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Information technology — Service management —

Part 2: Guidance on the application of service management systems

Technologies de l'information — Gestion des services —

Partie 2: Directives relatives à l'application des systèmes de management des services

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Foreword

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

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).

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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 40, *IT Service Management and IT Governance*.

This third edition cancels and replaces the second edition (ISO/IEC 20000-2:2012), which has been technically revised.

The main changes from the previous edition are as follows:

a) updated to align with ISO/IEC 20000-1:2018;

b) improved consistency and clarity of guidance for each clause with these consistent elements: Required activities, Explanation (which includes purpose statement), and Other information (which includes guidance on documented information and roles and authorities);

c) added an Annex (Annex A) that compiles all of the mandatory documented information called for in ISO/IEC 20000-1.

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

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 provides guidance for establishing, implementing, maintaining, and continually improving a service management system (SMS). An SMS supports the management of the service lifecycle, including the planning, design, transition, delivery, and improvement of services, which fulfil agreed requirements and deliver value for customers, users, and the organization delivering the services.

The adoption of an SMS is a strategic decision for an organization and is influenced by the organization's objectives, the governing body, other parties involved in the service lifecycle and the need for effective and resilient services. The guidance in this document aligns with ISO/IEC 20000-1:2018. This document (ISO/IEC 20000-2) is intentionally independent of guidance for the management of any specific type of service. The organization can use a combination of generally accepted frameworks and its own experience. Improvement for service management can use common improvement methodologies and apply them to the SMS and the services. Appropriate tools for service management can be used to support the SMS. Implementation and operation of an SMS provides ongoing visibility, control of services, and continual improvement, leading to greater effectiveness and efficiency. Improvement for service management applies to the SMS and the services.

The clause structure in this document (i.e. clause numbering and sequence) aligns with ISO/IEC 20000-1:2018 and the terms used in this document align with ISO/IEC 20000-1:2018 and ISO/IEC 20000-10:2018.

Information technology — Service management —

Part 2:
Guidance on the application of service management systems

1 Scope

1.1 General

This document provides guidance on the application of a service management system (SMS) based on ISO/IEC 20000-1. It provides examples and recommendations to enable organizations to interpret and apply ISO/IEC 20000-1, including references to other parts of ISO/IEC 20000 and other relevant standards.

Figure 1 illustrates an SMS with the clause content of ISO/IEC 20000-1. It does not represent a structural hierarchy, sequence, or authority levels.

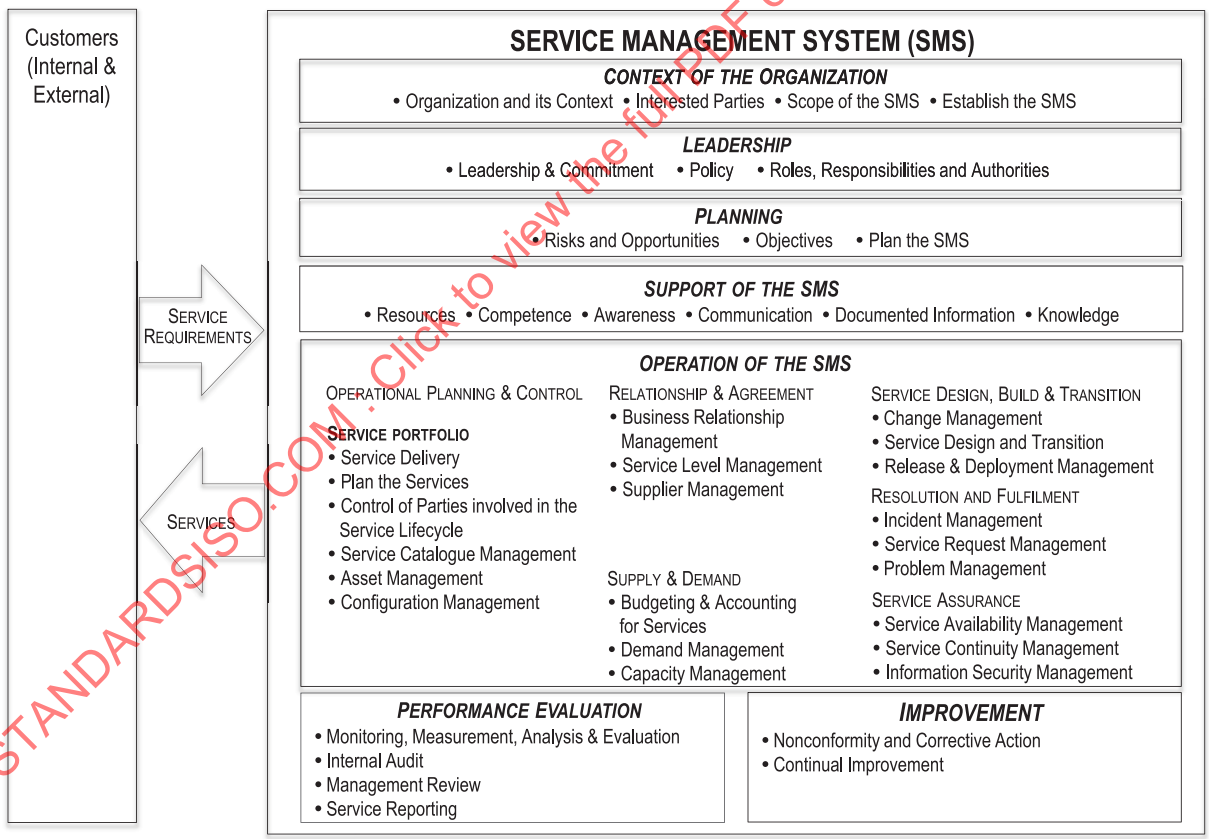

Figure 1 — Service management system

The structure of clauses is intended to provide a coherent presentation of requirements, rather than a model for documenting an organization's policies, objectives, and processes. Each organization can choose how to combine the requirements into processes. The relationship between each organization and its customers, users, and other interested parties influences how the processes are implemented. However, an SMS as designed by an organization cannot exclude any of the requirements specified in ISO/IEC 20000-1.

The term 'service' as used in this document refers to the services in the scope of the SMS. The term 'organization' as used in this document refers to the organization in the scope of the SMS. The organization in the scope of the SMS can be part of a larger organization, for example an IT department of a large corporation. The organization manages and delivers services to customers and can also be referred to as a service provider. Any use of the terms 'service' or 'organization' with a different intent is distinguished clearly in this document. The term 'delivered', as used in this document, can be interpreted as all of the service lifecycle activities that are performed in addition to daily operational activities. Service lifecycle activities include planning, design, transition, delivery, and improvement.

1.2 Application

The guidance in this document is generic and is intended to be applicable to any organization applying an SMS, regardless of the organization's type or size, or the nature of the services delivered. While it can be used 'regardless of the organization's type or size, or the nature of the services delivered', ISO/IEC 20000-1 has its roots in IT. It is intended for service management of services using technology and digital information. The examples given in this document illustrate a variety of uses of ISO/IEC 20000-1.

The service provider is accountable for the SMS and therefore cannot ask another party to fulfil the requirements of ISO/IEC 20000-1:2018, Clauses 4 and 5. For example, the organization cannot ask another party to provide the top management and demonstrate top management commitment or to demonstrate the control of parties involved in the service lifecycle.

Some activities in ISO/IEC 20000-1:2018, Clauses 4 and 5 can be performed by another party under the management of the organization. For example, an organization can ask another party to create the initial service management plan as a key document for the SMS. The plan, once created and agreed, is the direct responsibility of and is maintained by the organization. In these examples, the organization is using other parties for specific short-term activities. The organization has accountability, authorities, and responsibility for the SMS. The organization can therefore demonstrate evidence of fulfilling all of the requirements of ISO/IEC 20000-1:2018, Clauses 4 and 5.

For ISO/IEC 20000-1:2018, Clauses 6 to 10, an organization can show evidence of meeting all of the requirements itself. Alternatively, an organization can show evidence of retaining accountability for the requirements when other parties are involved in meeting the requirements in ISO/IEC 20000-1:2018, Clauses 6 to 10. Control of other parties involved in the service lifecycle can be demonstrated by the organization (see 8.2.3). For example, the organization can demonstrate evidence of controls for another party who is providing infrastructure service components or operating the service desk including the incident management process.

The organization cannot demonstrate conformity to the requirements in ISO/IEC 20000-1 if other parties are used to provide or operate *all* services, service components, or processes within the scope of the SMS. However, if other parties provide or operate only *some of* the services, service components, or processes, the organization can normally demonstrate evidence of meeting the requirements specified in ISO/IEC 20000-1.

The scope of this document excludes the specification of products or tools. However, ISO/IEC 20000-1 and this document can be used to help with the development or acquisition of products or tools that support the operation of an SMS.

1.3 Structure

This document follows the clauses in ISO/IEC 20000-1 and, from Clause 4 onwards, provides three sections per clause or sub-clause:

a) *Required activities*: a summary of the activities required by this clause in ISO/IEC 20000-1 Note that this summary does not replicate the requirement statements in ISO/IEC 20000-1 or add new requirements, but simply describes the activities;

b) *Explanation*: an explanation of the purpose of the clause and practical guidance on clause contents, including examples and recommendations on how to implement the requirements of ISO/IEC 20000-1. When relevant, it refers to other parts of ISO/IEC 20000 and other relevant standards;

c) *Other information*: guidance on roles and responsibilities and on documented information supporting the implementation of an SMS. Further relevant information can also be included.

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*

3 Terms and definitions

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

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

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

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

4 Context of the organization

4.1 Understanding the organization and its context

4.1.1 Required activities

The organization determines external and internal issues relevant to its purpose and affecting its ability to achieve the intended outcomes of the SMS.

4.1.2 Explanation

The purpose of this required activity is to set the context by determining those issues that are relevant to the organization's purpose and influence its ability to achieve the intended outcomes of the SMS. These outcomes include the delivery of value to its customers. Issues can vary, e.g. internal or external, positive or negative. All issues taken together provide the basic context in which the organization establishes its SMS.

NOTE The word 'issue' in this context can be factors or attributes that have a positive or negative impact. These are important topics, factors, or attributes for the organization in the context of its ability to deliver services of an agreed quality to its customers.

To implement an SMS successfully, the organization identifies and documents its internal and external context. Context includes the nature of the organization itself, the needs and expectations of other interested parties that have a stake in the SMS, and the scope of the SMS itself. Based on an understanding of these issues, the SMS can be established.

Early in the planning stage, the organization should establish how ISO/IEC 20000-1 is applicable to the organization's context, so that the initial scope of the SMS can be documented. Failing to identify the context, interested parties, and scope can lead to an unsuccessful or inefficient SMS.

Because external and internal issues can change, the organization can review its context at planned intervals and through management review.

EXAMPLE Internal issues can include policies, resources, capabilities, people, skills and knowledge, organizational structure, governance, culture, internal customer demands, and finance. External issues can include market, political, economic, and environmental influences, competition, laws and regulations, external customer demands, and the likelihood of events that could affect the services.

4.1.3 Other information

A list of internal and external issues affecting the SMS is developed and should be documented.

Establishing the context of the organization is completed at the top management level, who may have the assistance of technical and business analysts.

4.2 Understanding the needs and expectations of interested parties

4.2.1 Required activities

The organization determines interested parties relevant to the SMS and the services and their requirements.

4.2.2 Explanation

The purpose of this required activity is to ensure that the organization identifies requirements of relevant interested parties to support the SMS to deliver services. An interested party is a person or group that can affect or can be affected by a decision or activity related to the SMS. They can be internal or external to the organization. An interested party can also be known as a stakeholder.

EXAMPLE Interested parties can include customers and customer representatives, top executives, management representatives, account management, personnel, support functions within the organization (e.g. technology support, human resources, facilities, legal, recruitment, procurement), suppliers, partners, regulators, auditors, trade and professional associations, and competitors.

The organization identifies the interested parties and their relevance to the achievement of service management objectives or to the delivery of services, including their requirements for the SMS or the services. An interested party can affect the performance and effectiveness of the SMS and the services, influence the market, or create and mitigate risks.

Interested parties' requirements can include the following:

a) service requirements such as service level targets, capacity, performance, service level requirements, service continuity, information security, or availability requirements;

b) legal and regulatory requirements imposed by external authorities, such as national or regional laws and regulations;

c) contractual obligations to partners, customers, or suppliers.

4.2.3 Other information

The organization documents a list of interested parties with their specific interests and their requirements for the SMS and the services.

Identifying interested parties is completed at the top management level, who may have the assistance of technical and business analysts.

4.3 Determining the scope of the service management system

4.3.1 Required activities

The organization determines the boundaries and applicability of the SMS to establish its scope.

4.3.2 Explanation

The purpose of this required activity is to use the information gathered about the issues and requirements of interested parties to define exactly what part of the organization and what services are to be included within the SMS. Establishing the scope is therefore a key activity that determines the necessary foundation for all other activities in the implementation of the SMS.

The organization takes into account the following inputs when documenting the scope of the SMS:

a) the internal and external issues;

b) the needs and expectations of internal and external interested parties;

c) what services or types of services are offered to customers, e.g.

- a single service, group of services, or all services;
- IT services, cloud services;
- technology services to support facilities management, business process outsourcing;
- technology services to support any sector's business such as telecommunications, finance, retail, tourism, utilities;

d) the number and type of customers, e.g. a single customer, a specific customer sector, external or internal customers;

e) the locations from which the services are to be delivered.

The services considered at c) can be all or some of the services that are agreed to be in the scope of the SMS. The services in the scope of the SMS can be all or some of the services delivered by the organization. The services in the scope of the SMS can be listed individually or grouped. The name of the organization that manages and provides the services is included; however, the scope statement should not include the names of other parties contributing to the delivery of the service, such as outsourcing partners.

4.3.3 Other information

The organization documents a scope statement for the SMS, following the guidance provided in ISO/IEC 20000-3.

Defining a scope statement for the SMS is completed at the top management level; subject matter experts such as technical and business analysts may assist.

4.4 Service management system

4.4.1 Required activities

The organization establishes, implements, maintains, and continually improves the SMS.

4.4.2 Explanation

The purpose of this required activity is to ensure that all required elements are assembled to establish, implement, maintain, and continually improve the SMS.

