TECHNICAL REPORT

ISO/IEC
TR
20000-4

First edition
2010-12-01

Information technology — Service management —

Part 4:
Process reference model

Technologies de l'information — Gestion des services —

Partie 4: Modèle de référence de processus

Contents

Foreword

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

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

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

In exceptional circumstances, the joint technical committee may propose the publication of a Technical Report of one of the following types:

— type 1, when the required support cannot be obtained for the publication of an International Standard, despite repeated efforts;

— type 2, when the subject is still under technical development or where for any other reason there is the future but not immediate possibility of an agreement on an International Standard;

— type 3, when the joint technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example).

Technical Reports of types 1 and 2 are subject to review within three years of publication, to decide whether they can be transformed into International Standards. Technical Reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC TR 20000-4, which is a Technical Report of type 2, was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software and systems engineering*.

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

— *Part 1: Service management system requirements*

— *Part 2: Code of practice*

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

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

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

Process assessment model for service management will form the subject of a future Part 8.

Introduction

The purpose of this part of ISO/IEC 20000 is to facilitate the development of a process assessment model (PAM) that will be described in ISO/IEC TR 15504-8.

ISO/IEC 15504-2 describes the requirements for the conduct of an assessment and a measurement scale for assessing process capability. ISO/IEC 15504-1 describes the concepts and terminology used for process assessment.

This process reference model (PRM) is a logical representation of the elements of the processes within service management. Using the PRM in a practical application might require additional elements suited to the environment and circumstances.

The PRM specified in this part of ISO/IEC 20000 describes at an abstract level the processes including the general service management system (SMS) processes implied by ISO/IEC 20000-1. Each process of this PRM is described in terms of a purpose and outcomes. The PRM does not attempt to place the processes in any specific environment nor does it pre-determine any level of process capability required to fulfil the ISO/IEC 20000-1 requirements. The PRM is not intended to be used for a conformity assessment audit or process implementation reference guide.

The relationships between ISO/IEC 20000-1, ISO/IEC TR 24774, ISO/IEC TR 20000-4, ISO/IEC 20000-8, ISO/IEC TR 15504-8 and ISO/IEC 15504-2 are shown in Figure 1.
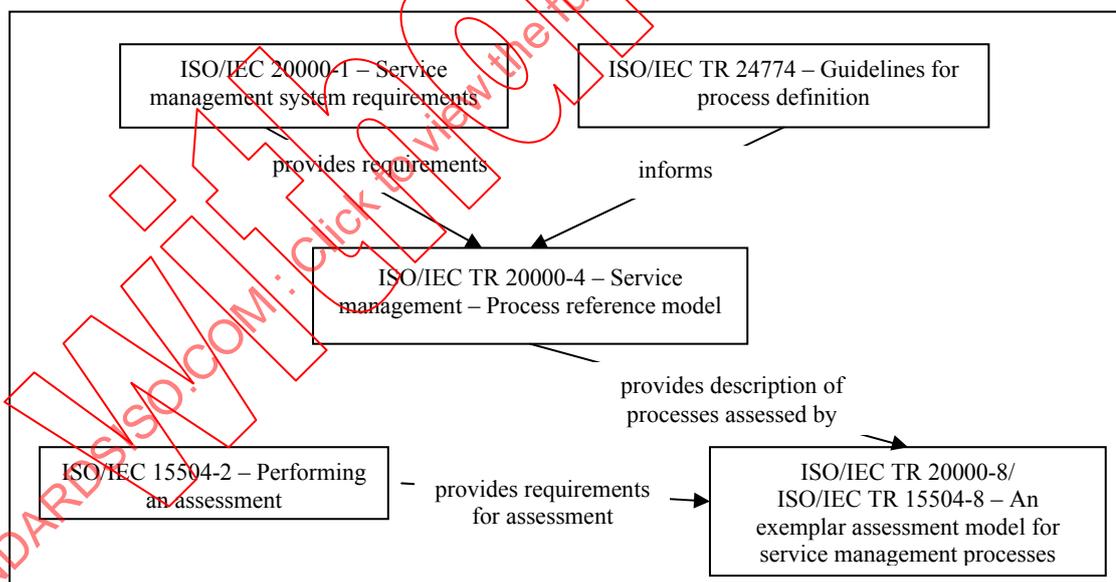
Figure 1 — Relationships between relevant documents

Any organization can define processes with additional elements in order to suit it to its specific environment and circumstances. The purposes and outcomes described in this part of ISO/IEC 20000 are, however, considered to be the minimum necessary to meet ISO/IEC 20000-1 requirements. Some processes cover general strategic aspects of an organization. These processes have been identified in order to give coverage to all the requirements of ISO/IEC 20000-1.

The PRM does not provide the evidence required by ISO/IEC 20000-1. The PRM does not specify the interfaces between the processes.

This part of ISO/IEC 20000 contains a PRM for IT service management with description of processes in Clause 5. Annex A provides the statement of conformity for this part of ISO/IEC 20000 in accordance with ISO/IEC 15504-2, *Information technology — Process assessment — Part 2: Performing an assessment*.

Information technology — Service management —

Part 4:
Process reference model

1 Scope

This part of ISO/IEC 20000 defines a process reference model comprising a set of processes, described in terms of process purpose and outcomes that demonstrate coverage of the requirements of ISO/IEC 20000-1.

2 Normative references

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

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

ISO/IEC 15504-1, *Information technology — Process assessment — Part 1: 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 15504-1 apply.

4 Overview of the PRM

This clause describes the structure of the process reference model in the context of a management system to direct and control a service provider with regard to delivery of services to meet the business needs and customer requirements.

