

Australian/New Zealand Standard™

**Information technology—Learning,
education and training—Quality
management, assurance and metrics**

Part 3: Reference methods and metrics



AS/NZS ISO/IEC 19796.3:2013

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee IT-019, Information and Documentation, Information Technology—Learning, Education, Training and Research. It was approved on behalf of the Council of Standards Australia on 19 April 2013 and on behalf of the Council of Standards New Zealand on 8 April 2013.

This Standard was published on 13 May 2013.

The following are represented on Committee IT-019:

Australian Computer Society
Australian Library and Information Association
Council of Australian University Librarians
CSIRO Information and Communication Technologies Centre
Department of Education and Training, NSW
Education Services Australia
Institute of Metadata Management
La Trobe University
Macquarie E-Learning Centre of Excellence
National Library of Australia
National Library of New Zealand
Tertiary Library Networks
University of New South Wales
Victoria University
Waikato Institute of Technology

Additional Interests:

Sybis

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

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 19796.3.

Australian/New Zealand Standard™

Information technology—Learning, education and training—Quality management, assurance and metrics

Part 3: Reference methods and metrics

First published as AS/NZS ISO/IEC 19796.3:2013.

COPYRIGHT

© Standards Australia Limited/Standards New Zealand

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher, unless otherwise permitted under the Copyright Act 1968 (Australia) or the Copyright Act 1994 (New Zealand).

Jointly published by SAI Global Limited under licence from Standards Australia Limited, GPO Box 476, Sydney, NSW 2001 and by Standards New Zealand, Private Bag 2439, Wellington 6140.

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee IT-019, Information and Documentation, Information Technology—Learning, Education, Training and Research.

The objective of this Standard is to provide an extended reference framework for the description of quality approaches (RFDQ) defined in ISO/IEC 19796-1 by providing a harmonized description of the methods and metrics required to implement quality management and quality assurance systems for stakeholders designing, developing, or utilizing information technology systems used for learning, education and training.

This Standard is identical with, and has been reproduced from ISO/IEC 19796-3:2009, *Information technology—Learning, education and training—Quality management, assurance and metrics, Part 3: Reference methods and metrics*.

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

- (a) In the source text ‘this part of ISO/IEC 19796’ 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:

<i>Reference to International Standard</i>	<i>Australian/New Zealand Standard</i>
ISO/IEC TR	AS/NZS ISO/IEC
9126 Software engineering—Product quality	9126 Software engineering—Product quality
9126-2 Part 2: External metrics	9126.2 Part 2: External metrics
ISO/IEC	
19796 Information technology—Learning, education and training—Quality management, assurance and metrics	19796 Information technology—Learning, education and training—Quality management, assurance and metrics
19796-1 General approach	19796.1 General approach

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

1	Scope	1
2	Conformance	2
3	Normative references	2
4	Terms and definitions	2
5	Mapping quality approaches	4
5.1	Quality approaches and ISO/IEC 19796 series	4
5.2	Practical guideline for quality approaches	6
6	Quality management / assurance activity model	6
7	Reference model for quality methods	8
7.1	Categories	8
7.2	Elements	10
8	Reference model for quality metrics	14
8.1	Categories	14
8.2	Elements	16
9	Collection of methods and metrics	19
9.1	Collection of methods	19
9.2	Collection of metrics	22
Annex A (informative) Description format examples of methods reference model		30
Annex B (informative) Description format examples of metrics reference model		34
Bibliography		38

INTRODUCTION

Quality in the field of distance education and e-learning has become an issue of increasing importance in academia, institutions, and industry. A variety of approaches have been developed and implemented successfully. Generic standards, such as ISO 9000:2005 and/or ISO 14000 have been used also in the educational community. In addition to generic standards related to quality, there are specific quality guidelines that have been developed and used for e-Learning or distance education (such as the ASTD criteria for e-Learning, the BLA Quality Mark, Quality Platform Learning by D-ELAN, or Quality elements by Sloan-consortium). It has become clear that quality management can contribute to improve the performance of organizations in the field of learning, education, and training (LET).

Numerous approaches to quality management and assurance and their different scopes and objectives lead to confusion within communities that depend on information technologies to support and facilitate learning, education, and training. Therefore, a harmonized quality standard, the ISO/IEC 19796 series, has been developed.

