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Australian STANDARD®

STANDARDS Australia

Artificial intelligence — Data quality for analytics and machine learning (ML)

Part 2: Data quality measures



AS ISO/IEC 5259.2:2025

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A Standard always has the following parts:

(i) The Preface states who developed the Standard, what the Standard is aiming to do, and how it relates to other documents.

(ii) The Scope states what the Standard is about, what it covers and what it does not cover.

(iii) The Normative references clause lists other documents that are referenced in the Standard as part of requirements.

(iv) The Terms and definitions clause defines important terms to help with understanding the Standard.

A Standard may also include other parts, such as the following:

(1) A normative appendix sets additional requirements that need to be conformed to.

(2) An informative appendix provides additional information or guidance. They usually do not contain requirements. If an informative appendix does contain requirements, the Standard will explain when those requirements apply

(3) A Bibliography lists documents referenced in the Standard but not as part of requirements.

Many Standards include notes. Notes provide recommendations and/or guidance only. They never contain requirements.

Preface

This Standard was prepared by the Standards Australia Committee IT-043, Artificial Intelligence.

The objective of this document is to specify a data quality model, data quality measures and guidance on reporting data quality in the context of analytics and machine learning (ML).

This document is applicable to all types of organizations who want to achieve their data quality objectives.

This document is identical to, and has been reproduced from, ISO/IEC 5259-2:2024, *Artificial intelligence — Data quality for analytics and machine learning (ML) — Part 2: Data quality measures.*

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives or www.iec.ch/members_experts/refdocs).

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This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 42, *Artificial Intelligence.*

A list of all parts in the ISO/IEC 5259 series can be found on the ISO and IEC websites.

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 and www.iec.ch/national-committees.

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Introduction

Data-supported decision-making brings new challenges to data quality management in data analytics and artificial intelligence (AI) based on machine learning (ML). Issues in data quality, such as incomplete, false or outdated data, can adversely affect analytics and ML processes and outcomes. Data from various sources, including structured data (e.g. relational databases) and unstructured data (e.g. documents, images, audios), can be directly consumed into the data life cycle for analytics and ML model development. Data are transformed in each stage of the data life cycle of analytics and ML. A holistic standardized approach to control, produce and deliver sufficient high-quality data is necessary for data analytics and ML models to be safe, reliable and interoperable. To develop credible data quality management for analytics and ML, intrinsic data quality International Standards, including concepts and use cases, characteristics and measurements, management requirements, and process framework, can be considered.

This document is a part of the ISO/IEC 5259 series. This document builds upon the ISO 8000 series, ISO/IEC 25012 and ISO/IEC 25024. The purpose of this document is to describe a data quality model through the definition of data quality characteristics and data quality measures based on ISO/IEC 25012 and ISO/IEC 25024. Data quality models can be extended or modified according to this document.

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NOTES

Australian Standard®

Artificial intelligence — Data quality for analytics and machine learning (ML)

Part 2: Data quality measures

Section 1 Scope

This document specifies a data quality model, data quality measures and guidance on reporting data quality in the context of analytics and machine learning (ML).

This document is applicable to all types of organizations who want to achieve their data quality objectives.

Section 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 5259-1, *Artificial intelligence — Data quality for analytics and machine learning (ML) — Part 1: Overview, terminology, and examples*

ISO/IEC 25024, *Systems and software engineering — Systems and software Quality Requirements and Evaluation (SQuaRE) — Measurement of data quality*

ISO/IEC 22989, *Information technology — Artificial intelligence — Artificial intelligence concepts and terminology*

Section 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 5259-1, ISO/IEC 22989 and the following apply.

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
data
re-interpretable representation of information in a formalized manner suitable for communication, interpretation, or processing

Note 1 to entry: Data can be processed by humans or by automatic means.

[SOURCE: ISO/IEC 2382:2015, 2121272]

3.2
data frame
set of data records represented by a specific domain or purpose, with a shared structure of data items

Note 1 to entry: A data frame is two-dimensional, like a table with rows and columns. The term is specifically used in analytics and ML, e.g. in the R language, while other languages use “data set” to mean the same thing. In this document, “dataset” has a more generic meaning.

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