TECHNICAL SPECIFICATION

ISO/IEC TS 33074

First edition
2020-05

Information technology — Process assessment — Process capability assessment model for service management

Technologies de l'information — Evaluation des processus — Modèle d'évaluation de la capabilité d'un processus pour le management des services

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ISO/IEC TS 33074:2020
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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.

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) or the IEC list of patent declarations received (see http://patents.iec.ch).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of 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 www.iso.org/iso/foreword.html.

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

This first edition cancels and replaces ISO/IEC TS 15504-8:2012, which has been technically revised.

The main changes compared to the previous edition are as follows:

— all processes and their base practices are changed to reflect the ISO/IEC TS 33054 processes;

— all process related information products and their descriptions are revised;

— this process assessment model includes a process quality attribute of process performance and can be used with other models of process quality, for instance capability as described in ISO/IEC 33020.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document provides a service management process assessment model for use in performing a conformity 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 associated with ISO/IEC 20000-1. The scale for assessing the extent of achievement of process capability is based on ISO/IEC 33020.

This document provides a framework of reference for the capability assessment of processes that support the domain of service management.

An integral part of conducting an assessment is to use a process assessment model that is constructed for that purpose. A process assessment model is related to a process reference model 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/IEC 20000-1, ISO/IEC 33002, ISO/IEC 33004, ISO/IEC 33020, ISO/IEC TS 33054, and this document is shown in Figure 1.
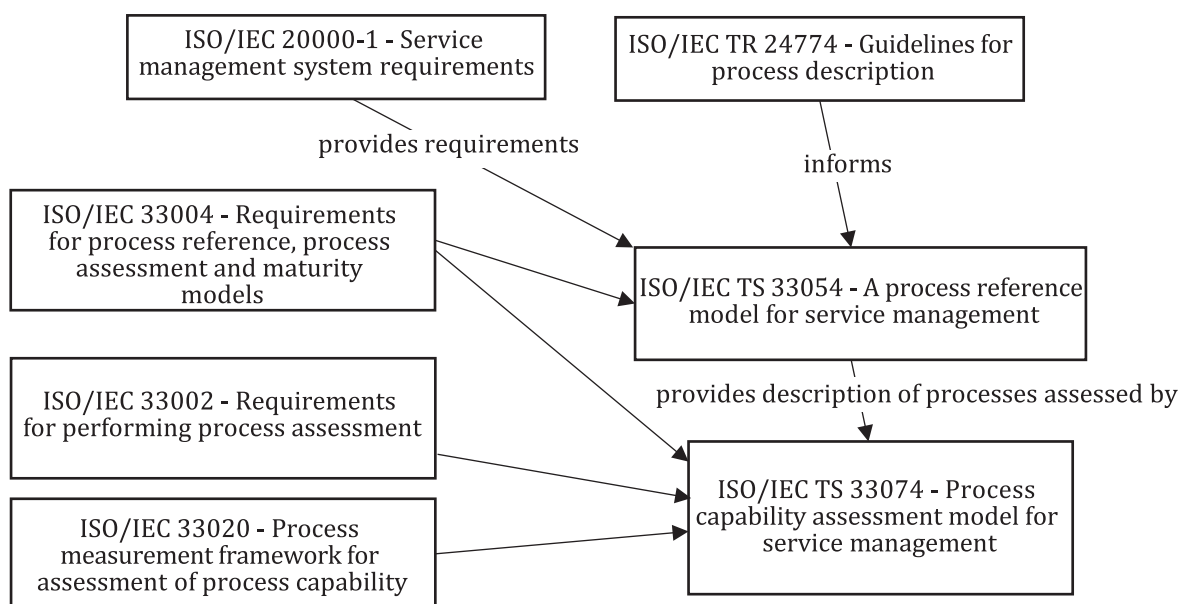

Figure 1 — Relationships between relevant standards

Any organization may use processes with additional elements in order to suit it to the environment and circumstances. This process assessment model contains a set of indicators to be considered when interpreting the intent of its process reference model. 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.

This process assessment model embodies the core characteristics that could be expected of any process assessment model consistent with ISO/IEC 33004. Nevertheless, any other process assessment models meeting the requirements of ISO/IEC 33004 may be used in a conformity assessment.

This document has a similar structure to ISO/IEC TS 33072 and ISO/IEC TS 33073. It may be used in conjunction with these process assessment models to support joint assessment of service management processes, information security management, and quality management processes

Within this document:

— Clause 4 provides a detailed description of the structure and key components of a process assessment model, 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 process assessment model in terms of purpose and outcomes. The process assessment model includes a set of process performance indicators called base practices for each process. The process assessment model 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.

