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**Information technology — Process  
assessment —**

Part 7:

**Assessment of organizational maturity**

*Technologies de l'information — Évaluation des procédés —*

*Partie 7: Évaluation de maturité d'organisation*

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Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

In exceptional circumstances, the joint technical committee may propose the publication of a Technical Report of one of the following types:

- type 1, when the required support cannot be obtained for the publication of an International Standard, despite repeated efforts;
- type 2, when the subject is still under technical development or where for any other reason there is the future but not immediate possibility of an agreement on an International Standard;
- type 3, when the joint technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example).

Technical Reports of types 1 and 2 are subject to review within three years of publication, to decide whether they can be transformed into International Standards. Technical Reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.

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.

ISO/IEC TR 15504-7, which is a Technical Report type 2, was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software and systems engineering*.

ISO/IEC 15504 consists of the following parts, under the general title *Information technology — Process assessment*:

- *Part 1: Concepts and vocabulary*
- *Part 2: Performing an assessment*
- *Part 3: Guidance on performing an assessment*
- *Part 4: Guidance on use for process improvement and process capability determination*
- *Part 5: An exemplar Process Assessment Model*
- *Part 6: An exemplar system life cycle process assessment model* [Technical Report]
- *Part 7: Assessment of organizational maturity* [Technical Report]

## Introduction

This part of ISO/IEC 15504 defines the conditions for an assessment of organizational maturity; it defines a framework for determining organizational maturity, based upon profiles of process capability derived from process assessment, and defines the conditions under which such assessments are valid. Other parts of this International Standard define and provide guidance on the assessment of process capability.

ISO/IEC 15504-2 sets out the minimum requirements for performing a process assessment that ensure consistency and repeatability of the ratings. The requirements help to ensure that the assessment output is self-consistent and provides evidence to substantiate the ratings and to verify compliance with the requirements.

This part of ISO/IEC 15504 identifies a measurement framework for the assessment of organizational maturity and the requirements for:

- a) constructing Organizational Maturity Models;
- b) performing an assessment of organizational maturity;
- c) verifying conformity of organizational maturity assessments.

The scope of reference for an assessment of organizational maturity is determined by the Organizational Maturity Model employed for the assessment.

As defined in this part of ISO/IEC 15504, organizational maturity is an expression of the extent to which an organization consistently implements processes within a defined scope that contributes to the achievement of its business goals (current or projected). An Organizational Maturity Model is based upon one or more specified Process Assessment Model(s), and addresses the domains and contexts for use of the Process Reference Model(s) from which the Process Assessment Model(s) are derived.

The assessment of organizational maturity is undertaken through the performance of process assessment as specified in ISO/IEC 15504-2. Specific conditions are defined in this part of ISO/IEC 15504 relating to the process scope of the organizational maturity assessment, the organizational scope of the assessment (which has to be specified as representing the elements characterised by the organizational maturity rating), and the data collection strategy (which needs to ensure that the results of the assessment are representative of the organizational scope). On completion of the assessment, the set of process profiles established for the organization determine the rating of the level of organizational maturity based on the framework defined in this part of ISO/IEC 15504, as specified in the relevant Organizational Maturity Model.

This part of ISO/IEC 15504 also contains guidance on implementing the requirements for constructing an Organizational Maturity Model; on performing assessments of organizational maturity; and on the application of organizational maturity ratings for process improvement and capability determination.

This part of ISO/IEC 15504 is published as a Technical Report Type 2, to enable experience in the use of the approach to assessment of organizational maturity to be gained. In future revisions of this International Standard, it is likely that the content of this part will be distributed across the complete document set.

# Information technology — Process assessment —

## Part 7: Assessment of organizational maturity

### 1 Scope

This part of ISO/IEC 15504 addresses the expression of the results of assessment of processes in terms of the overall maturity of an organizational unit, and the application of the results of assessment of organizational maturity for process improvement and capability determination. It defines the conditions under which the results of conformant assessments of process capability determine the expressions of organizational maturity, ensuring that the results are objective, impartial, consistent, repeatable, comparable and representative of the assessed organizational units.

This part of ISO/IEC 15504 provides a structured approach for the assessment of organizational maturity for the following purposes:

- by or on behalf of an organization with the objective of understanding the status of its organizational maturity for process improvement;
- by or on behalf of an organization with the objective of determining the suitability of its organizational maturity for a particular requirement or class of requirements;
- by or on behalf of one organization with the objective of determining the suitability of another organization's processes for a particular contract or class of contracts.

NOTE Copyright release: Users of this part of ISO/IEC 15504 may freely reproduce relevant material as part of any Organizational Maturity Model, or as part of any demonstration of conformance with this International Standard, so that it can be used for its intended purpose.