Figure 2 identifies the processes derived from ISO/IEC 20000-1 requirements, which are included in this PRM for Information technology – Service management.
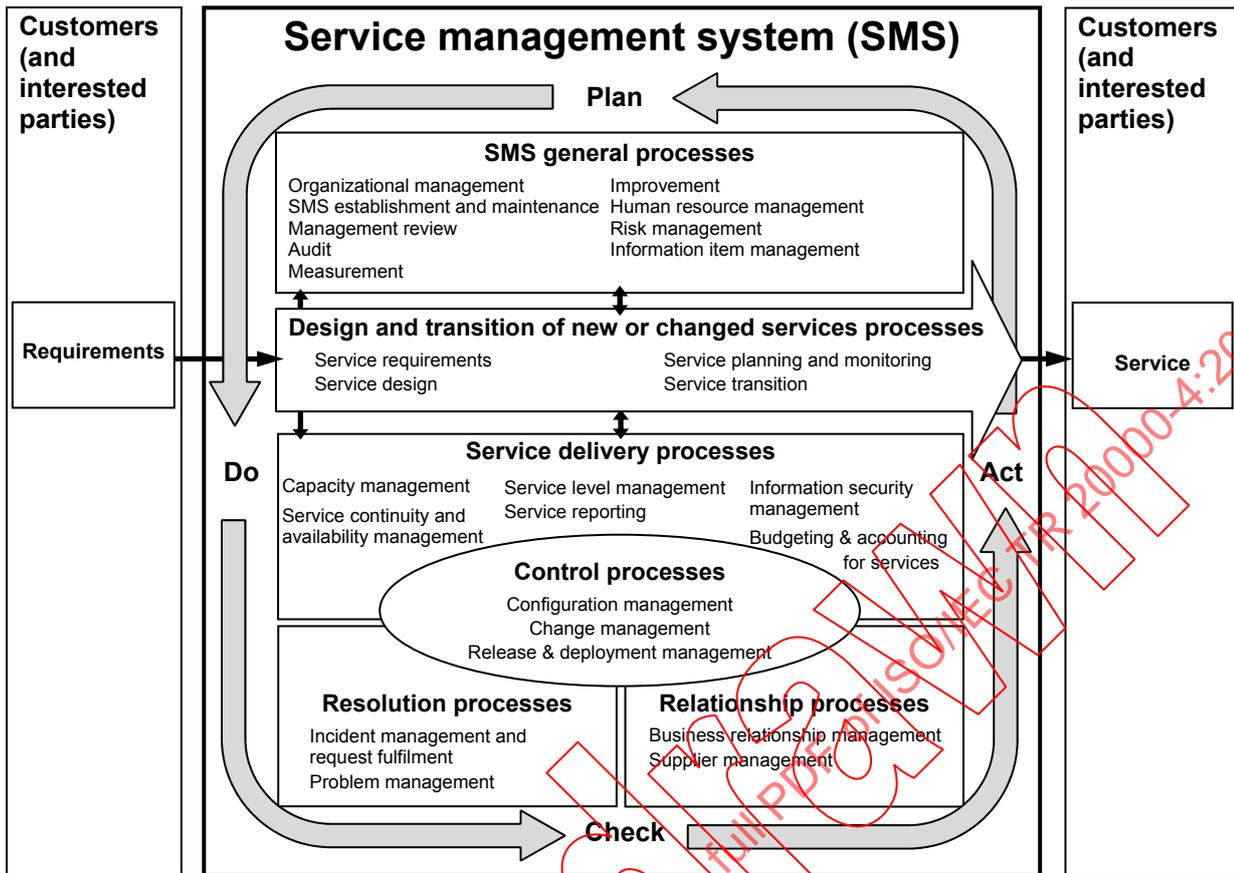
Figure 2 — Processes in the process reference model

5   Process descriptions

5.1   General

Each process in the PRM has the following descriptive elements.

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

b)   Context: for each process a brief overview describes the intended context of the application of the process.

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

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

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

In Clauses 5.2 to 5.27 all entries in the requirements traceability row end with numbers in square brackets, (i.e. [n]). Each number in the square brackets is a reference to a numbered outcome. These outcomes are

directly linked to the requirements of ISO/IEC 20000-1. The referencing is illustrated by example 1, given below.

Some outcomes are shown in square brackets. These are only indirectly linked to requirements of ISO/IEC 20000-1. The outcomes in square brackets are not referenced by any of the entries in the requirements traceability row. These additional outcomes have been included because they are necessary in order for this PRM to act as the basis of the PAM ISO/IEC 15504-8. With these additional outcomes, the process is complete and the process purpose can be achieved. This is illustrated by example 2, below. Cross-references are made to both the first edition (1ED) and second edition (2ED) of ISO/IEC 20000-1 for the same reason.

EXAMPLE 1

The second requirements traceability entry in Clause 5.2 is:

20000 1ED IS 04.4.1 Continual improvement (Act): Policy [5]).

The [5] is a reference to outcome 5 in the previous row of Clause 5.2.

Outcome 5. is: *nonconformities are communicated to those responsible for corrective action and resolution.*

EXAMPLE 2

The first outcome requirements traceability entry in Clause 5.5 is:

1. [current and future capacity and performance requirements are identified and agreed;]

The entries in the requirements traceability row for Clause 5.5 includes references to only outcomes 2-5.

