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Technical Report

ISO/IEC TR 20000-17

Information technology — Service management —

Part 17:
Scenarios for the practical application of service management systems based on ISO/IEC 20000-1:2018

Technologies de l'information — Gestion des services —

Partie 17: Scénarios pour l'application pratique des systèmes de gestion des services sur la base de l'ISO/IEC 20000-1:2018

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Foreword

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This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 40, *IT Service Management and IT Governance*.

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

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 and www.iec.ch/national-committees.

Introduction

This document provides scenarios, explanations and examples for the practical application of service management systems (SMS) based on ISO/IEC 20000-1:2018.

These scenarios have arisen from comments resulting from the practical usage of ISO/IEC 20000-1:2018 over the years since its publication. These comments provided evidence of apparent misconceptions and a lack of knowledge about how ISO/IEC 20000-1:2018 and an SMS can be applied.

This document aims to support users of ISO/IEC 20000-1:2018 in its application to establish and improve an SMS using examples of practical situations. The list of scenario-based examples in this document is not exhaustive and other scenarios are possible.

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Information technology — Service management —

Part 17:
Scenarios for the practical application of service management systems based on ISO/IEC 20000-1:2018

1 Scope

This document provides scenarios, explanations and examples for the practical application of service management systems (SMS) based on ISO/IEC 20000-1:2018. These scenarios provide examples of situations in which an SMS can be used and how the requirements of ISO/IEC 20000-1:2018 can be applied.

This document can be used with ISO/IEC 20000-1 as well as with ISO/IEC 20000-2, ISO/IEC 20000-3, ISO/IEC TS 20000-5 and other parts of the ISO/IEC 20000 series.

This document is aimed at:

a) organizations that are intending to implement an SMS based on the requirements of ISO/IEC 20000-1;

b) organizations that have already implemented an SMS based on the requirements of ISO/IEC 20000-1;

c) consultants, trainers and other experts supporting these organizations.

This document does not add to, change or replace any of the requirements in ISO/IEC 20000-1. This document is not intended to be used for a conformity assessment.

2 Normative references

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

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

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 20000-1 and ISO/IEC 20000-10 apply.

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

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

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

4 Overview of ISO/IEC 20000-1:2018

ISO/IEC 20000-1 specifies requirements for establishing, implementing, maintaining and continually improving an SMS. An SMS supports the management of the service lifecycle, including the planning, design,

transition, delivery and improvement of services, which meet agreed requirements and deliver value for customers, users and the organization delivering the services. The organization in the scope of the SMS can be a whole or part of a larger organization. The organization in the scope of the SMS can also be known as the service provider.

ISO/IEC 20000-1 is intentionally independent of specific guidance. The organization can use a combination of generally accepted frameworks and its own experience. Appropriate tools for service management can be used to support the SMS.

All requirements specified in ISO/IEC 20000-1 are generic and are intended to be applicable to all organizations, regardless of the organization's type or size, or the nature of the services delivered. For example, the services can be in the field of information technology (IT), business process outsourcing or facilities management. While ISO/IEC 20000-1 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.

Exclusion of any of the requirements in ISO/IEC 20000-1:2018, Clauses 4 to 10, is not acceptable when the organization claims conformity to ISO/IEC 20000-1, irrespective of the nature of the organization.

The organization cannot demonstrate conformity to the requirements specified in ISO/IEC 20000-1 if other parties, such as suppliers, are used to provide or operate all services, all service components or all processes within the scope of the SMS.

Figure 1 illustrates an SMS showing the clause content of ISO/IEC 20000-1. Numbers in parentheses in Figure 1 indicate ISO/IEC 20000-1 clause numbers.

