
**Information technology — User
interface accessibility —**

**Part 1:
User accessibility needs**

*Technologies de l'information — Accessibilité de l'interface
utilisateur —*

Partie 1: Besoins d'accessibilité de l'utilisateur

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Reference number
ISO/IEC 29138-1:2018(E)

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Published in Switzerland

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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).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 35, *User Interfaces*.

This first edition cancels and replaces the Technical Report ISO/IEC TR 29138-1:2009, which has been technically revised.

Compared to the previous edition, all clauses in the document have been technically revised. [Annex C](#) provides a full comparison of the content with the first edition.

A list of all parts in the ISO/IEC 29138 series can be found on the ISO website.

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.

Introduction

It is important for the whole of society that all people, regardless of their age, size or ability, have access to the broadest range of systems. Issues of accessibility to, and usability of, systems have become more critical as recognition of the number of people (such as older persons, children, persons with reduced abilities and persons with disabilities) with diverse user accessibility needs has increased, technology has diversified and it has become increasingly necessary to use technology to participate fully in life.

The number of people using information and communications technology (ICT) products and services, which combine hardware, software, and network technologies, is increasing, as is the variety of ICT products and services. Our everyday lives are filled with such products and services. Currently available ICT products and services, however, are not always accessible. Typically, the people most excluded by poor accessibility of products and services are those with disabilities and those with limitations due to age. However, they are not the only ones who experience difficulty in operating ICT products, such as personal computers (PCs). It is essential to improve ICT accessibility, so that all people with whatever user accessibility needs can have access to ICT products and services, leading to an inclusive e-society.

This document identifies a set of user accessibility needs that can be used to understand and improve the accessibility of ICT and other systems for diverse users in diverse contexts of use. It recognizes that different users will have different combinations of needs including different combinations of user accessibility needs. By being as comprehensive as possible (at the time of publication), it aims to identify a diverse set of user accessibility needs that, if met, can lead to accessibility for these diverse users. It also recognizes that, as technologies evolve along with increases in our understanding of accessibility, further user accessibility needs might be uncovered. However, this document will still provide the major portion of the total set of all user accessibility needs.

This set of user accessibility needs has evolved from the Technical Report ISO/IEC TR 29138-1:2009 and from the accessibility goals and high-level user accessibility needs of ISO/IEC Guide 71:2014. ISO/IEC TR 29138-1 was developed from the original user needs summary submitted to ISO/IEC JTC1/SWG-Accessibility by the Trace R&D Center of the University of Wisconsin-Madison, developed under funding from the National Institute on Disability Independent Living and Rehabilitation Research (NIDILRR), under grant # H133E030012. This set of user accessibility needs also takes into account accessibility guidance from a number of other ISO and ISO/IEC standards as well as from additional sources.

This document is intended for a wider audience than the previous Technical Report (which was only addressed to standards developers). This expanded audience includes system and service developers and other persons responsible for accessibility.

The set of user accessibility needs contained in this document can be especially useful in identifying needs that might be missing in the requirements of existing accessibility regulations and standards. Consideration of this set of user accessibility needs can lead to greater accessibility in the systems to which they are applied in every domain.

Information technology — User interface accessibility —

Part 1: User accessibility needs

1 Scope

This document identifies a collection of user accessibility needs that diverse users have of ICT systems to make these systems accessible to them. Each user accessibility need might be required of a system by an individual. Different users can have different sets of user accessibility needs in different contexts.

While this set of user accessibility needs was developed for the domain of ICT, many of the user accessibility needs in this set also apply in other domains.

This document does not provide requirements or specific processes and methods for the application and evaluation of user accessibility needs. However, it could inform the development of such requirements (see 5.4).

This document is not designed for certification purposes or regulatory or contractual use.

The user accessibility needs in this document are intended to inform and encourage those responsible for accessibility to go beyond the minimum provisions of accessibility legislation and regulations.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1 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 9241-112:2017, 3.15]

3.2 assistive technology

hardware or software that is added to or incorporated within an ICT system that increases accessibility for an individual

[SOURCE: ISO 9241-171:2008, 3.5 — modified to reference the ICT domain.]

**3.3
information/communication technology
ICT**

technology for gathering, storing, retrieving, processing, analysing and transmitting information

[SOURCE: ISO 9241-20:2008, 3.4]

**3.4
system**

product, service, or built environment or any combination of them with which the user interacts

[SOURCE: ISO/IEC Guide 71:2014, 2.1]

**3.5
user**

individual who accesses or interacts with a system

[SOURCE: ISO/IEC Guide 71:2014, 2.2]

**3.6
diverse users**

individuals with differing abilities and characteristics or accessibility needs

[SOURCE: ISO/IEC Guide 71:2014, 2.3]

**3.7
context of use**

physical and social environments in which a system is used, including users, tasks, equipment and materials

[SOURCE: ISO/IEC Guide 71:2014, 2.7]

**3.8
diverse contexts**

differing contexts of use and differing economic, cultural and organizational conditions

[SOURCE: ISO/IEC Guide 71:2014, 2.8]

**3.9
user need**

prerequisite identified as necessary for a user, or a set of users, to achieve an intended outcome, implied or stated within a specific context of use

EXAMPLE 1 A presenter (user) needs to know how much time is left (prerequisite) in order to complete the presentation in time (intended outcome) during a presentation with a fixed time limit (context of use).

