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# Systems and software engineering — Testing and reviewing of information for users

*Ingénierie des systèmes et du logiciel — Exigences pour testeurs et vérificateurs de documentation utilisateur*

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CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Institute of Electrical and Electronics Engineers, Inc
3 Park Avenue, New York
NY 10016-5997, USA

Email: stds.ipr@ieee.org
Website: www.ieee.org

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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.

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 7, *Software and systems engineering*, in cooperation with the Systems and Software Engineering Standards Committee of the IEEE Computer Society, under the Partner Standards Development Organization cooperation agreement between ISO and IEEE.

This second edition replaces the first edition (ISO/IEC/IEEE 26513:2017), which has been technically revised.

The main changes are as follows:

— replacement of terms to reflect ‘information for users’ throughout to align with related standards;

— updates to roles, process and evaluation approaches (impact of Agile development methods in industry);

— identification of AI implications in review and testing of information for users.

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

Well-designed information for users not only assists end users and helps to reduce the cost of training and support, but also enhances the reputation of the product, its producer, and its suppliers. Verification, validation testing, and expert review of information for users during development provides feedback to information developers regarding the accuracy and usability of their work. This document addresses the evaluation and testing of information for users to perform tasks, make decisions in context, and gain understanding of software and systems. It applies to both initial development and subsequent releases of software and systems.

This document is independent of the software tools that can be used to produce information for users and applies to any modality of information for users, embedded in the software and integrated user interface (labels, icons, navigation, etc.). Much of its guidance is applicable to information for users for systems as well as to the software used to control machinery or hardware devices. Increasingly, information developers are responsible for interface design and interaction behaviour.

This document is developed to assist those who review and test information for users as part of the information management process. This document defines the information management and validation processes of ISO/IEC/IEEE 12207 from the information assessors' and testers' standpoints. Readers are assumed to have experience with or general knowledge of reviewing and testing processes.

The order of clauses in this document does not imply that information for users is meant to be reviewed, assessed, edited, or tested in this order.

NOTE 1 Information for users is also included in evaluation of the software or system, as specified in the following documents:

— ISO/TR 25060;

— ISO 25062;

— ISO/IEC 25063;

— ISO/IEC 25064;

— ISO/IEC/IEEE 29119-3.

This document supports the interest of software and systems users in receiving consistent, complete, accurate, and usable information for users and specifies processes for use in reviewing and testing of information for users (Clause 5, 6 & 7). It is not limited to the review and test stage of the software and system lifecycle but includes activities throughout the information management process. The principles may also support earlier design activities (see Annex A). Information for users may be provided for application software, systems software, applications on mobile devices, software that controls machinery, and hardware devices.

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# Systems and software engineering — Testing and reviewing of information for users

## 1 Scope

This document applies to information such as printed or electronic user manuals, online help, embedded user assistance, tutorials, websites, or reference materials.

This document is applicable to all types of organizations, whether a dedicated information development team is present or not. In all cases, it can be used as a basis for local guidelines and procedures.

This document is applicable to reviewers, testers, and other related roles, including a variety of specialists:

— reviewers of information for users, and subject-matter experts;

— information developers and architects who plan the structure and format of products for information for users;

— usability specialists and business analysts who identify the tasks the intended users perform with the software;

— editors;

— customer support groups such as training, technical support, installers, system administrators.

This document can also be consulted by those with other roles and interests in the information management process. Managers of the software development process or the information management process consider the testing of information for users as part of their planning and management activities.

NOTE 2 Testing of information for users can highlight problems with the software. Resolving problems with the software is not in the scope of this document.

## 2 Normative references

There are no normative references in this document.

## 3 Terms and definitions

For the purposes of this standard, the following terms and definitions apply.

ISO, IEC and IEEE 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 http://www.electropedia.org

— IEEE Standards Dictionary Online: available at http://dictionary.ieee.org

NOTE For additional terms and definitions in the field of systems and software engineering, see ISO/IEC/IEEE 24765, which is published periodically as a "snapshot" of the SEVOCAB (Systems and Software Engineering Vocabulary) database and is publicly accessible at www.computer.org/sevocab.

