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

**Part 5-2-1:
Organizational management
guidelines**

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

Partie 5-2-1: Guide à la gestion organisationnelle



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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 on 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 the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software and systems engineering*.

The full list of parts of ISO/IEC 29110 is available [here](#).

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 worldwide, 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 International 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 International 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 lifecycle 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 can be applied at any phase of system or software development within a life cycle. The ISO/IEC 29110 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 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 International 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. In the context of ISO/IEC 29110, systems are 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
Part 1	Overview	VSEs and their customers, assessors, standards producers, tool vendors and methodology vendors
Part 2	Framework for profile preparation	Profile producers, tool vendors and methodology vendors Not intended for VSEs
Part 3	Certification and assessment guidance	VSEs and their customers, assessors, accreditation bodies
Part 4	Profile specifications	VSEs, customers, standards producers, tool vendors and methodology vendors
Part 5	Management, engineering and service delivery guides	VSEs and their customers
Part 6	Management and engineering guides not tied to a specific profile	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 29110-2-1 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 (ISO/IEC 33020), conformity assessments (ISO/IEC 17021-1) 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 management, engineering and service delivery guides for the profiles in a profile group.

The future ISO/IEC TR 29110-6-x provides management and engineering guides not tied to a specific profile.

This part of ISO/IEC 29110 provides organizational management processes to VSEs which have already implemented the processes of the system engineering and/or the software engineering Basic 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 freely available Technical Reports (TR). The Framework document, profile specifications and certification schemes are published as International Standards (IS).

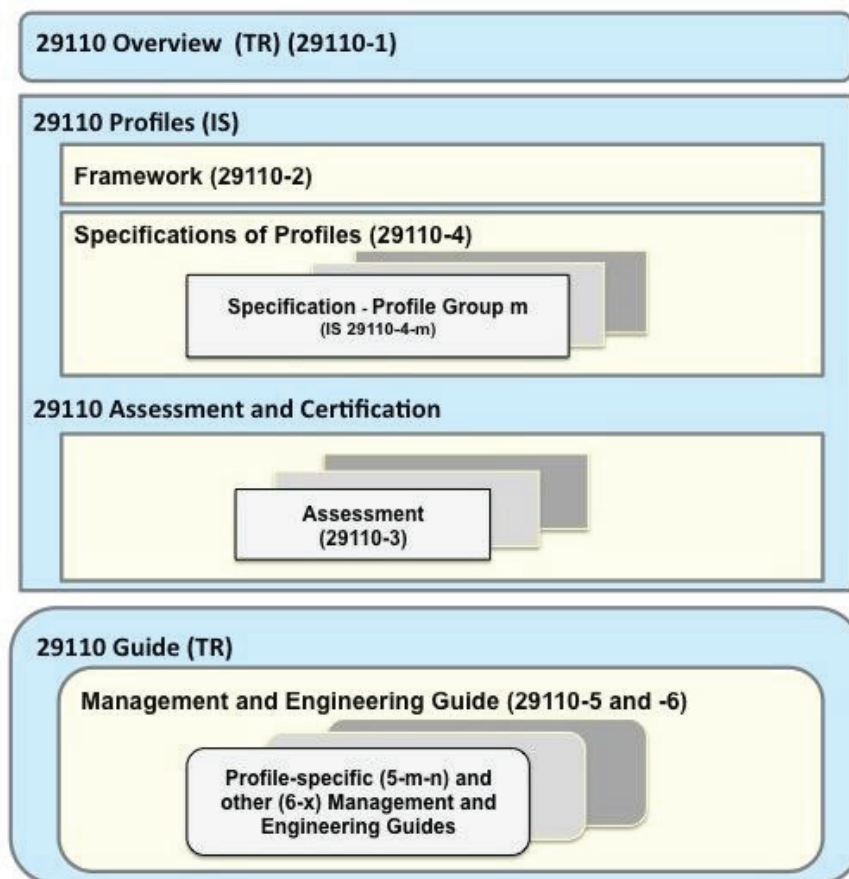


Figure 1 — ISO/IEC 29110 series

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

Part 5-2-1: Organizational management guidelines

1 Scope

1.1 Fields of application

This part of ISO/IEC 29110 is applicable to Very Small Entities (VSEs). VSEs are enterprises, organizations, departments or projects having up to 25 people. The lifecycle processes described in the ISO/IEC 29110 series are not intended to preclude or discourage their use by organizations bigger than VSEs.

This part of ISO/IEC 29110 is the Organizational management guidance for profiles described in ISO/IEC 29110-4-1 through Organizational Management, Project Portfolio Management, Resource Management and Process Management Processes. It is not intended for a VSE to use the standardized profile to implement this part of ISO/IEC 29110.

Using this part of ISO/IEC 29110, a VSE can obtain benefits in the following aspects:

- multiple project execution and supervision of its performance, making sure all processes are executed according to the organizational strategy;
- continuous monitoring of the customer satisfaction;
- deployment and improvement of the organizational standard processes in all projects;
- controlled provision of required resources.

1.2 Target audience

This part of ISO/IEC 29110 is targeted at VSEs which already use at least ISO/IEC TR 29110-5-6-2 and/or ISO/IEC TR 29110-5-1-2 for their software projects.

This part of ISO/IEC 29110 is intended to be used with any processes, techniques and methods that enhance the VSEs' customer satisfaction, quality and productivity.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

4 Conventions and abbreviated terms

4.1 Naming, diagramming and definition conventions

The following process structure description and notation are used to describe the processes.

Name — process identifier, followed by its abbreviation in parentheses “()”.

Purpose — general goals and results expected of the effective implementation of the process. The implementation of the process should provide tangible benefits to the stakeholders. The purpose is identified by the abbreviation of the process name.

Objectives — specific goals to ensure the accomplishment of the process purpose. The objectives are identified by the abbreviation of the process name, followed by a consecutive number, for example RM.01, PSM.02, etc. Each objective is followed by the square box which includes a list of the chosen processes for the Basic profile from ISO/IEC/IEEE 15288 or ISO/IEC/IEEE 12207 and its outcomes related to the objective.

Input Products — products required to perform the process and its corresponding source, which can be another process or an external entity to the process, such as the Customer. Input products identified by the abbreviation of the process name and showed as two-column table of product names and sources.

Output Products — products generated by the process and its corresponding destination, which can be another process or an external entity to the project, such as Customer or Organizational Management. Output products identified by the abbreviation of the process name and showed as two-column table of product names and destinations.

Internal Products — products generated and consumed by the process. Internal products identified by the abbreviation of the process name and showed as one-column table of the product names.

All products' names are printed in cursive and initiate with capital letters. Some products have one or more statuses attached to the product name surrounded by square brackets “[]” and separated by “,”. The product status may change during the process execution. See [Clause 9](#) for the alphabetical list of the products, its descriptions, possible statuses and the source of the product. The source can be another process or an external entity to the project, such as the Customer.

Roles involved — names and abbreviation of the functions to be performed by project team members. Several roles may be played by a single person and one role may be assumed by several persons. Roles are assigned to project participants based on the characteristics of the project. The role list is identified by the abbreviation of the process name and showed as two-column table. See [Clause 11](#) for the alphabetical list of the roles, its abbreviations and required competencies description.

Diagram — graphical representation of the processes. The large round-edged rectangles indicate process or activities and the smaller square-edged rectangles indicate the products. The directional or bidirectional thick arrows indicate the major flow of information between processes or activities. The thin directional or bidirectional arrows indicate the input or output products. The notation used in the diagrams does not imply the use of any specific process lifecycle.

Activity — a set of cohesive tasks. Task is a requirement, recommendation, or permissible action, intended to contribute to the achievement of one or more objectives of a process. A process activity is the first level of process workflow decomposition and the second one is a task. Activities are identified by process name abbreviation followed by consecutive number and the activity name.

Activity Description — each activity description is identified by the activity name and the list of related objectives surrounded by parentheses “()”. For example, PSM.1 Process Management Planning and Monitoring (PSM.01, PSM.05) means that the activity PSM.1 contributes to the achievement of the listed objectives: PSM.01 and PSM.05. The activity description begins with the task summary and is followed by the task descriptions table. The task description does not impose any technique or method to perform it. The selection of the techniques or methods is left to the VSE or project team.

Tasks description table contain four columns corresponding to the following.

- Role — the abbreviation of roles involved in the task execution.
- Task List — description of the tasks to be performed. Each task is identified by activity ID and consecutive number, for example PSM.1.1, PSM.1.2, and so on.

- Input Products — products needed to execute the task.
- Output Products — products created or modified by the execution of the task.

Incorporation to the *Organizational Repository* — list of products to be saved in *Organizational Repository*; the *Organizational Repository Strategy* has to be applied to some of them.

NOTE Tables used in process description are for presentation purpose only.

4.2 Abbreviated terms

The following abbreviations are used in this document:

AS	Assessor
CUS	Customer
OM	Organizational Management
PG	Planning group
PSMG	Process Manager
PPMG	Project Portfolio Manager
PSM	Process Management
PPM	Project Portfolio Management
PJM	Project Manager
PO	Process Owner
RM	Resource Management
RRM	Resource Manager
VSE	Very Small Entity

5 Overview

The Organizational Management Profile Guide applies to a Very Small Entity (VSE) (enterprise, organization, department or project having up to 25 people) which already follows at least ISO/IEC TR 29110-5-1-2 for their software projects or ISO/IEC TR 29110-5-6-2 for their systems engineering projects or any other profiles in the ISO/IEC 29110 series.

This part of ISO/IEC 29110 provides Organizational Management, Resource Management, Process Management, and Project Portfolio Management processes which integrate practices based on the selection of ISO/IEC/IEEE 15288, ISO/IEC/IEEE 12207 and ISO/IEC/IEEE 15289.

Using this part of ISO/IEC 29110, VSE can obtain benefits in the following aspects:

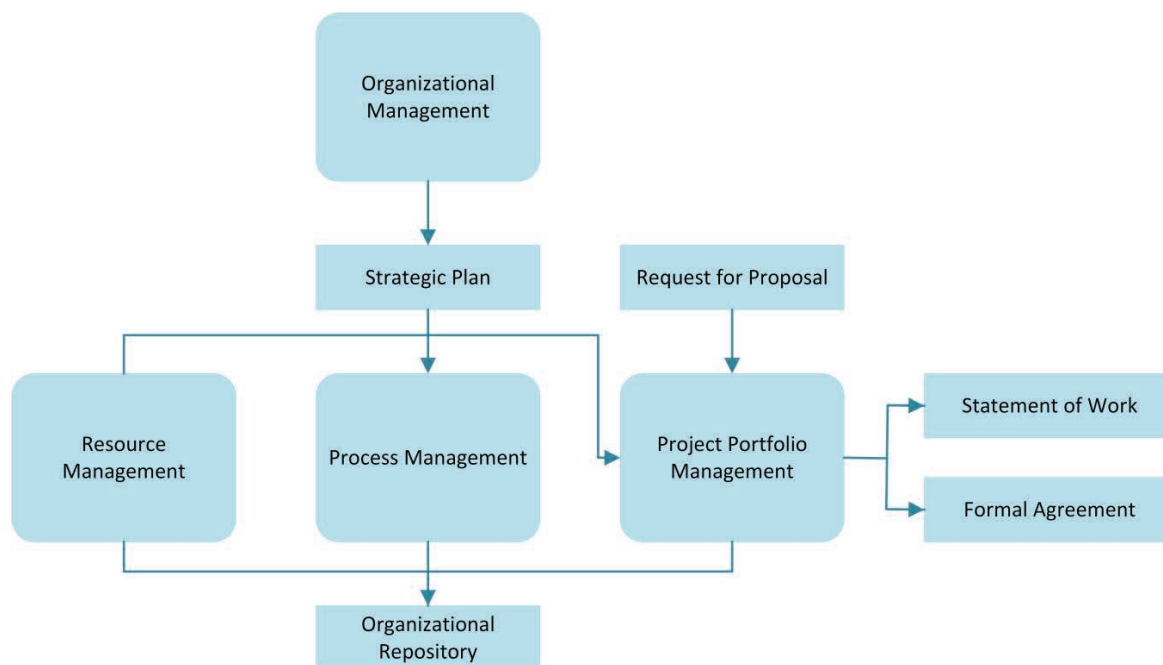
- multiple project execution and supervision of its performance, making sure all activities are executed according to the organizational strategy;
- continuous monitoring of the customer satisfaction;
- deployment and improvement of the organizational standard processes in all projects;
- controlled provision of required resources.

To use this part of ISO/IEC 29110, a VSE needs to fulfil the following entry conditions:

- VSE already uses the ISO/IEC TR 29110-5-6-2 or ISO/IEC TR 29110-5-1-2 or any other Basic Profile in the ISO/IEC 29110 series;
- VSE identifies the external or internal *Best Practices* sources (standards, models, methods and techniques) and uses them as a basis for the process definition and improvement.

The purpose of the Organizational Management Process is to make sure that value is delivered by the VSE to the customer through planning, organizing, monitoring and controlling organizational activities. The purpose of the Resource Management process is to obtain and provide the organization with the necessary resources. The purpose of the Process Management process is to establish and improve the organizational processes. The purpose of the Project Portfolio Management process is to generate projects for the organization, provide technical content to establish the projects Formal Agreement, and supervise its performance while monitoring the customer satisfaction.

The four processes are interrelated (see [Figure 2](#)).



NOTE Diagram notation is explained in [4.1](#).

Figure 2 — Organizational Management guide processes

The Organizational Management process will generate the *Strategic Plan* that will guide the activities of the VSE.

The Resource Management process, the Process Management process and the Project Portfolio Management process receive the *Strategic Plan* as an input that will guide the activities of the VSE.

The Resource Management process receives the *Resource Request* from all the processes and projects, analyses them and assigns resources to the processes and projects according to the *Resource Policies* and/or *Mechanisms*.

The Process Management process receives the *Process Improvement Suggestions* from all the processes, analyses them and applies suggestions to the processes in order to improve them. The Process Evaluation activity evaluates the processes implementation, finding strengths and weakness, and coordinates the resolution of the weakness.

The Project Portfolio Management process receives the *Request for Proposal* from the Customers, activates the accepted projects and supervises the correct execution of these projects.

