
**Systems and software engineering —
Lifecycle profiles for Very Small
Entities (VSEs) —**

Part 4-2:

**Software engineering: Profile
specifications: Organizational
management profile group**





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Foreword

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

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

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

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

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

This document was prepared by Joint 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 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

Very Small Entities (VSEs) around the world are contributing to valuable products and services. For the purpose of the ISO/IEC 29110 series, a Very Small Entity (VSE) is an enterprise, an organisation, a department or a project having up to 25 people. Since many VSEs develop and/or maintain system elements and software components used in systems, or sold to be used by others, 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 2019 report, 'Small and medium-sized enterprises (SMEs) and entrepreneurship are essential drivers of economic and social well-being. Representing 99 % of all businesses, generating about 60 % of employment and totalling between 50 % and 60 % of value added in the OECD area'. The challenge facing OECD governments 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. Subsequently 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 often cut off 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 application of 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 systems or software lifecycle processes. To rectify some of these difficulties, a set of guides has been developed according to 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 can be applied at any phase of system or software development within a lifecycle. This series 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.

The ISO/IEC 29110 series is intended to be used with any lifecycles such as: waterfall, iterative, incremental, evolutionary or agile. The lifecycle processes described in the ISO/IEC 29110 series are not intended to preclude or discourage their use by larger organisations than VSEs.

The lifecycle processes defined in the ISO/IEC 29110 series can be used by VSEs when using, as well as when creating and supplying, a system or software. They can be applied at any level in a system's or software's structure and at any stage in the lifecycle.

Systems, in the context of the ISO/IEC 29110 series, 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](#).

Table 1 — ISO/IEC 29110 target audience

ISO/IEC 29110	Title	Target audience
ISO/IEC TR 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 TR 29110-5	Management, engineering and service delivery guidelines	VSEs and their customers.
ISO/IEC 29110-6	Specific profile specifications	VSEs, customers, standards producers, tool vendors and methodology vendors.
ISO/IEC TR 29110-7	Specific profile guidelines	VSEs and their customers.

If a new profile is needed, ISO/IEC 29110-4 or ISO/IEC 29110-6 and/or ISO/IEC TR 29110-7 ISO/IEC TR 29110-5 can be developed with minimal impact on existing documents.

ISO/IEC TR 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 that are based on subsets of appropriate standards elements.

ISO/IEC TR 29110-5-m-n provides a management and engineering guide for each profile in one profile group.

ISO/IEC 29110-6-m provides the specification for specific profiles that are based on subsets of appropriate standards elements.

ISO/IEC TR 29110-7-x provides a guide for each profile in the specific profile group.

This document provides the specifications for the organizational management profile of the management profile group. It is based on subsets of appropriate standards elements.

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 freely available Technical Reports (TR). The Framework document, profile specifications and certification schemes are published as International Standards (IS).

