

# Involving People with Disabilities

## in the Standardisation Process



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**COST219<sub>ter</sub>**



Accessibility for All  
to Services and Terminals for  
Next Generation Networks

**cost**

### Acronyms

3GPP	Third-Generation Partnership Project
CEN	Comité Européen de Normalisation
CENELEC	Comité Européen de Normalisation Electronique
COST	European Co-operation in the field of Scientific and Technical Research
ETSI	European Telecommunications Standards Institute
EU	European Union
ICT	Information and Communication Technology
IEC	International Electrotechnical Commission
IETF	Internet Engineering Task Force
ISO	International Organisation for Standardization
ITU	International Telecommunications Union
PDF	Page Description Format

# Accessibility of Information and Communication Technology Systems:

## Involving People with Disabilities in the Standardisation Process

### 1. Introduction

Standards play an increasingly important role for information and communication technology (ICT) systems, not just in specifying the technical interfaces but also for aspects such as the user interface and interoperability with other systems. The primary purpose of standards is to facilitate trade, and the standardisation bodies are funded accordingly, but there is an increasing awareness of the importance of consumer representation in the process. Unfortunately, this representation is often difficult to bring about because of the cost of participating and the specialist expertise which is essential to the process.

ICT systems could be complex and may involve various organisations providing terminals, networks or content. Accessibility of a system could require certain features in all three areas, so treating them as independent components is unlikely to address the facilities required to make them easy to use for people with disabilities. Therefore, there is a need to involve accessibility specialists in the design of the complete system and not just in a selection of piecemeal components.

Standardisation involves:

- a. Deciding what should be standardised.
- b. Recruiting an appropriate balance of experts (disability representatives, manufacturers, research, academia).
- c. Achieving consensus amongst the stakeholders.
- d. Detailed drafting of the standard.
- e. Public consultation with interested parties and incorporation of agreed changes.
- f. Promoting wide adoption and implementation of the standard by organisations delivering ICT products or services, and legislators.
- g. Disseminating information about aspects of relevance to the users of the ICT system or service.



Formal standards used to be the preserve of national standards bodies with some being produced by international organisations (such as ISO, IEC and ITU). However, the global supply of components and multi-national sales of ICT systems has required more standards to be either European or fully international<sup>1</sup>. In Europe the recognised standards organisations are CEN, CENELEC and ETSI, but industry tends to favour fully international standards for implementation.

However, in recent years there has been an increasing role for de facto standards. In some cases these have been developed by the dominant player (eg Microsoft in the area of computer software) or by groups of companies (eg Bluetooth or the World Wide Web Consortium). In addition there are also Open Systems and associated freeware and shareware. In these de facto groups, there is no formal requirement to consider the needs of people with disabilities when writing or revising a standard.

## 2. What to Standardise

Accessibility standardisation is performed both in the form of inclusion of accessibility aspects in general standards, and in writing specific standards documents on accessibility features. Deciding what to standardise should involve all the potential stakeholders. The factors to consider include:

- a. Is there likely to be some consensus on the scope and content of the standard?
- b. Will the proposed standard be of benefit to all users? Will it benefit industry?
- c. Are there sufficient people with the appropriate skills who are interested in doing the detailed work involved in writing the standard? In organisations such as ISO and CEN, there is a requirement for at least 5 countries to commit to contribute experts who will participate in the development of the standard.
- d. Is someone willing to take on the task of being editor?
- e. Does new research need to be undertaken before the standard is written? If so, who will do it or who will pay for it to be done?
- f. How is conformance to be demonstrated?
- g. Will the standard still be relevant by the time it is published? Some national standards may only take six months to develop, but international standards frequently take a number of years.
- h. When the standard is published, is it likely to be implemented?
- i. Is the benefit of having a standard worth the cost of writing it?
- j. Should the standard be national, European or international?



The standardisation of accessibility features in mainstream standards is often a very time-critical activity. The mainstream standard development has its agreed time plan and the accessibility aspects need to be integrated at the right moment in this plan in order to be well accepted. If standardisation is attempted when a technology is too immature it may be abandoned or change radically requiring constant updates to disabilities features. While if standards are developed later in the cycle, consensus may be impossible because manufactures or suppliers have adopted entrenched positions. The field of ICT is fast moving and development of a product may be complete within a year; the developers move on to the next innovation leaving a skeleton maintenance team with a responsibility for bug correction but not for implementation of standards.

If new research is needed, it is preferable that it is undertaken before the new work item is formally adopted by the standards body, otherwise there is a risk that the development of the standard will not be within the time permitted by the standards organisation. Standards are not used to force untried solutions upon industry, so any new concepts must be proved to be valid at the outset.