6 Organizational Management (OM) process

6.1 OM purpose

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

6.2 OM objectives

OM.01. Establish or refine an appropriate value proposition and its corresponding business model.

OM.02. Develop or revise objectives for the organization, based on the business model, and establish the strategies and resources necessary to support those objectives.

OM.03. Measure the achievement of the objectives, identify deviations and control actions.

6.3 OM input products

Table 2 — OM input products

Name	Source
<i>Resource Report</i>	Resource Management
<i>Process Progress Report</i>	Process Management
<i>Project Portfolio Report</i>	Project Portfolio Management
<i>Market Information</i>	External
<i>Technology Trends</i>	External
<i>Competitors Information</i>	External
<i>Financial Information</i>	Financial/Controlling area within the VSE

6.4 OM output products

Table 3 — OM output products

Name	Destination
<i>Strategic Plan</i> — <i>Budget</i>	Resource Management
<i>Strategic Plan</i> — <i>Required processes</i>	Process Management
<i>Strategic Plan</i> — <i>Projects and customer strategy</i>	Project Portfolio Management
<i>Strategic Plan</i> — <i>Mission, vision, values, objectives</i> — <i>Required functional areas</i> — <i>Objectives relationship table</i> — <i>Customer strategy</i>	Resource Management Process Management Project Portfolio Management

6.5 OM internal products

Table 4 — OM internal products

Name
<i>Planning Agenda</i>
<i>Budget Restrictions</i>
<i>Environmental Information Report</i> — <i>Market Information</i> — <i>Technology trends</i> — <i>Competitors information</i>
<i>VSE risk management plan</i>
<i>Business Model</i>
<i>Correction Register</i>

6.6 OM roles involved

Table 5 — OM roles involved

Role	Abbreviation
Organizational Manager	OM
Planning Group	PG

6.7 OM process description

6.7.1 OM diagram

[Figure 3](#) shows the flow of information between the Organizational Management process activities including the most relevant work products and their relationships.

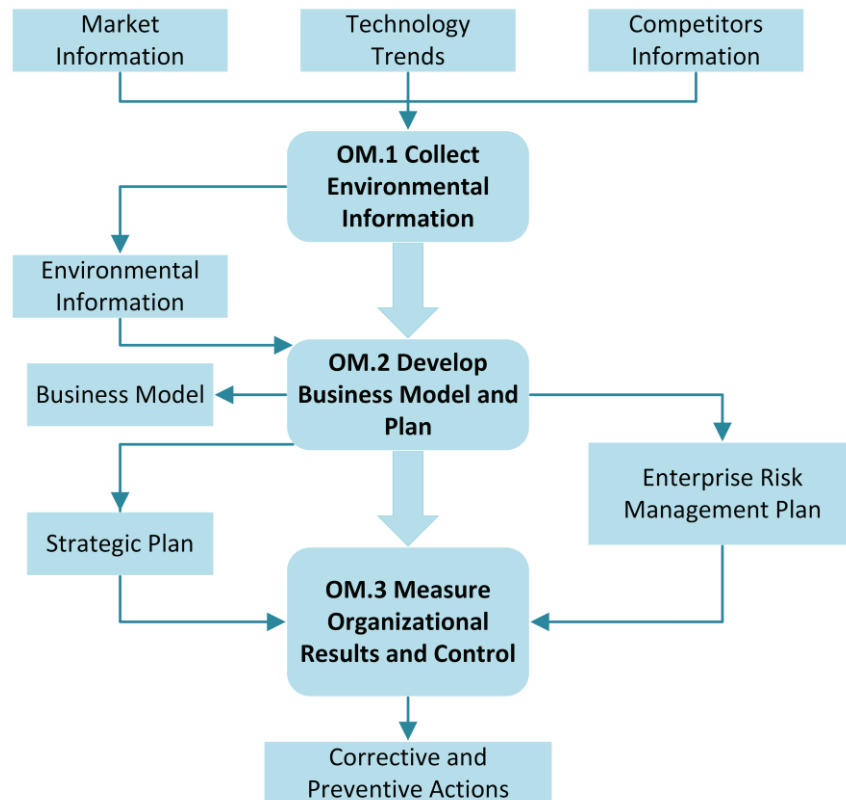


Figure 3 — Organizational Management process diagram

6.7.2 OM activities

The Organizational Management process has the following activities:

- OM.1 Collect Environmental Information;
- OM.2 Develop the Business Model and Plan Objectives and Strategies;
- OM.3 Measure Organizational Results and Control.

6.7.2.1 OM.1 Collect environmental information (OM.01)

The Collect Environmental Information activity is established to make sure the VSE has the necessary environmental information to plan with a solid basis. The activity provides a report with market information, technology trends and competitors information.

Table 6 — OM.1 task list

Role	Task List	Input Products	Output Products
OM	OM.1.1 Collect information about market changes. • Review changes of consumer needs and habits	<i>Market Information</i> [external]	<i>Environmental information report</i> — <i>Market information</i> [identified]
OM	OM.1.2 Collect information about technology trends. • Review latest trends in information technology solutions and other related technologies	<i>Technology Trends</i> [external]	<i>Environmental information report</i> — <i>Technology trends</i> [identified]
	OM.1.3 Collect information about competitors. • Review important actions, market strategies and product improvements	<i>Competitors Information</i> [external]	<i>Environmental information report</i> — <i>Competitors information</i> [identified]

6.7.2.2 OM.2 Develop business model and plan (OM.02)

This activity is where the *Business model* and the *Strategic plan* are generated based on environmental information and budget restrictions. A risk analysis is realized in order to prevent possible risks and registered in the *VSE risk management plan*.

Table 7 — OM.2 task list

Role	Task List	Input Products	Output Products
OM	OM.2.1 Identify participants to the planning group. • The first time the group is formed with the main actors of the VSE • In subsequent times, the group is formed with each process responsible, including operational processes	<i>Process Definition</i> — <i>Process Owner</i>	<i>Strategic Plan</i> — <i>Planning group</i> [created or updated]
OM PG	OM.2.2 Schedule planning sessions. • Schedule planning sessions • Identify resources and or services needed • Acquire resources and services needed for the sessions	<i>Strategic Plan</i> — <i>Planning Group</i> [created or updated]	<i>Planning agenda</i> — <i>Date</i> — <i>Location</i> — <i>Participants</i> — <i>Resources and/or services</i> [created or updated]
OM	OM.2.3 Establish budget restrictions.	<i>Financial Information</i>	<i>Budget restrictions</i>

Table 7 (continued)

Role	Task List	Input Products	Output Products
OM PG	<p>OM.2.4 Develop or revise the business model.</p> <ul style="list-style-type: none"> Identify target customer segments based on market information and technology trends Establish a value proposition identifying problems, needs and desires of customers Identify the customer relationship type(s) and channel(s) to be established, including sales channel(s) Identify key partners and suppliers needed to provide value to customers and the type of relationship to be established with them Identify key processes, projects, activities and resources needed to provide value to customers, including those needed to establish and maintain customer and partners relationship Identify key functional areas and organizational structure 	<p><i>Planning Agenda</i> [generated]</p> <p><i>Environmental information Report</i></p>	<p><i>Business model</i></p> <ul style="list-style-type: none"> — Target customer — Value proposition — Customer channels — Partners and suppliers — Key processes — Key projects — Key resources — Key functional areas — Organizational structure <p>[generated or updated]</p>
OM PG	<p>OM.2.5 Develop or revise objectives for the VSE.</p> <ul style="list-style-type: none"> Develop or revise the VSE's <i>Mission, Vision</i> and <i>Values</i> Establish middle and short-term objectives for the VSE, with indicators and goals for each indicator, including sales and quality objectives, based on the business model. 	<p><i>Business Model</i> <i>Budget Restrictions</i></p>	<p><i>Strategic Plan</i></p> <ul style="list-style-type: none"> — Mission — Vision — Values — Objectives <p>[generated or updated]</p>
OM PG	<p>OM.2.6 Establish the <i>Strategic Plan</i> for the VSE.</p> <ul style="list-style-type: none"> Establish processes, internal projects and functional areas needed for the achievement of the objectives of the VSE Establish purpose, objectives, indicators and goals for each process, project and functional area, aligned with the objectives of the VSE Establish resources needed for each process, project and functional area Establish customer strategy Establish budget 	<p><i>Business Model</i> <i>Budget Restrictions</i> <i>Strategic Plan</i></p> <ul style="list-style-type: none"> — Vision — Objectives 	<p><i>Strategic Plan</i></p> <ul style="list-style-type: none"> — Required processes — Required internal projects — Required functional areas — Objectives relationship table — Customer strategy — Budget <p>[generated or updated]</p>
OM PG	<p>OM.2.7 Analyse business risks.</p> <ul style="list-style-type: none"> Identify risks that could interfere in the achievement of the objectives of the VSE Assign probability and impact for each risk Establish mitigation actions and contingency plans for each risk Assign responsibility for each risk 	<p><i>Business Model</i> <i>Strategic Plan</i></p>	<p><i>VSE risk management plan</i> [generated or updated]</p>

6.7.2.3 OM.3 Measure organizational results and control (OM.03)

The Measure Organizational Results and Control activity contains tasks to review reports from Resource Management, Process Management and Project Portfolio Management processes, and to

establish *Corrective actions*. If is necessary, adjust the *Strategic Plan* base on the VSE improvements proposals.

Table 8 — OM.3 task list

Role	Task List	Input Products	Output Products
OM RRM	OM.3.1 Review the <i>Resource Report</i> . <ul style="list-style-type: none"> Periodically evaluate the achievement of objectives related to resources. If needed, establish actions to correct deviations or problems. Generate or update <i>Correction Register</i> and track them to closure If necessary, adjust the <i>Strategic Plan</i> based on the <i>Resource Report</i> results 	<i>Resource Report</i> <i>Strategic Plan</i>	<i>Correction Register</i> [generated or updated] <i>Strategic Plan</i> [updated]
OM PSMG	OM.3.2 Review the <i>Process Progress Report</i> . <ul style="list-style-type: none"> Evaluate periodically the achievement of objectives of the VSE related to processes. If needed, establish actions to correct deviations or problems. <i>Generate or update Correction Register</i> and track them to closure If necessary, adjust the <i>Strategic Plan</i> of the VSE based on the <i>Process Progress Report</i> results 	<i>Process Progress Report</i> <i>Strategic Plan</i>	<i>Correction Register</i> [generated or updated] <i>Strategic Plan</i> [adjusted]
OM PPMG	OM.3.2 Review the <i>Project Portfolio Report</i> . <ul style="list-style-type: none"> Evaluate periodically the achievement of objectives related to projects. If needed, establish actions to correct deviations or problems. <i>Generate or update Correction Register</i> and track them to closure If necessary, adjust the <i>Strategic Plan</i> accordingly to the <i>Project Portfolio Report</i> results 	<i>Project Portfolio Report</i> <i>Strategic Plan</i>	<i>Correction Register</i> [generated or updated] <i>Strategic Plan</i> [adjusted]

6.8 OM incorporation to the Organizational Repository

The list of products to be saved in *Organizational Repository* is shown in [Table 9](#). After the incorporation, *Organizational Repository Strategy* has to be applied.

Table 9 — OM repository products

Product
<i>Business Model</i>
<i>Strategic Plan</i>
<i>Correction Register</i>
<i>Planning Agenda</i>
<i>Environmental Information Report</i>

7 Resource Management (RM) process

7.1 RM purpose

The purpose of Resource Management process is to obtain and provide the VSE with the necessary resources.

7.2 RM objectives

RM.01. Define human resources and infrastructure policies and/or mechanisms to support the organization and projects.

RM.02. Respond to organization and project requests for resources according to defined policies and/or mechanisms.

RM.03. Monitor resource acquisition activities, human resources, training and infrastructure maintenance. Corrections to remediate problems are taken when requirements are not satisfied.

7.3 RM input products

Table 10 — RM input products

Name	Source
<i>Strategic Plan</i> <i>Budget</i>	Organizational Management
<i>Resource Request</i>	Process Management Project Portfolio Management Project Management

7.4 RM output products

Table 11 — RM output products

Name	Destination
<i>Organizational Repository Strategy</i>	Project Management Process Management
<i>Resource Request</i>	Process Management Project Portfolio Management Project Management
<i>Resource Report</i>	Organizational Management
<i>Process Improvement Suggestions</i>	Process Management

7.5 RM internal products

Table 12 — RM internal products

Name
<i>Resource Policies and/or Mechanisms</i>
<i>Procurement Requirements</i>
<i>Human Resource Record</i>
<i>Goods or Services Record</i>
<i>Supplier List</i>
<i>Resource Request</i>

7.6 RM roles involved

Table 13 — RM roles involved

Role	Abbreviation
Organizational Manager	OM
Resource Manager	RRM
Process Manager	PSMG
Project Portfolio Manager	PPMG

7.7 RM diagram

Figure 4 shows the flow of information between the Resource Management process activities including the most relevant work products and their relationship.

