AS/NZS ISO/IEC 25021:2013
ISO/IEC 25021:2012

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Australian/New Zealand Standard™

# Systems and software engineering—Systems and software Quality Requirements and Evaluation (SQuaRE)—Quality measure elements


This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee IT-015, Software and Systems Engineering. It was approved on behalf of the Council of Standards Australia on 6 May 2013 and on behalf of the Council of Standards New Zealand on 29 April 2013.
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*This Standard was issued in draft form for comment as DR AS/NZS ISO/IEC 25021.*

Australian/New Zealand Standard™

# Systems and software engineering—Systems and software Quality Requirements and Evaluation (SQuaRE)—Quality measure elements

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# PREFACE

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

The objective of this Standard is to define and/or design an initial set of Quality Measure Elements (QME) to be used throughout the product life cycle for the purpose of Systems and Software Quality Requirements and Evaluation (SQuaRE). The document also gives a set of rules to design a QME or verify the design of an existing QME.

This Standard is identical with, and has been reproduced from ISO/IEC 25021:2012, *Systems and software engineering—Systems and software Quality Requirements and Evaluation (SQuaRE)—Quality measure elements.*

As this Standard is reproduced from an International Standard, the following applies:

(a) In the source text 'this International Standard' should read 'this Australian/New Zealand Standard'.

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

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

| *Reference to International Standard* | | *Australian/New Zealand Standard* | |
|---|---|---|---|
| ISO/IEC | | AS/NZS ISO/IEC | |
| 15939 | Systems and software engineering—Measurement process | 15939 | Systems and software engineering—Measurement process |
| 25000 | Software engineering—Software product Quality Requirements and Evaluation (SQuaRE)—Guide to SQuaRE | 25000 | Software engineering—Software product Quality Requirements and Evaluation (SQuaRE)—Guide to SQuaRE |
| 25010 | Systems and software engineering—Systems and software Quality Requirements and Evaluation (SQuaRE)—System and software quality models | 25010 | Systems and software engineering—Systems and software Quality Requirements and Evaluation (SQuaRE)—System and software quality models |
| 25020 | Software engineering—Software product Quality Requirements and Evaluation (SQuaRE)—Measurement reference model and guide | 25020 | Software engineering—Software product Quality Requirements and Evaluation (SQuaRE)—Measurement reference model and guide |

The term 'informative' has been used in this Standard to define the application of the annex to which it applies. An 'informative' annex is only for information and guidance.

# CONTENTS

# INTRODUCTION

The purpose of this International Standard is to define and/or design an initial set of Quality Measure Elements (QME) to be used throughout the product life cycle for the purpose of Systems and Software Quality Requirements and Evaluation (SQuaRE). The document also gives a set of rules to design a QME or verify the design of an existing QME. The content of this document constitutes the link between the ISO/IEC 9126 series of standards and the subsequent SQuaRE series of standards.

A number of QMEs for quality measures that quantify some of the characteristic and subcharacteristic represent an initial list, which is to be used during the construction of the quality measures as referenced in ISO/IEC TR 9126-2, ISO/IEC TR 9126-3 and ISO/IEC TR 9126-4. Quality measures presented in the SQuaRE series (Figures 1, 2) were extracted from ISO/IEC TR 9126 series but it is not the only source. When evaluating selected quality measures, the user should first understand the definition of each property related to a QME used within the selected quality measures.

The main purposes of defining and using the Quality Measures Elements (QMEs) in this document are:

- To provide guidance for organisations developing and implementing their own QMEs;
- To promote the consistent use of specific QME for measuring and using the product properties that are relevant to different product quality characteristics and subcharacteristics;
- To help identify a set of QMEs that are uniquely required to derive all the quality measures for a given set of characteristics or a set of subcharacteristics of a product.

The QMEs are the common components of a number of quality measures. The intended usage of this International standard is that users will be able to select and define relevant valid QMEs to define internal, external, data or quality-in-use quality measures. Then, these can be used for quality requirements definition, products evaluation and quality assessment but not necessary limited to those. It is therefore recommended to use this document prior or together with the ISO/IEC 2502n series of standards.

