INTERNATIONAL STANDARD

ISO 8000-2

Fifth edition
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Data quality —

Part 2: Vocabulary

Qualité des données —

Partie 2: Vocabulaire

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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).

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).

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 Technical Committee ISO/TC 184, *Automation systems and integration*, Subcommittee SC 4, *Industrial data*.

This fifth edition cancels and replaces the fourth edition (ISO 8000-2:2020), which has been technically revised. It also incorporates the Amendment ISO 8000-2:2020/Amd 1:2021.

The main changes are as follows:

— additional terminological entries to align the ISO 8000 series further with ISO 9000;

— updates where the updates originate from a new edition of ISO 8000-110;

— updates where the updates originate from converting ISO 8000-150 to an International Standard from a Technical Specification;

— updates where the updates originate from a new edition of ISO 10303-59;

— other minor improvements to entries to improve consistency and readability of entries.

A list of all parts in the ISO 8000 series 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.

Introduction

0.1 Foundations of the ISO 8000 series

Digital data deliver value by enhancing all aspects of organizational performance including:

— operational effectiveness and efficiency;

— safety and security;

— reputation with customers and the wider public;

— compliance with statutory regulations;

— innovation;

— consumer costs, revenues and stock prices.

In addition, many organizations are now addressing these considerations with reference to the United Nations Sustainable Development Goals[1)].

The influence on performance originates from data being the formalized representation of information[2)]. This information enables organizations to make reliable decisions. Such decision making can be performed by human beings directly and also by automated data processing including artificial intelligence systems.

Through widespread adoption of digital computing and associated communication technologies, organizations become dependent on digital data. This dependency amplifies the negative consequences of lack of quality in these data. These consequences are the decrease of organizational performance.

The biggest impact of digital data comes from two key factors:

— the data having a structure that reflects the nature of the subject matter;

EXAMPLE 1 A research scientist writes a report using a software application for word processing. This report includes a table that uses a clear, logical layout to show results from an experiment. These results indicate how material properties vary with temperature. The report is read by a designer, who uses the results to create a product that works in a range of different operating temperatures.

— the data being computer processable (machine readable) rather than just being for a person to read and understand.

EXAMPLE 2 A research scientist uses a database system to store the results of experiments on a material. This system controls the format of different values in the data set. The system generates an output file of digital data. This file is processed by a software application for engineering analysis. The application determines the optimum geometry when using the material to make a product.

ISO 9000 explains that quality is not an abstract concept of absolute perfection. Quality is actually the conformance of characteristics to requirements. This actuality means that any item of data can be of high quality for one purpose but not for a different purpose. The quality is different because the requirements are different between the two purposes.

EXAMPLE 3 Time data are processed by calendar applications and also by control systems for propulsion units on spacecraft. These data include start times for meetings in a calendar application and activation times in a control system. These start times require less precision than the activation times.

1) https://sdgs.un.org/goals

2) This document defines information as “knowledge concerning objects, such as facts, events, things, processes, or ideas, including concepts, that within a certain context has a particular meaning”.

The nature of digital data is fundamental to establishing requirements that are relevant to the specific decisions made by an organization.

EXAMPLE 4 ISO 8000-1 identifies that data have syntactic (format), semantic (meaning) and pragmatic (usefulness) characteristics.

To support the delivery of high-quality data, the ISO 8000 series addresses:

— data governance, data quality management and maturity assessment;

EXAMPLE 5 ISO 8000-61 specifies a process reference model for data quality management.

— creating and applying requirements for data and information;

EXAMPLE 6 ISO 8000-110 specifies how to exchange characteristic data that are master data.

— monitoring and measuring information and data quality;

EXAMPLE 7 ISO 8000-8 specifies approaches to measuring information and data quality.

— improving data and, consequently, information quality;

EXAMPLE 8 ISO/TS 8000-81 specifies an approach to data profiling, which identifies opportunities to improve data quality.

— issues that are specific to the type of content in a data set.

EXAMPLE 9 ISO/TS 8000-311 specifies how to address quality considerations for product shape data.

Data quality management covers all aspects of data processing, including creating, collecting, storing, maintaining, transferring, exploiting and presenting data to deliver information.

Effective data quality management is systemic and systematic, requiring an understanding of the root causes of data quality issues. This understanding is the basis for not just correcting existing nonconformities but also implementing solutions that prevent future reoccurrence of those nonconformities.

EXAMPLE 10 If a data set includes dates in multiple formats including “yyyy-mm-dd”, “mm-dd-yy” and “dd-mm-yy”, then data cleansing can correct the consistency of the values. Such cleansing requires additional information, however, to resolve ambiguous entries (such as, “04-05-20”). The cleansing also cannot address any process issues and people issues, including training, that have caused the inconsistency.

0.2 Understanding more about the ISO 8000 series

ISO 8000-1 provides a detailed explanation of the structure and scope of the whole ISO 8000 series.

ISO has identified this document, ISO 8000-1 and ISO 8000-8 as horizontal deliverables[3)].

0.3 Role of this document

As a contribution to the capability of the ISO 8000 series, this document specifies the single, common vocabulary for the ISO 8000 series. This vocabulary is ideal reading material by which to understand the overall subject matter of data quality. This document presents the vocabulary structured by a series of topic areas (for example, terms relating to quality and terms relating to data and information).

This document supports activities that affect:

— one or more information systems;

— data flows within the organization and with external organizations;

— any phase of the data life cycle.

3) A horizontal deliverable is a deliverable dealing with a subject relevant to a number of committees or sectors or of crucial importance to ensure coherence across standardization deliverables.

Organizations can use this document on its own or in conjunction with other parts of the ISO 8000 series.

Annex A contains an identifier that conforms to ISO/IEC 8824-1. The identifier unambiguously identifies this document in an open information system.

0.4 Benefits of the ISO 8000 series

By implementing parts of the ISO 8000 series to improve organizational performance, an organization achieves the following benefits:

— objective validation of the foundations for digital transformation of the organization;

— a sustainable basis for data in digital form becoming a fundamental asset class the organization relies on to deliver value;

— securing evidence-based trust from other parties (including supply chain partners and regulators) about the repeatability and reliability of data and information processing in the organization;

— portability of data with resulting protection against loss of intellectual property and reusability across the organization and applications;

— effective and efficient interoperability between all parties in a supply chain to achieve traceability of data back to original sources;

— readiness to acquire or supply services where the other party expects to work with common understanding of explicit data requirements.