Once the context, interested parties and their requirements, and the scope have been agreed, the organization decides how the requirements in ISO/IEC 20000-1 are to be implemented as processes. For example, are the processes in the SMS going to reflect exactly the clauses in ISO/IEC 20000-1 or will they be combined, separated, or named in a different way?

To gain the most value from processes, it is essential to keep the processes current. An approach for routine process evaluation will benefit the organization. As processes are deployed and implemented, routine reviews include a review of their performance to optimize the process results.

The plans and aspirations of the organization can be considered when establishing and implementing the SMS so that maintenance and continual improvement can be performed efficiently. See Clause 6 for more information.

4.4.3 Other information

The organization documents the SMS to meet the requirements of ISO/IEC 20000-1:2018, 7.5.

Top management provides the basis and the authority to proceed with the establishment of the SMS. The responsibility for establishing the SMS may then be delegated to authorised personnel in the organization.

5 Leadership

5.1 Leadership and commitment

5.1.1 Required activities

Top management demonstrates leadership and commitment with respect to the SMS.

5.1.2 Explanation

The purpose of this required activity is to ensure that top management demonstrates leadership and commitment to support the establishment and operation of an SMS. Top management is defined as 'the person or group of people who directs and controls an organization at the highest level.' Top management, i.e. the level of management in the organization that has the authority and capability to initiate the development of an SMS, also provides the needed resources for the continuing support of the SMS and is accountable for the achievement of the objectives and intended outcomes of the SMS and services. The right level of involvement and commitment is essential to successfully implement an SMS in support of the services it provides to customers.

Top management is accountable for ensuring that the SMS and the services are reviewed regularly. Further information about management reviews can be found in 9.3.

Top management establishes a service management policy, as well as service management objectives, describing their high-level vision of, and targets for, service management in the organization. Top management does so in a way that is aligned with the overall business objectives and strategic direction of the organization, as the policy and objectives are there to support the organization's business.

Based on the service management policy and objectives, top management directs the development and maintenance of a service management plan, which is the overarching document that provides a summary and describes the intent of the SMS for the organization.

Top management assigns levels of authority, appropriate to the size and complexity of the organization, and delegates responsibility, so that the appropriate personnel are authorized to make decisions related to the SMS and the services.

Top management determines what constitutes value for the organization and for the customers. The creation of value from services includes realizing benefits at an optimal resource level while managing risk. An asset, service component, and a service are examples that can be considered value. Internally,

value can include increased employee satisfaction, reduced costs, and increased revenue. Externally, value is determined by the service outcomes and benefits that customers perceive from the use of the services provided.

Top management considers the relationship of the SMS to achievement of the business outcomes. Top management ensures that service management requirements and objectives are in line with the business outcomes and processes of the organization. This approach prevents conflicts between service management processes and business processes that are supported by the SMS.

Top management ensures that the SMS is integrated into the organization's business processes. For example, the SMS requirements are not labelled and undertaken as an 'add-on' to the normal business processes but are part of the normal business processes. In this way, there is more certainty that the requirements will become part of business as usual and will be more likely to gain the benefits and outcomes that are expected.

Top management commits resources to support the SMS and the services; these include personnel, financial, technical, enabling services, and any other resources. When needed, top management supports other management roles so that they can be effective in their leadership roles and contribute to the success of the SMS and the services.

Top management communicates with the members of the organization about the importance of the SMS to the organization as a means of increasing its efficiency and effectiveness. Top management also communicates to personnel the importance of the SMS to achieve the service management objectives and to deliver value to the organization and its customers. Top management should also ensure that the organization establishes effective feedback loops to enable bi-directional and lateral communications on the SMS and the services.

Top management facilitates and promotes continual improvement of both the SMS and the services, with the aim of increasing the value provided by the services to customers, end users, and the organization itself. Personnel also contribute to the effectiveness of the SMS and the services, for example through identifying opportunities for improvement to enhance the effectiveness of the SMS and the quality of the services.

5.1.3 Other information

Documented information required for top management involvement includes the following:

a) the service management policy;

b) the service management plan;

c) the service management objectives;

d) records of required communication.

Top management has the power to delegate authority and provide resources within the organization. If the scope of the management system covers only part of an organization then top management refers to those who direct and control that part of the organization.

It is recommended that the relationship between top management in the context of ISO/IEC 20000-1 and the highest level governing body, if one exists in the organization, is made specific.

The governing body can be involved with the SMS by:

a) reviewing the alignment of the organization's strategy and service management policy;

b) reviewing that appropriate levels of authority are assigned for making decisions related to the SMS and the services;

c) receiving and reviewing information at planned intervals about the content and operation of the organization's SMS;

d) exercising reasonable oversight of the implementation, operation, and effectiveness of the organization's SMS.

These activities may be carried out by top management if the organization does not have a separate governing body.

NOTE ISO/IEC 38500:2015 provides guidance on and principles for the governance of IT.

5.2 Policy

5.2.1 Required activities

Top management establishes a service management policy.

5.2.2 Explanation

The purpose of this required activity is to document the high-level intentions of the SMS in a service management policy and to give direction to the organization with regard to service management. This policy is widely available and communicated to all relevant personnel and external interested parties.

The service management policy is specific to the organization's circumstances and objectives and includes a customer focus. The policy should not be a generic, broadly applicable statement.

The policy represents organizational strategy and commitment to deliver value to the organization and customers.

The policy applies to the agreed scope of the SMS and forms the foundation of the organization's service management objectives and the service management plan.

The policy gives clear direction to the organization's managers and personnel.

EXAMPLE 1 Services are aligned to the business objectives and both organizational and customer priorities.

EXAMPLE 2 Changes to processes or procedures are made through the change management process.

EXAMPLE 3 Roles and responsibilities for the service management processes are defined and documented in a consistent manner and personnel performance is measured against those responsibilities.

The organization structures the service management policy so that it states how the organization's service management objectives are set (see 6.2 for the relationship between objectives and measures). It should be possible to demonstrate a link between the service management policy and the activities to achieve the organization's service management objectives.

A commitment to continual improvement of the SMS and the services is part of the policy.

The organization communicates the service management policy so that it is understood within the organization. It is also made available to customers and suppliers or other interested parties as required.

When other management systems are used in addition to the SMS (such as a quality management system), it is advisable for the service management policies to be consistent with the relevant policies of the other management systems used by the organization. However, any service management policy should remain relevant to the SMS and the services. This helps with integrating the various management systems and provides clarity to the organization's personnel.

Top management ensures that the service management policy is reviewed at suitable intervals, usually annually. This review is used to identify any deficiencies and ensure continual alignment with business needs and customer priorities.

NOTE The policy can also be reviewed to ensure alignment if service management objectives have changed.

5.2.3 Other information

The service management policy is available as documented information.

Top management is the authoritative party establishing the service management policy with input from relevant personnel in the organization.

The governing body, if one exists, should be involved with the SMS by approving the organization's service management policy.

5.3 Organizational roles, responsibilities, and authorities

5.3.1 Required activities

Top management ensures that responsibilities and authorities for roles relevant to service management are assigned and communicated throughout the organization.

5.3.2 Explanation

The purpose of this required activity is to clearly identify and express the authorities and responsibilities for the various roles that contribute to the success of the SMS and the services.

Top management identifies the roles required for all aspects of the SMS, such as design, implementation, review, and improvement. Specific responsibilities and authorities are assigned to personnel who are responsible for making decisions regarding the SMS and the services, so that the SMS conforms to the requirements of ISO/IEC 20000-1. Once all the required roles are identified, the responsibility is defined for each of the roles, along with the specific outcomes expected from them. The roles are empowered with the required authority to take decisions expected by their roles. These roles, responsibilities, and authorities are clearly communicated in the organization.

Depending on the size and complexity of the organization, one individual may have several roles, or one role may be performed by multiple individuals. Such role allocation is not intended to limit flexibility in assignment of tasks and accountability.

Based on the service management objectives and service requirements, the performance of the SMS and the services is regularly reported to top management and reviewed for conformance to the service management policy and to identify improvement opportunities.

5.3.3 Other information

The roles, responsibilities, and authorities of various personnel involved in the establishment and management of the SMS and the services are documented and widely communicated within the organization and to other interested parties.

Responsibility and accountability for each service and SMS process (or group of services or processes) should be clearly delineated. The authorities and responsibilities for each service management process in the SMS can include:

a) a process owner role, responsible for the design of the process, ensuring adherence to the process, and the measurement and improvement of the process;

b) service owner role (can be a member of top management or an operational manager), responsible for a service throughout the service lifecycle, including planning, design, transition, delivery, improvement, and retirement;

c) a process manager role, responsible for the operation of the process and the management of the process management resources;

d) personnel who perform the procedures of the process.

The role with the responsibility and authority for ensuring conformance to the requirements of ISO/IEC 20000-1 and reporting to top management can be called the management representative. Examples of additional roles are service desk manager, infrastructure manager, information security officer, service continuity manager.

The documented information about roles, responsibilities, and authorities clearly outlines the various functions supporting the SMS and the services as well as their responsibilities and authorities. These functions, responsibilities, and authorities are determined by top management. Note that ISO/IEC 20000-1:2018, 5.3 requires top management to assign authority and responsibility to persons who report on performance of the SMS and service to top management.

6 Planning

6.1 Actions to address risks and opportunities

6.1.1 Required activities

Risks and opportunities are identified with a risk assessment to assure that the SMS can achieve its intended outcomes and is continually improved. A risk management approach to deal with risks is developed and actions to treat risks are determined and planned.

6.1.2 Explanation

The purpose of this required activity is to identify and address risks and opportunities to the SMS and the services. The internal and external issues determined as described in 4.1 and the requirements of interested parties as described in 4.2 are taken into account to determine risks and opportunities affecting the SMS. This assessment focuses on:

a) identifying the risks that can affect the achievement of outcomes for the SMS;

b) preventing or reducing undesired impact on the SMS and the services caused by these risks;

c) providing input to continual improvement of the SMS and the services.

As part of a risk management process, various risks are determined, related to:

— the organization itself, such as its structure and culture, but also market conditions and competition;

— the possibility of not being able to fulfill service requirements, such as due to natural conditions, supply-chain issues or financial issues;

— other parties' involvement, such as in outsourcing situations where suppliers provide or operate (part of) the services.

The impact and probability of these risks are determined as they relate to the SMS, the services, and the customers. Based on the organization's risk acceptance criteria, which are functions of the organization's risk appetite, the organization determines the approach to treat these risks. This determination is done with some regularity or in response to changes in context. Examples of risk acceptance criteria are risks with a score that falls below an acceptable threshold or risks that are above the threshold but are accepted by top management. Risk management within the SMS should be closely aligned to the organization's risk management framework to ensure consistent definition and treatment of risks.

Possible risk treatment actions can include:

a) Avoiding the risk by taking measures to steer away from it, for instance by only allowing authorised personnel to download software onto all company owned mobile devices;

b) Considering the risk to be an opportunity, in case a positive effect is expected, for instance by embracing the positive effect of increased revenue when demand for a service suddenly increases;

c) Reducing the risk by removing its source, changing the likelihood of the risk occurring or reducing its impact, for example by patching a vulnerability on a service asset;

d) Transferring to or sharing the risk with another party that is willing to accept it, for example when it is another party that manages part of the service that forms a risk;

e) Accepting the risk by evaluating its consequences and determining it is acceptable; this is a top management decision that should be documented for future reference.

Risks are also considered specifically as input for the service continuity and information security processes. Further information about the risk requirements in these processes can be found in 8.7.2 and 8.7.3.

NOTE ISO 31000 contains an extensive general framework for risk management, including principles and treatment options.

6.1.3 Other information

Documented information related to risks can include the approach to be taken for the management of risks and a risk register.

Top management or their delegates are the main roles accountable for risks. A risk manager can be appointed to lead the risk management process.

6.2 Service management objectives and planning to achieve them

6.2.1 Required activities

Service management objectives are defined in alignment with the business objectives and the service management policy so that the SMS and the services are focused on meeting the business needs and service requirements.

6.2.2 Explanation

The purpose of this required activity is to define and document measurable objectives that will provide a focus for operating the SMS and its defined services to meet the organization's business needs. These defined service management objectives are achievable within a specified time in line with the service management policy. The organization reviews the objectives periodically to ensure the relevance and need for updating the objectives based on the changes to the business needs, services, or service management policies.

Once defined, objectives are communicated to all relevant parties and progress is monitored in achieving the objectives.

When establishing the service management objectives, the organization seeks to understand the requirements and objectives of the business, customers, and other interested parties.

Organizations define service management objectives in such a way that achievements against the objectives can be accurately measured.

The organization's plans to achieve the service management objectives include the processes, resources, activities, and responsibilities needed to achieve the objectives and evaluate the results. Timelines are determined for the achievement of the objectives.

6.2.3 Other information

The service management objectives and the plans to achieve the objectives are documented. These are often included in the service management plan.

Top management is held accountable for establishing the service management objectives and planning to achieve the objectives. The organization identifies other parties involved in achieving the service management objectives. These parties can include personnel of the organization, suppliers, and customers.

Other roles appointed by management can be made responsible for the measurement and achievement of the service management objectives.

6.3 Plan the service management system

6.3.1 Required activities

The organization creates, implements, and maintains a service management plan that reflects the service management policy, objectives, and service requirements.

6.3.2 Explanation

The purpose of this required activity is to plan the SMS and describe its design in a service management plan that will aid understanding of the SMS in order to support the delivery of the services.

The plan is aligned with the service management policy and provides an overview of how the SMS is to be implemented within the organization. Key inputs to the service management plan (in addition to service management policies) include service management objectives, business strategy, and service requirements.

The organization communicates the plan to all interested parties.

The plan is reviewed regularly, at least annually, and, as needed, updated to accommodate the changing business needs, customer requirements, or priorities of the organization.