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**3.1**
**A/B testing**
technique to determine the *effectiveness* (3.10) of minor changes in a product or design where “A” represents the original version and “B” represents the modified version

Note 1 to entry: This notation is typically used in *usability testing* (3.42). In this instance, A/B does not refer to alpha and beta *testing* (3.38).

**3.2**
**accessibility**
extent to which products, systems, services, environments and facilities can be used by people from a population with the widest range of user needs, characteristics, and capabilities to achieve identified goals in identified contexts of use

Note 1 to entry: Context of use includes direct use or use supported by assistive technologies.

[SOURCE: ISO 9241-940:2017, 3.1]

**3.3**
**artificial intelligence**
**AI**
capability of an engineered system to acquire, process and apply knowledge and skills

[SOURCE: ISO/IEC TR 29119-11:2020, 3.1.13]

**3.4**
**audience**
category of users sharing the same or similar characteristics and needs (e.g. purpose in using the *information for users* (3.2), tasks, education level, abilities, training, experience) that determine the content, structure, and use of the intended information

Note 1 to entry: There can be different audiences for information for users (e.g. management, data entry, maintenance, engineering, business professionals).

[SOURCE: ISO/IEC/IEEE 23026:2023, 3.1.2]

**3.5**
**caution**
advisory information that states that performing some action can result in minor or moderate injury or lead to consequences that are unwanted or undefined, such as loss of data or an equipment problem

Note 1 to entry: See also *danger* (3.8) and *warning* (3.48).

[SOURCE: ISO/IEC/IEEE 26514:2022, 3.1.8]

**3.6**
**complete information**
information including all *critical information* (3.7) and any necessary, relevant information for the intended *audience* (3.4) and purpose

[SOURCE: ISO/IEC/IEEE 15289:2019, 3.1.3, modified — The term has been changed from "complete" to "complete information"; the words "and purpose" have been added.]

**3.7**
**critical information**
information on the safe use of the product, the security of the information created with the product, or the privacy of the information created by or stored with the product

**3.8**
**danger**
hazardous situation, which if not avoided, can result in death or serious injury

Note 1 to entry: See also *caution* (3.5) and *warning* (3.48).

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[SOURCE: ISO 3864-2:2016, 3.3, modified — The words "signal word used to indicate" have been removed from the definition; note 1 to entry has been added.]

**3.9**
**document**,noun
uniquely identified unit of information for human use

EXAMPLE A report, specification, manual or book, in printed or electronic form.

Note 1 to entry: A document can be a single information item or part of a larger information item.

[SOURCE: ISO/IEC/IEEE 15289:2019, 3.1.10, modified — ", noun" has been added.]

**3.10**
**effectiveness**
accuracy and completeness with which users achieve specified goals

[SOURCE: ISO 9241-11:2018, 3.1.12]

**3.11**
**efficiency**
resources expended in relation to the *effectiveness* (3.10)

Note 1 to entry: Typical resources include time, human effort, costs and materials.

[SOURCE: ISO 9241-11:2018, 3.1.13, modified — "used" has been replaced by "expended"; "results achieved" has been replaced by "accuracy and completeness with which users achieve goals".]

**3.12**
**evaluation**
systematic determination of the extent to which an entity meets its specified criteria

**3.13**
**function**
part of a software application providing functionality including features for users to carry out their tasks

**3.14**
**hazard**
source of potential harm

[SOURCE: ISO 3864-2:2016, 3.6, modified — Note 1 to entry has been removed.]

**3.15**
**heuristic evaluation**
assessment by one or more experts who judge conformance to a recognized set of principles

**3.16**
**illustration**
graphical element set apart from the main body of text and normally cited within the main text

Note 1 to entry: In this document, the term "illustration" is used as the generic term for tables, figures, exhibits, screen captures, flow charts, diagrams, drawings, icons, and other graphical elements.

