GUIDE 71

Guidelines for standards developers to address the needs of older persons and persons with disabilities

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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.

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 national bodies for voting. Publication as a Guide requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this Guide 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 an ad hoc TAG (Technical Advisory Group) based on the preliminary work undertaken by a COPOLCO (Committee on Consumer Policy) Working Group, at the request of the ISO/TMB Secretariat.

0 Introduction

0.1 It is an important goal for the whole of society that all people have access to products, services, workplaces and environments. The issue of accessibility to and usability of products and services has become more critical with the increasing percentage of older persons in the world's population. While not all older persons have disabilities, the prevalence of disability or limitations is highest among this demographic group.

0.2 The needs and abilities of people change as they advance from childhood to old age and the abilities of individuals in any particular age group vary substantially. It is important to recognize that functional and cognitive limitations vary from comparatively minor, such as mild hearing loss or use of spectacles only to read, to blindness, deafness or the inability to move part or all of one's body. It should be noted that although some limitations may be minor in nature, in combination, as is the case in ageing, these can pose a significant problem.

0.3 For many years, standards bodies at the national and international level have addressed the needs of persons with disabilities in the development of specific standards in the area of assistive technology and accessible building design. However, the needs of older persons and persons with disabilities are not being adequately addressed when other relevant standards for everyday products and services are written or revised. Standards bodies are starting to address ageing and disability issues and will, increasingly, develop and implement policies and programmes in their products and services to include the needs of older persons and persons with disabilities. It is important to ensure the representation of interests of older persons and persons with disabilities in the development of these solutions.

0.4 This Guide is intended to be part of the overall framework that standards bodies can use in their efforts to support the need for more accessible products and services. The ISO/IEC Policy Statement 2000 — *Addressing the Needs of Older Persons and People with Disabilities in Standardization Work* sets out the principles for ensuring that the needs of older persons and persons with disabilities[1)] are incorporated in the standards-making process, providing justification on humanitarian and economic grounds. This Guide supplements the ISO/IEC Policy Statement by identifying problem areas which need to be considered when drafting standards, recognizing the constraint that standards should normally not be design-restrictive. It is intended for those involved in the preparation and revision of International Standards but also contains information which may be useful for others such as manufacturers, designers, service providers and educators.

0.5 Of necessity, guidance provided in this Guide is general. Usability issues for people with impairments are identified without specific solutions. It is recognized that additional sector-related guides need to be developed for specific product or service sectors.

1) Developments in the field of accessibility have resulted in the creation and use of a wide variety of terms and definitions, related to older persons and disability, which differ throughout the world. For example, some people prefer to use the term "people with disabilities" and others prefer "disabled people". Overall, terms have evolved to become more precise and descriptive, rather than negative or stigmatizing. As no universal practice exists, the terms used in this Guide reflect the language generally used by international agencies such as the United Nations Organization and the World Health Organization.

Guidelines for standards developers to address the needs of older persons and persons with disabilities

1 Scope

1.1 This Guide provides guidance to writers of relevant International Standards on how to take into account the needs of older persons and persons with disabilities. Whilst recognizing that some people with very extensive and complex disabilities may have requirements beyond the level addressed in this Guide, a very large number of people have minor impairments which can be easily addressed by relatively small changes of approach in standards, thereby increasing the market for the product or service.

This Guide aims

a) to inform, increase understanding and raise awareness about how human abilities impact on the usability of products, services and environments,

b) to outline the relationship between the requirements in standards and the accessibility and usability of products and services, and

c) to raise awareness about the benefits of adopting accessible design principles in terms of a wider market.

1.2 This Guide applies to products, services and environments encountered in all aspects of daily life and intended for the consumer market and the workplace. For the purposes of this document, the term ‘products and services’ is used to reflect all these purposes.

1.3 This Guide

a) describes a process by which the needs of older persons and persons with disabilities may be considered in the development of standards,

b) provides tables to enable standards developers to relate the relevant clauses of a standard to the factors which should be considered to ensure that all abilities are addressed,

c) offers descriptions of body functions or human abilities and the practical implications of impairment,

d) offers a list of sources that standards developers can use to investigate more detailed and specific guidance materials.

1.4 This Guide provides general guidance. Consideration should be given to the development of additional guides for specific product or service sectors.

1.5 While it is recognized that accessibility and usability are important for both products amd services, international work on services standards is at the preliminary stage. At present, this Guide contains considerably more guidance on products than on services.

2 References

ISO/IEC Guide 37:1995, *Instructions for use of products of consumer interest*

ISO/IEC Guide 50:—[2)], *Safety aspects — Guidelines for child safety*

ISO/IEC Guide 51:1999, *Safety aspects — Guidelines for their inclusion in standards*

ISO/IEC Policy Statement, 2000, *Addressing the needs of older persons and people with disabilities in standardization work*

World Health Organization, *International Classification of Functioning and Disability*, ICIDH-2 Beta-2

3 Terms and definitions

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

NOTE This clause is designed to provide clarification of some of the terms used in the fields of ergonomics, accessibility and standardization. It does not provide descriptions of body functions and impairments. This information is provided in clause 9. (See also Introduction, footnote 1, page v.)