The contents of the service management plan include or refer to the following:

a) the scope of services, e.g. the names of the services or groups of services in the scope of the SMS;

b) known limitations that may affect the SMS and the services, e.g. the organization's personnel having limited availability to support the services outside of office hours;

c) obligations and how these apply to the SMS and the policies. These obligations are vital to get right and keep up to date because they will affect the design of the SMS and the services, and are referred to by asset management (ISO/IEC 20000-1:2018, 8.2.5) and information security management (ISO/IEC 20000-1:2018, 8.7.3). The obligations include:

   — organizational policies, e.g. financial policies, technical architecture policies;

   — other applicable standards, e.g. ISO/IEC 27001, non-ISO standards;

   — legal and regulatory requirements, e.g. data protection laws, sector regulations;

   — typical or specific contractual requirements, e.g. service penalties.

d) authorities and responsibilities identified as necessary to support the SMS and the services;

e) resources, including human, financial, technical, and information resources, that are required to support the SMS and the services;

f) working relationships with other parties that have involvement in the service lifecycle, such as internal or external suppliers, including how to manage these relationships;

g) technology used to support the SMS and the services, such as communication technology, systems, service management tools, and other technologies;

h) the approach to measuring the effectiveness of the SMS and the services as well as auditing the SMS, reporting on the service achievements, and improvement of the SMS and the services;

i) the service management objectives.

Risks and opportunities that would cause the plan to be adjusted are identified, assessed, and managed both initially and as part of continual improvement of the SMS and services.

The plan is also designed to explain how the agreed objectives and service requirements can be achieved. If they are not met, the plan also includes how corrective actions will be implemented to achieve the objectives and improve the SMS and services.

The activities covered in the service management plan are integrated with other planning activities to deliver the services and achieve the service management objectives.

6.3.3 Other information

The organization documents the service management plan, including references to other relevant documents.

Top management is accountable for the creation and maintenance of the service management plan. Responsibility is given to appropriate personnel in the organization to create, review, and maintain the service management plan in collaboration with other parties and roles that need to be involved.

7 Support of the service management system

7.1 Resources

7.1.1 Required activities

The organization determines what resources are needed and makes them available to establish, implement, maintain, and improve the SMS and the services.

7.1.2 Explanation

The purpose of this required activity is to ensure that sufficient resources are available to operate the SMS and deliver the services.

The resources fundamental to the performance of any service activity can include:

a) human resources, e.g. top management, personnel involved in the management of the SMS and services, and people to design, implement, and operate the SMS;

b) technical resources, e.g. IT systems and tools to support the processes and services in the scope of the SMS, to collect service measurement, to report on performance, and to communicate with customers and other parties;

c) information, e.g. details of agreed customer requirements, the organization's service management objectives, service management policies, and procedures;

d) financial resources, including funds for projects and funds for operation of the SMS and delivery of services.

Persons in roles with the necessary authority approve the use of resources.

Although ISO/IEC 20000-1 does not require any tools or technology, they can make service management activities more efficient and effective. Examples of tools can include those to monitor, measure, or report on service or process performance.

7.1.3 Other information

Resources identified for the operation of the SMS are documented or referenced in the service management plan.

Human resources can be documented in staffing overviews and hours worked in time tracking systems. When the levels of authority and accountability or responsibility of each role has been defined, this information becomes a component of the SMS. Documenting roles and authorities in a matrix, e.g. RACI (responsible, accountable, consulted, and informed), can be useful. Once the information becomes a component of the SMS, it is then included in the SMS review cycle.

Current technical resources should be documented as configuration information. Future technical resource requirements can be considered for future planning. Information resources can be managed using an information management system, library, repository, file management system, or content management system. Current and future financial resource requirements are documented using budgets and other financial forecasts and reports of income and expenditure.

Activities to identify the need for changes in resource requirements or resource levels may be supported by modelling, based on similar services or processes. Modelling information can come from many sources within the SMS, e.g. capacity reports, configuration information. The provision of resources at a sufficient level to support the SMS and services is a top management responsibility. The efficient and effective use of those resources is a responsibility of all levels in an organization.

Resources include top management and, if it is separate, the governing body, who have overall accountability for the SMS and the services delivered by the SMS. This resource requirement continues for the life of the SMS and the services.

The organization should understand the risks arising from uncertainty as to which roles, or individuals, have particular levels and types of authority and responsibility.

The organization's commitment to provide human resources includes defining what each role contributes to the SMS and the services. The organization defines, agrees, and communicates this information internally. When it is relevant, the organization may also communicate this information to other parties.

NOTE It is acceptable practice for a single individual to have more than one role supporting the SMS, particularly for smaller organizations, as long as any conflict between the roles is acceptably identified and managed.

7.2 Competence

7.2.1 Required activities

The organization determines and records the competence of internal and external human resources involved in the SMS and the services and takes steps to improve their competence.

7.2.2 Explanation

The purpose of this required activity is to plan for and manage the competence that is needed to operate the SMS and provide services. Planning includes both current and future needs for competence.

The organization identifies the competence required for each role to support the SMS and the services. This analysis includes prerequisite education, training, skills, and experience. The organization also gives consideration to the workload involved in each role and how each role can change over time. The type of responsibility and authority of a role is also taken into consideration. This activity includes the roles of top management.

The organization then allocates roles to individuals who meet the competence criteria. A decision on the suitability of an individual for a role can be based on a comparison of the demonstrated and required competence for that role. When there is a gap the organization takes steps to close that gap.

Disparities in competency may arise in internal or external suppliers, and can be evident, e.g. in excessive time taken or lack of effectiveness in resolving incidents and problems or completing changes. When the performance of internal or external suppliers is affected by lack of competence, the organization obtains assurance from the supplier that the discrepancy has been successfully addressed.

Disparities may be corrected by several methods, e.g. the individual is provided with education and training, or an overqualified person is assigned to more challenging responsibilities. Alternatively, the organization may allow for missing skills or experience to be gained through knowledge management activities, mentoring, or having the person working with another who already has the correct skills and experience. After this corrective action has been taken, the organization again assesses the competence of the individual or individuals to check that the actions taken have corrected the disparity. The organization can also allocate the role to another party.

Organizations align the performance indicators or key result areas of personnel to the achievement of the service management objectives. By doing this, personnel can be made aware of their responsibilities, and can better understand how they can contribute to the desired service outcomes.

7.2.3 Other information

The organization establishes records of competence, including education, training, skills, and experience.

Responsibility for maintaining competence in the organization is typically shared among individual personnel, their managers, and human resources and training coordinators.

7.3 Awareness

7.3.1 Required activities

The organization requires personnel supporting the SMS to establish and maintain awareness of the service management policy, the service management objectives, SMS, and the portfolio of offered services.

7.3.2 Explanation

The purpose of this required activity is to raise awareness of personnel about the SMS and the services to improve their contributions to service management objectives.

In support of the SMS and the services, awareness is promoted by communication about:

a) the service management policy and how the person's activities contribute to the achievement of the service management objectives;

b) measurable objectives that individuals contribute to, which are monitored and reported on so that awareness is increased;

c) each person's contribution to the effectiveness of the SMS and the services, including the benefits of improved service management performance;

d) the implications of not conforming to the SMS, service management policy, and alignment with service management objectives.

7.3.3 Other information

Awareness of policies and procedures can be confirmed and documented through (electronically) signed statements, but these are at best a record. Observed involvement and contribution to achievement of objectives, along with records of interviews, are further methods to document awareness.

Top management establishes the policies that involve awareness and commitment from individuals. Each individual should be aware of their value to the organization.

7.4 Communication

7.4.1 Required activities

The organization determines the need for internal and external communications related to the SMS and the services.

7.4.2 Explanation

The purpose of this required activity is to identify and communicate relevant information both internally and externally to support the SMS, achievement of service management objectives, and delivery of the services.

7.4.2.1 Communications plan

The plan of internal and external communications describes the following:

a) how the established SMS is aligned with organizational objectives and customer expectations;

b) how the service management policy, service management objectives, and service management plan support delivery of value;

c) where to locate information, e.g. work procedures, help topics, documented agreements, customer requirements for a service, contractual, legal, and regulatory requirements, process performance, and reports.

Top management communication about the SMS is an opportunity for the organization to motivate their own personnel. Additionally, an appreciation of the importance of the SMS by both top management and personnel helps to ensure that decisions made or solutions delivered align with prioritised business objectives of the SMS. The desired outcome of these communication activities is that people understand their role in service management and how they contribute to meeting the service management objectives and to delivering value to the organization and customers.

Communication can encourage staff motivation. For example, communicating the successful results of personnel participation in improvement activities can have a significant motivating effect. Other examples are prompt communication of incidents, especially security incidents, and customer complaints, which is a first step in resolving incidents and service improvement.

7.4.2.2 Communication methods

The organization chooses appropriate communication methods and procedures, considering the delivery media, the timing and frequency of communication, and the audience's interest and need for information. Typical means of communication include face-to-face or live internet or video meetings, electronic dashboards and messages, as well as traditional written communications. Communications should establish a direct link from top management to each member involved in the SMS. Communication procedures can cover contact details, distribution list maintenance, communication security, tools and information access, schedules, and responsibilities.

The organization also plans for alternate communication channels and messages to be used in the event of major service losses.

7.4.3 Other information

Effective communication depends on the culture of the organization, the type and method of communication, an understanding of individual perceptions, as well as feedback and adjustment.

Documented information for communication can include orientation material, briefings, workshop materials, internal personnel publications, email, social media posts, feedback, and more.

Communication is the responsibility of all levels of management and interested parties of the SMS. Designated responsibilities for specific types of communication promote consistent forms of communication.

7.5 Documented information

7.5.1 General

7.5.1.1 Required activities

The organization produces documented information required by ISO/IEC 20000-1 and necessary for the effectiveness of the SMS.

7.5.1.2 Explanation

The purpose of this required activity is to acquire or create, update, and control essential documented information to allow successful operation of the SMS and the services. Documented information, including records, is reviewed for suitability and adequacy, is retrievable when needed, and is protected from loss. Organizations are not intended to produce excessive written documentation and records, but to focus on the items that provide value to the intended audience.

Documented information for an SMS includes those policies, plans, documented agreements, specifications, descriptions, procedures, reports, and records needed for its operation and for the delivery of services. A plan for every process and exhaustive written documentation of every possible procedure are not required by ISO/IEC 20000-1. The organization manages documented information by defining:

a) what documented information and records need to be created and retained;

b) who will use the documented information and records;

c) how information is reviewed and approved for use;

d) what media is most appropriate for the distributed information;

e) how information is stored, retrieved, updated and revised, and disposed of when no longer needed;

f) how frequently documented information is to be reviewed for updates and by whom.

7.5.1.3 Other information

The organization produces and maintains documented information needed to operate the SMS effectively and to fulfill the requirements of ISO/IEC 20000-1. In addition, the organization appropriately identifies and controls any documented information that has an external origin, such as that provided by suppliers or other parties. The organization creates or updates documented information and ensures appropriate identification, description, review, approval, format, and media. Some organizations may define a role to take overall responsibility for all documented information for the SMS, with appropriate inputs from subject matter experts.

NOTE Annex A has a table indicating all the mandatory documented information called for in ISO/IEC 20000-1.

7.5.2 Creating and updating documented information

7.5.2.1 Required activities

The organization identifies the creation, approval, review, and update of documented information that is required and needed for the SMS and the services, including the format and media.

7.5.2.2 Explanation

The purpose of this required activity is to ensure that documented information that is created or updated is effective to support the operation of the SMS.

The organization determines how the documented information is to be structured and defines a suitable approach to managing documentation.

Effective policies for the creation and maintenance of documented information can include the use of a naming or numbering system, including dates, to identify each item of information consistent with its revision history and applicability.

Documented information may be in any type, form, or medium suitable for its purpose, e.g. web pages, paper, electronic image files, records in a database, or topics in a content management system. Documented information may include items of external origin such as standards, regulations, or customer information. Templates and standardized formats, or automated tools, can be used to reduce the effort of creating, accessing, updating, and using the content.

The organization determines the type of approval required for each type of documented information. While some types of information, such as service management objectives, are approved by top management, other types, such as service requests, may be considered to be approved when the request is entered by a customer and stored in a request tracking system.

EXAMPLE An incident report can be considered accepted when it is properly entered in a record-tracking system and updated to show timely progress towards resolution. Final approval and closure of the incident report can require approval of the customer or service agent.

7.5.2.3 Other information

While records are not required by ISO/IEC 20000-1 for this activity, many organizations find it useful to keep a record of descriptions, format, and the roles and responsibilities for documented information. The format of this record varies by organization, from an annotated list or table in a text document to spreadsheets to relational databases or file sharing systems.

The organization assigns roles, including necessary authorities for creating and updating documented information according to the organization's needs and issues such as size, complexity, and service offerings. For example, a very small enterprise offering a component of a service related to medical devices might require a subject matter expert and a communication expert to create and maintain particular documented information.

7.5.3 Control of documented information

7.5.3.1 Required activities

The organization manages and controls documented information throughout its lifecycle and makes it available where and when needed.

7.5.3.2 Explanation

The purpose of this required activity is to ensure that documented information is available, suitable, and protected so that it supports the SMS effectively.

Control of information is different from control of physical assets and configuration items (CIs), since the unauthorized release of protected or proprietary information can be a significant risk. The information security policy and relevant regulatory and legal requirements are considered as part of policies for document and record retention, protection, and disposal. The organization distinguishes between the different types of control to be applied to different types of items, e.g. between those of internal and external origin, or documented information requiring different levels of security because of its content.

The SMS documented information, such as the service management objectives, policies, service management plan, service catalogue, contracts, and service level agreements (SLAs), frequently refer to the same content. Use of a content management system can be considered as an aid to providing and updating information consistently or tracking variations in information that apply to different customers or different levels of service.

Control of documented information includes a method to link the impacts of changes throughout the organization, e.g. a change to an SLA that affects contracts with other parties or affects the availability requirements. The organization can apply a change management process and handle documented information as a CI under configuration management control.

Control of documented information includes periodic review (e.g. annually), with updating, archiving, or disposal as appropriate. The organization needs to control who can access, distribute, retrieve, and use documents. Documented information should be protected from damage, e.g. due to poor environmental conditions and hardware malfunction.

7.5.3.2.1 Control of records

The organization controls records that are created to provide evidence of conformity to requirements specified in ISO/IEC 20000-1 and of the effective operation of the SMS. All records need to remain legible, readily identifiable, and retrievable as long as they are needed. Management of records associated with the SMS are aligned with relevant legal and regulatory requirements and contractual obligations, for example, regarding retention of records, archiving, and disposal practices. Records to be retained include the record of document reviews and the tracking of review comments to resolution. These requirements and obligations influence the design of the SMS.

