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Information technology — Software life cycle processes

AMENDMENT 2

Technologies de l'information — Processus du cycle de vie du logiciel

AMENDEMENT 2

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Foreword

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Amendment 2 to ISO/IEC 12207:1995 was prepared by Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software and systems engineering*.

ISO/IEC 12207 was published on 1 August 1995 and is the first International Standard to provide a comprehensive set of life-cycle processes, activities and tasks for software that is part of a larger system, stand-alone software product, and software services. It provides common software process architecture for the acquisition, supply, development, operation and maintenance of software. It also provides the necessary supporting and organizational processes, activities and tasks for managing and improving the processes.

Amendment 1 was published in 2002 to establish a coordinated set of software process information that can be used for process definition and process assessment and improvement. Amendment 1 resolved the granularity issue related to the use of ISO/IEC 12207 for process assessment and provides the process purpose and outcomes to establish a Process Reference Model in accordance with the requirements of ISO/IEC 15504-2. A Process Reference Model provides definitions of processes in a life cycle described in terms of process purpose and outcomes, together with an architecture describing relationships between the processes. A Process Reference Model provides the mechanism whereby externally defined assessment models are related to the assessment framework defined by ISO/IEC 15504.

The use of Amendment 1 for process assessment revealed technical defects and editorial issues in certain processes of the Process Reference Model. These technical defects and editorial issues are documented in Defect Report N2873. The noted defects have impacted the development of the exemplar assessment model ISO/IEC 15504-5. Amendment 2 resolves these deficiencies and provides to the users of the Process Reference Model and to the developers of assessment models an improved basis for their work.

This amendment addresses a number of minor technical and editorial issues in Amendment 1, i.e. ISO/IEC 12207:1995/Amd.1:2002. The amendment contains:

a) Statements of Purpose and Outcomes for several processes identified within the scope of Amendment 1;

b) Corrections to statements of Purpose and Outcomes for several processes, for technical reasons; and

c) Corrections to statements of Purpose and Outcomes for several processes, to correct editorial deficiencies.

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AMENDMENT 2

1 Changes to the Text of ISO/IEC 12207:1995/AMD 1:2002:

1.1 Clause F.1.2 is modified as follows:

F.1.2 Supply Process

Purpose:

The purpose of the *Supply process* is to provide a product or service to the customer that meets the agreed requirements.

Outcomes:

As a result of successful implementation of the *Supply process*:

1. a response to a customer's request is produced;

2. an agreement is established between the customer and the supplier for developing, maintaining, operating, packaging, delivering and installing the product and/or service;

3. a product and/or service that meets the agreed requirements are developed by the supplier;

4. the product and/or service is delivered to the customer in accordance with the agreed requirements; and

5. the product is installed in accordance with the agreed requirements.

The *Supply Process* includes purposes and outcomes for the following sub-processes:

⎯ Supplier tendering;

⎯ Contract agreement;

⎯ Product release;

⎯ Product acceptance support.

F.1.2.1 Supplier tendering

Purpose:

The purpose of *Supplier tendering* is to establish an interface to respond to customer inquiries and requests for proposal, prepare and submit proposals, and confirm assignments through the establishing of a relevant agreement / contract.

Outcomes:

As a result of successful implementation of *Supplier tendering*:

1) a communication interface is established and maintained in order to respond to customer inquiries and requests for proposal;

2) requests for proposal are evaluated according to defined criteria to determine whether or not to submit a proposal;

3) the need to undertake preliminary surveys or feasibility studies is determined;

4) suitable resources are identified to perform the proposed work;

5) a supplier proposal is prepared and submitted in response to the customer request; and

6) formal confirmation of agreement is obtained.

F.1.2.2   Contract agreement

Purpose:

The purpose of *Contract agreement* is to negotiate and approve a contract / agreement that clearly and unambiguously specifies the expectations, responsibilities, work products / deliverables and liabilities of both the supplier(s) and the acquirer.

Outcomes:

As a result of successful implementation of *Contract agreement*:

1) a contract / agreement is negotiated, reviewed, approved and awarded to the supplier(s);

2) mechanisms for monitoring the capability and performance of the supplier(s) and for mitigation of identified risks are reviewed and considered for inclusion in the contract conditions;

3) proposers/tenderers are notified of the result of proposal /tender selection; and

4) formal confirmation of agreement is obtained.

F.1.2.3   Product release

Purpose:

The purpose of *Product release* is to control the availability of a product to the intended customer.

