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**Data quality —**

Part 62:

**Data quality management:  
Organizational process maturity  
assessment: Application of standards  
relating to process assessment**

iTeh STANDARD PREVIEW  
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*Qualité des données —*

*Partie 62: Gestion de la qualité des données: Évaluation de la  
maturité organisationnelle des processus: Application des normes  
relatives à l'évaluation des processus*

<https://standards.iteh.ai/catalog/standards/sist/d50c9817-51d-471d-a573-4a35d0f884cf/iso-8000-62-2018>



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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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 ISO documents 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](http://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 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](http://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 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](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 184, *Automation systems and integration*, Subcommittee SC 4, *Industrial data*.

ISO 8000 is organized as a series of parts, each published separately. The structure of ISO 8000 is described by ISO 8000-1.

Each part of ISO 8000 is a member of one of the following series: general data quality, master data quality and product data quality. This document is a member of the general data quality series but applicable to all of the three data quality series.

A list of all parts in the ISO 8000 series, published under the general title *Data quality*, can be found on the ISO website.

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](http://www.iso.org/members.html).

## Introduction

The ability to create, collect, store, maintain, transfer, process and present information and data to support business processes in a timely and cost effective manner requires both an understanding of the characteristics of the information and data that determine its quality, and an ability to measure, manage and report on information and data quality.

ISO 8000 defines characteristics of information and data that determine its quality, and provides methods to manage, measure and improve the quality of information and data.

When assessing the quality of data, it is useful to perform the assessment in accordance with documented methods. It is also important to document the tailoring of standardized methods with respect to the expectation and requirements pertinent to the business case at hand.

ISO 8000 includes parts applicable to all types of data and parts applicable to specific types of data. ISO 8000 can be used independently or in conjunction with quality management systems.

There is a limit to data quality improvement when only the nonconformity in data is corrected, since the nonconformity can recur in other data. However, when the root causes of the data nonconformity and their related data are traced and corrected through data quality management processes, recurrence of the same type of data nonconformity can be prevented. Therefore, a framework for process-centric data quality management is required to improve data quality more effectively and efficiently. Furthermore, data quality can be improved by assessing processes and changing underperforming processes found during that assessment.

This document specifies how organizations can use a maturity model in assessing their process maturity with respect to data quality management as specified in ISO 8000-61.

NOTE Future editions of this document will specify appropriate assessment indicators and, therefore, provide a complete maturity model. [ISO 8000-62:2018](https://standards.iteh.ai/catalog/standards/sist/50e98-13fd-491d-a573-4d53d01864c1/iso-8000-62-2018)

This assessment requires the use of assessment indicators and can use the measurement stack specified by ISO 8000-63 to determine these indicators.

This document can be used on its own or in conjunction with other parts of ISO 8000.

This document is intended for use by those actors that have a vested interest in information or data quality, with a focus on one or more information systems both inter- and intra-organization views, throughout all data life cycle phases.

[Annex A](#) contains an identifier that unambiguously identifies this document in an open information system.

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## Data quality —

### Part 62:

# Data quality management: Organizational process maturity assessment: Application of standards relating to process assessment

## 1 Scope

This document specifies particular elements of a maturity model. These elements conform to ISO/IEC 33004.

Organizations can use these elements in combination with their own assessment indicators to determine the maturity level of processes for data quality management as specified by ISO 8000-61.

The following are within the scope of this document:

- some of the elements of a model for assessing organizational process maturity;
- identifying those elements that exist in other standards (process capability levels, process attributes, ordinal scale for measuring process attributes and the scheme for derivation of process capability levels from process attribute rating);
- specifying six maturity levels and process profiles to indicate when organizations have achieved each of the maturity levels;
- providing guidance on how to assess the maturity level of an organization.

Methods or procedures to improve organizational maturity are outside the scope of this document.

This document can be used by the organization itself or by another party (including certification bodies) to perform assessment of the maturity.

This document can be used in conjunction with, or independently of, quality management systems standards.

## 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 8000-2, *Data quality — Part 2: Vocabulary*

ISO 8000-61, *Data quality — Part 61: Data quality management: Process reference model*

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

ISO/IEC 33002:2015, *Information technology — Process assessment — Requirements for performing process assessment*

ISO/IEC 33004:2015, *Information technology — Process assessment — Requirements for process reference, process assessment and maturity models*

ISO/IEC 33020:2015, *Information technology — Process assessment — Process measurement framework for assessment of process capability*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 8000-2 and ISO/IEC 33001 apply. ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online Browsing Platform: available at <http://www.iso.org/obp>;
- IEC Electropedia: available at <http://www.electropedia.org/>.

## 4 Assessing organizational data quality management maturity

### 4.1 Purpose of organizational process maturity levels

The purpose of assessing the organizational process maturity level for data quality management is to understand how well the organization is fulfilling the requirements identified by the process reference model for data quality management specified by ISO 8000-61.