### 2 Normative references

The following referenced documents are indispensable for the application 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 15504-1:2004, *Information technology — Process assessment — Part 1: Concepts and vocabulary*

ISO/IEC 15504-2:2003, *Information technology — Process assessment — Part 2: Performing an assessment*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 15504-1 and the following apply.

**3.1 Organizational Maturity Model**  
model, derived from one or more specified Process Assessment Model(s), that identifies the process sets associated with each of the levels in the scale of organizational maturity

**3.2 organizational maturity**  
extent to which an organization consistently implements processes within a defined scope that contributes to the achievement of its business goals (current or projected)

NOTE The defined scope is that of the specified Organizational Maturity Model.

**3.3 (organizational) maturity level**  
point on the ordinal scale of organizational maturity that characterises the maturity of the organization in the scope of the organizational maturity model used; each level builds on the maturity of the level below

NOTE The organizational maturity level is determined from the organization's set of Process Profiles.

**3.4 basic process set**  
set of processes that ensure the achievement of maturity level 1

NOTE A basic process set will include a minimum set of processes, together with additional and optional processes determined by the organizational context for the assessment.

**3.5 extended process set**  
set of processes specific to a maturity level higher than maturity level 1 that ensures the achievement of the relevant process attributes

NOTE An extended process set will include a minimum set of processes, together with additional and optional processes determined by the organizational context for the assessment.

**3.6 process instance**  
single specific and identifiable implementation of a process

**3.7 assessment body**  
body that performs an assessment

NOTE 1 A body may be an organization, or part of an organization.

NOTE 2 Adapted from ISO/IEC 17020:1998.

## 4 A measurement framework for organizational maturity

### 4.1 Introduction

This clause of ISO/IEC 15504-7 defines a measurement framework for the assessment of organizational maturity. Organizational maturity is defined on a six point ordinal scale that enables maturity to be assessed from the bottom of the scale, Level 0 Organization - the Immature Organization, through to the top end of the scale, Level 5 Organization - the Innovating Organization. The scale represents the extent to which the organization has explicitly and consistently performed, managed and established its processes with predicable performance and demonstrated the ability to change and adapt the performance of the processes fundamental to achieving the organization's business goals.



The scale for organizational maturity retains the semantic intent of the process capability levels that are defined in ISO/IEC 15504-2. The scale for process capability characterises the ability of a process to meet current or projected business goals; the scale of organizational maturity characterises the extent to which an organization consistently implements sets of processes within a defined scope that contribute to the achievement of its business goals. Thus, the two scales, while consistent, characterise different attributes of separate entities – the process and the organization. The measurement framework provides a schema for use in characterising the maturity of an organization with respect to specified Process Assessment Model(s).

Within this measurement framework, each level of organizational maturity is characterised by the demonstration of achievement of specified levels of process capability in process sets drawn from the specified Process Assessment Model(s).

Processes can be categorized into 5 process sets based on their contributions to the business goals of the organization. The set of fundamental processes that support the business is called the basic process set. Each organizational maturity level beyond level 1 maturity is characterized by the implementation, at an appropriate level of process capability, of a further set of processes that drive the achievement of the capabilities relevant to each maturity level. These are called extended process sets.

## 4.2 A scale for organizational maturity

Organizational maturity is expressed on a scale from maturity level 0 through maturity level 5 as follows.

### 4.2.1 Level 0 Organization – Immature

The organization does not demonstrate effective implementation of its processes that are fundamental to support the organization's business.

At least one process in the basic process set is assessed at capability level 0.

### 4.2.2 Level 1 Organization – Basic

The organization demonstrates achievement of the purpose of the processes that are fundamental to support the organization's business.

As a result of achieving this level of maturity, the organization:

- a) implements the processes required to support the organization's business;
- b) performs sets of activities and tasks that achieve the purposes of these processes.

All processes in the basic process set are assessed at capability level 1 or higher.

### 4.2.3 Level 2 Organization – Managed

The organization demonstrates management of the processes that are fundamental to support the organization's business.

As a result of achieving this level of maturity, the organization:

- a) establishes plans for the performance of the processes that are fundamental to support the organization's business;
- b) acts to ensure effective communication regarding the performance of the processes, through clear assignment of responsibilities and authorities to involved parties;
- c) allocates adequate resources and information to ensure implementation of the plans;
- d) monitors performance of the processes against plans in the individual instances;

- e) takes action to address deviation from planned performance of the process;
- f) identifies requirements for the management of work products developed by the processes;
- g) takes action through appropriate reviews and control mechanisms to ensure that the requirements for work product management are satisfied.

All processes in the basic process set are assessed at capability level 2 or higher.

The extended process set for maturity level 2 incorporates additional processes that ensure management of process performance and work product integrity. The processes in the extended process set are assessed at capability level 2 or higher.

#### 4.2.4 Level 3 Organization – Established

The organization demonstrates effective definition and deployment of the processes that are fundamental to support the organization's business.

