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Systems and software engineering — Lifecycle profiles for very small entities (VSEs) —

Part 4-3: Service delivery — Profile specification

Ingénierie des systèmes et du logiciel — Profils de cycle de vie pour très petits organismes (TPO) —

Partie 4-3: Prestation de services — Spécification de profil

Reference number
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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. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

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).

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

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

This document was prepared by Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software and systems engineering*.

A list of all parts in the ISO/IEC 29110 series is available 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 https://www.iso.org/members.html.

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Introduction

Very Small Entities (VSEs) around the world are creating valuable products and services. For the purpose of ISO/IEC 29110, a Very Small Entity (VSE) is an enterprise, an organization, a department or a project having up to 25 people. Since many VSEs develop and/or maintain system and software components used in systems, either as independent products or incorporated in larger systems, a recognition of VSEs as suppliers of high quality products is required.

According to the Organization for Economic Co-operation and Development (OECD) SME and Entrepreneurship Outlook report (2005), "Small and Medium Enterprises (SMEs) constitute the dominant form of business organization in all countries world-wide, accounting for over 95 % and up to 99 % of the business population depending on country". The challenge facing governments and economies is to provide a business environment that supports the competitiveness of this large heterogeneous business population and that promotes a vibrant entrepreneurial culture.

From studies and surveys conducted, it is clear that the majority of International Standards do not address the needs of VSEs. Implementation of and conformance with these standards is difficult, if not impossible. Consequently, VSEs have no, or very limited, ways to be recognized as entities that produce quality systems/system elements including software in their domain. Therefore, VSEs are excluded from some economic activities.

It has been found that VSEs find it difficult to relate International Standards to their business needs and to justify the effort required to apply standards to their business practices. Most VSEs can neither afford the resources, in terms of number of employees, expertise, budget and time, nor do they see a net benefit in establishing over-complex systems or software life cycle processes. To address some of these difficulties, a set of guides has been developed based on a set of VSE characteristics. The guides are based on subsets of appropriate standards processes, activities, tasks and outcomes, referred to as Profiles. The purpose of a profile is to define a subset of International Standards relevant to the VSEs' context; for example, processes, activities, tasks and outcomes of ISO/IEC/IEEE 12207 for software; and processes, activities, tasks and outcomes of ISO/IEC/IEEE 15288 for systems; and information products (documentation) of ISO/IEC/IEEE 15289 for software and systems.

VSEs can achieve recognition through implementing a profile and by being audited against ISO/IEC 29110 specifications.

The ISO/IEC 29110 series of standards and technical reports can be applied at any phase of system or software development within a life cycle. This series of standards and technical reports is intended to be used by VSEs that do not have experience or expertise in adapting/tailoring ISO/IEC/IEEE 12207 or ISO/IEC/IEEE 15288 standards to the needs of a specific project. VSEs that have expertise in adapting/tailoring ISO/IEC/IEEE 12207 or ISO/IEC/IEEE 15288 are encouraged to use those standards instead of ISO/IEC 29110.

ISO/IEC 29110 is intended to be used with any lifecycle such as: waterfall, iterative, incremental, evolutionary or agile.

Systems, in the context of ISO/IEC 29110, are typically composed of hardware and software components.

The ISO/IEC 29110 series, targeted by audience, has been developed to improve system or software and/or service quality and process performance. See Table 1.

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Table 1 — ISO/IEC 29110 target audience

ISO/IEC 29110	Title	Target audience
ISO/IEC 29110-1	Overview	VSEs and their customers, assessors, standards producers, tool vendors and methodology vendors.
ISO/IEC 29110-2	Framework for profile preparation	Profile producers, tool vendors and methodology vendors. Not intended for VSEs.
ISO/IEC 29110-3	Certification and assessment guidance	VSEs and their customers, assessors, accreditation bodies.
ISO/IEC 29110-4	Profile specifications	VSEs, customers, standards producers, tool vendors and methodology vendors.
ISO/IEC 29110-5	Management, engineering and service delivery guides	VSEs and their customers.

If a new profile is needed, ISO/IEC 29110-4 and ISO/IEC TR 29110-5 can be developed with minimal impact to existing documents.

ISO/IEC 29110-1 defines the terms common to the ISO/IEC 29110 series. It introduces processes, lifecycle and standardization concepts, the taxonomy (catalogue) of ISO/IEC 29110 profiles and the ISO/IEC 29110 series. It also introduces the characteristics and needs of a VSE and clarifies the rationale for specific profiles, documents, standards and guides.