7.5.3.3 Other information

While records are not required by ISO/IEC 20000-1 for this activity, many organizations find it useful to keep a record of controls for documented information that the organization maintains. The format of this record varies by organization.

The organization assigns roles and necessary authorities for controlling documented information according to the organization's needs and characteristics such as size, complexity, and service offerings.

Organizations can specify a schedule for retaining and destroying records, location for storage, who has authority to approve destruction, and methods of destruction.

7.5.4 Service management system documented information

7.5.4.1 Required activities

The organization establishes documented information for the SMS.

7.5.4.2 Explanation

The purpose of this required activity is to list the key documented information required by ISO/IEC 20000-1.

The following documented information items are examples of those typically maintained for an SMS:

a) SMS scope and service management policies, objectives, and plans;

b) process and procedure documented information;

c) one or more service catalogues;

d) service documented information including designs, requirements specifications, SLAs, acceptance criteria, and service reviews;

e) contractual documented information for both external and internal suppliers, including specification of requirements and change control;

f) internal audit planning activities and reports;

g) documented information describing or associated with a particular change, such as change planning activities.

The organization retains much of this documented information as evidence needed for audits of the SMS, e.g. documented policies (see Clause 9 for internal audits and Annex A for mandatory documented information).

7.5.4.3 Other information

Records that are created and used as part of the SMS can include logs and database records; known error records; CI records; complaint, incident, and problem records; maintenance records; customer records and data; and request for change records.

The organization identifies persons to be responsible for several aspects of documented information for the SMS:

a) owner of the technical content of the documented information, responsible for its accuracy;

b) manager responsible for the document management activities and systems, including creating, updating, and control of documentation;

c) reviewers of the documented information before its release;

d) approver of the documented information.

7.6 Knowledge

7.6.1 Required activities

The organization determines and maintains the necessary knowledge to support the SMS and the services.

7.6.2 Explanation

The purpose of this required activity is to make relevant knowledge readily available to help the organization, suppliers, customers, and users support effective operation and use of the SMS and services through sharing of information, collaboration, and learning.

Different types of information from the body of knowledge can be made available to different audiences. Knowledge is not the same as documented information but may include some documented information.

The successful operation of the SMS and the services, e.g. incident and problem management, depends on a body of knowledge that is readily available and managed for ease of retrieval, accuracy, relevance, and consistency.

The body of knowledge can be for those operating the SMS and the services including the organization and other parties involved in the service lifecycle. The provision of a body of knowledge for customers and users can assist with reducing the number of incidents or requests for information that get reported by enabling self-service. Similarly, it can make the handling of them by support personnel more efficient when they do get reported. The use of tools or document management systems can support the establishment of a body of knowledge.

When creating knowledge, it needs to be written in a style most appropriate for the intended audience. For example, knowledge intended for use via self-service should not be written in a highly technical manner if that is likely not to be clearly understood by the self-service user.

Out-of-date knowledge has the potential to significantly affect the operation of the SMS and services, such as outdated service continuity plans being executed. Maintenance of knowledge therefore has to include ensuring that it remains current at all times and is promptly updated or removed when necessary.

7.6.3 Other information

Key knowledge elements to document can include service definitions, service support information and procedures (e.g. service continuity plans), the service catalogue, standard operating procedures, known errors, and frequently asked questions (FAQs).

Maintaining knowledge needed for the SMS and services involves assigning responsibility for identifying sources of knowledge (particularly important in small organizations where the loss of an individual would remove a major source of otherwise undocumented knowledge). Other responsibilities include documenting knowledge, establishing and maintaining content management systems, analysing the body of knowledge for gaps and frequently accessed topics, and improving knowledge resources.

8 Operation of the service management system

8.1 Operational planning and control

8.1.1 Required activities

The organization implements the plans described in ISO/IEC 20000-1:2018 Clause 6, and plans, implements, and controls the processes to meet service requirements. The organization controls planned changes to the SMS and reviews the consequences of unintended changes. The organization ensures that outsourced processes are controlled.

8.1.2 Explanation

The purpose of this required activity is to implement and operate the SMS and its processes in alignment with the service management plan and other plans, such as plans for managing risks, as a means of achieving the service management objectives and fulfilling the service requirements (see 8.2.2 for additional guidance on planning the services as part of a service portfolio).

The organization defines, plans, and implements a set of processes to fulfill the requirements of the SMS. The plans created in ISO/IEC 20000-1:2018, Clause 6 are now put into operation. These are the plans to address risks and opportunities, plans to achieve service management objectives and the service management plan.

Performance criteria are established for the processes based on requirements, and the processes are controlled through these criteria. Examples of criteria are meeting service level targets for incident closure or availability of services, having an up to date service catalogue, and testing the service continuity plan on an annual basis.

The organization defines and implements process controls that indicate when the SMS is not delivering services that meet service requirements. The organization defines and implements these process controls to provide documented evidence of success or any need for improvement.

Any changes to the SMS that are planned need to be controlled to ensure that they do not have unintended consequences. This can be done using the change management in ISO/IEC 20000-1:2018, 8.5.1, which ensures that all changes are assessed for their impact before they are approved. The change management policy will say which parts of the SMS must go through the change management process and which can be controlled in other ways.

Where any processes are outsourced to another party, they should be controlled using the control of parties involved in the service lifecycle requirements in ISO/IEC 20000-1:2018, 8.2.3. This also applies to parts of processes that are outsourced. For example, a supplier may operate the incident management

and part of the problem management process with the organization operating the remainder of the problem management process.

8.1.3 Other information

Planning activities and their progress are documented in the form of plans, schedules, or task dependency timelines (such as Gantt diagrams). Control of operational planning may be documented in progress reports or monitoring charts and displays.

The organization obtains agreement from the customer that the planned operational activities meet the customer's needs. The authorities and responsibilities of both the organization and the customer are documented and agreed for activities that affect both parties. In some cases in which the service is highly standardized, e.g. cloud providers and mass transportation, the customer and organization may have little or no variation and negotiation on this agreement. The agreement may be obtained with a template or standard agreement when the customer buys the service.

Different skills are exercised for planning, implementation, and operation of the SMS. Top management may assign a person who is responsible for the planning and initial operational implementation, and then assign someone else for the day-to-day responsibilities of operating the SMS.

8.2 Service portfolio

8.2.1 Service delivery

8.2.1.1 Required activities

The organization operates the SMS in a manner that is coordinated and delivers the services.

8.2.1.2 Explanation

The purpose of this required activity is to coordinate resources and perform activities to ensure operation of the SMS to meet service requirements.

Delivery of services is the reason for establishing an SMS; all the other activities lead to the fulfilment of customer needs for the service and the opportunity for continued service. However, because ISO/IEC 20000-1 is intended to cover all types of services, service delivery has no specific requirements, other than that it is done in a coordinated manner.

Coordination is most notably achieved through several aspects of the integrated SMS, such as the following:

a) communication among all interested parties, starting with top management commitment and extending to daily personnel and customer interactions;

b) integration of service-related information among processes, such as configuration management, incident management, change management, and problem management;

c) activities coordinated and performed by all parties focusing on meeting service management objectives, service targets, and providing value.

8.2.1.3 Other information

Documented information for service delivery can include:

a) procedures to enable coordination and execution of the activities to deliver services;

b) periodic reports of service measurements and evidence of achieving service targets.

Responsibilities for service delivery are typically given to a role, e.g. service owner, service manager, or service level manager, who may oversee a group of related services.

8.2.2 Plan the services

8.2.2.1 Required activities

The organization determines and documents service requirements, the criticality of services, and any duplication or dependencies. Changes proposed to align services with the service management policy and objectives are prioritised.

8.2.2.2 Explanation

The purpose of this required activity is to plan services within the service portfolio in order that they meet the overall goals of the organization and the SMS.

Planning starts with gathering service requirements, including those from the customers, the organization itself, and other interested parties. Planning of services applies to existing services, new services, and services that are to be changed or decommissioned. Service requirements are documented so that they can be agreed and referred to by activities further in the lifecycle, such as service level management or change management. Service requirements can include performance, security, availability, service level, legal and regulatory obligations, and other requirements relevant to the service.

The services in the scope of the SMS can be grouped together and be known as a service portfolio.

For all services, the criticality can be determined by investigating the needs of the organization, its customers, users, and other interested parties. These needs can vary among parties; hence, they need to be balanced in a way that satisfies all of them and ultimately aligns with the organization's business outcomes. The criticality of services can be used in various ways within the SMS, e.g. to support resource planning, or to guide the development of SLAs.

Dependencies between services or even duplications between services or service components can exist when an organization delivers multiple services. These dependencies or duplications are identified and managed to increase the effectiveness and efficiency of delivering the services. For example, different services performing the same function in different sites of an organization can be consolidated to one common service and the others decommissioned. As another example, dependencies between services need to be understood for service continuity planning.

Services are aligned with the strategic and operational direction of the organization, as documented in the service management policy, service management objectives, and service requirements. Where this alignment is missing, changes can be proposed and made to the services to bring them back into alignment. Alignment considers possible limitations, such as legal obligations that conflict with service requirements, and is done including a risk assessment of the impact of making these changes to the services.

The organization prioritises proposals for new or changed services. Changes can include removal of existing services. Prioritisation considers business needs and the service management objectives, so that the proposed changes are aligned with the strategic direction of the organization. Finally, these changes are prioritised and planned considering the availability of resources (human, financial, technical, and others).

8.2.2.3 Other information

Service planning includes documenting the following information:

a) service requirements;

b) criticality of services and their dependencies or overlap.

Planning and alignment activities are of a strategic nature and take the needs of various interested parties into account. The authority to make decisions in this area is therefore clearly assigned, e.g. to a service portfolio manager or service owners, and approved by top management.

Responsibility and accountability for each service and SMS process (or group of services or processes) should be clearly delineated. For convenience, this document refers to the responsible person as the 'service owner.' The service owner is often a member of top management. For operational reasons, each service or process can also have an 'operational manager' with day-to-day responsibilities for meeting agreed service continuity, availability, and performance.

These roles can be assigned to a single person or multiple people to suit the size and other characteristics of the organization.

8.2.3 Control of parties involved in the service lifecycle

8.2.3.1 Required activities

The organization establishes appropriate controls to ensure that all parties involved in the service lifecycle stay in line with the service management policy and objectives and provide their parts of the services in agreement with the service requirements. The organization integrates all elements of the SMS and coordinates the activities of all parties involved in the service lifecycle.

NOTE ISO/IEC 20000-3 provides further guidance on the control of other parties that are involved in the service lifecycle.

8.2.3.2 Explanation

The purpose of this required activity is to ensure accountability of the organization and apply controls for other parties involved in the service lifecycle to ensure the successful operation of the SMS to deliver services that meet service requirements.

The services, service components and processes in the SMS can be provided or operated by the organization itself or other parties. All of these are integrated together to deliver the services to customers to meet the service requirements. Integration means to combine many things together to form a whole. It is different from an interface, which is a point where two systems, subjects, organizations, etc. meet and interact. There will be interfaces as well as integration to form a whole.

The organization coordinates activities throughout the service lifecycle to planning, design, deliver, transition and improve services with other parties that are providing or operating services, service components, or processes. Organizations choose how to coordinate based on a variety of issues, including service and organizational characteristics. Coordination may be accomplished with shared process and planning tools or assets, integrated teams, regular or occasional joint meetings, and shared information or content sharing mechanisms, such as risk registers or knowledge management systems.

Other parties can provide or operate services, service components, processes, or parts of processes, and this should be supported by contracts or other documented agreements. The organization evaluates and selects these parties based on criteria related to the service requirements and SLAs with the customers.

It is not possible for the organization to demonstrate conformity to ISO/IEC 20000-1 if other parties are used to provide or operate all services, service components, or processes in the scope of the SMS.

Other parties can include:

a) external suppliers, e.g. outsourcing of testing done as part of the release and deployment management process, provision of a hosting platform, operation of the support of an application;

b) internal suppliers, e.g. organizational units inside the same legal entity or larger organization but not within the scope of the SMS, e.g. a human resources department that operates the competency requirements process or a team that operates the information security controls;

c) a customer acting as a supplier, e.g. a customer receiving a service and also providing IT infrastructure and performing some of the activities of incident management or service request management, e.g. through a service desk function.

The organization can request other parties to operate selected processes in the SMS. Other parties can use their own processes, as agreed by the organization, or the organization can request other parties to operate processes designed and documented by the organization. The organization maintains a description of the accountabilities and responsibilities of itself and the activities that are fully or partially provided or operated by other parties.

NOTE ISO 37500 provides guidance on outsourcing arrangements.

The controls for other parties include the following:

— objective measurements of process performance of those processes handled by other parties, e.g. comparison with KPIs for the process such as meeting targets for restoring service, closing incidents and/or reducing the number of information security incidents;

— objective measurements of the effectiveness of services or service components provided or operated by the other party, based on the service requirements, e.g. meeting service requirements, availability targets.

The organization evaluates measurements, and when needed, defines improvement or corrective actions. Measurements may be provided by the organization itself, the other party, or a third party, and evaluation of measurements may be done jointly.

Clause 9 details techniques for performance evaluation and control based on the agreed performance measures.

8.2.3.3 Other information

Agreements between the organization and other parties should be clearly documented, e.g. in the form of contracts. Agreements include identification of the services, service components, or processes that are to be handled by the other party, with reference to the service management objectives, and clear indications of accountabilities and responsibilities of the organization itself and the other parties.

Measurements and evaluation of process performance and the effectiveness of services or service components provided or operated by other parties should be recorded and reported.

Other parties may be responsible for the services, service components, or processes that they provide or operate. The organization remains accountable for services provided to customers, even if other parties are involved in the service lifecycle.

NOTE Supplier management is also applied to other parties, see 8.3.4.

8.2.4 Service catalogue management

8.2.4.1 Required activities

The organisation describes the services within the scope of the SMS in one or more service catalogues for use by the organization, customers, users, and other interested parties.

