
**Software and systems engineering —
Lifecycle profiles for very small
entities (VSEs) —**

**Part 5-1-4:
Software engineering: Management
and engineering guidelines: Generic
profile group: Advanced profile**

Titre manque —

Partie 5-1-4: Titre manque





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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 voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

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

A list of all parts in the ISO/IEC 29110 series can be found on the ISO website.

Introduction

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

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

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

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

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

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

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

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

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

Table 1 — ISO/IEC 29110 target audience

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

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

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

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

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

This document provides management and engineering guidelines for the software engineering Advanced profile of the Generic profile group. These guidelines describe the processes targeted at VSEs that want to sustain and grow as an independent competitive software development business.

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

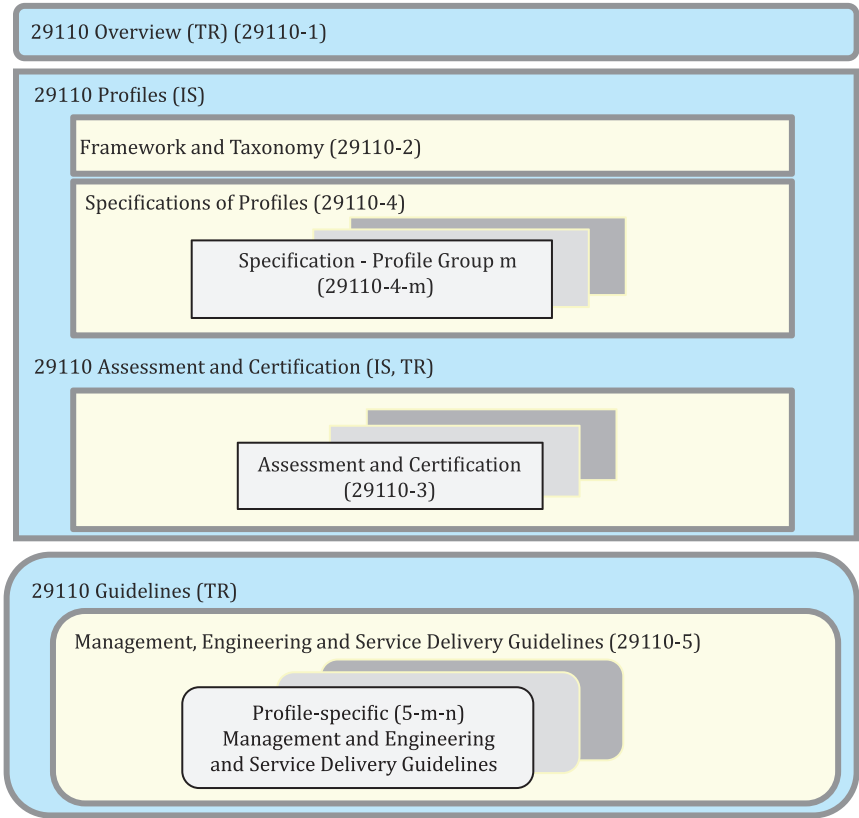


Figure 1 — ISO/IEC 29110 series

Software and systems engineering — Lifecycle profiles for very small entities (VSEs) —

Part 5-1-4:

Software engineering: Management and engineering guidelines: Generic profile group: Advanced profile

1 Scope

This document is applicable to Very Small Entities (VSEs). VSEs are enterprises, organisations, departments or projects having up to 25 people. The life cycle processes described in the set of International Standards (IS) and Technical Reports (TR) are not intended to preclude or discourage their use by organisations bigger than VSEs.

The Advanced profile is the fourth profile of a four-profile software engineering roadmap (i.e. Entry, Basic, Intermediate and Advanced). This document describes processes targeted at VSEs that want to sustain and grow as an independent competitive software development business.

ISO/IEC 29110-4-1 identifies the requirements applicable to the tasks and work products described in this document.

These guidelines apply to VSEs that develop non-critical software.

Using these guidelines, VSEs can obtain the following benefits:

- management and monitoring of more than one project in parallel with more than one work team;
- reuse of existing software components (e.g. code and document) in new projects;
- continuous measurement and evaluation of projects;
- continuous evaluation and improvement processes;
- continuous sustainability and growth; and
- support to customers in the disposal of software and installation of new software.

Once the software, developed by a VSE, has been accepted by their customer, the VSE that wants to provide after-delivery services can refer to ISO/IEC TR 29110-5-3.

2 Normative references

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

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

3 Terms and definitions

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

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

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

3.1 advanced profile

profile (3.12) targeted at VSEs which want to sustain and grow as an independent competitive system and/or software development business

[SOURCE: ISO/IEC 29110-2-1:2015]

3.2 agreement

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

EXAMPLE Contract, memorandum of agreement.

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

3.3 acquirer

stakeholder that acquires or procures a product or service from a supplier

Note 1 to entry: Other terms commonly used for an acquirer are buyer, customer, owner, purchaser or internal/organisational sponsor.

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

3.4 basic profile

profile (3.12) targeted at VSEs developing a single application by a single work team

[SOURCE: ISO/IEC 29110-2-1:2015]

3.5 business objective

strategy designed by senior management to ensure an organization's continued existence and enhance its profitability, market share, and other factors influencing the organization's success

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

3.6 conditional process

process that can be mandatory under some specified conditions, can be optional under other specified conditions, and can be out of scope or not applicable under other specified conditions

Note 1 to entry: These are to be observed if the specified conditions apply.

3.7 critical software

software having the potential for serious impact on the users or environment, due to factors including safety, performance, and security

3.8**enabling system**

system that supports a system-of-interest during its life cycle stages but does not necessarily contribute directly to its function during operation

EXAMPLE A configuration management system used to control software elements during software development.

Note 1 to entry: Each enabling system has a life cycle of its own. This document is applicable to each enabling system when, in its own right, it is treated as a system-of-interest.

[SOURCE: ISO/IEC IEEE 12207:2017]

3.9**entry profile**

profile (3.12) targeted at start-up VSEs (i.e. VSEs who started their operation less than three years) and/or at VSEs working on small *project* (e.g. project size of less than six person-months)

[SOURCE: ISO/IEC 29110-2-1:2015]

3.10**generic profile group**

profile (3.12) group applicable to VSEs (very small entities) that do not develop critical systems or critical software and have typical situational factors

[SOURCE: ISO/IEC 29110-2-1:2015]

3.11**intermediate profile**

profile (3.12) targeted at VSEs involved in the development of more than one project in parallel with more than one work team

[SOURCE: ISO/IEC 29110-2-1:2015]

3.12**profile**

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

[SOURCE: ISO/IEC/TR 10000-1:1998, modified — “International Standardized Profiles” or “ISPs” have been replaced by “standardized profiles”]

3.13**security and intellectual property scheme**

established and operated management system in the entity to ensure the security and intellectual property of its information items

3.14**system-of-interest**

system whose life cycle is under consideration

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

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 the letter 'O' and a consecutive number, for example RM.O1, PM.O2, etc. Each objective is followed by the square box which includes a list of the chosen processes for the Intermediate profile mainly from ISO/IEC/IEEE 12207 and its outcomes related to the objective. References to standards such as ISO/IEC/IEEE 15288, ISO/IEC/IEEE 12207 and ISO 9001 are informative and do not imply partial conformance to the standards.