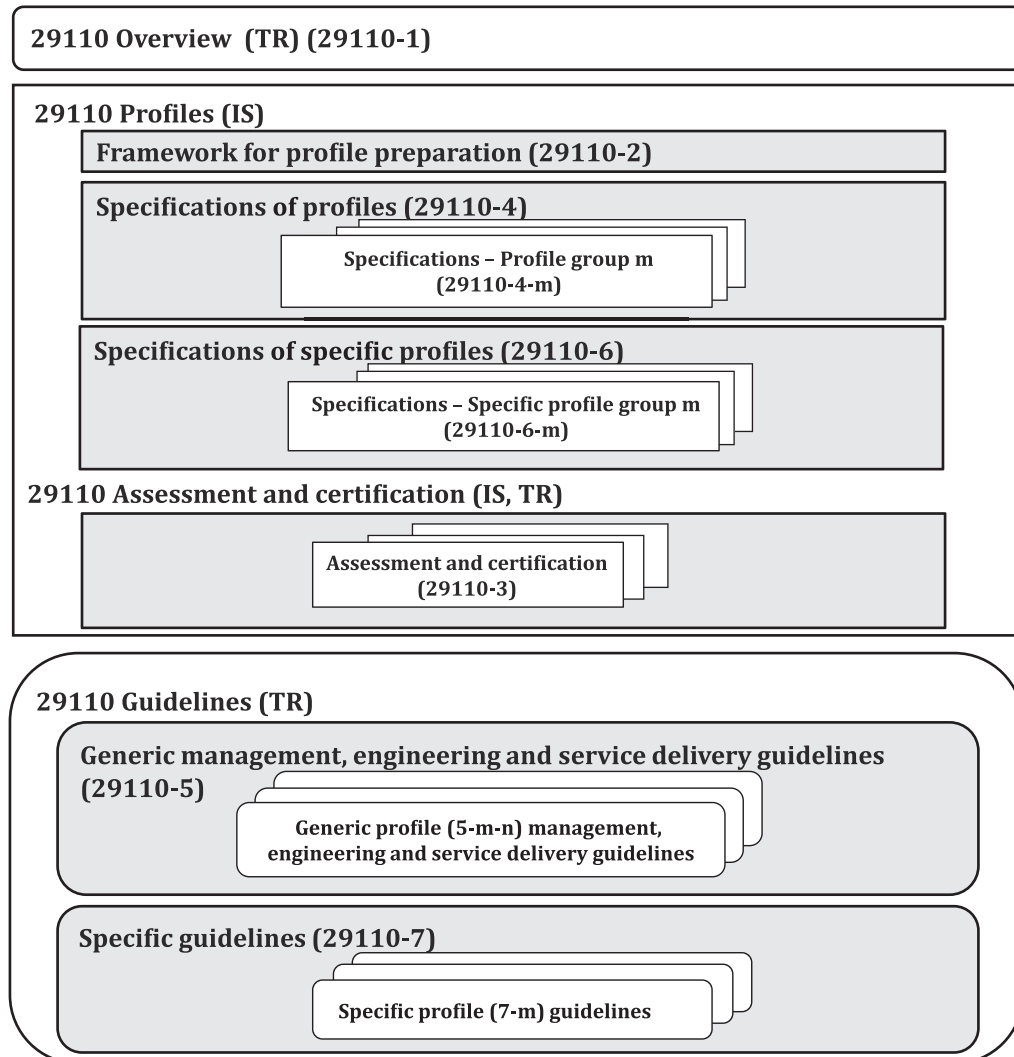


Figure 1 — ISO/IEC 29110 series

Systems and software engineering — Lifecycle profiles for Very Small Entities (VSEs) —

Part 4-2:

Software engineering: Profile specifications: Organizational management profile group

1 Scope

This document provides a profile specification for the organizational management profile. The organizational management profile applies to VSEs involved in systems engineering and/or software engineering development.

This document provides links to the subset of ISO/IEC/IEEE 12207 and ISO 9001 organizational, resources, processes and project portfolio process elements from the organizational perspective.

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*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

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

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

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1.1

organizational management

task and responsibilities to direct and control an organisation

Note 1 to entry: See ISO/IEC TR 29110-1.

3.1.2

organizational management profile

profile targeted at VSEs to provide them with additional *organizational management* (3.1.1) guidance and selected requirements

[SOURCE: ISO/IEC TR 29110-1:2016, 3.35, modified — "and selected requirements" has been added.]

3.1.3

project portfolio management

centralised management of one or more portfolios of projects to achieve strategic objectives

Note 1 to entry: This definition is adapted from Reference [14].

3.1.4

resource management

identification, estimation, allocation, and monitoring of the means used to develop a product or perform a service

[SOURCE: ISO/IEC/IEEE 24765:2017, 3.3467]

3.1.5

small and medium-sized enterprise

enterprise with less than 250 persons employed

Note 1 to entry: This definition is adapted from Reference [7].

3.2 Abbreviated terms

MF	measurement framework
OM	organizational management
PPM	project portfolio management
PSM	process management
RM	resource management
SME	small and medium-sized enterprise
VSE	Very Small Entity

4 Conformance

4.1 Conformance situations

This document can be implemented by organisations or projects implementing and using the processes and products required by this document. Therefore, organisations can claim conformance to this document.

There are two types of conformance situations:

- process conformance: conformance to the requirements in the process part of the profile specification;
- product conformance: conformance to the requirements in the product part of the profile specification.

Conformance may be interpreted differently for various situations. The relevant situation shall be identified in the claim of conformance.

Conformance can be attested by a third party. It can be mandated as part of procurement and contractual processes.

4.2 Process conformance

A VSE can claim conformance to the process part of the profile if it meets all the mandatory profile process requirements as identified in its specification ([Clause 7](#)), and the associated properties and requirements as described in the base standards when applicable.