5.2 Audit

Name	Audit
Context	Audits assess whether the SMS is effectively established and maintained, and whether the SMS and the services conform to the requirements established by the service provider. Planning for an audit takes into account the importance of the services, processes and areas to be audited, and the results of previous audits.
Purpose	The purpose of the audit process is to independently determine conformity of selected services, products and processes to the requirements, plans and agreements, as appropriate.
Outcomes	As a result of successful implementation of this process: 1. the scope and purpose of each audit is defined [and agreed]; 2. the objectivity and impartiality of the conduct of audits and selection of auditors are assured; 3. conformity of selected services, products and processes with requirements, plans and agreements is determined; 4. nonconformities are recorded; 5. nonconformities are communicated to those responsible for corrective action and resolution; 6. corrective actions for nonconformities are verified.
Requirements traceability	20000-1 1ED IS 04.3 Monitoring, measuring and reviewing (Check) [1,2,4,5] 20000-1 1ED IS 04.4.1 Continual improvement (Act): Policy [5] 20000-1 2ED DRAFT 4.5.5.1 General [4] 20000-1 2ED DRAFT 4.5.5.2 Internal audit [1,2,5,6] 20000-1 2ED DRAFT 6.6.1 Information security policy [3] 20000-1 2ED DRAFT 9.1 Configuration management [4]

5.3   Budgeting and accounting for IT services

Name	Budgeting and accounting for IT services
Context	Budgeting covers predicting and controlling the spending of money and the monitoring and adjusting of budgets. Accounting identifies the costs of delivering IT services, comparing these with budgeted costs, and managing variance from the budget. All accounting practices need to be aligned to the wider accountancy practices of the whole of the service provider's organization.
Purpose	The purpose of the budgeting and accounting for IT services process is to budget and account for service provision.
Outcomes	As a result of successful implementation of this process: 1. costs of service provision are estimated; 2. budgets are produced using cost estimates; 3. deviations from the budget and costs are controlled; 4. deviations from the budget are resolved; 5. deviations from the budget and costs are communicated to interested parties.
Requirements traceability	20000-1 1ED IS 06.4 Budgeting and accounting for IT services [1,2,3,4,5] 20000-1 2ED DRAFT 6.4 Budgeting and accounting for services [1,2,3,4,5]

5.4   Business relationship management

Name	Business relationship management
Context	This process enables a service provider to build a good relationship with its customers by understanding the business environment in which the services operate. This understanding enables the service provider to identify the needs of the customers, respond to these needs and manage the expectations of customers and interested parties.
Purpose	The purpose of the business relationship management process is to identify and manage customer needs and expectations.
Outcomes	As a result of successful implementation of this process: 1. customers and interested parties are identified; 2. the needs and expectations of customers are identified and monitored; 3. communication with the customer is planned and implemented; 4. service performance is monitored; 5. changes to the scope of the services, service level agreements (SLAs) and contracts are identified; 6. service complaints are recorded and managed through their life cycle to closure; 7. service complaints which are not resolved through normal channels are escalated; 8. customer satisfaction is measured and analysed; 9. [customer satisfaction analysis results are communicated to interested parties.]
Requirements traceability	20000-1 1ED IS 06.1 Service level management [4] 20000-1 1ED IS 06.3 Service continuity and availability management [4] 20000-1 1ED IS 07.2 Business relationship management [1,2,3,4,5,6,7,8] 20000-1 1ED IS 08.3 Problem management [4] 20000-1 2ED DRAFT 6.1 Service level management [4] 20000-1 2ED DRAFT 6.3 Service continuity and availability management [4] 20000-1 2ED DRAFT 7.1 Business relationship management [1,2,3,4,5,6,7,8] 20000-1 2ED DRAFT 8.1 Incident management and request fulfilment [4] 20000-1 2ED DRAFT 8.2 Problem management [4] 20000-1 2ED DRAFT 9.2 Change management [4]

5.5 Capacity management

Name	Capacity management
Context	This process ensures that there are sufficient resources and capacity to meet current and future agreed requirements in a cost effective and timely manner. The process enables a service provider to provide sufficient resources across an entire service in order to deliver the agreed service performance and meet the service level targets.
Purpose	The purpose of the capacity management process is to ensure that the service provider has service capacity to meet current and future agreed requirements.
Outcomes	As a result of successful implementation of this process: 1. [current and future capacity and performance requirements are identified and agreed;] 2. a capacity plan is developed based on the capacity and performance requirements; 3. capacity is provided to meet current capacity and performance requirements; 4. capacity usage is monitored, analysed and performance is tuned; 5. capacity is prepared to meet future capacity and performance needs; 6. changes to capacity and performance are reflected in the capacity plan.
Requirements traceability	20000-1 1ED IS 06.5 Capacity management [2] 20000-1 2ED DRAFT 6.5 Capacity management [2,3,4,5,6]

5.6 Change management

Name	Change management
Context	Changes to services, their applications and infrastructure, are planned and controlled to ensure timeliness without unnecessary disruption. Unintended effects of changes are remedied.
Purpose	The purpose of the change management process is to ensure all changes are assessed, approved, implemented and reviewed in a controlled manner.
Outcomes	As a result of successful implementation of this process: 1. change requests are recorded and classified; 2. change requests are assessed using defined criteria; 3. change requests are approved before changes are developed and deployed; 4. a schedule of changes and releases is established and communicated to interested parties; 5. approved changes are developed and tested; 6. unsuccessful changes are reversed or remedied.
Requirements traceability	20000-1 1ED IS 05 Planning and implementing new or changed services [3] 20000-1 1ED IS 06.1 Service level management [1] 20000-1 1ED IS 06.3 Service continuity and availability management [2] 20000-1 1ED IS 06.4 Budgeting and accounting for IT services [1] 20000-1 1ED IS 06.6 Information security management [2] 20000-1 1ED IS 07.2 Business relationship management [1,5] 20000-1 1ED IS 07.3 Supplier management [1] 20000-1 1ED IS 08.3 Problem management [1] 20000-1 1ED IS 09.2 Change management [1,2,3,4,5] 20000-1 1ED IS 10.1 Release management [2,4] 20000-1 2ED DRAFT 5.2 Plan the design, development and transition of new or changed services [2] 20000-1 2ED DRAFT 6.1 Service level management [1] 20000-1 2ED DRAFT 6.3 Service continuity and availability management [2] 20000-1 2ED DRAFT 6.6.3 Information security changes and incidents [2] 20000-1 2ED DRAFT 7.1 Business relationship management [1] 20000-1 2ED DRAFT 7.2 Supplier management [1] 20000-1 2ED DRAFT 8.2 Problem management [1] 20000-1 2ED DRAFT 9.2 Change management [1,2,3,4,5,6] 20000-1 2ED DRAFT 9.3 Release and deployment management [4]