— Annex A provides a statement of conformance of the process assessment model 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.

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Information technology — Process assessment — Process capability assessment model for service management

1 Scope

This document:

— defines a process assessment model that relies on the process reference model published as ISO/IEC TS 33054 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 process assessment model 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.

The process assessment model 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 service management system (SMS);

b)   service providers to demonstrate their capability for the planning, design, development, transition and delivery of services that meet agreed service management requirements.

Any process assessment model meeting the requirements defined in ISO/IEC 33004 concerning models for process assessment can be used for assessment. Different models and methods can be needed to address differing business needs. The assessment model in ISO/IEC TS 33074 is provided as an assessment model meeting all the requirements expressed in ISO/IEC 33004.

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 20000-10, *Information technology — Service management — Part 10: Concepts and vocabulary*

ISO/IEC 33001, *Information technology — Process assessment — Concepts and terminology*

ISO/IEC TS 33054, *Information technology — Process Assessment — Process reference model for service management*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 33001 and ISO/IEC 20000-10 apply.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Overview of the process assessment model

4.1 General

ISO/IEC TS 33074 provides a process assessment model that includes examples of assessment indicators.

The process reference model defined in this document, associated with the process attributes defined in ISO/IEC 33020, establish a process assessment model used as a common basis for performing assessments of service management system process capability, allowing for the reporting of results using a common rating scale. The process reference model shall be in accordance with ISO/IEC TS 33054.

This process assessment model is a two-dimensional model of the process quality characteristic of process capability. In one dimension, the process dimension, the processes are defined. In the other dimension, the capability dimension, a set of process attributes grouped into capability levels is defined. The process attributes provide the measurable features of the process quality characteristic of process capability.

CAPABILITY dimension

ISO/IEC 33020

Level **5** : **Innovating (2 attributes)**

Level **4** : **Predictable (2 attributes)**

Level **3** : **Established (2 attributes)**

Level **2** : **Managed (2 attributes)**

Level **1** : **Performed (1 attribute)**

Level **0** : **Incomplete**

Process reference model

ISO/IEC TS 33054

Common processes

Processes

Organizational processes

Processes

PROCESS dimension

Technical processes
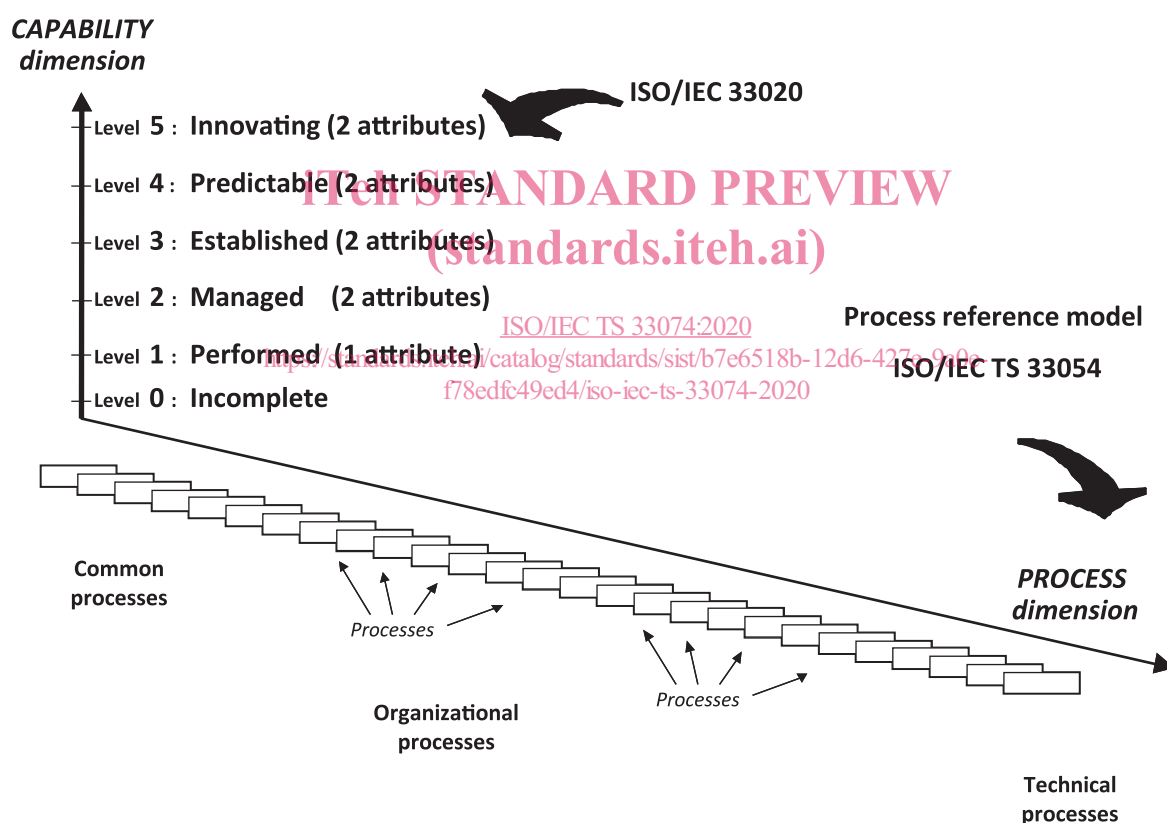
Figure 2 — Relationship between the process assessment model and its inputs

