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Information technology — Process assessment —

Part 8: An exemplar process assessment model for IT service management

Technologies de l'information — Évaluation des procédés —

Partie 8: Un modèle d'évaluation des procédés exemplaire pour le management des services IT

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Foreword

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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 other circumstances, particularly when there is an urgent market requirement for such documents, the joint technical committee may decide to publish an ISO/IEC Technical Specification (ISO/IEC TS), which represents an agreement between the members of the joint technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

An ISO/IEC TS is reviewed after three years in order to decide whether it will be confirmed for a further three years, revised to become an International Standard, or withdrawn. If the ISO/IEC TS is confirmed, it is reviewed again after a further three years, at which time it must either be transformed into an International Standard or be withdrawn.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO/IEC TS 15504-8:2012 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7*, Software and systems engineering.*

ISO/IEC TS 15504-8 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 software life cycle process assessment model*

— *Part 6: An exemplar system life cycle process assessment model*

— *Part 7: Assessment of organizational maturity [Technical Report]*

— *Part 8: An exemplar process assessment model for IT service management [Technical Specification]*

— *Part 9: Target process profiles [Technical Specification]*

— *Part 10: Safety extension [Technical Specification]*

Introduction

This part of ISO/IEC 15504 provides an example of an IT Service Management Process Assessment Model (PAM) for use in performing a conformant assessment in accordance with the requirements of ISO/IEC 15504-2. It enables implemented processes of ISO/IEC 20000-4 to be assessed according to the requirements of ISO/IEC 15504-2.

An integral part of conducting an assessment is to use a Process Assessment Model (PAM) that is constructed for that purpose. A PAM is related to a Process Reference Model (PRM) and is conformant with ISO/IEC 15504-2. ISO/IEC 15504-2 sets out the minimum requirements for performing an assessment in order to ensure consistency and repeatability of the ratings. ISO/IEC 15504-2 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 15504-2 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 PRM defined in ISO/IEC TR 20000-4 has been used as the basis for the PAM in this part of ISO/IEC 15504. The relationship between ISO/IEC 20000-1, ISO/IEC TR 20000-4 and ISO/IEC 15504-2 is shown in Figure 1.

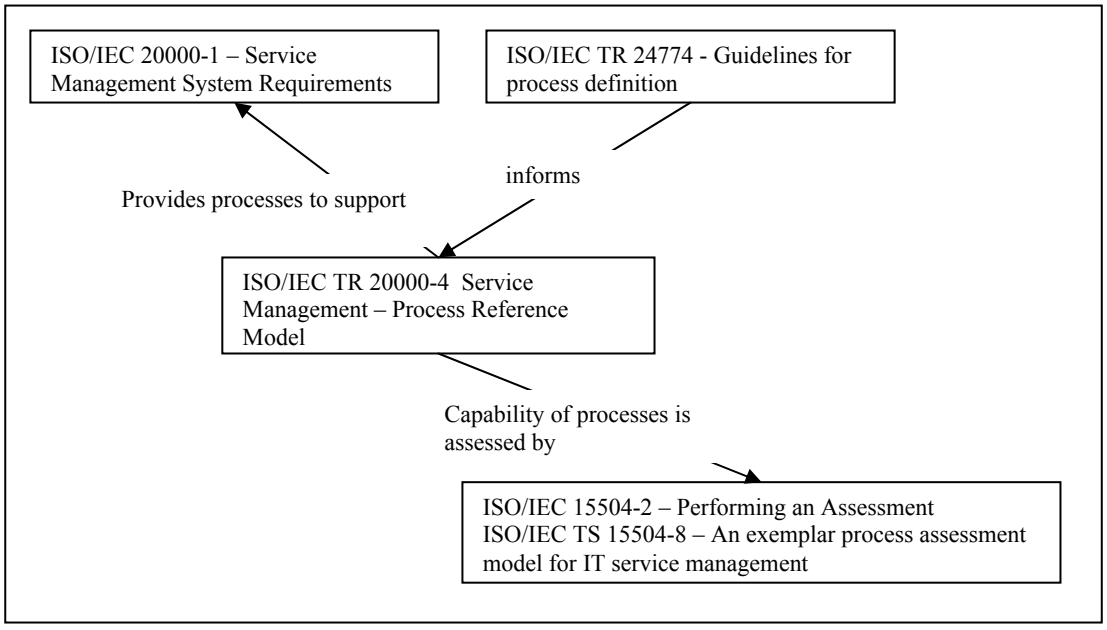


Figure 1 —Relationship between ISO/IEC 20000-1, ISO/IEC TR 20000-4 and ISO/IEC 15504-2

