AS/NZS ISO/IEC 25041:2013
ISO/IEC 25041:2012

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Australian/New Zealand Standard™

Systems and software engineering—Systems and software Quality Requirements and Evaluation (SQuaRE)—Evaluation guide for developers, acquirers and independent evaluators

STANDARDS Australia

STANDARDS NEW ZEALAND
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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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Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Web Shop at www.saiglobal.com.au or Standards New Zealand web site at www.standards.co.nz and looking up the relevant Standard in the on-line catalogue.

For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia or Standards New Zealand at the address shown on the back cover.

This Standard was issued in draft form for comment as DR AS/NZS ISO/IEC 25041.

Australian/New Zealand Standard™

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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 provide requirements and recommendations and guidelines for product quality evaluation specifically for developers, acquirers and independent evaluators. It is not restricted to any specific application area and can be used for quality evaluation of any type of products.

This Standard is identical with, and has been reproduced from ISO/IEC 25041:2012, *Systems and software engineering—Systems and software Quality Requirements* and *Evaluation (SQuaRE)—Evaluation guide for developers, acquirers and independent evaluators.*

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	
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
25001	Software engineering—Software product Quality Requirements and Evaluation (SQuaRE)—Planning and management	25001	Software engineering—Software product Quality Requirements and Evaluation (SQuaRE)—Planning and management
25030	Software engineering—Software product Quality Requirements and Evaluation (SQuaRE)—Quality requirements	25030	Software engineering—Software product Quality Requirements and Evaluation (SQuaRE)—Quality requirements
25040	Systems and software engineering—Systems and software Quality Requirements and Evaluation (SQuaRE)—Evaluation process	25040	Systems and software engineering—Systems and software Quality Requirements and Evaluation (SQuaRE)—Evaluation process

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INTRODUCTION

As the use of information technology grows, the number of critical systems also grows. Such systems include, for example, security critical, life critical, economically critical and safety critical systems. The quality of systems and software product of such critical systems is particularly important because software faults may lead to serious consequences.

Evaluation is the systematic determination of the extent to which an entity meets its specified criteria. The evaluation of product quality is vital to both the acquisition and development of software. The relative importance of the various characteristics of software quality depends on the intended usage or objectives of the system of which the software is a part; products need to be evaluated to decide whether relevant quality characteristics meet the requirements of the system.

This International Standard is part of the ISO/IEC 250nn SQuaRE series of standards. ISO/IEC 25040 contains general requirements and recommendations for product quality evaluation as well as associated general concepts. This International Standard provides specific issues related to the developers, acquirers and independent evaluators based on ISO/IEC 25040.

The general goal of creating the SQuaRE set of standards is to move to a logically organized, enriched and unified series covering two main processes: software quality requirements specification and software quality evaluation, supported by a software quality measurement process. The purpose of the SQuaRE set of standards is to assist those developing and acquiring products with the specification and evaluation of quality requirements. It establishes criteria for the specification of product quality requirements, their measurement, and evaluation. It includes a quality model for aligning customer definitions of quality with properties of the development process. In addition, the series provides recommended measures of product properties that can be used by developers, acquirers, and independent evaluators.

SQuaRE provides:

- terms and definitions;
- reference models;
- general guide;
- individual division guides, and
- standards for requirements specification, planning and management, measurement and evaluation purposes.

SQuaRE includes International Standards on quality modes and measures, as well as on quality requirements and evaluation.

SQuaRE replaces the current ISO/IEC 9126 series and the ISO/IEC 14598 series.

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*, and
- ISO/IEC 2504n - *Quality Evaluation Division*.

This International Standard is intended to be used in conjunction with the other parts of the SQuaRE series of standards, and with the ISO/IEC 14598 series and ISO/IEC 9126 series until superseded by the ISO/IEC 250nn series of standards.

The descriptions in this International Standard are mainly based on the descriptions in ISO/IEC 14598-3, ISO/IEC 14598-4, and ISO/IEC 14598-5, which will be replaced by this International Standard.

