

# Digital Accessibility Guidelines

## Introduction

The United Nations estimates that one in six people live with disability – that is a total of 650 million women, men and children in the Asia-Pacific region. Persons with Disabilities (PWDs) often face barriers that restrict them from participating in society on an equal basis, including the access to, and use of, information and communication technologies (ICTs). To name a few, these barriers include none or very little attention to including accessibility features for online content (including websites), limited adaptability in functionality of products and services, and weak policy frameworks to support the provision of an accessible digital environment – being online has become a core part of life today.

These guidelines builds upon the human rights perspective and business case for digital accessibility presented in the Internet Society Policy Brief<sup>1</sup> on Accessibility and the Issues Paper<sup>2</sup> on Digital Accessibility that focused on the challenges and opportunities for improving persons' with disabilities access to the Internet in the Asia-Pacific region. We are surrounded by digital technologies that have created an amazing world of opportunities for all of us. We can communicate, share information, generate ideas and innovate, shop and do carryout transactions, create or listen to music and so on. But we must keep in mind that users of digital technologies have varying needs otherwise millions of people across the world will find it hard or nearly impossible to use various kinds of digital devices and content.

Digital technologies must be as usable and inclusive as possible so that everyone across the globe can benefit irrespective of one's disabilities so that everyone can realize the full potential of the Internet. People lacking access to such technologies either because of financial or physical resources are becoming part of an increasing digital divide and in this case the 'accessibility' divide. These guidelines aim to direct attention towards accessibility as a significant component of any digital program, project, product or service. Anything that is placed online can be accessed globally therefore it should be accessible by everyone with or without disabilities.

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<sup>1</sup> Internet Accessibility: Internet use by persons with disabilities: Moving Forward. Internet Society. 2012. <https://www.internetsociety.org/resources/doc/2012/internet-accessibility-internet-use-by-persons-with-disabilities-moving-forward/>

<sup>2</sup> Issue Paper: Asia-Pacific Bureau – Digital Accessibility. Internet Society. 25 July 2017. <https://www.internetsociety.org/resources/doc/2017/issue-paper-asia-pacific-bureau-digital-accessibility/> and <https://www.internetsociety.org/wp-content/uploads/2017/09/APAC-Issue-Papers-Digital-Accessibility.pdf>

## Accessibility

For persons with disabilities, accessibility means being able to use a product or service as effectively as a person without a disability<sup>3</sup>. This means using inclusive (or universal) design principles to make products and services usable by a wider section of the population. In some cases, this is not possible, and assistive technologies may be called upon to fill the gap. If so, mainstream technologies should enable the software or hardware interfaces of the assistive device seamlessly, in terms of both interoperability and data portability.

Changing peoples' attitudes to disability is fundamental to achieving greater accessibility. The traditional view of disability is through the medical model, that is, attempting to "fix" or rehabilitate a person to society's norms. The social model of disability aims to dismantle barriers so that a person with a disability can fully participate in the community. This more contemporary model emphasises a person's abilities rather than disabilities and encourages a person's independence and capacity by decreasing environmental barriers.

Persons with disabilities face as many different barriers as there are types and degrees of disability. For example, people with a visual impairment who use screen-reading software may be confronted by websites that have confusing navigation, or that lack descriptions of images; while people with a hearing impairment may be unable to participate in online conferencing because it lacks captioning.

Apart from accessibility, other barriers need to be overcome so that persons with disabilities can gain benefit from the Internet and contribute value to the Internet. These are:

### 1. Affordability

Many persons with disabilities have low incomes and limited educational opportunities. This applies in developed countries and even more in developing countries. Using the Internet is expensive especially in developing countries. When assistive technologies are required, the barrier can be even higher.

### 2. Culture

Persons with disabilities are perceived with pity or shame in several countries. They may be restrictively "protected" by family for any of a number of rationales, ranging from a lack of suitable educational facilities to a lack of appropriate government services.

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<sup>3</sup> Section republished from "Internet Accessibility. Internet use by persons with disabilities: Moving Forward". Internet Society. 1 November 2012.  
<https://www.internetsociety.org/resources/doc/2012/internet-accessibility-internet-use-by-persons-with-disabilities-moving-forward/>

### 3. Availability

In isolated areas, there may be limited availability of the Internet. Encouraging and meeting the needs of persons with disabilities may be a relatively low priority under such conditions.