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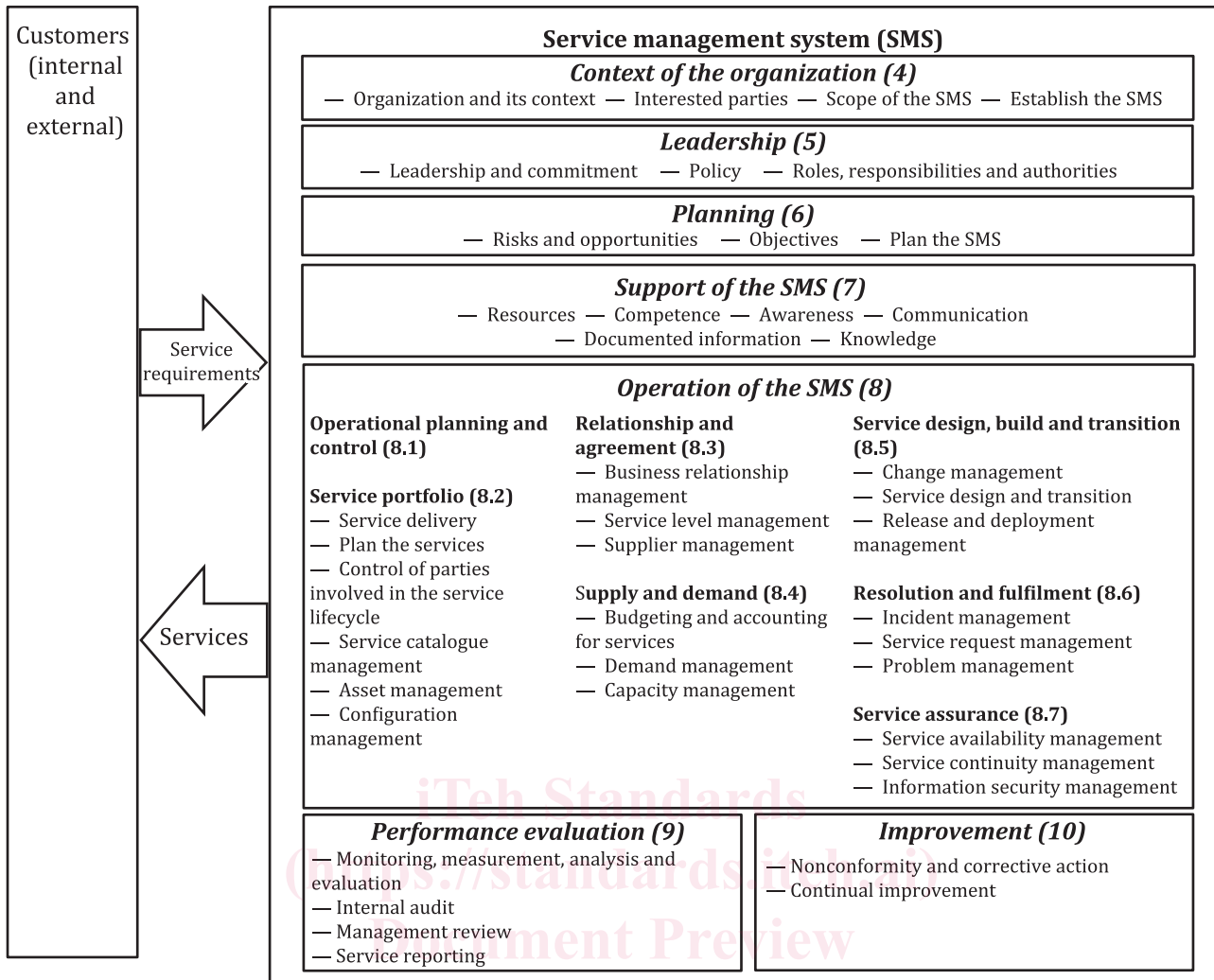https://standards.iteh.ai/catalog/standards/iso/383b2538-ce65-42a3-b969-afe13312a435/iso-iec-tr-20000-17-2024