ISO/IEC 19796 has five parts as a series. ISO/IEC 19796-1 is the basic framework for quality development in organizations within the field of learning, education, and training (LET). It serves as a framework to describe, compare, and analyze quality management and quality assurance approaches. In addition to providing a descriptive model that can be used to compare and analyze quality approaches, ISO/IEC 19796-1 identifies the components of a seven-part process model within the lifecycle of information and communication systems for learning, education, and training. As a framework it may be used to compare different quality assurance and quality management processes. This part of ISO/IEC 19796 provides reference methods and metrics used in the lifecycle process. It also provides examples of how methods and metrics can be generically described, compared, and used for specific contexts. For each process in the e-learning lifecycle, a set of potential methods and metrics should be specified. This set of methods and metrics can be used during the development of an individual quality approach that is based on defined quality objectives.

ISO/IEC 19796-1 describes the processes for the e-Learning lifecycle. It is a reference model with a high level of abstraction which has to be adapted to a certain organization and to a certain situation. To facilitate the adaptation procedure, two reference models for quality management and quality assurance are described in this part of ISO/IEC 19796:

- reference model for methods;
- reference model for metrics.

To facilitate the adaptation of ISO/IEC 19796-1, as the first step, this part of ISO/IEC 19796 provides reference methods and metrics used in lifecycle processes with the reference models from ISO/IEC 19796-1. It also provides collections of methods and metrics which are generically described and can be used for specific contexts. For each process in the e-Learning lifecycle, a set of potential methods and metrics should be specified. This set of methods and metrics can be used during the development and definition of an individual quality approach based on certain quality objectives.

ISO/IEC 19796-1 provides a description format and a process framework as the reference framework for the description of quality approaches (RFDQ), for the description and development of quality approaches. The RFDQ framework is only a base for quality development – it does not provide specific methods and metrics for particular quality objectives, and also does not provide instruments or procedures.

ISO Guide 72 Guidelines mainly distinguish three types of management system standards; Type A — management systems requirements standards, Type B — management systems guidelines standards, and Type C — management systems related standards. The consensus is to use *ISO Guide 72 Guidelines for the justification and development of management system standards*. Accordingly, this International Standard is Type C, a management systems related standard, as neither requirements are defined nor guidelines are given.

AUSTRALIAN/NEW ZEALAND STANDARD

Information technology—Learning, education and training—Quality management, assurance and metrics**Part 3:
Reference methods and metrics****1 Scope**

This part of ISO/IEC 19796 extends the “reference framework for the description of quality approaches” (RFDQ) defined in ISO/IEC 19796-1 by providing a harmonized description of the methods and metrics required to implement quality management and quality assurance systems for stakeholders designing, developing, or utilizing information technology systems used for learning, education, and training.

Activities such as quality planning, quality control, and quality improvement are important for quality management implementations. While these three activities are focused on products, processes and their development, quality assurance is focused more on confirmation and indication for internal and external stakeholders. It should be noted that the reference methods and metrics for this part of ISO/IEC 19796 include issues related to the implementation of quality management and assurance systems for information technologies that are used for learning, education, and training. This part of ISO/IEC 19796 is to be used to help identify methods and metrics to implement a quality assurance and management system of an IT system used for learning, education, and training. For example, it may be used for quality management systems that help to verify items such as IT system effectiveness, compliance with quality objectives including purposes, customer satisfaction, training in the use of the IT system, complaints handling, and auditing.

NOTE While not included in the normative references of this part of ISO/IEC 19796 it may be helpful for ITLET (Information Technology for Learning, Education, and Training) stakeholders interested in quality issues to refer to the related standards listed in the bibliography for further information regarding quality management and quality assurance.

During the implementation of quality management and quality assurance systems, using specific methods and metrics are indispensable for the exchange, purchase, management, and archiving of learning courses, systems, and/or services. Involving all stakeholders (e.g., developers, administrators, government, providers, teachers, and learners) within a framework that is open and inclusive will help to ensure that information technologies for learning, education, and training are both effective for and appropriate to learning and teaching needs.

This part of ISO/IEC 19796 has the following components, which are developed in order to indicate and communicate quality approaches.

- The reference model for methods — provides an interoperable formalized description of methods that can be easily implemented and adopted into a quality management system to realize and facilitate quality management.
- The reference model for metrics — provides an interoperable formalized description of metrics that can be easily implemented and adopted into a quality management system to measure quality in a comparable way.
- A collection of methods that can be used to manage and assure quality in different contexts. It supports stakeholders to implement concrete actions to achieve (a set of) quality objectives.