

FINAL REPORT
ITU-D STUDY GROUP 1

QUESTION 20-1/1

ACCESS TO TELECOMMUNICATION
SERVICES AND INFORMATION
AND COMMUNICATION
TECHNOLOGIES (ICTS) BY
PERSONS WITH DISABILITIES



ACCESSIBILITY

5TH STUDY PERIOD 2010-2014
Telecommunication Development Sector



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Access to telecommunication services and information and communication technologies (ICTs) by persons with disabilities



ITU-D Study Groups

In support of the knowledge sharing and capacity building agenda of the Telecommunication Development Bureau, ITU-D Study Groups support countries in achieving their development goals. By acting as a catalyst by creating, sharing and applying knowledge in ICTs to poverty reduction and economic and social development, ITU-D Study Groups contribute to stimulating the conditions for Member States to utilize knowledge for better achieving their development goals.

Knowledge Platform

Outputs agreed on in the ITU-D Study Groups and related reference material are used as input for the implementation of policies, strategies, projects and special initiatives in the 193 ITU Member States. These activities also serve to strengthen the shared knowledge base of the membership.

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Sharing of topics of common interest is carried out through face-to-face meetings, e-Forum and remote participation in an atmosphere that encourages open debate and exchange of information.

Information Repository

Reports, Guidelines, Best Practices and Recommendations are developed based on input received for review by members of the Groups. Information is gathered through surveys, contributions and case studies and is made available for easy access by the membership using content management and web publication tools.

Study Group 1

For the period 2010-2014, Study Group 1 was entrusted with the study of nine Questions in the areas of enabling environment, cybersecurity, ICT applications and Internet-related issues. The work focused on national telecommunication policies and strategies which best enable countries to benefit from the impetus of telecommunications/ICTs as an engine of sustainable growth, employment creation and economic, social and cultural development, taking into account matters of priority to developing countries. The work included access policies to telecommunications/ICTs, in particular access by persons with disabilities and with special needs, as well as telecommunication/ICT network security. It also focused on tariff policies and tariff models for next-generation networks, convergence issues, universal access to broadband fixed and mobile services, impact analysis and application of cost and accounting principles, taking into account the results of the studies carried out by ITU-T and ITU-R, and the priorities of developing countries.

This report has been prepared by many experts from different administrations and companies. The mention of specific companies or products does not imply any endorsement or recommendation by ITU.

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QUESTION 20-1/1

Access to telecommunication services and information and communication technologies (ICTs) by persons with disabilities

1 Introduction

Today, the world has around 7 billion people. More than one billion people are estimated to live with some form of disability according to the World Health Organization-World Bank “World Report on Disability” published in 2011. The United Nations Convention on the Rights of Persons with Disabilities defines information and communication technology (ICT) accessibility as an integral part of Accessibility rights, on a par with accessibility to the physical environment and transportation. This Study Group report addresses the key aspects of ICT accessibility.

International framework on access to telecommunications/ICT by persons with disabilities.

1.1 UN Convention on the Rights of Persons with Disabilities

Article 9

1 “To enable persons with disabilities to live independently and participate fully in all aspects of life, States Parties shall take appropriate measures to ensure to persons with disabilities access, on an equal basis with others, to the physical environment, to transportation, to information and communications, including information and communications technologies and systems, and to other facilities and services open or provided to the public, both in urban and in rural areas. These measures, which shall include the identification and elimination of obstacles and barriers to accessibility, shall apply to, inter alia:

- Buildings, roads, transportation and other indoor and outdoor facilities, including schools, housing, medical facilities and workplaces;
- Information, communications and other services, including electronic services and emergency services.¹”

2 “States Parties shall also take appropriate measures to:

- Develop, promulgate and monitor the implementation of minimum standards and guidelines for the accessibility of facilities and services open or provided to the public;
- Ensure that private entities that offer facilities and services which are open or provided to the public take into account all aspects of accessibility for persons with disabilities;
- Provide training for stakeholders on accessibility issues facing persons with disabilities;
- Provide in buildings and other facilities open to the public signage in Braille and in easy to read and understand forms;
- Provide forms of live assistance and intermediaries, including guides, readers and professional sign language interpreters, to facilitate accessibility to buildings and other facilities open to the public;
- Promote other appropriate forms of assistance and support to persons with disabilities to ensure their access to information;

¹ <http://www.un.org/disabilities/default.asp?id=259>

- Promote access for persons with disabilities to new information and communications technologies and systems, including the Internet;
- Promote the design, development, production and distribution of accessible information and communications technologies and systems at an early stage, so that these technologies and systems become accessible at minimum cost².”

1.2 International Telecommunications Regulations

Article 8B: Accessibility

“Member States should promote access for persons with disabilities to international telecommunication services, taking into account the relevant ITU-T Recommendations³”.

1.3 Plenipotentiary Resolution 175 (Guadalajara)

The plenipotentiary Conference (Guadalajara, 2010) adopted resolution 175 aimed at ensuring telecommunication/information and communication technology accessibility for persons with disabilities, including age-related disabilities. 0.4 Participation of Persons with Disabilities in the Work of the ITU

This Study Group report addresses key aspects of ICT accessibility and was very fortunate to have the participation of many organizations working for people with disabilities. The group invites ITU and all the working groups dealing with accessibility issue to promote the participation of persons with disabilities in their work.

1.4 The Report

The aim of this report is to be source of information for member states that will support the designing of policies and execution of strategies for promoting and implementing services and solutions which provide access to telecommunications/ICTs by persons with disabilities. The report includes principles to be applied by services providers and equipment manufacturers, recommendation on the desirable access to telecommunications/ICT as well as best practices.

2 Mobile Technology Aspect

2.1 Background

Mobile technologies have become a vital part of our life and mobile penetration rate in the countries have reached over 96 per cent worldwide⁴ with more than 6.8 billion subscribers, according to 2013 ITU data. While technological change is happening in vertiginous mode, in the world there are more than 1 billion disabled people⁵. Mobile phones combined with Internet can break the barriers which segregate people with disabilities that force them to the margins of society. People with disabilities can gain equitable access to opportunities to participate and contribute to their communities and mobile technologies are

² Ibid.

³ <http://www.itu.int/en/wcit-12/Documents/final-acts-wcit-12.pdf>

⁴ http://www.itu.int/en/ITU-D/Statistics/Documents/statistics/2013/ITU_Key_2005-2013_ICT_data.xls

⁵ http://www.who.int/mediacentre/news/releases/2011/disabilities_20110609/en/

carrying key importance at this issue because of their mobility and flexibility patterns. The technology is developing in accelerated manner and the gap between technology level and ability of person with disabilities for using it is getting larger.

This rapid development of wireless telephony (and wireless-enabled computing) has provided disabled people with a substantial improvement in their functional capacity; no longer do blind and visually impaired people need to locate a public telephone kiosk while wheelchair users no longer need to struggle with inaccessible kiosks. Deaf persons have embraced text messaging all over the world, opening an entirely new way to communicate with others. Elderly and disabled persons enjoy simple emergency call procedures. Wireless (cell or mobile) phones are portable, personalized and always on, for work, leisure and emergencies.

2.2 Drivers for Accessible Mobile Phones

“While critical accessibility issues affected early generations of handsets, substantial progress has been made by manufacturers to boost their accessibility driven by three major factors:

- The increasing availability of enhanced processing power for handsets coupled with innovative software for user interfaces such as voice recognition or text to speech;
- Pressures from user groups and regulators to solve basic issues such as hearing aid compatibility and visually inaccessible handsets;
- Realization by wireless operators in saturated markets that disabled and elderly persons represent a large untapped market.”⁶

2.3 Accessibility Features Required by Persons with Disabilities

“Accessible hardware and software is available today which can address the needs of users with various types of impairments: visual, cognitive, hearing, speech, physical. For example the following:

- Blind and visually impaired people can adjust display settings such as font size or color contrast;
- Blind or visually impaired people can use text to speech to access menus, receive audio feedback and have text, such as SMS, read aloud;
- Pictorial address books (containing an image of the person beside their name and phone number) has considerably empowered some people with cognitive disabilities to use cell phones;
- Deaf persons can use a range of services including:
 - SMS text messages
 - sign language via video calls (on 3G networks)
- Other video-based services such a text to Avatar;
- Persons unable to use a keypad can use voice recognition software.”⁷

⁶ http://www.e-accessibilitytoolkit.org/toolkit/technology_areas/wireless_phones%20and%20ICT%20accessibility

⁷ Ibid.

2.4 Likely Technological Evolution and Accessibility Features

“As technology continues to evolve, mobile phones and high end Personal Digital Assistants (PDAs) become a prime platform for assistive technology by providing additional functionalities not traditionally available on phones such as easy to use emergency keys, integrated GPS for geo-positioning, text scanning capabilities with optical character recognition to read documents aloud with text to speech software, or a mini Daisy reader to read downloaded books aloud. For specific conditions such as hard of hearing users, bone conduction to transmit sounds to the inner ear is available. Furthermore, by using 3G connectivity, Wi-Fi and Bluetooth technologies, smart phones will likely become platforms of choice to enhance proximity and mobility services for persons with disabilities⁸.”

“Disabled customers, however, require dedicated customer support services with trained personnel to take full advantage of those new features. While dedicated point of sales and service have appeared in Europe and Japan, most operators around the world do not have such facilities.”⁹

2.5 Convention on the Rights of Persons with Disabilities (CRPD)

The Convention on the Rights of Persons with Disabilities (CRPD) was adopted by the United Nations General Assembly on December 13, 2006. A major milestone for all persons living with disabilities around the world, it is the 8th Universal Convention on Human Rights and the first of this of this millennium¹⁰ As of September 2013, 156 countries have signed the CRPD¹¹. More than 6.8 billion mobile subscribers and more 1 billion people with disabilities however are not enough to encourage countries in order to have policies for mobile accessibility (only half of the State Parties to the CPRD have mobile accessibility policies). Such policies are important because many of the handsets and services currently available, especially in developing countries, are not accessible for persons with disabilities.

Example of policies for the mobile industry by Member States which signed the CRPD could cover the following topics to address the needs of persons with disabilities and aging users:

- Available accessibility features for mobile phones;
- Special services offered by GSM/wireless providers;
- Mobile applications;
- Analysis of challenges and opportunities.

2.6 Accessibility Features¹²

Basic Hearing Accessibility Features

- Visual alerts to notify the user of incoming calls and messages;
- Adjustable volume control;
- Display of missed, received or dialed calls through call logs;
- Text based messaging options.

⁸ Ibid.

⁹ Ibid.