This document specifies the steps by which to assess organizational process maturity levels, as illustrated in [Figure 1](#).

NOTE ISO/IEC/IEEE 31320-1 provides details on the notation used in this figure, which is an IDEF0 A0 diagram.

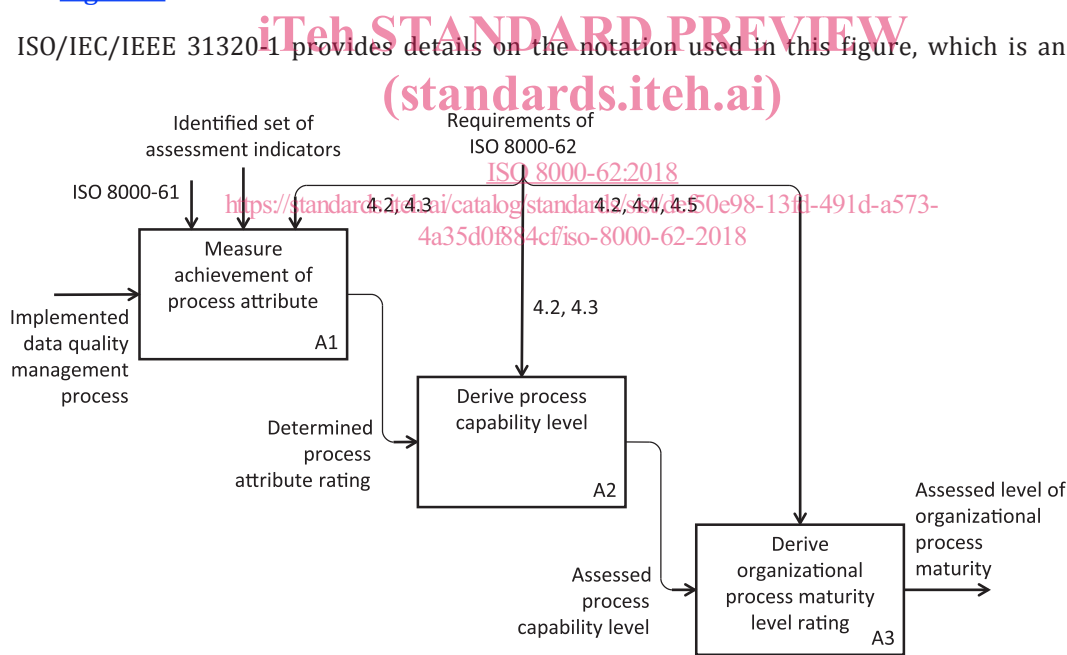


Figure 1 — Assessing organizational data quality management maturity using ISO 8000-62

### 4.2 Process capability levels and process attributes

Process capability shall be measured by a six-point ordinal scale that enables capability to be assessed from incomplete (the bottom end of the scale) through innovating (the top end of the scale), as specified in ISO/IEC 33020. This scale represents increasing capability of the implemented process, from failing to achieve the process purpose through to the process being the subject of continual improvement.

Within the process measurement framework specified by ISO/IEC 33020, a process attribute is a measurable property of process capability. A process attribute rating is a judgement of the degree of achievement of the process attribute for the assessed process.



Computing the process capability level requires observation and assessment of the evidence of achieving individual process attributes. Table 1 summarizes these levels and the corresponding process attributes. ISO/IEC 33020:2015, 5.2, provides a full explanation of the process capability levels and process attributes.

**Table 1 — Process capability levels and process attributes**

Process capability level	Process attribute	
Incomplete process	Not applicable	
Performed process	PA.1.1	Process performance
Managed process	PA.2.1	Performance management
	PA.2.2	Work product management
Established process	PA.3.1	Process definition
	PA.3.2	Process deployment
Predictable process	PA.4.1	Quantitative analysis
	PA.4.2	Quantitative control
Innovating process	PA.5.1	Process innovation
	PA.5.2	Process innovation implementation

### 4.3 Rating process attributes and process capability

Each process attribute shall be measured using an ordinal scale, as specified in ISO/IEC 33020:2015, 5.3, and summarized in Table 2.

**Table 2 — Ordinal scale for measuring process attributes**

Ordinal	Meaning	Degree of achievement of the process attribute
N - Not achieved	There is little or no evidence of the defined process attribute in the assessed process.	0 to ≤15 %
P - Partially achieved	There is some evidence of an approach to, and some achievement of, the defined process attribute in the assessed process. Some aspects of achievement of the process attribute can be unpredictable.	>15 % to ≤50 %
L - Largely achieved	There is evidence of a systematic approach to, and significant achievement of, the defined process attribute in the assessed process. Some weaknesses related to this process attribute can exist in the assessed process.	>50 % to ≤85 %
F - Fully achieved	There is evidence of a complete and systematic approach to, and full achievement of, the defined process attribute in the assessed process. No significant weaknesses related to this process attribute exist in the assessed process.	>85 % to ≤100 %

Assessment indicators are the means by which to gather the evidence that determines the degree of achievement of each process attribute.

