**Business relationship management** 2. 2. Customer satisfaction is measured.
Business relationship management 9.7.2 [At planned intervals, the organization shall measure satisfaction with the services] based on a representative sample of customers.	8.3.2	COM.10	**Performance evaluation** 4. 4. Data is collected using the identified performance measurement methods.
Business relationship management 10.7.3 At planned intervals, [the organization shall measure satisfaction with the services based on a representative sample of customers.]	8.3.2	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.
Business relationship management 11.8.1 The results shall be analysed, reviewed [to identify opportunities for improvement and reported.]	8.3.2	COM.10	**Performance evaluation** 5. 5. The collected performance data is analysed.
Business relationship management 12.8.2 [The results shall be analysed, reviewed] to identify opportunities for improvement and reported.	8.3.2	COM.04	**Improvement** 1. 1. Opportunities for improvement are identified.
Business relationship management 13.9. Service complaints shall be recorded, managed to closure and reported.	8.3.2	RAA.1	**Business relationship management** 3. 3. Service complaints are managed through their lifecycle to closure.
Business relationship management 14.10. Where a service complaint is not resolved through the normal channels, a method of escalation shall be provided.	8.3.2	COM.09	**Operational implementation and control** 5. 5. Deviations from planned arrangements are corrected when targets are not achieved.
Service level management 1.1. The organization and the customer shall agree the services to be delivered.	8.3.3	SDE.1	**Service delivery** 3. 3. An agreement between the customer and organization is established.
Service level management 2.2.1 For each service delivered, the organization shall establish one or more SLAs based on the [documented] service requirements.	8.3.3	RAA.2	**Service level management** 1. 1. Service level targets, workload characteristics and exceptions for services are defined in service level agreements.

Table A.2 *(continued)*

ISO/IEC 20000-1:2018		ISO/IEC TS 33054 process reference model		
Service level management 3.2.2 [For each service delivered, the organization shall establish one or more SLAs based on the] documented service requirements.	8.3.3	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.	
Service level management 4.3. The SLA(s) shall include service level targets, workload limits and exceptions.	8.3.3	RAA.2	**Service level management** 1. 1. Service level targets, workload characteristics and exceptions for services are defined in service level agreements.	
Service level management 5.4.1 [At planned intervals], the organization shall monitor, review [and report] on: a) performance against service level targets; b) actual and periodic changes in workload compared to workload limits in the SLA(s).	8.3.3	RAA.2 SDE.1	**Service level management** 2. 2. Service performance is monitored against service level agreements. **Service delivery** 5. 5. Organizational obligations defined in the agreement are satisfied.	
Service level management 6.4.2 [At planned intervals], the organization shall [monitor, review and] report on: a) performance against service level targets; b) actual and periodic changes in workload compared to workload limits in the SLA(s).	8.3.3	RAA.3 SDE.1	**Service reporting** 3. 3. Service reports are produced according to the service report requirements. **Service delivery** 5. 5. Organizational obligations defined in the agreement are satisfied.	
Service level management 7.4.3 At planned intervals, [the organization shall monitor, review and report on: a) performance against service level targets; b) actual and periodic changes in workload compared to workload limits in the SLA(s).]	8.3.3	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.	
Service level management 8.5. Where service level targets are not met, the organization shall identify opportunities for improvement.	8.3.3	COM.04	**Improvement** 1. 1. Opportunities for improvement are identified.	
Management of external suppliers 1.1. The organization shall have one of more designated individuals responsible for managing the relationship, contracts and performance of external suppliers.	8.3.4.1	COM.09	**Operational implementation and control** 1. 1. The required roles, responsibilities and authorities are allocated.	
Management of external suppliers 2.2.1 For each external supplier, the organisation shall agree a [documented] contract.	8.3.4.1	RAA.4	**Supplier management** 2. 2. Services to be provided are defined and negotiated with each supplier.	