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

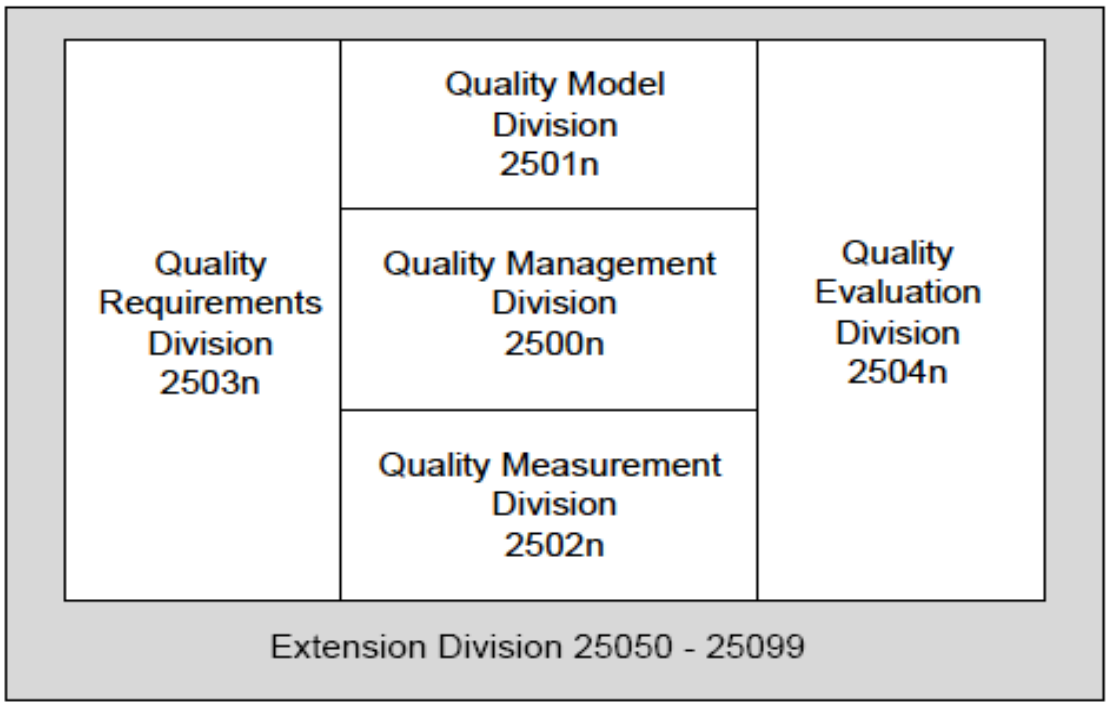

Figure 1—Organization of SQuaRE series of International Standards

The Divisions within the SQuaRE model are:

·**ISO/IEC 2500n - Quality Management Division**. The International Standards that form this division define all common models, terms and definitions referred to by all other standards from the SQuaRE series. Referring paths (guidance through SQuaRE documents) and high level practical suggestions in applying proper standards to specific application cases offer help to all types of users. The division also provides requirements and guidance for a supporting function which is responsible for the management of product requirements specification and evaluation.

·**ISO/IEC 2501n - Quality Model Division**. The International Standard that forms this division presents detailed quality models for software, quality in use and data. Practical guidance on the use of the quality model is also provided.

·**ISO/IEC 2502n - Quality Measurement Division**. The International Standards that form this division include a product quality measurement reference model, mathematical definitions of quality measures, and practical

guidance for their application. This division presents internal measures of software quality, external measures of software product quality and quality in use measures. Measurement primitives forming foundations for the latter measures are defined and presented.

·**ISO/IEC 2503n - Quality Requirements Division**. The International Standard that forms this division helps specifying quality requirements. These quality requirements can be used in the process of quality requirements elicitation for a product to be developed or as inputs for an evaluation process. The requirements definition process is mapped to technical processes defined in ISO/IEC 15288:2008.

