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## Guide for addressing accessibility in standards

*Guide pour l'intégration de l'accessibilité dans les normes*

**iTeh STANDARD PREVIEW**  
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## Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) are worldwide federations of national standards bodies (ISO member bodies and IEC national committees). The work of preparing International Standards is normally carried out through ISO and IEC technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO or IEC, also take part in the work. ISO collaborates closely with IEC on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

Draft Guides adopted by the responsible Committee or Group are circulated to the member bodies for voting. Publication as a Guide requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO/IEC Guide 71 was prepared by the ISO/IEC JTAG (Joint Technical Advisory Group) at the request of the ISO/TMB and the IEC/SMB. It was subsequently adopted by ITU-T Study Group 16 as ITU-T Supplement 17 to the H-Series of Recommendations.

This second edition cancels and replaces the first edition (ISO/IEC Guide 71:2001), which has been technically revised.

For the purposes of obtaining feedback and information about experiences in using this Guide, users are encouraged to share their views on ISO/IEC Guide 71:2014. Please click on the link below to take part in the online survey:

<http://www.surveymonkey.com/s/guide71>

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## Introduction

The purpose of this Guide is to assist standards developers (e.g. technical committees or working groups) to address accessibility in standards that focus, whether directly or indirectly, on any type of system that people use. It provides guidance for developing and writing appropriate accessibility requirements and recommendations in standards. However, while its intended audience are standards developers, this Guide contains information that can also be useful to other people, such as manufacturers, designers, service providers and educators.

The second edition of this Guide, retitled “*Guide for addressing accessibility in standards*,” builds upon the edition published in 2001, titled “*Guidelines for standards developers to address the needs of older persons and persons with disabilities*”. This edition takes account of developments in thinking and practice which have taken place since 2001 and takes a more inclusive approach. This edition also sets out to improve the usability and adoption of the Guide itself. This Guide, like its predecessor, is intended to be part of the overall framework that standards bodies can use in their efforts to support the development of systems that suit the needs of diverse users.

It is an important goal 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 the number of people (such as older persons, children, persons with reduced abilities and persons with disabilities) with diverse user accessibility needs has increased.

Based on their individual abilities and characteristics, people’s accessibility needs vary substantially and change throughout the course of their lives (i.e. as they advance from childhood to adulthood and on into old age). Impairments can be permanent, temporary or vary on a daily basis, and sometimes they are not fully recognized or acknowledged. In addition, although some limitations can be minor in nature, combinations of limitations can pose significant problems for individuals attempting to interact with systems. This is the case particularly where user accessibility needs and accessibility requirements were not recognized during development of those systems. Standards that include accessibility requirements can support development of systems that can be used by more users.

While much progress has been made worldwide in the development of accessibility standards relating to information and communications technology and the built environment, the development of accessibility standards related to other sectors has not always kept pace. However, the requirements of national and international anti-discrimination legislation have become increasingly stringent. Additional recommendations are contained in the United Nations Convention on the Rights of Persons with Disabilities<sup>[36]</sup> particularly in Articles 4, 9, 21 and 30), in the UN Committee of the rights of persons with disabilities, General Comment 2<sup>[37]</sup> and emerging national and regional procurement regulations.

International Standards of ISO and IEC and ITU-T recommendations can play an important part in avoiding market fragmentation and achieving harmonized accessible systems rather than those that meet only national standards and are incompatible with those produced in other nations.

The IEC/ISO/ITU Joint Policy Statement on Standardization and Accessibility<sup>[25]</sup> sets out the basic principles for ensuring that the needs of older persons, children and persons with disabilities are incorporated in the standards development process, providing justification on human rights and economic grounds. One of the core points of the Joint Policy Statement is “accessible or universal design”, which aims at ensuring that products, systems, services, environments and facilities can be used by persons from a population with the widest range of characteristics and abilities. In this second edition, the Guide is intended to supplement the Joint Policy Statement by providing a set of accessibility goals and describing human abilities and characteristics to assist standards developers in identifying accessibility needs of diverse users in diverse contexts of use.

The guidance provided in this Guide is general. The Guide recognizes the principle that standards should normally not be design-restrictive. The Guide therefore suggests ways of determining user accessibility needs without providing specific solutions. It is important to realize that one-size-fits-all solutions seldom meet every person’s needs and that accessible features can benefit the majority of the population. Optimal solutions vary greatly depending on the specific users and contexts of use. Additional sector-related guides might need to be developed for specific product or service sectors.