Customers (internal and external)	Service management system (SMS)		
	Context of the organization (4) — Organization and its context — Interested parties — Scope of the SMS — Establish the SMS		
	Leadership (5) — Leadership and commitment — Policy — Roles, responsibilities and authorities		
	Planning (6) — Risks and opportunities — Objectives — Plan the SMS		
	Support of the SMS (7) — Resources — Competence — Awareness — Communication — Documented information — Knowledge		

Service requirements →

← *Services*

Operation of the SMS (8)

Operational planning and control (8.1)	**Relationship and agreement (8.3)** — Business relationship management — Service level management — Supplier management	**Service design, build and transition (8.5)** — Change management — Service design and transition — Release and deployment management
Service portfolio (8.2) — Service delivery — Plan the services — Control of parties involved in the service lifecycle — Service catalogue management — Asset management — Configuration management	**Supply and demand (8.4)** — Budgeting and accounting for services — Demand management — Capacity management	**Resolution and fulfilment (8.6)** — Incident management — Service request management — Problem management **Service assurance (8.7)** — Service availability management — Service continuity management — Information security management

Performance evaluation (9) — Monitoring, measurement, analysis and evaluation — Internal audit — Management review — Service reporting	**Improvement (10)** — Nonconformity and corrective action — Continual improvement

Figure 1 — Service management system

5 Scenario-based examples

5.1 Introduction to the scenarios

The scenarios, explanation and examples listed in this document are many and varied. Some are complex and some are simple. Some relate to a single clause and others relate to multiple clauses in ISO/IEC 20000-1.

Each scenario has a title in the form of a question and an introduction. It is followed by explanation and examples of how this scenario can be applied within an SMS. The relevant clause numbers of ISO/IEC 20000-1 at their lowest level are also shown. All clause numbers include their subclauses. See Annex A for a list of the ISO/IEC 20000-1 clause numbers and titles.

5.2   What types of services can be used with ISO/IEC 20000-1?

Requirements for services contained in ISO/IEC 20000-1 are independent of service size, type, location or characteristics and therefore can be applied to all services defined in an organization's SMS. Services provided by organizations that are managed in an SMS can have a variety of configurations. They can be simple services or bundled services, depending on the needs of the customers. In addition, many services and their components are a combination of internally provided and externally provided services. See Table 1.

Table 1 — Using ISO/IEC 20000-1 for different types of services

Topic	ISO/IEC 20000-1:2018 clause number
Can ISO/IEC 20000-1 be used with micro, aggregated, centralized, decentralized or distributed services? The requirements in ISO/IEC 20000-1 for managing services through an effective SMS apply to all types of services regardless of their configuration, size or complexity, or whether they are provided by internal or external service providers. A service can be provided, supported and consumed from any location. Whether a service is micro, aggregated, centralized, decentralized or distributed, it is critical for each service component to be defined and documented for planning, implementing, maintaining, improvement and retirement purposes. Examples of micro, aggregated, centralized, decentralized and distributed services are: — micro: the "buy" button when purchasing a product online; — aggregated: an online banking service where all accounts for one user can be accessed from one page; — centralized: a centralized IT network where all users connect to a single central server; — decentralized: customers receive energy supplies from multiple sources; — distributed: mobile phone networks which use multiple base stations to provide connectivity. Although all clauses are relevant to operating, supporting, measuring and improving the services defined in the SMS, of significance is configuration management and its requirements to define services as configuration items (CIs). Each service is comprised of multiple CIs which can include other internally or externally provided services, technical components, service support groups, service consumer groups, facilities and documentation. Once services have been defined in the SMS, their configurations and CI relationships can be defined as well. This ensures that if there is an addition, modification or removal of any service within the SMS, all requirements in ISO/IEC 20000-1 can more easily be addressed and met. In summary, ISO/IEC 20000-1 is applicable to all services defined in an SMS regardless of: — size: micro to large; — composition: single or aggregated (comprised of multiple CIs or components); — service provision source: centralized, decentralized or distributed services provided internally or externally; — service consumption source: internal or external customers/users.	Clauses 4 – 10
Can ISO/IEC 20000-1 be used with bundled services? An example of a bundled service configuration is an online banking application provided by a banking organization. This service includes multiple service and technology components and is used by the bank's customers. Examples of bundled services include:	Clauses 4 – 10