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

Output Work products — Work 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. Identified by the abbreviation of the process name and showed as two column table of work product names and destinations.

Internal Work products — Work products generated and consumed by the process itself. An internal Work product is not reviewed or approved by the Customer. Identified by the abbreviation of the process name and showed as one column table of the work product names.

All work products' names are printed in italics and initiate with capital letters. Some work products have one or more statuses attached to the work product name surrounded by square brackets "[]" and separated by a ",". The work product status may change during the process execution. See [Clause 11](#) for the alphabetical list of the work products, its descriptions, possible statuses and the source of the work 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 10](#) 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 work 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 work 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, PM.1 Project Planning (PM.01, PM.05, PM.06, PM.07) means that the activity PM.1 Project Planning contributes to the achievement of the listed objectives: PM.01, PM.05, PM.06 and PM.07. 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:

- Role — the abbreviation of roles involved in the task execution;
- Task — description of the task to be performed. Each task is identified by activity ID and consecutive number, for example PM.01.01, PM.01.02, and so on;

- Input Work products — work products needed to execute the task; and
- Output Work products — work products created or modified by the execution of the task.

Incorporation to *Organisational Repository* — List of work products to be saved in *Organizational Repository*.

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

4.2 Notation used to document new processes, additions and modifications to the Intermediate profile processes

The Advanced profile is the fourth profile of a four-profile software engineering roadmap (i.e. Entry, Basic, Intermediate and Advanced). The Advanced profile has been designed to build upon the processes of the Intermediate profile such that, when moving from the Intermediate profile to the Advanced profile, a VSE should add to its existing Intermediate profile processes the new processes (e.g. objectives, activities, tasks, roles and work products) described in this document.

Since, in the Advanced profile, there are additions and modifications to the Intermediate profile processes, this document has been written such that it will be easy for a VSE to identify these additions and modifications. The processes of the Intermediate profile have been complemented with additional objectives, tasks and work products in a context where a VSE is conducting more than one project in parallel with more than one work team. The following notation is used to highlight the addition/deletion/modification to the Intermediate profile:

- added text
 - is underlined;
 - except for the processes of the Intermediate profile;
- deleted/modified text is struck out as follows: ~~the text is struck out.~~

The Advanced profile has one new process that is not in the Intermediate profile: Software Transition and Disposal process (STD).

The purpose of the Software Transition and Disposal process is to move the software in an orderly, planned manner into the operational status such that the system is functional and operable in the operational environment of the Customer and to end the existence of a system element or system for a specified intended use, appropriately handle replaced or retired elements, and to properly attend to identify critical disposal needs (e.g. per an agreement, per organisational policy, or for environmental, safety, security aspects).

The STD process is a conditional process. It is executed if a VSE is required, in the Agreement (e.g. Statement of Work), to install and/or dispose a software at the customer operational environment. If this is the case, this process is included in the scope of an audit or an assessment.

To facilitate the identification of additional abbreviations, roles and work products of the STD process of the Advanced profile, these items are underlined. To facilitate reading, the STD process has not been underlined.

The Advanced profile terminology has been aligned to the ISO/IEC/IEEE 12207 and ISO/IEC/IEEE 15289. The following terms of old standards have been replaced with the new terms:

- “Agreement” and “Contract” have been replaced with “Agreement”; and
- Work products are identified with a unique code WP.XX where XX is a sequential number in [Clause 12](#). These codes have not been used in the descriptions of activities and tasks in order to facilitate readability.

4.3 Abbreviated terms

The following abbreviations are used in this document:

AM	Acquisition Management
BM	Business Management
<u>BSM</u>	<u>Business Manager</u>
OLR	Organisational Lesson Learned Record
OR	Organisational Repository
PJM	Project Manager
PLR	Project Lesson Learned Record
PO	Purchase Order
RFP	Request for Proposal
RR	Resource Request
SOW	Statement of Work
SUP	Supplier
<u>STD</u>	<u>Software Transition and Disposal</u>
VSE	Very Small Entity

5 Overview

The Advanced Profile Management and Engineering Guidelines apply to a Very Small Entity (VSE) (enterprise, organization, department or project having up to 25 people) which is familiar with or has implemented ISO/IEC TR 29110-5-1-3 for their software development projects.

These guidelines provide Business Management, Project Management, Software Implementation, Acquisition Management and Software Transition and Disposal processes which integrate practices mainly based on the selection of ISO/IEC/IEEE 12207 and ISO/IEC/IEEE 15289 standards elements. [Annex A](#) provides information about Deployment Packages that facilitate the implementation of these processes.

This document, is intended to be used by VSEs to establish processes to implement any development approach or methodology including, e.g. agile, evolutionary, incremental, test driven development, etc. based on a VSE or project needs.

Using these guidelines, VSEs can obtain the following benefits:

- management and monitoring of more than one project in parallel with more than one work team;
- reuse of existing software components (e.g. code and document) in new projects;
- continuous measurement and evaluation of projects;
- continuous evaluation and improvement processes;
- continuous sustainability and growth; and
- support to customers in the disposal of software and installation of new software.

To use these guidelines, a VSE should fulfil the following entrance conditions.

- VSEs that are familiar with or have implemented ISO/IEC TR 29110-5-1-3; Generic profile group: Intermediate profile for their software development projects.

The purpose of the Business Management (BM) process is to define business objectives, identify opportunities, evaluate all in-place *Agreements* or requests from customers for fit with organisational objectives and resources, obtain and provide the VSE with the necessary resources to perform all projects, monitor and evaluate all projects, conduct lesson learned to improve the VSE and protect its intellectual property and the security of its assets and information items.

The purpose of the Project Management (PM) process is to establish and carry out in a systematic way the *Tasks* of the software implementation process, which allows complying with the project's *Objectives* in the expected quality, time and costs.

The purpose of the Software Implementation (SI) process is the systematic performance of the analysis, design, construction, integration and tests activities for new or modified software work products according to the specified requirements.