Table A.2 *(continued)*

ISO/IEC 20000-1:2018		ISO/IEC TS 33054 process reference model	
Management of external suppliers 3.2.2 [For each external supplier, the organisation shall agree a] documented [contract].	8.3.4.1	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
Management of external suppliers 4.3.1 a) The contract shall include or contain a reference to: a) scope of the services, service components, processes or parts of processes to be provided or operated by the external supplier;	8.3.4.1	RAA.4	**Supplier management** 2. 2. Services to be provided are defined and negotiated with each supplier.
Management of external suppliers 5.3.2 b) The contract shall include or contain a reference to: b) requirements to be met by the external supplier;	8.3.4.1	RAA.4	**Supplier management** 2. 2. Services to be provided are defined and negotiated with each supplier.
Management of external suppliers 6.3.3 c) The contract shall include or contain a reference to: c) service level targets or other contractual obligations;	8.3.4.1	RAA.4	**Supplier management** 2. 2. Services to be provided are defined and negotiated with each supplier.
Management of external suppliers 7.3.4 d) The contract shall include or contain a reference to: d) authorities and responsibilities of the organization and the external supplier.	8.3.4.1	RAA.4	**Supplier management** 3. 3. Roles and relationships between suppliers are determined.
Management of external suppliers 8.4.1 The organization shall assess the alignment of service level targets or other contractual obligations for the external supplier against SLAs with customers, [and manage identified risks].	8.3.4.1	RAA.4	**Supplier management** 5. 5. Supplier performance against agreed criteria is monitored and managed.
Management of external suppliers 9.4.2 The organization shall [assess the alignment of service level targets or other contractual obligations for the external supplier against SLAs with customers, and] manage identified risks.	8.3.4.1	COM.11	**Risk management** 2. 2. Risks are identified.
Management of external suppliers 10.5. The organization shall define and manage the interfaces with the external supplier.	8.3.4.1	RAA.4	**Supplier management** 3. 3. Roles and relationships between suppliers are determined.
Management of external suppliers 11.6.1 [At planned intervals] the organization shall monitor the performance of the external supplier.	8.3.4.1	RAA.4	**Supplier management** 5. 5. Supplier performance against agreed criteria is monitored and managed.
Management of external suppliers 12.6.2 At planned intervals [the organization shall monitor the performance of the external supplier].	8.3.4.1	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.

Table A.2 *(continued)*

ISO/IEC 20000-1:2018			ISO/IEC TS 33054 process reference model
Management of external suppliers 13.7.2 Where service level targets or other contractual obligations are not met, the organization shall ensure that opportunities for improvement are identified.	8.3.4.1	COM.04	**Improvement** 1. 1. Opportunities for improvement are identified.
Management of external suppliers 14.8.1 [At planned intervals] the organization shall review the contract against current service requirements.	8.3.4.1	RAA.4	**Supplier management** 2. 2. Services to be provided are defined and negotiated with each supplier.
Management of external suppliers 15.8.2 At planned intervals [the organization shall review the contract against current service requirements].	8.3.4.1	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.
Management of external suppliers 16.9. Changes identified for the contract shall be assessed for the impact of the change on the SMS and the services before the change is approved.	8.3.4.1	SPC.1	**Change management** 2. 2. Change requests are analysed.
Management of external suppliers 17.10.1 Disputes between the organization and the external supplier shall [be recorded and] managed to closure.	8.3.4.1	RAA.4	**Supplier management** 4. 4. Supplier obligations to meet requirements are monitored.
Management of external suppliers 18.10.2 Disputes between the organization and the external supplier shall be recorded [and managed to closure].	8.3.4.1	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
Management of internal suppliers and customers acting as a supplier 1.1.1 For each internal supplier or customer acting as a supplier, the organization shall develop, agree and maintain a [documented] agreement to define the service level targets, other commitments, activities and interfaces between, the parties.	8.3.4.2	RAA.4	**Supplier management** 2. 2. Services to be provided are defined and negotiated with each supplier.
Management of internal suppliers and customers acting as a supplier 2.1.2 [For each internal supplier or customer acting as a supplier, the organization shall develop, agree and maintain a] documented [agreement to define the service level targets, other commitments, activities and interfaces between, the parties.]	8.3.4.2	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
Management of internal suppliers and customers acting as a supplier 3.2.1 [At planned intervals,] the organization shall monitor the performance of the internal supplier or the customer acting as a supplier.	8.3.4.2	RAA.4	**Supplier management** 5. 5. Supplier performance against agreed criteria is monitored and managed.

