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Australian STANDARD

Systems and software engineering — Systems and software Quality Requirements and Evaluation (SQuaRE) — Measurement of data quality

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Preface

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee IT-015, Software and Systems Engineering.

After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

The objective of this Standard is to define data quality measures for quantitatively measuring the data quality in terms of characteristics defined in AS/NZS ISO/IEC 25012.

This Standard contains the following:

(a) a basic set of data quality measures for each characteristic;

(b) a basic set of target entities to which the quality measures are applied during the data-life-cycle;

(c) an explanation of how to apply data quality measures; and

(d) a guidance for organizations defining their own measures for data quality requirements and evaluation.

This Standard is identical with, and has been reproduced from, ISO/IEC 25024:2015, *Systems and software engineering — Systems and software Quality Requirements and Evaluation (SQuaRE) — Measurement of data quality.*

As this document has been reproduced from an International Standard, the following applies:

(i) In the source text "this International Standard" should read "this Australian Standard".

(ii) A full point substitutes for a comma when referring to a decimal marker.

Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific Standards.

The terms "normative" and "informative" are used in Standards to define the application of the appendices or annexes to which they apply. A "normative" appendix or annex is an integral part of a Standard, whereas an "informative" appendix or annex is only for information and guidance.

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

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

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software and systems engineering*.

The SQuaRE series of standards consists of the following divisions, under the general title *Systems and software Quality Requirements and Evaluation*:

— ISO/IEC 2500n — *Quality Management Division*;

— ISO/IEC 2501n — *Quality Model Division*;

— ISO/IEC 2502n — *Quality Measurement Division*;

— ISO/IEC 2503n — *Quality Requirements Division*;

— ISO/IEC 2504n — *Quality Evaluation Division*;

— ISO/IEC 25050 to ISO/IEC 25099 — *SQuaRE Extension Division*.

Annexes A, B, C, and D are for information only.

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Introduction

This International Standard is a part of the SQuaRE series of International Standards. It provides a set of data quality measures that can be used for measuring and evaluating data quality by referring other SQuaRE series of standards, especially ISO/IEC 25012.

The set of data quality measures in this International Standard is selected based on their practical value. They are not intended to be exhaustive and users of this International Standard are encouraged to refine them if necessary.

Quality measurement division

This International Standard is a part of ISO/IEC 2502n series that currently consists of the following International Standards:

— ISO/IEC 25020 — **Measurement reference model and guide:** provides a reference model and guide for measuring the quality characteristics defined in ISO/IEC 2501n.

— ISO/IEC 25021 — **Quality measure elements:** provides a format for specifying quality measure elements and some examples of quality measure elements that can be used to construct software quality measures.

— ISO/IEC 25022 — **Measurement of quality in use:** provides measures including associated measurement methods and quality measure elements for the quality characteristics in the quality in use model.

— ISO/IEC 25023 — **Measurement of system and software product quality:** provides measures including associated measurement methods and quality measure elements for the quality characteristics in the product quality model.

— ISO/IEC 25024 — **Measurement of data quality:** provides measures including associated measurement methods and quality measure elements for the quality characteristics in the data quality model.

Figure 1 depicts the relationship between this International Standard and the other standards in ISO/IEC 2502n.

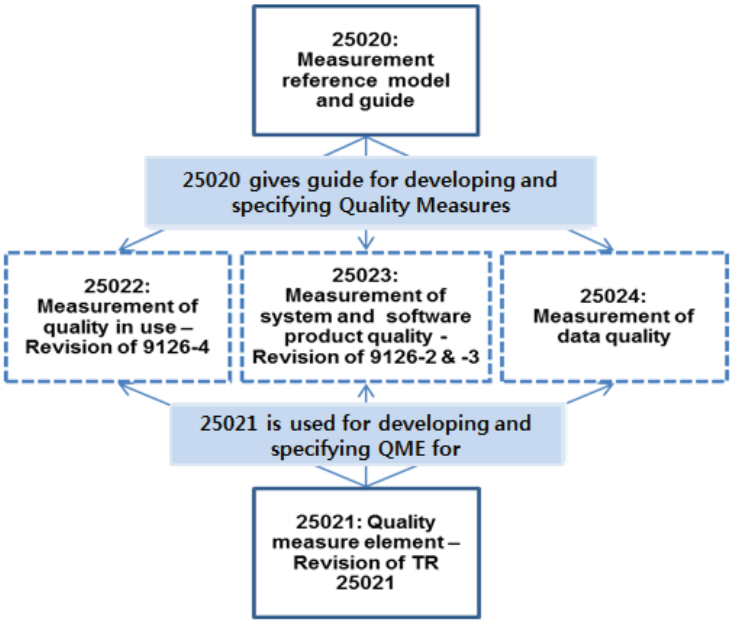


Figure 1 — Structure of the Quality Measurement Division

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Outline and organization of SQuaRe series