Data quality —

Part 2: Vocabulary

1 Scope

This document defines terms relating to data quality. These terms are used by the parts in the ISO 8000 series.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

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

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

3.1 Terms relating to quality

3.1.1
process, noun
set of interrelated or interacting activities that use inputs to deliver an intended result

[SOURCE: ISO 9000:2015, 3.4.1, modified — Notes to entry have been removed.]

3.1.2
requirement
need or expectation that is stated, generally implied or obligatory

[SOURCE: ISO 9000:2015, 3.6.4, modified — Notes to entry have been removed.]

3.1.3
quality
degree to which a set of inherent characteristics of an object fulfils *requirements* (3.1.2)

Note 1 to entry: The term "quality" can be used with adjectives such as poor, good or excellent.

Note 2 to entry: "Inherent", as opposed to "assigned", means existing in the object.

[SOURCE: ISO 9000:2015, 3.6.2]

3.1.4
quality management system
part of a management system with regard to *quality* (3.1.3)

[SOURCE: ISO 9000:2015, 3.5.4]

3.1.5
nonconformity
non-fulfilment of a *requirement* (3.1.2)

[SOURCE: ISO 9000:2015, 3.6.9, modified — Note 1 to entry has been removed.]

3.1.6
defect
nonconformity (3.1.5) related to an intended or specified use

Note 1 to entry: The distinction between the concepts defect and nonconformity is important as it has legal connotations, particularly those associated with *product* (3.5.2) and service liability issues.

Note 2 to entry: The intended use as intended by the customer can be affected by the nature of the *information* (3.2.1), such as operating or maintenance instructions, provided by the provider.

[SOURCE: ISO 9000:2015, 3.6.10]

3.1.7
quality management
management with regard to *quality* (3.1.3)

Note 1 to entry: Quality management can include establishing quality policies and quality objectives, and *processes* (3.1.1) to achieve these quality objectives through *quality planning* (3.1.8), *quality control* (3.1.9), *quality assurance* (3.1.10) and *quality improvement* (3.1.11).

[SOURCE: ISO 9000:2015, 3.3.4]

3.1.8
quality planning
part of *quality management* (3.1.7) focused on setting *quality* (3.1.3) objectives and specifying necessary operational *processes* (3.1.1) and related resources to achieve the quality objectives

Note 1 to entry: Establishing quality plans can be part of quality planning.

[SOURCE: ISO 9000:2015, 3.3.5]

3.1.9
quality control
part of *quality management* (3.1.7) focused on fulfilling *quality* (3.1.3) *requirements* (3.1.2)

[SOURCE: ISO 9000:2015, 3.3.7]

3.1.10
quality assurance
part of *quality management* (3.1.7) focused on providing confidence that *quality* (3.1.3) *requirements* (3.1.2) will be fulfilled

[SOURCE: ISO 9000:2015, 3.3.6]

3.1.11
quality improvement
part of *quality management* (3.1.7) focused on increasing the ability to fulfil *quality* (3.1.3) *requirements* (3.1.2)

Note 1 to entry: The quality requirements can be related to any aspect such as effectiveness, efficiency or traceability.

[SOURCE: ISO 9000:2015, 3.3.8]

3.1.12
inspection
determination of conformity to specified *requirements* (3.1.2)

[SOURCE: ISO 9000:2015, 3.11.7, modified — Notes to entry have been removed.]

3.2 Terms relating to data and information

3.2.1
information
knowledge concerning objects, such as facts, events, things, *processes* (3.1.1), or ideas, including concepts, that within a certain context has a particular meaning

[SOURCE: ISO/IEC 2382:2015, 2121271, modified — Field of application and notes to entry have been removed.]

3.2.2
data
reinterpretable representation of *information* (3.2.1) in a formalized manner suitable for communication, interpretation, or processing

[SOURCE: ISO/IEC 2382:2015, 2121272, modified — Notes to entry have been removed.]

3.2.3
data exchange
storing, accessing, transferring, and archiving of *data* (3.2.2)

[SOURCE: ISO 10303-1:2021, 3.1.31]

3.2.4
data set
logically meaningful grouping of *data* (3.2.2)

EXAMPLE 1 Computer-aided design (CAD) files.

EXAMPLE 2 Electronic data interchange (EDI) transactions.

3.2.5
metadata
data (3.2.2) defining and describing other data

[SOURCE: ISO/IEC 11179-1:2015, 3.2.16, modified — The words “that defines and describes” have been replaced with “defining and describing”.]

3.2.6
objective evidence
data (3.2.2) supporting the existence or verity of something

Note 1 to entry: Objective evidence can be obtained through observing, *measuring* (3.4.1), testing or other means.

[SOURCE: ISO 9000:2015, 3.8.3, modified — Note 1 to entry has been modified and Note 2 to entry has been removed.]

3.2.7
data element
unit of *data* (3.2.2) that is considered in context to be indivisible

Note 1 to entry: The definition states that a data element is “indivisible” in some context. This means it is possible that a data element considered indivisible in one context (e.g. telephone number) can be divisible in another context (e.g. country code, area code, local number).

[SOURCE: ISO/IEC 11179-1:2015, 3.3.8, modified — The abbreviated term “DE” has been removed and the word “may” has been replaced by “can” in Note 1 to entry.]

3.2.8
value domain
set of permissible values

Note 1 to entry: The permissible values in a value domain can either be enumerated or expressed via a description.

[SOURCE: ISO/IEC 11179-1:2015, 3.3.31, modified — The abbreviated term “VD” has been removed and the word “may” has been replaced by “can” in Note 1 to entry.]

3.2.9
data element concept
concept that is an association of a property with an object class

Note 1 to entry: A data element concept is implicitly associated with both the property and the object class whose combination it expresses.

Note 2 to entry: A data element concept can also be associated with zero or more conceptual domains, each of which expresses its value meanings.

Note 3 to entry: A data element concept can also be associated with zero or more *data elements* (3.2.7) each, of which provides representation for the data element concept via its associated *value domain* (3.2.8).