NOTE Requirements of this document are mandatory and use the word "shall".

5 Naming, diagramming and definition conventions

Conventions for naming, diagramming, describing and defining profiles are defined in ISO/IEC 29110-2-1.

6 Minimal conditions for organizational management profile use

To use the organizational management profile, it is assumed that the VSE already fulfils the following conditions:

- a) There is a group of up to 25 people call itself a VSE.
- b) There is or will be at least one productive process deployed in the VSE.
- c) There is or will be a project management process deployed in the VSE.

7 Organizational management profile specifications

7.1 General

This clause contains the specification of the standardised profile requirements. It contains the specification for the following profile elements:

- organizational management process ([7.2](#));
- resource management process ([7.3](#));
- process management process ([7.4](#));
- project portfolio management process ([7.5](#)).

These requirements are the result of organizational management, resource management, process management and project portfolio management purpose achievement.

[Annex A](#) specifies the applicable requirements from source standards ISO/IEC/IEEE 12207 and ISO 9001.

[Annex B](#) gives additional information on the process reference model for the organizational profile.

7.2 Organizational management process requirements

As a result of successful implementation of the organizational management process:

- a) mission, vision, values and required functional areas shall be defined, communicated and maintained;
- b) functional areas and processes responsibility and authority shall be assigned;
- c) a strategic plan, budget and measurable objectives shall be defined, communicated, maintained and monitored;

- d) a customer strategy focusing on enhancing customer satisfaction shall be defined, communicated, maintained and monitored;
- e) required resources needed for the VSE's operation shall be identified and made available;
- f) required processes and their objectives shall be identified, communicated and monitored;
- g) a risk management plan shall be defined, communicated, reviewed, maintained and monitored.

7.3 Resource management process requirements

As a result of successful implementation of the resource management process:

- a) policies and mechanisms for resources procurement shall be defined, communicated, enhanced and monitored;
- b) the necessary competence of the VSE's personnel shall be determined; skills of personnel shall be developed, maintained or enhanced;
- c) requested and necessary human resources shall be provided to processes and to projects;
- d) requested, stable, necessary and reliable infrastructure elements shall be provided or acquired to operate the processes and the projects;
- e) the infrastructure shall be maintained and controlled;
- f) conflicts in multi-project resource demands shall be resolved considering the capabilities of, and constraints on, existing internal resources or resources to be obtained from external providers;
- g) an organizational repository strategy shall be defined, communicated, enhanced and monitored.

7.4 Process management process requirements

As a result of successful implementation of the process management process:

- a) process definition, training, deployment, performance, evaluation and improvement activities shall be planned, communicated and monitored;
- b) processes objectives, resources, information and documentation shall be identified, recorded, reviewed and made available;
- c) responsibilities and authorities for performing the process shall be defined, assigned and communicated to assure the delivery of their intended outputs;
- d) the required processes data shall be collected, stored, analysed, and the results shall be interpreted and informed;
- e) adherence of processes and activities to the applicable standards, procedures and requirements shall be evaluated, and the results documented;
- f) process data and evaluation results shall be used to support decisions and provide an objective basis for process improvement.

7.5 Project portfolio management process requirements

As a result of successful implementation of the project portfolio management process:

- a) policies and mechanisms for project portfolio management and customer relationship shall be defined, communicated, enhanced and monitored;
- b) an agreement shall be established between the VSE and the customer for developing, maintaining, operating, packaging, delivering, and installing a product and/or a service;

- c) project management accountability and authorities for a particular project shall be defined;
- d) management and technical review meetings with the customer shall be held; the status of customer satisfaction shall be monitored; and the review results shall be made known to all affected parties;
- e) risks, problems and action items resulting from reviews shall be identified, recorded and tracked to closure.

Annex A (informative)

Organizational management profile base document references

A.1 General

This annex establishes the reference between the profile requirements of this document and the related requirements in the normative source standards, in [Tables A.1, A.2, A.3](#) and [A.4](#). The explanation of the column names and contents is stated in ISO/IEC 29110-2-1:2015, Clauses 6 and 7.

Although explicit reference is not made in the body of this document to activities, tasks and work products, more information can be found in ISO/IEC TR 29110-5-2-1.