ISO/IEC 29110-2 introduces the concepts for systems and software engineering profiles for VSEs. It establishes the logic behind the definition and application of profiles. For standardized profiles, it specifies the elements common to all profiles (structure, requirements, conformance, assessment). For domain-specific profiles (profiles that are not standardized and developed outside of the ISO process), it provides general guidance adapted from the definition of standardized profiles.

ISO/IEC 29110-3 defines certification schemes, assessment guidelines and compliance requirements for process capability assessment, conformity assessments and self-assessments for process improvements. ISO/IEC 29110-3 also contains information that can be useful to developers of certification and assessment methods and developers of certification and assessment tools. ISO/IEC 29110-3 is addressed to people who have direct involvement with the assessment process, e.g. the auditor, certification and accreditation bodies and the sponsor of the audit, who need guidance on ensuring that the requirements for performing an audit have been met.

ISO/IEC 29110-4-m provides the specification for all profiles in one profile group (a profile group may contain a single profile or multiple profiles). A profile is specified in terms of requirements imported from appropriate base standards.

ISO/IEC TR 29110-5-m provides management, engineering and service delivery guides for the profiles in a profile group.

This document provides the specification for the service delivery profile.

Figure 1 describes the ISO/IEC 29110 International Standards (IS) and Technical Reports (TR) and positions the parts within the framework of reference. Overview, assessment guide, management and engineering guide are available from ISO as Technical Reports (TR). The Framework document, profile specifications and certification schemes are published as International Standards (IS).

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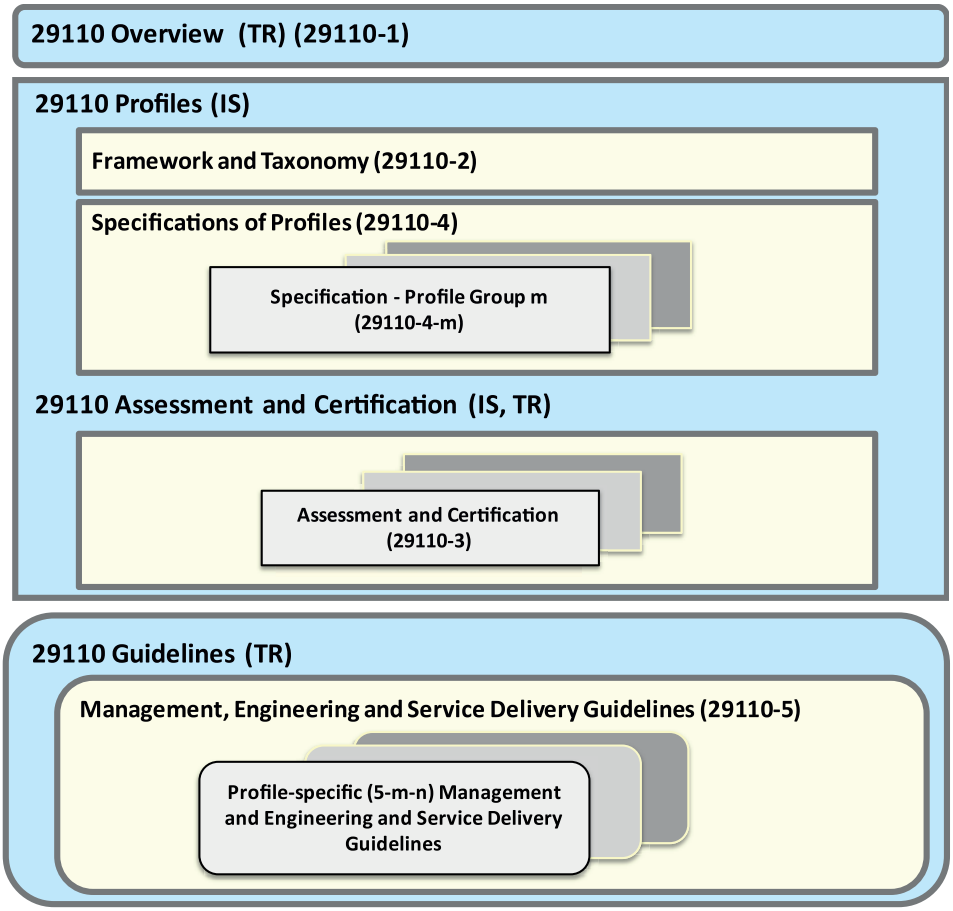


Figure 1 — The ISO/IEC 29110 series

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Systems and software engineering — Lifecycle profiles for very small entities (VSEs) —

Part 4-3:
Service delivery — Profile specification

1 Scope

1.1 Fields of application

This document is applicable to Very Small Entities (VSEs). A VSE is an enterprise, an organization, a department or a project having up to 25 people.