As a result of achieving this level of maturity, the organization:

- a) establishes standard process descriptions covering all of the basic and extended sets of processes employed on a routine basis in the organization;
- b) ensures that individual implementations of the processes are performed as defined processes with appropriately tailored standard processes;
- c) collects and analyses data and information from the performance of the defined processes and stores this data for use across the organization;
- d) uses the collected data and information to improve both the standard and defined processes.

All processes in the basic process set are assessed at capability level 3 or higher.

The extended process set for maturity level 3 incorporates additional processes that ensure that processes are established and deployed using a defined process that is capable of achieving its process outcomes. The processes in the extended process set are assessed at capability level 3 or higher.

#### 4.2.5 Level 4 Organization – Predictable

The organization demonstrates a quantitative understanding of relevant processes that are fundamental to support the organization's business goals, in order to establish consistent and predictable performance.

As a result of achieving this level of maturity, the organization:

- a) establishes quantitative objectives for process performance, based upon business goals;
- b) selects processes for process performance analyses, covering at a minimum the basic process set, on the basis of their relevance and significance to the achievement of business goals;
- c) employs effective measurement to collect, store and analyse data on the performance of the selected processes;
- d) identifies special causes of variation in the performance of the selected processes and takes appropriate corrective and preventive action to address them;
- e) establishes stable, capable and predictable performance of the selected processes within defined control limits.

At least one of the processes in the basic process set, selected on the basis of their relevance and significance to support the organization's business goals, is assessed at capability level 4 or higher.

The extended process set for maturity level 4 incorporates an additional process that supports the achievement of a quantitative understanding of the performance of relevant processes in the overall process profile of the organization. The processes in the extended process set are assessed at capability level 3 or higher; one or more of the processes in the extended process set may be assessed at capability level 4 or higher.

#### 4.2.6 Level 5 Organization – Innovating

The organization demonstrates the ability to change and adapt the performance of the processes that are fundamental to support the organization's business goals in a systematically planned and predictable manner.

As a result of achieving this level of maturity, the organization:

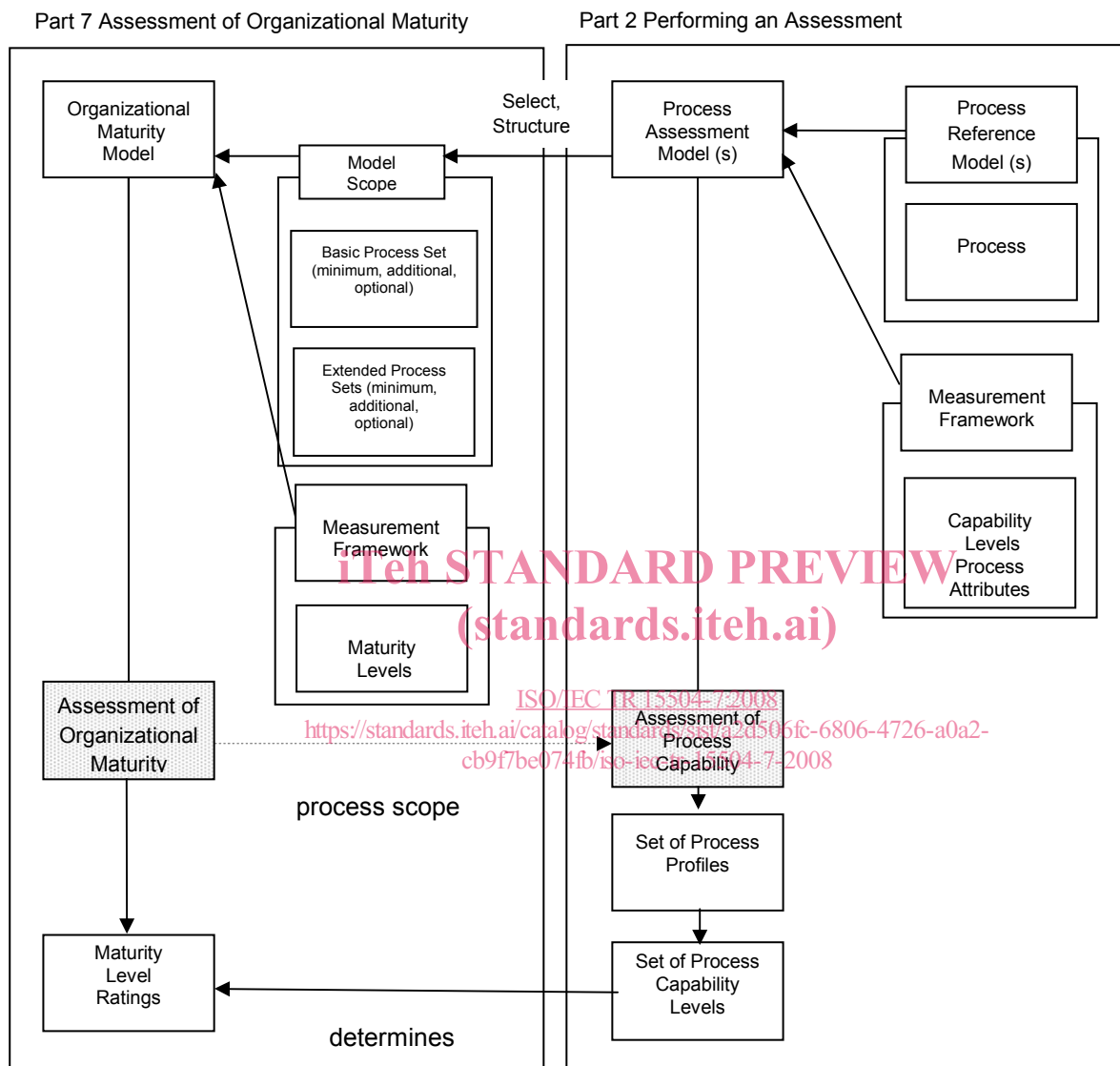
- a) identifies common causes of variation in process performance, based on results of process performance analysis, and identifies candidate improvements to address these, in the light of the business goals;
- b) identifies innovations with the potential to improve process performance and business success;
- c) identifies opportunities for piloting potential innovative and incremental improvements with control of associated risk;
- d) collects and analyses data from the pilot implementations, and uses the results of analysis to select improvements for organizational deployment based on their impact on process performance and business success;
- e) deploys the improvements, monitors performance of the improved processes and compares the results of improvement to expected values. [ISO/IEC TR 15504-7:2008](https://standards.iteh.ai/catalog/standards/sist/a2d506fc-6806-4726-a0a2-6b1f0c74e1e4/iso-iec-15504-7-2008)