5.7 Configuration management

Name	Configuration management
Context	This process is concerned with establishing and maintaining the integrity of service components to enable effective control of the services.
Purpose	The purpose of the configuration management process is to establish and maintain the integrity of all identified service components.
Outcomes	As a result of successful implementation of this process: 1. items requiring configuration management are identified; 2. the status of configuration items and modifications are recorded and reported; 3. changes to items under configuration management are controlled; 4. the integrity of systems, services and service components is assured; 5. the configuration of released items is controlled.
Requirements traceability	20000-1 1ED IS 06.1 Service level management [1] 20000-1 1ED IS 07.3 Supplier management [1] 20000-1 1ED IS 09.1 Configuration management [1,2,3,4,5] 20000-1 2ED DRAFT 6.1 Service level management [1] 20000-1 2ED DRAFT 7.2 Supplier management [1] 20000-1 2ED DRAFT 9.1 Configuration management [1,2,3,4,5] 20000-1 2ED DRAFT 9.2 Change management [3]

5.8 Human resource management

Name	Human resource management
Context	The scope of the human resource management process is limited to identifying and developing the competencies of individuals in relation to their service management activities and the process needs of the organization. This process specifically excludes other related and commonly accepted aspects of human resource management such as health and safety, security, and laws or regulations on the fairness of recruitment and employment practices.
Purpose	The purpose of the human resource management process is to provide the organization with necessary human resources and to maintain their competencies, consistent with business needs and service requirements.
Outcomes	As a result of successful implementation of this process: 1. the competencies required by the organization for service provision are identified; 2. identified competency gaps are filled through training or recruitment; 3. individual competencies and their development are monitored; 4. each individual demonstrates their understanding of their role in achieving service management objectives.
Requirements traceability	20000-1 1ED IS 03.3 Competence, awareness and training [2,3,4] 20000-1 2ED DRAFT 4.4.2.1 General [1] 20000-1 2ED DRAFT 4.4.2.2 Competence, awareness and training [1,2,3,4]

5.9 Improvement

Name	Improvement
Context	This process enables a service provider to identify opportunities for improvement to the SMS and the services identified during the operation of service management processes and the delivery of services including corrective and preventive actions. It includes the identification, evaluation, approval, management, measurement and review of improvements.
Purpose	The purpose of the improvement process is to continually improve the SMS, services and processes.
Outcomes	As a result of successful implementation of this process: 1.　opportunities for improvement are identified and recorded; 2.　opportunities for improvement are evaluated against agreed criteria for approval; 3.　approved improvements are prioritised and actions planned; 4.　approved improvements are implemented and confirmed; 5.　the results of improvement actions are reported and communicated to interested parties.
Requirements traceability	20000-1 1ED IS 04.4.2　　　Continual improvement (Act): Management of improvements [2,3,4] 20000-1 1ED IS 06.1　　　　Service level management [1] 20000-1 1ED IS 06.6　　　　Information security management [1] 20000-1 1ED IS 07.2　　　　Business relationship management [1] 20000-1 1ED IS 07.3　　　　Supplier management [1] 20000-1 1ED IS 08.3　　　　Problem management [1] 20000-1 1ED IS 09.2　　　　Change management [1] 20000-1 1ED IS 10.1　　　　Release management [1] 20000-1 2ED DRAFT 4.5.6.1　General [1] 20000-1 2ED DRAFT 4.5.6.2　Management of improvements [2,3,4,5] 20000-1 2ED DRAFT 6.1　　　Service level management [1] 20000-1 2ED DRAFT 6.6.3　　Information security changes and incidents [1] 20000-1 2ED DRAFT 7.1　　　Business relationship management [1] 20000-1 2ED DRAFT 7.2　　　Supplier management [1] 20000-1 2ED DRAFT 8.1　　　Incident management and request fulfilment [1] 20000-1 2ED DRAFT 9.2　　　Change management [1]

5.10 Incident management and request fulfilment

Name	Incident management and request fulfilment
Context	The objective of incident management is to restore the service within agreed service levels. The focus is on reducing the duration and consequences of the service outage from a business and customer perspective and not on finding the root cause of the incident. Request fulfilment aims to fulfil service requests within agreed service levels.
Purpose	The purpose of the incident management and request fulfilment process is to restore agreed service and fulfil service requests within agreed service levels.
Outcomes	As a result of successful implementation of this process: 1. incidents and service requests are recorded and classified; 2. incidents and service requests are prioritised and analysed; 3. incidents and service requests are resolved and closed; 4. incidents and service requests which are not progressed according to agreed service levels are escalated; 5. information regarding the status and progress of reported incidents or service requests is communicated to interested parties.
Requirements traceability	20000-1 1ED IS 06.6 Information security management [1,2,3] 20000-1 1ED IS 08.2 Incident management [1,2,3,5] 20000-1 2ED DRAFT 6.6.3 Information security changes and incidents [1,2,3] 20000-1 2ED DRAFT 8.1 Incident management and request fulfilment [1,3,4,5]