[SOURCE: ISO/IEC 11179-1:2015, 3.3.9, modified — The abbreviated term “DEC” has been removed and the word “may” has been replaced by “can” in Notes 2 and 3 to entry.]

3.3 Terms relating to identifier

3.3.1
identifier
string of characters created by an organization to reference a *data set* (3.2.4)

3.3.2
identifier resolution
process (3.1.1) that, when applied to an *identifier* (3.3.1), returns an associated *data set* (3.2.4)

3.3.3
entity
concrete or abstract thing in the domain under consideration

[SOURCE: ISO 19439:2006, 3.29, modified — The word “any” has been removed at the start of the definition.]

3.3.4
organization identifier
reference that can be resolved unambiguously to the legal name, the location and the administrator of the organization

3.3.5
legal entity
physical or juridical person granted legal status by the governing body of a nation, state or community

3.3.6
authoritative identifier
identifier (3.3.1) issued by an organization that is the originator of the object identified or that is a legal authority

EXAMPLE The original part manufacturer issues the authoritative identifier for that part. Distributors can also assign identifiers, which are *proxy identifiers* (3.3.8) (not authoritative identifiers).

Note 1 to entry: An *authoritative legal entity identifier* (3.3.7) is an authoritative identifier issued by an organization that is a legal authority.

3.3.7
authoritative legal entity identifier
ALEI
identifier (3.3.1) that identifies a *legal entity* (3.3.5) and is issued by the administrative agency for a governing body of the nation, state, or community with the authority to grant legal status

EXAMPLE For the State of Delaware (in the United States), the Division of Corporations is the administrative agency that issues identifiers for juridical persons represented on documents of formation. This agency issued the authoritative legal entity identifier "3031657" to identify the formation of the Code Management Association as a legal entity.

3.3.8
proxy identifier
identifier (3.3.1) issued by an organization that is not the originator of the object identified

3.3.9
proxy legal entity identifier
identifier (3.3.1) that identifies a *legal entity* (3.3.5) and is issued by an organization that is not the administrative agency for a government and, thus, has no authority to grant legal status

3.3.10
vital record
record of life events kept under governmental authority

EXAMPLE Birth certificates, marriage licenses and death certificates.

3.3.11
free decoding
identifier resolution (3.3.2) that, without the need to pay a fee, returns an associated *data set* (3.2.4)

3.3.12
fee-based decoding
identifier resolution (3.3.2) that, only after paying a fee, returns an associated *data set* (3.2.4)

3.3.13
free encoding
without the need to pay a fee, using terms and definitions to discover concept *identifiers* (3.3.1)

3.4 Terms relating to measurement

3.4.1
measure, verb
ascertain or determine the magnitude or quantity of something

3.4.2
measurement
result of *measuring* (3.4.1) something

3.4.3
measurement data
data (3.2.2) representing a *measurement* (3.4.2)

3.4.4
unit of measurement
measurement unit
unit
real scalar quantity, defined and adopted by convention, with which any other quantity of the same kind can be compared to express the ratio of the second quantity to the first one as a number

[SOURCE: ISO 80000-1:2009, 3.9, modified — Notes to entry have been removed.]

3.4.5
qualifier of measurement
indication of a value not being an actual, exact representation of a single instance of a *measurement* (3.4.2)

EXAMPLE Qualifiers can include “nominal”, “maximum”, “minimum” and “typical”.

3.5 Terms relating to industrial data

3.5.1
industrial data
data (3.2.2) representing *information* (3.2.1) that enables and supports the life-cycle of goods and services

EXAMPLE 1 Industrial data includes data about: *products* (3.5.2); life-cycle *processes* (3.1.1), including manufacturing, distribution and maintenance; facilities that are used by life-cycle processes; digital twins; product geometry, topology and visualization; technical dictionaries; and parts catalogues.

EXAMPLE 2 The ISO 10303 series, the ISO 13584 series, the ISO 15926 series, the ISO 22745 series and the ISO/TS 29002 series each specifies *requirements* (3.1.2) applicable to industrial data.

EXAMPLE 3 The term “industrial” is distinct from the terms “agricultural” and “commercial”.

Note 1 to entry: Supporting the life-cycle includes supporting the processes of the life-cycle and the facilities that are used by those processes.

Note 2 to entry: Although the ISO 8000 series is developed by ISO/TC 184/SC 4 (Industrial Data), most parts in the series are applicable to all types of data.

3.5.2
product
thing or substance produced by a natural or artificial *process* (3.1.1)

[SOURCE: ISO 10303-1:2021, 3.1.49, modified — Note 1 to entry has been removed.]

3.5.3
product data
data that is a representation of *product* (3.5.2) *information* (3.2.1)

[SOURCE: ISO 10303-1:2021, 3.1.50]

3.5.4
application
one or more *processes* (3.1.1) creating or using *product data* (3.5.3)

[SOURCE: ISO 10303-1:2021, 3.1.5]

3.5.5
application protocol
AP
part of ISO 10303 that specifies an application interpreted model satisfying the scope and *information* (3.2.1) *requirements* (3.1.2) for a specific *application* (3.5.4)

Note 1 to entry: This definition differs from the definition used in open system interconnection (OSI) standards. No part of the ISO 8000 series, however, contains content referring specifically to OSI communication, so this definition applies in all parts of the ISO 8000 series.

[SOURCE: ISO 10303-1:2021, 3.1.17, modified — Note 1 to entry has been modified.]

3.5.6
application reference model
ARM
information (3.2.1) model that describes the information *requirements* (3.1.2) and constraints of an *application* (3.5.4) within an *application protocol* (3.5.5) or module

[SOURCE: ISO 10303-1:2021, 3.1.18]

3.5.7
application software
application program
software or program that is specific to the solution of an *application* (3.5.4) problem

[SOURCE: ISO/IEC 2382:2015, 2121364, modified — Notes to entry have been removed.]

3.6 Terms relating to data dictionary

3.6.1
data dictionary entry
description of an *entity* (3.3.3) type containing, at a minimum, an unambiguous *identifier* (3.3.1), a term and a definition

Note 1 to entry: In the *data* (3.2.2) architecture specified by the ISO 8000 series, a property need not be associated with a specific data type in a *data dictionary* (3.6.2). The association between a property and a data type can be made in a *data specification* (3.6.3).