The purpose of the Acquisition Management (AM) process is to obtain a product or service required by the VSE. The execution of the AM process is required if a product/service needs to be obtained from a supplier by the VSE (i.e. a conditional process).

The purpose of the Software Transition and Disposal (STD) process is to move the software in an orderly, planned manner into the operational status such that the system is functional and operable in the operational environment of the Customer and to end the existence of a system element or system for a specified intended use, appropriately handle replaced or retired elements, and to properly attend to identify critical disposal needs (e.g. per an agreement, per organisational policy, or for environmental, safety, and security aspects).

The processes are interrelated (see [Figure 2](#)). The arrows connecting the AM process, the STD process to the other processes are dashed to indicate that these 2 processes are conditional processes.

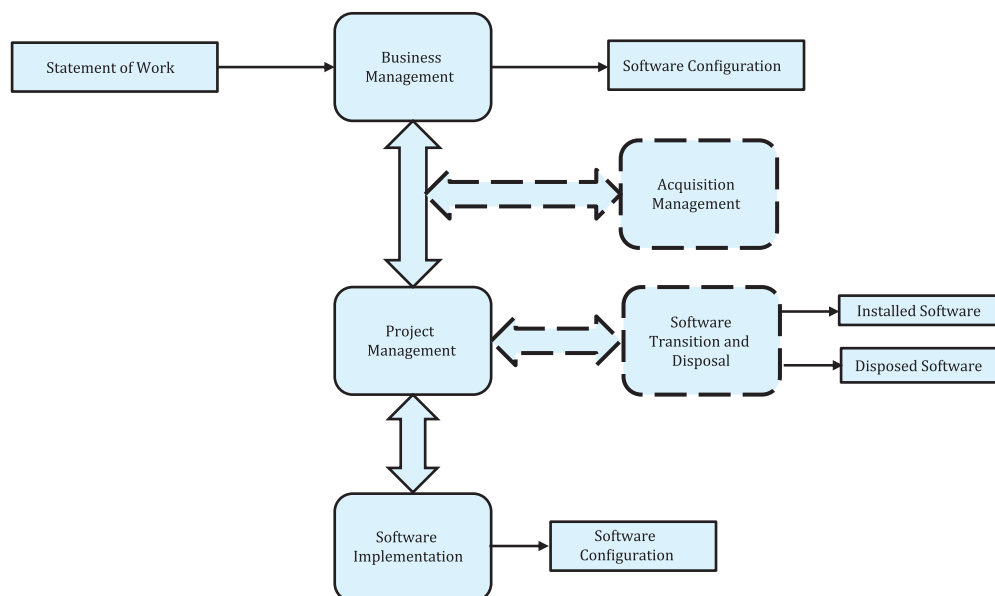


Figure 2 — Advanced profile processes

6 Business Management (BM) process

6.1 BM purpose

The purpose of the Business Management (BM) process is to define business objectives, identify opportunities, evaluate all in-place *Agreements* or requests from customers for fit with organisational objectives and resources, obtain and provide the VSE with the necessary resources to perform all projects, monitor and evaluate all projects, conduct lesson learned to improve the VSE and protect its intellectual property and the security of its assets and information items.

6.2 BM objectives

BM.01. Define the business objectives of the VSE.

BM.02. Initiate and sustain necessary, sufficient and suitable projects in order to meet the objectives of the VSE.

BM.03. Manage Human Resource and Management and Engineering Knowledge of the VSE.

BM.04. Provide to the customer the work product that meets the agreed requirements.

BM.05. Provide the VSE with necessary human resources and to maintain their competencies, consistent with business needs.

BM.06. Provide an enabling infrastructure and services to all projects to support the VSE and the project objectives throughout the life cycle.

BM.07. Collect and analyse measures of all projects and to improve or maintain the management and engineering processes of the VSE.

BM.08. Protect the intellectual property and the security of the assets and information items of the VSE.

BM.09. Establish an Organisational Repository, integrate and store the projects' relevant documentation. The Organisational Repository should protect the security of its assets and information items.

BM.010. Projects are evaluated on a periodic basis. Projects meeting agreement and stakeholder requirements are continued, Projects not meeting agreements and stakeholder requirements are terminated. Projects that have completed agreements and stakeholder requirements are closed.

6.3 BM input work products

[Table 2](#) provides a list of the input work products.

Table 2 — BM input work products

Name	Source
<i>Agreement</i>	Customer
<i>Request for Proposal</i>	Customer
<i>Change Request</i>	Customer Project Manager
<i>Resource Request</i>	Project Manager
<i>Purchase Order</i>	Project Manager
<i>Human Resource Record</i>	Project Manager

6.4 BM output work products

[Table 3](#) provides a list of the output work products.

Table 3 — BM output work products

Name	Destination
<i>Business Objectives</i>	Business Management
<i>Agreement</i>	Business Management
<i>Project Plan</i>	Business Management
<i>Proposal</i>	Customer
<i>Software Configuration</i>	Customer

6.5 BM internal work products

[Table 4](#) provides a list of the internal work products.

Table 4 — BM internal work products

Name
<i>Business Objectives</i>
<i>Engineering Knowledge Assets</i>
<i>Human Resource Records</i>
<i>Security and Intellectual Property Protection Plan</i>
<i>Resource Request</i>
<i>Organisational Lesson Learned Record</i>
<i>Process Improvement Record</i>

6.6 BM roles involved

[Table 5](#) provides a list of the roles involved in the BM process.