5.11 Information item management

Name	Information item management
Context	This process is concerned with the production, storage, dissemination, and integrity of information used in the SMS. The information security management process is concerned with the security of information used, stored or transmitted by or within a provided service.
Purpose	The purpose of the information item management process is to develop and maintain the recorded information produced by a process.
Outcomes	As a result of successful implementation of this process: 1. information items are produced in accordance with defined criteria; 2. Information items are controlled and issued according to defined criteria; 3. information items are communicated to interested parties; 4. information items are maintained in accordance with planned arrangements; 5. the integrity of information items is assured.
Requirements traceability	20000-1 1ED IS 03.3 Competence, awareness and training [4] 20000-1 1ED IS 04.1 Plan service management (Plan) [1] 20000-1 1ED IS 04.3 Monitoring, measuring and reviewing (Check) [1] 20000-1 1ED IS 06.1 Service level management [1,2,4] 20000-1 1ED IS 06.3 Service continuity and availability management [1,4] 20000-1 1ED IS 06.5 Capacity management [1,4] 20000-1 1ED IS 06.6 Information security management [1,2,3] 20000-1 1ED IS 07.2 Business relationship management [1,2] 20000-1 1ED IS 07.3 Supplier management [1,2] 20000-1 1ED IS 08.2 Incident management [1] 20000-1 1ED IS 08.3 Problem management [1] 20000-1 1ED IS 09.1 Configuration management [1] 20000-1 1ED IS 09.2 Change management [1] 20000-1 1ED IS 10.1 Release management [1,2] 20000-1 2ED DRAFT 4.1.3 Responsibility, authority and communication [1] 20000-1 2ED DRAFT 4.3.1 General [4] 20000-1 2ED DRAFT 4.3.2 Control of documents [1,5] 20000-1 2ED DRAFT 4.3.3 Control of records [1,4,5] 20000-1 2ED DRAFT 4.4.2.1 General [1,4] 20000-1 2ED DRAFT 4.5.2 Establish scope [1] 20000-1 2ED DRAFT 4.5.3 Plan service management [1,4] 20000-1 2ED DRAFT 4.5.5.1 General [1] 20000-1 2ED DRAFT 4.5.5.2 Internal audit [1] 20000-1 2ED DRAFT 4.5.5.3 Management review [4] 20000-1 2ED DRAFT 4.5.6.1 General [1] 20000-1 2ED DRAFT 5.1 General [1] 20000-1 2ED DRAFT 5.2 Plan the design, development and transition of new or changed services [1] 20000-1 2ED DRAFT 5.3 Design and development of new or changed services [1] 20000-1 2ED DRAFT 6.1 Service level management [1,2,4] 20000-1 2ED DRAFT 6.2 Service reporting [2] 20000-1 2ED DRAFT 6.3 Service continuity and availability management [1,2,4] 20000-1 2ED DRAFT 6.4 Budgeting and accounting for services [1] 20000-1 2ED DRAFT 6.5 Capacity management [1,4] 20000-1 2ED DRAFT 6.6.1 Information security policy [2,3] 20000-1 2ED DRAFT 6.6.2 Information security controls [1,2] 20000-1 2ED DRAFT 7.1 Business relationship management [1,2] 20000-1 2ED DRAFT 7.2 Supplier management [1,2] 20000-1 2ED DRAFT 8.1 Incident management and request fulfilment [1,2] 20000-1 2ED DRAFT 8.2 Problem management [1] 20000-1 2ED DRAFT 9.1 Configuration management [1] 20000-1 2ED DRAFT 9.2 Change management [1] 20000-1 2ED DRAFT 9.3 Release and deployment management [1,2]

5.12 Information security management

Name	Information security management
Context	This process ensures that the security controls required to perform service management activities adequately protect information assets.
Purpose	The purpose of the information security management process is to manage information security at an agreed level of security within all service management activities.
Outcomes	As a result of successful implementation of this process: 1. [information security requirements are identified and agreed;] 2. [criteria for the assessment of information security risks and the acceptable level of risk are identified;] 3. [information security risks are identified;] 4. information security risk is assessed; 5. information security risk measures and controls are defined; 6. information security risk measures and controls are implemented; 7. security incidents are quantified and recorded; 8. information security concerns are communicated to interested parties; 9. [the impact of changes on information security is analysed and reported.]
Requirements traceability	20000-1 1ED IS 06.6 Information security management [5,6,7] 20000-1 1ED IS 08.2 Incident management [6] 20000-1 1ED IS 09.1 Configuration management [6] 20000-1 2ED DRAFT 6.6.1 Information security policy [4] 20000-1 2ED DRAFT 6.6.2 Information security controls [5,6] 20000-1 2ED DRAFT 6.6.3 Information security changes and incidents [7] 20000-1 2ED DRAFT 8.1 Incident management and request fulfilment [6] 20000-1 2ED DRAFT 9.1 Configuration management [6]

5.13 Management review

Name	Management review
Context	This process checks the SMS, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness. It takes into account the results of audits, the performance of services, service reports, incidents, known errors, risks, suggestions and feedback from interested parties.
Purpose	The purpose of the management review process is to assess the performance of the SMS and to identify potential improvements.
Outcomes	As a result of successful implementation of this process: 1. the objectives of the review are established; 2. the status and performance of an activity or process are assessed; 3. risks, problems and opportunities for improvement are identified and recorded; 4. review results are communicated to interested parties; 5. action items resulting from reviews are tracked to closure.
Requirements traceability	20000-1 1ED IS 04.3 Monitoring, measuring and reviewing (Check) [2] 20000-1 1ED IS 05 Planning and implementing new or changed services [2] 20000-1 2ED DRAFT 4.5.5.1 General [1,2,5] 20000-1 2ED DRAFT 4.5.5.3 Management review [1,2,5]