Note 2 to entry: In order to exchange a value corresponding to a data dictionary entry, more *information* (3.2.1) than an identifier, a name and a definition can be needed. For a property, a data type is needed. Depending on the kind of property, other data items (e.g. *unit of measurement* (3.4.4), language) can also be needed. These elements can be given in the data dictionary, in a data specification that references the data dictionary entry, or directly associated with the data.

Note 3 to entry: In the data architecture of the ISO 13584 series, the dictionary entry for a property is required to reference a specific data type. Thus, a dictionary entry in the ISO 13584 series is a special case of the more general concept, as it includes elements of a data specification.

[SOURCE: ISO 22745-2:2010, B.2.17, modified — The notes to entry have been replaced.]

3.6.2
data dictionary
collection of *data dictionary entries* (3.6.1) that allows lookup by *entity* (3.3.3) *identifier* (3.3.1)

[SOURCE: ISO 22745-2:2010, B.2.16]

3.6.3
data specification
set of *requirements* (3.1.2) covering the characteristics of *data* (3.2.2) being fit for one or more particular purposes

Note 1 to entry: ISO 8000-110 requires a data specification to describe how items belong to a particular class by using entries from a *data dictionary* (3.6.2).

Note 2 to entry: In collaborative relationships, the supplier of data and the user of that data agree the content of the data specification in order to ensure the collaboration will be successful (i.e. the supplier can supply conforming data and the user is able to exploit the data for the intended purposes).

Note 3 to entry: An effective data specification is one where the creator of the specification intends for the requirements to be necessary and sufficient for the data to meet the particular purposes.

Note 4 to entry: All stakeholders will be able to understand the data specification more effectively if there is an explicit statement of the intended purposes for the data.

3.7 Terms relating to characteristic data

3.7.1
property-value tuple
property-value pair
instance of a value tuple together with an *identifier* (3.3.1) for a *data dictionary entry* (3.6.1) that defines a property

EXAMPLE 1 ISO 8000-110 specifies *requirements* (3.1.2) on property-value tuples when exchanging *master data* (3.11.1).

EXAMPLE 2 A flat washer has a property value "bolt thread diameter for which designed = 10 mm nominal". This property value is represented by the property-value tuple that consists of the identifier of the data dictionary entry for "bolt thread diameter for which designed" and the value tuple "10 mm nominal".

Note 1 to entry: The value tuple consists of a *data* (3.2.2) value, indication (if applicable) of the *unit of measurement* (3.4.4) for the value and indication (if applicable) of a *qualifier of measurement* (3.4.5) for the value.

3.7.2
characteristic data
description of an *entity* (3.3.3) by the class to which it belongs and a set of property values

EXAMPLE 1 The ISO 13584 series, the ISO 15926 series, the ISO 22745 series, the ISO 13399 series and the ISO/TS 29002 series all include characteristic data in their *data* (3.2.2) models.

EXAMPLE 2 The item "O-ring — 100,00x2,65. NBR 70" appears in a manufacturer's catalogue. It can be described as:

— class: O-ring;

— property values: [material specification, nitrile-butadiene rubber (NBR)]; [inner diameter, 100 millimetres]; [cross section, 2,65 millimetres]; [Shore hardness rating, 70 durometer]; [colour, black]; [operating temperature range, −30 °C to +100 °C].

In actual characteristic data, the first element of each bracketed pair would be an *identifier* (3.3.1) for a *data dictionary entry* (3.6.1). The elements are shown decoded here for clarity.

3.8 Terms relating to data quality

3.8.1
data quality
degree to which a set of inherent characteristics of *data* (3.2.2) fulfils *requirements* (3.1.2)

Note 1 to entry: See also *quality* (3.1.3).

3.8.2
data quality management
coordinated activities to direct and control an organization with regard to *data quality* (3.8.1)

3.8.3
data error
non-fulfilment of a *data* (3.2.2) *requirement* (3.1.2)

Note 1 to entry: In this term, "error" is synonymous with *nonconformity* (3.1.5).

3.8.4
data provenance record
record of the ultimate derivation and passage of a piece of *data* (3.2.2) through its various owners or custodians

Note 1 to entry: A data provenance record can include *information* (3.2.1) about creation, update, transcription, abstraction, *validation* (3.8.6), and transferring ownership of data.

3.8.5
verification
confirmation, through the provision of *objective evidence* (3.2.6), that specified *requirements* (3.1.2) have been fulfilled

[SOURCE: ISO 9000:2015, 3.8.12, modified — Notes to entry have been removed.]

3.8.6
validation
confirmation, through the provision of *objective evidence* (3.2.6), that the *requirements* (3.1.2) for a specific intended use or *application* (3.5.4) have been fulfilled

[SOURCE: ISO 9000:2015, 3.8.13, modified — Notes to entry have been removed.]

3.8.7
authoritative data source
owner of a *process* (3.1.1) that creates *data* (3.2.2)

EXAMPLE The Department of Transportation of the Commonwealth of Pennsylvania, USA, is the authoritative data source for Pennsylvania motor vehicle registration records.

3.8.8
accepted reference value
value that serves as an agreed-upon reference for comparison

Note 1 to entry: The accepted reference value is derived as:

a) a theoretical or established value, based on scientific principles;

b) an assigned or certified value, based on experimental work of some national or international organization;

c) a consensus or certified value, based on collaborative experimental work under the auspices of a scientific or technical group;

d) the expectation, i.e. the mean of a specified set of *measurements* (3.4.2), when a), b) and c) are not available.

[SOURCE: ISO 3534-2:2006, 3.2.7]

3.8.9
true value
value that characterizes a characteristic perfectly defined in the conditions that exist when the characteristic is considered

Note 1 to entry: The true value is a theoretical concept and, in general, cannot be known exactly.

[SOURCE: ISO 3534-2:2006, 3.2.5 modified — "quantity or quantitative" has been removed in the definition and Note 1 to entry. Note 2 to entry was removed.]