Table A.2 *(continued)*

ISO/IEC 20000-1:2018			ISO/IEC TS 33054 process reference model
Management of internal suppliers and customers acting as a supplier 4.2.2 At planned intervals, [the organization shall monitor the performance of the internal supplier or the customer acting as a supplier.]	8.3.4.2	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.
Management of internal suppliers and customers acting as a supplier 5.3.2 Where service level targets or other agreed commitments are not met, the organization shall ensure that opportunities for improvement are identified.	8.3.4.2	COM.04	**Improvement** 1. 1. Opportunities for improvement are identified.
Budgeting and accounting for services 1.1. The organization shall budget and account for services or groups of services in accordance with its financial management policies and processes.	8.4.1	SAD.1	**Budgeting and accounting for services** 1. 1. Budgets are produced using cost estimates.
Budgeting and accounting for services 2.2. Costs shall be budgeted to enable effective financial control and decision-making for services.	8.4.1	SAD.1	**Budgeting and accounting for services** 1. 1. Budgets are produced using cost estimates.
Budgeting and accounting for services 3.3.1 [At planned intervals,] the organization shall monitor [and report] on actual costs against the budget, review the financial forecasts and manage costs.	8.4.1	SAD.1	**Budgeting and accounting for services** 2. 2. Costs are monitored against budget.
Budgeting and accounting for services 4.3.2 [At planned intervals,] the organization shall [monitor and] report on actual costs against the budget, review the financial forecasts and manage costs.	8.4.1	RAA.3	**Service reporting** 3. 3. Service reports are produced according to the service report requirements.
Budgeting and accounting for services 5.3.3 At planned intervals, [the organization shall monitor and report on actual costs against the budget, review the financial forecasts and manage costs.]	8.4.1	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.
Demand management 1.1.1 a) [At planned intervals,] the organization shall: a) determine current demand [and forecast future demand for services;]	8.4.2	SAD.2	**Demand management** 1. 1. Current demand and consumption of services is identified.
Demand management 2.1.2 a) [At planned intervals,] the organization shall: a) [determine current demand and] forecast future demand for services;	8.4.2	SAD.2	**Demand management** 2. 2. Future demand for services is forecast.
Demand management 3.1.3 a) At planned intervals, the organization shall: a) determine current demand [and forecast future demand for services;]	8.4.2	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.

Table A.2 *(continued)*

ISO/IEC 20000-1:2018			ISO/IEC TS 33054 process reference model	
Demand management 4.1.4 a) At planned intervals, the organization shall: a) [determine current demand and] forecast future demand for services;	8.4.2	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.
Demand management 5.1.5 b) [At planned intervals,] the organization shall: b) monitor [and report on] demand and consumption of services.	8.4.2	SAD.2	**Demand management** 3. 3. Demand and consumption of services is monitored.
Demand management 6.1.6 b) [At planned intervals,] the organization shall: b) [monitor and] report on demand and consumption of services.	8.4.2	RAA.3	**Service reporting** 3. 3. Service reports are produced according to the service report requirements.
Demand management 7.1.7 b) At planned intervals, the organization shall: b) monitor [and report on] demand and consumption of services.	8.4.2	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.
Demand management 8.1.8 b) At planned intervals, the organization shall: b) [monitor and] report on demand and consumption of services.	8.4.2	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.
Capacity management 1.1.1 The capacity requirements for human, technical, information and financial resources shall be determined, [documented and maintained] taking into consideration the service and performance requirements.	8.4.3	SAD.3	**Capacity management** 1. 1. Capacity requirements for human, technical, information and financial resources is determined.
Capacity management 2.1.2 [The capacity requirements for human, technical, information and financial resources shall be determined], documented [and maintained taking into consideration the service and performance requirements.]	8.4.3	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
Capacity management 3.1.3 [The capacity requirements for human, technical, information and financial resources shall be determined, documented and] maintained [taking into consideration the service and performance requirements.]	8.4.3	COM.02	**Documentation management** 4. 4. Documented information is current, complete and valid.
Capacity management 4.2.1 a) The organization shall plan capacity to include: a) current and forecast capacity based on demand for services;	8.4.3	SAD.3	**Capacity management** 2. 2. Current and future capacity is planned to meet the demand.
Capacity management 5.2.2 b) The organization shall plan capacity to include: b) expected impact on capacity of agreed service level targets, requirements for service availability and service continuity;	8.4.3	SAD.3	**Capacity management** 2. 2. Current and future capacity is planned to meet the demand.