At least one of the processes in the basic process set, selected on the basis of their relevance and significance to support the organization's business goals, is assessed at capability level 5.

The extended process set for maturity level 5 incorporates an additional process that supports the continuous and predictable improvement of process performance. The processes in the extended process set are assessed at capability level 3 or higher; one or more of the processes in the extended process set may be assessed at capability level 5.

### 4.3 Architecture of an Organizational Maturity Model

#### 4.3.1 Relationship between assessment of process capability and determination of organizational maturity



**Figure 1 — Relationship between assessment of process capability and derivation of organization maturity**

Figure 1 shows the relationship between the Organizational Maturity Model and the specified Process Assessment Model(s) when an assessment of organizational maturity is conducted. The key elements are the defined components of the relevant Process Reference Model(s) and the measurement frameworks, shown in the Figure as nested boxes. These components are used to construct models supporting the assessment of process capability and organizational maturity. The definition of the Organizational Maturity Model scope and the selection of the basic and extended process sets are made in the context of the Organizational Maturity Model. Once the assessment has been planned employing an Organizational Maturity Model based upon one or more conformant Process Assessment Model(s), an assessment of process capability is performed using the specified Process Assessment Model(s) to obtain the set of process profiles. The process capability levels, derived from the process profiles, determine the organizational maturity level rating according to the rules in clause 4.4.

#### 4.3.2 Rules for deriving maturity levels from capability levels

A rating of organizational maturity shall be derived from a set of process profiles in the following manner:

- a) An assessment of process capability, compliant to the requirements of ISO/IEC 15504-2 and meeting the requirements of Clause 5 of this part of ISO/IEC 15504 shall be conducted.
- b) The process scope of the assessment shall embrace at minimum all of the processes in the Basic and extended process sets defined in the selected Organizational Maturity Model for the maturity level to be assessed.
- c) All process attributes up to and including the highest relevant capability level shall be rated for all processes in the scope of the assessment.
- d) Process capability level ratings shall be derived for all processes in the scope of the assessment according to Clause 5.8 of ISO/IEC 15504-2.
- e) The maturity level achieved by an organization shall be determined from the set of process capability level ratings according to the following rules:
  - 1) To achieve maturity level 1, all processes assigned to maturity level 1 shall achieve process capability level 1 or higher.
  - 2) To achieve maturity level 2, all processes assigned to maturity level 1 and 2 shall achieve process capability level 2 or higher.
  - 3) To achieve maturity level 3, all processes assigned to maturity levels 1, 2 and 3 shall achieve process capability level 3 or higher.
  - 4) To achieve maturity level 4, all processes assigned to maturity levels 1, 2, 3, and 4 shall achieve process capability level 3 or higher. One or more of the processes in the basic process set shall achieve process capability level 4 or higher.
  - 5) To achieve maturity level 5, all processes shall achieve process capability level 3 or higher. One or more of the processes in the basic process set shall achieve process capability level 5.