**3.17**
**information architect**
person who develops the structure of an information space and the semantics for accessing information on tasks, system *functions* (3.13) and features, and other information

[SOURCE: ISO/IEC/IEEE 26514:2022, 3.1.26]

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**3.18**
**information development**
process of development concerned with determining what content is provided in *information for users* (3.21) and what the nature of the information is

**3.19**
**information developer**
person who creates *information for users* (3.21)

**3.20**
**information development lead**
person who leads the activities of preparing *information for users* (3.21)

**3.21**
**information for users**
information provided by the supplier that provides the target *audience* (3.4) with concepts, *procedures* (3.28) and reference material for the safe, effective, and efficient use of a supported product during its life cycle

EXAMPLE Printed manuals, onscreen information, and stand-alone online help are examples of *information for users* (3.21).

Note 1 to entry: It can be provided separately or embedded in the product or both.

Note 2 to entry: The term “information for users” in this document is intended as a synonym for “information for use” as used in IEC/IEEE 82079-1 and is defined as such, although it is recognised that the respective ideas, while similar, are not identical.

[SOURCE: IEC/IEEE 82079-1:2019, 3.17, modified — The preferred term has been changed from "information for use" to "information for users"; the admitted term "instructions for use" has been removed; the original EXAMPLE and notes to entry have been removed and replaced by new ones.]

**3.22**
**link**
hyperlink
reference from some part of content to some other part of content or object

**3.23**
**localization**
creation of a national or specific regional version of a product or its *information for users* (3.21)

Note 1 to entry: Information for users can be localized even if the product has not been localized.

**3.24**
**mobile device**
portable computing device, typically having a wireless internet connection and a small display screen with touch, pen, or keyboard input, and auditory input and output features

Note 1 to entry: Mobile devices must fulfil special *usability* (3.41) requirements due to their size and available features for input and output.

**3.25**
**navigation**
act of accessing *information for users* (3.21) and viewing different *topics* (3.39)

[SOURCE: ISO/IEC/IEEE 26514:2022 3.1.35]

**3.26**
**onscreen information for users**
*information for users* (3.21) that is intended to be read on the screen by the *user* (3.45) while using the software

EXAMPLE Pop-up help and help text on a screen.

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[SOURCE: ISO/IEC/IEEE 26514:2022 3.1.36]

**3.27**
**platform**
combination of software and hardware that makes up the operating environment in which a program runs

**3.28**
**procedure**
ordered series of *steps* (3.32) that specify how to perform a task

**3.29**
**project**
endeavour with defined start and finish criteria undertaken to create a product or service in accordance with specified resources and requirements

[SOURCE: ISO/IEC/IEEE 26514:2022, 3.1.4]

**3.30**
**project manager**
person with overall responsibility for the management and running of a *project* (3.29)

**3.31**
**satisfaction**
extent to which the user's physical, cognitive and emotional responses that result from the use of a system, product or service meet the user's needs and expectations

[SOURCE: ISO 25062:2025, 3.12]

**3.32**
**step**
element (numbered list item) in a *procedure* (3.28) that tells a *user* (3.45) to perform an action (or actions)

Note 1 to entry: Responses by the software are not considered to be steps.

[SOURCE: ISO/IEC/IEEE 26514:2022, 3.1.48]

**3.33**
**style**
set of language-specific editorial conventions covering grammar, terminology, punctuation, capitalization, usage, word choice, structured authoring elements, and media

**3.34**
**tailoring**
process by which individual requirements in specifications, standards, and related *documents* (3.9) are evaluated and made applicable to a specific *project* (3.29) by selection, and in some exceptional cases, modification of existing or addition of new requirements

**3.35**
**test lead**
person who leads entire *testing* (3.38) process

**3.36**
**test participant**
person who provides feedback and allows data collection during *testing* (3.38)

**3.37**
**test protocol**
list of the *steps* (3.32) to be followed in the test

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**3.38**
**testing**
activity in which a system or component is executed under specified conditions, the results are observed or recorded, and an *evaluation* (3.12) is made of some aspect of the system or component

**3.39**
**topic**
coherent part of an information product with a heading that deals with a single subject

EXAMPLE Instructions on how to print the current *document* (3.9).