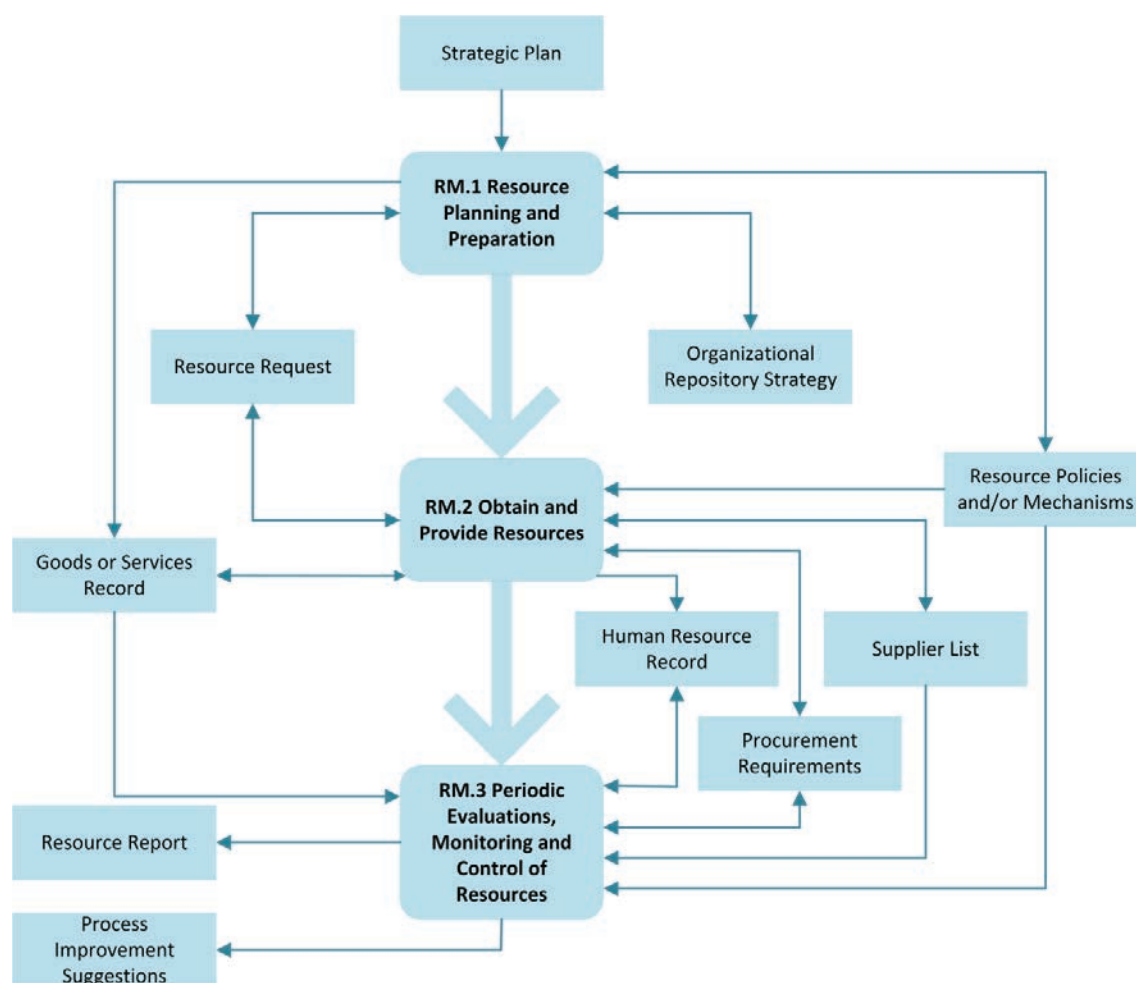


Figure 4 — Resource Management process diagram

7.8 RM activities

The Resource Management Process has the following activities:

- RM.1 Resource Planning and Preparation;
- RM.2 Obtain and Provide Resources;

— RM.3 Periodic Evaluations, Monitoring and Control of Resources.

7.8.1 RM.1 Resource planning and preparation (RM.01)

The Resource Planning and Preparation activity documents the plans, policies and/or mechanisms needed to obtain necessary resources for the VSE and its projects. The activity provides

- *Human Resource Policies and/or Mechanisms* based on business needs of the VSE,
- *Goods, Services and Infrastructure Policies and/or Mechanisms* based on business needs, and
- *a Maintenance Plan/Record*.

Table 14 — RM.1 task list

Role	Task List	Input Products	Output Products
RRM	RM.1.1 Generate or update the <i>Resource Request</i> necessary for this process.	<i>Resource Request</i>	<i>Resource Request [open]</i>
RRM	RM.1.2 Confirm that resources allocation approved for this process corresponds to the <i>Resource Request</i> .	<i>Resource Request [approved]</i>	<i>Resource Request [closed]</i>
RRM	RM.1.3 Generate or update <i>Resource Policies and/or Mechanisms</i> . <ul style="list-style-type: none"> • Generate or update the <i>Human Resource Policies and/or Mechanisms</i> based on business needs. • Generate or update <i>Goods, Services and Infrastructure Policies and/or Mechanisms</i> based on business needs. 	<i>Strategic Plan</i>	<i>Resource Policies and/or Mechanisms</i> <ul style="list-style-type: none"> — <i>Human Resource Policies and/or Mechanisms</i> — <i>Goods, Services and Infrastructure Policies and/or Mechanisms</i> <i>[generated or updated]</i>
RRM OM	RM.1.4 Review the <i>Resource Policies and/or Mechanisms</i> . OM reviews and accepts the <i>Resource Policies and/or Mechanisms</i> making sure it complies with the needs of the VSE and that it is operationally feasible. Corrections are made until the document is approved by OM.	<i>Resource Policies and/or Mechanisms</i>	<i>Resource Policies and/or Mechanisms [approved]</i>
RRM PSMG PPMG	RM.1.5 Generate or update the <i>Organizational Repository Strategy</i> .	<i>Strategic Plan</i>	<i>Organizational Repository Strategy [generated or updated]</i>
RRM OM	RM.1.6 Review the <i>Organizational Repository Strategy</i> . OM reviews the <i>Organizational Repository Strategy</i> making sure it complies with the needs of the VSE or the project and that it is operationally feasible. Corrections are made until the document is approved by OM.	<i>Organizational Repository Strategy</i>	<i>Organizational Repository Strategy [approved]</i>
RRM	RM.1.7 Prepare or update <i>Maintenance Plan/Record</i> based on criteria for preventive maintenance described in <i>Goods, Services and Infrastructure Policies and/or Mechanisms</i> .	<i>Resource Policies and/or Mechanisms</i> <ul style="list-style-type: none"> — <i>Goods, Services and Infrastructure Policies and/or Mechanisms</i> 	<i>Goods or Services Record</i> <ul style="list-style-type: none"> — <i>Maintenance Plan/Record</i> <i>[generated or updated]</i>

7.8.2 RM.2 Obtain and provide resources (RM.02)

The Obtain and Provide Resources activity implements the documented *Resource Policies and/or Mechanisms* to obtain resources for the organization and projects. The activity provides

- review and evaluation of the *Resource Request*,
- schedule training activities in a *Training Plan/Record*,
- schedule corrective maintenance activities in a *Maintenance Plan/Record*,
- procurement of requirements,
- execution of training activities, and
- execution of maintenance activities.

Table 15 — RM.2 task list

Role	Task List	Input Products	Output Products
OM RRM	RM.2.1 Review the OM reviews and accepts the <i>Resource Request</i> , making sure that elements are feasible according to the budget and correspond to the VSE's needs. Corrections are made until the document is approved by OM and accepted by RRM.	<i>Resource Request</i> [open] <i>Strategic Plan</i> — <i>Budget</i>	<i>Resource Request</i> [approved]
RRM	RM.2.2 Evaluate <i>Resource Request</i> . <ul style="list-style-type: none"> • Review <i>Resource Requests</i> based on the <i>Resource Policies and/or Mechanisms</i> • Decide if elements required in the <i>Resource Requests</i> were not previously assigned • Decide if the elements required in the <i>Resource Requests</i> should be reallocated from within the VSE or acquired externally and services/training required should be provided through internal or external suppliers based on the <i>Resource Policies and/or Mechanisms</i> • Decide if any corrective maintenance is needed, based on the <i>Maintenance Plans/Records</i> • Generate or update the <i>Procurement Requirements</i> 	<i>Resource Request</i> [approved] <i>Resource Policies and/or Mechanisms</i> <i>Human Resource Record</i> <i>Goods or Services Record</i>	<i>Procurement Requirements</i> [generated or updated]
RRM	RM.2.3 Schedule training and maintenance activities. <ul style="list-style-type: none"> • Generate or update the <i>Training Plan/Record</i> based on the <i>Procurement Requirements</i> • Generate or update <i>Maintenance Plan/Record</i> for corrective maintenance based on the <i>Procurement Requirements</i>. 	<i>Procurement Requirements</i>	<i>Human Resource Record</i> — <i>Training Plan/Record</i> [generated or updated] <i>Goods or Services Record</i> — <i>Maintenance Plan/Record</i> [generated or updated]
RRM	RM.2.4 Obtain human resource requirements. Execute human resource procurement activities based on the <i>Human Resource Policies and/or Mechanisms</i> . <ul style="list-style-type: none"> • Select, assign and obtain acceptance of human resources • Generate or update the <i>Human Resource Register</i> 	<i>Resource Request</i> [approved] <i>Resource Policies and/or Mechanisms</i> — <i>Human Resource Policies and/or Mechanisms</i>	<i>Human Resource Record</i> — <i>Human Resource Register</i> [generated or updated] <i>Resource Request</i> [assigned]

Table 15 (continued)

Role	Task List	Input Products	Output Products
RRM	<p>RM.2.5 Obtain goods, services and infrastructure requirements.</p> <p>Execute goods, services and infrastructure procurement activities based on the <i>Goods, Services and Infrastructure Policies and/or Mechanisms</i>.</p> <ul style="list-style-type: none"> Acquire the goods or service and ask the applicant for acceptance Generate or update the <i>Supplier List</i> Generate or update the <i>Goods or Service Register</i> 	<p><i>Resource Request [approved]</i></p> <p><i>Supplier List</i></p> <p><i>Resource Policies and/or Mechanisms</i></p> <p>— <i>Goods, Services and Infrastructure Policies and/or Mechanisms</i></p>	<p><i>Supplier List [generated or updated]</i></p> <p><i>Goods or Service Record [generated or updated]</i></p> <p>— <i>Goods or Service Register</i></p> <p><i>Resource Request [assigned]</i></p>
RRM	<p>RM.2.6 Execute scheduled training activities.</p> <p>Carry out the <i>Training Plan</i>.</p> <ul style="list-style-type: none"> Procure training, including evaluation of training provided For each member of trained personnel, update the <i>Human Resource Register</i> For each training activity performed, update the <i>Training Plan/Record</i> 	<p><i>Human Resource Register</i></p> <p>— <i>Training Plan/Record</i></p>	<p><i>Human Resource Record [Updated]</i></p> <p>— <i>Human Resource Register</i></p> <p>— <i>Training Plan/Record</i></p>
RRM	<p>RM.2.7 Execute scheduled maintenance activities.</p> <p>Carry out the <i>Maintenance Plan</i>.</p> <ul style="list-style-type: none"> Execute the maintenance tasks For each maintenance activity performed, update the <i>Maintenance Plan/Record</i> 	<p><i>Goods or Services Record</i></p> <p>— <i>Maintenance Plan/Record</i></p>	<p><i>Goods or Services Record</i></p> <p>— <i>Maintenance Plan/Record [updated]</i></p>

7.8.3 RM.3 Periodic evaluations, monitoring and control of resources (RM.03)

The Periodic Evaluations, Monitoring and Control of Resources activity monitors and evaluates the resources performance of the VSE against documented *Resource Requests*. The activity provides

- evaluation on the performance of human resources,
- report of *Human Resource and Training*,
- report of *Goods, Services and Infrastructure*, and
- monitoring of the resource procurement activities.

Table 16 — RM.3 task list

Role	Task List	Input Products	Output Products
RRM	RM.3.1 Evaluate periodically the performance of the human resources and record the evaluation in the <i>Human Resource Record</i> according the <i>Human Resource Policies and/or Mechanisms</i> .	<i>Resource Policies and/or Mechanisms</i> — <i>Human Resource Policies and/or Mechanisms</i>	<i>Human Resource Record</i> [updated] — <i>Human Resource Register</i>
RRM	RM.3.2 Generate <i>Resource Report</i> to OM. • Generate <i>Human Resource and Training</i> section of the <i>Resource Report</i> based on <i>Human Resource Record</i> • Generate the <i>Goods, Services and Infrastructure</i> section of the <i>Resource Report</i> based on the <i>Goods or Services Record</i> and the <i>Supplier List</i>	<i>Human Resource Record</i> <i>Goods or Services Record</i> <i>Supplier List</i>	<i>Resource Report</i> — <i>Human Resource and Training</i> — <i>Goods, Services and Infrastructure</i> [generated]
RRM	RM.3.3 Review if the selection, allocation, acceptance, training, evaluation and performance of human resources is adequate based on the <i>Human Resource Policies and/or Mechanisms</i> . Corrections are made until deviations are closed.	<i>Resource Report</i> <i>Resource Policies and/or Mechanisms</i> — <i>Human Resource Policies and/or Mechanisms</i>	<i>Procurement Requirements</i> [closed]
RRM	RM.3.4 Review if the service rendered by the supplier and if the purchase and allocation of goods and services are adequate and timely based on the <i>Goods, Services and Infrastructure Policies and/or Mechanisms</i> . Corrections are made until deviations are closed.	<i>Procurement Requirements</i> <i>Resource Policies and/or Mechanisms</i> — <i>Goods, Services and Infrastructure Policies and/or Mechanisms</i>	<i>Procurement Requirements</i> [closed]
RRM	RM.3.5 Generate the <i>Process Improvement Suggestions</i> for this process based on experience on the process implemented.		<i>Process Improvement Suggestions</i> [generated]

7.9 RM incorporation to the Organizational Repository

The list of products to be saved in *Organizational Repository* is shown in [Table 17](#). After the incorporation, *Organizational Repository Strategy* has to be applied.

Table 17 — RM repository products

Product
<i>Resource Request</i>
<i>Resource Policies and/or Mechanisms</i>
<i>Procurement Requirements</i>
<i>Human Resource Record</i>
<i>Goods or Services Record</i>
<i>Supplier List</i>
<i>Resource Report</i>
<i>Process Improvement Suggestions</i>
<i>Organizational Repository Strategy</i>

8 Process Management (PSM) process

8.1 PSM purpose

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

8.2 PSM objectives

PSM.01. Plan the execution of the process. Control the progress of the execution, identifying and correcting problems and deviations.

PSM.02. Define and deploy processes to respond to the organizational needs.

PSM.03. Assure the organization and projects follow the defined processes, applying the planned process evaluations to identify problems and correct deviations. Keep the organization informed of the process status.

PSM.04. Gather and analyse the information from process evaluations and improve the process based on process evaluations, process improvement suggestions and *Best Practices*.

PSM.05. Establish an *Organizational Repository*, integrate and store the processes relevant documentation.