EXAMPLE 2 An account manager (user) needs to know the number of invoices received and their amounts (prerequisite), in order to complete the daily accounting log (intended outcome) as part of monitoring the cash flow (context of use).

Note 1 to entry: A user need is independent of any proposed solution for that need.

Note 2 to entry: User needs are identified based on various approaches including interviews with users, observations, surveys, evaluations, expert analysis, etc.

Note 3 to entry: User needs often represent gaps (or discrepancies) between what should be and what is.

Note 4 to entry: User needs are transformed into user requirements considering the context of use, user priorities, trade-offs with other system requirements and constraints.

[SOURCE: ISO/IEC 25064:2013, 4.19]

3.10**user accessibility need**

user need related to features or attributes that are necessary for a system to be accessible

Note 1 to entry: User accessibility needs vary over time and across contexts of use.

[SOURCE: ISO/IEC Guide 71:2014, 2.4]

Note 2 to entry: User accessibility needs are transformed into user requirements considering the context of use, user priorities, trade-offs with other system requirements and constraints.

3.11**user interface component**

features or attributes of a system with which a user can interact

3.12**actionable user interface component****actionable component**

user interface component that can receive input from a user

Note 1 to entry: All actionable components are intended to do something with the input that they receive, whether it is to process it, pass it on to some other component of the system, and/or provide it back to the user.

3.13**non-actionable user interface component****non-actionable component**

user interface component that only provides output to the user and that cannot receive input from the user

3.14**multiple means of presentation**

different ways of presenting information

Note 1 to entry: Presenting information in different ways can improve the accessibility of systems.

[SOURCE: ISO/IEC Guide 71:2014, 13]

3.15**perceive**

recognize the existence of something

3.16**understand**

recognize the meaning of something

4 Accessibility goals

ISO/IEC Guide 71 identifies the following accessibility goals:

- 1) **suitability for the widest range of users:** A system is suitable for the widest range of users if it meets the needs of diverse users in diverse contexts;
- 2) **conformity with user expectations:** A system conforms to user expectations if it is predictable based on the user's past experience, the context of use, laws and standards, and/or commonly accepted conventions;
- 3) **support for individualization:** A system supports individualization if its components, functions or operations can be tailored to meet the needs of individual users;
- 4) **approachability:** A system is approachable if diverse users can overcome any physical or psychological barriers and physically or remotely access it to accomplish the task;

- 5) **perceivability:** A system is perceivable if diverse users in diverse contexts can sense the information and functionalities it presents;
- 6) **understandability:** A system is understandable if its information and functionalities are interpretable by diverse users;
- 7) **controllability:** A system is controllable if the user is able to initiate and complete the interaction(s) required to accomplish the task;
- 8) **usability:** A system is usable if it supports diverse users in their diverse contexts to accomplish their tasks with effectiveness, efficiency and satisfaction;
- 9) **error tolerance:** A system has error tolerance if despite predictable errors, diverse users can complete the intended task or activity with either no, or minimal, corrective action or negative consequences;
- 10) **equitable use:** A system provides equitable use if it allows diverse users to accomplish tasks in an identical manner whenever possible or in an equivalent manner when an identical manner is not possible;
- 11) **compatibility with other systems:** A system provides compatibility if it allows diverse users to use other systems as a means to interact with it to accomplish the task.

These goals are not mutually exclusive, but used together they can identify a broad set of user accessibility needs. ISO/IEC Guide 71 also identifies a number of typical user accessibility needs that correspond to individual usability goals that can be used as a starting point for the identification of a more comprehensive set of user accessibility needs.

5 User accessibility needs and related information

5.1 General

5.1.1 Needs

A user need is something an individual requires of a system. User needs focus on the internal and external functionality of a system, without prescribing how this functionality will be implemented. Identifying user needs is an important component of developing designs intended to support accessibility. Needs for internal functionality of a system are typically specified in terms of the tasks that the system is intended to assist the user with. Needs for external functionality of a system typically include needs for: accessibility, usability, security, privacy, and similar aspects of using the system.

NOTE 1 User accessibility needs are just some of the total set of user needs that a system might be intended to meet.

NOTE 2 For ease of readability, user accessibility needs will be referred to throughout this document as "needs" without always being qualified as "user accessibility needs". The complete term "user accessibility need" will be reserved for situations where extra emphasis is important. Whenever the more general case of all user needs is discussed, the term "user needs" will be explicitly used.

The user accessibility needs identified in this document are generic and are not tied to any particular system or context of use. They are a collection of the various user accessibility needs that apply to most ICT systems in most contexts of use. It is up to individuals using these user accessibility needs to determine any system and context of use where they do not apply.

NOTE 3 The user accessibility needs are described in a more general format than the user needs considered in ISO/IEC 25064, which are specific to a particular system and a particular context of use.

The user accessibility needs in this document do not specify how to meet them. However, examples or instances are provided for many of them illustrating how they can be met.

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