¹⁰ ITU-G3ict e-Accessibility toolkit,
http://www.e-accessibilitytoolkit.org/toolkit/un_convention/overview_of_the_convention

¹¹ <http://www.un.org/disabilities/index.asp>

¹² The following Accessibility features were identified in the ITU-G3ICT report, Making Mobile Phones and Services Accessible for Persons with Disabilities at http://www.itu.int/ITU-D/sis/PwDs/Documents/Mobile_Report.pdf

Basic Vision Accessibility Features

- Adjustable font sizes;
- Text to speech;
- Tactile markers to help orient fingers on the keypad;
- Backlit display.

Basic Speech Accessibility Features

- Text messaging/SMS;
- Email;
- Instant Messaging;
- Multimedia Messaging;
- Predictive Text;
- Video one on one sign language.

Dexterity

- Ability to use mobile phone in hands free mode;
- Predictive text input;
- Call answered by pressing any key;
- Voice recognition for dialing or accessing features within the phone;
- Candy bar design to avoid extra movements.

Cognition

- Clear and simple menus and instructions to understand;
- Providing enough time for user to enter required information;
- Ability to associate photos with telephone numbers;
- Having a choice between audio, visual or vibrating alerts to let users know when they are receiving a call;
- Keypad shortcuts to make every step quick and efficient.

Mobile operators can be required to incorporate with Universal Design objectives. These requirements can be achieved either by regulatory or voluntary initiatives.

3 Landline Telephony Aspect¹³

3.1 Landline Telephony Functionality

Landline telephony provides the following functionality:

¹³ From http://www.e-accessibilitytoolkit.org/toolkit/technology_areas/landline_phones

- **Real time conversation with anybody at a distance**

Landline phones provide users with the important ability to have real-time conversations at a distance with other people around the world.

- **Stationary use**

'Landline' means that the phones are intended for stationary use.

- **Use in calls with stationary, wireless and mobile phones**

The "phone" of the other party in the call may be any type of device (phone, Personal Digital Assistant (PDA), computer, car) and be connected in many different ways (landline, cable TV, powerline, wireless, satellite).

- **Limited use for data collection, data retrieval and remote control**

Landline phones are also used for very limited data collection, data retrieval and remote control through the digit transmission they provide.

- **Reach emergency services and society services**

Landline phones are used to reach important and essential services, such as emergency services, and services for less urgent questions.

- **Multi-party conferences**

It is possible to connect a number of landline phones and other phones in phone conferences where all parties can converse with each other.

3.2 Accessibility to Landline Phones

"Accessibility to landline phones means the following:

- **Equivalent functionality**

Accessibility of landline phones for people with disabilities means that the range of services provided through landline phones to everyone without disabilities is also accessible in some way that provides equivalent functionality for people with disabilities.

- **Voice handset or other suitable type of terminal**

A person with one or more disabilities may need to have a suitable terminal in order to hold a conversation via telephone. Sometimes this can be done with a voice handset. In other cases, the person may need another kind of terminal to have access to equivalent functionality. For example, they may need a textphone, videophone or a total conversation terminal combining the opportunity to use all three media in the same terminal.

- **Control of the terminal and services**

Access to a landline phone for a person with a disability may also mean it is possible for that person to use the controls of the terminal. For people with motor disabilities this may require the use of assistive technology to either control the phone, or in some case to both control and talk on the phone.

- **Create and perceive intended media in the call**

The audio level must be loud enough for people with mild to moderate hearing loss to hear. It must also be provided in specific ways so that it can be coupled with hearing aids including cochlear implants. Video

must be of a quality suitable for the use of sign language, lip reading, and other visual communication. Text must be readable and it must also be possible to produce.”¹⁴

4 Radio Aspect¹⁵

Overview

“The equipment a person uses to listen to radio depends on the transmission medium. For terrestrial radio broadcasts, it may be an integrated radio set or a separate radio tuner attached to an audio system with a remote control. For radio accessed through cable, satellite or terrestrial television, the equipment consists of a television and sometimes a separate receiver in the form of a ‘set-top box’. For internet or mobile radio, it is a PC or handheld device running a software application or accessing a website.

Whatever the type of radio, the listener has to use a mix of hardware (displays, buttons, dials, cables, etc.) and software (menus, schedule guides, pause/rewind/record functions, etc.). This equipment can sometimes be very difficult to use for people with visual or physical disabilities.”¹⁶

For example:

“People with visual impairments often find it difficult or impossible to see the labels on buttons or to read the display. They may require equipment with clearly labeled buttons that can be distinguished by touch. They may need to be able to increase the size, brightness or contrast of displayed text or have it spoken out in a synthetic voice.

People who have poor grip or dexterity may need larger well-spaced controls that are easy to locate and operate with minimal strength and movement. They may benefit from having a remote control that can be laid on a flat surface and operated using one hand.

People with cognitive impairments need equipment that is easy to unpack and set up and easy to learn and use. For internet or mobile radio, people with disabilities will need the applications or websites to be compatible with the assistive hardware and software they use to operate their PC or mobile device. This rapid development of wireless telephony (and wireless-enabled computing) has provided disabled people with a substantial improvement in their functional capacity; no longer do blind and visually impaired people need to locate a public telephone kiosk while wheelchair users no longer need to struggle with inaccessible kiosks.

Deaf persons have embraced text messaging all over the world, opening an entirely new way to communicate with others.

Elderly and disabled persons enjoy simple emergency call procedures. Wireless (cell or mobile) phones are portable, personalized and always on, for work, leisure and emergencies.”¹⁷

¹⁴ http://www.e-accessibilitytoolkit.org/toolkit/technology_areas/landline_phones

¹⁵ http://www.e-accessibilitytoolkit.org/toolkit/technology_areas/radios

¹⁶ Ibid.

¹⁷ Ibid.

5 Web/Internet Aspect

5.1 Introduction

“Developments in electronics and Information and communication technologies (ICTs) and the push towards providing services online have opened up limitless opportunities for disabled persons to participate in all spheres of life such as governance, education, health, employment, leisure, business, banking, etc. and eliminate barriers in society. This has been acknowledged by the wide-ranging e-accessibility obligations set out in the UN Convention on the Rights of Persons with Disabilities (UN CRPD).”¹⁸

“The impact of these technologies is considerably offset by the inability of disabled persons to use them effectively. A vast amount of information and services are now available on the Internet. However the lack of accessibility of many of these websites continues to remain a barrier for disabled persons.”¹⁹

“Accessibility and interoperability, the ability of ICT systems to be used in conjunction with each other, are fundamental to achieving efficiency, accountability and transparency of e-governance and business processes and to ensure the delivery of basic public services to all citizens. E-government and businesses should be transformative and more citizen-centric in their approach towards delivering public services, since access to technologies and the Internet is fundamental for ensuring democratic, effective, efficient and equitable participation in the information society. The large diversity of persons who are unable to access information and services on the internet includes disabled persons, elderly persons, illiterate and semi-literate persons, those accessing the internet using a variety of technologies and platforms, those with low bandwidth connections and persons from cultural or linguistic minorities. These groups find it difficult to access electronic and information services due to the lack of adherence to principles of universal design during the creation of websites and content on the internet.”²⁰

5.2 Persons with Disabilities and the Internet

“Persons with different kinds of disabilities use a variety of different technologies and Assistive Technologies to access information on the internet. For instance, blind persons use screen readers, persons with low vision use glasses, screen magnifiers or CC TV cameras, persons with motor impairments may use speech recognition programmes, one-handed key boards etc., deaf persons use cochlear implants, persons with cognitive impairments may use software like word prediction software and persons with multiple disabilities may use a combination of all these to successfully use computers. These persons also encounter different kinds of obstacles while trying to access the internet depending upon the nature of their disability and kind of assistive technologies which they use.”²¹

“The Web Accessibility Initiative (WAI), which is a wing of the World Wide Web Consortium (W3C) has come out with a set of guidelines called the Web Content Accessibility Guidelines (WCAG) 2.0, which set out the criteria for creating web sites which will be accessible to persons having different kinds of disabilities.”²²

¹⁸ http://www.e-accessibilitytoolkit.org/toolkit/technology_areas/websites

¹⁹ http://www.e-accessibilitytoolkit.org/toolkit/technology_areas/websites

²⁰ http://www.e-accessibilitytoolkit.org/toolkit/technology_areas/websites

²¹ http://www.e-accessibilitytoolkit.org/toolkit/technology_areas/websites

²² http://www.e-accessibilitytoolkit.org/toolkit/technology_areas/websites

5.3 Business Case for Web Accessibility

“Making web sites accessible is not only useful for persons with disabilities, older persons and people with low literacy levels, but also has significant economic advantages. It helps to build good customer relations, helps organizations fulfill their corporate social responsibility, increase clientele, reduce legal suits for inaccessibility and increase search engine optimization (SEO). Accessible websites enable organizations to reach out to a wider audience including not only people with disabilities but also persons who are accessing the internet from remote locations through alternate platforms like mobile phones or who have very less bandwidth, persons who are using older and less advanced technologies and those who are not practiced users.”²³

“Developing web sites which conform to a high degree of accessibility not only benefits persons with disabilities, but is also important for users of alternate technology platforms such as mobile phones. Unfortunately awareness of the benefits of accessible websites tends to still be quite low amongst web developers.”²⁴

“In addition to this, web accessibility also has certain technical advantages since it facilitates interoperability, enhances the quality of the web site, reduces the time taken for developing and maintaining the web site, enables easy configuration on different systems, reduces the load on the server and can be adapted easily to meet the requirements of future technologies. It also addresses the requirements under existing legal provisions on accessibility as well as helps to streamline costs to the organization by taking into account present and future costs of the organization.”²⁵

5.4 Standards and Guidelines for Web Accessibility

“There are various standards and guidelines across the world to provide people with direction on creating accessible websites. The most widely followed amongst these are the accessibility guidelines laid down by the World Wide Web Consortium (W3C). In addition to these, different countries around the world may have their own policies or guidelines for creating accessible websites. This section outlines some of the guidelines and regulation in place around web accessibility.”²⁶

Web accessibility has to do with ensuring that persons with disabilities and the elderly are able to access online services and content. Defined by the technical standards established under W3C’s Web Accessibility Initiative (WAI), it requires attention throughout a website’s life cycle from all concerned with the site and involves application methods, business standards and monitoring.

The W3C rules, which are set out in the Web Content Accessibility Guidelines (WCAG), are intended to make web content more accessible to a wider range of people with disabilities, including blindness and low vision, deafness and hearing loss, learning disabilities, cognitive limitations, limited movement, speech disabilities, photosensitivity and combinations of these. For its part, moreover, the United Nations has put forward the notion of “environmental accessibility”, which includes the planning and introduction of measures to promote the integration and participation of all, thus including persons with disabilities.