A.2 Profile requirements definition and composition references

A.2.1 OM process – Organizational management

Table A.1 — OM process - Profile requirements mapping to base standards

Profile re- quirement ID	Profile requirement	Source doc. ID	Base standard ID	Base standard requirement
a)	mission, vision, values and required functional areas shall be defined, communicated and maintained;			As stated in ISO/IEC/IEEE 12207:2017, 6.4.1.1 NOTE 1, the organization's strategy ... is generally outside the scope of ISO/IEC/IEEE 12207. It is included here because in a VSE the same people are likely to be involved in both organizational strategy and in technical management of systems and software engineering.
b)	functional areas and processes responsibility and authority shall be assigned;	ISO/IEC/IEEE 12207:2017	6.2.1.2	b) Responsibility, accountability, and authority within life cycle policies, processes, models, and procedures are defined.
		ISO 9001: 2015	5.1.1	The organization shall h) engaging, directing and supporting persons to contribute to the effectiveness of the quality management system;
c)	a strategic plan, budget and measurable objectives shall be defined, communicated, maintained and monitored;	ISO/IEC/IEEE 12207:2017		As stated in ISO/IEC/IEEE 12207:2017, 6.4.1.1 NOTE 1, the organization's strategy ... is generally outside the scope of ISO/IEC/IEEE 12207. It is included here because in a VSE the same people are likely to be involved in both organizational strategy and in technical management of systems and software engineering.

Table A.1 (continued)

Profile requirement ID	Profile requirement	Source doc. ID	Base standard ID	Base standard requirement
d)	a customer strategy focuses on enhancing customer satisfaction shall be defined, communicated, maintained and monitored;	ISO/IEC/IEEE 12207:2017	6.2.5.2	b) Quality evaluation criteria and methods are established.
		ISO/IEC/IEEE 12207:2017	6.2.5.3	a) NOTE 2: The policies, objectives, and procedures are based on the business strategy for customer satisfaction and risk management considerations.
		ISO 9001: 2015	5.1.2	The organization shall a) customer and applicable statutory and regulatory requirements are determined, understood and consistently met.
e)	required resources needed for the VSE operation shall be identified and made available;	ISO/IEC/IEEE 12207:2017	6.2.2.2	a) The requirements for infrastructure are defined. b) The infrastructure elements are identified and specified.
f)	required processes and their objectives shall be identified, communicated and monitored;	ISO/IEC/IEEE 12207:2017	6.2.1.2	a) Organizational policies and procedures for the management and deployment of life cycle models and processes are established.
		ISO 9001: 2015	5.1.1	The organization shall f) communicating the importance of effective quality management and of conforming to the quality management system requirements.
g)	a VSE risk management plan shall be defined, communicated, reviewed, maintained and monitored.	ISO 9001: 2015	5.1.2	The organization shall b) the risks and opportunities that can affect conformity of products and services and the ability to enhance customer satisfaction are determined and addressed; c) the focus on enhancing customer satisfaction is maintained.
		ISO/IEC/IEEE 12207:2017	6.3.4.3	a) Plan risk management.

A.2.2 RM process – Resource management

Table A.2 — RM process - Profile requirements mapping to base standards

Profile requirement ID	Profile requirement	Source doc. ID	Base standard ID	Base standard requirement
a)	policies and mechanisms for resources procurement shall be defined, communicated, enhanced and monitored;	ISO/IEC/IEEE 12207:2017	6.1.1.3	a) Define a strategy for how the acquisition will be conducted.

Table A.2 (continued)