Figure 2 shows the relationship between the general structure of the process assessment model and ISO/IEC 33020.

A process reference model conformant with the requirements defined in ISO/IEC 33004 and a capability dimension defined in ISO/IEC 33020 cannot be used alone as the basis for conducting reliable and consistent assessments of process capability since the level of detail provided is not sufficient. The descriptions of process purpose and outcomes in a process reference model, and the process attribute definitions in ISO/IEC 33020, need to be supported with a comprehensive set of indicators of process performance and process capability that are used for assessment performance.

The process assessment model defined in this document is conformant with the ISO/IEC 33004 requirements for a process assessment model, and can be used as the basis for conducting an assessment of service management process capability.

In order to meet the process assessment model requirements of ISO/IEC 33004, a documented process supporting other requirements of ISO/IEC 33002 is also required. This need may be met, for example, by the adoption of a supporting method for conducting assessments.

Users of this document may 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.

4.2 Structure of the process assessment model

4.2.1 General

This subclause describes the detailed structure of the process assessment model and its key components.

This process assessment model expands upon the process reference model by including a defined set of assessment indicators. Assessment indicators comprise indicators of process performance and process capability and are defined to support an assessor's judgment of the performance and capability of an implemented process.

Clause 5, together with the associated Annex B, describes the components of the process dimension, and Clause 6 describes the components of the capability dimension. Annex A provides a statement of conformance of the process assessment model to the requirements defined in ISO/IEC 33004.

Refer to ISO/IEC 33004 for the requirements for processes included in a process reference model.

4.2.2 Processes

Figure 3 shows the processes included in the process dimension of the process assessment model for service management.
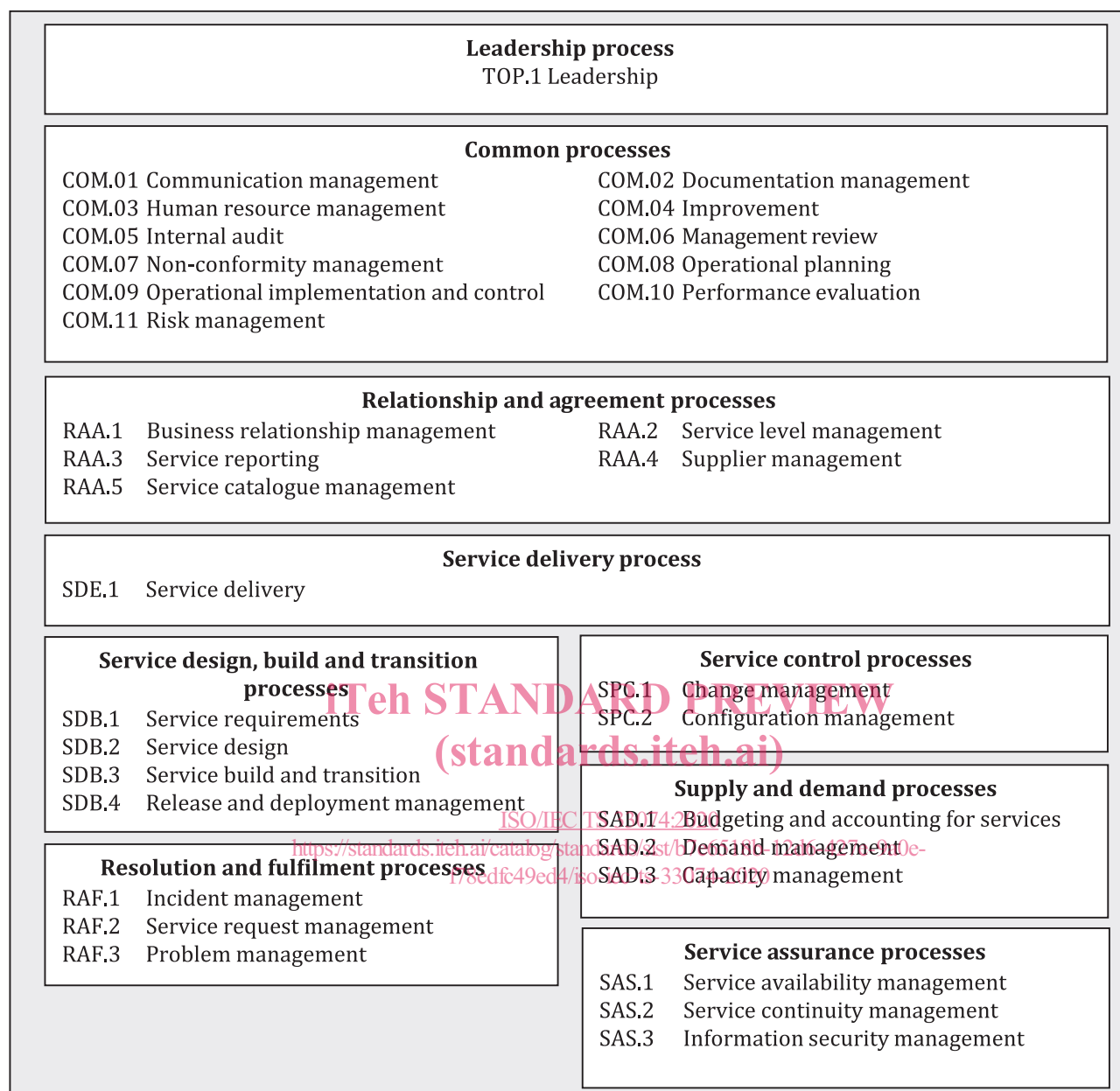
Figure 3 — Processes in the process assessment model

