
**Information technology —
Development of user interface
accessibility —**

**Part 1:
Code of practice for creating
accessible ICT products and services**

Technologies de l'information — Développement de l'accessibilité des interfaces utilisateur —

Partie 1: Code de bonnes pratiques pour créer des produits et services TIC accessibles

[ISO/IEC 30071-1:2019](https://standards.iteh.ai/catalog/standards/iso/2a18f082-a20c-4f22-b34a-b14c89b27ca0/iso-iec-30071-1-2019)

<https://standards.iteh.ai/catalog/standards/iso/2a18f082-a20c-4f22-b34a-b14c89b27ca0/iso-iec-30071-1-2019>



iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[ISO/IEC 30071-1:2019](https://standards.iteh.ai/catalog/standards/iso/2a18f082-a20c-4f22-b34a-b14c89b27ca0/iso-iec-30071-1-2019)

<https://standards.iteh.ai/catalog/standards/iso/2a18f082-a20c-4f22-b34a-b14c89b27ca0/iso-iec-30071-1-2019>



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2019

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
3.1 Accessibility and related definitions.....	2
3.2 Users and systems related definitions.....	3
3.3 Definitions relating to developing accessibility.....	4
4 Conformity	4
5 Introduction to ICT accessibility within an organization	5
6 Responsibilities and documentation for embedding accessibility of ICT systems within an organization	5
6.1 Taking responsibility and setting policy.....	5
6.2 Contents of an organizational ICT accessibility policy.....	6
6.3 Organizational ICT accessibility goals.....	6
6.4 Accessibility considerations in the organization's ICT policies.....	7
7 Embedding ICT accessibility within the system development life cycle	7
7.1 Taking accessibility into account throughout ICT system development.....	7
7.2 Making justifiable decisions on accessibility.....	8
7.3 Assuring accessibility throughout the system life cycle.....	8
7.4 Creating accessibility logs and statements for each ICT system.....	9
7.5 Contents of an ICT system accessibility log.....	9
7.6 Contents of an ICT system accessibility statement.....	10
8 Activities in ICT system development or procurement	11
8.1 Performing and documenting accessibility activities.....	11
8.2 Activities.....	11
8.2.1 Activity 1: Specify widest range of potential users.....	11
8.2.2 Activity 2: Specify user goals and tasks.....	12
8.2.3 Activity 3: Specify user accessibility needs.....	12
8.2.4 Activity 4: Specify accessibility requirements.....	13
8.2.5 Activity 5: Specify accessibility design approach.....	14
8.2.6 Activity 6: Ensure accessibility requirements are met.....	14
8.2.7 Activity 7: Ensure communication about accessibility.....	15
8.2.8 Activity 8: Ensure integration of accessibility in system updates.....	15
Annex A (informative) Applying the accessibility goals of ISO/IEC Guide 71:2014	16
Annex B (informative) Application of Clause 8	20
Annex C (informative) Sources of ICT accessibility guidelines	31
Annex D (informative) Accessibility testing methods	34
Annex E (informative) Drivers of accessibility	36
Annex F (informative) Checklists for ISO/IEC 30071-1	37
Bibliography	48

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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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*.

A list of all parts in the ISO/IEC 30071 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

This document provides guidance on developing and implementing an organizational accessibility policy for creating accessible ICT systems (including products and services). It can help organizations to ensure that their ICT systems are accessible to diverse users.

The design of many ICT systems unnecessarily excludes users with disabilities or others with accessibility requirements, for example, older persons, which can leave organizations that provide these systems subject to legal challenge on the grounds of discrimination. However, by following good practice in creating, updating or procuring ICT systems, this exclusion can generally be prevented.

This document contains process-related guidance rather than technical requirements. It brings together and summarizes important information needed to enable organizations that create ICT systems to understand:

- how to create organizational policies to embed accessibility considerations into their "business as usual" processes;
- how to consider the needs of users with disabilities and older people at all stages of the ICT development process.

The document is intended for:

- persons responsible for setting high-level organizational policies;
- persons responsible for setting accessibility policies and procedures at the system, product or service level;
- persons responsible for directly designing or implementing accessibility activities derived from the policies applied within the organization.

The guidance in this document focuses on activities and outcomes rather than specifying complete processes and methods, allowing organizations to implement this guidance in the manner most suited to their individual organizational culture and operations.

Drivers for organizations to make their ICT systems more accessible and usable include:

- a) legal reasons;
- b) commercial reasons;
- c) ethical reasons/human rights/social responsibility;
- d) innovation reasons.

Often, these drivers interrelate. These include the accessibility of ICT systems that support employment, those used in public and private transport, in public buildings, in the home, in education, in social networking and in the ubiquitous use of ICT known as the Internet of Things. Ensuring systems are accessible to the widest range of diverse users will increase inclusion. This can create benefits for many sectors of society.