Profile re-requirement ID	Profile requirement	Source doc. ID	Base standard ID	Base standard requirement
b)	the necessary competence of the VSE personnel shall be determined and skills of personnel shall be developed, maintained or enhanced;	ISO/IEC/IEEE 12207:2017	6.2.4.2	a) Skills required by projects are identified. c) Skills of personnel are developed, maintained or enhanced.
		ISO/IEC/IEEE 12207:2017	6.2.6.2	b) The organizational knowledge, skills, and knowledge assets are developed or acquired. c) The organizational knowledge, skills, and knowledge assets are available.
c)	requested and necessary human resources shall be provided to processes and to projects;	ISO/IEC/IEEE 12207:2017	6.2.4.2	b) Necessary human resources are provided to projects.
d)	requested, stable, necessary and reliable infrastructure elements shall be provided or acquired to operate the processes and the projects;	ISO/IEC/IEEE 12207:2017	6.2.2.2	a) The requirements for infrastructure are defined. b) The infrastructure elements are identified and specified. c) Infrastructure elements are developed or acquired. d) The infrastructure is available.
		ISO 9001: 2015	7.1.3	The organization shall determine, provide and maintain the infrastructure necessary for the operation of its processes, and achieve conformity of products and services.
e)	the infrastructure shall be maintained and controlled;	ISO/IEC/IEEE 12207:2017	6.2.2.3	b) Maintain the infrastructure.
		ISO 9001: 2015	7.1.1	The organization shall consider a) the capabilities of, and constraint on, existing of internal resources.
f)	conflicts in multi-project resource demands shall be resolved considering the capabilities of, and constraints on, existing internal resources or resources to be obtained from external providers;	ISO/IEC/IEEE 12207:2017	6.2.4.2	d) Conflicts in multi-project resource demands are resolved.
g)	an organizational repository strategy shall be defined, communicated, enhanced and monitored.	ISO/IEC/IEEE 12207:2017	6.2.6.2	a) A taxonomy for the application of knowledge assets is identified. d) Knowledge management usage data is gathered and analysed.

A.2.3 PSM process – Process management

Table A.3 — PSM process - Profile requirements mapping to base standards

Profile requirement ID	Profile requirement	Source doc. ID	Base standard ID	Base standard requirement
a)	process definition, training, deployment, perform, evaluation and improvement activities shall be planned, communicated and monitored;	ISO/IEC/IEEE 12207:2017	6.2.1.2	c) Life cycle models and processes for use by the organization are assessed. d) Prioritized process, model, and procedure improvements are implemented.
b)	processes objectives, resources, information and documentation shall be identified, recorded, reviewed and made available;	ISO/IEC/IEEE 12207:2017	6.2.1.2	a) Organizational policies and procedures for the management and deployment of life cycle models and processes are established.
		ISO 9001: 2015	4.4.1	The organization shall a) determine the inputs required and the outputs expected from these processes; b) determine the sequences and the actions of these processes; d) determine the resources needed for these processes and ensure their availability.
			4.4.2	The organization shall a) maintain documented information to support the operation of its processes.
c)	responsibilities and authorities for performing the process shall be defined, assigned and communicated to assure the delivery of their intended outputs;	ISO/IEC/IEEE 12207:2017	6.2.1.2	b) Responsibility, accountability, and authority within life cycle policies, processes, models, and procedures are defined.
		ISO 9001: 2015	4.4.1	The organization shall e) assign the responsibilities and authorities for these processes.
d)	the required processes data shall be collected, stored, analysed, and the results shall be interpreted and informed;	ISO 9001: 2015	4.4.2	The organization shall b) retain documented information to have confidence that the processes are being carried out as planned.
e)	adherence of products, processes and activities to the applicable standards, procedures and requirements shall be evaluated, and the results documented;	ISO 9001: 2015	4.4.1	The organization shall g) evaluate these processes and implement any changes needed to ensure that these processes achieve their intended results.
		ISO/IEC/IEEE 12207:2017	6.2.1.2	c) Life cycle models and processes for use by the organization are assessed.

Table A.3 (continued)

Profile requirement ID	Profile requirement	Source doc. ID	Base standard ID	Base standard requirement
f)	process data and evaluation results shall be used to support decisions and provide an objective basis for process improvement.	ISO 9001: 2015	4.4.1	The organization shall h) improve the processes and the quality management system.
		ISO/IEC/IEEE 12207:2017	6.3.1.3	b) Define and maintain a project schedule based on management and technical objectives and work estimates.