Table 5 — BM roles involved

Role	Abbreviation
Business Manager	BSM
Project Manager	PJM
Customer	CUS

6.7 BM Process Description

6.7.1 BM Diagram

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

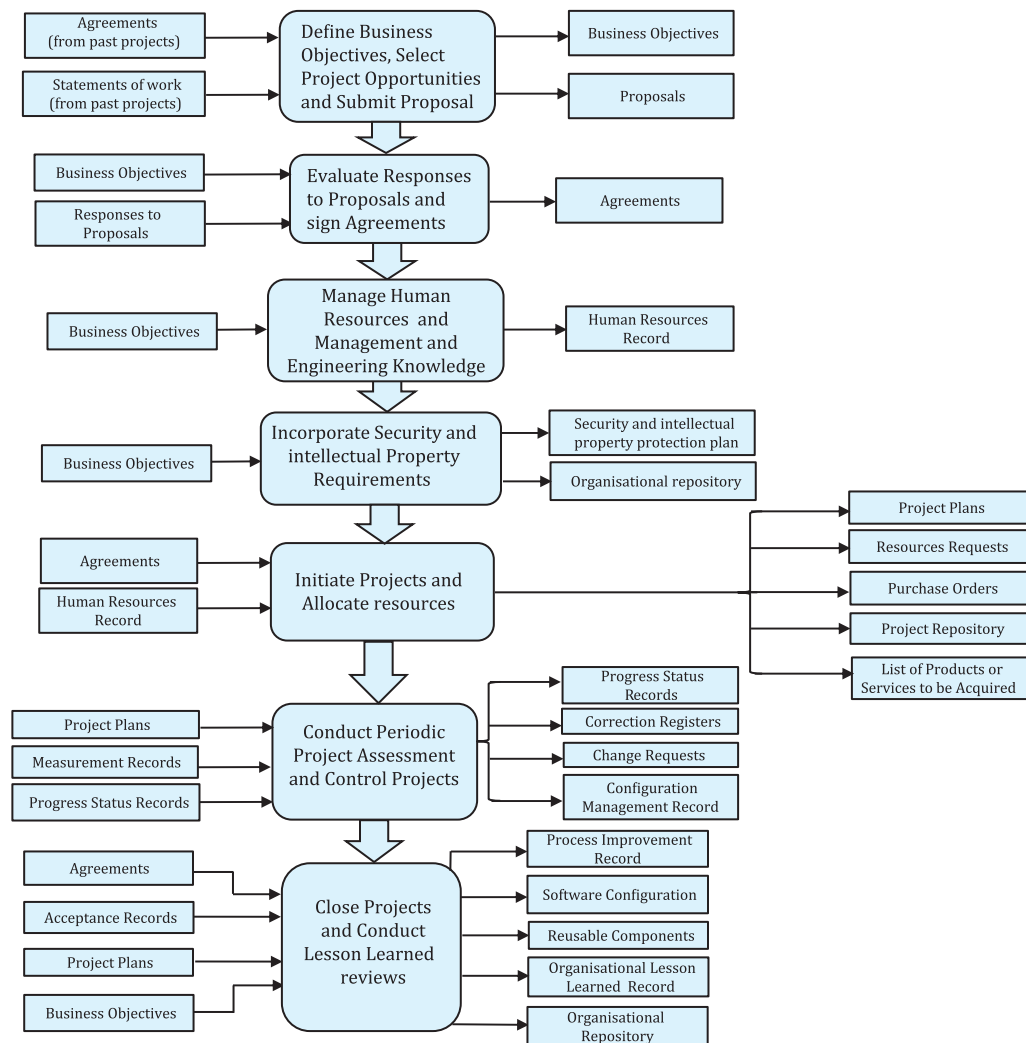


Figure 3 — Business Management process

6.7.2 BM activities

The Business Management (BM) Process has the following activities.

- BM.01. Define the business objectives, select project opportunities and submit proposals.
- BM.02. Evaluate Responses to Proposals and Sign Agreements.
- BM.03. Manage Human Resources and Management and Engineering Knowledge.
- BM.04. Incorporate Security and Intellectual Property Requirements.
- BM.05. Initiate Projects and Allocate Resources.
- BM.06. Conduct Periodic Project Assessment and Control Projects.
- BM.07. Close Projects and Conduct Lesson Learned Reviews.

6.7.2.1 BM.01 Define the Business Objectives, select project opportunities and submit proposals (BM.01, BM.02)

The Define the business objectives, select project opportunities and submit proposals activity describes the tasks and information items needed to define business objectives of the VSE, document project opportunities and develop proposals sent to potential customers.

The activity provides:

- Business Objectives; and
- Proposals (submitted to potential customers).

The task list for BM.01 Define business objectives, select project opportunities and submit proposals is given in [Table 6](#).

Table 6 — BM.01 task list

Role	Task List	Input Work products	Output Work products
BSM	BM.01.01 Document <i>Business Objectives</i> . Agreements (e.g. contracts) and Statements of Work from past projects could be used to identify, select and document the <i>Business Objectives</i> . <i>Business objectives</i> could be developed using the <i>Business objectives</i> template in the Work Product description section of this Guide.	<i>Business Objectives template</i> <i>Statements of Work (from past projects)</i> <i>Agreements (from past projects)</i>	<i>Business Objectives [initiated]</i>
BSM PJMs	BM.01.02 Review <i>Business Objectives</i> with PJMs and approve <i>Business Objectives</i> . NOTE The <i>Business Objectives</i> are approved by the BSM.	<i>Business Objectives [initiated]</i>	<i>Business Objectives [approved]</i>
BSM PJMs	BM.01.03 Identify Project Opportunities using opportunity selection criteria listed in the <i>Business Objectives</i> .	<i>Business Objectives [approved]</i> <i>Statements of Work (from past projects)</i> <i>Agreements (from past projects)</i> <i>Proposals (from past projects)</i>	<i>Business Objectives [updated]</i> — <i>Project opportunities</i>
BSM PJMs	BM.01.04 Prepare and approve <i>Proposal(s)</i> . <i>Proposals</i> could be developed using the <i>Proposal template</i> in the Work Product description section of this Guide.	<i>Business Objectives [updated]</i> <i>Proposal template</i>	<i>Proposal(s) [approved]</i>
BSM	BM.01.05 Submit <i>Proposal(s)</i> to potential Customer(s).	<i>Proposal(s) [approved]</i>	<i>Proposal(s) [submitted]</i>

6.7.2.2 BM.02 Evaluate Responses to Proposals and Sign Agreements (BM.02)

The Evaluate Responses to Proposals and Sign Agreements activity involves the evaluation of the responses to the proposals submitted to customers, the negotiation and signature of agreements with customers. Once an agreement is signed, a project manager is assigned to the project and the project manager documents its project plan according to the Project Management (PM) process of these guidelines.

The activity provides:

- Agreements.

The task list for BM.02 Evaluate Responses to Proposals and Sign Agreements is given in [Table 7](#).

Table 7 — BM.02 task list

Role	Task List	Input Work products	Output Work products
BSM	BM.02.01 Evaluate all responses to Proposals from potential Customers and Prepare <i>Agreements</i> for the accepted <i>Proposals</i> .	<i>Business Objectives [approved]</i> <i>Proposal(s) [submitted]</i>	<i>Agreement(s) [initiated]</i>
BSM CUS	BM.02.02 Negotiate, finalise and sign <i>Agreement(s)</i> with Customers.	<i>Business Objectives [approved]</i> <i>Agreement(s) [initiated]</i>	<i>Agreement(s) [signed]</i>
BSM	BM.02.03 Approve Projects and assign Project Managers to develop <i>Project Plans and Resources Requests</i> . Project Plans are developed according to the Planning activity of the PM Process.	<i>Agreement(s) [approved]</i>	<i>Projects Managers [as-signed]</i>

6.7.2.3 BM.03 Manage Human Resources and Management and Engineering Knowledge (BM.03)

The Manage Human Resources and Management and Engineering Knowledge activity describes tasks and information items needed to manage organisational human resources and provide management and engineering knowledge to maintain adequate engineering capability of the VSE.