The WCAG 2.0 Guidelines present a thematic approach, with the 12 structuring guidelines grouped around four fundamental principles:

²³ http://www.e-accessibilitytoolkit.org/toolkit/technology_areas/websites

²⁴ http://www.e-accessibilitytoolkit.org/toolkit/technology_areas/websites

²⁵ http://www.e-accessibilitytoolkit.org/toolkit/technology_areas/websites

²⁶ http://www.e-accessibilitytoolkit.org/toolkit/technology_areas/websites

- **Principle 1:**

“Perceivable content – Information and user interface components must be presentable to users in ways they can perceive.

- Provide text alternatives for any non-text content so that it can be changed into other forms people need, such as large print, braille, speech, symbols or simpler language;
- Provide alternatives for time-based media;
- Create content that can be presented in different ways (for example simpler layout) without losing information or structure;
- Make it easier for users to see and hear content including separating foreground from background (colors).”²⁷

- **Principle 2:**

“Operable content – User interface components and navigation must be operable.

- Make all functionality available from a keyboard;
- Provide users enough time to read and use content;
- Do not design content in a way that is known to cause seizures;
- Provide ways to help users navigate, find content, and determine where they are.”²⁸

- **Principle 3:**

“Understandable content – Information and the operation of user interface must be understandable.

- Make text content readable and understandable;
- Make web pages appear and operate in predictable ways;
- Help users avoid and correct mistakes.”²⁹

- **Principle 4:**

“Robust content – Content must be robust enough that it can be interpreted reliably by a wide variety of user agents, including assistive technologies.

- Maximize compatibility with current and future user agents, including assistive technologies.”³⁰

Examples of assistive technology :

“Screen magnifiers, and other visual reading assistants, which are used by people with visual, perceptual and physical print disabilities to change text font, size, spacing, color, synchronization with speech, etc. in order to improve the visual readability of rendered text and images.

Screen readers, which are used by people who are blind to read textual information through synthesized speech or braille.

²⁷ <http://www.w3.org/TR/WCAG/>

²⁸ Ibid.

²⁹ Ibid.

³⁰ Ibid

Text-to-speech software, which is used by some people with cognitive, language, and learning disabilities to convert text into synthetic speech.

Speech recognition software, which may be used by people who have some physical disabilities.

Alternative keyboards, which are used by people with certain physical disabilities to simulate the keyboard (including alternate keyboards that use head pointers, single switches, sip/puff and other special input devices).

Alternative pointing devices, which are used by people with certain physical disabilities to simulate mouse pointing and button activations.”³¹

To ensure that the greatest benefit is derived from accessible websites, the tools used for consulting such sites must themselves be usable by persons with disabilities. The corresponding recommendations are set out in the User Agent Accessibility Guidelines 2.0 (October 2012). In order for a site to be accessible to a person with disabilities surfing the Internet using a synthesized voice software or Braille display, it must, from the design phase onwards, comply with the W3C/WAI rules for web accessibility. Among other things, it must provide for unambiguous structuring of the information and accurate dissociation of the form (page graphics) and substance (information transmitted), so that the access interfaces can coherently retranscribe the contents of the site and its navigation.

Labels can be established by a third party from an initial content audit. Generally granted for a two-year period, they include control visits and more often than not require the existence of a channel for complaint. They do not impose any obligation of means and validate only the online result.

6 Television Aspect

6.1 Overview

There are two aspects of television where accessibility considerations arise for viewers with disabilities – the equipment and the programme content.

6.2 Accessible Television Equipment

“The equipment a person uses to watch television depends on the transmission medium. For cable, satellite or terrestrial television, the equipment consists of a television, sometimes a separate receiver in the form of a ‘set-top box’, and a remote control. For internet or mobile television, the equipment is a PC or handheld device running a software application or accessing a website.”³²

“Whatever the type of television, the viewer has to use a mix of hardware (screens, buttons, cables, etc.) and software (menus, programme guides, pause/rewind/record functions, etc.). This equipment can sometimes be very difficult to use for people with sensory and physical disabilities.”³³

“For example:

People with vision impairments often find it difficult or impossible to see the labels on a remote control or to read on-screen text. They may require a remote control with clearly labeled buttons that can be

³¹ <http://www.w3.org/TR/WCAG20/>

³² http://www.e-accessibilitytoolkit.org/toolkit/technology_areas/television

³³ http://www.e-accessibilitytoolkit.org/toolkit/technology_areas/television

distinguished by touch. They may need to be able to increase the size of on-screen text, change its color, or have it spoken out in a synthetic voice.”³⁴

“People who have poor grip or dexterity may need a remote control that is easy to hold with large well-spaced buttons, or one that can be laid on a flat surface and operated using one hand.”³⁵

“People with cognitive impairments need equipment that is easy to unpack and set up and easy to learn and use. For internet or mobile television, people with disabilities will need the applications or websites to be compatible with the assistive hardware and software they use to operate their PC or mobile device.”³⁶

“In addition, people with sensory impairments will need equipment and software that is able to access and pass on captions, subtitles, audio description and sign language tracks whenever they are included with television programmes.”³⁷

Smart TV

In addition to carrying 2D and 3D content, certain models of TV set (Smartphone TV, intelligent TV or connected TV) respond to voice and gesture commands and also incorporate a face recognition system for more customized control. These technological features allow the great majority of persons with disabilities to interact autonomously with the TV set.

- Smart TV – a TV set which knows your face

Using the integrated camera, the Smart TV’s face recognition software instantly recognizes the viewer, who therefore no longer needs to enter a username and password. With the screen thus unlocked, it is then a simple matter for the user to connect with the application.

- Smart TV – a TV set which knows your voice

Thanks to the inbuilt voice-recognition technology, the viewer, and particularly a viewer with disabilities, is able to control the Smart TV by talking to it. With just a few words, it will turn on, change channels, adjust the volume, find its way around the interactive portal and even perform internet searches.

- Smart TV – a TV set which responds to your gestures

Through gesture recognition, interaction with the Smart TV becomes even easier. This new technology responds to hand movements in order to change channels, adjust the volume, find its way around the interactive portal or use one of the compatible applications.

Functions such as turning the set on and off, changing channels, accessing applications and surfing the web can therefore now be performed without pressing any buttons but simply by performing simple gestures or speaking to the set.

6.3 Accessible Television Programme Content

“Accessible equipment is still no use if you can’t perceive the programme content due to vision or hearing loss. Television programmes therefore often include captions or even sign language for people who are deaf or hard of hearing and audio description for people who are vision impaired or blind. Captions

³⁴ http://www.e-accessibilitytoolkit.org/toolkit/technology_areas/television

³⁵ http://www.e-accessibilitytoolkit.org/toolkit/technology_areas/television

³⁶ http://www.e-accessibilitytoolkit.org/toolkit/technology_areas/television

³⁷ http://www.e-accessibilitytoolkit.org/toolkit/technology_areas/television

(sometimes referred to as subtitles) provide a written text transcript of the dialogue and other important sounds contained in the programme. Audio description (sometimes referred to as video description) provides a spoken narration during pauses in the dialogue, describing important visual content such as moving objects, actions and facial expressions. Both captions and audio description are vital for the full understanding and enjoyment of programmes by people who cannot perceive those types of information directly. Sign language is less common, but also vital for members of the Deaf community, for whom Sign Language may be their first language.”³⁸

7 Information on National Legal and Policy Frameworks to Promote ICT Access by Persons with Disabilities

7.1 Background

Mobile phones have completely revolutionized life in the 21st century. With the potential to bridge the divide between marginalized groups and mainstream communities of society - by facilitating access – they are increasingly receiving much attention from policy makers around the world. This contribution provides an overview of the measures implemented by different countries to facilitate accessibility in telecommunications for persons with disabilities based on desk-research.

Australia³⁹

Australia has made telecommunications accessible for persons with disabilities through a combination of universal service obligations, consumer protection laws, industry codes and guidelines, telecommunications standards, and through its ratification of the United Nations Convention on the Rights of Persons with Disabilities on 17 July 2008.

The Department of Broadband, Communications and the Digital Economy has policy oversight for access to telecommunications. The Australian Communication and Media Authority is the regulator for the communication sector in Australia.

The Telecommunications (Consumer Protection and Service Standards) Act 1999 (the TCPSS Act), guarantees Standard Telephone Service (STS) as part of the Universal Service Obligation (USO). The USO requires that persons with disabilities have reasonable access to voice telephony including payphones or an equivalent form of communication if voice telephony is not practical. This is in consonance with the Disability Discrimination Act, 1992, which makes it unlawful to discriminate against persons with disabilities in the provision of goods and services.

The TCPSS Act also provides for the National Relay Service which allows people who are deaf, hearing and/or speech impaired to access to a standard telephone service on terms and in circumstances that are comparable to the access other Australians have to a standard telephone service, including access to emergency services. The NRS is funded through a levy on eligible telecommunications carriers.

Australia’s Telecommunications (Equipment for the Disabled) Regulations, 1998, outline features and equipment that must be available for use with standard telephone services. They include one-touch dial memory, hands-free capability (a speaker and/or a handset cradle), built-in hearing aid coupler, cochlear implant, telephone adaptor, volume control – to amplify either the incoming or outgoing caller’s voice, alternative alerts to indicate that the telephone is ringing (either an additional ringing device with

³⁸ http://www.e-accessibilitytoolkit.org/toolkit/technology_areas/television

³⁹ Contribution of Australia at <http://www.itu.int/md/D10-SG01-C-0063/en>; the ITU-G3ICT report, Making Mobile Phones and Services Accessible for Persons with Disabilities at http://www.itu.int/ITU-D/sis/PwDs/Documents/Mobile_Report.pdf

adjustable volume tone and pitch, or a visual alert), provision of lightweight handsets and the facility to connect a second piece of equipment in parallel with the existing telephone. The regulations also specify the types of equipment that allow a person with a disability to have access to the National Relay Service.

The Telecommunications Disability Standard AS/ACIF S040:2001 requires that standard customer equipment used in connection with the STS must include:

- a raised ‘pip’ on the ‘five’ digit key to assist people who are vision impaired to locate number keys on the keypad, and
- a limit on interference between handsets and hearing aids.

The Australian Communications Industry Forum Code—C625:2009 Information Accessibility Features for Telephone Equipment, specifies the obligations on suppliers to provide product information on the functional characteristics of customer equipment that uses a telephone handset that is manufactured in, or imported to Australia. The purpose of the code is to ensure that the information provided by equipment suppliers clearly and comprehensively assists carriage service providers. It also helps consumers to identify equipment features that meet individual communication needs.