### 4. Lack of awareness

People in the broader community have limited understanding of how persons with disabilities use technology and of the significant benefits the Internet can bring. Making products and services accessible can therefore mistakenly be considered difficult and costly.

## ***Internet Society and Digital Accessibility***

The Internet Society (ISOC) believes in the motto “The Internet is for Everyone”. It is inclusive of all people everywhere – connecting all people with and without disabilities. The 2012 Issues Paper by Internet Society “Internet accessibility: Internet use by persons with disabilities” outlines policies, issues and ways for every part of the Internet community to contribute to a more accessible Internet<sup>4</sup>.

During the course of the last two years, ISOC Asia-Pacific Bureau in collaboration with governments, industry and civil society across various countries<sup>5 6</sup> has carried out a series of endeavours to help embrace digital accessibility. In this regards, a number of focused workshops were conducted with relevant stakeholders on awareness raising targeting policymakers, software developers and members of the civil in Pakistan, Sri Lanka and Indonesia. The Bureau also released an issues paper on Digital Accessibility<sup>7</sup> focusing on the challenges and opportunities for improving persons’ with disabilities access to the Internet in the Asia-Pacific region. Building further upon these efforts, these guidelines are addressed to software/website developers and policymakers.

## ***The United Nations***

The United Nations Convention on the Rights of Persons with Disabilities (CRPD)<sup>8</sup> is widely recognized and ratified laying down guidelines for adoption of accessibility as part of national human development goals. Over 100 Governments have signed and ratified the Convention. Obligations include implementing measures to design, develop, produce and distribute accessible

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<sup>4</sup> <https://www.internetsociety.org/resources/doc/2012/internet-accessibility-internet-use-by-persons-with-disabilities-moving-forward/>

<sup>5</sup> Pakistan: <https://www.internetsociety.org/blog/2017/02/promoting-digital-accessibility-for-persons-with-disabilities-with-persons-with-disabilities/>

<sup>6</sup> Sri Lanka <https://www.internetsociety.org/blog/2017/05/promoting-digital-accessibility-in-sri-lanka/>

<sup>7</sup> <https://www.internetsociety.org/resources/doc/2017/issue-paper-asia-pacific-bureau-digital-accessibility/>

<sup>8</sup> Convention on the Rights of Persons with Disabilities (CRPD).

<https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities.html>

ICT at an early stage, so these become accessible at minimum cost for persons with disabilities. These provisions cover the Internet, Digital and Assistive Technologies.

The Article 9 of the CPRD on Accessibility states that:

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.
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;
  - To 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;
  - To provide training for stakeholders on accessibility issues facing persons with disabilities;
  - To provide in buildings and other facilities open to the public signage in Braille and in easy to read and understand forms;
  - To 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;
  - To promote other appropriate forms of assistance and support to persons with disabilities to ensure their access to information;
  - To promote access for persons with disabilities to new information and communications technologies and systems, including the Internet;
  - To 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 cost.

The United Nations Sustainable Development Goals for education, health, employment and reducing inequality reflect the social model of disability. This means reducing barriers by making societal and attitudinal changes rather than ‘fixing’ individuals with disability. “Persons with disabilities” or “disability” are specifically mentioned in the United Nations 2030 Agenda for Sustainable Development<sup>9</sup> where disability is included in Sustainable Development Goals 4, 8, 10, 11 and, 17.

### ***Web Accessibility Initiative***

The Web Accessibility Initiative (WAI) by the World Wide Web Consortium (W3C) has developed a number of strategies, guidelines, and resources to help make the Web accessible to Persons with Disabilities<sup>10</sup>. WAI provides an international forum for collaboration between industry, disability organizations, accessibility researchers, government, and others interested in web accessibility.

It has published a series of web accessibility guidelines by following the W3C process<sup>11</sup>. Web accessibility is not a single activity and it relies on several components where improvements in specific components can substantially improve Web accessibility:

1. **Web content:** refers to any part of a website, including text, images, forms and multimedia, code or mark-up that defines structure, presentation, scripts, applications etc.
2. **User agents:** refer to software that is used by people (users) to access web content, including desktop graphical browsers, voice browsers, mobile phone browsers, multimedia players, plug-ins, and assistive technologies etc.
3. **Authoring tools:** refer to software or services that are used by people (users) to produce web content and websites, including code editors, document conversion tools, content management systems, blogs, database scripts etc.