A.2.4 PPM process – Project portfolio management

Table A.4 — PPM process - Profile requirements mapping to base standards

Profile requirement ID	Profile requirement	Source doc. ID	Base standard ID	Base standard requirement
a)	policies and mechanisms for project portfolio management and customer relationship shall be defined, communicated, enhanced and monitored;			As stated in ISO/IEC/IEEE 12207:2017, 6.4.1.1 NOTE 1, the organization's strategy ... is generally outside the scope of ISO/IEC/IEEE 12207. It is included here because it is important for a VSE to define and follow organizational policies to its customer and project portfolio management.
b)	an agreement shall be established between the VSE and the customer for developing, maintaining, operating, packaging, delivering, and installing a product and/or a service;	ISO/IEC/IEEE 12207:2017	6.1.2.2	c) An agreement is established between the acquirer and supplier.
		ISO/IEC/IEEE 12207:2017	6.2.3.2	e) Projects meeting agreement and stakeholder requirements are sustained.
c)	project management accountability and authorities for a particular project shall be defined;	ISO/IEC/IEEE 12207:2017	6.2.3.2	d) Project management responsibilities, accountability, and authorities are defined.
d)	management and technical review meetings with the customer shall be held, the status of customer satisfaction shall be monitored, and the review results shall be made known to all affected parties;	ISO/IEC/IEEE 12207:2017	6.2.3.2	e) Projects meeting agreement and stakeholder requirements are sustained. f) Projects not meeting agreement or satisfying stakeholder requirements are redirected or terminated.
		ISO/IEC/IEEE 12207:2017	6.3.2.3.b	7) Conduct required management and technical reviews, audits and inspections.
		ISO/IEC/IEEE 12207:2017	6.3.2.3.c	4) Authorize the project to proceed toward the next milestone or event, if justified.

Table A.4 *(continued)*

Profile requirement ID	Profile requirement	Source doc. ID	Base standard ID	Base standard requirement
e)	risks, problems and action items resulting from reviews shall be identified, recorded and tracked to closure.	ISO/IEC/ IEEE 12207:2017	6.3.4.2	a) Risks are identified. b) Risks are analysed. c) Risk treatment options are identified, prioritized, and selected. d) Appropriate treatment is implemented. e) Risks are evaluated to assess changes in status and progress in treatment.

Annex B **(informative)**

Organizational management profile PRM

B.1 General

This annex presents the process reference model for the organizational management profile processes.

This process reference model describes the processes implied by this document at an abstract level. Each process of this process reference model is described in terms of a purpose and outcomes. It does not attempt to place the processes in any specific environment, nor does it pre-determine any level of process capability required to achieve the requirement of this document. ISO/IEC TR 29110-3-1 describes how conducting an assessment and the MF with the measurement scale for assessing process capability.

B.2 Overview

This PRM provides organizational management, resource management, process management and project portfolio management processes which integrate practices based on the selection of ISO/IEC/IEEE 12207 software life cycle processes and ISO 9001 detailed in ISO/IEC TR 29110-5-2-1.

In this annex, the processes are arranged in a sequence suitable for exposition. This positional sequence does not prescribe or dictate any time-dependent sequence. The user of this standard may select and order the processes, activities, and tasks as appropriate and effective. This standard encourages iteration among the process.

The purposes and outcomes of the processes constitute a process reference model.

B.3 Organizational management process

B.3.1 Organizational management process purpose

The purpose of the organizational management process is to make sure that value is delivered by the VSE to customer through planning, organising, monitoring, and controlling organizational activities.

B.3.2 Organizational management process outcomes

As a result of successful implementation of the organizational management process, the outcomes achieved are detailed in [7.2](#).

B.4 Resource management process

B.4.1 Resource management process purpose

The purpose of the resource management process is to obtain and provide the VSE with the necessary resources.

B.4.2 Resource management process outcomes

As a result of successful implementation of the resource management process, the outcomes achieved are detailed in [7.3](#).

B.5 Process management process

B.5.1 Process management process purpose

The purpose of the process management process is to establish and improve the processes of the VSE.

B.5.2 Process management process outcomes

As a result of successful implementation of the process management process, the outcomes achieved are detailed in [7.4](#).

B.6 Project portfolio management process

B.6.1 Project portfolio management process purpose

The purpose of the project portfolio management process is to generate projects for the VSE, provide technical content to establish the project's formal agreement, and supervise its performance, while monitoring the customer satisfaction.

B.6.2 Project portfolio management process outcomes

As a result of successful implementation of the project portfolio management process, the outcomes achieve are detailed in [7.5](#).

B.7 Statement of conformity

B.7.1 General

The process reference model included in this annex is suitable for use in process assessment performed in accordance with ISO/IEC 33002.

ISO/IEC 33004:2015, Clause 5 places requirements on process reference models suitable for assessment by that standard. [B.7.2](#) and [B.7.3](#) quote the requirements for process reference models and describe how this annex meets these. In [B.7.2](#) and [B.7.3](#), ISO/IEC 33004 requirements are listed; and the text describes the way the requirements are satisfied in this annex.