The Code works in conjunction with the ACIF – G627:2095 Operational Matrices for Reporting on Accessibility Features for Telephone Equipment Guideline, which provides matrices for the reporting on accessibility features of fixed and mobile customer equipment against four settings: handset/hardware information; mobility/dexterity features; vision features; and hearing features.

The guideline G586:2006 Disability Matters: Access to Communication Technologies for People with Disabilities and Older Australians outlines considerations to ensure that the needs of people with disability and older Australians are taken into account in activities undertaken by industry participants and the industry body, Communications Alliance.

Argentina⁴⁰

Argentina has enacted a few overarching laws to ensure the accessibility of telecommunication services.

National legislation of relevance to ICT accessibility dates back to the Latin American Convention for the Elimination of all Forms of Discrimination against Persons with Disabilities (2000) that was promulgated by Congress in Ley 25.280. Article 3, Section 1, point (a) stipulates the introduction of “... measures to progressively eliminate discrimination and to promote integration on the part of government bodies and/or private bodies in the provision or offering of goods, services, installations, programs and activities such as employment, transport, communication, housing...”⁴¹.

In the most recent change to the regulation of the public telephone service for the hard of hearing and persons with speech impairments (Ministerial Order S.C. N° 2151/97⁴²), the text mentions that “the current regulations for terminal equipment for the hard of hearing and/or the speech impaired in Argentina is similar to that used in the United States”. Section 3 of the 1997 regulations therefore required that “all models of handsets for ‘Hard of Hearing and Speech Impaired Category 3’, as defined in Article 10 of the Regulations approved by Resolution SC No. 26878/96 - both public and private - duly certified and approved by the communications regulatory body of the United States, the Federal Communications Commission (FCC), are approved in (Argentina), provided they have Spanish keyboard

⁴⁰ ITU-G3ICT report, Making Mobile Phones and Services Accessible for Persons with Disabilities at http://www.itu.int/ITU-D/sis/PwDs/Documents/Mobile_Report.pdf

⁴¹ This is an informal translation.

⁴² SC Res 2151/97 http://www.atedis.gov.ar/hipo_normativa6.php

language and (a minimum) speed of 50 baud⁴³.” On 12 November 2010, Congress passed a bill (4521-D-08) featuring additional legislation governing the accessibility of information on websites which refers to Web browsers. Because the legislation does not stipulate the type of device running Web browsers, it would also appear to apply to smart phones.

Brazil⁴⁴

The Brazilian position on mobile accessibility is encapsulated in the following statement: “The Government also develops policies of a structural nature, as opposed to isolated interventions. In this context, the issue of disabilities is seen as a cross-sector phenomenon and benefits from the synergy of the integrated planning and implementation of policies by all federal bodies, in partnerships with states and municipalities, and with the cooperation of human rights councils and civil society organizations.”⁴⁵ The Brazilian Model of Telecommunications Reform⁴⁶, BMTR, features universal service provisions in the BMTR that cover schools, health institutions and the disabled sector.

The original, post-privatization obligations of the operators were defined in their concession contracts and included compliance with the General Plan for Universal Targets (PGMU – Decree 2592 of 15/5/1998) and the General Plan for Quality Targets (PGMQ). There were some initial, short-term targets for the five-year duration of the plans. New PGMUs and PGMQs came into force from 2006, the year of the extension of the original concession contracts.

Among the new objectives established by the regulator in 2008 were:

- Ensuring widespread use of broadband access, with a view to increase the possibilities of social inclusion;
- Reducing barriers to access and use of telecommunications services for low income classes;
- Higher levels of perceived quality by users in the provision of services in order to ensure that their needs are completely met; and
- Mobile phone accessibility for persons with disabilities would appear to be implicit in these objectives, even if not explicitly identified.

Canada⁴⁷

In Canada, accessibility of telecommunication services is part of the broader regulatory policy governing the sector. The Canadian Radio-television and Telecommunications Commission (CRTC) is the regulatory body overseeing electronic and telecommunications industry practices and legislations.

In 2008, CRTC initiated a Telecom Public Notice (2008-8), where it held a converged telecommunications and broadcasting proceeding to address residual issues related to the accessibility of the same to persons

⁴³ This is an informal translation.

⁴⁴ Contribution of Brazil at <http://www.itu.int/md/D10-SG01-C-0064/en> and ITU-G3ICT report, Making Mobile Phones and Services Accessible for Persons with Disabilities at http://www.itu.int/ITU-D/sis/PwDs/Documents/Mobile_Report.pdf

⁴⁵ Quotation from: “Government of Brazil – rights of persons with disabilities - response to questionnaire by the OHCHR”. <http://www2.ohchr.org/english/issues/disability/docs/study/Brazil.doc>

⁴⁶ <http://www.sis.pitt.edu/~jarauz/docsusfq/sep05/brazil.pdf>

⁴⁷ ITU-G3ICT report, Making Mobile Phones and Services Accessible for Persons with Disabilities at http://www.itu.int/ITU-D/sis/PwDs/Documents/Mobile_Report.pdf

with disabilities. Based on the submissions made in the proceeding, CRTC outlined several measures under the Broadcasting and Telecom Regulatory Policy 2009-430.⁴⁸

These include extension of relay services to include IP relay service and making it obligatory for service providers to provide at least one type of wireless mobile handset which accommodates the needs of persons with disabilities, provide alternative billing formats and include accessible disability-specific information on websites.

France⁴⁹

In France, accessibility of telecommunications was achieved through the signing of a voluntary charter by service providers and disability organizations, which was facilitated by the French regulator, the Autorité de Régulation des Communications Électroniques et des Postes – ARCEP⁵⁰. In 2005, the French government and the ARCEP, along with operators and disability organizations signed a voluntary charter for improving access to mobile telephony for disabled end users⁵¹ which laid down priorities such as the introduction of necessary and comfort features, innovation of new features and provision of analysis and market accessibility features for the service providers to work on .

In 2008, changes and improvements to the charter were made which included increasing usability, wider dissemination of information, targeted product development and setting up an information website to aid persons with disabilities to choose handsets. The charter further added objectives such as training for information vendors, eventual adoption of the charter at European level and using innovation to increase accessibility.⁵²

The charter has had a noticeable impact on the mobile telephony industry. By 2009, every operator in France was offering 10 to 20 accessible handsets, and operators provided bills in Braille or large print for the visually impaired as well as special text and multimedia message packages for the deaf. In addition, new services were launched with accessibility features such as sign language news, accessible information websites, etc.

On 9 June 2011, sector players sought to renew their involvement in this area by extending the charter to include all electronic communication services. The charter henceforth requires professionals to offer products and services that are accessible to disabled people, to inform the general public concerning offers accessible to disabled people, and to provide customer follow-up adapted to the requirements of disabled people.

Note should also be taken of the adoption, within the framework of the European Union's new 2009 telecoms package, of Directive 2009/136/EC, which requires Member States to ensure that disabled people have access to electronic communication services equivalent to that of other end-users. France is to transpose this directive into national legislation by guaranteeing in the national texts that disabled people have access equivalent to other end-users, at affordable rates, to electronic communication services and by improving disabled people's access to customer services.

⁴⁸ http://www.crtc.gc.ca/eng/info_sht/t1036.htm

⁴⁹ Contribution of France at <http://www.itu.int/md/D10-SG01-C-0065/en> and ITU-G3ICT report, Making Mobile Phones and Services Accessible for Persons with Disabilities at http://www.itu.int/ITU-D/sis/PwDs/Documents/Mobile_Report.pdf

⁵⁰ <http://www.arcep.fr/index.php?id=1&L=1>

⁵¹ <http://www.afom.fr/eclairages/laces-des-personnes-handicapees-la-telephonie-mobile>

⁵² <http://www.gouvernement.fr/gouvernement/l-acces-des-personnes-handicapees-a-la-telephonie-mobile>

Japan⁵³

Mobile phone accessibility in Japan is ensured through a mix of legislative provisions and accessibility guidelines and standards. The Ministry of Internal Affairs and Communications is responsible for Japan's telecommunication sector.

The Info-communication Access Council (IAC) in Japan plays an active role as a facilitator in promoting easy access to telecommunications equipment and services, or in other words, assuring and improving telecommunications accessibility.⁵⁴ IAC has come out with a guideline for disabled telecom accessibility. The guideline, JIS X8341-4, applies to telecommunication equipment (which includes fixed telephones, facsimiles, mobile telephones and video phones).

Section 19 of the Basic Law for Persons with Disabilities Act, 1970, amended in 2004, deals with accessible communication and states that the (state) government and the local governments shall take necessary measures through disseminating accessible computers and accessible information technology devices, facilitating accessible telecommunications and making adjustments of facilities that provide information for persons with disabilities so that they can make use of accessible communication and express their own will. The Government and the local governments shall especially take into account accessibility for persons with disabilities in providing public information and promoting utilization of information technology.

Service providers for telecommunication, broadcasting, information, computer and other information technology devices are also directed to make efforts to take into account accessibility for persons with disabilities in providing services or manufacturing devices on the basis of social solidarity".⁵⁵

It is also important to note that the "Law for Promoting Businesses that Facilitate the Use of Communications and Broadcast Services by Physically Disabled Persons" (1993, Law No. 54) promotes services to make media such as telecommunications and broadcast accessible to persons with disabilities so that they can take advantage of the growing availability of information.⁵⁶

Japan has also done an important work on standardization. The Cabinet Secretariat enacted the Basic Law on the Formation of an Advanced Information and Telecommunications Network Society (referred to as the IT Basic Law), and based on this law, the Standardization Investigation Committee for Realizing Barrier-Free Access to Information was established within JSA/INSTAC. From there, the Japanese Industrial Standards Committee (JIS) reflected both of the above guidelines in the stipulation of "Guidelines for Older Persons and Persons with Disabilities – Information and Communications Equipment, Software and Services" as the X8341 series of standards. Through these movements, activities that give form to measures that prohibit discrimination against persons with disabilities are expanding in Japan.