Table A.2 *(continued)*

ISO/IEC 20000-1:2018			ISO/IEC TS 33054 process reference model
Capacity management 6.2.3 c) The organization shall plan capacity to include: c) timescales and thresholds for changes to service capacity.	8.4.3	SAD.3	**Capacity management** 2. 2. Current and future capacity is planned to meet the demand.
Capacity management 7.3. The organization shall provide sufficient capacity to meet agreed capacity and performance requirements.	8.4.3	SAD.3	**Capacity management** 3. 3. Sufficient capacity is provided to meet capacity and performance requirements.
Capacity management 8.4.1 The organization shall monitor capacity usage, analyse capacity and performance data [and identify opportunities to improve performance.]	8.4.3	SAD.3	**Capacity management** 4. 4. Capacity usage is monitored and analysed.
Change management policy 1.1.1 a) A change management policy shall be established [and documented] to define: a) service components and other items that are under the control of change management;	8.5.1.1	TOP.01	**Leadership** 4. 4. The management system and operational process strategy is determined.
Change management policy 2.1.2 a) A change management policy shall be [established and] documented to define: a) service components and other items that are under the control of change management;	8.5.1.1	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
Change management policy 3.1.3 b) A change management policy shall be established [and documented] that defines: b) categories of change, including emergency change, and how they are to be managed;	8.5.1.1	TOP.01	**Leadership** 4. 4. The management system and operational process strategy is determined.
Change management policy 4.1.4 b) A change management policy shall be [established and] documented that defines: b) categories of change, including emergency change, and how they are to be managed;	8.5.1.1	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
Change management policy 5.1.5 c) A change management policy shall be established [and documented] that defines: c) criteria to determine changes with the potential to have a major impact on customers or services.	8.5.1.1	SPC.1	**Change management** 3. 3. Criteria for evaluating changes are defined.
Change management policy 6.1.6 c) A change management policy shall be [established and] documented that defines: c) criteria to determine changes with the potential to have a major impact on customers or services.	8.5.1.1	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.

Table A.2 *(continued)*

ISO/IEC 20000-1:2018		ISO/IEC TS 33054 process reference model	
Change management initiation 1.1. Requests for change, including proposals to add, remove or transfer services, shall be recorded and classified.	8.5.1.2	SDE.1 SPC.1	**Service delivery** 2. 2. A response to the customer's request for services is produced. **Change management** 1. 1. Change requests are recorded and classified.
Change management initiation 2.2.1 a) The organization shall use service design and transition in 8.5.2 for: a) new services with the potential to have a major impact on customers or other services as determined by the change management policy;	8.5.1.2	SPC.1	**Change management** 4. 4. Changes are evaluated using defined criteria.
Change management initiation 3.2.2 b) The organization shall use service design and transition in 8.5.2 for: b) changes to services with the potential to have a major impact on customers or other services as determined by the change management policy;	8.5.1.2	SPC.1	**Change management** 4. 4. Changes are evaluated using defined criteria.
Change management initiation 4.2.3 c) The organization shall use service design and transition for: c) categories of change that are to be managed by service design and transition in 8.5.2 according to the change management policy;	8.5.1.2	SPC.1	**Change management** 4. 4. Changes are evaluated using defined criteria.
Change management initiation 5.2.4 d) The organization shall use service design and transition in 8.5.2 for: d) removal of a service;	8.5.1.2	SPC.1	**Change management** 4. 4. Changes are evaluated using defined criteria.
Change management initiation 6.2.5 e) The organization shall use service design and transition in 8.5.2 for: e) transfer of an existing service from the organization to a customer or other party;	8.5.1.2	SPC.1	**Change management** 4. 4. Changes are evaluated using defined criteria.
Change management initiation 7.2.6 f) The organization shall use service design and transition in 8.5.2 for: f) transfer of an existing service from a customer or other party to the organization.	8.5.1.2	SPC.1	**Change management** 4. 4. Changes are evaluated using defined criteria.
Change management initiation 8.3. Assessing, approving, scheduling and reviewing of new or changed services in the scope of 8.5.2 shall be managed through the change management activities in 8.5.1.3.	8.5.1.2	COM.08	**Operational planning** 1. 1. Process requirements are identified.
Change management initiation 9.4. Requests for change not being managed through 8.5.2 shall be managed through the change management activities in 8.5.1.3.	8.5.1.2	COM.08	**Operational planning** 1. 1. Process requirements are identified.