0

5.14 Measurement

Name	Measurement
Context	This process provides quantitative information for the SMS, processes and services. It enables a service provider to identify, develop and use a set of measures that demonstrate effective service delivery and support the identification of improvement opportunities.
Purpose	The purpose of the measurement process is to identify, collect, analyse, and report data relating to the services provided and processes implemented to support effective management of the processes, and to objectively demonstrate the quality of the services provided.
Outcomes	As a result of successful implementation of this process: 1. the prioritised information needs related to provided services and implemented processes are identified; 2. an appropriate set of measures, driven by the information needs are identified and/or developed; 3. the required data are collected, and verified; 4. the required data are analysed and the results interpreted; 5. [measurement information is used to support decisions and provide an objective basis for communication.]
Requirements traceability	20000-1 1ED IS 06.1 Service level management [4] 20000-1 1ED IS 06.3 Service continuity and availability management [1] 20000-1 1ED IS 08.3 Problem management [4] 20000-1 1ED IS 09.2 Change management [4] 20000-1 1ED IS 10.1 Release management [3,4] 20000-1 2ED DRAFT 4.5.6.2 Management of improvements [4] 20000-1 2ED DRAFT 6.3 Service continuity and availability management [1] 20000-1 2ED DRAFT 6.6.3 Information security changes and incidents [4] 20000-1 2ED DRAFT 7.1 Business relationship management [4] 20000-1 2ED DRAFT 8.2 Problem management [4] 20000-1 2ED DRAFT 9.2 Change management [4] 20000-1 2ED DRAFT 9.3 Release and deployment management [3,4]

5.15 Organizational management

Name	Organizational management
Context	This process is the umbrella process in the SMS. All the other processes required by the SMS can be derived from the intent of one or more outcomes associated with this process. From a requirements perspective, the subclauses of ISO/IEC 20000-1 that reference the responsibilities of top management to establish the SMS are addressed by the outcomes of this process. The detailed objectives of the SMS are addressed by one or more of the processes supported by this process reference model.
Purpose	The purpose of the organizational management process is to establish the service management objectives, identify and provide resources, and monitor performance of IT service provision, in order to satisfy the requirements of customers and interested parties.
Outcomes	As a result of successful implementation of this process: 1. service requirements are established in response to business needs, customer requirements and customer requests; 2. the objectives and requirements for service management are identified and established to satisfy business needs, the service provider's financial processes, regulatory, contractual and statutory requirements; 3. the structure of the organization enables delivery of the services; 4. service management is planned and implemented with the intent of achieving the service management objectives and satisfying customers; 5. roles, competencies, authorities and responsibilities are identified to enable delivery of the services; 6. individuals with the necessary competencies are appointed to the roles needed to perform service management activities; 7. resources and infrastructure are determined and provided; 8. services that meet the agreed requirements are developed; 9. services are delivered in accordance with the agreed requirements; 10. services supplied by other parties are managed to meet the service requirements; 11. performance and progress against the planned arrangements is monitored; 12. issues arising from reviews of the SMS and suppliers are tracked to closure; 13. organizational risks are continually identified, analysed, treated and monitored; 14. action is taken to improve the effectiveness and efficiency of the SMS to meet the service management objectives and requirements.
Requirements traceability	20000-1 1ED IS 03.1 Management responsibility [1,2,6,7,11,13,14] 20000-1 1ED IS 03.2 Documentation requirements [4] 20000-1 1ED IS 04.1 Plan service management (Plan) [2,4] 20000-1 1ED IS 04.2 Implement service management and provide the services (Do) [4] 20000-1 1ED IS 04.3 Monitoring, measuring and reviewing (Check) [11] 20000-1 1ED IS 04.4.1 Continual improvement (Act): Policy [5] 20000-1 1ED IS 04.4.3 Continual improvement (Act): Activities [14] 20000-1 1ED IS 07.3 Supplier management [4,10] 20000-1 1ED IS 09.1 Configuration management [2] 20000-1 2ED DRAFT 4.1.1 Management commitment [2,4,7,11,14] 20000-1 2ED DRAFT 4.1.2 Service management policy [2] 20000-1 2ED DRAFT 4.1.3 Responsibility, authority and communication [1,2,11,13] 20000-1 2ED DRAFT 4.1.4 Management representative [6] 20000-1 2ED DRAFT 4.2 Governance of processes operated by other parties [2,10] 20000-1 2ED DRAFT 4.3.1 General [4] 20000-1 2ED DRAFT 4.4.1 Provision of resources [7] 20000-1 2ED DRAFT 4.4.2.1 General [5,6] 20000-1 2ED DRAFT 4.5.1 General [4,11,14] 20000-1 2ED DRAFT 4.5.2 Establish scope [2] 20000-1 2ED DRAFT 4.5.3 Plan service management [4,11] 20000-1 2ED DRAFT 4.5.4 Implement and operate [4,11] 20000-1 2ED DRAFT 4.5.5.1 General [11] 20000-1 2ED DRAFT 4.5.5.3 Management review [11,13]

Name	Organizational management
	20000-1 2ED DRAFT 4.5.6.1 General [14]
	20000-1 2ED DRAFT 5.2 Plan the design, development and transition of new or changed services [8]
	20000-1 2ED DRAFT 5.4 Transition of new or changed services [2]
	20000-1 2ED DRAFT 6.4 Budgeting and accounting for services [2]
	20000-1 2ED DRAFT 6.6.1 Information security policy [2]
	20000-1 2ED DRAFT 7.2 Supplier management [2]
	20000-1 2ED DRAFT 8.1 Incident management and request fulfilment [6]