JIS X8341-1 is the first part of the standard and stipulates the common guidelines. This component of the standard was established in 2004 and then later revised on March 23, 2010. JIS X8341-2 stipulates standards for information processing equipment as the second part of the standard. JIS X8341-3 is the third part of the standard and stipulates web content. JIS X8341-4 is the fourth part of the standard and

⁵³ ITU-G3ICT report, Making Mobile Phones and Services Accessible for Persons with Disabilities at http://www.itu.int/ITU-D/sis/PwDs/Documents/Mobile_Report.pdf; see also contribution from Tokai University at <http://www.itu.int/md/D10-RGQ20.1.1-C-0012/>

⁵⁴ Mitsuji MATSUMOTO, 'Accessibility in Telecommunications - Significance of Global Standardization' - ITU-T Workshop The impact of the United Nations Convention on the Rights of Persons with Disabilities on the work of the ITU-T" Geneva, 2 November 2009

⁵⁵ <http://www8.cao.go.jp/shougai/english/law/no84.html#04>

⁵⁶ <http://www.dinf.ne.jp/doc/english/law/japan/selected38/chapter7.html>

stipulates standards for telecommunications equipment. Finally, JIS X8341-5 is the fifth part of the standard and stipulates standards for office equipment.

Malaysia⁵⁷

In Malaysia, access for persons with disabilities is part of the universal service obligation. The Malaysian Communications and Multimedia Commission (MCMC) is the regulator for communications and multimedia industry in the country.

Malaysia's Universal Service Provision⁵⁸ is established through Section 202⁵⁹ of the Communication and Multimedia Act, 1998.⁶⁰ The provision identifies persons with disability as an "underserved community/group" defined by MCMC as "being groups of people in served areas that do not have collective and/or individual access to basic communications services". Section 192 of the Act also states that the Required Application Service⁶¹ i.e. specific services that service providers are mandated to offer includes services for disabled consumers.⁶²

Rwanda

Within the broadcasting policy of Rwanda, which was adopted by the cabinet in April 2011, there exists a provision for disabled people:⁶³

"The Government and the Regulator of Broadcasting will encourage the broadcasting sector to take account of the special circumstances of persons with disabilities such as closed captioning for people with disability".

Also, the ICT bill which is in the process of adoption by the cabinet considers more specifically the people with disabilities, by establishing an Advisory Committee on elderly and disabled persons which stipulates that: "The Regulatory Authority shall establish and maintain committee to provide advice on the interests in relation to ICT matters of elderly persons and of persons with disabilities".

It is obvious that the new provision about disabled people is very important and very critical. In order to increase the utilities of disabled people from the universal services, the telecommunication, broadcasting operators and other State, local administration and private stakeholders are mobilized to work together in order to create comprehensive projects with the compliance of their mutual interests.

The major issues confronted by disabled people with respect to ICTs are "accessibility" and "ease of use". People with different disabilities may not be capable of accessing and utilizing ICTs such as a blind person may not be able to use a mobile phone with no text-to-speech capability, a deaf person may not communicate with the emergency services requiring spoken conversation, a physically disabled person may not respond to a website using mouse-clicks, online videos may not be usable by blind and deaf people and people with cognitive disabilities may not view the different pages of a website properly.

⁵⁷ ITU-G3ICT report, Making Mobile Phones and Services Accessible for Persons with Disabilities at http://www.itu.int/ITU-D/sis/PwDs/Documents/Mobile_Report.pdf

⁵⁸ http://www.skmm.gov.my/index.php?c=public&v=art_view&art_id=98

⁵⁹ http://www.skmm.gov.my/index.php?c=public&v=art_view&art_id=251

⁶⁰ http://www.msc.com.my/cyberlaws/act_communications.asp

⁶¹ http://www.skmm.gov.my/link_file/the_law/NewAct/Act%20588/Act%20588/a0588s0193.htm

⁶² http://www.msc.com.my/cyberlaws/act_communications.asp

⁶³ Contribution from Rwanda (document RGQ20-1/1/33) at: <http://www.itu.int/md/D10-rgq20.1.1-c-0033>

In order to facilitate ICTs accessibility to disabled people, various economic and international institutions have introduced special e-accessibility projects along with special guidelines. EACO (East African Communication Organisation), which Rwanda Utilities Regulatory Authority is member of, is also currently drafting guidelines on availability and Access to telecommunication/ICT services by persons with disabilities and with special needs under its consumer affairs taskforce.

Universal Service for Disabled People

ICT usage for people with disabilities is an initiative by Rwanda Utilities Regulatory Agency, which is still in the pipeline. The main aim of the initiative is to increase ICT usage by people with disabilities; where ICT equipment for the blind and visually impaired in Rwanda will be purchased and provided before the end of June 2013.

South Africa⁶⁴

South Africa has a strong legislative framework for telecommunication accessibility in the form of a code with detailed recommendations on accessible services. The Independent Communication Authority of South Africa⁶⁵ (ICASA) is the electronic and telecommunications regulator for South Africa.

Section 2(h) of the Telecommunications Act, 1996⁶⁶ includes ensuring the needs of persons with disabilities in the provision of telecommunication services as one of its objectives.

South Africa has also enacted the Promotion of Equality and Prevention of Unfair Discrimination Act, 2000⁶⁷ which prohibits unfair discrimination on the grounds of disability. These include:

- Denying or removing from any person with disability, any supporting or enabling facility necessary for their functioning in society
- Failing to eliminate obstacles that unfairly limit or restrict persons with disabilities from enjoying equal opportunities or failing to take steps to reasonably accommodate the needs of such persons.⁶⁸

Section 70 of the Electronic Communications Act, 2005⁶⁹ states that ICASA is obliged to prescribe regulations in the form of a code for people with disabilities that will be applicable across all categories of licenses, including telecom.⁷⁰ Consequently, ICASA established the Code on People with Disabilities⁷¹ in August 2009, which set out guidelines for license holders when they are dealing with or providing services to disabled end-users.

⁶⁴ ITU-G3ICT report, Making Mobile Phones and Services Accessible for Persons with Disabilities at http://www.itu.int/ITU-D/sis/PwDs/Documents/Mobile_Report.pdf

⁶⁵ <http://www.icasa.org.za/tabid/38/Default.aspx>

⁶⁶ <http://www.info.gov.za/acts/1996/a103-96.pdf>

⁶⁷ http://www.iwraw-ap.org/resources/pdf/South%20Africa_GE1.pdf

⁶⁸ Section 9 of the Promotion of Equality and Prevention of Unfair Discrimination Act, 2000. See: http://www.iwraw-ap.org/resources/pdf/South%20Africa_GE1.pdf

⁶⁹ <http://www.info.gov.za/view/DownloadFileAction?id=67890>

⁷⁰ Electronic Communications Act, 2005 accessible at <http://www.icasa.org.za/LinkClick.aspx?fileticket=hVMvwf2qmj0%3d&tabid=86&mid=649&forcedownload=true>

⁷¹ <http://old.ispa.org.za/regcom/advisories/advisory26.shtml>

Some of the recommendations of the code include provision of inclusive products and services by manufacturers and operators, design of accessible products and services by service providers, provision of emergency, relay, directory and call progress information services, operator assistance at all call centers, billing in alternative formats, accessible advertisements etc. The Code complements existing provisions in telecommunications, broadcasting and postal services providers' licenses which may address the needs of persons with disabilities.

Sweden⁷²

Sweden has an overarching disability policy with specific provisions for telecommunications accessibility. The [Swedish Post and Telecom Agency \(PTS\)](#)⁷³ is the country's regulatory authority for electronic communications and postal activity. Programs and operational initiatives under the PTS for people with disabilities are funded annually. For the year 2011 the funding from within the national budget of Sweden was approximately 149 million SEK for 2011. The funding is used for procurement of services and projects as well as for promotion of an accessible and usable society with the use of electronic communication. In Sweden relay services for instance are secured by procurement instead of by regulation.

The PTS has been assigned by the Swedish Government to ensure that important services within electronic communications and the postal sector are available for people with disabilities. PTS also initiates and funds development projects in order to improve existing services and develop new ones. The aim is to improve the potential of people with disabilities to use electronic communication and to be fully included in society.

The PTS is one of 14 agencies that are mandated to enforce and realize the objectives of Sweden's [Disability Policy](#)⁷⁴, i.e. to enhance and assure accessibility and usability of electronic communication and postal services for disabled users.

As part of this, the PTS funds a number of services⁷⁵: Relay service for text telephony [Texttelsoni.se](#)⁷⁶, relay service for speech to speech [Teletal](#)⁷⁷, relay service for video telephony [Bildtelefoni.net](#)⁷⁸, flexible text telephony service [Flexitext](#)⁷⁹, Free directory enquiry service 118 400, Communication via databases for people who are deaf-blind, Freepost conveyance of dispatch of literature for the blind, and Extended rural post and counter service for elderly people and people with disabilities in sparsely populated areas.

⁷² Contribution of Sweden at <http://www.itu.int/md/D10-SG01-C-0066/en> and ITU-G3ICT report, Making Mobile Phones and Services Accessible for Persons with Disabilities at http://www.itu.int/ITU-D/sis/PwDs/Documents/Mobile_Report.pdf

⁷³ <http://www.pts.se/en-gb/>

⁷⁴ <http://www.sweden.gov.se/sb/d/2197/a/15254>

⁷⁵ <http://www.pts.se/en-gb/People-with-disabilities/Services/>

⁷⁶ <http://www.texttelefoni.se/start.asp?sida=5008>

⁷⁷ <http://www.teletal.se/in-english>

⁷⁸ <http://www.bildtelefoni.net/en>

⁷⁹ <http://www.flexitext.net/en/start>

The PTS also initiates and funds a number of developing projects, such as: IT-support direct⁸⁰, E-adept⁸¹ and Ippi⁸² for people with disabilities and elderly users.

Tanzania⁸³

At the international level, Tanzania is a signatory to various disability specific United Nations instruments which include the Declaration on the Rights of People with Disabilities (1975), Convention on the Rights of the Child (1989) and the Standard Rules on the Equalization of Opportunities for Persons with Disabilities (1993). Regionally, Tanzania has been actively involved in formulating and harmonizing regulatory policies on disabled persons in the ICT sector within the SADC and East African Community as a means of strengthening focus on disabled persons not only at home but within the region. Nationally, Tanzania has taken measures to address the problem of disability from various angles including the national health initiatives to eradicate childhood diseases that cause disablement such as polio, enactment of disability legislations, inclusion of a question on disability in the 2002 National Population and Housing Census and the ratification of the United Nations Standard Rules on the Equalization of Opportunities for Persons with Disabilities. The Tanzania national ICT policy of 2003 puts emphasis on the need to provide services to all citizens including disadvantaged groups like children and disabled persons which is also captured in the Tanzania Communications Regulatory Authority Act of 2003. The Telecommunications Policy of 1997 also emphasizes on the accelerated development through provision of communications to all sectors of the economy and all segments of the population including universal access. In order to turn the policy vision into a reality, the government purposely enacted the Universal Communication Access Fund in 2006 with a purpose of ensuring the coverage of ICTs is extended not only to the rural communities but to the disadvantaged communities which include persons with disabilities. The fund's Chief executive was appointed in late 2009 and the board in 2010 while recruitment of other key staff is in its final stages. In 2010, Tanzania enacted the Persons with Disabilities Act which specifically stipulates that all Television stations shall provide sign language inset or subtitles in all newscasts, educational programmes and other programmers covering national events. The Act also requires that all licensees providing public telephone services shall as far as possible install and maintain telephone devices or units for persons with hearing disabilities and tactile marks on telephone sets to enable persons with visual disabilities to communicate effectively.