The activity provides:

- Human Resource Record; and
- Trained Human Resources.

The task list for BM.03 Manage Human Resources and Management and Engineering Knowledge is given in [Table 8](#).

Table 8 — BM.03 task list

Role	Task List	Input Work Products	Output Work Products
PJMs	BM.03.01 Identify and document skills and knowledge necessary to perform the approved projects.	<i>Business Objectives</i> [ap-proved]	<i>Human Resource Record</i> [initial]
BSM	BM.03.02 Review and approve the <i>Human resource record</i> .	<i>Human Resource Record</i> [initial]	<i>Human Resource Record</i> [approved]
BSM PJMs	BM.03.03 Obtain Human Resources necessary to perform the approved projects.	<i>Business Objectives</i> [ap-proved] <i>Human Resource Record</i> [approved]	<i>Human Resource Record</i> [updated]
BSM PJMs	BM.03.04 Train Human Resources. NOTE The Training Plan of the <i>Human resource record</i> is used to document the training, schedule of the human resources that will be get management and/or engineering training.	<i>Business Objectives</i> [ap-proved] <i>Human Resource Record</i> [updated]	<i>Human Resource Record</i> [updated]

6.7.2.4 BM.04 Incorporate Security and Intellectual Property Requirements (BM.08, BM.09)

The Incorporate security and intellectual property requirements activity documents the tasks and information items needed to develop and implement security of its assets and information items and the protection of the intellectual property of the VSE.

The activity provides:

- Security and Intellectual Property Protection Plan; and
- Organisational Repository to store assets and information items securely.

The task list for BM.05 Incorporate Security and Intellectual Property Requirements is given in [Table 9](#).

Table 9 — BM.04 task list

Role	Task List	Input Work products	Output Work products
BSM	BM.04.01 Develop a <i>Security and Intellectual Property Protection Plan</i> using the template provided in the work product description section.	<i>Business Objectives</i> [approved] <i>Security and Intellectual Property Protection Plan Template</i>	<i>Security and Intellectual Property Protection Plan</i> [initiated]
BSM PJMs	BM.04.02 Review and approve the <i>Security and Intellectual Property Protection Plan</i> . NOTE The <i>Security and Intellectual Property Protection Plan</i> is approved by the BSM.	<i>Security and Intellectual Property Protection Plan</i> [initiated]	<i>Security and Intellectual Property Protection Plan</i> [approved]
BSM PJMs	BM.04.03 Implement the <i>Security and Intellectual Property Protection Plan</i> .	<i>Security and Intellectual Property Protection Plan</i> [approved]	<i>Security and Intellectual Property Protection Plan</i> [implemented]
BSM	BM.04.04 Establish and maintain an <i>Organisational Repository</i> . The repository should protect the security and intellectual property of the VSE and of its customers.	<i>Security and Intellectual Property Protection Plan</i> [approved]	<i>Organisational Repository</i> [established]

6.7.2.5 BM.05 Initiate Projects and Allocate Resources (BM.02, BM.05, BM.06)

The Initiate Projects and Allocate Resources activity is initiated with the approval of Project Plans and the Resources Requests. Human resources are allocated to Projects. If products or services have to be acquired, Purchase Orders are approved. A project repository is established.

The activity provides:

- Approved Project Plan(s);
- Approved Resources Request(s);
- Approved Purchased Order(s); and
- Human Resource Record.

The task list for BM.05 Initiate Projects and Allocate Resources is given in [Table 10](#).

Table 10 — BM.05 task list

Role	Task List	Input Work products	Output Work products
BSM PJMs	BM.05.01 Review and Approve all <i>Project Plans</i> and all <i>Resource Requests</i> . NOTE — <i>Project Plans</i> are developed by the Project Planning activity of the PM process — All <i>Project Plans</i> and <i>Resource Requests</i> are approved by the BSM.	<i>Agreements [approved]</i> <i>Project Plans [initiated]</i> <i>Resources Requests [initiated]</i> <i>Human Resource Record [approved]</i>	<i>Project Plans [approved]</i> <i>Resources Requests [approved]</i>
BSM PJMs	BM.05.02 Obtain resources and train Project team members if needed.	<i>Resource Requests [approved]</i> <i>Human Resource Record [approved]</i>	<i>Resources obtained and trained</i> <i>Human Resource Record [updated]</i>
BSM PJMs	BM.05.03 Decide if products or services have to be acquired from <i>Suppliers</i> and list the products or services to be acquired. NOTE If a product (e.g. software component) or a service has to be acquired from supplier(s), use the Acquisition Management Process of these guidelines.	<i>Project Plans [approved]</i>	<i>List of Products or Services to be acquired [initiated]</i>
BSM	BM.05.04 Approve the <i>List of Products or Services to be acquired</i> and all <i>Purchase Orders</i> to obtain products or services from <i>Suppliers</i> . <i>Purchase Orders</i> are initiated during the Project Plan Execution activity of the PM process.	<i>List of Products or Services to be acquired [initiated]</i> <i>Purchase Orders [initiated]</i>	<i>List of Products or Services to be acquired [approved]</i> <i>Purchase Orders [approved]</i>
PJMs	BM.05.05 Establish and maintain a <i>Project Repository</i> .	<i>Security and Intellectual Property Protection Plan [approved]</i>	<i>Project Repository [established]</i>

6.7.2.6 BM.06 Conduct periodic Project Assessment and Control Projects (BM.02, BM.06, BM.07)

The Conduct periodic Project Assessment and Control Projects activity evaluates the performance of all the plans against documented commitments. The information items needed to perform this activity are the outputs of the Project Assessment and Control activity of the PM process.

The activity provides:

- Progress Status Records;
- Correction Register(s); and
- Change Request(s).

The task list for BM.06 Conduct Periodic Project Assessment and Control Projects is given in [Table 11](#).

