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# Information technology — Process assessment — Process capability assessment model for quality management

*Technologies de l'information — Évaluation des processus — Modèle d'évaluation de l'aptitude des processus pour le management de la qualité*

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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 World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

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

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# Introduction

This document provides a Quality Management Process Assessment Model (PAM) for use in performing a conformant assessment of process capability in accordance with the requirements of ISO/IEC 33002. It is structured in accordance with the requirements of ISO/IEC 33004 to reflect processes that enable implementation of ISO 9001. The scale for assessing the extent of achievement of process capability is based on ISO/IEC 33020.

The publication of the revised edition of ISO 9001:2015 has rendered the publication of this document as both timely and appropriate.

An integral part of conducting an assessment is to use a PAM that is constructed for that purpose. A PAM is related to a Process Reference Model (PRM) and is conformant with ISO/IEC 33004. ISO/IEC 33002 identifies the minimum requirements for performing an assessment in order to ensure consistency and repeatability of the ratings. ISO/IEC 33002 addresses the assessment of process and the application of process assessment for improvement and capability determination. Results of conformant process assessments may be compared when the scopes of the assessments are considered to be similar.

The requirements for process assessment defined in ISO/IEC 33002 form a structure which:

a) facilitates self-assessment;

b) provides a basis for use in process improvement and capability determination;

c) takes into account the context in which the assessed process is implemented;

d) produces a process rating;

e) addresses the ability of the process to achieve its purpose;

f) is applicable across all application domains and sizes of organization;

g) may provide an objective benchmark between organizations.

The relationship between ISO/IEC TR 24774, ISO 9001, ISO/IEC 33002, ISO/IEC 33004, ISO/IEC 33020, and this document is shown in Figure 1.


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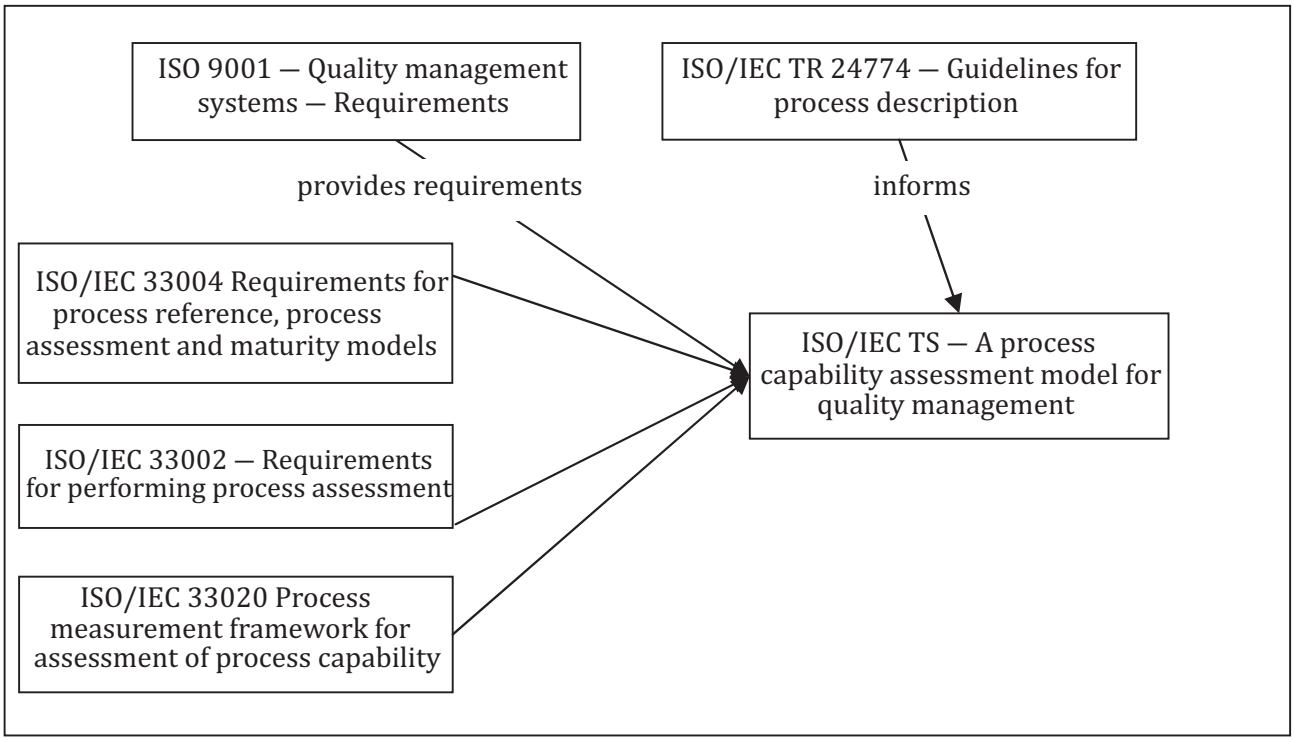