Thailand⁸⁴

Thailand has adopted several legislative and policy measures to ensure accessibility in telecommunications for all. The National Broadcasting and Telecommunications Commission (NTBC)⁸⁵ is the telecom regulator in Thailand. The universal service obligation is clearly defined to include special

⁸⁰ A call-in service for problem solving and assistance for people with disabilities and elderly users of electronic communication and media.

⁸¹ A developing project which has established ways in which people with disabilities can independently navigate their way in urban environments with the help of digital maps and GPS.

⁸² A developing project which will allow people with disabilities and elderly users who lack computers or smart phones to use digital services. The focus in the project is to allow people to pay invoices via the television set.

⁸³ Contribution of Tanzania at <http://www.itu.int/md/D10-SG01-C-0079/>

⁸⁴ ITU-G3ICT report, Making Mobile Phones and Services Accessible for Persons with Disabilities at http://www.itu.int/ITU-D/sis/PwDs/Documents/Mobile_Report.pdf

⁸⁵ <http://eng.ntc.or.th/>

services for the impaired or elderly.⁸⁶ Section 17 of the Telecommunication Act, 2001 identifies provision of access to public telecommunications for persons with disabilities, children, elderly and disadvantaged persons as part of the universal service obligation.⁸⁷

Further, Section 20 of the Persons with Disabilities Empowerment Act, 2007 (B.E. 2550) deals with the right of persons with disabilities to access facilities, including welfare assistance provided by the state. Section 20(6) of this Act specifically talks about telecommunication and other information and communication accessibility.⁸⁸

The Telecommunication Master Plan (second issue) for 2008-2010 deals with accessibility for all disadvantaged people and introduces the telecommunication relay service.⁸⁹ In 2009, the then National Telecommunications Commission (NTC) granted 2.5 million baht (approximately USD 70,000) of research and development funds in collaboration with National Electronics and Computer Technology Center (NECTEC) to set up the Telecommunication Relay Service Centre for fixed line and mobile communication, or TRS, to act as a middleman, providing relay or translation services for people with hearing or speech disabilities.⁹⁰

Apart from these legislative and policy measures, Thailand has also taken practical steps for reaching out to people using innovative ideas such as an outreach exhibition bus that provides information and training in using wired and wireless telecommunication devices for persons with disabilities.⁹¹

The Thailand Association of the Blind, in collaboration with NECTEC Ratchasuda Foundation under HRH Princess Mahachakri Sirindhorn, has introduced the on-demand 'Digital Talking Book'⁹² delivery system over fixed and mobile telephones.

Turkey⁹³

ICTA is Turkey's regulatory authority for electronic communications and is actively implementing the policy framework of Ministry⁹⁴ across the industry. Not only persons with disabilities but also elderly people and people with low income in Turkey have certain rights assured with *the Electronic Communications Law* and *Universal Service Law*. Secondary legislation such as the *Consumer Rights By-Law on Electronic Communication* obliges operators to prepare Braille-alphabet invoices and subscription contracts for the sight-disabled persons.

⁸⁶ http://www.itu.int/ITD/icteye/Reporting/ShowReportFrame.aspx?ReportName=/TREG/UniversalServiceProfile&ReportFormat=HTML4.0&RP_intCountryID=229&RP_intLanguageID=1

⁸⁷ Supra n.2

⁸⁸ http://thailaws.com/law/t_laws/tlaw0385.pdf

⁸⁹ <http://eng.ntc.or.th/images/stories/pdf/masterplanad2008-2010.pdf>

⁹⁰ http://mis-asia.com/news/articles/thailand-plans-technology-to-help-connect-people-with-disabilities?SQ_DESIGN_NAME=print

⁹¹ Supra n.2

⁹² A Digital Talking Book (DTB) is a multimedia representation of a print publication. A collection of digital files that provides an accessible representation of the printed book for individuals who are visually or print-impaired. These files may contain digital audio recordings of human or synthetic speech, marked-up text, and a range of machine-readable files. See: <http://www.daisy.org/daisy-technology>

⁹³ Contribution from Turkey at <http://www.itu.int/md/D10-RGQ20.1.1-C-0014/>

⁹⁴ Ministry of Transport, Maritime and Communications

The 10th of June of 2010 the Council of Ministers accepted the proposal of the Ministry of Transport that included some new provision for the disable people.

According to the new provision, “...Taking into consideration of benefits of technological improvement, in order to improve the living conditions of disabled citizens, the related communication devices and equipment must be distributed to the relevant institutions and enterprises free and without any time limitation...” Ministry and ICTA not only created a legal system for persons with disabilities but also accomplished concrete projects that helped ease daily life of disabled people⁹⁵. As a concrete example, Ministry plans to implement the “Sighted Eye Project” which aims to help persons with disabilities to use the public transportation. In this Project, the Ministry will distribute “Sighted Eye Devices” which enable voice comments and make the life easier for those persons. These devices will soon be distributed all over the country. Another vital activity is the spread of public open payphones harmonized for the disabled persons’ usage across 37 cities serviced by the incumbent operator, Türk Telekom. Also the major telecommunication operators of Turkey have redesigned and simplified their internet home pages for the persons with disabilities. Board of ICTA has obliged 25 % discount on some DSL Internet packages for disabled persons.

United Kingdom⁹⁶

The mandate for accessible telecommunications in UK flows from an overarching disability legislation and specific regulations and policies. The Office of Communications⁹⁷ (Ofcom) is the communications regulator in-charge of overseeing telecommunications and media practices in the United Kingdom. Under Section 3 (4i) of the Communications Act, Ofcom is required to pay heed to the needs of elderly and the disabled and those with low incomes. Further, under Section 21, Ofcom established an advisory committee for matters relating to elderly and disabled persons.

Ofcom issued the Telecommunications (Services for Disabled Persons) Regulations 2000 (SI 2000 No. 2410)⁹⁸. These rules along with the EU Directive of 98/10/EC⁹⁹ require telephone companies (fixed and mobile) providing voice telephone services to enable a number of services for customers with disabilities.¹⁰⁰

These obligations, also covered under General Condition 15¹⁰¹ include access to text relay and directory enquiry services, provision of onward connection for blind users with dexterity problems, provision of priority repair services at standard rates and a protected service scheme to reduce disconnections, support for billing in alternative formats and nominated persons to manage billing on behalf of the customer with disability¹⁰². With regards to priority fault repair it is worth noting that this applies to fixed rather than mobile providers (because of the nature of fixed communications where a repair can often be expedited for a particular vulnerable customer).

⁹⁵ ITU-D/RGQ20-1/1/14

⁹⁶ Contribution from UK at <http://www.itu.int/md/D10-SG01-C-0097/en> and ITU-G3ICT report, Making Mobile Phones and Services Accessible for Persons with Disabilities at http://www.itu.int/ITU-D/sis/PwDs/Documents/Mobile_Report.pdf

⁹⁷ <http://www.ofcom.org.uk/about/>

⁹⁸ <http://www.ofcom.org.uk/static/archive/oftel/publications/consumer/text0801.htm>

⁹⁹ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31998L0010:en:NOT>

¹⁰⁰ <http://www.legislation.gov.uk/ukxi/2000/2410/made>

¹⁰¹ <http://stakeholders.ofcom.org.uk/binaries/telecoms/ga/cvogc300710.pdf>

¹⁰² For further details see: http://consumers.ofcom.org.uk/files/2010/06/gp_guide_eld_dis.pdf

Ofcom also has an obligation under the UK Disability Discrimination Act 2005¹⁰³ (DDA) to take measures to ensure that people with disabilities can use the services as easily as everyone else. The Disability Discrimination Act is now consolidated as part of the UK Equality Act 2010. Ofcom's [Single Equality Scheme](#)¹⁰⁴ aims at promoting quality and diversity through its functions and policies across sectors. Ofcom has also developed the Mobile Industry Good Practice Guide for Service Delivery for Disabled and Elderly Customers in the UK available at: http://consumers.ofcom.org.uk/files/2010/06/gp_guide_eld_dis.pdf

In January 2011 the Communications Consumer Panel published a report about mobile handset usability <http://www.communicationsconsumerpanel.org.uk/smartweb/telecommunications/mobile-usability> Since May 2011, mobile providers must offer access to emergency SMS for deaf and speech-impaired people.

United States¹⁰⁵

The United States has a range of general and specific laws mandating telecommunication access for persons with disabilities. The Federal Communications Commission¹⁰⁶ (FCC) is the regulatory body in charge of media and communication practices and policies in the US. As part of the Telecommunications Act of 1996¹⁰⁷ that mandated the FCC to establish a Universal Service Fund¹⁰⁸, Section 255¹⁰⁹ and Section 251(a) (2)¹¹⁰ of this act requires manufacturers of telecommunications equipment and service providers to ensure that their products and services are accessible to and usable by persons with disabilities, if such access is readily achievable. This covers telephones, cell phones, pagers, call-waiting, and operator services. Where access is not readily achievable, Section 255 requires manufacturers and service providers to make their devices and services compatible with peripheral devices and specialized customer premises equipment that are commonly used by people with disabilities, if such compatibility is readily achievable. The "readily achievable" standard requires companies to incorporate access features that can easily be provided without much difficulty or expense. Title IV of the Americans with Disabilities Act, 1990 (ADA) which took effect on July 26, 1992 requires all telephone companies across the United States to provide telecommunications relay services (TRS). Pursuant to this statute, the FCC has also made regulations for the provision of TRS.¹¹¹ TRS allows people who are deaf, hard of hearing, or speech impaired to communicate through a communications assistant (CA) with people who use a standard telephone. A CA relays the TTY (text telephone or telecommunications device for deaf and hard of hearing people) input to the telephone user and types that person's response back to the TTY user. Since 2000, the FCC authorized several forms of TRS designed to meet the needs of certain users, and allows greater access to telecommunications via Internet. For example, Speech-to-Speech relay service for persons with speech disabilities, Internet-Protocol relay service and video relay service for persons with hearing

¹⁰³ <http://www.legislation.gov.uk/ukpga/2005/13>

¹⁰⁴ <http://www.ofcom.org.uk/about/policies-and-guidelines/equality-and-diversity/single-equality-scheme-ses/>

¹⁰⁵ Contribution of the United States at <http://www.itu.int/md/D10-SG01-C-0070/en> and ITU-G3ICT report, Making Mobile Phones and Services Accessible for Persons with Disabilities at http://www.itu.int/ITU-D/sis/PwDs/Documents/Mobile_Report.pdf

¹⁰⁶ <http://www.fcc.gov/>

¹⁰⁷ http://en.wikipedia.org/wiki/Telecommunications_Act_of_1996

¹⁰⁸ <http://www.usac.org/default.aspx>

¹⁰⁹ <http://www.access-board.gov/about/laws/telecomm.htm>

¹¹⁰ http://www.dleg.state.mi.us/mpsc/comm/broadband/unbundling/section_251.htm

¹¹¹ <http://www.fcc.gov/cgb/dro/trs.html>

disability who communicate in sign language. The costs of intrastate TRS services are recovered by the states, either through rate adjustments or surcharges on local telephone bills. Costs for interstate TRS are recovered through a shared-funding mechanism (TRS Fund) set forth in the Commission's rules. All providers of interstate telecommunications services contribute to the TRS Fund, and TRS providers recover the costs of providing interstate TRS from the TRS Fund on a minutes-of-use basis.