Table 11 — BM.06 task list

Role	Task List	Input Work products	Output Work products
BSM PJMs	BM.06.01 Evaluate all projects progress with respect to the <i>Project Plans</i> , comparing: — actual <i>Tasks</i> against planned <i>Tasks</i> — actual results against established project <i>Objectives</i> — actual resource allocation against planned <i>Resources</i> — actual cost against budget estimates — actual time against planned schedule — actual risk against previously identified NOTE The information needed to perform this task is produced in the Project Assessment and Control activity of the PM process.	<i>Project Plans [approved]</i> <i>Progress Status Records</i> <i>Measurement Records</i>	<i>Progress Status Records [evaluated]</i>
BSM PJMs	BM.06.02 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 Records [evaluated]</i>	<i>Correction Registers</i>
BSM PJMs	BM.06.03 Identify changes to requirements and/or <i>Project Plans</i> . To address major deviations, potential risks or problems concerning the accomplishment of the plan, document them in <i>Change Requests</i> and track them to closure.	<i>Progress Status Records [evaluated]</i>	<i>Change Request(s) [initiated]</i>
BSM	BM.06.04 Record and report the status of the items and modifications.	<i>Configuration Management strategy</i> <i>Configuration Management Records</i>	<i>Configuration Management Records [updated]</i>

6.7.2.7 BM.07 Close Projects and Conduct Lesson Learned Reviews (BM.01, BM.02, BM.04,)

The Close Project and Conduct Lesson Learned Reviews activity formalises, at the organisational level, the project closure activity of the PM process, by delivering the products to Customers. Organisational Lesson Learned reviews are performed using the output of the Project Closure activity of the PM process. Process Improvement opportunities are document and implemented and reusable components are identified and stored in the Organisational Repository. Business objectives are updated if necessary.

The activity provides:

- Acceptance Record;
- Delivery Instructions signed by Customer;
- Software Configuration;
- Organisational Lesson learned;
- Process Improvement Record;
- Reusable Components;
- Updated Organisational Repository; and

— Updated Business Objectives.

The task list for BM.07 Close Projects and Conduct Lesson Learned Reviews is given in [Table 12](#).

Table 12 — BM.07 task list

Role	Task List	Input Work products	Output Work products
BSM PJMs CUS	BM.07.01 Formalize the completion of the projects according to the <i>Delivery Instructions</i> . As established in the <i>Project Plans</i> , providing acceptance support and getting the <i>Acceptance Record</i> signed from the Customers.	<i>Agreements [approved]</i> <i>Acceptance Records [initiated]</i> <i>Delivery Instructions [signed by Customer]</i> <i>Software Configuration [delivered internally]</i>	<i>Acceptance Records [signed]</i> <i>Delivery Instructions [signed by Customer]</i> <i>Software Configuration [accepted]</i>
BSM PJMs	BM.07.02 Conduct a lesson learned review of all projects and document them using the <i>Organisational Lesson Learned Record</i> template.	<i>Agreements [approved]</i> <i>Project Plans</i> <i>Meeting Records</i> <i>Project Lesson Learned Record</i> <i>Measurement Records</i> <i>Organizational Lesson Learned Record template</i>	<i>Organisational Lesson Learned Record [initiated]</i>
BSM PJMs	BM.07.03 Analyse lesson learned to identify improvements to processes and work products, and prioritize them using the <i>Process Improvement Record</i> template.	<i>Organisational Lesson Learned Record [initiated]</i> <i>Process Improvement Record template</i>	<i>Process Improvement Record [published]</i>
BSM PJMs	BM.07.04 Review and update <i>Business Objectives</i> .	<i>Business Objectives [approved]</i> <i>Organisational Lesson Learned Record [initiated]</i>	<i>Business Objectives [updated]</i>
BSM PJMs	BM.07.05 Implement the selected improvements documented in the <i>Process Improvement Record</i> .	<i>Process Improvement Record [published]</i>	<i>Process Improvement Record [implemented]</i>
BSM PJMs	BM.07.06 Identify <i>Reusable Components</i> from <i>Project Repositories</i> and store them in the <i>Organisational Repository</i> .	<i>Software Configuration</i> <i>Project Repositories</i>	<i>Organisational Repository [updated]</i> — Reusable Components
BSM PJMs	BM.07.07 Update <i>Organisational Repository</i> .	<i>Software Configuration [accepted]</i> <i>Project Repositories</i>	<i>Organisational Repository [updated]</i>

6.7.3 BM incorporation to the *Organisational Repository*

The list of work products to be saved in *Organisational Repository* is given in [Table 13](#).

Table 13 — BM repository work products

Work product
<i>Business Objectives</i>
<i>Project Opportunities</i>
<i>Proposal</i>
<i>Project Plan</i>
<i>Agreement</i>
<i>Acceptance Record</i>
<i>Security and Intellectual Property Protection Plan</i>
<i>Organisational Lesson Learned Record</i>
<i>Process Improvement Record</i>
<i>Meeting Record</i>
<i>Purchase Order</i>
<i>Reusable Components</i>
<i>Resource Request</i>
<i>Human Resource record</i>

7 Project Management (PM) process

7.1 PM purpose

The purpose of the Project Management process is to establish and carry out in a systematic way the *Tasks* of the software implementation project, which allows complying with the project's *Objectives* in the expected quality, time and costs.

The PM process, of the Intermediate profile, has been complemented with additional objectives, tasks and work products in a context where a VSE is conducting more than one project with more than one work team. In addition, new tasks have been added, to the PM process of the Intermediate profile, to improve the management of projects.

The following notation is used to highlight the addition/deletion/modification to the Intermediate profile:

- added text is underlined; and
- deleted/modified text is struck out as follows: ~~the text is struck out~~.

This document is intended to be used by the VSE to establish processes to implement any development approach or methodology including, e.g. agile, evolutionary, incremental, test driven development, etc. based on the VSE organization or project needs.

7.2 PM objectives

PM.01. The *Project Plan* for the execution of the project is developed according to the *Agreement* and reviewed and accepted by the Customer. The *Tasks* and *Resources* necessary to complete the work are sized and estimated.

PM.02. Progress of the project is monitored against the *Project Plan* and recorded in the *Progress Status Record*. Corrections to remediate problems and deviations from the plan are taken when project targets are not achieved. Closure of the project is performed to get the Customer acceptance documented in the *Acceptance Record*. The Software is disposed according to the Agreement.

PM.03. The *Change Requests* are addressed through their reception and analysis. Changes to software requirements are evaluated for cost, schedule and technical impact.

PM.04. Review meetings with the Work Team and the Customer are held. Reviews of work products of activities are conducted. Agreements are registered and tracked.

PM.05. *Risks* are identified as they develop and during the progress of the project.

PM.06. A software *Configuration Management Strategy* is developed. Items of *Software Configuration* are identified, defined and baselined. Modifications and releases of the items are controlled and made available to the Customer and Work Team. The status of the items and modifications are recorded and reported; The completeness and consistency of the items is ensured; The storage, handling and delivery of the items are controlled.