**Figure 1 — Relationships between relevant standards**

Any organization may use processes with additional elements in order to suit it to the environment and circumstances. This PAM contains a set of indicators to be considered when interpreting the intent of its PRM. It provides greater detail to indicate process performance and capability. The indicators may also be used when implementing a process improvement program or to help evaluate and select an assessment model, method, methodology or tools.

As an exemplar, this PAM embodies the core characteristics that could be expected of any PAM consistent with ISO/IEC 33004. Nevertheless, any other PAMs meeting the requirements of ISO/IEC 33004 may be used in a conformant assessment.

This document has a similar structure to ISO/IEC 15504-5 and ISO/IEC 15504–6. It may be used in conjunction with these process assessment models to support joint assessment of quality management processes and system/software life cycle processes.

Within this document:

— Clause 4 provides a detailed description of the structure and key components of a PAM, which includes two dimensions: a process dimension and a capability dimension. Assessment indicators are introduced in this clause.

— Clause 5 addresses the process dimension. The processes are described in the PAM in terms of purpose and outcomes. The PAM includes a set of process performance indicators called base practices for each process. The PAM also defines a second set of indicators of process performance by associating inputs and outputs with each process. Clause 5 is also linked directly to Annex B, which defines the inputs/outputs characteristics.

— Clause 6 addresses the capability dimension. It duplicates the definitions of the capability levels and process attributes from ISO/IEC 33020 and expands each of the nine attributes through the inclusion of a set of generic practices. These generic practices belong to a set of indicators of process capability, in association with generic resource indicators, and generic inputs/outputs indicators. Annex B is also linked directly to Clause 6 as it defines the inputs/outputs characteristics.

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— Annex A provides a statement of conformance of the PAM to the requirements defined in ISO/IEC 33004.

— Annex B provides selected characteristics for typical inputs/outputs to assist the assessor in evaluating the capability level of processes.

— Annex C contains three tables. Table C.1 identifies the base practices linked to requirements; Table C.2 identifies the requirements linked to base practices; and lastly, Table C.3 identifies the base practices not linked to requirements.

— Bibliography contains a list of informative references.


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# Information technology — Process assessment — Process capability assessment model for quality management

## 1 Scope

This document:

— defines an integrated PRM and PAM that meets the requirements of ISO/IEC 33004 and that supports the performance of an assessment by providing indicators for guidance on the interpretation of the process purposes and outcomes and the process attributes as defined in ISO/IEC 33020;

— provides guidance, by example, on the definition, selection and use of assessment indicators.

A PAM comprises a set of indicators of process performance and process capability. The indicators are used as a basis for collecting the objective evidence that enables an assessor to assign ratings. The set of indicators included in this document is not intended to be an all-inclusive set nor is it intended to be applicable in its entirety.

The PAM in this document is directed at assessment sponsors and competent assessors who wish to select a model and associated documented process method for assessment (for either capability determination or process improvement). Additionally, it can be of use to developers of assessment models in the construction of their own model, by providing examples of good service management practices. It can be used by:

a) service providers to assess and improve a Quality Management System (QMS);

b) service providers to demonstrate their capability for the design, development, transition and delivery of services that fulfil Quality Management requirements.

Any PAM meeting the requirements defined in ISO/IEC 33004 concerning models for process assessment may be used for assessment. Different models and methods can be needed to address differing business needs. The assessment model in this document is provided as an assessment model meeting all the requirements expressed in ISO/IEC 33004.

NOTE **Copyright release for the PAM:** Users of this document can freely reproduce the detailed descriptions contained in the assessment model as part of any tool or other material to support the performance of process assessments, so that it can be used for its intended purpose.

## 2 Normative references

There are no normative references in this document.

## 3 Terms and definitions

No terms and definitions are listed in this document.

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 http://www.iso.org/obp

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