Table A.2 *(continued)*

ISO/IEC 20000-1:2018		ISO/IEC TS 33054 process reference model	
Change management activities 1.1. The organization and interested parties shall make decisions on the approval and priority of requests for change.	8.5.1.3	SPC.1	**Change management** 4. 4. Changes are evaluated using defined criteria.
Change management activities 2.2. Decision-making shall take into consideration the risks, business benefits, feasibility and financial impact.	8.5.1.3	SPC.1	**Change management** 4. 4. Changes are evaluated using defined criteria.
Change management activities 3.3.1 a) Decision making shall also consider potential impacts of the change on: a) existing services;	8.5.1.3	SPC.1	**Change management** 4. 4. Changes are evaluated using defined criteria.
Change management activities 4.3.2 b) Decision making shall also consider potential impacts of the change on: b) customers, users and other interested parties;	8.5.1.3	SPC.1	**Change management** 4. 4. Changes are evaluated using defined criteria.
Change management activities 5.3.3 c) Decision making shall also consider potential impacts of the change on: c) policies and plans required by this document;	8.5.1.3	SPC.1	**Change management** 4. 4. Changes are evaluated using defined criteria.
Change management activities 6.3.4.1 d) Decision making shall also consider potential impacts of the change on: d) capacity, service availability, service continuity and information security;	8.5.1.3	SPC.1	**Change management** 4. 4. Changes are evaluated using defined criteria.
Change management activities 7.3.4.2 d) Decision making shall also consider potential impacts of the change on: d) [capacity, service availability, service continuity and] information security;	8.5.1.3	SPC.1	**Change management** 4. 4. Changes are evaluated using defined criteria.
Change management activities 8.3.5 e) Decision making shall also consider potential impacts of the change on: e) other requests for change, releases and plans for deployment.	8.5.1.3	SPC.1	**Change management** 4. 4. Changes are evaluated using defined criteria.
Change management activities 9.4. Approved changes shall be prepared, verified and, where possible, tested.	8.5.1.3	SPC.1	**Change management** 5. 5. Changes that meet defined criteria are implemented and verified.
Change management activities 10.5.1 Proposed deployment dates and other deployment details for approved changes [shall be communicated to interested parties.]	8.5.1.3	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.
Change management activities 11.5.2 [Proposed deployment dates and other deployment details for approved changes] shall be communicated to interested parties.	8.5.1.3	COM.01	**Communication management** 6. 6. Information products are communicated to relevant interested parties.

Table A.2 *(continued)*

ISO/IEC 20000-1:2018			ISO/IEC TS 33054 process reference model	
Change management activities 12.6.1 The activities to reverse or remedy an unsuccessful change shall be [planned and,] where possible, tested.	8.5.1.3	SPC.1	**Change management** 6. 6. Changes that do not meet defined criteria are reversed or remedied.	
Change management activities 13.6.2 [The activities to reverse or remedy an unsuccessful change shall be] planned [and, where possible, tested.]	8.5.1.3	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.	
Change management activities 14.7. Unsuccessful changes shall be investigated and agreed actions taken.	8.5.1.3	COM.09	**Operational implementation and control** 5. 5. Deviations from planned arrangements are corrected when targets are not achieved.	
Change management activities 15.9. The organization shall review changes for effectiveness and take actions agreed with interested parties.	8.5.1.3	COM.09	**Operational implementation and control** 4. 4. Suitability and effectiveness of the actions taken to achieve the management system objectives are reviewed.	
Change management activities 16.10.1 [At planned intervals,] request for change records shall be analysed to detect trends.	8.5.1.3	COM.10	**Performance evaluation** 5. 5. The collected performance data is analysed.	
Change management activities 17.10.2 At planned intervals, [request for change records shall be analysed to detect trends.]	8.5.1.3	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.	
Change management activities 18.11.1 The results and conclusions drawn from the analysis shall be recorded and reviewed [to identify opportunities for improvement.]	8.5.1.3	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.	
Change management activities 19.11.2 [The results and conclusions drawn from the analysis shall be recorded and reviewed] to identify opportunities for improvement.	8.5.1.3	COM.04	**Improvement** 1. 1. Opportunities for improvement are identified.	
Plan new or changed services 1.1.1 a) Planning shall use the service requirements for the new or changed services determined in 8.2.2 and shall include or contain a reference to: a) authorities and responsibilities for design, build and transition activities;	8.5.2.1	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.	
Plan new or changed services 2.1.2 b) Planning shall use the service requirements for the new or changed services determined in 8.2.2 and shall include or contain a reference to: b) activities to be performed by the organization or other parties with their timescales;	8.5.2.1	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.	