8.2.4.2 Explanation

The purpose of this required activity is to describe the services and improve understanding of services, intended service outcomes, and dependencies among services. The service catalogue is a key document for setting customer expectations. The organization collates and presents service descriptions in the catalogue. The scope of each service reflects the customer's business activities. Information in the service catalogue describes the services, the intended service outcomes, and dependencies.

The service catalogue is made available to all parties that need access to its contents. These might be customers, users, or other interested parties. Different versions or views of the service catalogue can be developed for internal and external use, or to address the needs of different interested parties.

The organization can have one or more service catalogues. For example, the organization may produce a single service catalogue, setting out all of the organization's services for all customers. Alternatively, there may be a service catalogue covering services for a single customer.

For external parties, the catalogue may include only live services or those to be offered or changed in the near future. For internal use, the catalogue may include all services in the portfolio. In this case, the status of each service is clearly defined. For example, the status may be planned, in development, live, retiring, retired, or decommissioned.

The service catalogue shows the dependencies between services and supporting or enabling services. For example, a business service may be dependent on a number of underpinning services such as financial forecasting, market research, and hosting services. Supporting services or service components can be provided by the organization or external or internal suppliers outside the direct control of the organization. The service catalogue includes information about suppliers if it is relevant to needs of various audiences.

The organization designs the service catalogue so that the information is easy to maintain. The logical and efficient grouping of information is particularly important for information that is subject to relatively rapid change. This minimizes the overhead of the change management process. For example, the service catalogue can be maintained as dynamic content on web pages. Changes to the service catalogue are initiated and managed through the change management process, to consider the overall impact of changes on other services and the customers before the service change is approved and implemented. Changes to the service catalogue reflect new, changed, or removed services.

A service catalogue management process and its supporting procedures contain information and instructions regarding the management of items in the catalogue. This management process should include ensuring ready access for those needing service information to perform their duties, integrity and accuracy of service descriptions and information, and the relationships, dependencies, and interfaces between a service and other catalogued services.

8.2.4.3 Other information

The service catalogue is produced in a format that best fits the needs of the different audience types. It can be an electronic document, a tool, or part of a tool. The catalogue holds information common to all or most services, in order to simplify the SLAs. The service catalogue typically includes the following:

a) the name and description of the service, including for whom the service is intended;

b) service level targets, e.g. time to fulfil a service request, time to set up a service for a new customer or user, time to reinstate a service after a major failure;

c) contact points;

d) service hours, support hours, and exceptions;

e) service options, e.g. basic and premium;

f) price if appropriate;

g) service owner and technical owner if appropriate;

h) how to request the service;

i) supporting contracts if appropriate;

j) security arrangements;

k) service components;

l) dependencies between the services and service components.

EXAMPLE A service supporting a user's device includes three components with dependencies: support of applications, support for internet access, and support of the hardware, each of which is provided by different external or internal suppliers.

Services can be listed individually or grouped.

Other documented information may include the following:

— processes and procedures to create and maintain the service catalogue;

— inputs to and outputs from reviews of the service catalogue.

Service catalogue management may be the responsibility of a manager responsible for the overall service portfolio. Some organizations, especially those keeping service catalogue management as part of service level management, find it useful to identify a service catalogue manager, responsible for agreeing the definition of each service catalogue entry and updating the service catalogue over time. Development and production of the service catalogue can be the responsibility of an information manager or documentation manager. Other roles of the organization, such as the service owners, may be responsible for providing and maintaining the information about their services.

8.2.5 Asset management

8.2.5.1 Required activities

The organization identifies the assets used to deliver services in the scope of the SMS and manages them according to legal, regulatory, and contractual obligations listed in the service management plan.

8.2.5.2 Explanation

The purpose of this required activity is to manage the assets needed to operate services.

ISO/IEC 20000-1 does not require a full asset management process. The requirements are more limited than those found in asset management standards. Asset management in the SMS focuses on identifying the assets required to deliver services and making sure that those assets are managed to meet service requirements and according to legal, regulatory, and contractual obligations listed in the service management plan. Examples of assets to manage include hardware, infrastructure, equipment, licenses, real estate, and vehicles.

Assets can be owned by or under control of the organization, customers, external suppliers, or other parties involved in service delivery. For example, a software asset that is licensed from another party should meet the requirements of the license from the supplier such as a maximum number of users.

Some assets in a service are also configuration items (CIs) subject to configuration management. For example, a service monitoring application or a server are assets that are likely to be CIs, because they are critical to delivering the service and need to be controlled.

8.2.5.3 Other information

Asset management results in records of assets used to deliver services as well as records of the applicable ownership. The relevant legal, regulatory, and contractual requirements are identified in the service management plan under the heading of obligations.

Asset management and IT asset management system standards require specific roles that are beyond the scope of the asset management requirements in ISO/IEC 20000-1. Responsibilities for asset management in the SMS include personnel to identify service assets; to identify service requirements; applicable obligations; and to check conformity at planned intervals.

NOTE Asset management is a broad subject covered by other management system standards (MSS), such as ISO 55001, which provides requirements for a management system for asset management, or ISO/IEC 19770-1, covering IT asset management (e.g. software and hardware).

8.2.6 Configuration management

8.2.6.1 Required activities

The organization identifies, records, controls, tracks, and verifies CIs and manages configuration information relevant to services in the scope of the SMS.

8.2.6.2 Explanation

The purpose of this required activity is to define and control the components of services and to maintain accurate configuration information to support other service management activities.

The organization defines the types of CIs that are in scope of configuration management. CIs are elements that need to be controlled to deliver services. CIs exist at various levels depending on the type and criticality of the service, and the level of control required, and can include any of the following:

a) hardware;

b) software;

c) operating systems;

d) databases;

e) logical addressing information (e.g. IP addresses);

f) virtual CIs, such as cloud-based servers;

g) information, such as documentation;

h) facilities, such as data centres;

i) services, including supporting services to the main service provided.

For example, a data centre may be one CI, which contains several related CIs such as servers and storage. Servers may in turn have several related CIs such as logical addresses, databases, and operating systems.

For each CI, certain information has to be defined. This will be referred to as configuration information. Configuration information may include:

— a unique identifier of the CI, such as a serial number;

— the type of CI, similar to the list above;

— a description of the CI and its role in the service;

— possible relationships between this CI and other CIs, such as software running within an operating system on hardware in a data centre supporting a cloud computing service;

— the status of the CI, such as active, standby, decommissioned.

All CIs are controlled so that the latest configuration and status of the CIs are always known and up to date. This information is critical to the functioning of the service; hence, access to it needs to be controlled so that integrity of the data is ensured. CIs can be changed as part of various activities, such as deployment or release.

A configuration management database (CMDB) is no longer mandatory. Organizations ensure that a system is in place to document, retrieve, and maintain configuration information, whether it is a database or another form. The configuration management process updates the information about CIs and can be supported by tools such as discovery tools to collect and maintain the accuracy of

configuration information. Embedding the update of CIs in the change process, through automation or manual process, is good practice.

Organizations perform regular audits of the recorded information about CIs. Audits verify whether the information recorded about CIs is still correct and aligned with the live service environment. If recorded data does not reflect the live status of the service, this needs to be corrected.

Organizations make configuration information available to activities or personnel who require it, such as change management, incident management, capacity management, and service continuity management. Therefore, this information is made available to those activity areas as needed.

8.2.6.3 Other information

The documented information that is produced and maintained by configuration management can include the following:

a) definition of the types of CIs, and the required documented information per type of CI;

b) records of changes made to CIs;

c) records of configuration audits;

d) reports on CI audits, changes, and accuracy of recorded information.

An authoritative owner of each CI can be identified who is responsible for the recording and maintenance of configuration information. Other personnel may be appointed to update CI information and perform configuration audits.

8.3 Relationship and agreement

8.3.1 General

Relationship and agreement involves activities to manage the organization's connection with customers and suppliers and to maintain an acceptable level of service. Figure 2 shows typical relationships of the organization as it interacts with customers, both internal and external, via business relationship management (BRM) and service level management (SLM); and with internal and external suppliers via supplier management. Three types of suppliers are depicted:

a) external suppliers – parties external to an organization that enter into a contract to contribute to the SMS and services, e.g. suppliers of service components or delivery staff;

b) internal suppliers – parties that are part of the larger organization that enter into a documented agreement to contribute to the SMS or services, e.g. finance or human resources;

c) customers acting as a supplier – those customers benefiting from the provided services that also provide part of the service, e.g. customers who provide IT infrastructure or first-line service desk support.

SLAs with an external customer are either part of a formal contract or are defined later based on the formal contract.

Any of these suppliers may in turn use sub-contracted suppliers to provide part of the services that they have been contracted to deliver to the organization, but these sub-contracted suppliers are not directly managed by the top-tier organization's SMS and supplier management.

NOTE ISO/IEC 20000-3 provides examples of scope definitions that involve complex supply chains.

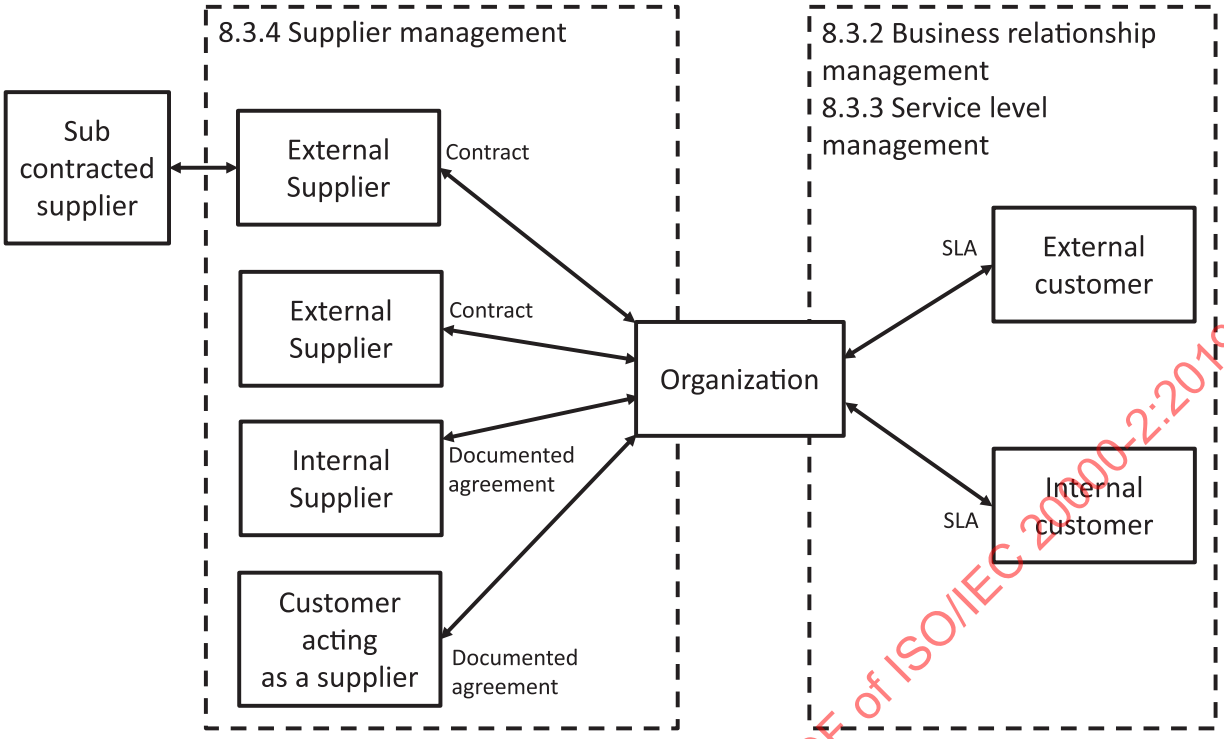

Figure 2 — Relationships and agreements between parties involved in the service lifecycle

8.3.2 Business relationship management

8.3.2.1 Required activities

The organization identifies and documents customers, users, and other interested parties; defines the communication protocols; reviews service performance trends at appropriate times; manages service complaints; and measures, analyses, reviews, and seeks to improve customer satisfaction.

8.3.2.2 Explanation

The purpose of this required activity is to establish and maintain a relationship between the organization and the customers based on the customers' needs and their business drivers.

Business relationship management builds the communication between the organization and the customer. This is a vital set of activities to verify if the services are providing the customer with the expected benefits and are creating value for the customer and the end users. Feedback from business relationship management serves to improve the services when required. Business relationship management identifies the customers that are using the services, as well as their users and other interested parties that can provide feedback about the quality of the services. These interested parties are recorded (as individuals or groups), including their main contact information.

The business relationship personnel set up communication channels and other methods to maintain regular contact with the customer. The primary aim of communication is to understand the business environment of the customer and the way in which the organization's services contribute to the customer's business outcomes. These communication channels can also lead to identification of opportunities to provide new services or improve aspects of the existing services.

With regularity, the organization reviews the performance of the services with the customers, based on performance trends and a review of the outcomes of the services to ensure they provide value to the customer. Performance is analysed and can be reported using service dashboards and other mechanisms. Measured performance helps to identify opportunities to improve the services when needed. The business relationship management review is not the same as the operational review

required in service level management. This business relationship management review is likely to be less frequent.

NOTE Services can meet agreed SLAs for performance and still be considered unsatisfactory by the customer, e.g. the service is not considered good value or is no longer considered technically competitive.

A mechanism is established to receive service complaints from the customers. These complaints are handled similarly to incidents:

— recorded;

— analysed;

— resolved through communication or corrective action, or used as input for improvement actions;

— reported to the customer; and

— closed.

Complaints reflecting operational issues can lead to opening incidents or problem records. The main goal of complaint resolution is to assure the customer that action is being taken to resolve the concern. When complaints are urgent or cannot be handled using the standard complaint handling procedures, the customer may have an escalation mechanism available to reach higher levels of management.

Similar to complaints, a mechanism to handle received compliments from the customers can be established so that successful activities can be reinforced, and involved personnel can be acknowledged or rewarded.

Customer satisfaction is one of the most important kinds of feedback on the quality of the services provided by the organization. Records of customer satisfaction are therefore gathered regularly, for instance using surveys on a per-transaction basis (e.g. after each incident, problem, or change) or using quarterly or twice-yearly general relationship surveys. Care should be taken to use a representative sample of customers and customer contacts to prevent bias in the survey results. Feedback from these surveys is analysed and used as primary input to improvement of the services, handled through continual improvement.