8.3 PSM input products

Table 18 — PSM input products

Name	Source
<i>Strategic Plan</i> <i>Required Processes</i>	Organizational Management
<i>Organizational Repository Strategy</i>	Resource Management
<i>Process Improvement Suggestions</i>	All processes
<i>Best Practices</i>	External

8.4 PSM output products

Table 19 — PSM output products

Name	Destination
<i>Resource Request</i>	Resource management
<i>Process Progress Report</i>	Organizational Management
<i>Evaluation Report</i>	All processes
<i>Organizational Repository</i>	All processes

8.5 PSM internal products

Table 20 — PSM internal products

Name
<i>Process Plan</i>
<i>Process Definition</i>
<i>Evaluation Definition and Record</i>
<i>Process Improvement Record</i>
<i>Evaluation Report</i>
<i>Organizational Repository Backup</i>

8.6 PSM roles involved

Table 21 — PSM roles involved

Role	Abbreviation
Process Manager	PSMG
Process Owner	PO
Assessor	AS
Project Manager	PJM
Very Small Entity	VSE
Organizational Management	OM

8.7 PSM diagram

[Figure 5](#) shows the flow of information between the Process Management process activities including the most relevant work products and their relationship.

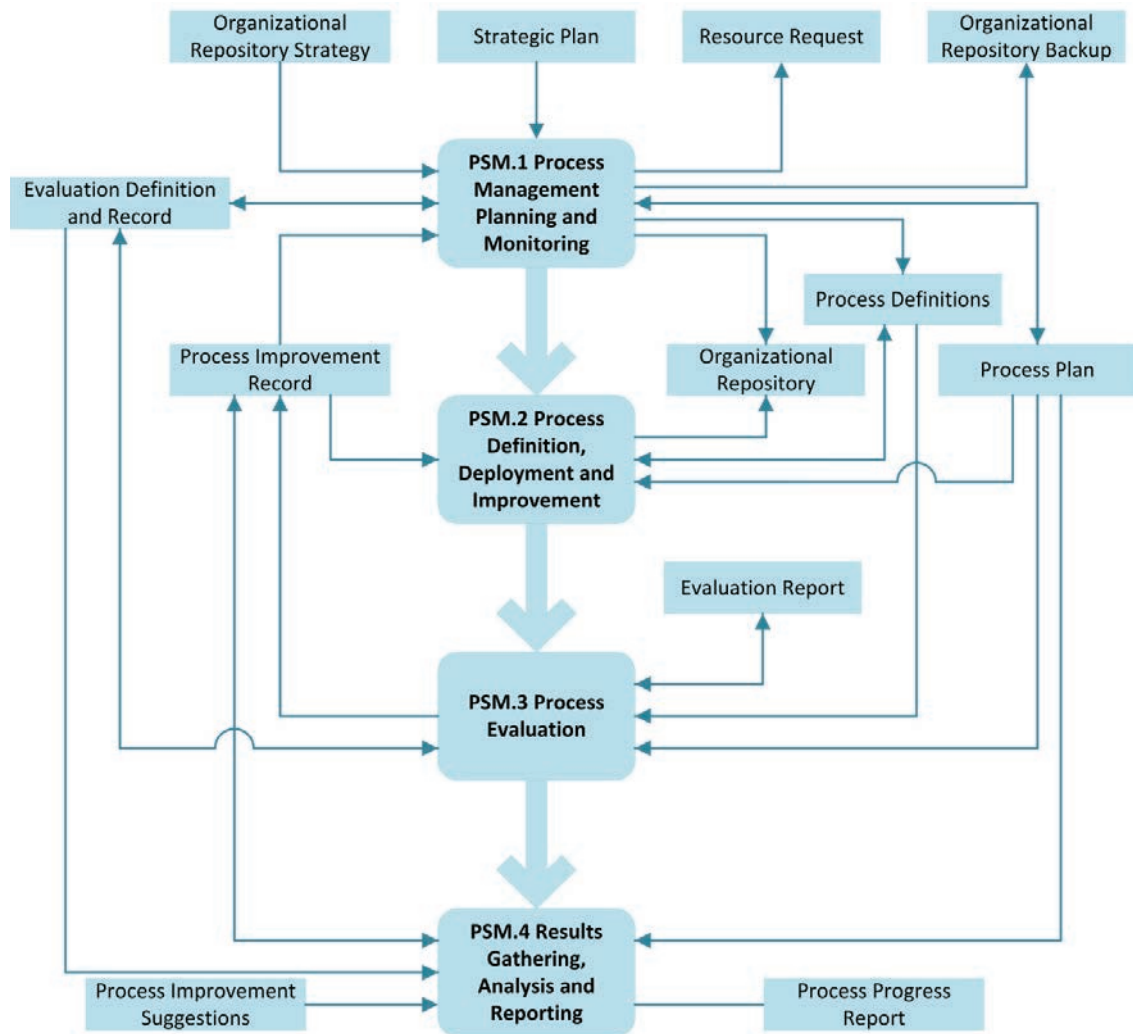


Figure 5 — Process Management process diagram

8.8 PSM activities

The Process Management process has the following activities:

- PSM.1 Process Management Planning and Monitoring;
- PSM.2 Process Definition, Deployment and Improvement;
- PSM.3 Process Evaluation;
- PSM.4 Results Gathering, Analysis and Reporting.

8.8.1 PSM.1 Process management planning and monitoring (PSM.01, PSM.05)

The Process Management Planning activity documents the planning details needed to manage the *Process Plan of the VSE* and controls the execution of the plan. The activity provides

- the processes definition, deployment, evaluations and improvement tasks,
- the *Progress Plan* and responsibilities,
- the Process Management process resources and training needs,

- the processes evaluations scope, method and evaluation criteria, and
- the monitoring of the execution of the plan.

Table 22 — PSM.1 task list

Role	Task List	Input Products	Output Products
PSMG	PSM.1.1 Establish or update the <i>Process Plan</i> to define, deploy and improve the VSE's processes based on <i>Required Processes</i> and <i>Process Improvement Actions</i> . <ul style="list-style-type: none"> • Identify and describe activities • Assign dates and responsibilities 	<i>Strategic Plan</i> — <i>Required Processes</i> <i>Process Improvement Record</i> — <i>Process Improvement Actions</i>	<i>Process Plan</i> <i>[created or updated]</i>
PSMG	PSM.1.2 Establish or update the <i>Evaluation Definition and Record</i> of VSE's processes. <ul style="list-style-type: none"> • Determine the <i>Types of Evaluations</i> that will be carried out on the VSE • Determine the <i>Scope, Method</i> and <i>Evaluation Criteria</i> for each evaluation 		<i>Evaluation Definition and Record</i> <i>[created or updated]</i> — <i>Types of Evaluations</i> — <i>Scope</i> — <i>Method</i> — <i>Evaluation Criteria</i>
PSMG	PSM.1.3 Update the <i>Process Plan</i> to include the evaluation task of the <i>Evaluation Definition and Record</i> . <ul style="list-style-type: none"> • Identify and describe activities • Assign dates and responsibilities 	<i>Process Plan [created or updated]</i> <i>Evaluation Definition and Record [created or updated]</i>	<i>Process Plan</i> <i>[created or updated]</i>
PSMG	PSM.1.4 Identify the acquisition and training needs. PSMG identifies the acquisition and training needs to carry out the Process Management process based on <i>Process Plan</i> and <i>Evaluation Definition and Record</i> . Document the resources and training needed in <i>Resource Request</i>	<i>Process Plan</i> <i>Evaluation Definition and Record</i>	<i>Resource Request [open]</i>
PSMG	PSM.1.5 Confirm that resources allocation approved corresponds to the <i>Resource Request</i> .	<i>Resource Request [approved]</i>	<i>Resource Request [closed]</i>
OM PSMG PO	PSM.1.6 Assign Process Owners. OM assigns the process owners to a VSE process and the PSMG notifies and documents the assignation in <i>Process Owners</i> of the <i>Process Definition</i>		<i>Process Definition [assigned]</i> — <i>Process Owner</i>
PSMG OM PO	PSM.1.7 Review the <i>Process Plan</i> . OM reviews and accepts the <i>Process Plan</i> making sure that it reflects the organizational management objectives. PO reviews and accepts the <i>Process Plan</i> , making sure that the tasks, dates and responsibilities stated are attainable. The corrections are made until the document is approved by OM and accepted by PO.	<i>Process Plan</i>	<i>Process Plan [approved]</i>
PSMG	PSM.1.8 Monitor the execution of the <i>Process Plan</i> and identify any adjustments required. Monitor and track until closure.	<i>Process Plan</i>	<i>Process Plan [monitored]</i> <i>[closed]</i>

Table 22 (continued)

Role	Task List	Input Products	Output Products
PSMG	PSM.1.9 Establish or prepare the <i>Organizational Repository</i> according to the <i>Organizational Repository Strategy</i> .	<i>Organizational Repository Strategy</i>	<i>Organizational Repository</i> [established]
PM PSMG	PSM.1.10 Include the <i>Project Repository</i> of each closed project into the <i>Organizational Repository</i> .	<i>Project Repository</i>	<i>Organizational Repository</i> [updated]
PSMG	PSM.1.11 Backup the <i>Organizational Repository</i> according to the <i>Organizational Repository Strategy</i> .	<i>Organizational Repository Strategy</i>	<i>Organizational Repository Backup</i> [generated]

8.8.2 PSM.2 Process definition, deployment and improvement (PSM.01, PSM.02, PSM.04, PSM.05)

The Process Definition, Deployment and Improvement activity monitors the process definition or improvement and the implementation of *Process Plan* activities of new or modified processes of a VSE. The activity provides

- a process structure and the relationship between all organizational processes,
- the owner and responsibility of every organizational process,
- a *Process Definition* of all organizational processes, and
- the deployment and operation of the organizational processes.

Table 23 — PSM.2 task list

Role	Task List	Input Products	Output Products
PSMG	PSM.2.1 Establish or update the <i>Process Map</i> according to the <i>Process Improvements Actions</i> and the <i>Process Plan</i> using the <i>Best Practices</i> , if necessary.	<i>Process Improvement Record</i> — <i>Process Improvements Actions</i> <i>Process Plan</i> <i>Best Practices</i>	<i>Process Definition</i> — <i>Process Map</i> [created or updated]
PSMG OM	PSM.2.2 Review the <i>Process Map</i> . Review that the <i>Process Map</i> reflects the organizational management needs. The corrections are made until the document is approved by OM.	<i>Process Definition</i> — <i>Process Map</i>	<i>Process Definition</i> — <i>Process Map</i> [approved]
PO	PSM.2.3 Identify the VSE best practices and good experiences and complement them with the <i>Best Practices</i> and the <i>Process Improvements Actions</i> according to the <i>Process Plan</i> . Use this information to create or to update the <i>Process Documentation</i> according to the <i>Process Map</i> .	<i>Process Improvement Record</i> — <i>Process Improvements Actions</i> <i>Process Plan</i> <i>Process Definition</i> — <i>Process Map</i> <i>Best Practices</i>	<i>Process Definition</i> — <i>Process Documentation</i> [created or updated]

Table 23 (continued)

Role	Task List	Input Products	Output Products
PO PSMG OM	PSM.2.4 Review the <i>Process Documentation</i> . For each process review that the <i>Process Documentation</i> reflects the organizational best practices, good experiences and follows the <i>Best Practices</i> . The corrections are made until the document is approved by PSMG and OM.	<i>Process Definition</i> — <i>Process Documentation [updated]</i> <i>Best Practices</i>	<i>Process Definition</i> — <i>Process Documentation [approved]</i>
PO	PSM.2.5. Integrate the <i>Process Definition</i> . <ul style="list-style-type: none"> Define Software Tools requirements and Training Needs for each process Define Process Owner for each process 	<i>Process Definition</i> — <i>Process Map</i> — <i>Process Documentation [approved]</i>	<i>Process Definition</i> <ul style="list-style-type: none"> — <i>Process Map</i> — <i>Process Owner</i> — <i>Process Documentation</i> — <i>Software Tools Requirements and Training Needs [integrated]</i>
PO	PSM.2.6 Update the <i>Organizational Repository</i> with the <i>Process Definition</i> .	<i>Process Definition</i> <i>Organizational Repository</i>	<i>Organizational Repository [updated]</i>
PSMG VSE	PSM.2.7. PSMG deploys the VSE process following <i>Process Documentation</i> and the <i>Process Plan</i> . <ul style="list-style-type: none"> VSE executes the process activities as documented in the <i>Process Documentation</i> PSMG implements processes in pilot projects, if it is necessary During a certain period of time, the PSMG coaches the VSE on the <i>Process Documentation</i> deployment 	<i>Process Definition</i> — <i>Process Documentation</i> <i>Process Plan</i>	<i>Process Definition</i> — <i>Process Documentation [deployed]</i>

8.8.3 PSM.3 Process evaluation (PSM.01, PSM.03, PSM.05)

The Process Evaluation activity monitors and evaluates the process deployment against the *Process Plan*, the *Evaluations Plan* and the *Process Definition*. The activity provides

- planned VSE process evaluations to know the processes deployment status,
- a list of *Strengths and Weaknesses* of process executing,
- a list of *Process Improvement Opportunities* to be potentially deployed in the VSE, and
- a mechanism to correct selected weaknesses.

Table 24 — PSM.3 task list

Role	Task List	Input Products	Output Products
AS PSMG PO	PSM.3.1 Generate or update dates, scope and responsible roles of the next <i>Evaluation Report</i> . According to the <i>Process Plan</i> and the <i>Evaluation Definition and Record</i> , the AS determines the next evaluation <i>Dates, Scope and Responsible Roles</i> , confirm them with the responsible roles, and document them in the <i>Evaluation Report</i> .	<i>Process Plan</i> <i>Evaluation Definition and Record</i>	<i>Evaluation Report</i> — <i>Dates [confirmed]</i> — <i>Scope [confirmed]</i> — <i>Responsible Roles [confirmed]</i> [generated or updated]
AS	PSM.3.2 Generate or update strengths and weaknesses of the <i>Evaluation Report</i> . The AS assesses selected organizational process execution, according to the <i>Scope</i> confirmed and the <i>Evaluation Definition and Record</i> , with respect to the <i>Process Definition</i> , identifying and documenting <i>Strengths</i> and <i>Weakness</i> in the <i>Evaluation Report</i> .	<i>Evaluation Report</i> — <i>Scope</i> <i>Evaluation Definition and Record</i> <i>Process Definition</i>	<i>Evaluation Report</i> — <i>Strengths</i> — <i>Weakness</i> [generated or updated]
PSMG PO PM	PSM.3.3. Review the <i>Evaluation Report</i> . Review that the <i>Evaluation Report</i> reflects the real execution process status. The corrections are made until the document is accepted by PO.	<i>Evaluation Report</i>	<i>Evaluation Report</i> [approved]
PSMG	PSM.3.4 Include the <i>Evaluation Report</i> information into the <i>Evaluation Record</i> .	<i>Evaluation Report</i>	<i>Evaluation Definition and Record</i> — <i>Evaluation Record</i> [updated]
PSMG PO AS	PSM.3.5. Analyse the <i>Strengths</i> and <i>Weakness</i> of the <i>Evaluation Report</i> to identify <i>Process Improvement Suggestions</i> and document them in the <i>Process Improvement Record</i> .	<i>Evaluation Report</i> — <i>Strengths</i> — <i>Weakness</i>	<i>Process Improvement Record</i> [generated] — <i>Process Improvement Suggestions</i>

8.8.4 PSM.4 Results gathering, analysis and reporting (PSM.03, PSM.04, PSM.05)

The Results Gathering, Analysis and Reporting analyses the results obtained from the processes evaluations, identifies processes improvements, and informs to the VSE the processes status. The activity provides

- a list of *Process Improvement Opportunities* to be deployed in the VSE, and
- a report of the organizational process to inform to the VSE about the status of the deployment and improvement of the processes.