B.7.2 Requirements for process reference models

A process reference model shall contain:

- a) a declaration of the domain of the process reference model;
- b) a description of the relationship between the process reference model and its intended context of use;
- c) descriptions, meeting the requirements of 5.4, of the processes within the scope of the process reference model;
- d) a description of the relationship between the processes defined within the process reference model.

[ISO/IEC 33004:2015, 5.3.1]

The declaration of the domain is for management and organizational related processes relevant to the organizational profile within the VSE context, i.e. some processes and outcomes of ISO/IEC/IEEE 12207, ISO 9001, and products of ISO/IEC/IEEE 15289.

The description of the processes is provided in [B.3](#), [B.4](#), [B.5](#) and [B.6](#).

This process reference model is intended to be used as described in this document containing the description of the organizational profile.

The process reference model shall document the community of interest of the model and the actions taken to achieve consensus within that community of interest:

- a) the relevant community of interest shall be characterized or specified;
- b) the extent of achievement of consensus shall be documented;
- c) if no actions are taken to achieve consensus, a statement to this effect shall be documented.

[ISO/IEC 33004:2015, 5.3.2]

The relevant communities of interest and their mode of use are described in the Introduction of this document.

This document is an International Standard satisfying the consensus requirements of ISO/IEC JTC1.

No actions required because consensus has been achieved.

The processes defined within a process reference model shall have unique process descriptions and identification.

[ISO/IEC 33004:2015, 5.3.3]

In [B.3](#), [B.4](#), [B.5](#) and [B.6](#), each process is having unique process descriptions and identification.

B.7.3 Process descriptions

The fundamental elements of a process reference model are the descriptions of the processes within the scope of the model.

The process descriptions in the process reference model incorporate a statement of the purpose of the process which describes at a high level the overall objectives of performing the process, together with the set of outcomes which demonstrate successful achievement of the process purpose.

A process description shall meet the following requirements:

- a) a process shall be described in terms of its purpose and process outcomes;
- b) the set of process outcomes shall be necessary and sufficient to achieve the purpose of the process;
- c) process descriptions shall not contain or imply aspects of the process quality characteristic beyond the basic level of any relevant process measurement framework conformant with ISO/IEC 33003.

These requirements are met by the process purposes provided in [B.3](#), [B.4](#), [B.5](#) and [B.6](#).

A process outcome describes one of the followings:

- production of an artefact;
- a significant change of state;
- meeting of specified constraints, e.g. requirements, goals etc.

[ISO/IEC 33004:2015, 5.4]

These requirements are met by the process outcomes provided in [B.3](#), [B.4](#), [B.5](#) and [B.6](#).

Bibliography

- [1] ISO/IEC TR 10000-1, *Information technology — Framework and taxonomy of International Standardized Profiles — Part 1: General principles and documentation framework*
- [2] ISO/IEC/IEEE 15288, *Systems and software engineering — System life cycle processes*
- [3] ISO/IEC/IEEE 15289, *Systems and software engineering — Content of life-cycle information items (documentation)*
- [4] ISO/IEC/IEEE 12207:2017, *Systems and software engineering — Software life cycle processes*
- [5] ISO 9001:2015, *Quality management systems — Requirements*
- [6] ISO/IEC/IEEE 90003, *Software engineering — Guidelines for the application of ISO 9001:2015 to computer software*
- [7] OECD SME and Entrepreneurship Outlook 2019, OECD Publishing, Paris, <https://doi.org/10.1787/34907e9c-en>
- [8] ISO/IEC/IEEE 24765:2017, *Systems and software engineering — Vocabulary*
- [9] ISO/IEC TR 29110-3-1, *Systems and software engineering — Lifecycle profiles for Very Small Entities (VSEs) — Part 3-1: Process assessment guidelines*
- [10] ISO/IEC TR 29110-5-2-1, *Systems and software engineering — Lifecycle profiles for Very Small Entities (VSEs) — Part 5-2-1: Organizational management guidelines*
- [11] ISO/IEC 33002, *Information technology — Process assessment — Requirements for performing process assessment*
- [12] ISO/IEC 33003, *Information technology — Process assessment — Requirements for process measurement frameworks*
- [13] ISO/IEC 33004:2015, *Information technology — Process assessment — Requirements for process reference, process assessment and maturity models*
- [14] PMBOK® Guide:2017.