8.3.2.3 Other information

Business relationship management personnel record information about the customers, users, and interested parties, which can be in the form of a simple contact list or as an electronic system. Records of customer contact and reviews should be kept.

Records of complaints and their resolution are documented. Complaints can be classified by the type or level of customer affected, urgency, impact, nature, type of service, or by other means that permit clear identification and prioritisation of the complaint. Likewise, records of compliments and any activities associated with their management are retained for reference.

Input and results from customer satisfaction surveys are available as documented information.

Reports are produced about complaints and customer satisfaction.

The organization appoints dedicated or designated personnel as customer relationship managers, e.g. an individual responsible for multiple customers or multiple representatives for one major customer, who is responsible for the business relationship management of the customer. Authority for the activities of relationship managers is delegated to them from top management.

Other personnel involved can include business analysts handling customer satisfaction input and personnel resolving service complaints.

8.3.3 Service level management

8.3.3.1 Required activities

The organization defines, agrees, records, and manages levels of service.

8.3.3.2 Explanation

The purpose of this required activity is to define, document, and agree the levels of service required to meet customer needs, and to ensure that those commitments are met.

The organization defines services and associated levels of service. The customer requirements and the service provider's capabilities determine the content, structure, and targets of the SLA. For commodity services, such as transportation or standard courses, the agreement may be that the customer accepts terms and conditions as described by the organization. For other service types, the customer and the service provider agree the terms and targets for a service to be delivered, and document these in an SLA. An SLA also specifies the rights and responsibilities of the service provider and the customer. A single SLA may cover multiple services or multiple customers. SLAs should cover all components required to deliver the service.

The SLA should include exceptions to when the SLA will apply, e.g. during service continuity events for the organization and the customer, or in the first few weeks of operation of a new service.

The SLA should also include workload limits, which are a measure of the volume of work that the SLA applies to, e.g. number of users, number of transactions, or number of service components to be supported. The workload is monitored and any significant changes can result in the need to review the SLA. For example, if the workload significantly increases, the organization may need to increase the cost of a service due to more staff being needed to provide support. The workload can provide an input to demand management.

The targets against which the delivered service is measured are defined from a customer perspective. SLAs should include only those targets that focus attention on the most important aspects of the service for the customer.

Performance against the SLA targets is monitored and reported on by the organization and reviewed with the customer regularly. If service level targets do not meet the agreed targets in the SLA, the cause is determined for these missed targets. Results of this analysis are fed to continual improvement activities to improve the services.

The organization monitors and reports the workload against the SLA and uses this to validate that the workload is not going above the agreed maximum. Any significant changes in workload may be subject to change management as it could impact the resources required and the service delivered.

8.3.3.3 Other information

The services provided to the customer are documented along with the associated SLAs.

Records are made of the measured workload and performance of the services against the service level targets.

Service level management usually involves a service manager (or other personnel), dedicated or designated to the service or to the customer, who provides service level management and reporting.

Sometimes, the role of service level manager may be combined with the business relationship management role, but the two roles operate at different levels: service level management is operational and business relationship management is strategic. It is important to recognise this and to ensure that the differences in focus do not become confused.

Other personnel involved may be service level analysts who provide reports on performance of the services against the SLAs and workload monitoring and reporting. Technical personnel responsible for

service monitoring work closely with the service level managers and capacity managers to consider reallocating resources when service targets are threatened.

8.3.4 Supplier management

8.3.4.1 Required activities

The organization identifies, manages, monitors, and reviews external suppliers, internal suppliers, and customers acting as a supplier ensuring that the performance of these suppliers meets the required service level targets or contractual obligations.

NOTE Selection and procurement of suppliers is out of scope of ISO/IEC 20000-1.

8.3.4.2 Explanation

The purpose of the required activity is to manage suppliers to provide seamless, high-quality services.

An organization can use internal suppliers, external suppliers, or customers acting as suppliers to provide or operate their services, service components or processes. The organization ensures that they can demonstrate that they are in control of the suppliers and that service levels targets are not affected by their use.

Examples of when suppliers can be involved include the following:

a) operation of services, e.g. an operations center for outsourced network communications;

b) provision of service components, e.g. hardware, applications, facilities, or reception services;

c) operation of service components, e.g. management of servers on which a cloud service is running;

d) operation of specific processes or parts thereof that are in scope of the organization's SMS, e.g. incident management and some service reporting.

Different approaches may apply to management of external suppliers and customers acting as a supplier. The organization needs a documented agreement with internal suppliers. If the practices of the organization are well defined, documented agreements and working relationships with internal suppliers may be covered by the organization's policies and procedures and normal management practices. However, this can be an area of increased risk when internal supplier practices are not well established. Therefore, effective organizations document agreements with all suppliers, external, internal, or customers acting as suppliers.

The service level targets established between the organization and the supplier should be consistent with the SLAs agreed with the customer. Any risks of using a supplier and subsequently breaching SLAs are managed by the organization itself. For example, the organization can renegotiate the targets with the supplier, or the organization can work with the supplier to mitigate the risks by making the activities or interfaces more effective.

Interfaces between the organization and the supplier can include communication channels, the supplier management relationship, service level management, relations to other suppliers, and other interfaces. These should all be defined and managed by the organization. For example, if a part of a process is managed by a supplier and the other part by the organization, then it is essential that it is clear how the process as a whole will work and who has overall responsibility. This should include the use of common or separate but interfacing tools.

The performance of the supplier is monitored and reported on regularly, e.g. monthly, quarterly, or annually, to fit the needs of the organization. Service level targets or other commitments agreed with the supplier serve as initial parameters to evaluate performance. The satisfaction of the customer and their service experience are the ultimate guidelines for performance of both the organization itself and its suppliers. Issues with the performance of suppliers are dealt with by determining the cause and by agreeing corrective action, or by improving the services using continual improvement. For external

suppliers, serious disputes are recorded and formally managed to closure. Dispute resolution processes are normally explained in the contract.

If the organization is dealing with lead suppliers who use sub-contracted suppliers, the lead suppliers should provide evidence that they are formally managing sub-contractors. The lead supplier should record the names of sub-contracted suppliers and their responsibilities and relationships and make this information available to the organization if required.

At set intervals, the contract with the external supplier is reviewed to see if it is still valid in the current service environment, which may have changed due to internal or external issues, including new or changed service requirements. When contracts with external suppliers are changed, the impact of those changes to the SMS and the services are evaluated prior to the change taking effect.

Internal suppliers may be managed in an equally formal or a less formal way than external suppliers depending on the needs of the organization. The documented agreement for internal suppliers and customers acting as a supplier should include:

— service level targets or other contractual commitments;

— activities and interfaces;

— other relevant items such as charging, reviews, reporting, roles and responsibilities, exception conditions.

Internal suppliers may be managed in an equally formal or a less formal way than external suppliers depending on the needs of the organization.

8.3.4.3 Other information

The main documented information for supplier management is the contract with external suppliers or a documented agreement with internal suppliers or customers acting as a supplier. Between the organization and its external suppliers an agreement is documented, containing the following elements:

— the scope of what is being delivered by the external supplier, e.g. services, service components, processes, or other elements of the service;

— specifications or a statement of work of what the external supplier is providing, such as on-site or remote assistance, communication methods, or named personnel;

— SLAs between the organization and the external supplier, which should be aligned with the service level targets agreed between the organization and its customers;

— other contractual obligations, such as possible incentive or penalty schemes and reports;

— a clear overview of authorities and responsibilities, such as a RACI matrix, so that it is clear who is accountable and responsible for which aspects of the supplier's delivery of services;

— Other items as required such as charging, reviews, reporting, and exception conditions.

Records of performance measurements of suppliers are maintained.

External suppliers are managed by a dedicated or designated (named) person assigned to each external supplier. For example, there can be one supplier manager per supplier or one supplier manager for many suppliers. This supplier manager is responsible for managing the contract between the organization and the external supplier, maintaining a productive working relationship, and monitoring performance of the external supplier to keep it in line with overall service performance.

A supplier manager has the authority and responsibility to manage external suppliers. Other personnel responsibilities include those of monitoring, analysing, and reporting on the performance of suppliers. The organization may also have supplier managers for internal suppliers or customers acting as a supplier, although this is not a requirement.

8.4 Supply and demand

8.4.1 Budgeting and accounting for services

8.4.1.1 Required activities

The organization budgets and accounts for services according to its financial policies.

8.4.1.2 Explanation

The purpose of this required activity is to support the organization's understanding of the total cost of services and enable it to manage these costs.

Budgeting and accounting for services helps to control the financial aspects of services and service components, such as the operation of services or the funding of new services, service changes, and improvements.

Effective budgeting and accounting for services is based on understanding the costs of services or groups of services, overall service provision, and how general, organizational administrative costs are calculated. Budgeting and accounting for services is based on the following principles:

a) the cost of services or groups of services, overall service provision, and the organization's general administrative costs are understood;

b) reliable forecasting of both costs and income is achievable;

c) a budget is developed, approved, and maintained that shows planned costs and income for services or groups of services;

d) variances affecting the costs or budget are identified and managed;

e) adherence to the budget is managed so that the service lifecycle is funded adequately throughout the budget period;

f) forecasts, budgets, and costs are reviewed regularly to ensure that the process remains effective.

NOTE Income can represent whatever medium of exchange is suitable for the organization, which can include actual money received or an accounting entry representing income or revenue.

The management of financial activity produces evidence of financial control at the various levels of the service or group of services.

The organization defines the criteria to budget and account for services or groups of services. For example, it may be appropriate for an organization to budget and account at the customer level for a total service package rather than for each individual service. To ensure that monitoring is relevant and the necessary visibility of costs is available, these criteria are applied to the budget items and accounting entries. Cost reports allow comparison with the costs of acquiring the same service elsewhere in the market.

For each service, or group of services, it may be possible to calculate the unit costs, apportion indirect costs, and distribute the service costs among groups of users.

If the organization in the scope of the SMS is a subset of the legal entity, responsibility for some of the financial decisions may lie outside the scope of the SMS. The requirements regarding the level of detail of financial information to be provided, in what form, and at what frequencies, may be dictated by parties external to the organization. Other regulatory or organization-specific requirements are taken into account as they can affect some of the defined policies and procedures, e.g. practices governing the definition of capital versus operational expenditure. Accounting practices for the services are aligned to those of the legal entity.

8.4.1.3 Other information

Documented information to be produced and used by the customer, organization, and other interested parties can include:

a) processes and procedures for budgeting and accounting;

b) historic budgets, draft budget for the next period, actual budget for the current period;

c) service management forecasts of workloads, capacity (including personnel), unit costs, revenue items, and planned expenditure;

d) timetable for budget production;

e) financial reports showing costs and revenue for each time period in the budget period, with any variances;

f) reports on the causes of variances and how they can be managed;

g) financial input to continual service improvement projects;

h) cost models showing how cost elements are used to provide services and create value;

i) reports required for legal or regulatory purposes.

Budgets and financial forecasts are approved by top management.

Forecast, budgets, and reports should be prepared by personnel with the necessary skills within the organization. Responsibilities and accountabilities for budgeting and accounting activities should be defined and may include:

— budgeting and accounting manager, responsible for the overall management of financial resources;

— managers with accountability for a specific budget in the organization.

8.4.2 Demand management

8.4.2.1 Required activities

The organization forecasts and analyses the demand for services and monitors the consumption of services relative to service capacity.

8.4.2.2 Explanation

The purpose of this required activity is to understand demand so that the organization can adjust capacity as needed to operate the SMS and deliver services effectively.

Service requirements, as documented in the service catalogue and the SLAs, include performance targets and workload limits. Based on these, the organization determines the unit or scale for measuring demand or consumption of each service or group of services. For example, the unit may be the number of users of each service and their expected associated consumption of average or peak bandwidth or storage.

The organization monitors changes in demand to check that it is within the expected levels. When service resource consumption deviates significantly from the range for which the services have been sized, demand management and capacity management cooperate to agree on needed changes in capacity. Demand forecasting is a key input for budgeting and accounting and for service capacity planning activities in capacity management.

8.4.2.3 Other information

Documented information for demand management includes the following:

a) demand forecasts;

b) service consumption reports.

The roles responsible for monitoring and managing demand vary based on organizational characteristics.

8.4.3 Capacity management

8.4.3.1 Required activities

The organization determines, documents, and provides the necessary human, technical, information, and financial resources to meet the capacity requirements of services.

8.4.3.2 Explanation

The purpose of this required activity is to ensure that the organization has sufficient capacity related resources to meet current and future demands for services.

Capacity management is performed in a number of areas, including human (e.g. sufficient personnel levels to support the service), technical (e.g. bandwidth, processing power), information (e.g. having sufficient data available to make decisions, storage for information) and financial resources (e.g. service budget). Frequently the human and financial capacity requirements are planned outside of capacity management, e.g. by the human resources and finance departments.

Capacity management can be closely linked with 7.1 Resources, which determines and provides resources. Capacity management includes the planning element based on current and forecast demand. The two clauses can be linked together in the SMS.

Capacity can be managed at the level of an individual CI (e.g. storage), a combination of related CIs (e.g. a server farm) or at the level of the service itself (e.g. end-to-end communication capacity). Requirements for capacity are determined and documented, so that capacity management can plan to provide sufficient capacity to meet service and performance requirements. While ISO/IEC 20000-1 does not have a requirement for a capacity plan, planning for capacity is still essential.

Capacity is planned based on the following aspects:

a) understanding the levels and types of demand by the users of the service, as determined by demand management;

b) capacity to be provided in line with agreed service level targets, service availability requirements, performance requirements, and service continuity considerations.

Changes to service capacity are made in a timely manner, as demand requires, and before agreed thresholds have been exceeded, so that service quality is not affected.

Sufficient capacity is provided to meet the requirements documented in service level targets and other documented agreements with the customer. Continuous monitoring of provided capacity takes place, trends are analysed, and any necessary remedial action is taken so that service performance can be maintained. Issues with the provisioning of capacity can be investigated through incident management or problem management and improvements made through continual improvement.

8.4.3.3 Other information

Information to be documented for capacity management includes the capacity requirements, plans, forecasts, trending or modelling exercises, and security policy, based on agreed service level targets and demand management.