# Guide for addressing accessibility in standards

## 1 Scope

This Guide provides guidance to standards developers on addressing accessibility requirements and recommendations in standards that focus, whether directly or indirectly, on systems (i.e. products, services and built environments) used by people. To assist standards developers to define accessibility requirements and recommendations, the Guide presents:

- a summary of current terminology relating to accessibility;
- issues to consider in support of accessibility in the standards development process;
- a set of accessibility goals (used to identify user accessibility needs);
- descriptions of (and design considerations for) human abilities and characteristics;
- strategies for addressing user accessibility needs and design considerations in standards.

## 2 Terms and definitions

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

### 2.1

#### **system**

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

### 2.2

#### **user**

individual who accesses or interacts with a system

[SOURCE: ISO 9241-11:1998, 3.7, modified — “Accesses” has been added to the definition, “person” has been replaced by “individual”.]

### 2.3

#### **diverse users**

individuals with differing abilities and characteristics or accessibility needs

### 2.4

#### **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.

### 2.5

#### **impairments**

problems in body function or structure related to a significant deviation or loss

Note 1 to entry: Impairments can be temporary or permanent; progressive, regressive or static; intermittent or continuous.

[SOURCE: ICF 2001, WHO, Clause 6, section 4.1]

**2.6**

**activity limitations**

difficulties an individual can have in executing activities

[SOURCE: ICF 2001, WHO]

**2.7**

**context of use**

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

[SOURCE: ISO 9241-11:1998, 3.5, modified — The structure of the sentence has been changed.]

**2.8**

**diverse contexts**

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

**2.9**

**effectiveness**

accuracy and completeness with which users achieve specified goals

[SOURCE: ISO 9241-11:1998, 3.2]

**2.10**

**efficiency**

resources expended in relation to the accuracy and completeness with which users achieve goals

[SOURCE: ISO 9241-11:1998, 3.3]

**2.11**

**satisfaction**

freedom from discomfort, and positive attitudes towards the use of the product

[SOURCE: ISO 9241-11:1998, 3.4]

**2.12**

**usability**

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

[SOURCE: ISO 9241-11:1998, 3.1]

**2.13**

**multiple means of presentation**

different ways of presenting information

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

**2.14**

**multiple means of operation**

different ways of manipulation and control

Note 1 to entry: Providing different ways of manipulation and control can improve the accessibility of systems.

**2.15**

**assistive product**

any product (including devices, equipment, instruments and software), especially produced or generally available, used by or for persons with disability for participation, to protect, support, train, measure or substitute for body functions/structures and activities, or to prevent impairments, activity limitations or participation restrictions

[SOURCE: ISO 9999:2011, 2.3]



**2.16****assistive technology**

equipment, product system, hardware, software or service that is used to increase, maintain or improve capabilities of individuals

Note 1 to entry: Assistive technology is an umbrella term that is broader than assistive products.

Note 2 to entry: Assistive technology can include assistive services, and professional services needed for assessment, recommendation and provision.

**2.17****standards body**

standardizing body recognized at national, regional or international level, that has as a principal function, by virtue of its statutes, the preparation, approval or adoption of standards that are made available to the public

Note 1 to entry: A standards body may maintain standards committees, working groups or other entities to undertake standardization in various subject fields.

Note 2 to entry: A standards body may also have other principal functions.

[SOURCE: ISO/IEC Guide 2:2004, 4.4, modified — Note 1 has been added]

**2.18****universal design**

design of products, environments, programmes and services to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design

Note 1 to entry: Universal design shall not exclude assistive devices for particular groups or persons with disabilities where this is needed.

Note 2 to entry: Terms such as universal design, accessible design, design for all, barrier-free design, inclusive design and transgenerational design are often used interchangeably with the same meaning.

[SOURCE: United Nations Convention on the Rights of Persons with Disabilities, Art. 2, modified — Note 2 has been added]

**2.19****accessible design**

design focused on diverse users to maximize the number of potential users who can readily use a system in diverse contexts

Note 1 to entry: This aim can be achieved by (1) designing systems that are readily usable by most users without any modification, (2) making systems adaptable to different users (by providing adaptable user interfaces) and (3) having standardized interfaces to be compatible with assistive products and assistive technology.