PM.07. Software Quality Assurance is performed to provide assurance that work products and processes comply with the *Project Plan* and *Requirements Specification*. Lessons learned are captured.

7.3 PM input work products

[Table 14](#) provides a list of the input work products.

Table 14 — PM input work products

Name	Source
<i>Agreement</i>	Customer
<i>Software Configuration</i>	Software Implementation
<i>Change Request</i>	Customer Software Implementation

7.4 PM output work products

[Table 15](#) provides a list of the output work products.

Table 15 — PM output work products

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

7.5 PM internal work products

[Table 16](#) provides a list of the internal work products.

Table 16 — PM internal work products

Name
<i>Change Request</i>
<i>Correction Register</i>
<i>Meeting Record</i>
<i>Project Lesson Learned Record</i>
<i>Measurement Record</i>

Table 16 (continued)

Name
Verification Results
Progress Status Record
Project Repository Backup

7.6 PM roles involved

Table 17 provides a list of the roles involved in the PM process.

Table 17 — PM roles involved

Role	Abbreviation
Customer	CUS
Project Manager	PJM
Technical Leader	TL
Work Team	WT

7.7 PM Process Description

7.7.1 PM Diagram

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

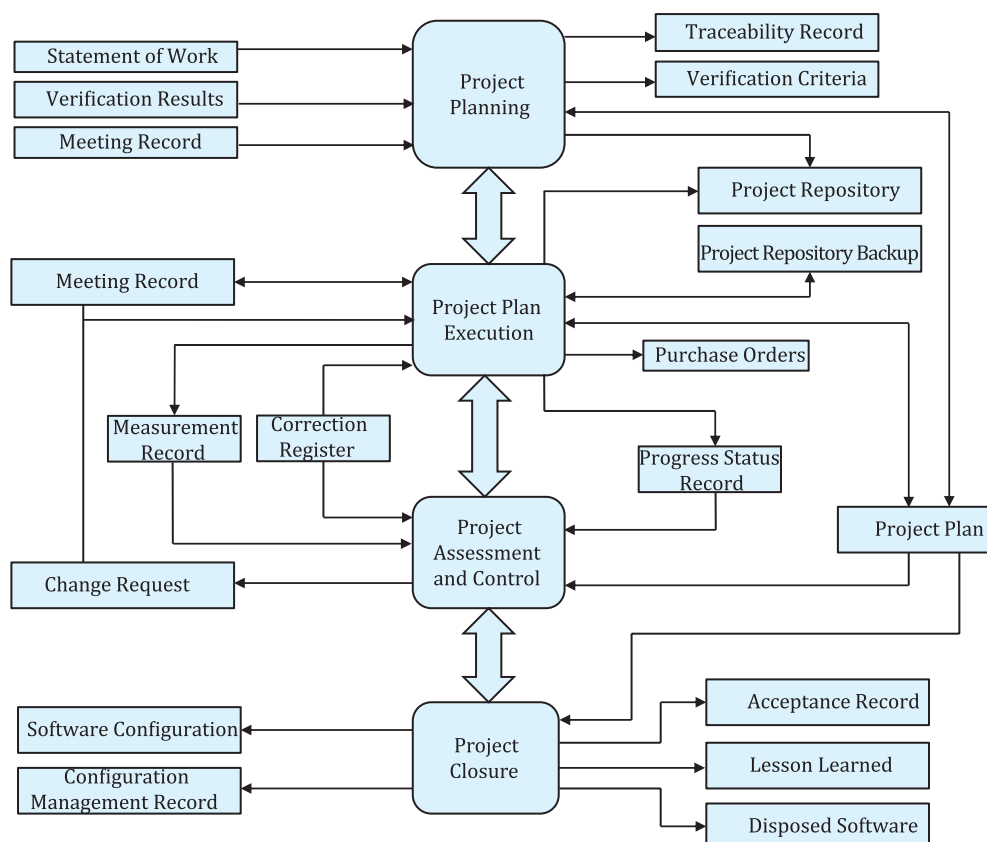


Figure 4 — Project Management process diagram

7.7.2 PM activities

The Project Management Process has the following activities:

- PM.01 Project Planning;
- PM.02 Project Plan Execution;
- PM.03 Project Assessment and Control; and
- PM.04 Project Closure.

7.7.2.1 PM.1 Project Planning, (PM.01, PM.05, PM.06, PM.07)

The Project Planning activity documents the planning details needed to manage the project. The activity provides:

- Reviewed *Agreement* and the *Tasks* needed to provide the ~~contract~~ *Agreement Deliverables* and to satisfy Customer requirements.
- Project lifecycle, including task dependencies and duration.
- Project quality assurance strategy through verification and validation of Work products/*Deliverables*, Customer and Work Team reviews.
- Work Team and Customer roles and responsibilities.
- Project *Resources* and training needs.
- Estimates of effort, cost and schedule.
- Identified project risks.
- Project version control and baseline strategy.
- *Project Repository* to store, handle and deliver controlled work product and document versions and baselines.
- The task list for PM.01 Project planning is given in [Table 18](#).

Table 18 — PM.01 task list

Role	Task List	Input Work products	Output Work products
PJM TL	PM.01.01 Review the <i>Agreement</i> .	<i>Agreement</i>	<i>Agreement [reviewed]</i>
PJM CUS	PM.01.02 Define with the Customer the <i>Delivery Instructions</i> of each one of the <i>Deliverables</i> , the <i>standards and format</i> specified in the <i>Agreement</i> .	<i>Agreement [reviewed]</i>	<i>Project Plan</i> — <i>Delivery Instructions</i>
PJM CUS	PM.01.03 Define a <i>Software Disposal Approach</i> if <u>required in the <i>Agreement</i></u> . (Conditional) <u>NOTE If a software has to be disposed, it is done by using the Disposal Management process of these guidelines.</u>	<i>Agreement [reviewed]</i>	<i>Project Plan</i> — <i>Software Disposal Approach</i>

Table 18 (continued)