[SOURCE: IEC/IEEE 82079-1:2019, 3.43]

**3.40**
**transparency**
AI level of accessibility to the algorithm and data used by the AI-based system

[SOURCE: ISO/IEC TR 29119-11:2020]

**3.41**
**usability**
extent to which a system, product, or service can be used by specified users to achieve specified goals with *effectiveness* (3.10), *efficiency* (3.11), and *satisfaction* (3.31) in a specified context of use

[SOURCE: ISO 9241-210:2019, modified — Notes 1 and 2 to entry have been removed.]

**3.42**
**usability testing**
*evaluation* (3.12) that involves representative users performing specific tasks with the system to enable the measurement of *effectiveness* (3.10), *efficiency* (3.11), and/or user *satisfaction* (3.31)

[SOURCE: ISO TR 25060:2023, 3.4.1]

**3.43**
**usability specialist**
person who observes users performing tasks using the system, product or service and *information for users* (3.21), and records the actions the *user* (3.45) took, problems the user encountered, and comments the user made during the test, and interprets these records to evaluate the results of the *testing* (3.38)

**3.44**
**use case**
description of the behavioural requirements of a system and its interaction with a *user* (3.45)

[SOURCE: ISO/IEC/IEEE 26515:2018, 3.15]

**3.45**
**user**
person who interacts with a system, product or service

Note 1 to entry: Users of a system, product or service include people who operate the system, people who make use of the output of the system and people who support the system (including providing maintenance and training).

[SOURCE: ISO 9241-11:2018, 3.1.7]

**3.46**
**validation**
confirmation, through the provision of objective evidence, that the requirements for a specific intended use or application have been fulfilled

Note 1 to entry: A system is able to accomplish its intended use, goals, and objectives (i.e., meet stakeholder requirements) in the intended operational environment.

[SOURCE: ISO/IEC/IEEE 12207:2017, 3.1.71]

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**3.47**
**verification**
confirmation, through the provision of objective evidence, that specified requirements have been fulfilled

Note 1 to entry: Verification is a set of activities that compares a system or system element against the required characteristics. This includes, but is not limited to, specified requirements, design description, and the system itself.

[SOURCE: ISO/IEC/IEEE 12207:2017, 3.1.72]

**3.48**
**warning**
advisory information in *information for users* (3.21) that states that performing some action can lead to a potentially hazardous situation which, if not avoided, can result in death or serious injury

[SOURCE: ISO/IEC/IEEE 26514:2022, 3.1.56]

# 4 Review and evaluative testing processes of information for users

## 4.1 Process overview

This clause covers the processes involved in review and evaluative testing of information for users. Reviewers and testers of information for users work within the software lifecycle processes or system lifecycle processes, which are defined in ISO/IEC/IEEE 12207 or ISO/IEC/IEEE 15288. The applicable processes are the following:

— implementation;

— validation;

— verification;

— maintenance.

## 4.2 Review and assessment activities

The typical lifecycle of information for users and its review and testing includes the following activities:

— user needs assessment;

— task analysis;

— requirements definition for information for users;

— design specification for information for users;

— draft or prototype of information for users;

— revision;

— early testing (prototype, information architecture, issue identification);

— beta review (accuracy, editing);

— evaluative testing (efficiency, effectiveness, satisfaction, accessibility);

— final release;

— evaluative testing, optional (performance, learnability, A/B testing);

— testing of support content, such as release notes, accompanying system, or software updates.

Some of these activities can be shared responsibilities across the development team. The information developer focuses on the information for users and how it will be developed, reviewed, and assessed. In

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