Capacity forecasts and reports are produced and analysed. Records are kept of any changes based on these reports resulting from capacity monitoring, as well as changes made to capacity based on these reports and on customer demand.

The authority to make decisions to change service capacity is assigned to personnel in the organization. Other personnel monitor and report on current and forecast capacity based on demand.

8.5 Service design, build and transition

8.5.1 Change management

8.5.1.1 Required activities

The organization establishes a change management policy.

The organization records, and classifies requests for change including adding, removing, or transferring services. Change initiation decides where the change is managed, e.g. through change management activities or through service design and transition.

The organization approves and prioritises changes based on risk, business benefits, feasibility, and financial impact. The organization tests (where possible), deploys, reverses (if necessary), and reviews changes for effectiveness and trends. Unsuccessful changes are investigated and corrective actions are taken.

8.5.1.2 Explanation

The purpose of this required activity is to maintain stability and control changes (including additions and removals) to the SMS and the services as set out in the change management policy.

Change management controls modifications made to the services, service components, and the SMS. Changes are formally controlled to assess the impact of the change and to minimize the risk of negative impact and achieve the desired outcomes. The organization establishes a change management policy regarding what service components are under change control and the categories (levels) of change control, such as changes with a potential major impact, emergency changes, or pre-approved changes.

8.5.1.2.1 Change management policy

The change management policy defines the scope of change management. It is possible that not all components of a service need to fall under change management, so the organization determines which components are in scope and which are not. For example, consumables may be a service component, but not subject to change management. The organization reviews service-related information and records to decide if these are all or only partially in scope of change management. For example, changes to contracts and documented agreements may be controlled by a different part of the organization; some changes to documented information may be controlled by an information management group; and changes in selected suppliers may be performed outside the scope of the SMS.

The change management policy defines the categories of change to be used within the organization depending on the level of assessment and approval needed before implementation. The policy also defines how each category is to be managed. Categories can be:

— standard, which are often managed by service request management;

— normal changes managed by change management;

— project changes, which are managed by service design and transition;

— emergency changes, for which policies may allow for expedited approval or approval after the change is applied.

The change management policy defines the criteria by which it is determined what changes are considered to have the potential to have major impact on services or customers. Examples include cost or effort above a threshold, high risk, and unusual skills or technology. In addition, some new or changed services may be required by top management to be managed as a project using service design and transition.

Even though these types of changes are implemented via service design and transition, the control of the change and the decision to approve the change is handled by change management. Change management thus should involve explicit procedures to assess, approve, schedule, and review change activities. A single major change may result in numerous lower level changes, some of which may be managed as normal changes, standard changes, or handled as service requests.

The change management policy can include specific provisions for automated changes, if applicable. The policy then defines in what circumstances, and for what parts of the service, automated changes can be used, what alternative approval process may apply, and what verification steps are to be taken. Approval and verifications themselves can be automated but need to be defined, evaluated, and approved by a change authority before they can be used.

Figure 3 illustrates the relationships and decision points among several of the typical processes in service management with connections to sub clauses in ISO/IEC 20000-1.

8.5.1.2.2 Change management initiation

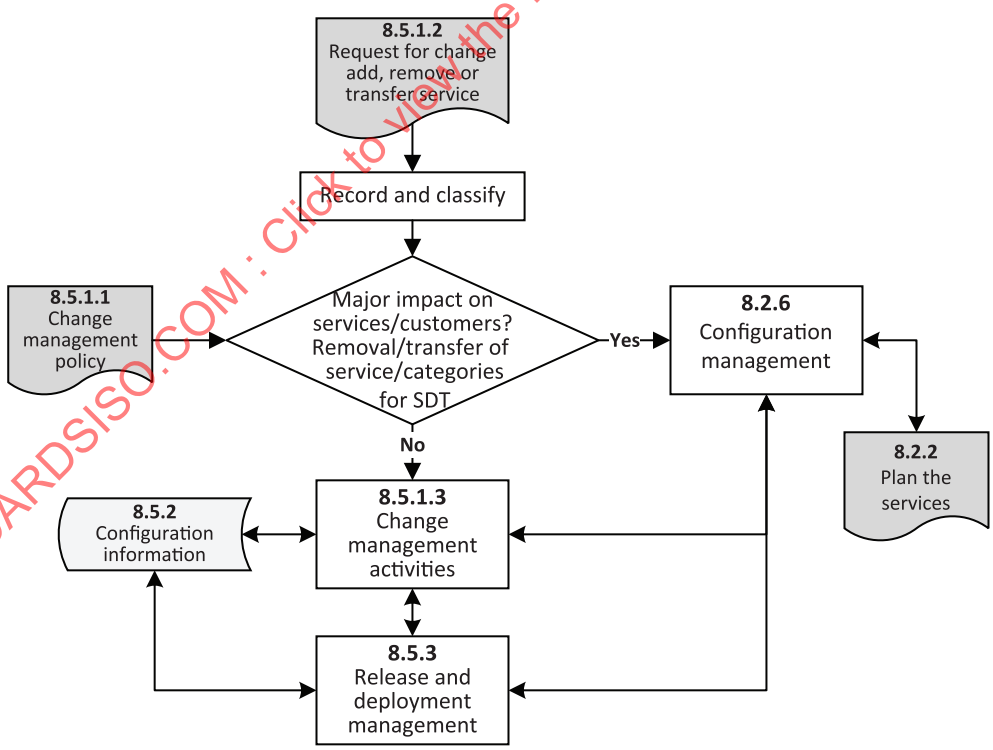

Figure 3 — Relationships of service design, build, and transition and change management

Change management is initiated by documented requests for change to modify the services, service components, or other aspects of the SMS. Proposals may also call for new services, removal of services, or transfer of existing services into or out of the organization. The received request for change is recorded and classified based on the categories outlined in the change management policy. The change

authority (depending on the category of change) determines whether requests for change are to be approved, deferred, or disapproved.

Decisions are made in change initiation about how the request for change is managed. These changes, which should be managed according to service design and transition, include the following:

a) new services or changes to services with the potential to have a major impact on customers or other services as determined by the change management policy described above;

b) removal of services;

c) transfer of an existing service from the organization to a customer or other party, such as in the case of outsourcing;

d) transfer of an existing service from a customer or other party to the organization, such as in the case of insourcing;

e) any other change that the organization determines may have a major impact.

Changes which are not to be managed by service design and transition are managed by change activities.

8.5.1.2.3 Change management activities

Receipt of a documented request starts the change management activities. The request is assessed, approved, deferred, or rejected.

Interested parties, such as users, suppliers, and service personnel, are identified and informed about planned changes that may affect them. They provide any necessary information to support the assessment of the request.

Requests for change are prioritised, so that changes can be implemented in an order that best serves the business outcomes of the customers and the organization itself. ISO/IEC 20000-1:2018, 8.2.2, Plan the services, also has requirements for prioritization of changes which should be taken into account.

Decisions about change requests are made based on criteria set by the organization, which may include the following:

a) risks of implementing changes, and possible financial impact on the organization;

b) business benefits of the proposed changes;

c) feasibility of successful implementation, adhering to established policies or requiring change in service management policies;

d) impact on existing services;

e) required coordination to manage the change with customers, users, and other interested parties, not only during transition, but afterwards, when the existing services may function differently from what these parties are accustomed to;

f) resulting changes in SMS policies and plans required by this document;

g) impact on information security;

h) impact on service availability during and after the change, and available capacity;

i) other pending requests for change, releases, and plans for deployment, which may influence proposed changes;

j) impact on service continuity.

Approved changes are planned, developed (built), and tested. Test results are analysed before final authorization is given for the change implementation. Planning includes a way to roll back the change. In

practice, a roll back is not always possible, but the organization should plan for a roll back or alternative mitigation.

EXAMPLE If the change is to an application, then roll back can be to the original version of the application. If the change is to a piece of hardware, then it can be possible to remove the hardware component that has not worked or it may not be possible to roll back at this stage.

If a change affects a CI, its configuration information and related documented information are updated according to the guidelines in configuration management.

Changes that are built and tested go to release and deployment management to be deployed into the live environment.

After the implementation of a change, the organization evaluates its effectiveness, compared to the expected results. The organization may need to take agreed remediation actions with interested parties.

Change records are analysed to determine trends in changes, such as first-time success rates of change implementations, or the service changes that are requested. Learning from this analysis should be used in continual improvement as described.

8.5.1.3 Other information

The organization creates documented information as follows:

a) the change management policy, which should be approved and made available to interested parties;

b) change management procedures, to manage the categories of change defined in the change management policy;

c) requests for change, which should identify the affected CIs, rationale for the change (including related problems or known errors to be resolved), impact if the change is not made, and estimated schedule and resources to perform the change. Requests for change may include detailed or high-level cost estimates for use in budgetary planning;

d) records tracking approval, deferral, or rejection status of requests for change;

e) reports of change trends and resulting improvement activities.

The organization assigns a change authority that can approve and reject requests for change. This can be a single person, a group of people, or even an automated system, depending on the nature of the requests and of the organization itself.

The change management policy identifies which roles have the responsibility to approve various categories of changes. For example, changes that have significant cost impact may be brought to top management for decision, while changes that can be done with existing resources and budget may be decided by a regularly meeting group of managers for affected services.

Personnel may be assigned to evaluate recently implemented changes and change records for trend analysis and improvement actions.

8.5.2 Service design and transition

8.5.2.1 Required activities

The organization plans, designs, builds, and transitions services based on agreed service requirements.

8.5.2.2 Explanation

The purpose of this required activity is to ensure that new or changed services, changes to services, removal of services, or transfer of existing services meet service requirements and will be deliverable

and manageable at the agreed cost and service quality. Service design and transition applies to the activities to bring a new or changed service from a concept or request into operation, to remove a service, or to transfer the operation of a service to or from another party. Based on approvals from change management, it covers the planning, design, build, and transition of new, and change, removal, or transfer of services.

8.5.2.2.1 Planning

The planning activities identify the considerations that need to be taken into account to manage the change to services and explain how the service change will be accomplished prior to making the change live. Planning may be refined concurrently with design, as more details are agreed through analysis and consultation with interested parties, and as additional constraints or risks are identified.

The following planning activities are performed:

a) determine the authorities and responsibilities for design, build, and transition activities so that these activities are aligned and effectively coordinated. Establish who has the authority to make specific decisions during the design, build, and transition work;

b) determine the activities to be performed by either the organization or other parties with their timelines and milestones during design, build, and transition;

c) identify the needed resources to successfully design, build, and transition new or changed services. These resources include human (personnel, both internal and external to the organization), technical (tools, systems and software), information (requirements, information about existing services, customer information) and financial (budget and funding sources) resources;

d) analyse dependencies on other services and possible relationships between existing services and the new or changed service being implemented. This relationship may affect the way the service design and transition activities need to be performed or when they can be scheduled. It may also identify changes required to the dependent services;

e) identify requirements for testing as part of the planning phase. Since no testing can be exhaustive, the extent of testing is planned to cover the most significant uses of the service;

f) determine if the project budget is consistent with the planned level of effort;

g) document the service acceptance criteria, either established by the customers or by the organization itself or by other interested parties, so that it is clear when a new service or changes to a service have been implemented successfully. Service acceptance criteria may include performance, accessibility, availability, security, or other aspects, such as completed documentation and successful testing;

h) perform the risk management activities and plan activities to identify, assess, and treat risks where necessary;

i) determine the intended outcomes from delivering the new or changed services. The outcomes can be expressed in measurable terms, so that achievement of these can be objectively determined after implementation;

j) determine the impact on the SMS, other services, planned changes, customers, users, and other interested parties, so that possible negative influence on these from the service design and transition of the new or changed services can be avoided.

Planning includes communication with interested parties, such as suppliers, while keeping top management informed of progress and the need for decisions.

Specific planning considerations are applied to services that are being removed, such as setting the date on which the services are to be removed and the activities for archiving, disposal, or transfer of data, documentation, and service components. These are clearly communicated to all interested parties. This planning may identify dependencies such as the availability of a new service before the old service can be removed.

Similarly, for services that are to be transferred to or from a customer or to another party, planning of the transfer includes setting the date on which the services are to be transferred and the activities for archiving, disposal, or transfer of data, documentation, knowledge, and service components. These are clearly communicated to all interested parties. The organization may also need to consider the intellectual property rights of items to be transferred.

The CIs affected by the design and transition of new or changed services are controlled through configuration management.

8.5.2.2.2 Design

The design activities result in a documented service design that reflects the service requirements for the new or changed services, as originally identified in portfolio planning (see 8.2.2). Relevant activities for the service design include the following:

a) identify new requirements or changes to human, technical, information, and financial resources, and how these resources are affected by the implementation of the service;

b) identify the authorities and responsibilities of the parties involved in the operation and delivery of the new or changed services. Parties may be internal or external;

c) identify needs for appropriate education, training, skills, and experience of personnel performing the delivery and operation of the new or changed service;

d) make updates to the service catalogue when relevant, e.g. add in a new service, delete a removed service, update a changed service;

e) describe changes to measurement systems used for performance management;

f) determine the possible impact on other services, performing the appropriate risk management activities so that impact is reduced to an acceptable level;

g) new or changes required for SLAs, contracts, or other documented agreements depending on service requirements and the use of other parties;

h) updates to other parts of the SMS that may require a change of policy, process, or procedure to be rolled out to relevant staff.

8.5.2.2.3 Build and transition

Build and transition activities follow service planning and design to implement the new or changed service. Build activities include assembling the service components or services and testing them, so that it can be demonstrated that the service requirements have been fulfilled to satisfy the needs of the customers and to meet the documented design and the service acceptance criteria.

Testing is performed on new or changed services prior to implementation. Whether testing is possible depends on the nature of the services and the service environment, as not all situations permit testing. If the transition to a new service involves removal of an old service, testing is done to verify the acceptable operation of remaining services that had dependencies on or interfaces with the removed service.

In case the service acceptance criteria have not been met, actions are agreed. These actions can include deferring implementation and correcting deficiencies or known errors, or proceeding to implement with a list of items to be corrected or completed after implementation. These activities involve analysing test results and determining steps to modify the planning or design of the new or changed service so that a subsequent test will be successful.