Any organisation may use processes with additional elements in order to suit it to the environment and circumstances. The Process Reference Model (PRM) that is the basis for this Process Assessment Model is ISO/IEC 20000-4:2010. This PRM may not be fully aligned with ISO/IEC 20000-1:2011 as it was developed to align to ISO/IEC 20000-1:2005. A revised PRM aligned to ISO/IEC 20000-1:2011 is being developed and it is expected that this revised PRM will address and resolve these identified incompatibilities. Due to the development status of this PRM, it is known to be unverified and subject to change in the future.

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 15504-2. Nevertheless any other PAMs meeting the requirements of ISO/IEC 15504-2 may be used in a conformant assessment.

This Part of ISO/IEC 15504 has a similar structure to ISO/IEC 15504 Parts 5 and 6. It may be used in conjunction with them for joint assessment of service management processes and system/software life cycle processes.

Within this part of ISO/IEC 15504:

— 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. It uses process definitions from ISO/IEC TR 20000-4 to designate the PRM. The processes of the PRM are described in the PAM in terms of purpose and outcomes. The PAM expands the PRM process definitions by including 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 15504-2, 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 PAM to the requirements defined in ISO/IEC 15504-2;

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

— Annex C contains a capability process profile linking the requirements of ISO/IEC 20000-1 to base practices and information items;

— the Bibliography contains a list of informative references.

Information technology — Process assessment —

Part 8: An exemplar process assessment model for IT service management

1 Scope

This part of ISO/IEC 15504:

— defines an exemplar PAM that meets the requirements of ISO/IEC 15504-2 and that supports the performance of an assessment by providing indicators for guidance on the interpretation of the process purposes and outcomes as defined in ISO/IEC TR 20000-4 and the process attributes as defined in ISO/IEC 15504-2;

— 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 part of ISO/IEC 15504 is not intended to be an all-inclusive set nor is it intended to be applicable in its entirety. Subsets that are appropriate to the context and scope of the assessment should be selected, and possibly augmented with additional indicators (see Annex C).

The PAM in this part of ISO/IEC 15504 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 may 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), including processes, for the design, development, transition and delivery of services that fulfil service requirements;

b) organizations that are seeking services from service providers and requiring assurance that their service requirements will be fulfilled;

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

Any PAM meeting the requirements defined in ISO/IEC 15504-2 concerning models for process assessment may be used for assessment. Different models and methods may be needed to address differing business needs. The assessment model in this part of ISO/IEC 15504 is provided as an exemplar of a model meeting all the requirements expressed in ISO/IEC 15504-2.

The scope of this Part of ISO/IEC 15504 is consistent with the scope of Part 5 and 6 of ISO/IEC 15504 in order to assist situations where assessment is being made of both service management and system/software life cycle processes.

NOTE: **Copyright release for the Exemplar PAM:** Users of this part of ISO/IEC 15504 may freely reproduce the detailed descriptions contained in the exemplar 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

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 15504. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO/IEC 15504 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO/IEC 20000-1:2011, *Information technology — Service management — Part 1: Service management system requirements*

ISO/IEC TR 20000-4:2010, *Information technology — Service management — Part 4: Process Reference Model*

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 ISO/IEC 20000-1 apply.

4 Overview of the exemplar Process Assessment Model

4.1 Introduction to Overview

This part of ISO/IEC 15504 provides an exemplar PAM that includes examples of assessment indicators.

The PRM defined in ISO/IEC TR 20000-4, associated with the process attributes defined in ISO/IEC 15504-2, establish a PAM 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 PAM is a two-dimensional model 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 characteristics of process capability.