Note 2 to entry: Terms such as universal design, accessible design, design for all, barrier-free design, inclusive design and transgenerational design are often used interchangeably with the same meaning.

**3 Accessibility****3.1 General**

This Guide utilizes the term *accessibility* from an inclusive perspective, recognizing that accessibility generally benefits everyone.

In the context of standardization, several definitions for the term *accessibility* exist but in general, the term is used with a broad understanding. A widely-accepted definition refers to the “extent to which products, systems, services, environments and facilities can be used by people from a population with the widest range of characteristics and capabilities to achieve a specified goal in a specified context of use” (reference: ISO 26800,<sup>[13]</sup> and, similarly, ISO/TR 9241-100<sup>[3]</sup> and ISO/TR 22411<sup>[11]</sup>).

“Accessibility” and “usability” overlap and some standards define the term *accessibility* as “usability of a product, service, environment or facility by individuals with the widest range of capabilities” (reference: ISO 9241-171,[5] ISO/IEC 25062[21] and ISO/IEC 29136.[22] This perspective emphasizes that accessibility involves both ease of use (which can affect task efficiency and user satisfaction) and success of use (i.e. system effectiveness).

### 3.2 Accessibility and standards

Standards can greatly influence system designs and can therefore contribute significantly to increasing accessibility and minimizing the presence of systems that limit accessibility. If accessibility considerations are included in standards, system designers might recognize the need for accessibility features earlier in the design process. Addressing user accessibility needs earlier rather than later in the design process enables producers, possibly at little or no extra cost, to design and produce systems that are accessible.

Government legislation based on accessibility standards can influence public policies, procedures and practices.

A number of global trends have contributed to increasing the importance of accessibility in standards development. These are summarized in [Annex A](#).

It is important for standards developers to recognize that no two people have exactly the same abilities and characteristics. Differences among people can be influenced by their gender, age, size, health condition, impairment, training and experience.

Accessible systems are particularly helpful when environmental context of use conditions (such as light intensity, noise or busy activity of nearby people) are unfavourable. Accessibility might be perceived to be in conflict with safety issues. However, it should be kept in mind that features designed to ensure usability and safety should strike a balance with accessibility in order to prevent the exclusion or harm of any user. Standards developers should ensure that systems with safety provisions address the needs of the full range of diverse users.

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## 4 Accessibility in the standards development process

### 4.1 General

This clause outlines how accessibility can be addressed in the standards development process:

- [4.2](#) contains general considerations for standards bodies related to making the standards development process accessible;
- [4.3](#) provides guidance for each of the respective stages of the standards development process to ensure accessibility is given adequate consideration.

### 4.2 Considerations by standards bodies

Standards bodies should develop a process for determining whether projects would benefit from applying this Guide.

Standards bodies should ensure that all stages of the standards development process are accessible. This includes documentation and any information produced by the standards development committee, the means of access to these resources as well as the physical or remote access (e.g. through teleconferencing or web-conferencing tools) to the standards development committee meetings. This is because membership of standards development committees and people wishing to comment on drafts can have specific accessibility needs.

Standards bodies should encourage and facilitate the participation of relevant stakeholders in the standards development process. Stakeholders should include older persons and persons with

disabilities from organizations representing these populations and those persons with a knowledge of the accessibility needs of children and gender-related groups<sup>1)</sup>.

Standards bodies should commission training for their staff and their committee officers (secretaries and chairpersons of standards development committees), in accordance with appropriate international specifications, to enable them to understand the importance of accessibility and to alert them to aspects in standards projects where accessibility considerations should be addressed.

Standards bodies should take necessary steps to make their buildings, services and facilities accessible. This could include but would not be limited to: developing an accessibility policy and action plan for the standards body; ensuring that the organization's website is fully accessible; having policies and procedures in place to address accessibility needs; making accessibility improvements to the organization's building; and establishing an accessibility user group to advise the standards body on accessibility on an ongoing basis.

### 4.3 Considerations related to the standards development process

The standards development process is typically organized as a sequence of the five stages listed below. For each stage, the key participants are identified and a list of key actions is given to take into account accessibility considerations.