Table 25 — PSM.4 task list

Role	Task List	Input Products	Output Products
PSMG	PSM.4.1 Gather <i>Process Improvement Suggestions</i> made by anyone in the VSE at any time. Document them in the <i>Process Improvement Suggestions</i> .	<i>Process Improvement Suggestions</i>	<i>Process Improvements Record</i> [updated] — <i>Process Improvement Suggestions</i>
PSMG PO	PSM.4.2 Gather <i>Process Improvement Suggestions</i> made by the PO. Document them in the <i>Process Improvement Suggestions</i> .	<i>Process Improvement Suggestions</i>	<i>Process Improvement Record</i> [updated] — <i>Process Improvement Suggestions</i>
PSMG PO	PSM.4.3 Analyse, select and prioritize the <i>Process Improvement Suggestions</i> to be carried out. For each suggestion selected, establish actions to close it and document them in the <i>Process Improvements Actions</i> .	<i>Process Improvement Record</i> — <i>Process Improvement Suggestions</i>	<i>Process Improvement Record</i> [updated] — <i>Process Improvements Actions</i>
PSMG	PSM.4.4. Inform the OM periodically about the processes status based on the <i>Process Plan</i> , the <i>Evaluation Definition and Record</i> and the <i>Process Improvement Record</i> . Document it into the <i>Process Progress Report</i> .	<i>Process Plan</i> <i>Evaluation Definition and Record</i> <i>Process Improvement Record</i>	<i>Process Progress Report</i> [generated]
PSMG	PSM.4.5 Generate the <i>Process Improvement Suggestions</i> for this process based on experience on the process implemented.		<i>Process Improvement Suggestions</i> [generated]

8.9 PSM incorporation to the Organizational Repository

The list of products to be saved in *Organizational Repository* is shown in [Table 26](#). After the incorporation, *Organizational Repository Strategy* has to be applied.

Table 26 — PSM repository products

Product
<i>Process Plan</i>
<i>Process Definition</i>
<i>Evaluation Definition and Record</i>
<i>Evaluation Report</i>
<i>Process Improvement Record</i>
<i>Resource Request</i>
<i>Process Progress Report</i>

9 Project Portfolio Management (PPM) process

9.1 PPM 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.

9.2 PPM objectives

PPM.01 Technical content is provided to generate projects for the entity and to establish a *Formal Agreement* with the customer, monitor its satisfaction during the project until its closure, and perform corrective actions as needed.

PPM.02 Project management accountability and authorities are defined.

PPM.03 Project plans are reviewed, progress towards established goals is supervised and appropriate actions are taken when objectives are not achieved.

9.3 PPM input products

Table 27 — PPM input products

Name	Source
<i>Request for Proposal</i>	Customer
<i>Project Plan</i>	Project Management
<i>Progress Status Record</i>	Project Management
<i>Acceptance Record</i>	Project Management
<i>Strategic Plan</i>	Organizational Management

9.4 PPM output products

Table 28 — PPM output products

Name	Destination
<i>Technical Proposal</i>	Customer
<i>Formal Agreement</i>	Customer
<i>Resource Request</i>	Resource Management
<i>Statement of Work</i>	Project Management
<i>Process Improvement Suggestions</i>	Process Management
<i>Project Portfolio Report</i>	Organizational Management

9.5 PPM internal products

Table 29 — PPM internal products

Name
<i>Project Record</i>
<i>Project Generation Schedule</i>
<i>Project Portfolio Policies and/or Mechanisms</i>
<i>Customer Comments and Complaints Record</i>
<i>Correction Register</i>

9.6 PPM roles involved

Table 30 — PPM roles involved

Role	Abbreviation
Project Portfolio Manager	PPMG
Customer	CUS
Project Manager	PJM

9.7 PPM diagram

Figure 6 shows the flow of information between the Project Portfolio Management Process activities including the most relevant work products and their relationship.

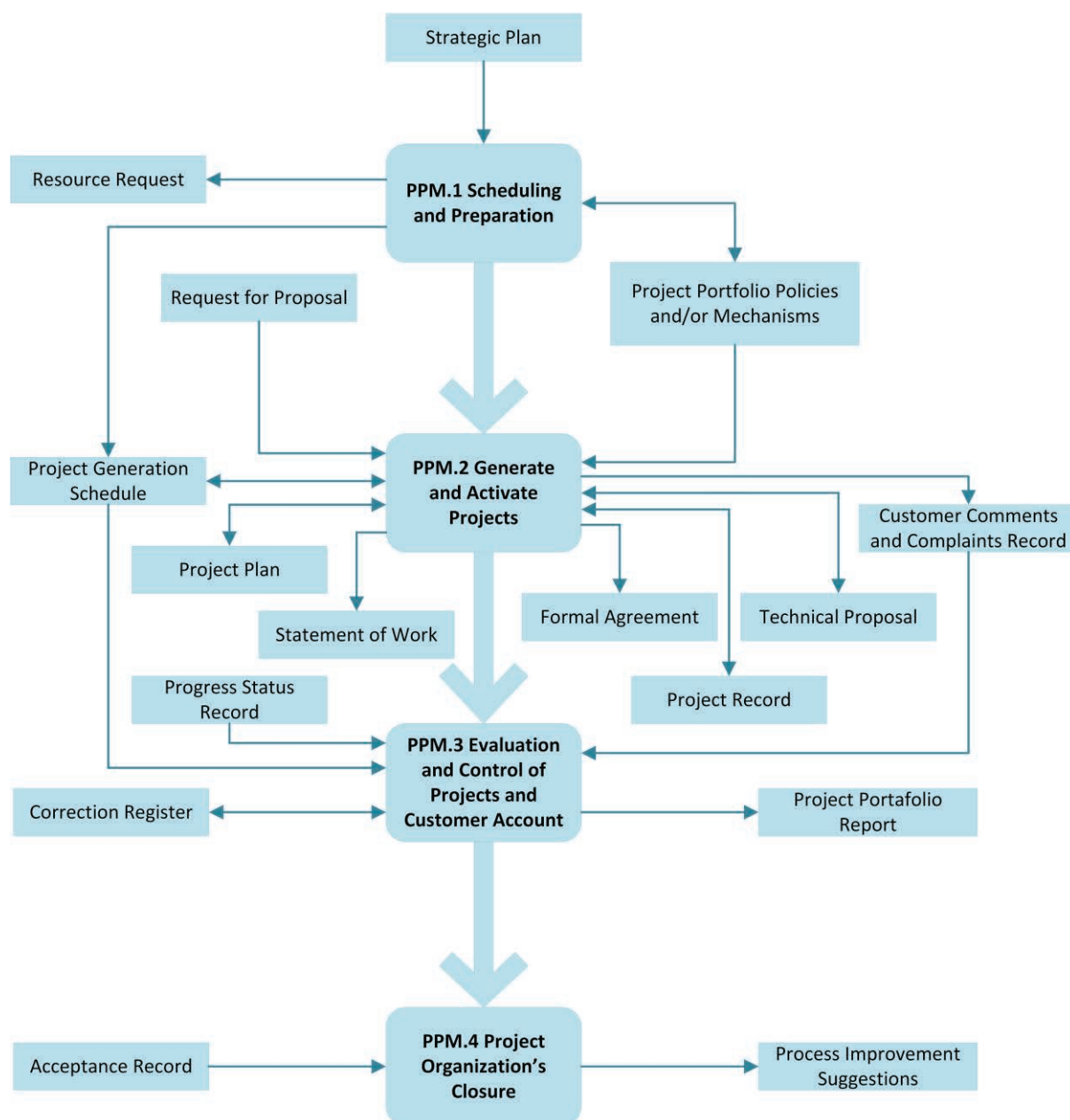


Figure 6 — Project Portfolio Management process diagram

9.8 PPM activities

The Project Portfolio Management Process has the following activities:

- PPM.1 Scheduling and Preparation;
- PPM.2 Generate and Activate Projects;
- PPM.3 Evaluation and Control of Projects and Customer Accounts;
- PPM.4 Project Organization's Closure.

9.8.1 PPM.1 Preparation and scheduling (PPM.01)

The Project Portfolio Planning and Preparation activity documents the *Project Portfolio Policies and/or Mechanisms* of the VSE, schedules the project generation activities and allocates the resources needed to execute the Project Portfolio process. The activity provides

- process resources and training needs,
- policies and/or mechanisms for projects,
- policies and/or mechanisms for customer relationship, and
- a *Project Generation Schedule*.

Table 31 — PPM.1 task list

Role	Task List	Input Products	Output Products
PPMG	PPM.1.1 Generate or update the <i>Resource Request</i> necessary for this process.		<i>Resource Request</i> [open]
PPMG	PPM.1.2 Confirm that resources allocation approved for this process corresponds to the <i>Resource Request</i> .	<i>Resource Request</i> [approved]	<i>Resource Request</i> [closed]
PPMG	PPM.1.3 Generate or update the <i>Project Portfolio Policies and/or Mechanisms</i> . <ul style="list-style-type: none"> • Generate or update the <i>Policies and/or Mechanisms for Projects</i> based on business needs • Generate or update the <i>Policies and/or Mechanisms for Customer Relationship</i> based on business needs 	<i>Strategic Plan</i>	<i>Project Portfolio Policies and/or Mechanisms</i> — <i>Policies and/or Mechanisms for Projects</i> — <i>Policies and/or Mechanisms for Customer Relationship</i> [generated or updated]
PPMG PJM	PPM.1.4 Review the <i>Project Portfolio Policies and/or Mechanisms</i> . PPMG and PJM review and accept the <i>Project Portfolio Policies and/or Mechanisms</i> making sure it complies with the needs of the VSE and that it is operationally feasible.	<i>Project Portfolio Policies and/or Mechanisms</i>	<i>Project Portfolio Policies and/or Mechanisms</i> [approved]
PPMG	PPM.1.5 Generate or update the <i>Project Generation Schedule</i> including actions and work programs to generate and close project opportunities.	<i>Strategic Plan</i> — <i>Project and Customer Strategy</i>	<i>Project Generation Schedule</i> [generated or updated]

9.8.2 PPM.2 Generate and activate projects (PPM.01, PPM.02)

The Generate and Activate Projects activity generates the projects a VSE is going to implement, maintain PPM activities under control by complying with the PPM policies and mechanisms and respond to customer comments and complaints by defining and executing Corrective Actions. The activity provides

- *Formal Agreement with a Customer*,
- *Project Record*, and
- *Statement of Work*.

Table 32 — PPM.2 task list

Role	Task List	Input Products	Output Products
PPMG	PPM.2.1 Perform project generation steps according to the <i>Project Generation Schedule</i> . <ul style="list-style-type: none"> Identify needs of possible project prospects Estimate time and cost for each identified project prospect Generate and submit <i>Technical Proposals</i> for the identified opportunities Prepare <i>Formal Agreements</i> for the accepted proposals and collect Customers approval 	<i>Project Generation Schedule</i> <i>Request for Proposal</i>	<i>Technical Proposal [approved]</i> <i>Formal Agreement [approved]</i>
PPMG PJM	PPM.2.2 Perform project initiation steps. <ul style="list-style-type: none"> Assign Project Manager Generate <i>Statement of Work based on Technical Proposal</i> and <i>Formal Agreement</i> Document the corresponding information in the <i>Project Record</i> 	<i>Technical Proposal [approved]</i> <i>Formal Agreement [approved]</i>	<i>Statement of Work [generated]</i> <i>Project Record [generated]</i>
PPMG PJM	PPM.2.3 Perform project definition steps. <ul style="list-style-type: none"> Collect and approve the <i>Project Plan</i> Document the corresponding information in the <i>Project Record</i> 	<i>Formal Agreement</i> <i>Technical Proposal</i> <i>Project Plan [created or updated]</i>	<i>Project Record [updated]</i> <i>Project Plan [approved]</i>
PPMG PJM	PPM.2.4 Perform Customer related steps. <ul style="list-style-type: none"> Implement <i>Project Portfolio Policies and/or Mechanisms for Customer Relations</i> Collect Customer satisfaction and document it in the <i>Customer Comments and Complaints Record</i> 	<i>Project Portfolio Policies and/or Mechanisms</i> — <i>Policies and/or Mechanisms for Customer Relations</i>	<i>Customer Comments and Complaints Record [generated]</i>

9.8.3 PPM.3 Evaluation and control of projects and customer accounts (PPM.01, PPM.03)

The Evaluation and Control of Customer Accounts activity evaluates *Project Generation Schedule* status, *Progress Status Record* for all projects, *Customer Comments and Complaints Record* establishing actions in the *Correction Register* and tracking them to closure. The activity also generates a *Project Portfolio Report* for Organizational Management process. The activity provides

- *Correction Register* updated and tracked to closure, and
- *Project Portfolio Report*.