### 3. Writing the Standard

People with disabilities can influence the content of the standard in various ways, although there always remains the problem of knowing that a standard is being developed on a specific topic until it is too late to have any influence:

- a. Submitting written comments to the Committee or Working Group especially at the draft for public comment stage. This can also be done directly to the convenor or secretary but is best done via the national committee. Some working groups hold open meetings and publish draft proposals on a website<sup>2</sup>, but this is not the norm.
- b. Attending a meeting of the Working Group and making a verbal presentation. This is probably best done after submitting written comments. When a standard approaches its final draft, the Working Group meetings may only discuss material submitted in writing in advance.
- c. Getting appointed as a member of the Working Group. For European and international standards, the initial approach should be made to the chair of the relevant committee (or mirror group) of the national standards organisation. However, all members of the Working Group need to represent a wider interest than just their personal viewpoint and so any member must be prepared to consult with others to ensure this is the case.
- d. Undertaking any research needed to provide scientific data on which to base the standard.



<sup>2</sup> For information on how to design accessible websites, see [www.tiresias.org/guidelines/web.htm](http://www.tiresias.org/guidelines/web.htm)

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- e. Participating in a specialist task force (in some cases this may be funded by the European Commission).
- f. Acting as editor for the standard. This role should not be taken on lightly since it calls for special expertise and is likely to prove time consuming.

The level of influence will be determined by which approach is taken. Membership of a committee or working group will incur costs for travel and subsistence as these are not normally reimbursed, except in special circumstances, and could incur an annual charge, but this is often waived for disability organisations. There may also be a fee levied by the organisers for attending a particular meeting, which is in addition to the cost of travel, accommodation and meals.

For most standards bodies, the usual form of communication is email with some organisations providing the facility to download the documents from a website. During the development phase, most documents are in Microsoft Word with some being in Microsoft Excel or PDF (Adobe Page Description Format). The standards bodies normally have a template they require everyone to use for submitting comments to a public draft.

The final standard will usually be published in print and PDF, although a few standards that are aimed at people with disabilities are also available in large print. Copyright belongs to the standards organisation who usually charge for the purchase of individual standards. Sales of standards is often a significant source of income for the standards body and the potential volume of sales can influence whether a standard is developed or not.

Often standard documents include tables and sometimes diagrams (varying from showing how dimensions are measured, to the design of an icon, to a complex flow chart). Tables can prove difficult to read non-visually, and the diagrams may be too complex for an alternative text description to be viable. Another problem is that some committees and working groups produce enormous quantities of working documents. The numbering of documents is sometimes complicated with international and national bodies using different references. An index is not always provided nor are the keywords required to search for a document obvious. Current templates for standards preparation (typically in Microsoft Word) are not designed to be accessible in electronic form. All this makes it harder for a disabled person who has difficulty in reading printed documents. Some standards organisations are prepared to produce key documents in alternative formats such as large print, audio and braille<sup>3</sup>. The production of alternative formats can be contracted out<sup>4</sup>.



<sup>3</sup> More detailed guidelines are available at [www.tiresias.org/guidelines/alternative\\_formats.htm](http://www.tiresias.org/guidelines/alternative_formats.htm)

<sup>4</sup> For a list of organisations, see [www.tiresias.org/agencies](http://www.tiresias.org/agencies)

### 4. Meetings

For disabled people to fully participate in a meeting requires careful planning. Firstly the venue has to be accessible. This could require that the venue can be reached by public transport, and that the disabled person can easily get to the correct building from the bus stop or train station. Good signage can alleviate the problem for partially sighted visitors.

For physically disabled persons, the ability to get from a car, taxi or public transport to and into the building without going up or down steps is usually essential. Doors should be wide enough to comfortably accommodate the width of a wheelchair and should be easy to open from a wheelchair. Also wheelchair users require appropriate toilets on the same floor as the meeting room.

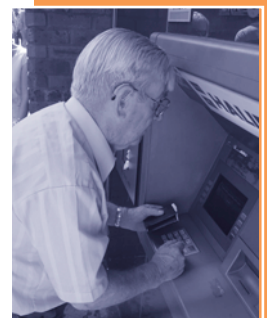
In the meeting room, there should be good illumination and a hearing aid loop. Good acoustics and low ambient noise (air conditioning or passing traffic) will help many people with a mild or moderate hearing impairment.

Some deaf people need to have real-time text display (such as Palantype). In these systems a skilled transcriber inputs on a chording keyboard with the output on a computer display which can be projected on a screen. Since this is a phonetic system, words can be misspelt; this is particularly noticeable with acronyms and foreign names (providing the transcriber in advance with a list of acronyms likely to be used in the meeting can alleviate the problem). The transcriber will need a break at regular intervals – typically for 5 minutes once an hour. One benefit of such transcription is that there is a verbatim transcript of everything said at the meeting which can be easily converted into a Word file. The disadvantage is the cost and scarcity of operators since most standards committees will have no budget for such extended support.