Table A.2 *(continued)*

ISO/IEC 20000-1:2018			ISO/IEC TS 33054 process reference model	
Plan new or changed services 3.1.3 c) Planning shall use the service requirements for the new or changed services determined in 8.2.2 and shall include or contain a reference to: c) human, technical, information and financial resources;	8.5.2.1	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.	
Plan new or changed services 4.1.4 d) Planning shall use the service requirements for the new or changed services determined in 8.2.2 and shall include or contain a reference to: d) dependencies on other services;	8.5.2.1	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.	
Plan new or changed services 5.1.5 e) Planning shall use the service requirements for the new or changed services determined in 8.2.2 and shall include or contain a reference to: e) testing needed for the new or changed services;	8.5.2.1	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.	
Plan new or changed services 6.1.6 f) Planning shall use the service requirements for the new or changed services determined in 8.2.2 and shall include or contain a reference to: f) service acceptance criteria;	8.5.2.1	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.	
Plan new or changed services 7.1.7 g) Planning shall use the service requirements for the new or changed services determined in 8.2.2 and shall include or contain a reference to: g) intended outcomes from delivering the new or changed services, expressed in measurable terms;	8.5.2.1	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.	
Plan new or changed services 8.1.8 h) Planning shall use the service requirements for the new or changed services determined in 8.2.2 and shall include or contain a reference to: h) impact on the SMS, other services, planned changes, customers, users and other interested parties.	8.5.2.1	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.	
Plan new or changed services 9.2 For services that are to be removed, the planning shall additionally include the date(s) for the removal of the activities for archiving, disposal or transfer of data, documented information and service components.	8.5.2.1	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.	

Table A.2 *(continued)*

ISO/IEC 20000-1:2018			ISO/IEC TS 33054 process reference model	
Plan new or changed services 10.3. For services that are to be transferred, the planning shall additionally include the date(s) for the transfer of the services and the activities for the transfer of data, documented information, knowledge and service components.	8.5.2.1	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.
Plan new or changed services 11.4. The CIs affected by new or changed services shall be managed through configuration management.	8.5.2.1	SPC.2	**Configuration management** 1. 1. Items requiring configuration management are identified.
Design 1.1.1 The new or changed services shall be designed [and documented] to meet the service requirements determined in 8.2.2.	8.5.2.2	SDB.2	**Service design** 1. 1. New or changed services are designed to meet service requirements.
Design 2.1.2 The new or changed services shall [be designed and] documented to meet the service requirements determined in 8.2.2.	8.5.2.2	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
Design 3.2.1 a) The design shall include relevant items from the following: a) authorities and responsibilities of the parties involved in the delivery of the new or changed services;	8.5.2.2	SDB.2	**Service design** 2. 2. A design specification that defines the attributes of the new or changed service is prepared.
Design 4.2.2 b) The design shall include relevant items from the following: b) requirements for changes to human, technical, information and financial resources;	8.5.2.2	SDB.2	**Service design** 2. 2. A design specification that defines the attributes of the new or changed service is prepared.
Design 5.2.3 c) The design shall include relevant items from the following: c) requirements for appropriate education, training and experience;	8.5.2.2	SDB.2	**Service design** 2. 2. A design specification that defines the attributes of the new or changed service is prepared.
Design 6.2.4 d) The design shall include relevant items from the following: d) new or changed SLAs, contracts and other documented agreements that support the services;	8.5.2.2	SDB.2	**Service design** 2. 2. A design specification that defines the attributes of the new or changed service is prepared.
Design 7.2.5 e) The design shall include relevant items from the following: e) changes to the SMS including new or changed policies, plans, processes, procedures, measures and knowledge;	8.5.2.2	SDB.2	**Service design** 2. 2. A design specification that defines the attributes of the new or changed service is prepared.
Design 8.2.6 f) The design shall include relevant items from the following: f) impact on other services;	8.5.2.2	SDB.2	**Service design** 2. 2. A design specification that defines the attributes of the new or changed service is prepared.