As per the Hearing Aid Compatibility Act of 1988 (HAC Act), the FCC ensures that all telephones manufactured or imported for use in the United States and all 'essential telephones'¹¹² are hearing aid-compatible. FCC also has extended this requirement to wireless/mobile telephones.¹¹³

In October 2010, the US Congress passed the Twenty-First Century Communications and Video Accessibility Act of 2010 (CVAA),¹¹⁴ the aim of which is to improve access to "advanced communications" (including interconnected and non-interconnected voice over Internet protocol (VoIP), electronic messaging, and interoperable video conferencing services) and "consumer-generated media" for persons with disabilities. Title II on video programming requires that closed captioned programs shown on TV must be captioned when shown over the internet. Section 102¹¹⁵ of this Act requires that telephones which are used with the Internet need to accommodate hearing aids. Section 104, outlines access to advanced communications services and equipment which is an expansion of Section 255's accessibility mandates to advanced communications services and equipment. This section has a modified standard which defines "achievable" as reasonable effort or expense, as determined by the FCC.

Basically, CVAA follows a string of laws, passed in the 1980s and 1990s, that were designed to ensure that telephone and television services would be accessible to all Americans with disabilities.¹¹⁶ The followings are the key requirements:

- Access to Internet browsers on mobile phones;
- Improved accountability and enforcement;
- Expansion of relay services definition and contributors;
- Equipment for low-income deaf-blind individuals;
- Expansion of hearing aid compatibility (HAC) rules;
- Ensuring access to next generation 9-1-1 services.

Section 508¹¹⁷, a provision in the Rehabilitation Act,¹¹⁸ mandates that electronic and information technology funded, developed or used by the US federal government or US federal agencies should be accessible to persons with disabilities who may be employees or general members of the public, "unless an undue burden would be imposed on the department or agency".¹¹⁹

¹¹² 'Essential' telephones are defined as "coin-operated telephones, telephones provided for emergency use, and other telephones frequently needed for use by persons using such hearing aids." Essential phones might include workplace phones, phones in confined settings (like hospitals and nursing homes), and phones in hotel and motel rooms.

¹¹³ <http://www.fcc.gov/cgb/dro/hearing.html>

¹¹⁴ <http://www.govtrack.us/congress/bill.xpd?bill=s111-3304>

¹¹⁵ <http://www.coataccess.org/node/9776>

¹¹⁶ <https://www.fcc.gov/encyclopedia/twenty-first-century-communications-and-video-accessibility-act>

¹¹⁷ <http://www.section508.gov/>

¹¹⁸ http://en.wikipedia.org/wiki/Rehabilitation_Act_of_1973

¹¹⁹ <http://www.afb.org/afbpress/pub.asp?DocID=aw110402>

The provision further requires that levels of access be on par with those for able-bodied people. Section 508 concerns federal agencies, but has created a marketplace incentive for the development of accessible information and communications technology.

European Union¹²⁰

The European Commission Universal Service Directive (Directive 2002/22/EC),¹²¹ lays down rules relating to the needs of disabled end users and people with special needs with regard to telecommunications. These cover fixed, wireless and broadband telephony.

The directive states that National Regulatory Authorities (NRA) of member states can adopt measures depending upon the specific circumstances in their nations to ensure adequate choice of telecommunication services to disabled users.

Some of the measures taken by NRAs in different European member states which build upon the EU Directive are outlined below. Countries may have implemented these measures in a variety of ways. For example, some provide state subsidies for connections facilitating alternative forms of communication for disabled end users while others require service providers to offer such accommodations.

Billing in accessible formats: Czech Republic, France, Greece, Ireland, Italy, Lithuania, Netherlands, Norway, Poland, Portugal, Slovenia, Sweden, Switzerland, and UK.

Information about accessible services covered by the universal service obligation: Czech Republic, France, Greece, Ireland, Italy, Lithuania, Malta, Norway, Portugal, Slovakia, Slovenia, Sweden, Switzerland, and UK.

Special measures of access for emergency situations such as the sms112 project: Czech Republic, France, Greece, Ireland, Italy, Malta, Netherlands, Norway, Portugal, Romania, Slovakia, Slovenia, Sweden, Switzerland, and UK.

Text Relay Services: Czech Republic, Germany, Greece, Hungary, Ireland, Italy, Latvia, Netherlands, Norway, Portugal, Slovakia, Sweden, Switzerland, and UK.

Video Relay Service: Germany

Quick dial and speed dial keys for mobile telephony Czech Republic, France, Germany, Greece, Hungary, Ireland, Italy, Lithuania, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Sweden, Switzerland, and UK.

Volume adjustment for mobile telephony - Czech Republic, France, Germany, Greece, Hungary, Ireland, Italy, Lithuania, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Switzerland, and UK.

7.2 Conclusion

There are a number of regulatory approaches which have been taken by countries to promote accessibility. While many countries have provisions relating to accessibility in their general telecommunications policies, some have promulgated dedicated legislation as in the case of the US and South Africa. In addition, some countries have used their Universal Service Funds to implement accessibility. Accessibility has also been achieved through industry initiatives, including in Japan, while French mobile operators agreed to a code of conduct facilitated by the regulator.

¹²⁰ ITU-G3ICT report, Making Mobile Phones and Services Accessible for Persons with Disabilities at http://www.itu.int/ITU-D/sis/PwDs/Documents/Mobile_Report.pdf

¹²¹ http://ec.europa.eu/information_society/policy/ecomm/todays_framework/universal_service/index_en.htm

7.3 Contributions related to National Legal and Policy Frameworks to Promote ICT Access by Persons with Disabilities

Beside the clear effort and the diversity of the regulatory approaches there are some general contributions that can support the elaboration of legal and policy frameworks as well as in the assessment of the level of satisfaction of the consumers with any kind of disability.

- Creation of a consumer satisfaction index that will complement the ICT Development Index (IDI) and the ICT Price Basket (IPB).
- In order to improve access to services by people with disabilities, it is recommended that:
 - An inclusive and coordinated policy framework by governments to ensure e-inclusion not only at the national level but regionally and globally;
 - Develop legislation that is geared towards supporting people with special needs;
 - Consideration of innovations by and for disabled persons when designing and considering each new product idea, ICT tools and facilities by recognizing strengths and knowledge of people with special needs who are real experts in their areas of inabilities;
 - Facilitate availability and affordability of assistive devices and tools through subsidization or tax free importation/manufacture;
 - Incentive regulation to operators by encouraging each one to support specific aspects of disabilities e.g. equipment, education and employment;
 - Defined percentage of funding from the universal service obligation fund;
 - Mandatory introduction of relay services by all telecom operators to facilitate two way communication with disabled persons by transmitting voice into pictures/signs and vice versa;
 - Consider language barriers in product development for people with special needs;
 - Bench marking with countries that have made progress in ICT inclusiveness as well as seeking expert assistance;
 - Mandatory facilities by operators to suit people with special needs;
 - Promote awareness of ICT solutions for people with special needs.

8 ICT Applications, selected Equipment or End Users Devices and Capacity Building Projects

Member states participations are a vivid example of all the interesting and important work that have been develop in order to contribute to the well-being of people with disabilities. Some of the contributions received are good examples that can be useful for all member states. That is why in this section some of the contributions are enlisted, the complete contributions¹²² can be found in the ITU's documents and contributions

¹²² See, ITU-G3ict e-Accessibility toolkit at <http://www.e-accessibilitytoolkit.org/>; the ITU-G3ICT report, Making Mobile Phones and Services Accessible for Persons with Disabilities at http://www.itu.int/ITU-D/sis/PwDs/Documents/Mobile_Report.pdf; and the Making TV Accessible report at http://www.itu.int/ITU-D/sis/PwDs/Documents/ITU-G3ict%20Making_TV_Accessible_Report_November_2011.pdf

- Ensuring safety of disabled persons connected to e-health systems in the event of a major incident. This contribution describes a technical system for ensuring the safety of disabled persons in the event of a major incident at/in a given location (such as a building) using specialized dedicated mobile e-health terminals, mobile phones and other devices, and ubiquitous sensor networks.
- Access to telecommunication / ICT services by persons with disabilities and with special needs. This contribution describes a means of providing ICT services for people with disabilities using a television set, dedicated accessory unit and remote control unit.
- Pakistan has launch a Special Project where the Government of Pakistan through Universal Service Fund contract with Pakistan Foundation Fighting Blindness in September 2008 for “Enabling Persons with disabilities to use telecommunication services”¹²³
- Mali, through a project funded by ITU, developed a multipurpose community telecenter for persons with disabilities, equipped with assistive technology such as screen readers and Brailleprinters. Through a train-the-trainers approach, persons with disabilities have learned to use accessible ICTs and assistive technology. In addition, some 24 young job seekers with disabilities including 10 women were given training on writing CVs and finding jobs on the Internet. A total of 139 people have been trained¹²⁴.
- In Turkey, Bogazici University and Türk Telekom developed Turkey’s first telephone library. The Assistive Technology and Education Laboratory for Individuals with Visual Disabilities has been providing free assistive technology services for university students with disabilities and free online digital library services for individuals with visual disabilities in Turkey since 2006. The digital library project aims to reach nearly 400,000 individuals with visual disabilities as well as other types of disabilities including individuals with cerebral palsy and individuals with reading disabilities in Turkey. The services within the digital library project are also carried out by municipalities, NGOs and universities in Turkey. The digital library includes Turkish and English materials¹²⁵

9 Costs of Solutions

A cost benefit analysis of the solutions for accessibility to telecommunications services and ICT by persons with disabilities implies the existence of a market. Unfortunately some of the solutions presented in this report on ICT applications, selected equipment and end users devices are prototypes not mass-produced in the market.