3.8.10
data accuracy
accuracy
quality (3.1.3) of *data* (3.2.2) in respect of the represented value agreeing with the corresponding *true value* (3.8.9) to a degree necessary for an intended purpose

EXAMPLE 1 When creating a *data specification* (3.6.3) to address data accuracy considerations, an organization decides to include in the specification a *requirement* (3.1.2) for a length value to have three decimal places.

EXAMPLE 2 An inherent characteristic of some data is the use of three decimal places to represent a length value.

Note 1 to entry: For data accuracy, the relevant inherent characteristics of the data are those that determine how to interpret the value.

Note 2 to entry: No universal specification for data accuracy exists. Data accuracy depends on the details of the data representation, the subject matter of the data and the purpose to which the user intends to put the data.

Note 3 to entry: In practice, when assessing data accuracy, an organization can make use of an *accepted reference value* (3.8.8) rather than the true value.

Note 4 to entry: Not all aspects of data accuracy can be *verified* (3.8.5) by just assessing, as a closed system, the consistency of the data and the applicable data specification. If the data, for example, represents the length of a particular screw in a warehouse then the screw is in the real world, requiring an appropriate test to look beyond the content of the *data set* (3.2.4) and the data specification. Such testing is addressed by ISO 8000-8.

Note 5 to entry: ISO 8000-130 specifies the mechanisms by which an organization can state the accuracy of data (including identification of the method that has assessed the data) or assert the accuracy of data (including identification of the remediation that the organization will perform if the data in fact fails to meet the asserted level of accuracy).

3.8.11
data accuracy record
record of the *information* (3.2.1) provided about the *data accuracy* (3.8.10) of a specified *data set* (3.2.4)

Note 1 to entry: A data accuracy record can include representations and warranties of the data's accuracy.

3.8.12
data completeness
completeness
quality (3.1.3) of a *data set* (3.2.4) in respect of the content being all that is necessary for an intended purpose

EXAMPLE 1 When creating a *data specification* (3.6.3) that addresses data completeness considerations, an organization includes in the specification a *requirement* (3.1.2) for a data set to identify explicitly the applicable *unit of measurement* (3.4.4) for each physical quantity in the set.

EXAMPLE 2 When calculating the average speed of a journey, a user decides to use the start and end times of the journey and the total distance travelled. This decision determines the basis for data completeness of the required data set.

EXAMPLE 3 When calculating the maximum speed during a journey, a user decides to use a list of points in time and, for each point, the distance travelled to that point. The user decides an appropriate duration between each point in time. This duration being longer makes the calculation less accurate but prevents the data set becoming inappropriately large. These decisions determine the basis for data completeness of the required data set.

EXAMPLE 4 A buyer wants a supplier to send a list of all *products* (3.5.2) that are available for purchase. The supplier uses ISO 8000-140, which specifies how to provide a statement to confirm the supplier has created a data set representing a list that meets the buyer's requirement.

Note 1 to entry: For data completeness, the relevant inherent characteristics of the data set are those that determine which *data* (3.2.2) exist as part of the data set.

Note 2 to entry: No universal specification for data completeness exists. Data completeness depends on the content of the data set, the subject matter of the data and the purpose to which the user intends to put the data set.

Note 3 to entry: Not all aspects of data completeness can be *verified* (3.8.5) by just assessing, as a closed system, the consistency of the data set and the applicable data specification. If the data set claims, for example, to be a complete list of the employees of an organization then the actual human beings are in the real world, requiring an appropriate test to look beyond the content of the data set and the data specification. Such testing is addressed by ISO 8000-8.

Note 4 to entry: ISO 8000-140 specifies the mechanisms by which an organization can state the completeness of a data set (including identification of the method that has assessed the data) or assert the completeness of a data set (including identification of the remediation that the organization will perform if the data in fact fails to meet the asserted level of completeness).

3.8.13
data completeness record
record of the *information* (3.2.1) provided about the *data completeness* (3.8.12) of a specified *data set* (3.2.4)

Note 1 to entry: A data completeness record can include representations and warranties of the data completeness.

3.8.14
data quality issue
issue where *data* (3.2.2) is either a *nonconformity* (3.1.5) or a *defect* (3.1.6)

3.8.15
data quality planning
part of *data quality management* (3.8.2) focused on setting *data quality* (3.8.1) objectives and specifying necessary operational *processes* (3.1.1) and related resources to achieve the quality objectives

EXAMPLE The process reference model in ISO 8000-61 specifies more detail as to the purpose, outcomes and activities of data quality planning.

3.8.16
data quality control
part of *data quality management* (3.8.2) focused on fulfilling *data quality* (3.8.1) *requirements* (3.1.2)

EXAMPLE The *process* (3.1.1) reference model in ISO 8000-61 specifies more detail as to the purpose, outcomes and activities of data quality control.

3.8.17
data quality assurance
part of *data quality management* (3.8.2) focused on providing confidence that *data quality* (3.8.1) *requirements* (3.1.2) will be fulfilled

EXAMPLE The *process* (3.1.1) reference model in ISO 8000-61 specifies more detail as to the purpose, outcomes and activities of data quality assurance.

3.8.18
data quality improvement
part of *data quality management* (3.8.2) focused on increasing the ability to fulfil *data quality* (3.8.1) *requirements* (3.1.2)

EXAMPLE The *process* (3.1.1) reference model in ISO 8000-61 specifies more detail as to the purpose, outcomes and activities of data quality improvement.

3.9 Terms relating to syntax and semantics

3.9.1
formal syntax
specification of the valid sentences of a formal language using a formal grammar

EXAMPLE 1 An Extensible Markup Language (XML) document type definition (DTD) is a formal syntax.

EXAMPLE 2 ISO 10303-21 contains a formal syntax in Wirth Syntax Notation (WSN) for ISO 10303 physical files.

EXAMPLE 3 When exchanging *master data* (3.11.1) using messages, ISO 8000-110 specifies *requirements* (3.1.2) on each message identifying the formal syntax to which the message conforms.

Note 1 to entry: A formal language is computer-interpretable.

Note 2 to entry: Formal grammars are usually Chomsky context-free grammars.

Note 3 to entry: Variants of Backus-Naur Form (BNF) such as Augmented Backus-Naur Form (ABNF) and Wirth Syntax Notation (WSN) are often used to specify the syntax of computer programming languages and *data* (3.2.2) languages.