The purpose of this document is to provide a set of auditable requirements based on multiple standards (i.e., ISO/IEC/IEEE 15288, ISO/IEC/IEEE 15289, ISO 9000, ISO 9001, ISO 31000, ISO/IEC 38500, ISO 10004, ISO 10007, ISO/IEC 20000, ISO/IEC 27035) that supports the delivery of services by a VSE. Services can be delivered to internal or external customers. This document is not a Management System Standard (MSS), nor does it provide guidance on fulfilling the requirements of an MSS. ISO/IEC 20000-1:2011 is the MSS for service management (see Annex D for information).

This document does not promote uniformity in the approach across all organizations, as specific objectives and initiatives are tailored to suit an individual organization's needs.

1.2 Target audience

This document is targeted at:

— assessors and accrediting agencies to support the conformity needs of the VSE;

— VSEs that want to claim conformity to this profile for service delivery;

— customers who want assurance about a VSE's abilities to meet their requirements; and

— tool/methodology vendors for future development of commercial tools or methodologies to support VSEs using this document.

Conformance is achieved by demonstrating that the mandatory requirements have been satisfied using the content of conformant work products as an evidence.

NOTE In this document, for simplicity of reference, each work product is described as if it were published as a separate document. However, work products will be considered as conforming if they meet the stated requirements, are available for reference, divided into separate documents or volumes, or combined with other work products into one document.

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 29110-2-1, *Software engineering — Lifecycle profiles for Very Small Entities (VSEs) — Part 2-1: Framework and taxonomy*

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3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 29110-2-1 and the following apply.

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

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

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

3.1
activity
set of cohesive tasks of a *process* (3.21)

[SOURCE: ISO/IEC/IEEE 12207:2017, 3.1.4]

3.2
agreement
mutual acknowledgement of terms and conditions under which a working relationship is conducted

EXAMPLE Contract, memorandum of agreement.

[SOURCE: ISO/IEC/IEEE 12207:2017, 3.1.5]

3.3
audit
systematic, independent, documented *process* (3.21) for obtaining *records* (3.23), statements of fact or other relevant information and assessing them objectively, to determine the extent to which specified requirements are fulfilled

Note 1 to entry: Whilst "audit" applies to management systems, "assessment" applies to conformity assessment bodies as well as more generally.

[SOURCE: ISO/IEC TR 29110-1:2016, 3.7]

3.4
change
add, move, modify, removal of a *configuration item (CI)* (3.5)

Note 1 to entry: changes can be classified based on the risk and impact to the *organization* (3.18); common types include pre-approved, emergency or normal.

3.5
configuration item
CI
item or aggregation of hardware, software or both, that is designated for configuration *management* (3.16) and treated as a single entity in the configuration management *process* (3.21)

Note 1 to entry: Configuration items can vary widely in complexity, size and type, ranging from an entire *system* (3.37) including all hardware, software and documentation, to a single module or a minor hardware component.

[SOURCE: ISO/IEC/IEEE 15288:2015, 4.1.13, modified — Note 1 to entry has been added.]

3.6
control manager
CM
role that approves/rejects *change* (3.4) and manages change-related tasks such as testing and deployment

Note 1 to entry: This role may be combined with other roles and is a direct report (or shared role) with the *Service Manager* (3.33). If one person is appointed to the role, the person reports to the *Service Manager* (3.33) for service matters and has the authority over change-related tasks.

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3.7
customer
CUS
person or *organization* (3.18) that could or does receive a product or a *service* (3.26) that is intended for or required by this person or *organization* (3.18)

EXAMPLE Consumer, client, end-user, retailer, receiver of product or *service* (3.26) from an internal *process* (3.21), beneficiary and purchaser.

Note 1 to entry: A customer can be internal or external to the *organization* (3.18).

[SOURCE: ISO 9000:2015, 3.2.4]

3.8
document
information and the medium on which it is contained

EXAMPLE *Record* (3.23), specification, procedure document, drawing, report, standard.

Note 1 to entry: The medium can be paper, magnetic, electronic or optical computer disc, photograph or master sample, or combination thereof.

Note 2 to entry: A set of documents, for example specifications and *records* (3.23), is frequently called "documentation".

Note 3 to entry: Some requirements (e.g. the requirement to be readable) relate to all types of documents. However, there can be different requirements for specifications (e.g. the requirement to be revision controlled) and for *records* (3.23) (e.g. the requirement to be retrievable).