The activation of the new or changed service into the live environment, once approved by change management, is performed using the release and deployment activities.

Once deployed, the relevant interested parties are informed of the success or failure or the implementation, what the impact to them is, and any further steps to be taken in the process. Achievement of the intended outcomes of the new or changed service is verified. Success may only be noticeable after an extended period of time, depending on the type of service or change made.

8.5.2.3 Other information

Planning activities, both for designing and building the service and for service transition, may be documented in a formal plan or recorded in various artefacts, such as schedules, timelines, RACI tables, and task lists.

A service design is documented to reflect how the service requirements are to be fulfilled by the service. The service design description may be simply a listing of planned CIs, descriptions of various systems supporting the service, descriptions of how the service will operate, and preliminary versions of SLAs.

Where applicable, the documented service design may result in new or changed SLAs, contracts, and other documented agreements that support the services. This includes agreements within the organization, agreements with the customer and users of the service, and agreements with third parties supporting the service.

Implementation of the new or changed service may result in changes to the service catalogue. Updates to the service catalogue are made through service catalogue management.

New services or service changes that affect the SMS may be reflected in the service management plan, as well as new or changed policies, plans, procedures, measures, and knowledge needed for the successful management of the service.

Results of tests of the new or changed service are documented, along with possible actions taken to deal with failed test results and to implement the service successfully at a subsequent attempt.

Detailed procedures are produced and tested for extended or complex transition activities, including rollback procedures if possible.

The planning phase establishes and documents the authorities and responsibilities for service design, build, and transition. A central coordinating role, such as a project manager, is identified, along with team members dealing with significant aspects of service design and transition, as required by the specifics of the service being implemented or changed. Various roles may be established that are responsible for the design, planning, testing, and implementation of changes.

8.5.3 Release and deployment management

8.5.3.1 Required activities

The organization plans, tests, deploys, and reviews the success or failure of a release into the live environment, coordinating the release and deployment activities with change management.

NOTE For purposes of release activities, the "live environment" can include the pre-production environment as well as the live production or operational environment.

8.5.3.2 Explanation

The purpose of this required activity is to ensure that deployment of releases into the live environment is planned and controlled to meet requirements.

Release and deployment management deals with the management of releases of services, service components and CIs, and the deployment of those into the live service environment. Release and deployment management does so in close relationship with change management and, where applicable, service design and transition.

A release is a new or updated version of a service, service component, or CI. A release can consist of one or more changes. Different types of releases may be defined, such as normal, emergency, selective, phased, or other types of releases. Based on their definition, these types of releases are characterized by their frequency of deployment and the way in which they are managed, e.g. by using automation or not.

The deployment of new or changed services, service components or CIs into the live environment is planned. Release planning is coordinated with change management and includes references to the requests for change that form the basis of the new release.

Any downtime of the services due to the deployment of a release is agreed with the customer and communicated to all interested parties.

During release planning, the organization defines and documents the acceptance criteria for each release. Prior to deployment, the release is verified against these acceptance criteria. If the release does not meet the acceptance criteria, it is determined by the organization and applicable interested parties how to proceed, such as modifying the release so that it will meet the acceptance criteria or withdrawing the release completely.

In line with configuration management, CIs that are affected by the release are baselined, so that the original state is preserved and may be compared to their changed state after the release has been deployed. This approach preserves the integrity of the service and service components and helps in case a roll-back plan needs to be executed.

The success or failure of releases is monitored, measured, and analysed so that deployment methodologies can be improved as needed. Analysis includes the number of incidents that have occurred in the period immediately after a release has been deployed, as far as these can be related to the release. Note that this period may be short or long, depending on the nature of the service and how frequently it is used. Results of this analysis are used to determine improvement actions that feed into continual improvement.

Immediate feedback is also provided about the success of releases to change management, incident management, and other related activities. For example, if a release has not been successful, change management would review their activities for possible corrections needed for the release to go live. If required, incident management would ensure a viable workaround (or similar mitigation) is connected to the failed release until it is permanently corrected.

8.5.3.3 Other information

Complex deployments are documented in a detailed release plan, describing the activities required for a successful deployment. The release plan contains the deployment date of the release, as authorized by change management, and what the deliverables of the release are, e.g. updated documentation, new software, or other updated service components. The release plan also describes what methods are used for the deployment of the release, such as automation, manual procedures, or other methods, as well as the acceptance criteria, method of demonstrating that the release was successful, release schedule, go/no-go decision points, back out and recovery procedures, contingency planning for alternative means of operation if the service is unavailable during the release, and other relevant information for the release.

Release documentation for routine procedures may be embedded in automated tools, logs, and reports.

Other records can include baselines of CIs, taken prior to releases, analysis of the success rate of releases, and possible improvement plans. If a release is used to close known errors or problems, these are referenced in the release records as well.

An authority is established to approve releases prior to their deployment. Different categories of release have different levels of approval and release authorities. Further roles needed are personnel performing the actual deployment of a release, and personnel verifying the success and effectiveness of the release based on the acceptance criteria. Other personnel monitor, analyse, and report on overall release success rates.

8.6 Resolution and fulfilment

8.6.1 Incident management

8.6.1.1 Required activities

The organization manages the resolution of unplanned events that disrupt or can disrupt the service. Incidents are managed from recording to closure, with a specific procedure to manage major incidents.

8.6.1.2 Explanation

The purpose of this required activity is to restore affected services as soon as possible following an incident and within agreed service level targets.

Incident management activities can minimize the impact that incidents have on the quality of the services. When incidents are identified, they are recorded and classified. Classification may be by urgency, impact, nature, type of service, type of user affected, or by other means that permit clear identification and prioritization of the incident.

NOTE 1 Organizations can identify their own categories of incidents and priorities. These can also apply to service requests and problems. Incidents are correlated with the services that they affect. Incident records can identify not only the primary affected service, but also the indirectly affected services, service components, or CIs. An example of indirectly affected services occurs when multiple services share service components or CIs.

At times, numerous incidents are reported that relate to the same root cause. Records of related incidents are linked to assist in determining the extent of an issue or problem. Linking related records also focuses attention on identifying problems to remove the cause of the incidents or providing a workaround if the set of incidents cannot be promptly corrected. Incidents can be handled with problem management activities, especially when the underlying causes are not clear.

NOTE 2 Incidents are not the same as nonconformity (a requirement which has not been fulfilled). The cause of an incident can alert the organization to a nonconformity.

When an incident cannot be resolved in a timely way, it may require escalation, such as functional escalation to another support team (either internal or external to the organization). When an incident has breached its target resolution time, it may require hierarchical escalation to management.

If major incidents are not promptly resolved, they can have a significant impact on SLAs or customers' business objectives. The criteria to identify a major incident are determined, e.g. an incident that affects all customers, an incident that will have a major impact on information security. The procedures for major incidents can include:

a) prioritising resolution activities to ordinary day-to-day activities;

b) activating plans for alternative (workaround) service delivery methods;

c) communicating with the customers regarding the status of the major incident and how it is being handled;

d) escalating reports of the major incident to top management.

Once major incidents have been resolved, they are reported, reviewed, and analysed to get lessons learned to be used for continual improvement activities.

All actions taken to resolve incidents are recorded and available for analysis and audit purposes. The organization can record several aspects of an incident such as the duration that a service was unavailable or degraded, traceability to which SLAs and CIs were affected, request for change or service requests opened to resolve those incidents, or associated problems.

8.6.1.3 Other information

A documented procedure is required for major incident management but is optional for other types of incidents. An organization may find it useful to develop and communicate procedures or work instructions for managing all incidents. Incident records may be created using a tool that supports the management of information regarding each incident's nature, resolution, and actions taken through incident resolution activities.

Personnel or parts of the organization responsible for the handling of each class of incident are identified. Top management is informed of major incidents when they occur and periodically during the course of resolution of the incident. Specific responsibilities and, where appropriate, authorities, are assigned to individuals managing major incidents in the organization. These responsibilities and authorities can include the ability to escalate incidents, coordinate resolution, communicate with customers and other interested parties, and guide personnel working on resolving major incidents. Specific or dedicated personnel may be assigned to handle major incidents from initiation to resolution and review.

8.6.2 Service request management

8.6.2.1 Required activities

The organization records, prioritises, fulfils, updates, and closes service requests.

8.6.2.2 Explanation

The purpose of this required activity is to manage the fulfilment of service requests.

Service requests are recorded and classified according to their nature. Examples include password resets, information requests, and pre-approved changes, such as moving user equipment. Classification may be by urgency, nature, type of service, type of user, or by other means that permit clear identification and prioritisation of the request. Service requests are prioritised based on their classification.

Service requests are correlated to services that they may affect, as part of the classification procedure. SLAs may be associated with the fulfilment of service requests (as agreed in service level management). Other metrics about service request management such as response times may also be defined.

Service requests are eventually fulfilled or denied, verified with the requestor, and then closed. The transition from fulfilment to closing is defined. Service requests can be managed using automated tools. All actions taken to fulfill service requests are recorded. Users may have visibility of the progress of their service requests.

If service requests can be fulfilled using self-service or rendered unnecessary by automation (e.g. for password resets), this is documented.

8.6.2.3 Other information

The actions to be taken to fill service requests are available in procedures or work instructions for personnel involved in service request management. For example, a pre-approved change to move user equipment will have an associated work instruction. Requests that are not well defined, such as a request for information, may have a work instruction with questions to ask to gain clarity of the request. Work instructions are not required for every possible request.

Service request records are documented, along with their classification, fulfilment information, and affected CIs. Statistics used for reporting, trend analysis, and improvement actions are documented. A menu of service requests may be created for the benefit of the users making these requests and reflected in the service catalogue or other suitable place, such as a web page. Service requests can be managed using automated tools.

Personnel involved are those people with the responsibility to fulfil service requests, based on work instructions or procedures.

8.6.3 Problem management

8.6.3.1 Required activities

Through trend analysis of data and incidents, the organization identifies problems and determines root causes, and defines actions to prevent the occurrence or recurrence of incidents.

NOTE Problems relating to the SMS itself, rather than the services, are handled using nonconformity and corrective action.

8.6.3.2 Explanation

The purpose of this required activity is to minimize disruption to services by proactive identification and analysis of the causes of incidents and by taking action to prevent, reduce the impact of, or resolve problems.

Problems are identified, recorded, and classified. Classification may be by urgency, impact, nature, type of service, type of user affected, or by other suitable means. Problems are prioritised based on this classification. Problems can be identified by examining incidents, trends, or by other review activities. Once identified, problems are assigned to personnel with the necessary skills to investigate and identify resolution options. It may be necessary to involve senior managers within the organization to seek specialized or additional resources to help with investigation and resolution.

Usually, known errors are identified by problem management, but they can also be identified by other service management processes.

SLAs may have targets for problem resolution times. When possible, problems are managed and resolved within those agreed timescales. Organizations may find it useful to provide interested parties with regular progress updates.

The resolution of problems takes place in accordance with the change management policy. All necessary details should be available to enable effective decisions about resolution options. These may include risks associated with implementation or non-implementation, costs, and other resources required.

Problem records are linked with associated incident, change request, or CI records. These records can be updated throughout the process.

Once implemented, problem resolutions should be monitored and reviewed to evaluate effectiveness. This evaluation may be done as a post-implementation review following change management. Problem management personnel monitor and report on the ongoing effectiveness of problem resolutions.

At times, the organization will either be unable to identify the root cause for a problem or be unable to eliminate a root cause. In those cases, the organization can still plan and take actions to reduce the undesirable effects of the problem on the services. Information about root causes, known errors, and the resolution of problems is recorded in a system that can be consulted by interested parties, e.g. by incident management personnel.

Data about the effectiveness of problem resolutions are recorded and analysed and where feasible, improvement activities are undertaken as part of continual improvement.

8.6.3.3 Other information

Problems, along with known errors, root causes, workarounds and resolutions, are recorded.

For the benefit of continual improvement, metrics and other data about the problem management process are gathered and documented along with potential improvement actions needed. This may

identify the need for more or better technical resources, more realistic SLA problem resolution targets, and improvements in communications.

Personnel are assigned to analyse problems, determine potential root causes, record these and their potential resolutions or workarounds, and record known errors where applicable.

8.7 Service assurance

8.7.1 Service availability management

8.7.1.1 Required activities

The organization, with customers and other interested parties, analyses risks to availability, and determines, agrees, documents, and maintains service availability requirements. Service availability is monitored and any unplanned unavailability is investigated and, when possible, resolved.

8.7.1.2 Explanation

The purpose of this required activity is to ensure that agreed service availability commitments are met and to minimise unavailability.

Planning for service availability includes analysis of existing availability records and probable performance of services, service components, and CIs to determine risks to availability. To aid in recognizing risks, the organization can maintain a list of the sources of risk for their context, such as schedule, suppliers, and design flaws. Requirements for availability of services to customers and end users are included in documented agreements and SLAs as specific targets. These targets are determined and agreed with customers and other interested parties, based on service requirements that reflect business needs.

Services are monitored as required for availability performance. The resulting data and trends are recorded so that actual availability levels can be calculated and compared to the agreed targets and actions can be taken if any issues are identified.

NOTE Depending on service type or organizational characteristics, monitoring for availability can be continuous or periodic.

Service availability management works closely with capacity management to support requests for additional resources when capacity-related issues threaten availability levels. When service availability is null, almost null, or unacceptable, service availability management works closely with service continuity management as mentioned in 8.7.2.

Unplanned unavailability of services is investigated together with incident management and problem management. Remediation actions for unplanned unavailability are determined and implemented, when possible, to restore the availability of the services. When unavailability of services is scheduled, for instance due to planned maintenance, users and other interested parties are notified in advance in a timely manner.

8.7.1.3 Other information

Service availability is planned to meet requirements. A service availability plan is not required by ISO/IEC 20000-1, but may be written. Procedures are defined for analysing, forecasting, monitoring, and reporting on service availability. The need for corrective action is recorded and managed. Measurements of service availability are recorded.

The authority to agree on service availability targets in SLAs is assigned to personnel making these agreements with customers. Further responsibilities in service availability management include personnel monitoring availability of services, comparing availability with the agreed targets, and working with continual improvement if remediation actions are needed.