3.9.2
semantic encoding
concept encoding
technique of replacing natural language terms in a message with *identifiers* (3.3.1) that reference *data dictionary entries* (3.6.1)

EXAMPLE ISO 8000-110 specifies how semantic encoding supports the exchange of *master data* (3.11.1) that is *characteristic data* (3.7.2).

Note 1 to entry: By applying semantic encoding to *data* (3.2.2), an organization creates a basis for *portable data* (3.9.4) by ensuring the semantics of the data are explicit.

Note 2 to entry: Semantic encoding is necessary to create characteristic data, where the replaced natural language terms are properties (for each of which the *data set* (3.2.4) includes a corresponding value).

3.9.3
semantically coded data specification
data requirements statement
data specification (3.6.3) that uses entries from a *data dictionary* (3.6.2)

EXAMPLE 1 An identification guide conforming to ISO/TS 22745-30.

EXAMPLE 2 ISO 13584-501.

Note 1 to entry: A semantically coded data specification can be used to specify rules for describing items belonging to a particular class using *semantic encoding* (3.9.2).

3.9.4
portable data
data (3.2.2) where the *formal syntax* (3.9.1), semantics and any use restrictions are explicit

Note 1 to entry: When the use restrictions so allow, a set of portable data is useable in more than one *application software* (3.5.7) without incurring subsequent claims of ownership to any of the data by third parties.

Note 2 to entry: The semantics are provided by *metadata* (3.2.5), reference data and relationship data.

Note 3 to entry: Use of a *data dictionary* (3.6.2) is the basis for *semantic encoding* (3.9.2), which, in combination with identifying the applicable syntax for a *data set* (3.2.4), provides a foundation for being portable. Portable data can pass from one system to another reliably because the receiver can guarantee being able to process the format and the meaning of the data.

Note 4 to entry: By choosing a data dictionary that is not subject to use restrictions, i.e. offers *free decoding* (3.3.11), organizations can ensure a data set is portable without incurring subsequent claims of ownership to any of the data by third parties.

Note 5 to entry: Portable data is structured data but not all structured data is portable data.

3.10 Terms relating to transaction data

3.10.1
business transaction
completion of a business action or a course of action

3.10.2
transaction data
data (3.2.2) representing a *business transaction* (3.10.1)

3.11 Terms relating to master data

3.11.1
master data
data (3.2.2) held by an organization to describe the *entities* (3.3.3) that are both independent and fundamental for that organization, and referenced in order to perform its transactions

EXAMPLE A credit card transaction is related to two entities that are represented by master data. The first is the credit card account at the issuing bank and is identified by the credit card number, with the master data representing *information* (3.2.1) required by the issuing bank about that specific account. The second is the merchant account at the accepting bank and is identified by the merchant number, with the master data representing information required by the accepting bank about that specific merchant.

Note 1 to entry: Types of master data include records that describe customers, *products* (3.5.2), employees, materials, suppliers, services, shareholders, facilities, equipment, and rules and regulations.

Note 2 to entry: The determination of what is considered master data depends on the viewpoint of the organization.

Note 3 to entry: The term "entity" is used in the general sense, not as used in data modelling.

3.11.2
master data message
data (3.2.2) message used to exchange *master data* (3.11.1)

3.12 Terms relating to product data

3.12.1
product data quality
PDQ
degree to which a set of inherent characteristics of *product data* (3.5.3) fulfils *requirements* (3.1.2)

EXAMPLE 1 These requirements include consistency, *completeness* (3.8.12) and suitability for purpose.

EXAMPLE 2 ISO/TS 8000-311 provides guidance on using ISO 10303-59 to represent and exchange *data* (3.2.2) about product data quality.

[SOURCE: ISO 10303-59:2021, 3.1.6.7, modified — An additional EXAMPLE has been added.]

3.12.2
quality criterion
<quality of product shape data> criterion for evaluating *product data quality* (3.12.1)

EXAMPLE ISO/TS 8000-311 provides guidance on using ISO 10303-59 to represent and exchange *data* (3.2.2) about quality criteria for *product shape data* (3.12.3).

[SOURCE: ISO 10303-59:2021, 3.1.6.10, modified — Domain and an EXAMPLE have been added.]

3.12.3
product shape data
<the ISO 10303 series> *data* (3.2.2) representing *product* (3.5.2) shape with geometric and topological *information* (3.2.1) in accordance with ISO 10303-42

EXAMPLE ISO/TS 8000-311 provides guidance on using ISO 10303-59 to represent and exchange *data* (3.2.2) about *product data quality* (3.12.1).

[SOURCE: ISO 10303-59:2021, 3.1.6.9, modified — An EXAMPLE has been added.]

3.12.4
threshold
<quality of product shape data> reference value used for the assessment of a *measured* (3.4.1) value of *product data quality* (3.12.1) by numerical test

EXAMPLE 1 A distance threshold of 0,01 mm is specified for evaluating the gap between a base surface and bounding curves for trimming the effective portion of the surface. This threshold implies that if the measured maximum distance between the surface and the curves is greater than or equal to 0,01 mm then the gap is a *data quality defect* (3.12.5).

EXAMPLE 2 ISO/TS 8000-311 provides guidance on using ISO 10303-59 to represent and exchange *data* (3.2.2) about thresholds in the context of *product shape data* (3.12.3) *quality* (3.1.3).

[SOURCE: ISO 10303-59:2021, 3.1.6.12, modified — Domain and an EXAMPLE have been added.]

3.12.5
data quality defect
product data quality defect
<quality of product shape data> characteristic of *product* (3.5.2) model *data* (3.2.2), where the characteristic does not fulfil an applicable *requirements* (3.1.2) according to a *threshold* (3.12.4) specified by a user

EXAMPLE ISO/TS 8000-311 provides guidance on using ISO 10303-59 to represent and exchange data about product data quality defects.

[SOURCE: ISO 10303-59:2021, 3.1.6.11, modified — Domain and an EXAMPLE have been added.]