Table A.2 *(continued)*

ISO/IEC 20000-1:2018			ISO/IEC TS 33054 process reference model
Design 9.2.7 g) The design shall include relevant items from the following: g) updates to the service catalogue(s).	8.5.2.2	SDB.2	**Service design** 2. 2. A design specification that defines the attributes of the new or changed service is prepared.
Build and transition 1.1.1 The new or changed services shall be built [and tested to verify that they meet the service requirements, conform to the documented design and meet the agreed service acceptance criteria.	8.5.2.3	SDB.3	**Service build and transition** 1. 1. New or changed services are built according to the design specification.
Build and transition 2.1.2 The new or changed services shall be [built and] tested to verify that they meet the service requirements, conform to the documented design and meet the agreed service acceptance criteria.]	8.5.2.3	SDB.3	**Service build and transition** 2. 2. The new or changed services are tested against the service requirements.
Build and transition 3.2. If the service acceptance criteria are not met, the organization and interested parties shall make a decision on necessary actions and deployment.	8.5.2.3	SDB.3	**Service build and transition** 3. 3. The new or changed services are accepted in accordance with the service acceptance criteria.
Build and transition 4.3. Release and deployment management shall be used to deploy approved new or changed services into the live environment.	8.5.2.3	COM.08	**Operational planning** 1. 1. Process requirements are identified.
Build and transition 5.4. Following the completion of the transition activities, the organization shall report to interested parties on the achievements against the intended outcomes.	8.5.2.3	RAA.3	**Service reporting** 3. 3. Service reports are produced according to the service report requirements.
Release and deployment management 1.1. The organization shall define the types of releases, including emergency releases, their frequency and how they are to be managed.	8.5.3	SDB.4	**Release and deployment management** 1. 1.Types of releases and their management are defined.
Release and deployment management 2.2. The organization shall plan the deployment of new or changed services and service components into the live environment.	8.5.3	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.
Release and deployment management 3.3. Planning shall be co-ordinated with change management and include references to the related requests for change, known errors or problems which are being closed through the release.	8.5.3	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.
Release and deployment management 4.4. Planning shall include the dates for deployment of each release, deliverables and methods of deployment.	8.5.3	COM.08	**Operational planning** 8. 8. Plans for the deployment of the process are developed.

Table A.2 *(continued)*

ISO/IEC 20000-1:2018			ISO/IEC TS 33054 process reference model
Release and deployment management 5.5. [The release shall be verified against the] documented acceptance criteria [and approved before deployment.]	8.5.3	SDB.4	**Release and deployment management** 2. 2. Release acceptance criteria are defined.
Release and deployment management 6.6. The release shall be verified against the [documented] acceptance criteria and approved before deployment.	8.5.3	SDB.4	**Release and deployment management** 3. 3. Releases are tested in accordance with defined criteria.
Release and deployment management 7.7. If the acceptance criteria are not met, the organization and interested parties shall make a decision on necessary actions and deployment.	8.5.3	SDB.4	**Release and deployment management** 4. 4. Approved releases are deployed.
Release and deployment management 8.8. Before deployment of a release into the live environment, a baseline of the affected CIs shall be taken, if possible.	8.5.3	SPC.2	**Configuration management** 4. 4. Changes to items under configuration management are controlled.
Release and deployment management 9.9. The release shall be deployed into the live environment so that the integrity of the services and service components is maintained.	8.5.3	SDB.4	**Release and deployment management** 4. 4. Approved releases are deployed.
Release and deployment management 10.10.1 The success or failure of releases shall be monitored [and analysed.]	8.5.3	COM.09	**Operational implementation and control** 4. 4. Suitability and effectiveness of the actions taken to achieve the management system objectives are reviewed.
Release and deployment management 11.10.2 The success or failure of releases shall be [monitored and] analysed.	8.5.3	COM.10	**Performance evaluation** 5. 5. The collected performance data is analysed.
Release and deployment management 12.11. Measurements shall include incidents related to a release in the period following deployment of a release.	8.5.3	COM.10	**Performance evaluation** 1. 1. Performance monitoring and measurement needs are defined.
Release and deployment management 13.12.1 The results and conclusions drawn from the analysis shall be recorded and reviewed [to identify opportunities for improvement.]	8.5.3	COM.02	**Documentation management** 1. 1. Documented information to be documented is identified.
Release and deployment management 14.12.2 [The results and conclusions drawn from the analysis shall be recorded and reviewed] to identify opportunities for improvement.	8.5.3	COM.04	**Improvement** 1. 1. Opportunities for improvement are identified.
Release and deployment management 15.13. Information about the success or failure of releases and future release dates shall be made available for other service management activities as appropriate.	8.5.3	COM.02	**Documentation management** 6. 6. Documented information is available to relevant interested parties.