#### 4.3.1 Stage 1: Define the standards project and determine the applicability of this Guide

##### Key participants

Proposer of standards project

Members of the standards development committee

##### Key Actions [KA]

**KA 1.1** Determine, with due diligence, whether the proposed standard focuses on a system or systems with which humans interact as users, either directly or indirectly. If this is not thought to be the case, then this Guide is generally not likely to be applicable.

If a standards development committee is unsure if this Guide applies to the specific standard it is developing, the committee should use the Guide until such a time that it determines that the Guide does not apply to its standard. Sometimes a standards committee will initially decide that this Guide does not apply, only to find out later, as the draft standard evolves, that the system will involve direct or indirect interaction with humans. In these cases, the standards committee should begin using the Guide at that point and review the work already done.

**KA 1.2** Identify the ways in which humans are likely to interact with the system, directly or indirectly.

**KA 1.3** Identify potential users and determine or identify diversity of abilities and characteristics.

**KA 1.4** Identify key sources of relevant information — such as existing regulations, standards, and research results — that should be collected and considered during the standards development process.

**KA 1.5** Determine relevant accessibility aspects that should be addressed by the standard.

##### Outcomes of this stage

A decision has been made as to whether this Guide is applicable. Initial sources of additional information about accessibility have been identified.

1) Further information relating to the involvement of users and potential users can be found in ISO Guide 82[1] and ISO 26000:2010[12], 4.5 and 5. Also of relevance is ISO 9241-210[6]. In some regions there may be specific regulations to ensure participation by relevant stakeholders, such as European Union Regulation 1025/2012[30].

#### 4.3.2 Stage 2: Ensure the standards development committee is well equipped to implement an accessible process with equitable participation

##### Key participants

Standards body

Standards development committee chair and secretary

##### Key Actions [KA]

**KA 2.1** Ensure standards development committee membership includes adequate target stakeholder group input.

**KA 2.2** Establish processes to ensure the accessibility of information, communications and meeting facilities (including teleconferences and online communications) used during the development of the standard.

##### Outcomes of this stage

Individuals and organizations with knowledge in accessibility are involved in the project. Accessibility requirements are addressed in the operations of the committee and organization of meetings.

#### 4.3.3 Stage 3: Develop the content of the standard

##### Key participants

Standards development committee chair and secretary

Experts

Standards development committee members

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##### Key Actions [KA]

**KA 3.1** Define the issues: Use this Guide (and other relevant documents) to determine or verify user accessibility needs (see [Clause 6](#)) and/or design considerations (see [Clause 7](#)) regarding accessibility.

**KA 3.2** Develop candidate requirements and recommendations: Determine potential ways (see [Clause 8](#)) in which each user accessibility need or design consideration could be met by requirements and recommendations within the standard, considering how flexible or alternative options could provide users with the ability to achieve accessibility in the way that best fits the context of use.

**KA 3.3** Evaluate the feasibility of potential requirements and recommendations, taking into account constraints and trade-offs.

**KA 3.4** Incorporate resulting requirements and recommendations in the standard.

**KA 3.5** Confirm requirements and recommendations: Consult stakeholders to confirm that accessibility is appropriately and adequately addressed in the standard.

**KA 3.6** Repeat some of the previous steps in this stage, if necessitated by stakeholder feedback.

**KA 3.7** Reference: Include a citation for this Guide on the reference list in the standard.

##### Outcome of this stage

Requirements and recommendations regarding accessibility for the widest range of users impacted by the standard have been addressed and are reflected in the draft standard.

#### 4.3.4 Stage 4: Issue the draft standard for public review and vote and revise the standard as needed

##### Key participants

Standards body and stakeholders

##### Key Actions [KA]

**KA 4.1** Ensure all draft documents are prepared and published in accessible format(s).

**KA 4.2** Ensure links to all draft documents are disseminated widely in order to collect feedback from diverse stakeholders.

**KA 4.3** Ensure that all commenting and voting tools are accessible.

##### Outcome of this stage

The draft has been disseminated to a wide audience, including diverse users in a diverse range of contexts of use.

#### 4.3.5 Stage 5: Publish the standard

##### Key participants

Standards body

##### Key Actions [KA]

**KA 5.1** Ensure the standard is published in accessible format(s).

**KA 5.2** Ensure information about the new standard is disseminated to a wide range of relevant stakeholders, organizations and standards committees.