4.2.3 Process dimension

The process dimension of the process assessment model includes all processes and shown in Figure 3. Each process in the process assessment model is described in terms of a purpose statement. These statements contain the unique functional objectives of the process when performed in a particular environment. A list of specific outcomes is associated with each of the process purpose statements, as a list of expected positive results of the performance of the processes.

Satisfying the purpose statements of a process represents the first step in building a level 1 process capability where the expected outcomes are observable. The processes are described in Clause 5.

4.2.4 Capability dimension

For the capability dimension, the process capability levels and process attributes are identical to those defined in ISO/IEC 33020.

Evolving process capability is expressed in the process assessment model in terms of process attributes grouped into capability levels. Process attributes are features of a process that can be evaluated on a scale of achievement, providing a measure of the capability of the process. They are applicable to all processes. Each process attribute describes a facet of the overall capability of managing and improving the effectiveness of a process in achieving its purpose and contributing to the business goals of the organization.

A capability level is a set of process attribute(s) that work together to provide a major enhancement in the capability to perform a process. The levels constitute a rational way of progressing through improvement of the capability of any process and are defined in ISO/IEC 33020.

There are six capability levels, incorporating nine process attributes.

Level 0: Incomplete process

The process is not implemented, or fails to achieve its process purpose.

At this level, there is little or no evidence of any systematic achievement of the process purpose.

Level 1: Performed process

The implemented process achieves its process purpose.

Level 2: Managed process

The previously described performed process is now implemented in a managed fashion (planned, monitored and adjusted) and its work products are appropriately established, controlled and maintained.

Level 3: Established process

The previously described managed process is now implemented using a defined process that is capable of achieving its process outcomes.

Level 4: Predictable process

The previously described established process now operates predictably within defined limits to achieve its process outcomes. Quantitative management needs are identified, measurement data are collected and analysed to identify assignable causes of variation. Corrective action is taken to address assignable causes of variation.

Level 5: Innovating process

The previously described predictable process is now continually improved to respond to change aligned with organizational goals.

Within the process assessment model, the measure of capability is based upon the nine process attributes (PA) defined in ISO/IEC 33020. Process attributes are used to determine whether a process has reached a given capability. Each attribute measures a particular aspect of the process capability.

At each level there is no ordering between the process attributes; each attribute addresses a specific aspect of the capability level. The list of process attributes is shown in Table 1.