Table A.2 *(continued)*

ISO/IEC 20000-1:2018			ISO/IEC TS 33054 process reference model
Incident management 1.1.1 Incidents shall be: a) recorded and classified;	8.6.1	RAF.1	**Incident management** 2. 2. Incidents are recorded and classified.
Incident management 2.1.2 Incidents shall be: b) prioritized taking into consideration impact and urgency;	8.6.1	RAF.1	**Incident management** 3. 3. Incidents are prioritized.
Incident management 3.1.3 Incidents shall be: c) escalated if needed;	8.6.1	RAF.1	**Incident management** 4. 4. Incidents are escalated, where needed.
Incident management 4.1.4 Incidents shall be: d) resolved;	8.6.1	RAF.1	**Incident management** 5. 5. Incidents are resolved.
Incident management 5.1.5 Incidents shall be: e) closed.	8.6.1	RAF.1	**Incident management** 6. 6. Incidents are closed.
Incident management 6.2. Records of incidents shall be updated with actions taken.	8.6.1	COM.02	**Documentation management** 4. 4. Documented information is current, complete and valid.
Incident management 7.3. The organization shall determine criteria to identify a major incident.	8.6.1	RAF.1	**Incident management** 1. 1. Criteria are identified for major incidents.
Incident management 8.4. Major incidents shall be classified and managed according to a documented procedure.	8.6.1	COM.09	**Operational implementation and control** 3. 3. Actions required to achieve the management system objectives are implemented.
Incident management 9.5. Top management shall be informed of major incidents.	8.6.1	COM.01	**Communication management** 6. 6. Information products are communicated to relevant interested parties.
Incident management 10.6. The organization shall assign responsibility for managing each major incident.	8.6.1	COM.09	**Operational implementation and control** 1. 1. The required roles, responsibilities and authorities are allocated.
Incident management 11.7.1 After the incident has been resolved, the major incident shall be reported and reviewed [to identify opportunities for improvement.]	8.6.1	COM.09	**Operational implementation and control** 4. 4. Suitability and effectiveness of the actions taken to achieve the management system objectives are reviewed.
Incident management 12.7.2 [After the incident has been resolved, the major incident shall be reported and reviewed] to identify opportunities for improvement.	8.6.1	COM.04	**Improvement** 1. 1. Opportunities for improvement are identified.
Service request management 1.1.1 Service requests shall be: a) recorded and classified;	8.6.2	RAF.2	**Service request management** 1. 1. Service requests are recorded and classified.
Service request management 2.1.2 Service requests shall be: b) prioritized;	8.6.2	RAF.2	**Service request management** 2. 2. Service requests are prioritized.

Table A.2 *(continued)*

ISO/IEC 20000-1:2018			ISO/IEC TS 33054 process reference model
Service request management 3.1.3 Service requests shall be: c) fulfilled;	8.6.2	RAF.2	**Service request management** 3. 3. Service requests are fulfilled.
Service request management 4.1.4 Service requests shall be: d) closed.	8.6.2	RAF.2	**Service request management** 4. 4. Service requests are closed.
Service request management 5.2. Records of service requests shall be updated with actions taken.	8.6.2	COM.02	**Documentation management** 4. 4. Documented information is current, complete and valid.
Service request management 6.3. Instructions for the fulfilment of service requests shall be made a available to persons involved in service request fulfilment.	8.6.2	COM.02	**Documentation management** 6. 6. Documented information is available to relevant interested parties.
Problem management 1.1. The organization shall analyse data and trends on incidents to identify problems.	8.6.3	RAF.3	**Problem management** 2. 2. Problems are recorded and classified.
Problem management 2.2. The organization shall undertake root cause analysis and determine potential actions to prevent the occurrence or recurrence of incidents.	8.6.3	RAF.3	**Problem management** 5. 5. Problems are resolved, if possible.
Problem management 3.3.1 Problems shall be: a) recorded and classified;	8.6.3	RAF.3	**Problem management** 2. 2. Problems are recorded and classified.
Problem management 4.3.2 Problems shall be: b) prioritized;	8.6.3	RAF.3	**Problem management** 3. 3. Problems are prioritized.
Problem management 5.3.3 Problems shall be: c) escalated if needed;	8.6.3	RAF.3	**Problem management** 4. 4. Problems are escalated, if needed.
Problem management 6.3.4 Problems shall be: d) resolved if possible;	8.6.3	RAF.3	**Problem management** 6. 6. The impacts of problems are minimized, where possible.
Problem management 7.3.5 Problems shall be: e) closed.	8.6.3	RAF.3	**Problem management** 7. 7. Problems are closed.
Problem management 8.4. Records of problems shall be updated with actions taken.	8.6.3	COM.02	**Documentation management** 4. 4. Documented information is current, complete and valid.
Problem management 9.5. Changes needed for problem resolution shall be managed according to the change management policy.	8.6.3	COM.08	**Operational planning** 1. 1. Process requirements are identified.
Problem management 10.6. Where the root cause has been identified, but the problem has not been permanently resolved, the organization shall determine actions to reduce or eliminate the impact of the problem on the services.	8.6.3	RAF.3	**Problem management** 6. 6. The impacts of problems are minimized, where possible.