**KA 5.3** National standard bodies are encouraged to translate Guide 71 to national language(s) to facilitate use by relevant stakeholders, organizations and standards committees.

##### Outcome of this stage

Standard is available for use by all interested parties.

## 5 How to apply the Guide

### 5.1 Two approaches to addressing accessibility in standards

This Guide identifies two complementary approaches to addressing accessibility in a specific standard:

- an *accessibility goals approach* (see [Clause 6](#)), which can be used to identify user accessibility needs that can, in turn, be used to identify accessibility requirements and recommendations for a standardization project;
- a *human abilities and characteristics approach* (see [Clause 7](#)), which can be used to identify design considerations that can, in turn, also be used to identify accessibility requirements and recommendations for a standardization project.

Standards developers should use these approaches to address accessibility in applicable standards. The use of both approaches can result in the creation of the most appropriate set of standard-specific requirements and recommendations. The extent to which either approach is relied on can vary with the scope and context of use of the particular standard being developed.

[Clause 6](#) provides information on accessibility goals that can support accessibility. The clause discusses how standards developers can use questions (based on these goals) within the context of their specific standard to identify standard-specific user accessibility needs.

[Clause 7](#) provides information on human abilities and characteristics and the consequences of impairments, including respective design considerations for accessibility.

[Clause 8](#) provides strategies for developing standards requirements and recommendations based on the outputs of the two approaches, and includes examples of requirements and recommendations that result from the application of each strategy.

This Guide also recognizes the value of using a range of other sources of accessibility-related information.

[Figure 1](#) provides a graphical summary of how this Guide can be used.