Information technology — Development of user interface accessibility —

Part 1: Code of practice for creating accessible ICT products and services

1 Scope

This document takes a holistic approach to the accessibility of information and communications technology (ICT) by combining guidance on implementing the accessibility of ICT systems (ICT accessibility) both at organizational and system development levels.

This document gives guidelines for building and maintaining ICT systems (including products and services) that are accessible to diverse users (including users with disabilities and older people).

This document is applicable to all types of organizations. This document applies to the breadth of ICT systems and the results of convergent and emerging technologies within an organization including, but not limited to: information systems; intranet systems; websites; mobile and wearable applications; social media; and Internet of Things (IoT) systems.

It gives requirements and recommendations for organizations:

- a) ensuring accessibility is considered in their policies or strategy by creating an organizational ICT accessibility policy;
- b) embedding the consideration of accessibility decisions through the entire process of developing, procuring, installing, operating and maintaining ICT systems, and documenting these choices;
- c) justifying decisions on accessibility;
- d) communicating the ICT system's accessibility decisions to its users at launch, through creating and publishing its accessibility statement.

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:

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

3.1 Accessibility and related definitions

3.1.1

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]

3.1.2

usability

extent to which a system, product or service can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use

Note 1 to entry: The “specified” users, goals and context of use refer to the particular combination of users, goals and context of use for which usability is being considered.

Note 2 to entry: The word “usability” is also used as a qualifier to refer to the design knowledge, competencies, activities and design attributes that contribute to usability, such as usability expertise, usability professional, usability engineering, usability method, usability evaluation, usability heuristic.

[SOURCE: ISO 9241-11:2018, 3.1.1]

3.1.3

effectiveness

accuracy and completeness with which users achieved specified goals

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

3.1.4

efficiency

resources used in relation to the results achieved

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

[SOURCE: ISO 9241-11:2018, 3.1.13]

3.1.5

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 9241-11:2018, 3.1.14 — modified, Notes 1 and 2 to entry removed]

3.1.6

user experience

person's perceptions and responses resulting from the use and/or anticipated use of a product, system or service

Note 1 to entry: User experience includes all the users' emotions, beliefs, preferences, perceptions, physical and psychological responses, behaviours and accomplishments that occur before, during and after use.

Note 2 to entry: User experience is a consequence of brand image, presentation, functionality, system performance, interactive behaviour and assistive capabilities of a system, product or service. It also results from the user's internal and physical state resulting from prior experiences, attitudes, skills and personality, and the context of use.

[SOURCE: ISO 9241-11:2018, 3.2.3]

3.1.7**goal**

intended outcome

[SOURCE: ISO 9241-11:2018, 3.1.10]

3.1.8**accessibility experience**

experience of an individual of the accessibility of a system

Note 1 to entry: Accessibility experience can be considered at three levels: technical, effective and efficient, and satisfying.

Note 2 to entry: The basic level of accessibility experience that is acceptable in a particular country will depend on that country's accessibility legislation.

3.1.9**individualization**

modification of interaction and presentation of information to suit individual capabilities and needs of users

[SOURCE: ISO 9241-171:2008, 3.17]

3.2 Users and systems related definitions**3.2.1****user**

individual who accesses or interacts with a system

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

3.2.2**diverse users**

individuals with differing abilities and characteristics or accessibility needs

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

3.2.3**user group**

subset of intended users who are differentiated from other intended users by characteristics of the users, tasks or environments that could influence usability

[SOURCE: ISO 9241-11:2018, 3.1.8]

3.2.4**system**

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

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

3.2.5**ICT****information and communication technology**

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

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

3.2.6**ICT system**

system utilizing ICT

3.3 Definitions relating to developing accessibility

3.3.1

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]

3.3.2

activity

set of cohesive tasks of a process

[SOURCE: ISO/IEC/IEEE 15288:2015, 4.3]

Note 1 to entry: Organizations can use checkpoints to ensure that activities are performed.

3.3.3

organization

company, non-profit organization, government department, local council, public sector organization or academic institution

3.3.4

content author

individual or organization responsible for authoring ICT content, as distinct from designing it, or coding it

3.3.5

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]

3.3.6

diverse contexts

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

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

3.3.7

assistive technology

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

Note 1 to entry: This includes all such software which is either: part of the operating system, installed into the operating system (executable extensions or applications), installed into the browser (plug-ins), or included on the website.

EXAMPLE Screen readers and text-to-speech systems; screen-magnification software; tactile Braille displays, trackballs, touch pads/screens, etc.; alternatives to standard computer mice, keyboards, switches and speech recognition software.