Some deaf people require a sign language interpreter or lip-speaker so that they can contribute to the meeting. For other than a very short meeting, two interpreters will be required. It is wise to book interpreters well in advance of the meeting. The official language of most international and European meetings is usually English.

At the start of the meeting, it is helpful to go round the table and everyone give their name and affiliation. Speakers should be asked to describe the content of any visual presentation to help people who are blind or partially sighted<sup>5</sup>.

For many small disability organisations the cost of travelling to the meeting can be a problem. There are some sources of funding available from national governments and consumer organisations, but only for certain types of member.



<sup>5</sup> More detailed guidelines on arranging meetings can be found at [www.tiresias.org/guidelines/accessible\\_events.htm](http://www.tiresias.org/guidelines/accessible_events.htm)

ISO meetings are sequentially held in differing countries. This enables experts who are unable to meet the costs of international travel to occasionally attend a meeting in their own country. For disabled experts, facilities can usually be provided in most developed countries, but for less wealthy countries those facilities may not always be available.

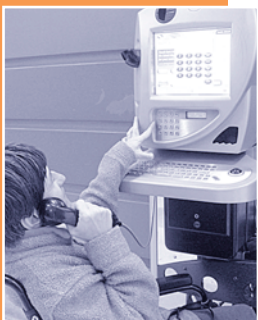
Another problem is that relatively few disabled people are familiar with the standardisation process. Therefore, some will need appropriate training. However, this is also the case for many experts on standards committees, and some of the standards bodies do provide training of various types.

### 5. Implementation

When a standard is published there is no automatic requirement for organisations to adhere to it. Standards may be given legal force by being cited in legislation or in a formal contract. They are frequently used to complement European Union Directives, on the basis that conformity to a specified European standard will be regarded as demonstrating compliance with that part of the Directive. At a national level, a standard can be referred to in legislation as long as it is not seen as restricting competition within the European Community; in practice, this means that it must be identical to a European standard.

A particular example of legal force being given through contract is for a standard to be specified during a procurement process. Public sector procurement relies heavily on standards (European standards in the EU countries) because this ensures even-handedness in the technical specifications attached to contracts. The European Directive on Public Procurement also sets out a requirement for government procurement to consider accessibility, but the standards needed to implement this are still being written. However, some national governments have recommended a number of standards which national and local government departments should follow for procurement of ICT systems; in the UK, the recommended standards include some related to accessibility. In the EU, there is a procedure which enables public procurement bodies to use national standards if there is no European standard available. Another way to apply a standard is that it is included by an industry sector organisation in an agreed collection of standards to be followed for a specific product class or function.

It is common for companies to state that they have followed certain standards without there being any formal verification process. One example of this is web accessibility. However, in other areas, particularly where there is a safety aspect, there may be a formal system of independent certification or self-certification for checking a product or service before it can be put into general use. It is also important to bear in mind that compliance with an



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accessibility standard or guideline does not imply that the offering can be called 'accessible'. It only means that it will be more accessible for many people than if the standard had not been followed.

All too often industry is unaware of the existence of standards relating to accessibility, and the disability organisations have not seen it as a priority to bring them to their attention and encourage adoption. Some disability organisations feel they should be paid to undertake this activity.

A problem can be the cost of purchasing copies of standards. Some organisations (ETSI, IETF, 3GPP and ITU) make their standards available free of charge while others (CEN, ISO) charge for copies. Some of the standards organisations charging for the standards provide committee and working group members with free copies of the relevant standards, but others make a charge even to the authors of the standard. It would be helpful for there to be a more consistent approach in this area and for there to be some agreement on the availability of standards in alternative formats, but Intellectual Property Rights considerations complicate the issue.

### 6. Information Dissemination

For some standards, although industry implements a standard, disabled consumers are unaware of the purpose or how it affects them. For instance there is a European standard for a tactual indicator on plastic cards to show which way they should be inserted in a terminal; however, few blind people seem aware of the significance of this notch. Therefore, there is a need to educate disabled consumers about accessibility features which have been incorporated in products or services.

Standards bodies do not see their role to include educating disabled consumers about accessibility, or educating consumers at all. However, some disability organisations are reluctant to take on this role unless they are paid or can see some indirect financial benefit to their organisation. Too often the result is that disabled consumers are unaware of what has been done to assist them, and industry is frustrated that they are spending money providing these facilities but it is not helping all those who could benefit. An informed consumer base is arguably of benefit to everyone but it is only a standardisation matter to the extent that product information and user warnings may have to be given in uniform formats.



## **7. Conclusions**

Standardisation is an important tool to improve the accessibility of ICT. However, there are a number of problems, the resolution of which will require communication and collaboration between the various stakeholders.



### **The COST 219ter Action**

The main objective of the Action is to increase the accessibility of next generation telecommunication network services and equipment to elderly people and people with disabilities by design or, alternatively, by adaptation when required.

Further information: [www.cost219.org](http://www.cost219.org)

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SCIENCE  
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