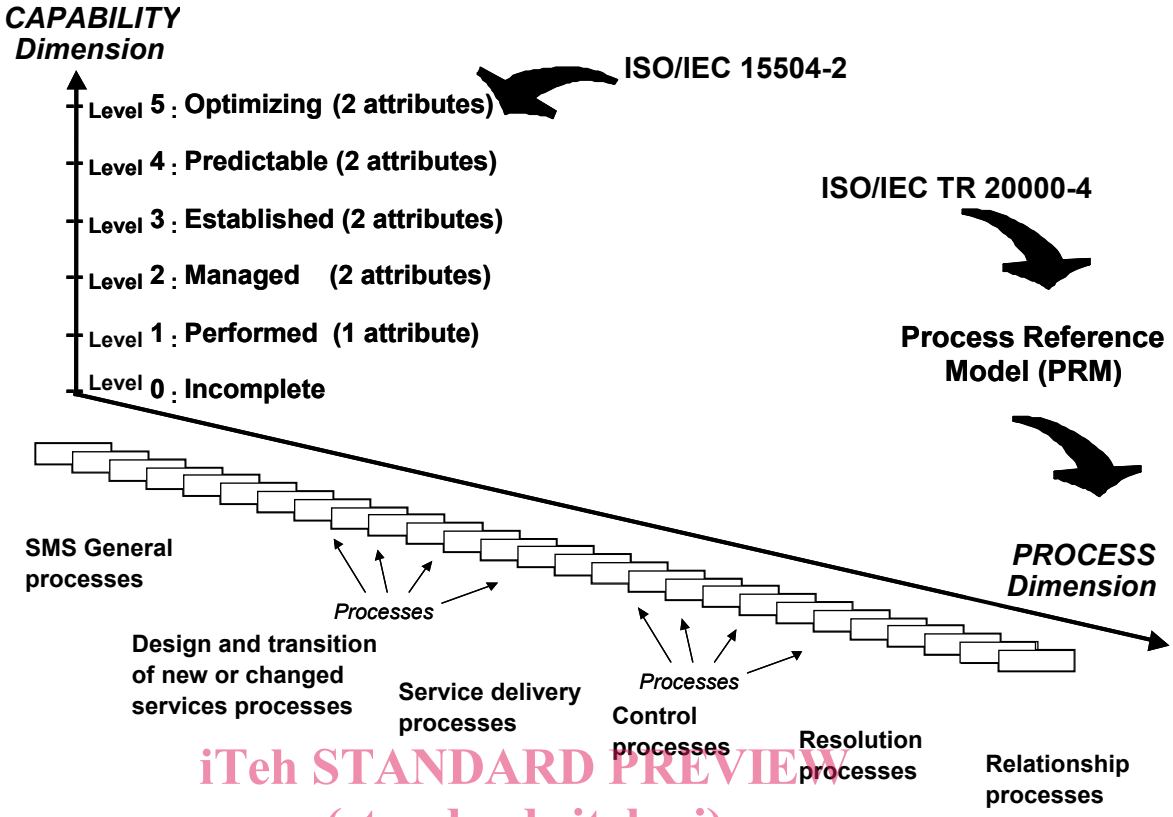


Figure 2 — Relationship between the Process Assessment Model and its inputs

Figure 2 shows the relationship between the general structure of the PAM, ISO/IEC 15504-2 and ISO/IEC TR 20000-4.

A PRM and a capability dimension defined in ISO/IEC 15504-2 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 PRM, and the process attribute definitions in ISO/IEC 15504-2, need to be supported with a comprehensive set of indicators of process performance and process capability that are used for assessment performance.

The exemplar PAM defined in this part of ISO/IEC 15504 is conformant with the ISO/IEC 15504-2 requirements for a PAM, and can be used as the basis for conducting an assessment of IT service management process capability.

In order to meet the PAM requirements of ISO/IEC 15504-2, a documented process supporting other requirements of ISO/IEC 15504-2 is also required. This need may be met, for example, by the adoption of a supporting method for conducting assessments.

4.2 Structure of the exemplar Process Assessment Model

This clause describes the detailed structure of the PAM and its key components.

This PAM expands upon the PRM 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 its 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 PAM to the requirements defined in ISO/IEC 15504-2.

ISO/IEC 15504-2 requires that processes included in a PRM satisfy the following:

"The fundamental elements of a Process Reference Model are the set of descriptions of the processes within the scope of the model. These process descriptions shall meet the following requirements:

a) A process shall be described in terms of its Purpose and Outcomes.

b) In any description the set of process outcomes shall be necessary and sufficient to achieve the purpose of the process.

c) Process descriptions shall be such that no aspects of the measurement framework as described in clause 5 of this International Standard beyond level 1 are contained or implied."

As processes are derived directly from ISO/IEC TR 20000-4, these requirements are satisfied.

4.2.1 Processes

Figure 3 shows the processes from ISO/IEC TR 20000-4, which are included in the process dimension of the exemplar PAM for service management.