3.12.6
inspection
product data quality inspection
<quality of product shape data> check of the *quality* (3.1.3) of *product data* (3.5.3) by *application software* (3.5.7) against criteria that take account of *thresholds* (3.12.4) specified by a user

EXAMPLE ISO/TS 8000-311 provides guidance on using ISO 10303-59 to represent and exchange *data* (3.2.2) about product data quality inspections.

[SOURCE: ISO 10303-59:2021, 3.1.6.3, modified — Domain and an EXAMPLE have been added.]

3.12.7
inspection result
product data quality inspection result
<quality of product shape data> result of *inspection* (3.12.6) to determine whether or not *product data* (3.5.3) contain *data quality defects* (3.12.5)

EXAMPLE ISO/TS 8000-311 provides guidance on using ISO 10303-59 to represent and exchange *data* (3.2.2) about the results from *product data quality inspections* (3.12.6).

Note 1 to entry: Such results can also include detailed *information* (3.2.1) on what type of data quality defects exist, how serious the defect is and identification of the shape element data that has the defect.

[SOURCE: ISO 10303-59:2021, 3.1.6.4, modified — Domain and an EXAMPLE have been added.]

3.12.8
accuracy
convergence accuracy
<quality of product shape data> specification to control the convergence condition of an approximate solution

EXAMPLE ISO/TS 8000-311 provides guidance on using ISO 10303-59 to represent and exchange *data* (3.2.2) about accuracy in the context of *product shape data* (3.12.3) *quality* (3.1.3).

Note 1 to entry: This concept corresponds to the convergence condition of iterative numerical calculation required in the evaluation of shapes involving free-form geometry. There are two types of accuracy:

— general accuracy applied to all the *measurements* (3.4.2), and

— specific accuracy applied only to specified measurements.

Note 2 to entry: This term is distinct from the term *data accuracy* (3.8.10).

[SOURCE: ISO 10303-59:2021, 3.1.6.1, modified — Domain and an EXAMPLE have been added.]

3.12.9
measurement requirement
<quality of product shape data> specification of the necessary conditions for a *measurement* (3.4.2) to be capable of ensuring that a *quality criterion* (3.12.2) holds

EXAMPLE ISO/TS 8000-311 provides guidance on using ISO 10303-59 to represent and exchange *data* (3.2.2) about measurement requirements.

Note 1 to entry: A measurement requirement is a textual description of the method for *measuring* (3.4.1) the target data to determine the satisfaction (or not) of the identified quality criterion, which represents a particular *quality* (3.1.3) concern. The description identifies any necessary additional attributes and rules to control the test and also the element or elements that will be the subject of the test. The measurement requirement serves as an external specification on which to base reliable measurement algorithms.

Note 2 to entry: A measurement requirement does not specify an algorithm for the measurement *process* (3.1.1). Such algorithms are outside the scope of standards because algorithms are subject to continual improvement from innovation and competition between engineering system vendors.

[SOURCE: ISO 10303-59:2021, 3.1.6.6, modified — Domain and an EXAMPLE have been added.]

3.13 Terms relating to item of production and item of supply

3.13.1
item of production
goods or service that conforms to a specification defined by a supplier

Note 1 to entry: Items of production are commonly tracked by *part numbers* (3.13.4), model numbers, or procedure codes.

[SOURCE: ISO 22745-2:2010, 22.2, modified — The word “good” has been replaced with “goods”.]

3.13.2
serial number
asset tracking number
asset number
number used to identify an individual occurrence of an *item of production* (3.13.1)

EXAMPLE Company A makes an item of production with *part number* (3.13.4) 253144-22, which has the following description: two piece ball valve, size 1/2 in, FNPT connection, max. pressure 600 PSI (pounds per square inch) WOG (water, oil, and gas), 150 PSI WSP (working steam pressure), full port, material of construction forged brass, ball material polytetrafluoroethylene, temperature range −40 °F to 400 °F. Company A assigns serial number 31552984 to the particular valve (physical object) with part number 253144-22 that comes off the production line at 2009-04-16T15:51:31.

3.13.3
item of supply
class of substitutable goods or services that fulfil a fit, form or function defined by a buyer

[SOURCE: ISO 22745-2:2010, 22.1]

3.13.4
part number
unique alphanumeric designation assigned to an object in a manufacturing system

[SOURCE: ISO 22745-2:2010, 22.4, modified — Notes to entry have been removed.]

3.13.5
stockkeeping unit
sku
identifier (3.3.1) of a set of *product* (3.5.2) characteristics for the purpose of inventory control or procurement

EXAMPLE 1 A NATO stock number is a stockkeeping unit.

EXAMPLE 2 A material identifier in an enterprise resource planning system is a stockkeeping unit.

Note 1 to entry: A stockkeeping unit is usually assigned by the buyer of products.

3.14 Terms relating to data quality role

3.14.1
responsibility
combination of activities, decision making and achieving outcomes, where the combination is performed by a specified party

EXAMPLE ISO 8000-150 describes groups of responsibility for *data quality management* (3.8.2).

Note 1 to entry: Combination means

— zero or more activities,

— zero or more decisions,

— zero or more outcomes, and

— at least one activity, decision or outcome.

Note 2 to entry: The specified party is either a person or an organization. The party can take on the responsibility either through voluntary commitment or under direction from another party.

3.14.2
role
set of *responsibilities* (3.14.1), where the set can be assigned by an organization to a person and this assignment directs the person to perform each responsibility

EXAMPLE 1 Roles include *data manager* (3.14.5), *data administrator* (3.14.4) and *data technicians* (3.14.3).

EXAMPLE 2 An organization directs one person to perform the roles of chief *information* (3.2.1) officer and chief information security officer.

EXAMPLE 3 ISO 8000-150 identifies the role level for groups of responsibility for *data quality management* (3.8.2).

Note 1 to entry: Typically, a role has a label.

Note 2 to entry: An organization can assign more than one role to a person.

Note 3 to entry: An organization can assign the same role to more than one person. In this case, typically, the organization will also implement mechanisms to ensure:

— more than one person does not perform the same instance of an activity (unless teamwork is necessary);

— each person does not leave an instance of an activity to someone else with the result that nobody performs that instance.