Table 1 *(continued)*

Topic	ISO/IEC 20000-1:2018 clause number
— online banking application: the service component that processes online banking transactions; — support group: an internally-provided technical micro service; — network services: the group that supports and enables enterprise network and internet connectivity; — internet service provider: an externally provided service to connect the organization to the internet and which provides consumer access to the online banking application; — web hosting service: an externally-provided service that hosts the website of the banking organization; — internal service desk: provides first line support services to the staff of the bank; — customer service desk: provides technical support services to the customers using the online banking application. Each service listed can be considered micro to large depending upon the size of the organization and can be centralized or decentralized depending upon the requirements of the organization. In some cases, components of a bundled service can also be known as underpinning services or can be bundled services themselves. As a bundled service, each service and component is subject to the requirements of ISO/IEC 20000-1. Due to the defined relationships between the services and components within a bundle, any introduction, modification or removal of a service in the bundle can affect other parts. These actions, for example, can be the result of a modification to the context of the organization, a leadership decision or a change to an externally provided service. Management of change is essential for bundled services, to ensure that the impact of any introduction, modification or removal of a service or component in the bundle is assessed, and that changes are appropriately approved and controlled in line with the requirements of ISO/IEC 20000-1. A robust integrated service management toolset can support all service management activities including the management of service definitions and CI relationships within a service. This includes bundled services like the example above. Each service is defined as a CI with its relationship to other CIs. Service management tools can provide a visual service mapping allowing a view of the CI connectivity within a service bundle and any relationships to other services in the SMS. Of equal importance is the storage of, or link to, service-related documentation.	

Table 1 *(continued)*

Topic	ISO/IEC 20000-1:2018 clause number
Can ISO/IEC 20000-1 be used with cloud-based services? There are cloud-based services that provide requirements management, version control, reporting, task management, build, test and release management capabilities. The cloud-based services can cover the complete application lifecycle. When deciding to use a cloud-based service, consider the requirements including the following points dependent on the context. a) Supplier management: are regular supplier reviews carried out to ensure functional requirements, service levels and performance requirements are met and concerns are discussed? b) Service availability management: how reliable is the service? Can the customer's service levels be achieved? c) Capacity management: is there enough to meet the customer's demands, accounting for peaks in the service or development lifecycle? d) Service continuity management: what is the supplier's data back-up and restore process? Does it meet the customer's requirements? How often is this tested? e) Configuration management: how will the service manage new baselines? f) Change management: what process is used, what is the approval mechanism? g) Incident and problem management: what is the process for raising an incident or problem? h) Information security management: is the information secure in the cloud service?	8.2.6 8.3.4 8.4.3 8.5.1 8.6.1, 8.6.3 8.7.1, 8.7.2, 8.7.3

5.3 Can an SMS be sustainable?

Guided by the UN 2030 agenda for sustainable development and its sustainability development goals (SDGs), organizations around the globe are adopting initiatives in areas that are crucial for the planet across environmental, social and economic pillars. ISO/IEC 20000-1 specifies an SMS for managing services across the lifecycle, by providing visibility, control and continual improvement. An SMS, as an element of the management of services, can include support across all of the three sustainability pillars. See Table 2.