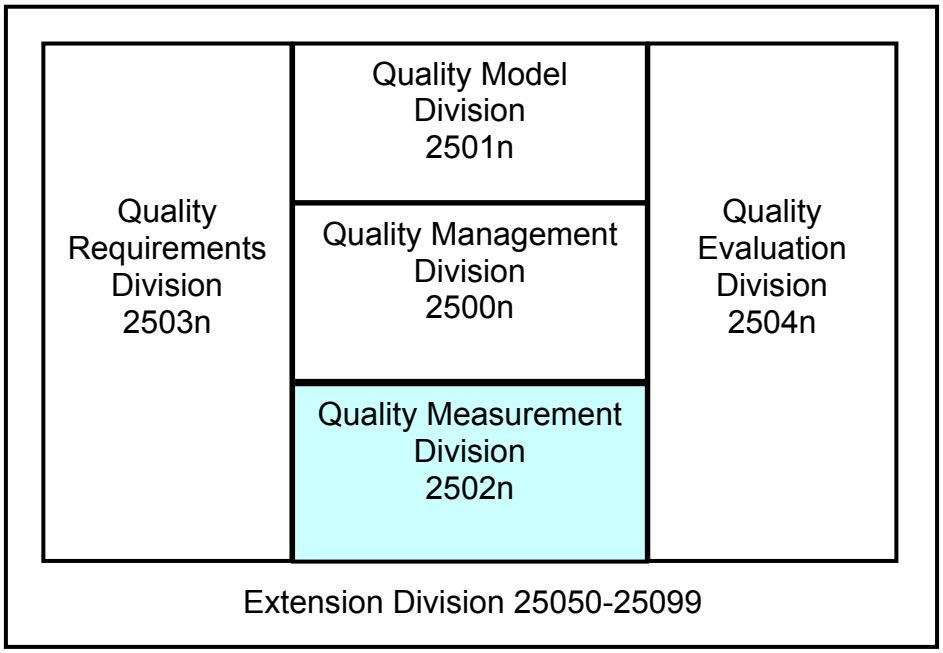


**Figure 1 — Organisation of the SQuaRE series of international standards**

Figure 1 illustrates the organisation of the SQuaRE series representing families of standards, further called Divisions.