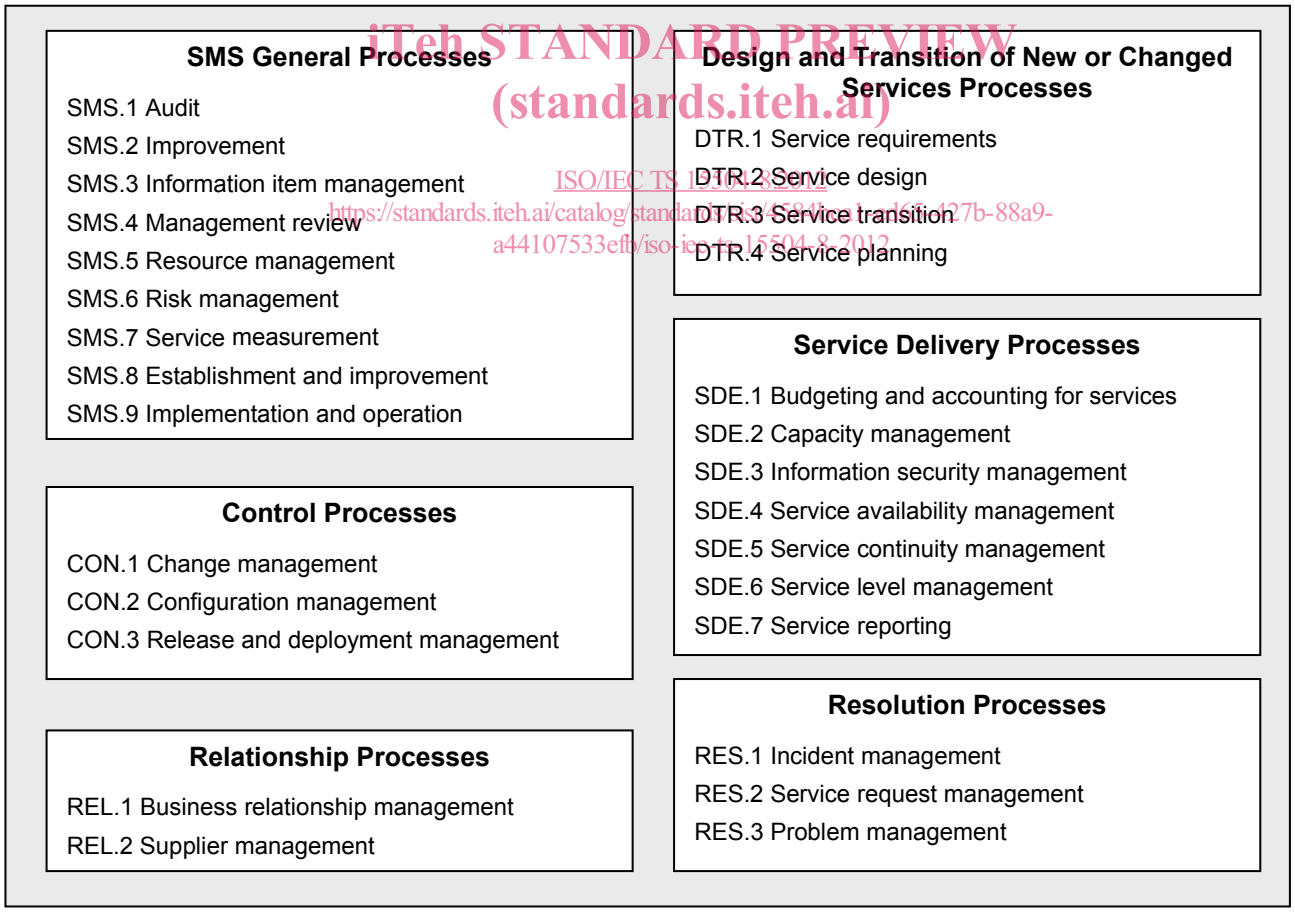


Figure 3 — Processes in the Process Reference Model

4.2.2 Process dimension

The process dimension of the PAM includes all processes from the PRM contained in ISO/IEC TR 20000-4 and shown in Figure 3. Each process in the PAM 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.

4.2.3 Capability dimension

For the capability dimension, the process capability levels and process attributes are identical to those defined in ISO/IEC 15504-2.

Evolving process capability is expressed in the PAM 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 15504-2.

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 within defined limits to achieve its process outcomes.

Level 5: Optimizing process

The previously described Predictable process is continuously improved to meet relevant current and projected business goals.