5.16 Problem management

Name	Problem management
Context	Problem management is initiated to investigate the root cause of one or more incidents that impact services and service levels.
Purpose	The purpose of the problem management process is to minimise service disruption.
Outcomes	As a result of successful implementation of this process: 1. problems are identified, recorded, and classified; 2. [problems are prioritised and analysed]; 3. [problems are resolved and closed]; 4. [problems which are not progressed according to agreed service levels are escalated]; 5. the effect of unresolved problems is minimised; 6. the status and progress of the resolution of problems are communicated to interested parties.
Requirements traceability	20000-1 1ED IS 08.3 Problem management [1,5,6] 20000-1 2ED DRAFT 8.2 Problem management [1,5,6]

5.17 Release and deployment management

Name	Release and deployment management
Context	This process is responsible for planning, scheduling and controlling the movement of releases through the service lifecycle and environments. It ensures that the integrity of the live environment is protected and that the correct components are released.
Purpose	The purpose of the release and deployment management process is to deploy releases into the live environment in a controlled manner.
Outcomes	As a result of successful implementation of this process: 1. [requirements for releases are established and agreed with interested parties]; 2. releases of services and service components are planned; 3. releases are designed; 4. releases are tested prior to deployment; 5. [approved releases are deployed]; 6. integrity of hardware, software, and other service components is assured during deployment of the release. 7. unsuccessfully deployed releases are reversed or remedied; 8. release information is communicated to interested parties.
Requirements traceability	20000-1 1ED IS 09.2 Change management [2,6,8] 20000-1 1ED IS 10.1 Release management [2,3,4,6,8] 20000-1 2ED DRAFT 9.3 Release and deployment management [2,3,4,6,7,8]

5.18 Risk management

Name	Risk management
Context	This process is responsible for identifying, assessing and controlling risks related to delivering services to customers. It can be applied to risks related to other service management processes including information security, service continuity and availability management, change management.
Purpose	The purpose of the risk management process is to identify, analyse, evaluate, treat and monitor the risks continually.
Outcomes	As a result of successful implementation of this process:
	1. risks are identified as they develop;
	2. identified risks are categorised, assessed and the priority in which to apply resources to treatment of these risks is determined;
	3. risks and their proposed treatment are communicated to interested parties;
	4. assessed risks are monitored;
	5. appropriate treatment is taken to correct or avoid unacceptable assessed risks.
Requirements traceability	20000-1 1ED IS 03.1 Management responsibility [4]
	20000-1 1ED IS 06.3 Service continuity and availability management [1]
	20000-1 1ED IS 06.6 Information security management [4]
	20000-1 1ED IS 09.2 Change management [1]
	20000-1 2ED DRAFT 4.5.5.3 Management review [2]
	20000-1 2ED DRAFT 5.1 General [1,5]
	20000-1 2ED DRAFT 6.3 Service continuity and availability management [1]
	20000-1 2ED DRAFT 6.6.1 Information security policy [4]
	20000-1 2ED DRAFT 6.6.2 Information security controls [4]
	20000-1 2ED DRAFT 6.6.3 Information security changes and incidents [4]

5.19 Service continuity and availability management

Name	Service continuity and availability management
Context	This process is responsible for safeguarding the interests of the customers and interested parties by ensuring that agreed service levels will be met. It includes defining, analysing, planning, measuring and improving all aspects of service continuity and availability. The process involves reducing risks to an acceptable level and planning for the recovery of service if a disruption occurs.
Purpose	The purpose of the service continuity and availability management process is to ensure that agreed service levels will be met in foreseeable circumstances.
Outcomes	As a result of successful implementation of this process:
	1. service continuity and availability requirements are identified;
	2. a service continuity plan is developed using the service continuity requirements;
	3. a service availability plan is developed using the service availability requirements;
	4. service continuity is tested against the service continuity requirements to validate the plan;
	5. service availability is tested against the service availability requirements to validate the plan;
	6. service availability is monitored;
	7. underlying causes of unplanned service non-availability are identified and analysed;
	8. corrective actions are taken to address identified underlying causes;
	9. changes to service continuity requirements are reflected in the service continuity plan;
	10. changes to service availability requirements are reflected in the service availability plan.
Requirements traceability	20000-1 1ED IS 06.3 Service continuity and availability management [1,2,3,4,6,7,8,9,10]
	20000-1 2ED DRAFT 6.3 Service continuity and availability management [1,2,3,4,5,7,8,9]

5.20 Service design

Name	Service design
Context	The process takes the requirements for new and changed services and identifies the activities required for designing an agreed solution which includes the service and its service components. The design ensures that the new or changed services will achieve the service requirements.
Purpose	The purpose of the service design process is to design and develop new or changed services.
Outcomes	As a result of successful implementation of this process:
	1. new or changed services are designed to meet agreed business needs and customer requirements;
	2. a service specification is prepared that defines the attributes of the new or changed service;
	3. [infrastructure and service components to support the designed service are specified];
	4. new or changed services are developed that satisfy the criteria identified in the service specification.
Requirements traceability	20000-1 2ED DRAFT 5.1 General [1]
	20000-1 2ED DRAFT 5.3 Design and development of new or changed services [1,4]

5.21 Service level management

Name	Service level management
Context	The process identifies and maintains a catalogue of services and their dependencies. The supported workload characteristics and service level targets for each service are defined in an SLA. The process coordinates the supply of service components for an entire service to enable delivery of the service requirements and agreed service level targets to the customer. It monitors and reports on the service levels achieved.
Purpose	The purpose of the service level management process is to ensure that agreed service level targets for each customer are met.
Outcomes	As a result of successful implementation of this process:
	1. services and dependencies are identified;
	2. service level targets and workload characteristics for services are defined in SLAs;
	3. services are monitored against SLAs;
	4. [service level performance against service level targets is communicated to interested parties];
	5. changes to service requirements are reflected in the SLAs.
Requirements traceability	20000-1 1ED IS 06.1 Service level management [1,2,3]
	20000-1 2ED DRAFT 6.1 Service level management [1,2,3,5]