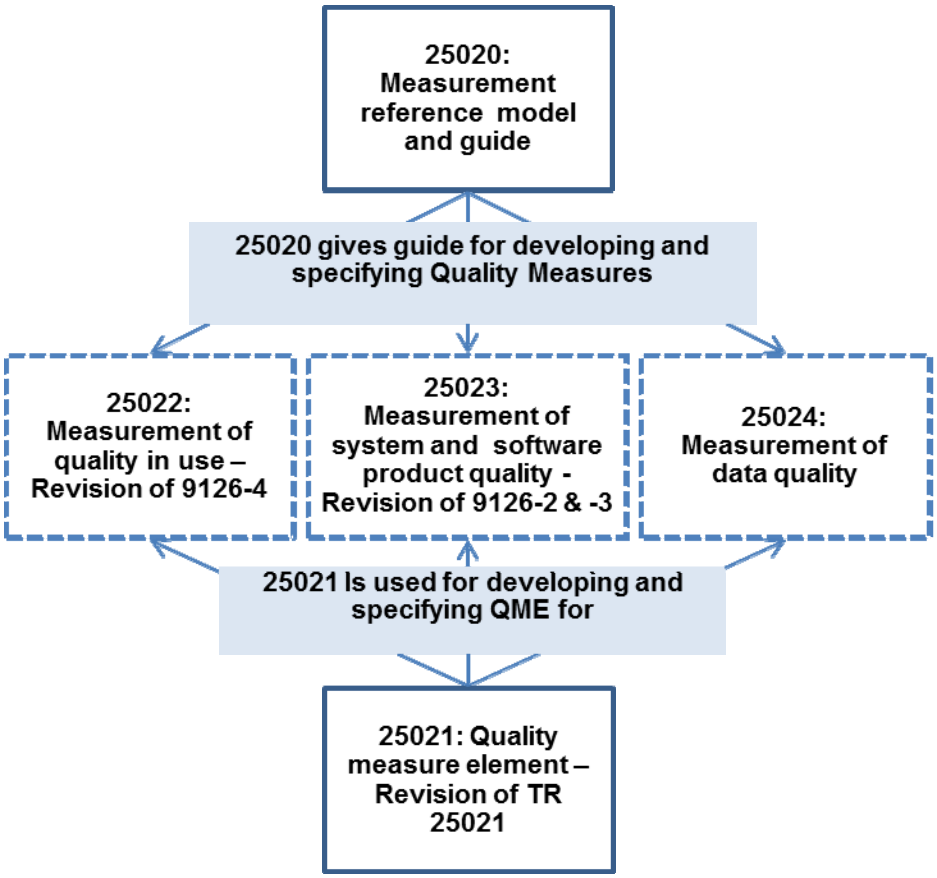


**Figure 2 — Structure of the Quality Measurement Division**

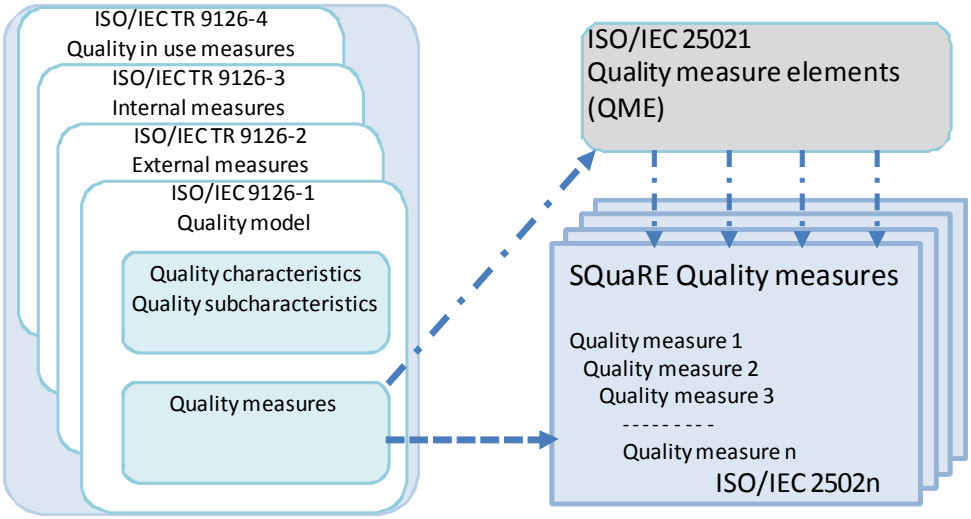


**Figure 3 — The relationship of ISO/IEC 25021 as a link between the 9126 series and the SQuaRE series of standard**

The ISO/IEC 9126 series is composed of four documents that list and describe the characteristics, subcharacteristics and quality measures that are referred to as the quality model. The SQuaRE quality models categorize product quality into characteristics which are further subdivided into subcharacteristics and quality properties (ISO/IEC 25010). Each quality measure within ISO/IEC 9126 series is composed of at least two QMEs. The properties (of a product) are linked to the QME (ISO/IEC 25020), using a measurement method. The 2502n series designs and describes quality measures and associated QMEs for all the quality (sub)characteristics in the quality model.

AUSTRALIAN/NEW ZEALAND STANDARD

# Systems and software engineering—Systems and software Quality Requirements and Evaluation (SQuaRE)—Quality measure elements

## 1 Scope

This International Standard contains the following information:

- Requirements for defining QMEs as part of the specification of the product quality requirements with examples (see 6.2 Tables 1 and 2);

NOTE Product quality includes system quality, software product quality, data quality and eventually system service quality.

- An initial set of QMEs, as examples (see Annex A Table A.1);

- A guideline for defining and quantifying the property of the product (target entity) for QMEs (see Annex B)

This document is intended for, but not limited to, developers, acquirers and independent evaluators of products, particularly those responsible for defining product quality requirements and for product evaluation. This International Standard is applicable when defining the QMEs to be used to implement quality measures such as those specified in ISO/IEC 25022, ISO/IEC 25023 and ISO/IEC 25024.

## 2 Conformance

When users define quality measures for a product, each of the referred QME shall be described according to the information items of format specified in Table 1 (see 6.2). The same should be applied for modifying an existing QME.

## 3 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 25000:2005, *Software engineering — Software product Quality Requirements and Evaluation (SQuaRE) — Guide to SQuaRE*

ISO/IEC 25010:2011, *Systems and software engineering — Systems and software product Quality Requirements and Evaluation (SQuaRE) — System and software quality models*

ISO/IEC 25020:2007, *Software engineering — Software product Quality Requirements and Evaluation (SQuaRE) — Measurement reference model and guide*

ISO/IEC 15939:2007, *Systems and software engineering — Measurement process*

ISO/IEC Guide 99:2007, *International vocabulary of metrology — Basic and general concepts and associated terms (VIM)*