[SOURCE: ISO 9000:2015, 3.8.5]

3.9
effectiveness
extent to which planned activities are realized and planned results achieved

[SOURCE: ISO 9000:2015, 3.7.11, modified — Note 1 to entry has been removed.]

3.10
efficiency
relationship between the result achieved and the resources used

[SOURCE: ISO 9000:2015, 3.7.10]

3.11
governance
system (3.37) of directing and controlling

[SOURCE: ISO/IEC 38500:2015, 2.8]

3.12
incident
anomalous or unexpected event, set of events, condition or situation at any time during the life cycle of a project, product, *service* (3.26) or *system* (3.37)

[SOURCE: ISO/IEC/IEEE 15288:2015, 4.1.21]

3.13
incident manager
IM
role that has authority over all *incidents* (3.12) and manages incident-related tasks

Note 1 to entry: This role may be combined with other roles. This role is a direct report (or shared role) with the *Service Manager* (3.33). The person can also be responsible for a Service Desk, if one exists.

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3.14
information security policy
document (3.8) that states, in writing, how an *organization* (3.18) plans to protect its physical and information technology assets

[SOURCE: ISO/TS 21547:2010, 3.2.25]

3.15
lifecycle
evolution of a *system* (3.37), product, *service* (3.26), project or other human-made entity, from conception through retirement

[SOURCE: ISO/IEC/IEEE 15288:2015, 4.1.23]

3.16
management
MGT
coordinated activities to direct and control an *organization* (3.18)

Note 1 to entry: Management can include establishing policies and objectives, and *processes* (3.21) to achieve these objectives.

Note 2 to entry: The word "management" sometimes refers to people, i.e. a person or group of people with authority and responsibility for the conduct and control of an organization. When "management" is used in this sense, it should always be used with some form of qualifier to avoid confusion with the concept of "management" as a set of activities defined above. For example, "management shall..." is deprecated whereas "*top management* (3.38) shall..." is acceptable. Otherwise different words should be adopted to convey the concept when related to people, e.g. managerial or managers.

[SOURCE: ISO 9000:2015, 3.3.3]

3.17
operator
individual or *organization* (3.18) that performs the operations of a *system* (3.37)

Note 1 to entry: The role of operator and the role of user can be vested, simultaneously or sequentially, in the same individual or organization.

Note 2 to entry: An individual operator combined with knowledge, skills and *procedures* (3.20) can be considered as an element of the *system* (3.37).

Note 3 to entry: An operator may perform operations on a *system* (3.37) that is operated, or of a *system* (3.37) that is operated, depending on whether or not operating instructions are placed within the system boundary.

[SOURCE: ISO/IEC/IEEE 15288:2015, 4.1.26]

3.18
organization
person or a group of people that has its own functions responsibilities, authorities and relationships to achieve its objectives

[SOURCE: ISO 9000:2015, 3.2.1, modified — Notes 1 and 2 to entry have been removed.]

3.19
practitioner
PT
person or team performing the activities within one or more *process* (3.21) areas

3.20
procedure
specified way to carry out an *activity* (3.1) or a *process* (3.21)

Note 1 to entry: Procedures can be documented or not.

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[SOURCE: ISO 9000:2015, 3.4.5]

3.21
process
set of interrelated or interacting activities which transforms inputs into outputs to deliver an intended result

Note 1 to entry: Whether the "intended result" of a process is called output, product or *service* (3.26) depends on the context of the reference.

Note 2 to entry: Inputs to a process are generally the outputs of other processes and outputs of a process are generally the inputs to other processes.

Note 3 to entry: Two or more interrelated and interacting processes in series can also be referred to as a process.

Note 4 to entry: Processes in an *organization* (3.18) are generally planned and carried out under controlled conditions to add value.

[SOURCE: ISO 9000:2015, 3.4.1, modified — Notes 5 and 6 to entry have been removed.]

3.22
profile
set of one or more base standards and/or profiles, and where applicable, the identification of chosen classes, conforming subsets, option and parameters of those base standards, or standardized profiles necessary to accomplish a particular function

[SOURCE: ISO/IEC TR 10000-1:1998, 3.1.4, modified — NOTE has been removed; "ISPs" has been replaced with "(standardized) profiles".]

3.23
record
document (3.8) stating results achieved or providing evidence of activities performed

[SOURCE: ISO 9000:2015, 3.8.10, modified — Notes 1 and 2 to entry have been removed.]

3.24
relationship manager
RM
role that develops and manages the *customer* (3.7) and *supplier* (3.36) interfaces as well as the *service catalogue* (3.27)

Note 1 to entry: This role may be combined with other roles. This role is a direct report (or shared role) with the *Service Manager* (3.33).