The SQuaRE series consists of five main divisions and extension division. Outline of each divisions within SQuaRE series are as follows.

— ISO/IEC 2500n — **Quality Management Division**. The standards that form this division define all common models, terms, and definitions referred further by all other standards from SQuaRE series. The division also provides requirements and guidance for the planning and management of a project.

— ISO/IEC 2501n — **Quality Model Division**. The standards that form this division present quality models for system/software products, quality in use, and data. A service quality is under development. Practical guidance on the use of the quality model is also provided.

— ISO/IEC 2502n — **Quality Measurement Division**. The standards that form this division include a system/software product quality measurement reference model, definitions of quality measures, and practical guidance for their application. This division presents internal measures of software quality, external measures of software quality, quality in use measures, data quality measures from "Inherent", and "System dependent" point of view. Quality measure elements forming foundations for the quality measures are defined and presented.

— ISO/IEC 2503n — **Quality Requirements Division**. The standards that form this division help specify quality requirements. These quality requirements can be used in the process of quality requirements elicitation for a system/software product to be developed designing a process for achieving necessary quality or as inputs for an evaluation process.

— ISO/IEC 2504n — **Quality Evaluation Division**. The standards that form this division provide requirements, recommendations, and guidelines for system/software product evaluation whether performed by independent evaluators, acquirers, or developers. The support for documenting a quality measure as an evaluation module is also presented.

ISO/IEC 25050 to ISO/IEC 25099 are reserved for SQuaRE extension International Standards which currently includes ISO/IEC 25051 and ISO/IEC 25060 to ISO/IEC 25069.

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Australian Standard®

Systems and software engineering — Systems and software Quality Requirements and Evaluation (SQuaRE) — Measurement of data quality

1 Scope

This International Standard defines data quality measures for quantitatively measuring the data quality in terms of characteristics defined in ISO/IEC 25012.

This International Standard contains the following:

— a basic set of data quality measures for each characteristic;

— a basic set of target entities to which the quality measures are applied during the data-life-cycle;

— an explanation of how to apply data quality measures;

— a guidance for organizations defining their own measures for data quality requirements and evaluation.

It includes, as informative annexes, a synoptic table of quality measure elements defined in this International standard (Annex A), a table of quality measures associated to each quality measure element and target entitiy (Annex B), considerations about specific quality measure elements (Annex C), a list of quality measures in alphabetic order (Annex D), and a table of quality measures grouped by characteristics and target entities (Annex E).

This International Standard does not define ranges of values of these quality measures to rate levels or grades because these values are defined for each system by its nature depending on the system context and users' needs.

This International Standard can be applied to any kind of data retained in a structured format within a computer system used for any kinds of applications.

People managing data and services including data are the primary beneficiaries of the quality measures.

This International Standard is intended to be used by people who need to produce and/or use data quality measures while pursuing their responsibilities.

— Acquirer (an individual or organization that acquires or procures data from a supplier).

— Evaluator (an individual or organization that performs an evaluation, which can, for example, be a testing laboratory, the quality department of an organization, a government organization, or a user).

— Developer (an individual or organization that performs development activities including requirements, analysis, design, implementation, and testing data during the data-life-cycle).

— Maintainer (an individual or organization that performs operation and maintenance activities of data).

— Supplier (an individual or organization that enters into a contract with the acquirer for the supply of data or service under the terms of the contract).

— User (an individual or organization that uses data to perform a specific function).

— Quality manager (an individual or organization that performs a systematic examination of the data).

— Owner (an individual or organization that takes responsibility for the management and financial value of the data with the legal authority and responsibility to establish for them evaluation, collections, access, dissemination, storage, security, and cancellation).

This International Standard takes into account a large range of data of target entities.

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