An accessibility market must be defined in order to foster commercial practices.

Some examples of assistive technologies’ costs available on mobile platforms can be found in the ITU “Making Mobile Phones and Services Accessible for Persons with Disabilities” publication¹²⁶. Some of the services costs mentioned in the above publication are:

¹²³ ITU-D SG1 Question 20-1/1 document [RGQ20-1/1/22](#)

¹²⁴ <http://www.itu.int/md/D10-SG01-C-0184/> and <http://www.itu.int/md/D10-SG01-INF-0059/>

¹²⁵ <http://www.itu.int/md/D10-SG01-C-0137/>

¹²⁶ See the ITU-G3ICT report, Making Mobile Phones and Services Accessible for Persons with Disabilities at http://www.itu.int/ITU-D/sis/PwDs/Documents/Mobile_Report.pdf

Application	Need Addressed	Approx. price
Assistive Chat	AAC App, for people with difficulty in speech	USD 24.99
Autism Timer	Digital Timer for children with autism	USD 2.99
MyTalkTools	AAC app to help people with communication difficulties to express their needs to those around them	USD 39.99

10 Best Practice Guidelines

In section number VI of this report we can appreciate a wide range of member states strategies to ensure access to telecommunications / ICT services by persons with disabilities. The approaches vary but in all of there is a combination of obligations, standards and guidelines.

Since statistics on penetration of telecommunications / ICT services by persons with disabilities are rough estimates it is difficult to assess the impact of these policies in the disabled and elderly population. Nevertheless there are a number of steps that can be done to ensure a maximum penetration.

For instance a good collaboration with the disability organizations is vital to warrant a maximum success and policy coverage. This collaboration will also benefit in measuring the impact of the policy in the disabled community. Another important issue is the acknowledgement that accessibility is a cross sector phenomenon so collaboration with other players or authorities is important to ensure the appropriate social impact and the minimization of the digital divide.

Based on member states' practices and successful experiences some basic guidelines to implement an accessibility strategy are the following:

- Definition: it is fundamental to clearly define what is meant by accessibility, accessibly communications, language, persons with disabilities, universal design, users with disabilities. A number of definitions can be found in ITU reports and toolkits as well as in the UN Secretariat for the Convention on the Rights of Persons with Disabilities.
- Identify the organizations that work for persons with disabilities and ensure their participation in the consultative process of developing regulations or rule making. Regular public consultations should be made part of the process of elaborating legislation. It is very important to involve in this process organizations working with persons with disabilities. The relation with these organizations will ensure a good law and, in the future, will contribute to carry out assessments on the results of the legislation as well as the increase in the service penetration for persons with disabilities. This kind of data is rarely computed and can make a difference in creating a market if a good estimation of its size is available. Also, organizations that work for persons with disabilities are an indispensable partner in capacity building programs for persons with disabilities and telecommunications and ICT solutions.
- Identify the available solutions for every telecommunication service and for every disability. This will facilitate the rule making process by knowing what the manufacturer or service provider can do. ITU has published a number of studies in this area like "Making Mobile Phones and Services Accessible for Persons with Disabilities", "Making Television Accessible". Also the Web Accessibility Initiatives has developed tools to evaluate the accessibility in the web.

Annex

Annex 1: List of Disabled Persons Organizations (DPOs)

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The following list includes the non-Governmental Organizations accredited to the Conference of States Parties of the Secretariat for the Convention on the Rights of Persons with Disabilities (SCRPD) of the United Nations (Enable).

Abilities

ABILITY Awareness

Ability Foundation

ABRAR (Sudan)

Action for Mental Illness (ACMI)

Action on Disability and Development

Institute for Human Centered Design (formerly Adaptive Environments)

Development and Ability Organization (formerly Afghan Disabled Union)

AIDS-Free World

Alexander Graham Bell Association for the Deaf and Hard of Hearing (AG Bell)

Arab Organization of Disabled People

Asabe Shehu Yar'Adua Foundation (ASYARF)

Asia Pacific Disability Forum

Asociación Civil contra la Discriminación (Civil Association against Discrimination)

Asociación de Impedidos Físicos Motores

Association 3IN – Inclusion, Integrity and Independence

Association générale des handicapés du Rwanda (AGHR)

Association of Disabled Women and Mothers of Disabled Children

Association of University Centers on Disabilities (United States of America)

Atlas Alliance, The

Attiva – Mente

Australian Federation of Disability Organization

Autisme Europe

Barbados Council for the Disabled (BCD)

Belgian Disability Forum (ASBL)

Bizchut, the Israel Human Rights Centre for People with Disabilities

Burton Blatt Institute (BBI) of Syracuse University

Canadian Association for Community Living

Canadian Working Group on HIV and Rehabilitation (CWGHR)

Center for International Rehabilitation

Central Council of Disabled Persons

Centre for Disability in Development

Centre for Disability Studies, University of the West Indies
Centre for Independent Living of People with Disability of Serbia
Centre for Studies on Inclusive Education (United Kingdom of Great Britain and Northern Ireland)
Cerebral Palsy Nigeria
Charitable society for disabled people “Stimul”
Children’s Rights Alliance for England
Colombian Centre for Integrated Rehabilitation (CIREC)
Communications Coordination Committee for the United Nations
Community Options, Inc.
Confederación Mexicana de Organizaciones en Favor de la Persona con Discapacidad Intelectual, A.C. (CONFE)
Consiglio Nazionale sulla Disabilità
Consortium of Humanitarian Agencies
Corporación Ciudadanía Real de Sordos de Chile
Council for Canadians with Disabilities (CDD)
Council for Exceptional Children (CEC)
Design Bangladesh
Disability Australia Ltd.
Disability Rights Education and Defense Fund (DREDF)
Disability Rights Promotion International (DRPI)
Disabled Peoples' International
Disabled People’s Rehabilitation and Employment Union of Georgia
Down Syndrome Society of Kenya
Electronic Frontier Foundation (EFF)
Equal Opportunities Commission of Hong Kong
Equally Unique
European Disability Forum
European League of Stuttering Associations (ELSA)
Fédération guinéenne des associations de personnes handicapées
Federation of and for People with Disabilities
Federation of Ethiopian National Associations of Persons with disabilities (FENAPD)
Fédération togolaise des personnes handicapées
Fondation Telethon
Fondo Teleton de Apoyo a Instituciones
Friends of Peace and Development Organization
G3ict - Global Initiative for Inclusive Technologies

Gambia Future Hands on Disabled People
Global Alliance on Accessible Technologies and Environment (GAATES)
Global Deaf Connection
Global Partnership for Disability and Development (GPDD)
HalfthePlanet Foundation
Handicap International
Harmony of the World
Harvard Law School Project on Disability (HPOD)
Humanitarian Organization for Poverty Eradication
Human Rights Watch
IFENDU for Women's Development (IFENDU)
Inclusion International
Impact Foundation Bangladesh
Instituto Paradigma
Inter-American Institute on Disability
International Center for Autism Research and Education (Icare4Autism)
International Paralympic Committee
International Stuttering Association
International Voluntary Organization for Women, Education and Development (IVOWD)
Iraqi Handicapped and Survivors Society
IUS Gentium Conimbrigae Institute-Human Rights Centre
Japan Disability Forum
Jesh Foundation
Joint National Association of Persons with Disabilities (JONAPWD Nigeria)
Junior Chamber International Nigeria
Koshish: National Mental Health Self-help Organisation
Landmine Survivors Network
Latin American Network of Non-Governmental Organizations of Persons with Disabilities and their Families (RIADIS)
Lebanese Physical Handicapped Union
Leonard Cheshire International
Life Vanguard
Lift Up Care for the Needy Foundation (LCNF)
Light for the World
Little People of Kosova
LOTOS Disability Awareness and Learning Center (Azerbaijan)

Mental Disability Advocacy Centre (Hungary)
Mental Disability Rights International
Mine and Weapon Victims Association
Mine Combat Organization
National Federation of Organizations of Persons with Disabilities of Honduras
National Forum of Organizations Working with the Disabled (NFOWD)
National Grassroots Disability Organization (NGDO-Bangladesh)
Neighbour Organization (NEO)
Neil Squire Society
Nepal National Federation of the Deaf and Hard of Hearing (NFDH)
Noor Fatima Welfare Trust
Northeastern University, Center for the Study of Sport in Society
One Billion Strong (OBS)
Peace and Tolerance International Organization
People Who
People with Disabilities in Ireland
People with Disability Australia Incorporated (PWDA)
People with Disabilities Uganda
Perkins School for the Blind
Persons With Pain International
Pineda Foundation for Youth (formerly Victor Pineda Foundation)
Planwell Group Organization
Polio Plus — Movement Against Disability
Pro Infirmis
Projet de Réadaptation à Base Communautaire des Aveugles et Autres Personnes Handicapées du Niger
Public Interest Law Center of Philadelphia
PUGU Poverty Alleviation and Development Agency (PPADA)
Rehabilitation International
RIOinlui (OSCRJ)
Royal Commonwealth Society for the Blind (Sightsavers)
Scope
Secretariat of the African Decade of Persons with Disabilities (South Africa)
Setu Development Intervention Centre (SETU)
Shanta Memorial Rehabilitation Centre
Society for Mental Health Care
Somaliland National Disability Forum (SNDF)

Statute of Mine Combat Organization
Sudan Association for Combating Landmines
The Cambodia Trust
The Hong Kong Council of Social Services
The National Society for Children and Adults with Learning Disabilities and their Families (RESCARE)
Threshold Association
Tunisian Association for the Promotion of Employment for the Handicapped
Union des personnes handicapées du Burundi
United Kingdom Disabled People's Council (formerly British Council of Disabled People)
United States Burn Support Organization
Venture House
Vietnam Veterans of America Foundation
World Disability Foundation
World Federalist National Association of Nepal
World Federation of the Deaf
World Federation of the Deafblind (WFDB)
World Future Council Foundation
World Network of Users and Survivors of Psychiatry
ZELDA

**International Telecommunication Union (ITU)
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Tel.: +251 11 551 4855
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Tel.: +263 4 77 5941
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