3.25
resource
asset that is utilized or consumed during the execution of a *process* (3.21)

Note 1 to entry: Resources include those that are reusable, renewable or consumable.

EXAMPLE diverse entities such as funding, personnel, facilities, capital equipment, tools and utilities such as power, water, fuel and communication infrastructures

[SOURCE: ISO/IEC/IEEE 12207:2017, 3.1.45]

3.26
service
performance of activities, work or duties

Note 1 to entry: A service is self-contained, coherent, discrete, and can be composed of other services.

Note 2 to entry: A service is generally an intangible product.

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[SOURCE: ISO/IEC/IEEE 15288:2015, 4.1.42]

3.27
service catalogue
documented information about services that an *organization* (3.18) provides to its *customers* (3.7)

3.28
service change request
formal *procedure* (3.20) for submitting a request for an adjustment of a *configuration item* (3.5)

[SOURCE: ISO/IEC TR 18018:2010, 3.5, modified — The original term was "change request" and an abbreviated term "CR" was included.]

3.29
service delivery policy
formal, brief and high-level statement that embraces an *organization's* (3.18) general beliefs, ethics, goals and objectives of *service(s)* (3.26)

3.30
service design
creation of a service solution(s); typically including the components which create the desired functionality, technology architecture that supports the components, the *processes* (3.21) to support and manage the solution, the associated measures (internal performance or customer agreed measures), and the supply chain interfaces

3.31
service level agreement
SLA
documented *agreement* (3.2) between a *service provider* (3.34) and a *customer* (3.7) that identifies *services* (3.26) and service targets

Note 1 to entry: A service level agreement can also be established between the *service provider* (3.34) and a *supplier* (3.36) or an internal group or a *customer* (3.7) acting as a *supplier* (3.36).

Note 2 to entry: A service level agreement can be included in a contract or another type of documented agreement.

[SOURCE: ISO/IEC TR 20000-10:2015, 2.29]

3.33
service manager
SM
role that directly oversees the delivery of services and provides leadership and direction, has decision-making authority on all activities, and is a direct report or peer to the highest level of the *organization* (3.18)

Note 1 to entry: The service manager may have more than one role in the delivery of services (assign the responsibilities of the *Control Manager* (3.6) and Service Manager to the same individual).

3.34
service provider
organization (3.18) that manages and delivers a *service* or *services* (3.26) to the *customer* (3.7)

Note 1 to entry: A customer can be internal or external to the service provider's organization.

[SOURCE: ISO/IEC/IEEE 24765:2017, 3.3721]

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3.35
stakeholder
individual or *organization* (3.18) having a right, share, claim or interest in a *system* (3.37) or in its possession of characteristics that meet their needs and expectations

EXAMPLE End users, end user organizations, supporters, developers, trainers, maintainers, disposers, acquirers, *supplier* (3.36) organizations and regulatory bodies.

[SOURCE: ISO/IEC/IEEE 15288:2015, 4.1.44, modified — Note 1 to entry has been removed.]

3.36
supplier
SUP
organization (3.18) or an individual that enters into an *agreement* (3.2) with the acquirer for the supply of a product or *service* (3.26)

Note 1 to entry: Other terms commonly used for supplier are contractor, producer, seller or vendor.

Note 2 to entry: The acquirer and the supplier sometimes are part of the same organization.

[SOURCE: ISO/IEC/IEEE 15288:2015, 4.1.45, modified — "SUP" has been added.]

3.37
system
combination of interacting elements organized to achieve one or more stated purposes

Note 1 to entry: A system is sometimes considered as a product or as the services it provides.

Note 2 to entry: In practice, the interpretation of its meaning is frequently clarified by the use of an associative noun, e.g. aircraft system. Alternatively, the word "system" may be substituted simply by a context-dependent synonym, e.g. aircraft, though this may then obscure a system principles perspective.

[SOURCE: ISO/IEC/IEEE 15288:2015, 4.1.46, modified — Note 3 to entry has been removed.]

3.38
top management
person or group of people who directs and controls an *organization* (3.18) at the highest level

Note 1 to entry: Top management has the power to delegate authority and provide resources within the organization.

Note 2 to entry: 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.

Note 3 to entry: This definition is only included to support wording used in quoted definitions; with 25 or less people in a VSE, the concept of top management may not be applicable.

[SOURCE: ISO 9000:2015, 3.1.1, modified — The original Note 3 to entry has been removed, new Note 3 to entry added.]

3.39
vital business service
service (3.26) that is critical to the success of the business

4 Abbreviated terms

The following abbreviations are used in this document:

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