Table 33 — PPM.3 task list

Role	Task List	Input Products	Output Products
PPMG	PPM.3.1 Analyse status of the <i>Project Generation Schedule</i> . If needed, establish actions to correct deviations or problems. Generate or update <i>Correction Register</i> and track them to closure.	<i>Project Generation Schedule</i>	<i>Correction Register</i> [generated or updated]
PPMG	PPM.3.2 Collect and analyse <i>Progress Status Record</i> from all active projects. If needed, establish actions to correct deviations or problems. Generate or update <i>Correction Register</i> and track them to closure.	<i>Progress Status Record</i>	<i>Correction Register</i> [generated or updated]
PPMG	PPM.3.3 Collect and analyse <i>Customer Comments and Complaints Record</i> . If needed, establish actions to correct deviations or problems. Generate or update <i>Correction Register</i> and track them to closure.	<i>Customer Comments and Complaints Record</i>	<i>Correction Register</i> [generated or updated]
PPMG	PPM.3.4 Generate <i>Project Portfolio Report</i> to OM. Generate the <i>Project Portfolio Report</i> based on <i>Project Generation Schedule</i> , <i>Correction Register</i> and <i>Progress Reports</i> from all active projects. Include <i>Customer Relations Report</i> based on <i>Customer Comments and Complaints Record</i> .	<i>Project Generation Schedule</i> <i>Progress status Records</i> <i>Customer Comments and Complaints Record</i> <i>Correction Register</i>	<i>Project Portfolio Report</i> [generated]

9.8.4 PPM.4 Project organization's closure (PPM.01, PPM.03)

The Project Organization's Closure activity reviews the *Project Repository* of completed projects and implements the mechanisms related to project closure. The activity provides

— project accepted and closed.

Table 34 — PPM.4 task list

Role	Task List	Input Products	Output Products
PPMG	PPM.4.1 Approve the <i>Acceptance Record</i> from closing projects.	<i>Acceptance Record</i>	<i>Acceptance Record</i> [approved]
PPMG	PPM.4.2 Generate the Process Improvement Suggestions for this process based on experience on the process implemented.		<i>Process Improvement Suggestions</i> [generated]

9.9 PPM incorporation to the Organizational Repository

The list of products to be saved in *Organizational Repository* is shown in [Table 35](#). After the incorporation, *Organizational Repository Strategy* has to be applied.

Table 35 — PPM repository products

Product
<i>Technical Proposal</i>
<i>Formal Agreement</i>
<i>Resource Request</i>
<i>Statement of Work</i>
<i>Process Improvement Suggestions</i>
<i>Project Portfolio Report</i>
<i>Project Record</i>
<i>Project Generation Schedule</i>
<i>Project Portfolio Policies and/or Mechanisms</i>
<i>Customer Comments and Complaints Record</i>
<i>Correction Register</i>

10 Roles

This is an alphabetical list of the roles, its abbreviations and suggested competencies description. This list is showed as a four-column table for presentation purpose only.

NOTE The abbreviation of Project Manager used in the software Basic profile (i.e. PM) has been replaced with PJM since the abbreviation PM is used for Project Management process.

Table 36 — Roles

	Role	Abbreviation	Knowledge and competency
1.	Organizational Management	OM	Knowledge of the VSE strategy Knowledge of the budget information Knowledge of the VSE processes Knowledge of the VSE projects
2.	Resource Manager	RRM	Knowledge of activities necessary to define and successfully implement the Resource Management process
3.	Process Manager	PSMG	Knowledge of activities necessary to define and successfully implement the Process Management process
4.	Planning group	PG	Knowledge of strategic planning techniques
5.	Project Portfolio Manager	PPMG	Knowledge of activities necessary to define and successfully implement the Project Portfolio Management process
6.	Project Manager	PJM	Knowledge of activities necessary to define and successfully implement the Project Management process
7.	Process Owner	PO	Knowledge of activities necessary to define and successfully implement the process assigned to this role

Table 36 (continued)

	Role	Abbreviation	Knowledge and competency
8.	Assessor	AS	Knowledge of activities necessary to define and successfully implement evaluation activities of the Process Management process NOTE Must be independent of the process assessed.
9.	Customer	CUS	Knowledge of the request and acceptance activities of the Project Portfolio Management process
10.	VSE	VSE	Knowledge of activities necessary to successfully carry out an implemented process

11 Product description

This is an alphabetical list of the input, output and internal process products, its descriptions, possible states and the source of the product. The source can be another process or an external entity to the project, such as the Customer.

Product items in the following tables are based on ISO/IEC/IEEE 15289 with some exceptions. This list is showed as a four-column table for presentation purpose only. Workproduct items in the following tables are based on ISO/IEC/IEEE 15289 Information Items with some exceptions. Information items may be combined or subdivided consistent with the project, service, or processes, phases, and stakeholder needs by a VSE.

The product status gives the information to the project team about the type of work (tasks) already done on the product (for example: evaluated, verified, tested, baselined). This information can be used to start next tasks which can use the product as an input. Some products have no status assigned because they are only informative and they do not change the content (for example: Acceptance Record, Correction Register, Project Repository Backup, Verification/Validation Results).

Table 37 — Product descriptions

	Name	Description	Status	Source
1.	<i>Acceptance Record</i>	Documents the Customer acceptance of the Deliverables of the project. It may have the following characteristics: — Record of the receipt of the delivery — Identifies the date received — Identifies the delivered elements — Records the verification of any Customer acceptance criteria defined — Identifies any open issues (if applicable) — Signed by receiving Customer	<i>[approved]</i>	Project Management
2.	<i>Business Model</i>	Document that describes the Business Model of the VSE. It may have the following characteristics: — Customer segments and characteristics — Value proposition — Products and services description — Customer relationship — Key partners and suppliers — Key processes — Key internal projects — Key activities — Key resources — Key functional areas	<i>[generated or updated]</i>	Organizational Management
3.	<i>Correction Register</i>	Identifies activities established to correct a deviation or problem concerning the accomplishment of a plan. It may have the following characteristics: — Identifies the initial problem — Defines a solution — Identifies corrective actions taken — Identifies the ownership for completion of defined actions — Identifies the open date and target closure date — Contains a status indicator — Indicates follow up actions	<i>[generated or updated]</i>	Organizational Management Project Portfolio Management
4.	<i>Customer Comments and Complaints Record</i>	Record of customer's comments and complaints, gathered by the Project Portfolio Management. It may have the following characteristics: — Customer Name — Date — Type (comment or complaint) — Description — Name of person who made the comment or complaint	<i>[generated]</i>	Project Portfolio Management

Table 37 (continued)

	Name	Description	Status	Source
5.	<i>Environmental Information Report</i>	Report concentrating information on Environmental Information. It may have the following characteristics: — market information — technology trends — competitors information	[identified]	Organizational Management
6.	<i>Evaluation Definition and Record</i>	The standard information needed to carry out evaluations of a process in a VSE and the Records of evaluation results. It may have the following characteristics: — <i>Evaluation Definition</i> o <i>Type of Evaluation</i> o <i>Scope</i> o <i>Evaluation Method</i> o <i>Evaluation Criteria</i> — <i>Evaluation Records</i>	[created or up-dated] [updated]	Process Management
7.	<i>Evaluation Report</i>	Report that contains the needed information to carry out and the results of an evaluation. It may have the following characteristics: — <i>Dates</i> — <i>Scope</i> — <i>Responsible Roles</i> — <i>Strengths</i> — <i>Weakness</i>	[generated or updated] [approved]	Process Management
8.	<i>Formal Agreement</i>	A formal agreement between the VSE and its client regarding the expectations from the project. It may have the following characteristics: — identifies customer requirements (functional and non-functional) — identifies time frame for delivery — identifies budget and resources provided by both parts — identifies what is to be purchased and any subcontractors — identifies any warranty information — identifies any copyright and licensing information — identifies acceptance criteria — identifies change management and problem resolution procedures — identifies customer's role — evidence of review and approval by authorized signatories	[approved]	Project Portfolio Management

Table 37 (continued)

	Name	Description	Status	Source
9.	<i>Goods or Services Record</i>	<p>Goods and services' main information.</p> <p>— <i>Good or Services Register</i>. Characteristics of acquired goods or services. It may have the following characteristics:</p> <ul style="list-style-type: none"> o price o purchase date o allocation of good or service o useful life o service period <p>— <i>Maintenance Plan/Record</i>. Description of preventive and corrective maintenance activities. It may have the following characteristics:</p> <ul style="list-style-type: none"> o schedule (planned and actual information) o responsible parties o suppliers (internal or external) 	<p>[generated or updated]</p> <p>[updated]</p>	Resource Management
10.	<i>Human Resource Record</i>	<p>Personnel and training information of human resources. It may have the following characteristics:</p> <p>— <i>Human Resource Register</i></p> <ul style="list-style-type: none"> o Personal data o Education o Experience o Roles assigned o Training <p>— <i>Training Plan/Record</i> description of the training activities. It may have the following characteristics:</p> <ul style="list-style-type: none"> o Courses, workshops, mentoring, on the job training, etc. o Calendar (planned and actual information) o Trainers o Logistics 	<p>[generated]</p> <p>[updated]</p>	Resource Management
11.	<i>Organizational Repository</i>	<p>Electronic container to store the organizations work products. It may have the following characteristics:</p> <ul style="list-style-type: none"> — Stores processes work products — Storage and retrieval capabilities — Ability to browse content — Listing of contents with description of attributes — Sharing and transfer of work products between affected groups — Effective controls over access — Maintain work products descriptions — Recovery of archive versions of work products — Ability to report work products status 	<p>[established]</p> <p>[updated]</p>	

Table 37 (continued)

	Name	Description	Status	Source
12.	<i>Organizational Repository Backup</i>	A backup of the <i>Organizational Repository</i> containing all the work products of the VSE including the processes in this part of ISO/IEC 29110 and the ones generated by projects. It must allow for recovery of information if needed. It may have the following characteristics: — Organizational Management processes repositories — <i>Projects Repositories</i>	[generated]	Process Management
13.	<i>Organizational Repository Strategy</i>	Contains the strategy to manage the work products. It may have the following characteristics: — Product repository tools or mechanism identified — Location and access mechanisms for the repository — Version identification and control defined — Backup and recovery mechanisms defined — Storage, handling and delivery (including archival and retrieval) mechanisms specified	[generated or updated] [approved]	
14.	<i>Planning Agenda</i>	Schedules Organizational Management process activities. It may have the following characteristics: — Schedule o Date o Location o Participants — Resources and/or services	[generated]	Organizational Management
15.	<i>Process Definition</i>	The information and documents that defines a process. It may have the following characteristics: — <i>Process Map</i> — <i>Process Owner</i> — <i>Process Documentation</i> — <i>Software Tools Requirements and Training Needs</i>	[created or updated] [approved] [integrated] [deployed]	Process Management
16.	<i>Process Improvement Record</i>	The repository of all improvement suggestions and the actions to be carried out to deploy the selected improvements suggestions. It may have the following characteristics: — <i>Process Improvement Suggestions</i> — <i>Process Improvement Actions</i>	[generated] [updated]	Process Management
17.	<i>Process Improvement Suggestions</i>	Contain the suggested information to improve an implemented process. It may have the following characteristics: — Improvement suggestions of a process methods — Improvement suggestions of a process tools — Improvement suggestions of a process formats — Improvement suggestions of a process standards	[generated]	All processes

Table 37 (continued)

	Name	Description	Status	Source
18.	Process Plan	<p>The definition of the process taxonomy and the tasks involved in manage the VSE processes. It may have the following characteristics:</p> <ul style="list-style-type: none"> — Content of processes, index of the elements a process must define. It may have the following characteristics: <ul style="list-style-type: none"> o Name o Purpose o Objectives o Input, output and internal products o Roles involved o Activities — Schedule for: <ul style="list-style-type: none"> o Process definition tasks o Process deployment tasks o Process evaluation tasks o Process improvement tasks 	<p>[created or updated]</p> <p>[approved]</p> <p>[monitored]</p> <p>[closed]</p>	Process Management
19.	Process Progress Report	<p>Contains the minimal information the VSE periodically needs to know about the VSE processes status. It may have the following characteristics:</p> <ul style="list-style-type: none"> — Summary of evaluations — Summary of improvements 	[generated]	Process Management
20.	Procurement Requirements	<p>Information of the approved requirements that are going to procure. It may have the following characteristics:</p> <ul style="list-style-type: none"> — Description of resource — Type of acquisition (internal/external) — Due date — Approved budget — Result of the acquisition review 	<p>[generated or updated]</p> <p>[closed]</p>	Resource Management
21.	Progress Status Record	<p>Records the status of the project against the Project Plan. It may have the following characteristics:</p> <ul style="list-style-type: none"> — Status of actual tasks against planned tasks — Status of actual results against established objectives/goals — Status of actual resource allocation against planned resources — Status of actual cost against budget estimates — Status of actual time against planned schedule — Status of actual risk against previously identified — Record of any deviations from planned Tasks and reason why 		Project Management

Table 37 (continued)

	Name	Description	Status	Source
22.	<i>Project Generation Schedule</i>	Schedules project generation actions and work programs to generate and close project opportunities. It may have the following characteristics: — Schedule o Date o Location o Participants — Resources and/or services	[generated or updated]	
23.	<i>Project Plan</i>	Refer to the content of project plan in the Basic profile Management and engineering guide. In an organization where you only have PM and SI/SR processes, the PM and the CUS review the plan. But in an organization where PPM is in place, the PPMG needs to review the plan before the CUS.	[approved]	Project Management
24.	<i>Project Portfolio Policies and/or Mechanisms</i>	Policies and/or mechanisms to manage the VSE projects. — Policies and/or mechanisms to execute project portfolio activities — Policies and/or mechanisms for Customer Relationship activities	[generated or updated] [approved]	
25.	<i>Project Portfolio Report</i>	Periodic report concentrating information on Project Portfolio Management process activities. It may have the following characteristics: — Project Generation Report: Contains a summary of <i>Project Generation Schedule</i> status and the project generation results — Projects Report: Contains a summary of the status of all projects <i>Progress Status Records</i> — Customer Relations Report: Contains a summary of the status of customer related activities and <i>Customer Comments and Complaints Records</i>	[generated]	Project Portfolio Management
26.	<i>Project Record</i>	Administrative project information. It may have the following characteristics: — Name — Responsible party — Starting and end date — Customer — Price	[generated] [updated]	Project Management

Table 37 (continued)