Assessors shall identify a set of assessment indicators that are suitable for the data quality management processes from the process reference model specified by ISO 8000-61.

**EXAMPLE** The assessor uses the measurement stack from ISO 8000-63 to create an appropriate set of assessment indicators.

The process capability level of each process shall be derived from the determined process attribute ratings, as specified in ISO/IEC 33020:2015, 5.6, and summarized in Table 3.

**Table 3 — Derivation of process capability levels from process attribute ratings**

Process capability level	Process attribute	Process attribute rating
Level 1	PA.1.1. Process performance	Largely or fully
Level 2	PA.1.1. Process performance	Fully
	PA.2.1. Performance management	Largely or fully
	PA.2.2. Work product management	Largely or fully
Level 3	PA.1.1. Process performance	Fully
	PA.2.1. Performance management	Fully
	PA.2.2. Work product management	Fully
	PA.3.1. Process definition	Largely or fully
	PA.3.2. Process deployment	Largely or fully
Level 4	PA.1.1. Process performance	Fully
	PA.2.1. Performance management	Fully
	PA.2.2. Work product management	Fully
	PA.3.1. Process definition	Fully
	PA.3.2. Process deployment	Fully
	PA.4.1. Quantitative analysis measurement	Largely or fully
	PA.4.2. Quantitative control	Largely or fully
Level 5	PA.1.1. Process performance	Fully
	PA.2.1. Performance management	Fully
	PA.2.2. Work product management	Fully
	PA.3.1. Process definition	Fully
	PA.3.2. Process deployment	Fully
	PA.4.1. Quantitative analysis measurement	Fully
	PA.4.2. Quantitative control	Fully
	PA.5.1. Process innovation	Largely or fully
	PA.5.2. Process innovation implementation	Largely or fully

#### 4.4 Scale of organizational data quality management maturity

##### 4.4.1 General

This document specifies maturity levels that shall conform to the requirements of ISO/IEC 33004:2015, Clause 7, each of which identifies a combination of a set of processes for data quality management and the capability level at which the organization is performing those processes. Each set of processes includes all the processes from the lower levels of maturity.

Maturity shall be assessed on a six-point ordinal scale from immature (Level 0) to innovating (Level 5) as outlined in [4.4.2](#) to [4.4.6](#).

##### 4.4.2 Maturity Level 0: Immature

The organization cannot demonstrate effective use of any of the basic processes for data quality management (as specified by ISO 8000-61) that is supporting operational processes. The organization has not provided evidence that data meet requirements.

##### 4.4.3 Maturity Level 1: Basic

The organization can demonstrate that operational processes have access to data that meet requirements. These data are subject to appropriate security considerations. The organization has

not provided evidence of managing requirements and data processing activity. The organization is performing the following data quality management processes specified by ISO 8000-61:

- DQC.2. Data Processing;
- DRS.4. Data Security Management.

#### 4.4.4 Maturity Level 2: Managed

The organization can demonstrate that operational processes make use of data for which the organization is managing requirements and managing the methods by which to perform data processing. The organization can provide evidence that data meet requirements. The organization is performing, in addition to all of those for maturity of Level 1, the following data quality management processes specified by ISO 8000-61:

- DQP.1. Requirements Management;
- DQC.1. Provision of Data Specifications and Work Instructions;
- DQC.3. Data Quality Monitoring and Control.

#### 4.4.5 Maturity Level 3: Established

The organization can demonstrate that operational processes make use of data for which the organization has implemented common, repeatable processes for performing data quality management. The organization is performing, in addition to all of those for maturity of Level 2, the following data quality management processes specified by ISO 8000-61:

- DQP.2. Data Quality Strategy Management;
- DQP.3. Data Quality Policy/Standards/Procedures Management;
- DQP.4. Data Quality Implementation Planning;
- DRS.1. Data Architecture Management;
- DRS.3. Data Operations Management;
- RPV.1. Data Quality Organization Management.

#### 4.4.6 Maturity Level 4: Predictable

The organization can demonstrate that operational processes make use of data for which the organization has implemented predictable processes for performing data quality management. This predictability involves measuring the performance of data quality management. The organization is performing, in addition to all of those for maturity of Level 3, the following data quality management processes specified by ISO 8000-61:

- DQA.1. Review of Data Quality Issues;
- DQA.2. Provision of Measurement Criteria;
- DQA.3. Measurement of Data Quality and Process Performance;
- DQA.4. Evaluation of Measurement Results;
- DRS.2. Data Transfer Management;
- RPV.2. Human Resource management.