3.1
ergonomics
human factors
that branch of science and technology that includes what is known and theorized about human behavioural and biological characteristics that can be validly applied to the specification, design, evaluation, operation and maintenance of products and systems, to enhance safety, and effective and satisfying use by individuals, groups and organizations

3.2
accessible design
design focussed on principles of extending standard design to people with some type of performance limitation to maximize the number of potential customers who can readily use a product, building or service which may be achieved by

— designing products, services and environments that are readily usable by most users without any modification,

— by making products or services adaptable to different users (adapting user interfaces), and

— by having standardized interfaces to be compatible with special products for persons with disabilities.

NOTE 1 Terms such as design for all, barrier-free design, inclusive design and transgenerational design are used similarly but in different contexts.

NOTE 2 Accessible design is a subset of universal design where products and environments are usable by all people, to the greatest extent possible, without the need for adaptation or specialized design.

3.3
assistive technology
assistive device
piece of equipment, product system, hardware, software or service that is used to increase, maintain or improve functional capabilities of individuals with disabilities

NOTE This can be acquired commercially off-the-shelf, modified or customized. The term includes technical aids for persons with disabilities. Assistive devices do not eliminate an impairment but may lessen the difficulty an individual has in carrying out a task or activity in specific environments.

2) To be published. (Revision of ISO/IEC Guide 50:1987.)

3.4
impairment
problem in body function or structure such as a significant deviation or loss which can be temporary due, for example, to injury, or permanent, slight or severe and can fluctuate over time, in particular, deterioration due to ageing

NOTE 1 Body function can be a physiological or psychological function of a body system; body structure refers to an anatomic part of the body such as organs, limbs and their components (as defined in ICIDH-2 of July 1999). See also footnote 1, page v.

NOTE 2 This definition differs from that in ISO 9999:2001 and, slightly, from ICIDH-2/ICF: May 2001, WHO.

3.5
activity limitation
difficulty an individual may have in executing taks or actions

3.6
user
person who interacts with the product, service or environment

NOTE Adapted from ISO 9241-11:1998.

3.7
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

[ISO 9241-11:1998]

3.8
alternative format
different presentation which may make products and services accessible by the use of another mobility or sensory ability

3.9
working dog
guide dog, hearing and seizure, service (usually assisting with mobility needs) and social therapy dog, or any combination of these

4 General considerations

4.1 Aside from the humanitarian reasons for making products, services and environments more usable by older persons and persons with disabilities, there are a number of economic benefits. The most obvious is the increase in potential customers. Features that make products and services usable for persons with disabilities can also make them convenient and easy to use for everyone else. This is particularly helpful when people have temporary difficulties, such as lost glasses, a broken leg or a journey with a pram/stroller or bulky luggage.

4.2 Addressing needs earlier rather than later in the design stage enables producers, at little or no extra cost, to design and produce products, services and environments that more people can use. Standardization greatly influences the design of products and services that are of interest to the consumer and therefore can play an important role in this field.

4.3 Technical Committees are encouraged to address the needs of older persons and persons with disabilities in the drafting of International Standards (see ISO/IEC Policy Statement, *Addressing the Needs of Older Persons and People with Disabilities in Standardization Work*). This Guide aims to provide standards developers and related others with a systematic approach to addressing ageing and disability issues in the writing and revision of International Standards and to assisting Technical Committees in evaluating how they are addressing these needs in their Work Programmes.

4.4 It is recognized that standards committees include risk assessments as part of their analysis (as specified in Guides 50 and 51). The present Guide will assist committees in the risk assessment process by identifying potential hazards which can present greater risks to those with impairments.

4.5 Assistive technology, in the form of equipment, software or services, is available to meet some of the needs of older persons and persons with disabilities. It is important that this is compatible with mainstream products. Consideration needs to be given to everyday products and their potential to allow the fitting of more technical assistive devices specifically for older persons and persons with disabilities. Baths and bath seats should be compatible; equally, hearing aids and telephones should be compatible.

4.6 The provision of personal assistance, including the assistance of working dogs, while sometimes indispensable to a person with a disability, should never be relied upon to replace accessible design principles. Where accessible design cannot fully respond to the needs of older persons and persons with disabilities, in particular in the field of services, the need for personal assistance may still be required.

4.7 In product design there is potential for conflict between safety and usability. For example child-resistant closures used on medicines to prevent access to children may also make closures more difficult to open for older persons who no longer see as well, or have reduced strength or dexterity. While safety is the primary objective, Technical Committees should try to develop solutions which also address ergonomic factors. Guidance on addressing the needs of children is given in ISO/IEC Guide 50.