3.14.3
data technician
person who creates, reads, modifies, and deletes *data* (3.2.2) in accordance with the guidelines for *data quality management* (3.8.2), and *measures* (3.4.1) *data quality* (3.8.1) and corrects *data errors* (3.8.3) found as a result of *measuring* (3.4.1) data quality

Note 1 to entry: The *data administrator* (3.14.4) sets the guidelines for data quality management.

3.14.4
data administrator
person who controls and coordinates the work of *data technicians* (3.14.3) by defining criteria needed to maintain *data quality* (3.8.1), by designing *data* (3.2.2) schemata, and by analysing the causes of errors to prevent their recurrence

Note 1 to entry: By providing supporting resources and guidelines to data technicians, the data administrator puts the data quality plan into practice.

3.14.5
data manager
person who establishes plans for *data quality* (3.8.1) improvement in an organization, grants *data administrators* (3.14.4) the authority to trace and correct *data* (3.2.2) over the *information* (3.2.1) systems or organization, and maintains data consistency in individual information systems through the organization-wide data architecture

3.14.6
data steward
person or organization delegated the *responsibility* (3.14.1) for managing a specific set of *data* (3.2.2) resources

[SOURCE: ISO 15143-1:2010, 3.3.21]

3.15 Terms relating to process assessment

3.15.1
process assessment model
model suitable for the purpose of assessing a specified *process* (3.1.1) *quality* (3.1.3) characteristic, based on one or more process reference models

Note 1 to entry: Process assessment models addressing a specific process quality characteristic can include the identification of the characteristic in the title; for example, a process assessment model addressing *process capability* (3.15.15) can be termed a "process capability assessment model".

[SOURCE: ISO/IEC 33001:2015, 3.3.9]

3.15.2
process dimension
set of elements in a *process assessment model* (3.15.1) explicitly related to the *processes* (3.1.1) defined in the relevant process reference model(s)

Note 1 to entry: For example, in ISO/IEC 33063, the elements of the process dimension include processes, process purpose statements, *process outcomes* (3.15.17), and process performance indicators.

[SOURCE: ISO/IEC 33001:2015, 3.3.10, modified — In Note 1 to entry, "ISO/IEC 33061" has been replaced with "ISO/IEC 33063".]

3.15.3
maturity model
model derived from one or more specified *process assessment models* (3.15.1) that identify the *process* (3.1.1) sets associated with the levels in a specified scale of organizational process maturity

[SOURCE: ISO/IEC 33001:2015, 3.3.7, modified — The words "model(s) that identifies" have been replaced with "models that identify".]

3.15.4
organizational unit
identified part of an organization that deploys one or more *processes* (3.1.1) that operate within a coherent set of business goals and which forms the basis for the scope of an assessment

Note 1 to entry: An organizational unit is typically part of a larger organization, although in a small organization, the organizational unit can be the whole organization.

[SOURCE: ISO/IEC 33001:2015, 3.2.14]

3.15.5
maturity level
point on an ordinal scale of organizational *process* (3.1.1) maturity that characterises the maturity of the *organizational unit* (3.15.4) assessed in the scope of the *maturity model* (3.15.3) used

[SOURCE: ISO/IEC 33001:2015, 3.4.1]

3.15.6
process assessment
disciplined evaluation of an *organizational unit's* (3.15.4) *processes* (3.1.1) against a *process assessment model* (3.15.1)

[SOURCE: ISO/IEC 33001:2015, 3.2.15]

3.15.7
assessment input
information (3.2.1) required before a *process assessment* (3.15.6) can commence

[SOURCE: ISO/IEC 33001:2015, 3.2.3, modified — Note 1 to entry has been removed.]

3.15.8
assessment output
all of the tangible results from a *process assessment* (3.15.6)

Note 1 to entry: See also *assessment record* (3.15.13).

[SOURCE: ISO/IEC 33001:2015, 3.2.4, modified — The words "an assessment" have been replaced with "a process assessment" and Note 1 to entry has been added.]

3.15.9
assessment team
one or more individuals who jointly perform a *process assessment* (3.15.6)

[SOURCE: ISO/IEC 33001:2015, 3.2.10]

3.15.10
process attribute
process quality attribute
measurable property of a *process* (3.1.1) *quality* (3.1.3) characteristic

[SOURCE: ISO/IEC 33001:2015, 3.4.3]

3.15.11
process attribute rating
judgement of the degree of achievement of the *process attribute* (3.15.10) for the assessed *process* (3.1.1)

[SOURCE: ISO/IEC 33001:2015, 3.4.5]

3.15.12
process profile
set of *process attribute ratings* (3.15.11) for an assessed *process* (3.1.1)

[SOURCE: ISO/IEC 33001:2015, 3.2.18]

3.15.13
assessment record
orderly documented collection of the *information* (3.2.1) which is pertinent to a *process assessment* (3.15.6) and adds to the understanding and *verification* (3.8.5) of the *process profiles* (3.15.12) generated by the assessment

[SOURCE: ISO/IEC 33001:2015, 3.2.7, modified — The words "pertinent to the assessment" have been replaced with "pertinent to a process assessment".]

3.15.14
assessment indicator
sources of *objective evidence* (3.2.6) used to support the assessor's judgement in rating *process attributes* (3.15.10)

[SOURCE: ISO/IEC 33001:2015, 3.3.1 — Note 1 to entry has been removed.]

3.15.15
process capability
characterization of the ability of a *process* (3.1.1) to meet current or projected business goals

[SOURCE: ISO/IEC 33020:2019, 3.4]

3.15.16
process capability level
characterization of a *process* (3.1.1) on an ordinal *measurement* (3.4.2) scale of a *process capability* (3.15.15)

[SOURCE: ISO/IEC 33020:2019, 3.5]

3.15.17
process outcome
observable result of the successful achievement of *process* (3.1.1) purpose

Note 1 to entry: An outcome statement describes one of the following: production of an artefact; a significant change in state; meeting of specified constraints, e.g. *requirements* (3.1.2), goals, etc.

[SOURCE: ISO/IEC 33001:2015, 3.3.11]

3.15.18
maturity level category
collection of one or more numeric *maturity levels* (3.15.5) that are described by the label of the category

3.15.19
quality management area
aspect of a *process* (3.1.1) for *data quality management* (3.8.2) where the aspect is to be subject to evaluation during a process maturity assessment