Note 2 to entry: Also referred to as “access technology” and “adaptive technology”.

[SOURCE: ISO 9241-171:2008, 3.4 — modified with the additions of the Notes to entry and EXAMPLE]

4 Conformity

If an organization claims conformity with this document, then the decisions about how it addresses the requirements and recommendations in this document or the justifications for any course of action that deviates from any of the recommendations shall be documented.

Documentation of a claim of conformity with this document should be specific about the basis on which the claim is made and should provide evidence to support the claim. An organization can claim conformity on the basis of a self-assessment or an assessment carried out by another party.

[Annex F](#) provides assistance in documenting conformity.

5 Introduction to ICT accessibility within an organization

This document contains process-related guidance rather than technical requirements. It brings together and summarizes important information needed to enable organizations that create ICT systems to understand:

- a) how to create organizational policies to embed accessibility considerations into their "business as usual" processes ([Clause 6](#) and [7](#));

NOTE Policies can support communication internally with staff and/or externally with many different stakeholders.

- b) how to consider the needs of users with disabilities and older people at all stages of the ICT system development life cycle ([Clause 8](#)).

The document is intended for:

- persons responsible for setting high-level organizational policies;
- persons responsible for setting accessibility policies and procedures at the system, product or service level;
- persons responsible for directly designing or implementing accessibility activities derived from the policies applied within the organization.

This document presents requirements and recommendations appropriate for the management of ICT accessibility throughout the organization.

NOTE Different organizations can approach implementation differently according to the organization's:

- type (e.g. public or private);
- size;
- diverse users;
- development methodologies (used to create and maintain its ICT systems).

6 Responsibilities and documentation for embedding accessibility of ICT systems within an organization

6.1 Taking responsibility and setting policy

ICT accessibility exists within a larger framework of the overall organizational accessibility policy. Top management shall commit to integrate an ICT accessibility policy in its management systems and ensure the organization's compliance with this document through delegation of responsibilities.

As part of an organization's strategy for dealing with accessibility, the organization shall ensure that a department or specified role is responsible for the organization's compliance with this document.

NOTE 1 This specified role could be, for example, the chief technology officer, user experience director, digital development director, governance director, communications director or marketing director depending on the size and structure of the organization.

Through this department or role, the organization should:

- a) analyse the organization's operations to consider how the drivers of ICT accessibility (see [Annex E](#)) will impact the following:
 - 1) the organization's legal duties;
 - 2) (for services provided to the public) the organization's duties to the public;
 - 3) the organization's ability to engage the widest pool of potential users, corporate social responsibility and innovation strategy;
 - 4) the activities that can be taken to develop or procure ICT systems;
- b) prepare an ICT accessibility policy for the organization (see [6.2](#));

NOTE 2 This could form part of the organization's overall management system or could stand alone, mentioned in the management system.

- c) delegate ICT accessibility responsibilities across the different departments of the organization and ensure staff in those departments are adequately trained to be able to fulfil these responsibilities;
- d) take responsibility for ensuring that the organization implements and maintains the ICT accessibility policy.

NOTE 3 It is important that the policies for accessibility are both consistent with each other and are consistently implemented within the organization.

6.2 Contents of an organizational ICT accessibility policy

An organization's ICT accessibility policy shall explain the commitment to ICT accessibility and summarize its approach. This should include where accessibility considerations have been included in the organization's wider ICT policies, procedures, activities and standards including:

- a) the ICT accessibility goals;
- b) any policies, procedures, activities or standards the organization has which should hold (including policies for development, procurement, technology, privacy and security) for all of its ICT systems.

6.3 Organizational ICT accessibility goals

Organizations should identify and document in the organization's ICT accessibility policy how they will address the ISO/IEC Guide 71 accessibility goals, according to ISO/IEC 29138-1, discussed in [Annex A](#).

NOTE 1 The ISO/IEC Guide 71 accessibility goals are worded in a general manner that can apply to all types of accessibility for all types of systems. In order to address these goals within an organization's ICT accessibility policy, the organization will identify how it intends to ensure the application of each of these goals to its ICT systems. [Annex A](#) identifies some important issues for an organization's ICT accessibility goals to address.

Organizations may also include guidance within the ICT accessibility policy on how to identify and justify further expectations, beyond those identified in [Annex A](#).

While accessibility goals are focused on overall outcomes, user accessibility needs focus on the needs of individual users.

Organizations may wish to identify a set of user accessibility needs for all of their ICT systems to meet.

NOTE 2 ISO/IEC 29138-1 identifies a range of user accessibility needs associated with each of the ISO/IEC Guide 71 accessibility goals.