Table 1 — Capability levels and process attributes

Process attribute ID	Capability levels and process attributes
	Level 0: Incomplete process
	Level 1: Performed process
PA 1.1	Process performance
	Level 2: Managed process

Table 1 *(continued)*

| Process attribute ID	Capability levels and process attributes
PA 2.1	Performance management
PA 2.2	Work products management
	Level 3: Established process
PA 3.1	Process definition
PA 3.2	Process deployment
	Level 4: Predictable process
PA 4.1	Quantitative analysis
PA 4.2	Quantitative control
	Level 5: Innovating process
PA 5.1	Process innovation
PA 5.2	Process innovation implementation

The process attributes are evaluated on a four point ordinal scale of achievement, as defined in ISO/IEC 33020. They provide insight into the specific aspects of process capability required to support process improvement and capability determination.

4.3 Assessment indicators

4.3.1 General

The process assessment model is based on the principle that the capability of a process can be assessed by demonstrating the achievement of process attributes on the basis of evidence related to assessment indicators.
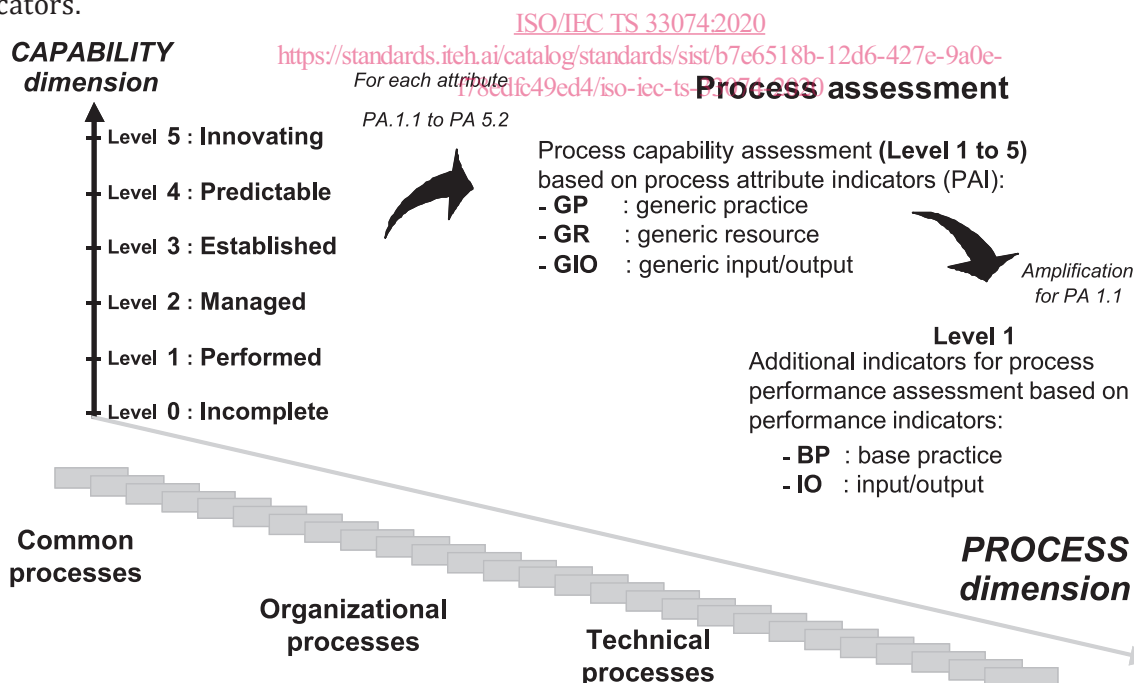
Figure 4 — Assessment indicators

There are two types of assessment indicators: process capability indicators, which apply to capability levels 1 to 5 and process performance indicators, which apply exclusively to capability level 1. These indicators are defined in 4.3.3.

The process attributes in the capability dimension have a set of process capability indicators that provide an indication of the extent of achievement of the attribute in the instantiated process. These indicators concern significant activities, resources or results associated with the achievement of the attribute purpose by a process.

The process capability indicators are:

— generic practice (GP);

— generic resource (GR);

— generic input/output (GIO).

As additional indicators for supporting the assessment of a process at level 1, each process in the process dimension has a set of process performance indicators which is used to measure the degree of achievement of the process performance attribute for the process assessed.

The process performance indicators are:

— base practice (BP);

— input/output (IO).

The performance of base practices (BPs) provides an indication of the extent of achievement of the process purpose and process outcomes. Input/Outputs (IOs) are either used or produced (or both), when performing the process.

The process performance and process capability indicators defined in the process assessment model represent types of objective evidence that might be found in an instantiation of a process and therefore could be used to judge achievement of capability.

Figure 4 shows how the assessment indicators are related to process performance and process capability.

4.3.2   Process capability indicators

The three types of process capability indicators related to levels 1 to 5 are identified in Figure 5. They are intended to be applicable to all processes.