5.22 Service planning and monitoring

Name	Service planning and monitoring
Context	Planning includes the translation of strategic decisions into services. The process ensures that proposals for new or changed services, including service closure, consider the cost, organizational, process, technical and commercial implications of the service change. It includes planning for the design, transition, deployment and operation stages and the monitoring of progress against the estimated time, cost and quality constraints.
Purpose	The purpose of the service planning and monitoring process is to plan and monitor the provision of a new or changed service.
Outcomes	As a result of successful implementation of this process: 1. the scope of the work for provision of new or changed services is defined; 2. the feasibility of achieving the requirements of the new or changed service with available resources and constraints is assessed; 3. the tasks and resources necessary to complete the work are sized and estimated; 4. interfaces between organizational units and external parties are identified; 5. plans for the provision of the new or changed service are developed; 6. plans for the execution of the provision of the new or changed services are activated; 7. progress of the provision of the new or changed service is monitored and reported; 8. actions to correct deviations from the plan are taken when targets are not achieved.
Requirements traceability	20000-1 1ED IS 04.3 Monitoring, measuring and reviewing (Check) [5] 20000-1 1ED IS 05 Planning and implementing new or changed services [1,3,5] 20000-1 1ED IS 06.2 Service reporting [8] 20000-1 1ED IS 06.3 Service continuity and availability management [1,7] 20000-1 1ED IS 07.2 Business relationship management [7] 20000-1 1ED IS 08.3 Problem management [7] 20000-1 1ED IS 09.2 Change management [5,7] 20000-1 2ED DRAFT 4.5.3 Plan service management [5] 20000-1 2ED DRAFT 4.5.5.2 Internal audit [5] 20000-1 2ED DRAFT 5.1 General [7] 20000-1 2ED DRAFT 5.2 Plan the design, development and transition of new or changed services [1,2,5] 20000-1 2ED DRAFT 6.1 Service level management [7,8] 20000-1 2ED DRAFT 6.2 Service reporting [8] 20000-1 2ED DRAFT 6.3 Service continuity and availability management [7] 20000-1 2ED DRAFT 6.6.1 Information security policy [7] 20000-1 2ED DRAFT 7.1 Business relationship management [5] 20000-1 2ED DRAFT 7.2 Supplier management [5,7] 20000-1 2ED DRAFT 8.2 Problem management [7] 20000-1 2ED DRAFT 9.1 Configuration management [7] 20000-1 2ED DRAFT 9.2 Change management [5,7,8]

5.23 Service reporting

Name	Service reporting
Context	Service reporting produces timely, accurate service reports that meet the information requirements of the service provider, customer and interested parties. Service reports are used for communicating information and making decisions based on the findings in the service reports.
Purpose	The purpose of the service reporting process is to produce timely and accurate service reports to support effective communication and decision making.
Outcomes	As a result of successful implementation of this process: 1. [the service reporting needs are identified;] 2. service report content is defined in terms of identified service reporting needs and requirements; 3. service reports are produced according to the service report requirements; 4. service reports are communicated to interested parties.
Requirements traceability	20000-1 1ED IS 06.1 Service level management [2,3] 20000-1 1ED IS 06.2 Service reporting [2,3,4] 20000-1 2ED DRAFT 6.2 Service reporting [2,3,4] 20000-1 2ED DRAFT 6.3 Service continuity and availability management [3]

5.24 Service requirements

Name	Service requirements
Context	The intent of this process is to gather requirements for services. The service may originate from within the service provider (build for catalogue), from requests from one or more clients (build to order). The requirements may relate to a new service or changes to an existing service.
Purpose	The purpose of the service requirements process is to establish and agree the service requirements.
Outcomes	As a result of successful implementation of this process: 1. the required characteristics and context of use of new or changed services are identified [and recorded]; 2. [the constraints for a service solution are defined]; 3. [the requirements for the new or changed service are defined]; 4. [the requirements for validating the new or changed service are defined]; 5. [requirements for the new or changed service that are to be implemented are negotiated and agreed];
Requirements traceability	20000-1 1ED IS 05 Planning and implementing new or changed services [1] 20000-1 2ED DRAFT 5.1 General [3] 20000-1 2ED DRAFT 9.2 Change management [1]

5.25 Service transition

Name	Service transition
Context	The process prepares and co-ordinates the resources and people to successfully deploy a new or changed service into production within the estimated time, cost and quality constraints. It ensures that the service components are effectively integrated into a new or changed service and that the service provider and customers are ready to operate the solution in order to deliver the desired outcomes. It includes testing, verification and validation activities that enable the service provider to accept a new or changed service in accordance with defined acceptance criteria.
Purpose	The purpose of the service transition process includes the build, test and acceptance of the new or changed services followed by making operational the new or changed services.
Outcomes	As a result of successful implementation of this process: 1. [requirements for service transition are identified and agreed]; 2. [new or changed skills and expertise are identified, agreed, acquired and assigned]; 3. [transition activities to be performed by service provider or client are identified, agreed and performed; 4. [new or changed methods, procedures and measures for the new and changed services are identified]; 5. [new or changed authorities and responsibilities for the new and changed services are identified]; 6. [new or changed contracts and formal agreements with internal groups and suppliers to align with the changes in requirements are identified and implemented]; 7. [new or changed plans for availability, service continuity, capacity and information security are identified and implemented]; 8. [resources for the delivery of the new or changed services are identified and provided]; 9. the new or changed service is deployed and tested according to the service specification; 10. the new or changed service is accepted in accordance with the service acceptance criteria; 11. information regarding the outcome of the transitioning of new or changed service is communicated to interested parties.
Requirements traceability	20000-1 1ED IS 05 Planning and implementing new or changed services [10,11] 20000-1 2ED DRAFT 5.4 Transition of new or changed services [9,10,11]