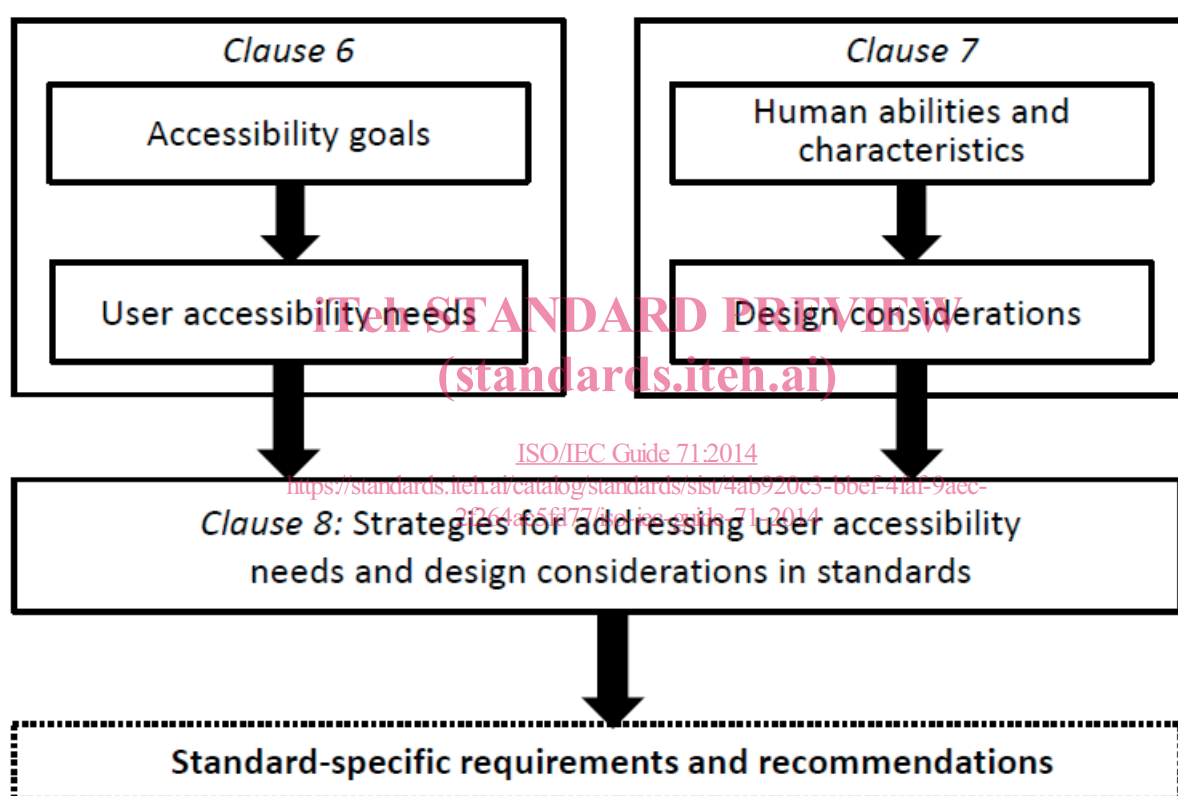


Figure 1 — Two approaches to address accessibility in standards

[Figure 1](#) is a visual representation of the two approaches presented in the Guide for addressing accessibility in standards. The first approach is discussed in [Clause 6](#), which contains a set of accessibility goals that are used to identify user accessibility needs. The second approach is discussed in [Clause 7](#), which contains categories of human abilities and characteristics as well as design considerations for each category. The results of taking either or both approaches in [Clauses 6](#) and [7](#) can be applied to develop standard-specific requirements and recommendations, following one or more of the strategies discussed in [Clause 8](#).

## 5.2 Other sources of information

A wide variety of other sources of information can be used by standards developers, within the scope of a particular standard, to identify user accessibility needs, design considerations and/or accessibility-related requirements and recommendations.



It is recognized that different sectors (i.e. products, services and built environments) and their various subsectors have more specialized user accessibility needs than are presented in this Guide. The committees responsible for developing standards for these sectors and subsectors are encouraged to produce more detailed sector-specific guidance to assist standards developers within their domains. One way of assisting standards developers is to create a collection of user accessibility needs that apply specifically to the particular sector (see e.g. ISO/IEC/TR 29138-1[23] and IEC/TR 62678[27]).

Other potential sources of information on user accessibility needs, design considerations and/or accessibility related requirements can be found in government regulations. These can be used directly by standards developers but it is important to consider differences in regulations across the various jurisdictions intended to use the standard.

ISO/TR 22411[11] provides an expansion on the various human abilities and characteristics and design considerations presented in [Clause 7](#) of this Guide. It also provides ergonomic data that can be used in developing specific requirements and recommendations.

The World Health Organization's *International Classification of Functioning, Disability and Health* (ICF) [39] is a source of information that can be used in standards to describe people and their functioning. Adopted by over 190 member states, the ICF provides a resource for a unified, standard language and framework, which is consistent, clearly defined and unambiguous. It is available in the majority of the world's major languages. [Annex B](#) provides an overview on how to use the ICF as a resource for terminology that can be used in some parts of standards to describe people and their functioning.

The number of standards that focus on accessibility within certain sectors is increasing (e.g. ISO 9241-171[5] and ISO 21542[10]). Where applicable accessibility standards exist, they can be used as normative references (i.e. other standards can either require that they be used in their entirety or that particular clauses within them be used).

It is useful to get feedback relating to user accessibility needs directly or indirectly from potential users of the systems to be developed using the standard. An effective method to identify user accessibility needs is the use of comprehensive surveys on user experiences. Often (e.g. in product development) companies have a significant amount of information that can help them identify accessibility needs (customer complaints, accident data, marketing data, usability testing results, etc.).

This Guide can also be used in conjunction with other ISO/IEC Guides, including:

- ISO/IEC Guide 37, *Instructions for use of products by consumers*;[\[15\]](#)
- ISO/IEC Guide 41, *Packaging — Recommendations for addressing consumer needs*;[\[16\]](#)
- ISO/IEC Guide 50, *Safety aspects — Guidelines for child safety*;[\[17\]](#)
- ISO/IEC Guide 51, *Safety aspects — Guidelines for their inclusion in standards*;[\[18\]](#)
- ISO/IEC Guide 59, *Code of good practice for standardization*;[\[19\]](#)
- ISO/IEC Guide 76, *Development of service standards — Recommendations for addressing consumer issues*.[\[20\]](#)

### 5.3 Verifying and validating that accessibility is adequately addressed

Standards developers should verify and validate that accessibility has been adequately addressed in the standard.

It is preferable that verification and validation be conducted, using this Guide and any other appropriate resources, by external standards developers not involved in drafting the standard.

Verification should confirm that the accessibility requirements and recommendations in the standard are consistent with the sources from which they were developed.