	Name	Description	Status	Source
27.	<i>Request For Proposal</i>	Document used to request proposals from prospective sellers of products or services. In some application areas, it may have a narrower or more specific meaning. It may have the following characteristics: — Reference to the requirements specifications — Identifies desired characteristics, such as: o System architecture, configuration requirements o Quality criteria or requirements o Project schedule requirements o Expected delivery/service dates o Cost/price expectations o Regulatory standards/requirements — Identifies submission date for resubmission of the response		Customer/ PPMG
28.	<i>Resource Policies and/or Mechanisms</i>	Policies and/or mechanisms to manage the VSE resources. It may have the following characteristics: — <i>Human Resource Policies and/or Mechanisms</i> o Elements to consider in the selection, acceptance, allocation, training, and evaluation of human resources o Criteria and periodicity for the evaluation of performance of human resources — <i>Goods, Services and Infrastructure Policies and/or Mechanisms</i> o Elements to consider in the acquisition of goods and services, and in the maintenance of the infrastructure o Periodicity for the preventive maintenance NOTE This could be established as policies and/or mechanisms (procedures, workflows, instructions, software tools, etc.).	<i>[generated or updated]</i> <i>[approved]</i>	Resource Management
29.	<i>Resource Report</i>	Periodic report concentrating information on Resource Management process activities. It may have the following characteristics: — <i>Human Resource and Training Report</i> o Human Resource Status o Performed and planned training activities — <i>Goods, Services and Infrastructure</i> o Acquired goods and services o Satisfaction evaluation of acquired goods and services o Performed and planned maintenance activities	<i>[generated]</i>	Resource Management

Table 37 (continued)

	Name	Description	Status	Source
30.	<i>Resource Request</i>	<p>The Resource Request may have the following characteristics:</p> <ul style="list-style-type: none"> — Plan for the necessary resources, knowledge and skills needed to perform the process or project. The request may include the following: <ul style="list-style-type: none"> o Human Resource requirements (knowledge and skills) o Infrastructure requirements (hardware, software, tools) — Requests for resource acquisition of the elements or any training needed. The request may include the following: <ul style="list-style-type: none"> o Description o Due date 	<p>[open] [approved] [assigned] [closed]</p>	All processes
31.	<i>Statement of Work</i>	<p>Description of work to be done related to Software development. It may include the following:</p> <ul style="list-style-type: none"> — Product Description — Purpose — General Customer requirements — Scope (description of what is included and what is not) — Objectives of the project — Deliverables: list of products to be delivered to the customer 	[generated]	Project Portfolio Management
32.	<i>Strategic Plan</i>	<p>Document that describes the Strategic Plan for the VSE. It may have the following characteristics:</p> <ul style="list-style-type: none"> — Mission of the VSE — Vision — Values — Objectives with indicators and goals — Required processes — Required internal projects — Required functional areas — Objectives relationship table <ul style="list-style-type: none"> o Organizational objectives alignment with process, areas and projects objectives — Customer strategy — Budget — Planning Group 	<p>[generated] [adjusted] [updated]</p>	Organizational Management

Table 37 (continued)

	Name	Description	Status	Source
33.	<i>Supplier List</i>	Record of goods or service suppliers. It may have the following characteristics: — general information; — goods or services provided.	<i>[generated or updated]</i>	Resource Management
34.	<i>Technical Proposal</i>	Document that lists and defines the technical requirements of a project. It may have the following characteristics: — proposed solution; — proposed schedule; — Scope of initial proposal: o The requirements that would be satisfied, o The requirements that could not be satisfied, and provides a justification of variants; — identifies conditions (e.g. time, location) that affect the validity of the proposal; — identifies obligations of the acquirer and the consequences of these not being met; — defines the estimated price of proposed development, product, or service.	<i>[approved]</i>	Project Portfolio Management
35.	<i>VSE Risks Management Plan</i>	Plan that integrates risk identification, risk assessment, development of risk handling strategies and mitigation of risk to acceptable level. It may have the following characteristics: — risk list with probability, impact and exposure; — risk mitigation actions with dates and responsible; — risk contingency plans.	<i>[generated] [updated]</i>	Organizational Management

12 Software tools requirements

Software tools that could be used to perform process activities.

12.1 Resource Management process

Table 38 — Resource Management tools

Activity	Resource List
Resource Planning and Preparation Obtain and Provide Resources Periodic Evaluations, Monitoring and Control	Tools allowing document, manage and control records, plans and schedules related to resources and maintenance activities

12.2 Process Management process

Table 39 — Process Management tools

Activity	Resource List
Process Management Planning and Monitoring Process Definition, Deployment and Improvement Process Evaluation Results Gathering, Analysis and Reporting	Tools allowing document, manage and control records, plans and schedules related to process improvement activities, and the management of the <i>Organizational Repository</i>

12.3 Project Portfolio Management process

Table 40 — Project Portfolio Management tools

Activity	Resource List
Scheduling and Preparation Generate and Activate Projects Evaluation and Control of Projects and Customer Accounts	Tools allowing document, manage and control records, plans and schedules related to projects control activities and customer accounts

12.4 Organizational Management process

Table 41 — Resource Management tools

Activity	Resource List
Collect environmental information	Market researches and reports Technology trends specialized reports
Develop business model and plan	Tools for facilitating group sessions and appropriated communication Office suite tools
Measure organizational results and control	Tools for establishing and controlling action items

Annex A (informative)

Interactions between the Basic Profile and the Organizational Profile

A.1 General

This part of ISO/IEC 29110 is a guide that was designed to be a stand-alone document that helps VSEs to manage and implement software projects. When a VSE implements the processes described in this part of ISO/IEC 29110 (VSE Oriented Processes), it is intended to do it along with ISO/IEC TR 29110-5-1-2 (Project Oriented Processes). In other words, for the VSE to accomplish the requirements for organizational management, the VSE will be implementing both processes, VSE Oriented Processes and Project Oriented Processes.

A.2 Organizational management profile processes

In order to implement the organizational management profile, the VSE must implement processes described in both, the Project Oriented Profile and the VSE Oriented Profile. Thus, we need to describe the communication that exists between them.

[Figure A.1](#) describes in a general approach the interaction between the processes.

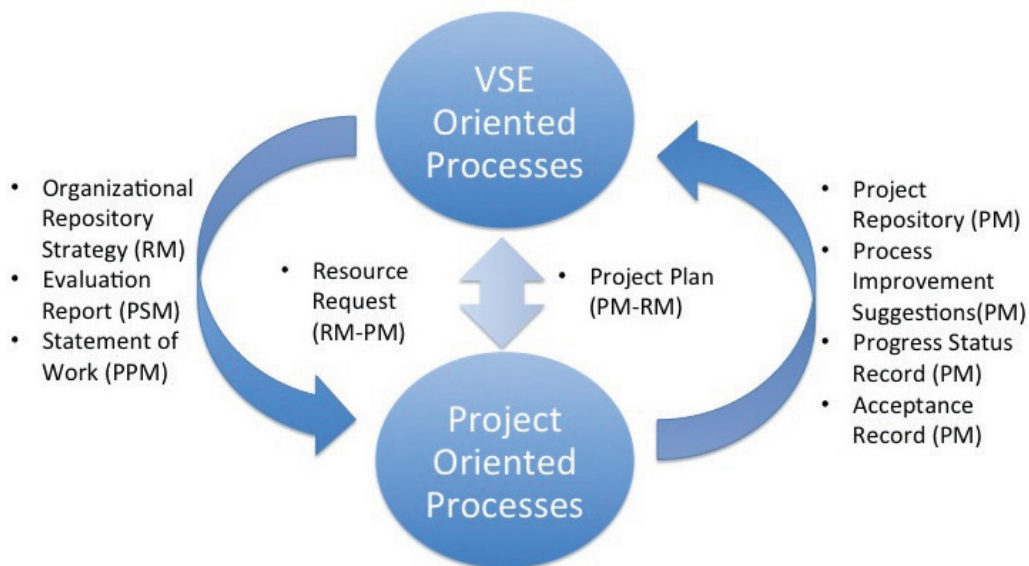


Figure A.1 — Interaction between processes

The communication is accomplished with the work products that are generated in the processes and sent to other processes as inputs. For example, the Project Oriented Process Project Management (PM) will send the Project Plan to a VSE Oriented Process Resource Management (RM) so that RM process can assign the resources that the project needs.

The Project Oriented Processes are Project Management (PM) and Software Implementation (SI). The VSE Oriented Processes that need communication with the Project Oriented processes are Resource Management (RM), Process Management (PSM), and Project Portfolio Management (PPM).

A.3 Inputs and outputs between processes

Figure A.2 illustrates inputs and outputs between processes.

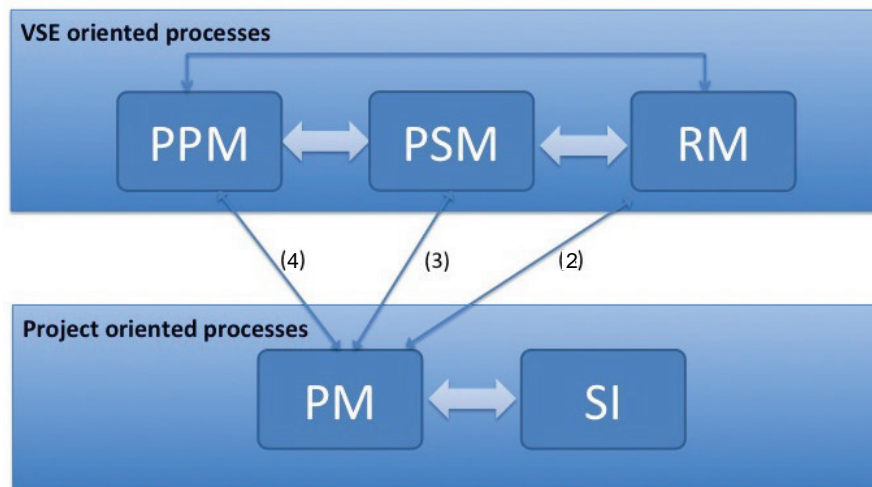


Figure A.2 — Inputs and outputs between processes

Between the Resource Management Process (RM) and Project Management Process (PM), there are two work products that need to interact between them:

1. Organizational Repository Strategy
2. Resource Request

Between the Process Management Process (PSM) and Project Management Process (PM), there are three work products that need to interact between them:

1. Evaluation Report
2. Project Repository
3. Process Improvement Suggestions

Between the Project Portfolio Management Process (PPM) and Project Management Process (PM), there are four work products that need to interact between them:

1. Statement of Work
2. Project Plan
3. Progress Status Record
4. Acceptance Record

In the text below, modifications of this part of ISO/IEC 29110 needed for the interactions between VSE Oriented Processes and Project Oriented Processes are listed.

A.3.1 Between the Resource Management Process (RM) and Project Management Process (PM)

- **Modifications for Work Product 1: *Organizational Repository Strategy***

Task PM.1.10

Current text:

Role	Task List	Input Products	Output Products
PM TL	PM.1.10 Document the <i>Version Control Strategy</i> in the <i>Project Plan</i> .		<i>Project Plan</i> — <i>Version Control Strategy</i>

Modification:

- Eliminate task

Task PM.1.15

Current text:

Role	Task List	Input Products	Output Products
PM TL	PM.1.15 Establish the <i>Project Repository</i> using the <i>Version Control Strategy</i> .	<i>Version Control Strategy</i>	<i>Project Repository</i>

Modified text:

Role	Task List	Input Products	Output Products
PM TL	PM.1.15 Establish the <i>Project Repository</i> using the <i>Organizational Repository Strategy</i> .	<i>Organizational Repository Strategy</i>	<i>Project Repository</i>

Task PM.2.5

Current text:

Role	Task List	Input Products	Output Products
PM TL	PM.2.5 Perform backup according to the <i>Version Control Strategy</i> .	<i>Version Control Strategy</i>	<i>Project Repository Backup</i>

Modified text:

Role	Task List	Input Products	Output Products
PM TL	PM.2.5 Perform backup according to the <i>Organizational Repository Strategy</i> .	<i>Organizational Repository Strategy</i>	<i>Project Repository Backup</i>

• Modifications for Work Product 2: *Resource Request*

Task PM.1.5

Current text:

Role	Task List	Input Products	Output Products
PM TL	PM.1.5 Identify and document the <i>Resources</i> : human, material, equipment and tools, standards, including the required training of the Work Team to perform the project. Include in the schedule the dates when <i>Resources</i> and training will be needed.	<i>Statement of Work</i>	<i>Project Plan</i> — <i>Resources</i>

Modified text:

Role	Task List	Input Products	Output Products
PM TL	PM.1.5 Identify and document the <i>Resources</i> : human, material, equipment and tools, standards, including the required training of the Work Team to perform the project. Include in the schedule the dates when <i>Resources</i> and training will be needed. Generate <i>Resource Request</i> as needed.	<i>Statement of Work</i>	<i>Project Plan</i> — <i>Resources</i> <i>Resources Request</i>

A.3.2 Between the Process Management Process (PSM) and Project Management Process (PM)

- **Modifications for Work Product 1: *Evaluation Report***

Task PM.3.2

Current text:

Role	Task List	Input Products	Output Products
PM TL WT	PM.3.2 Establish actions to correct deviations or problems and identified risks concerning the accomplishment of the plan, as needed, document them in <i>Correction Register</i> and track them to closure.	<i>Progress Status Record [evaluated]</i>	<i>Correction Register</i>

Modified text:

Role	Task List	Input Products	Output Products
PM TL WT	PM.3.2 Establish actions to correct deviations or problems and identified risks concerning the accomplishment of the plan, as needed, document them in <i>Correction Register</i> and track them to closure.	<i>Progress Status Record [evaluated]</i> <i>Evaluation Report</i>	<i>Correction Register</i>

- **Modifications for Work Product 2: *Project Repository***

- o Add Process Management as a destination for *Project Repository*.