6.4 Accessibility considerations in the organization's ICT policies

Organizations should identify and document how to incorporate considerations regarding accessibility within the organization's relevant policies, procedures, activities or standards (including policies for development, procurement, technology, privacy and security) for all of its ICT systems.

It is important that accessibility is incorporated within the organization's procedures and is not being treated as an optional extra.

The relevant policies, procedures, activities or standards for ICT systems should:

- a) apply the organization's ICT accessibility goals;
- b) integrate the achievement of the requirements and recommendations in [Clause 8](#) with other relevant activities;
- c) include checkpoints to monitor the performance of these accessibility requirements and recommendations;
- d) recognize the difference in meeting general accessibility requirements and an individual's user accessibility needs (including the need for on-going support) in the case of reasonable accommodation;
- e) include progressively increasing the accessibility of existing ICT systems (including increasing the accessibility in replacements to those systems).

7 Embedding ICT accessibility within the system development life cycle

7.1 Taking accessibility into account throughout ICT system development

The organization shall ensure that accessibility is taken into account at all points of an ICT system's development life cycle.

The requirements and recommendations in [Clause 8](#) should be situated within the existing ICT development life cycle to ensure the accessibility impact of key development decisions is not missed. They are not intended to present an alternate life cycle but should be harmonized with the development process that the organization follows.

NOTE 1 These requirements and recommendations can be situated within various life cycle approaches including:

- a) human-centred design (HCD) (ISO 9241-210, ISO 9241-220);
- b) software engineering (SE) (ISO/IEC/IEEE 12207);
- c) systems engineering (SysE) (ISO/IEC/IEEE 15288);
- d) agile development (ISO/IEC/IEEE 26515).

Iteration is used to progressively eliminate uncertainty during the development of ICT systems.

NOTE 2 Iteration implies that descriptions, specifications and prototypes are revised and refined when new information is obtained in order to minimize the risk of the system under development failing to meet user requirements. ISO 9241-210:2010, 4.5 provides guidance on the use of iteration to eliminate uncertainty in the identification of user needs and expectations.

NOTE 3 The needs of iteration recognize that the actual grouping and order of requirements and recommendations can vary from the activities contained in [Clause 8](#) and will be based on how they are best situated within an organization's development life cycle processes.

The organization should ensure that each recommendation in [Clause 8](#) is met as much as is feasible, rather than omitting dealing with recommendations. If a recommendation is not applicable, the reason why should be documented.

7.2 Making justifiable decisions on accessibility

The activities in [Clause 8](#) include a number of decisions for the organization to take for dealing with accessibility. There are often a number of options that could be used to meet a recommendation.

At each stage in development, the organization should:

- a) carefully consider which of the options it will choose, preferably choosing the option that maximizes accessibility;
- b) be able to justify its choice based on reasoned evidence, especially where the option to maximize accessibility is not chosen;

NOTE 1 It is recognized that organizations that provide ICT systems to the public cannot anticipate the user accessibility needs of every user. However, organizations are expected to provide access for all users. Once an organization has become aware of the user accessibility needs of a particular individual, anti-discrimination legislation could apply to assess reasonable accommodation.

- c) record the reasons for its choices in the ICT system accessibility log.

Factors relevant to such a decision may include:

- 1) the financial, resource and time costs of choosing more accessible options, considering the financial and other resources of the organization, and the amount of any justifiable resources already spent on making adjustments for accessibility;

NOTE 2 A more accessible option would be one that provides a greater level of accessibility experience for a particular audience or provides the intended level of accessibility experience to a wider range of users.

NOTE 3 It is important to include the provision of accessibility (e.g. including user testing methods, research and provision of sign language interpreting or audio description for video content) in budgeting from the start of the process, so that costs are properly considered and related to benefits rather than discounted because no budget has previously been set aside.

- 2) the nature of the benefit, including the number and breadth of diverse users who would benefit from more accessible options, and the impact on each of these users if the ICT system excludes them.

7.3 Assuring accessibility throughout the system life cycle

Organizations should ensure that the needs of diverse users of the ICT system, which are gathered at the start of an ICT system's development and inform the product's accessibility requirements, are tested throughout the life cycle of the ICT system rather than treated as an additional discrete testing phase at the end of the project.

NOTE Identifying accessibility issues as early as possible, in whatever development life cycle processes that the organization uses, improves the feasibility of addressing the issues and is likely to decrease the cost of doing so.

Organizations should integrate accessibility assurance as follows:

- a) **Development of system requirements:** Ensure that the needs of diverse users are gathered while defining the ICT system's requirements specification.
- b) **Procurement or development of the ICT system:** Ensure that an accessibility test plan is created and adhered to for the design, prototyping and development parts of the system's life cycle.