5 Using Guide 71

5.1 Clause 6 of this Guide suggests a process standards developers may use to address the needs of older persons and persons with disabilities as part of their standards development process.

5.2 Clause 7 provides tables to help standards developers to identify factors that will affect the use of a product, service or environment and to consider their significance for persons with different abilities.

5.3 Clause 8 provides more explanation of the factors to consider, using key words set out in the tables.

5.4 Clause 9 describes the different human abilities, sensory, physical and cognitive, referred to in the tables, and provides some description of the causes and consequences of impairment. It also includes a section on allergies which can impose limitations on an individual's activities and which are in some cases potentially life-threatening. It is desirable that all standards writers read all of clause 9, to increase awareness of the issues.

5.5 A Bibliography is also provided which offers a list of sources that standards developers can use to investigate more detailed and specific guidance materials.

6 Developing standards — Issues to consider during the standards development process

Committees may find the following process helpful in ensuring that the needs of older persons and persons with disabilities are included, when drafting a new standard or at each revision of an existing one. The process reads from left to right with guidance on achieving each objective in the columns below.

Define standards project	Ensure committee well equipped	Develop content of Standard	Review process	Publish Standard
Identify: • purpose of standard • end-users of product or service being standardized • current accessibility of product or service to broad range of users sources: • suppliers • groups representing older persons and persons with disabilities • user surveys • consumer test panels • guides and policies	Ensure: • committee members aware of ageing and disability issues, e.g. experts and users represented and/or training provided • meeting rooms accessible to older persons and persons with disabilities • committee papers available in alternative formats • data available on user issues, e.g. injury data, focus group research	Use Guide 71 and other guidance material to help determine: • particular needs and safety concerns of older persons and persons with disabilities • ways of minimizing hazards through new or enhanced requirements • ways of maximizing accessibility of product or service to broad range of users • where alternative solutions, such as assistive technology, are necessary	Ensure: • usability requirements in standard have been assessed, e.g. by consumer test panels • language and terminology of standard is acceptable to older persons and persons with disabilities (should not discriminate) • draft is circulated to wide range of stakeholders, including groups representing older persons and persons with disabilities	Ensure: • that standard can be reproduced in alternative formats

7 Tables of factors to consider to ensure standards provide for accessible design

7.1 Introduction

Tables 1 to 7 provide a tool intended to help standards developers to identify factors that will affect the use of a product, service or environment by people with different levels of ability. It should be noted that individual users may have impairment in more than one ability and all abilities should always be considered.

7.2 Purpose of Tables

Each Table identifies typical clauses or sections of International Standards as follows:

Table 1 Information, labelling, instructions and warnings

Table 2 Packaging: opening, closing, use and disposal

Table 3 Materials

Table 4 Installation

Table 5 User interface, handling, controls and feedback

Table 6 Maintenance, storage and disposal

Table 7 Built environments (buildings)

7.3 Using the Tables

7.3.1 To use the Tables, it is suggested that standards developers first consider which Tables are relevant to their draft International Standard, that is, what sorts of clauses they expect to include in the standard. For example, a standard related to an electrical product might have clauses covering information, packaging, materials, installation, user interface and maintenance and thus Tables 1 to 6 would be relevant. A standard on food packaging might have clauses covering information, packaging, materials, user interface and maintenance, and so Tables 1 to 3, 5 and 6 should be consulted. A standard on building access might include clauses on information, materials, installation, user interface and the built environment in general, suggesting Tables 1, 3, 4, 5 and 7 should be looked at.

7.3.2 Within each Table, the first column identifies, through key words, the factors which should be considered. The key words are numbered as they are described in clause 8 of this Guide.

EXAMPLE For an electrical product, when drafting clauses on information and warnings, consideration should be given to alternative formats, the location and layout of information, the light conditions under which it should be viewed, etc. The key words “Alternative format” are explained in more detail in 8.2, “Location and layout” are covered in 8.3, and so on.

7.3.3 The remaining columns of each Table show, by shading, where factors are significant for those with impairment in the various human abilities. Even though the factors which tend to be especially significant are shaded here, all the factors could be important and should be considered for each different case. So, again in Table 1, the use of alternative formats for information and warnings can be seen to be important for people with sensory impairment (in seeing, hearing, touch, taste or smell), and those who have impairment in dexterity or in language and literacy. The relevant alternative format may be different for different abilities but clearly the more alternative formats used, the greater the number of people who will be suited. Each of the human abilities is numbered as it appears in clause 9 so more information about, for example, an ability to see and the potential risks arising from impairment can be found in 9.2.1.

7.3.4 In conclusion, standards developers should use the Tables selectively — in terms of the Tables and factors that are relevant to their International Standard. However, once the relevant Tables and factors have been identified, all the consequent row of Human abilities should be considered. This is because all factors relevant to a product, service or environment may be significant to people of any ability.