[Table 3](#) — PM output products

Current text:

Name	Destination
<i>Project Plan</i>	Software Implementation
<i>Acceptance Record</i>	Organizational Management
<i>Project Repository</i>	Software Implementation
<i>Meeting Record</i>	Customer
<i>Software Configuration</i>	Customer

Modified text:

Name	Destination
<i>Project Plan</i>	Software Implementation
<i>Acceptance Record</i>	Organizational Management
<i>Project Repository</i>	Software Implementation Process Management
<i>Meeting Record</i>	Customer
<i>Software Configuration</i>	Customer

Task PM.4.2

Current text:

Role	Task List	Input Products	Output Products
PM	PM.4.2 Update <i>Project Repository</i> .	<i>Software Configuration</i> [accepted] <i>Project Repository</i>	<i>Project Repository</i> [updated]

Modified text:

Role	Task List	Input Products	Output Products
PM PSM	PM.4.2 Update <i>Project Repository</i> and send to Process Manager to be stored in <i>Organizational Repository</i> .	<i>Software Configuration</i> [accepted] <i>Project Repository</i>	<i>Project Repository</i> [updated] <i>Organizational Repository</i> [updated]

- Modifications for Work Product 3: *Process Improvement Suggestions***

PM.3 Project Assessment and Control Activity

Add new task:

Role	Task List	Input Products	Output Products
PM WT	PM.3.4 Conduct project meeting with the Work Team and record <i>Process Improvement Suggestions</i> for PM and Si processes.		<i>Process Improvement Suggestions</i>

A.3.3 Between the Project Portfolio Management Process (PPM) and Project Management Process (PM)

- Modifications for Work Product 1: *Statement of Work***

- o The source for *Statement of Work* is Project Portfolio Management instead of the Customer.

[Table 2](#) — PM input products

Current text:

Name	Source
<i>Statement of Work</i>	Customer
<i>Software Configuration</i>	Software Implementation
<i>Change Request</i>	Customer Software Implementation

Modified text:

Name	Source
<i>Statement of Work</i>	Project Portfolio Management
<i>Software Configuration</i>	Software Implementation
<i>Change Request</i>	Customer Software Implementation

- **Modifications for Work Product 2: *Project Plan***

Task PM.1.13

Current text:

Role	Task List	Input Products	Output Products
PM TL	PM.1.13 Verify and obtain approval of the <i>Project Plan</i> . Verify that all <i>Project Plan</i> elements are viable and consistent. The results found are documented in a <i>Verification Results</i> and corrections are made until the document is approved by PM.	<i>Project Plan</i>	<i>Verification Results</i> <i>Project Plan [verified]</i>

Modified text:

Role	Task List	Input Products	Output Products
PM TL PPM	PM.1.13 Verify and obtain approval of the <i>Project Plan</i> . Verify that all <i>Project Plan</i> elements are viable and consistent. The results found are documented in a <i>Verification Results</i> and corrections are made until the document is approved by PPM.	<i>Project Plan</i>	<i>Verification Results</i> <i>Project Plan [verified]</i>

- **Modifications for Work Product 3: *Progress Status Record***

- o Add *Project Status Record* as a Destination for Project Portfolio Management Process.

[Table 3](#) — PM output products

Current text:

Name	Source
<i>Project Plan</i>	Software Implementation
<i>Acceptance Record</i>	Organizational Management
<i>Project Repository</i>	Software Implementation
<i>Meeting Record</i>	Customer
<i>Software Configuration</i>	Customer

Modified text:

Name	Source
<i>Project Plan</i>	Software Implementation
<i>Acceptance Record</i>	Organizational Management
<i>Project Repository</i>	Software Implementation
<i>Meeting Record</i>	Customer
<i>Software Configuration</i>	Customer
<i>Progress Status Record</i>	Project Portfolio Management

- **Modifications for Work Product 4: *Acceptance Record***
 - o The destination for *Acceptance Record* will be Project Portfolio Management Process instead of Organizational Management.

[Table 3](#) — PM output products

Current text:

Name	Source
<i>Project Plan</i>	Software Implementation
<i>Acceptance Record</i>	Organizational Management
<i>Project Repository</i>	Software Implementation
<i>Meeting Record</i>	Customer
<i>Software Configuration</i>	Customer

Modified text:

Name	Source
<i>Project Plan</i>	Software Implementation
<i>Acceptance Record</i>	Organizational Management
<i>Project Repository</i>	Software Implementation
<i>Meeting Record</i>	Customer
<i>Software Configuration</i>	Customer
<i>Progress Status Record</i>	Project Portfolio Management

Annex B (informative)

Mapping between the objectives of this part of ISO/IEC 29110 and base standards

B.1 General

Mapping between the objectives of this part of ISO/IEC 29110 and its base standards: ISO 9001, ISO/IEC/IEEE 12207, ISO/IEC 15504-2 and ISO/IEC 33020.

[B.1](#) to [B.4](#) present the mapping between the objectives of this part of ISO/IEC 29110 processes with its base standards: Organizational Management Process, Resource Management Process, Process Management Process and Project Portfolio Management Process.

B.2 Organizational management process

OM.01. Establish or refine an appropriate value proposition and its corresponding business model.

ISO 9001:2015, Clause 5, Leadership

5.1.2 c) Customer focus: the focus on enhancing customer satisfaction is maintained.

[ISO 9001:2015, Clause 5]

OM.02. Develop or revise objectives for the organization, based on the business model, and establish the strategies and resources necessary to support those objectives.

ISO 9001:2015, Clause 5, Leadership

5.1.1 b) General — Top management shall demonstrate leadership and commitment with respect to the quality management system by: ensuring that the quality policy and quality objectives are established for the quality management system and are compatible with the context and strategic direction of the organization.

5.1.1 e) General — Top management shall demonstrate leadership and commitment with respect to the quality management system by: ensuring that the resources needed for the quality management system are available.

5.1.2 c) Customer focus: the focus on enhancing customer satisfaction is maintained.

5.3 b) Organizational roles, responsibilities and authorities — Top management shall assign the responsibility and authority for: ensuring that the processes are delivering their intended outputs.

5.3 c) Organizational roles, responsibilities and authorities — Top management shall assign the responsibility and authority for: reporting on the performance of the quality management system and on opportunities for improvement, in particular top management.

ISO 9001:2015, Clause 6, Planning

6.1.1 c) Actions to address risks and opportunities — When planning for the quality management system, the organization shall consider the issues referred in 4.1 and the requirements referred to in 4.2 and determine risks and opportunities that needed to be addressed to prevent, or reduce, undesired effects.

6.1.2 Actions to address risks and opportunities — The organization shall plan: actions to address these risks and opportunities.

6.2.1 b) Quality objectives and planning to achieve them — The organization shall establish quality objectives at relevant functions, levels and processes needed for the quality management system. The quality objectives shall: be measurable.

6.2.1 e) Quality objectives and planning to achieve them — The organization shall establish quality objectives at relevant functions, levels and processes needed for the quality management system. The quality objectives shall: be monitored.

6.2.1 d) Quality objectives and planning to achieve them — The organization shall establish quality objectives at relevant functions, levels and processes needed for the quality management system. The quality objectives shall: be relevant to conformity of products and services and to enhancement of customer satisfaction.

6.2.1 g) Quality objectives and planning to achieve them — The organization shall establish quality objectives at relevant functions, levels and processes needed for the quality management system. The quality objectives shall: be updated as appropriate.

6.2.2 b) Quality objectives and planning to achieve them — When planning how to achieve its quality objectives, the organization shall determine: what resources will be required.

6.2.2 c) Quality objectives and planning to achieve them — When planning how to achieve its quality objectives, the organization shall determine: who will be responsible.

[ISO 9001:2015, Clause 5, Clause 6]

OM.03. Measure the achievement of the objectives, identify deviations and control actions.

ISO 9001:2015, Clause 9, Performance evaluation

9.3.1 Management review — General

5.6.2 Management review — Management review inputs

5.6.3 Management review — Management review inputs outputs

[ISO 9001:2015, Clause 9]

B.3 Resource Management process

RM.01. Define human resources and infrastructure policies and/or mechanisms to support the organization and projects.

ISO 9001:2015, 7.1, Resources

7.1.1 General — The organization shall determine and provide the resources needed for the establishment, implementation, maintenance and continual improvement of the quality management system. The organization shall consider: the capabilities of, and constraints on, existing internal resources; what needs to be obtained from external providers.

[ISO 9001:2015, Clause 7]

RM.02. Respond to organization and project requests for resources according to defined policies and/or mechanisms.

6.2.2 Infrastructure process

- c) infrastructure elements are acquired;
- e) a stable and reliable infrastructure is maintained and improved;

6.2.4 Human resource management process

- b) necessary human resources are provided to projects;
- c) skills of personnel are developed, maintained or enhanced;
- d) conflicts in multi-project resource demands are resolved.

[ISO/IEC/IEEE 12207:2008, 6.2.2, 6.2.4]

ISO 9001:2015, 7.1, Resources

7.1.2 People — The organization shall determine and provide the persons necessary for the effective implementation of its quality management system and for the operation and control of its processes.

7.1.3 Infrastructure — The organization shall determine, provide and maintain the infrastructure necessary for the operation of its processes and to achieve conformity of products and services.

ISO 9001:2015, 7.2, Competence

7.2 a) The organization shall determine the necessary competence of person(s) doing work under its control that affects the performance and effectiveness of the quality management system.

7.2 b) The organization shall ensure that these persons are competent on the basis of appropriate education, training or experience.

7.2 d) The organization shall retain appropriate documented information as evidence of competence.

[ISO 9001:2015, Clause 7]

RM.03. Monitor resource acquisition activities, human resources, training and infrastructure maintenance. Corrections to remediate problems are taken when requirements are not satisfied.

ISO 9001:2015, 8.4, Control of externally provided processes, products and services

8.4.1 General — The organization shall ensure that externally provided processes, products and services confirm to requirements.

[ISO 9001:2015, Clause 8]

B.4 Process management process

PSM.01. Plan the execution of the process. Control the progress of the execution, identifying and correcting problems and deviations.

PA 2.1 Performance management — it determines the extent to which the performance of the process is managed. The achievement of these attributes involves the planning, monitoring and adjusting the process performance.

- a) objectives for the performance of the process are identified;
- b) performance of the process is planned and monitored;
- d) responsibilities and authorities for performing the process are defined;
- e) resources and information necessary for performing the process are identified, made available.

[ISO/IEC 15504-2:2003, 5.3.1 PA 2.1]

5.2.3.1 PA 2.1 Performance management process attribute — is a measure of the extent to which the performance of the process is managed:

- a) objectives for the performance of the process are identified;
- b) performance of the process is planned;
- c) performance of the process is monitored;
- e) responsibilities and authorities for performing the process are defined, assigned and communicated;
- g) resources and information necessary for performing the process are identified, made available, allocated and used.

[ISO/IEC 33020:2015, 5.2.3.1 PA 2.1]

PSM.02. Define and deploy processes to respond to the organizational needs.

6.2.1 Life cycle model management process

- b) responsibility, accountability and authority for life cycle management are defined;
- c) life cycle processes, models and procedures for use by the organization are defined, maintained and improved.

6.2.5 Quality management process

- c) accountability and authority for quality management are defined.

6.3.7 Measurement process

- a) The information needs of technical and management processes are identified.

[ISO/IEC/IEEE 12207:2008, 6.2.1, 6.2.5, 6.3.7]

PSM.03. Assure the organization and projects follow the defined processes, applying the planned process evaluations to identify problems and correct deviations. Keep the organization informed of the process status.

6.3.6 Information management process

- f) information is made available to designated parties.

6.3.7 Measurement process

- d) the required data are collected, stored, analysed, and the results interpreted;
- e) information products are used to support decisions and provide an objective basis for communication.

7.2.3 Software quality assurance process

- d) adherence of products, processes and activities to the applicable standards, procedures and requirements are verified.

7.2.7 Software audit process

- a) an audit strategy is developed and implemented;
- b) compliance of selected software work products and/or services or processes with requirements, plans and agreement is determined according to the audit strategy;
- c) audits are conducted by an appropriate independent party;
- d) problems detected during an audit are identified and communicated to those responsible for corrective action, and resolution.

7.2.8 Software problem resolution process

- b) problems are recorded, identified and classified;
- e) problems are tracked to closure;
- f) the status of all problems reported is known.

[ISO/IEC/IEEE 12207:2008, 6.3.6, 6.3.7, 7.2.3, 7.2.7, 7.2.8]

PSM.04. Gather and analyse the information from process evaluations and improve the process based on process evaluations, process improvement suggestions and *Best Practices*.

6.2.1 Life cycle model management process

- b) responsibility, accountability and authority for life cycle management are defined;
- c) life cycle processes, models and procedures for use by the organization are defined, maintained and improved.

[ISO/IEC/IEEE 12207:2008, 6.2.1]

PSM.05. Establish an *Organizational Repository*, integrate and store the processes relevant documentation.

6.2.2 Infrastructure management process

- d) the infrastructure elements are implemented;
- e) a stable and reliable infrastructure is maintained and improved.

[ISO/IEC/IEEE 12207:2008, 6.2.2]

B.5 Project portfolio management process

PPM.01. Technical content is provided to generate projects for the entity and to establish a *Formal Agreement* with the customer, monitor its satisfaction during the project until its closure, and perform corrective actions as needed.

6.1.2 Supply process

- a) business venture opportunities, investments or necessities are qualified, prioritized and selected;
- c) an agreement is established between the acquirer and the supplier for developing, maintaining, operating, packaging, delivering, and installing the product and/or service;
- e) the product and/or service is delivered to the acquirer in accordance with the agreed requirements.

6.2.3 Project portfolio management process

- d) projects meeting agreement and stakeholder requirements are sustained;
- e) projects not meeting agreement or stakeholder requirements are redirected or terminated.

6.2.5 Quality management process

- d) the status of customer satisfaction is monitored.

[ISO/IEC/IEEE 12207:2008, 6.1.2, 6.2.3, 6.2.5]

PPM.02 Project management accountability and authorities are defined.

6.2.3 Project portfolio management process

- c) project management accountability and authorities are defined.

[ISO/IEC/IEEE 12207:2008, 6.2.3]

PPM.03 Project plans are reviewed, progress towards established goals is supervised and appropriate actions are taken when objectives are not achieved.

7.2.6 Software review process

- a) management and technical reviews are held based on the needs of the project;
- c) review results are made known to all affected parties;
- d) action items resulting from reviews are tracked to closure;
- e) risks and problems are identified and recorded.

7.2.8 Software problem resolution process

- b) problems are recorded, identified and classified;
- e) problems are tracked to closure.

[ISO/IEC IEEE 12207:2008, 7.2.6, 7.2.8]

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1) Withdrawn. (Revised by ISO/IEC 33002:2015)