Within the PAM, the measure of capability is based upon the nine process attributes (PA) defined in ISO/IEC 15504-2. 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

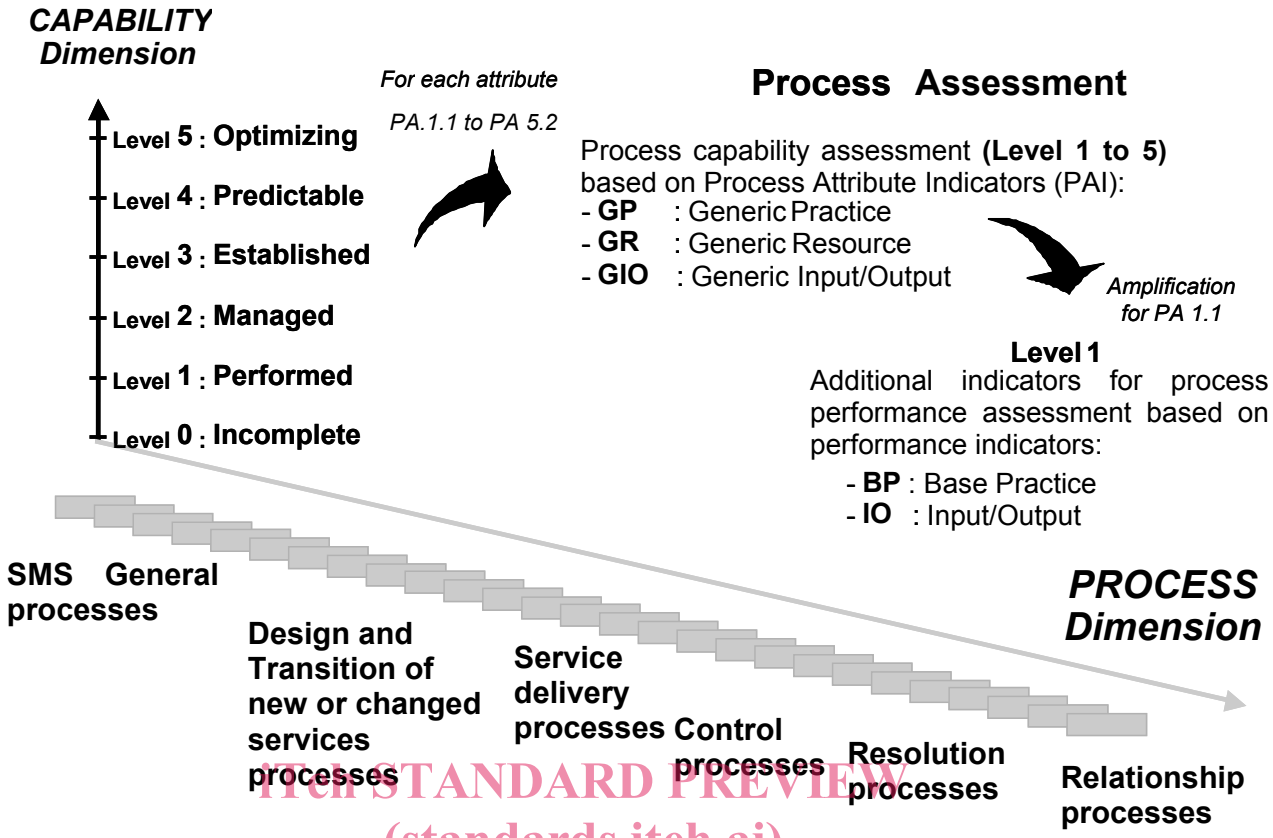
Process Attribute ID	Capability Levels and Process Attributes
	Level 0: Incomplete process
	Level 1: Performed process
PA 1.1	Process performance
	Level 2: Managed process
PA 2.1	Performance management
PA 2.2	Work Products management
	Level 3: Established process
PA 3.1	Process definition
PA 3.2	Process deployment
	Level 4: Predictable process
PA 4.1	Process measurement
PA 4.2	Process control
	Level 5: Optimizing process
PA 5.1	Process innovation
PA 5.2	Continuous optimization

The process attributes are evaluated on a four point ordinal scale of achievement, as defined in ISO/IEC 15504-2. They provide insight into the specific aspects of process capability required to support process improvement and capability determination.

4.3 Assessment Indicators

The PAM 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.

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 Clause 4.3.2.



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.

Figure 4 — Assessment indicators

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.