Outcomes:

As a result of the successful implementation of *Product release*:

1) the contents of the product release are determined;

2) the release is assembled from configured items;

3) the release documentation is defined and produced;

4) the release delivery mechanism and media is determined;

5) release approval is effected against defined criteria;

6) the product release is made available to the intended customer; and

7) confirmation of release is obtained.

F.1.2.4   Product acceptance support

Purpose:

The purpose of *Product acceptance support* is to assist the customer to achieve confidence that the product meets requirements.

Outcomes:

As a result of successful implementation of the *Product acceptance support*:

1)   the product is completed and delivered to the customer;

2)   customer acceptance tests and reviews are supported;

3)   the product is put into operation in the customer's environment; and

4)   problems detected during acceptance are identified and communicated to those responsible for resolution.

NOTE   Incremental delivery would be in completed increments.

1.2   Clause F.2.2 is modified as follows:

F.2.2   Configuration Management Process

Purpose:

The purpose of the *Configuration management process* is to establish and maintain the integrity of the work products/items of a process or project and make them available to concerned parties.

Outcomes:

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

1)   a configuration management strategy is developed;

2)   work products/items generated by the process or project are identified, defined and baselined;

3)   modifications and releases of the work products/items are controlled;

4)   modifications and releases are made available to affected parties;

5)   the status of the work products/items and modifications are recorded and reported;

6)   the completeness and consistency of the work products/items is ensured; and

7)   the storage, handling and delivery of the work products/items are controlled.

1.3   Clause F.2.8 is modified as follows:

F.2.8   Problem Resolution Management Process

Purpose:

The purpose of the *Problem resolution management process* is to ensure that all discovered problems are identified, analyzed, managed and controlled to resolution.

Outcomes:

As a result of successful implementation of the *Problem resolution management process*:

1) a problem management strategy is developed;

2) problems are recorded, identified and classified;

3) problems are analyzed and assessed to identify acceptable solution(s);

4) problem resolution is implemented;

5) problems are tracked to closure; and

6) the status of all problems reported is known

NOTE   Problem resolution management may initiate a change request.

1.4   A new Clause F.2.11 is inserted as follows:

F.2.11 Change Request Management Process

Purpose:

The purpose of the *Change request management process* is to ensure that change requests are managed, tracked and controlled.

Outcomes:

As a result of successful implementation of the *Change request management process*:

1) a change management strategy is developed;

2) requests for change are recorded and identified;

3) dependencies and relationships to other change requests are identified;

4) criteria for confirming implementation of change requests are defined;

5) requests for change are approved, prioritized, and resource requirements estimated;

6) changes are initiated on the basis of priority and availability of resources;

7) approved changes are implemented and tracked to closure; and

8) the status of all change requests is known.

1.5   Clause F.3.1.5 is modified as follows:

F.3.1.5   Risk management

Purpose:

The purpose of *Risk management* is to identify, analyze, treat and monitor the risks continuously.

Outcomes:

As a result of successful implementation of *Risk management*:

1) the scope of risk management to be performed is determined;

2)   appropriate risk management strategies are defined and implemented;

3)   risks are identified in project planning as they develop and during the conduct of the project;

4)   risks are analysed in terms of probability and consequences, and the priority in treatment of these risks is determined;

5)   risk measures are defined, applied, and assessed to determine changes in the status of risk and the progress of the treatment activities; and

6)   appropriate treatment is taken to correct or avoid the impact of risk based on its priority, probability, and consequence or other defined risk threshold.

1.6   Clause F.3.2 is modified as follows:

F.3.2   Infrastructure Process

Purpose:

The purpose of the *Infrastructure process* is to maintain a stable and reliable infrastructure that is needed to support the performance of any other process.

Outcomes:

As a result of successful implementation of the *Infrastructure process*:

1)   the requirements for infrastructure to support processes in the organizational unit are defined;

2)   the infrastructure elements are identified and specified;

3)   infrastructure elements are acquired;

4)   the infrastructure elements are implement; and

5)   a stable and reliable infrastructure is maintained.

NOTE   The infrastructure may include hardware, software, methods, tools, techniques, standards, and facilities for development, operation, or maintenance.

1.7   Clause F.3.3.3 is modified as follows:

F.3.3.3   Process improvement

Purpose:

The purpose of *Process improvement* is to continually improve the organization's effectiveness and efficiency through the processes used and maintained aligned with the business need.

Outcomes:

As a result of successful implementation of *Process improvement*:

1)   commitment is established to provide resources to sustain improvement actions;

2)   issues arising from the organization's internal / external environment are identified as improvement opportunities and justified as reasons for change;

3)   analysis of the current status of the existing process is performed, focusing on those processes from which improvement stimuli arise;