Role	Task List	Input Work products	Output Work products
PJM CUS	PM.01.04 Define a <i>Software Transition Approach</i> if required in the <i>Agreement</i> . * (Conditional) <u>NOTE</u> If a software has to be installed, it is done by using the Software Disposal and Transition process of these guidelines.	<u>Agreement [reviewed]</u>	<u>Project Plan</u> <u>Software Transition Approach</u>
PJM TL	PM.01.05 Document the requirements of the <i>Agreement</i> in the <i>Traceability Record</i> .	<u>Agreement [reviewed]</u> <u>Traceability Record template</u>	<u>Traceability Record [initiated]</u>
PJM TL	PM.01.06 Identify the specific <i>Tasks</i> to be performed in order to produce the <i>Deliverables</i> and their <i>Software Components</i> identified in the <i>Agreement</i> . Include <i>Tasks</i> in the SI process along with verification, validation and reviews with Customer and Work Team <i>Tasks</i> to ensure the quality of work products. Determine the type of review and the effort required which will be conducted for each type of work products developed (e.g. desk-check, walk-through, inspection). Criteria for verification of all required software work products is identified. Identify the <i>Tasks</i> to perform the <i>Delivery Instructions</i> . Document the <i>Tasks</i> . Include task to perform a lesson learned review (i.e. post-mortem) at the end of the project.	<u>Agreement [reviewed]</u>	<u>Project Plan</u> — <i>Tasks</i> — <i>Verification criteria</i>
PJM TL	PM.01.07 Establish the <i>Estimated Duration</i> to perform each task.	<u>Project Plan</u> — <i>Tasks</i>	<u>Project Plan</u> — <i>Estimated Duration</i>
PJM TL	PM.01.08 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.	<u>Agreement</u>	<u>Project Plan</u> — <i>Resources</i>
PJM TL	PM.01.09 Establish the <i>Composition of Work Team</i> assigning roles and responsibilities according to the <i>Resources</i> .	<u>Project Plan</u> — <i>Resources</i>	<u>Project Plan</u> — <i>Composition of Work Team</i>
PJM TL	PM.01.10 Assign estimated start and completion dates to each one of the <i>Tasks</i> . In order to create the <i>Schedule of the Project Tasks</i> taking into account the assigned <i>Resources</i> , sequence and dependency of the <i>Tasks</i> .	<u>Project Plan</u> — <i>Tasks</i> — <i>Estimated Duration</i> — <i>Composition of Work Team</i>	<u>Project Plan</u> — <i>Schedule of the Project Tasks</i>
PJM	PM.01.11 Calculate and document the project <i>Estimated Effort and Cost</i> .	<u>Project Plan</u> — <i>Schedule of the Project Tasks</i> — <i>Resources</i>	<u>Project Plan</u> — <i>Estimated Effort and Cost</i>

Table 18 (continued)

Role	Task List	Input Work products	Output Work products
PJM TL	PM.01.12 Identify, analyse, prioritize, mitigate and document the risks which may affect the project <u>and the security risks to the project specific information collected and stored (e.g. intellectual property).</u>	<i>All elements previously defined</i>	<i>Project Plan</i> — <i>Identification of Project Risks</i>
PJM TL	PM.01.13 Define an appropriate set of measures <u>The Goal-Question-Metric approach could be used to select a set of measures that would help a VSE to evaluate its progress towards defined goals (e.g. number defects, effort spent to detect/correct defects).</u> <u>The project measures should be stored in the Project Repository.</u>	<i>Agreement</i>	<i>Project Plan</i> — <i>Identification of Project measures</i>
PJM TL	PM.01.14 Define and plan the collection and analysis of an appropriate set of project's measures.	<i>All elements previously defined</i>	<i>Project Plan</i> — <i>Identification of Project measures and the documentation of the collection and analysis procedure</i>
PJM TL	PM.01.15 Document the <i>Configuration Management Strategy</i> in the <i>Project Plan</i> .		<i>Project Plan</i> — <i>Configuration management Strategy</i>
PJM	PM.01.16 Generate the <i>Project Plan</i> integrating the elements previously identified and documented.	<i>All elements previously defined</i>	<i>Project Plan</i> — <i>Tasks</i> — <i>Estimated Duration</i> — <i>Resources</i> — <i>Composition of Work Team</i> — <i>Schedule of the Project Task</i> — <i>Estimated Effort and Cost</i> — <i>Identification of Project Risks</i> — <i>Version Control Strategy</i> — <i>Delivery Instructions</i>
PM TL	PM.01.17 Include Work Product Description, Scope, Objectives and Deliverables in the <i>Project Plan</i>	<i>Agreement</i> — <i>Work product Description</i> — <i>Scope</i> — <i>Objectives</i> — <i>Deliverables</i>	<i>Project Plan</i> — <i>Work product Description</i> — <i>Scope</i> — <i>Objectives</i> — <i>Deliverables</i>

Table 18 (continued)

Role	Task List	Input Work products	Output Work products
PJM TL	PM.01.18 Select an appropriate type of review for the set of Work Products selected to be reviewed (e.g. plan, specification, architecture, code) <u>NOTE ISO/IEC 20246 could be used to help in the selection of the type of review.</u>	<u>Project Plan</u> — Work product Description — Scope — Objectives — Deliverables	<u>Project Plan</u> — Work product Description — Scope — Objectives — Deliverables <u>Type of review selected for work products</u>
PM TL	PM.01.19 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>
PM BSM	PM.01.20 Develop the <i>Resource Request</i> and obtain approval of <i>Project Plan</i> from BSM.	<i>Project Plan [verified]</i> <i>Resource Request Template</i>	<i>Project Plan [approved]</i> <i>Resource Request [approved]</i>
PM CUS	PM.01.21 Review and accept the <i>Project Plan</i> . Customer reviews and accepts the <i>Project Plan</i> , making sure that the <i>Project Plan</i> elements match with the <i>Agreement</i> .	<i>Project Plan [verified]</i>	<i>Meeting Record</i> <i>Project Plan [accepted]</i>
PJM	PM.01.22 Update, if needed, the <i>Traceability Record</i> .	<u><i>Traceability Record</i></u> <u>[initiated]</u>	<u><i>Traceability Record</i></u> <u>[updated]</u>
PM TL	PM.01.23 Establish the <i>Project Repository</i> using the <i>Configuration Management Strategy</i> . <u>The <i>Project Repository</i> should protect the security of information in order to mitigate the security risks identified.</u>	<i>Configuration management Strategy</i>	<i>Project Repository</i>

7.7.2.2 PM.02 Project Plan Execution (PM.02, PM.03, PM.04, PM.05, PM.07)

The Project Plan Execution activity implements the documented plan on the project. The activity provides:

- *Progress Status Record* of the project updated.
- Analysed and evaluated change requests to the plan impacting cost, schedule and technical requirements.
- Approved changes to the plan.
- Reviews and agreements with the Work Team (WT) and Customer (CUS).
- Back up of the *Project Repository*, and its recovery if necessary.

The task list for PM.02 Project plan execution is given in [Table 19](#).