Table 2 — Sustainability within an SMS

Topic	ISO/IEC 20000-1:2018 clause number
Building sustainability into the SMS ISO/IEC 20000-1 specifies requirements for managing services across lifecycle stages of planning, support, operation, performance evaluation and improvement of services to fulfil service requirements and deliver value. Top management ensures that the organization's sustainability vision and plan are applied to the SMS through appropriate inclusions in the service management policy, service management objectives and service management plan. Organizations can utilize the SMS to identify sustainability goals and legal or regulatory requirements applicable to service management, such as data centre greenhouse gas emissions disclosure. Any customer requirements for sustainability are taken into account for the SMS. These can be discussed at customer reviews. A sourcing strategy can be used to set the requirements when selecting and managing suppliers, taking into account alignment to the organization's goals or customer requirements for sustainability. Planning the SMS and designing services includes identification and management of risks and opportunities around social and environmental elements (e.g. health risks, carbon footprint). These also consider the impact on economic aspects. Improvements can arise from optimized IT asset utilization, responsible procurement, sustainable supplier management, and improving IT facilities operations management in terms of electricity, water and HVAC (heating, ventilation, air conditioning) consumption and other actions that are relevant for the organization. See ISO/IEC TS 20000-16:—[a] for information on sustainability with service management.	4.1, 4.2 5.1, 5.2 6.1, 6.2, 6.3 8.2.3 8.3.2
Environmental aspects An SMS can enable a sustainable supply chain through procurement practices with evaluation and selection of appropriate suppliers and supplier performance monitoring, for example, supplier policies for waste management, carbon neutrality, estimated lifetime cost of energy consumption of new equipment. Asset management ensures that assets used to deliver the services are managed according to legal and regulatory requirements and contractual obligations which can include sustainability requirements, for example, selection of assets with minimum eco-footprint, asset tracking, re-use and effective disposal. ISO/IEC 20000-1 requires demand management and capacity management to forecast and manage capacity requirements as well as to monitor and optimize service performance. An organization can design its services to use components that have minimum environmental impact and optimized utilization enabling sustainability, for example, to reduce energy consumption per service and reduce resource requirements (e.g. CPU, memory, storage per service).	8.1 8.2.5 8.3.4 8.4.2, 8.4.3 8.5.2

Table 2 *(continued)*

Topic	ISO/IEC 20000-1:2018 clause number
Social aspects Effective delivery of an SMS strategy which includes sustainability requires allocation of human resources with the right awareness, skills and competency levels to implement the sustainability vision, plan and actions designed within the SMS. The cultures of the organization, sector and geography are also considered. Supplier evaluation criteria and sustainability-related contractual obligations influence supplier policies and actions (e.g. safe and secure working environment, fair wages).	7.1, 7.2, 7.3 8.2.3 8.3.4
Economic aspects ISO/IEC 20000-1 requires budgeting and accounting for services to enable effective financial control and decision-making for services. Financial accounting can include costs and cost savings from sustainability actions (e.g. asset reuse, circular economy). Sustainable procurement and consumption practices affect service costs. Budgeting and accounting includes monitoring and reporting on actual costs against budget (e.g. asset reuse, circular economy).	8.4.1
[a] Under preparation. Stage at the time of publication: ISO/IEC DTS 20000-16:2024.	

5.4 Can an SMS be used with different methods, frameworks and technologies?

The service management and technology environment is constantly changing. That does not mean that ISO/IEC 20000-1 needs to constantly change with each of these increments. The requirements in ISO/IEC 20000-1 are generic and can be used with all types of methods, frameworks and technology. These are unique to each organization and will impact how the SMS and the services are designed. See Table 3.

Table 3 — Operating an SMS with different methods, frameworks and technologies

Topic	ISO/IEC 20000-1:2018 clause number
The SMS and technology ISO/IEC 20000-1 has been written as a generic International Standard that can be applied regardless of the nature of services delivered or the type or size of the organization. Even though the title of the document specifies "information technology", it is about managing the services and the technology used to deliver the services, rather than about defining the technology used. ISO/IEC 20000-1 has been applied in a wide range of services, including pure IT services (e.g. internet services) and services using digital information (e.g. forestry management services). At the same time, hardly any services today do not make use of an IT component, even if just for payment or registration to the services.	1.2