·**ISO/IEC 2504n - Quality Evaluation Division**. The International Standards that form this division provide requirements, recommendations and guidelines for product evaluation, whether performed by independent evaluators, acquirers or developers. The support for documenting a measure as an Evaluation Module is also presented.

ISO/IEC 25050 to ISO/IEC 25099 are reserved to be used for SQuaRE extension International Standards and/or Technical Reports.

This International Standard is part of the 2504n - Quality Evaluation Division that currently consists of the following International Standards:

·**ISO/IEC 25040 - Evaluation process**: contains general requirements for specification and evaluation of software quality and clarifies the general concepts. It provides a process description for evaluating quality of product and states the requirements for the application of this process. The evaluation process is the basis for product quality evaluation for different purposes and approaches. Therefore the process can be used for the evaluation of quality in use, the external measure of software product quality and the internal measure of software product quality, as well as for the evaluation of the quality of pre-developed software product or custom software product during its development process.

·**ISO/IEC 25041 - Evaluation guide for developers, acquirers and independent evaluators**: contains specific requirements and recommendations for developers, acquirers and independent evaluators.

·**ISO/IEC 25045 - Evaluation module for recoverability:** provides the specification to evaluate the subcharacteristics of recoverability defined under the characteristic of reliability of the quality model. It determines the external measures of software product quality of resiliency and autonomic recovery index when the information system composed of one or more software products' execution transactions is subjected to a series of disturbances. A disturbance could be an operational fault (e.g. an abrupt shutdown of an OS process that brings down a system) or an event (e.g. a significant increase of users to the system).

ISO/IEC 25040 is a revised version and replaces ISO/IEC 14598-1.

ISO/IEC 25041 is a revised version and replaces ISO/IEC 14598-3, ISO/IEC 14598-4 and ISO/IEC 14598-5.

The term "product" is used as a simplified term for "systems and software product" throughout this International Standard.

The term "evaluation process" is used as a simplified term for "product quality evaluation process" throughout this International Standard.

The term "evaluation report" is used as a simplified term for "product quality evaluation report" and the term "evaluation plan" is used as a simplified term for "product quality evaluation plan" throughout this International Standard.

AUSTRALIAN/NEW ZEALAND STANDARD

Systems and software engineering—Systems and software Quality Requirements and Evaluation (SQuaRE)—Evaluation guide for developers, acquirers and independent evaluators

1 Scope

This International Standard provides requirements, recommendations and guidelines for product quality evaluation specifically for developers, acquirers and independent evaluators. It is not restricted to any specific application area and can be used for quality evaluation of any type of products.

This International Standard provides a process description for evaluating product quality and states the specific requirements for the application of the evaluation process from the viewpoint of developers, acquirers and independent evaluators. The evaluation process can be used for different purposes and approaches. The process can be used for the evaluation of the quality of pre-developed software, commercial-off-the-shelf software or custom software and can be used during or after the development process.

This International Standard is intended for those who are responsible for product quality evaluation and is appropriate for developers, acquirers and independent evaluators of products.

This International Standard is not intended for evaluation of other aspects of products (functional requirements, process requirements, business requirements, etc.).

2 Conformance

Evaluation of product quality conforms to this International Standard if developers conform to requirements of Clauses 6 and 7, if acquirers conform to requirements of Clauses 6 and 8, and if independent evaluators conform to requirements of Clauses 6 and 9.

3 Normative references

The following referenced documents are indispensable for the application 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 25000, *Software Engineering — Software product Quality Requirements and Evaluation (SQuaRE) — Guide to SQuaRE*

ISO/IEC 25001, *Software engineering — Software product Quality Requirements and Evaluation (SQuaRE) — Planning and management*

ISO/IEC 25030, *Software engineering — Software product Quality Requirements and Evaluation (SQuaRE) — Quality requirements*

ISO/IEC 25040, *Systems and software engineering — Systems and software Quality Requirements and Evaluation (SQuaRE) — Evaluation process*