There are significant interdependencies between these web components; that is, the components must work together in order for the Web to be accessible. The outcome of WAI are various essential components that enable an accessible Internet known as the WCAG, ATAG, and UAAG. Essential components of web accessibility<sup>12</sup> explain the relationship between these different guidelines:

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<sup>9</sup> Disability - Inclusive. 2030 Agenda for Sustainable Development.

[www.un.org/disabilities/documents/sdgs/disability\\_inclusive\\_sdgs.pdf](http://www.un.org/disabilities/documents/sdgs/disability_inclusive_sdgs.pdf)

<sup>10</sup> W3C-WAI. <https://www.w3.org/WAI/>

<sup>11</sup> How WAI Develops Accessibility Guidelines through the W3C Process. December 2008.

<https://www.w3.org/WAI/intro/w3c-process.php>

<sup>12</sup> Essential Components of Web Accessibility. <https://www.w3.org/WAI/intro/components.php>

1. Web Content Accessibility Guidelines (WCAG)<sup>13</sup> are a technical standards that explain how to make web content more accessible to people with disabilities.
2. Authoring Tool Accessibility Guidelines (ATAG)<sup>14</sup> explain how to make the authoring tools themselves accessible, so that people with disabilities can create web content, and help authors create more accessible web content.
3. User Agent Accessibility Guidelines (UAAG)<sup>15</sup> explain how to make user agents accessible to people with disabilities.

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<sup>13</sup> W3C-WAI WCAG Overview. <https://www.w3.org/WAI/intro/wcag.php>

<sup>14</sup> W3C-WAI ATAG Overview. <https://www.w3.org/WAI/intro/atag.php>

<sup>15</sup> W3C-WAI UAAG Overview <https://www.w3.org/WAI/intro/uaag.php>



## Digital Accessibility Considerations

### ***Barriers encountered when using digital technologies***

People with disability face various challenges in accessing the Internet based on their impairment. For example, persons with visual impairments can face compatibility challenges when screen reader software is used to access visual displays that are not labelled or hyperlinks that do not make sense when read out of context. Those with low vision are not able to access websites that cannot be adjusted for font type and size, contrast and use of colours. Persons with hearing impairment are faced with the lack of text equivalents for audio content. Persons with motor impairments may not be able to manipulate a standard keyboard and mouse to interface with a computer and navigate online content. Persons with cognitive impairments, including age-related changes in memory, and older adults may find the various devices and online services difficult to understand. These problems can be addressed by using user experience design to ensure usability and accessibility are incorporated into the design of product or service from the very beginning.

If designers of digital technologies and content keep accessibility at the heart of design activities, people with disability can be empowered to do more themselves, without having to rely on others. In contrast, if designers miss out on accessibility, they continue to develop products and content that increases barriers for people with disability when using digital technologies and content.

With over a billion websites hosted across the Internet, the majority of the content published by them does not conform to web accessibility standards. Generally, developers are unaware of the accessibility standards with the result that websites continue to be difficult or even impossible for many people with disability to use any kind of web content. Similarly, most of the website content authoring software tools are not sufficiently accessible to people with disability, making it difficult or sometimes even impossible for them to design and contribute new content to the web or comment or amend existing versions.

### ***User Experience, Usability and Accessibility***

User experience focuses on the needs of users by understanding what they value, their abilities and limitations while keeping organizational or business goals and objectives at the heart of the project. Usability attempts to ensure products or services carry a certain level of ease or satisfaction of use though this is not usually sufficient for everyone that is accessing them. Lacking usability creates barriers towards the quality of a user's overall experience when interacting with products or systems, including websites, software, devices, or applications. Accessibility is about removing barriers so that people with or without disabilities can easily use and contribute digital content. Many governments and organizations across the developed and developing world are yet to adopt user experience best practices, usability and accessibility standards

in the design and development of their digital or information products and services. This causes a great deal of difficulty for their citizens with disability to access public services online through the web, mobile phones, smart devices or public kiosks.

Usability determines how fit for use a product or service is by its users. Can the particular user or group of users use the digital technology to achieve their anticipated goals? For example, if Self-Service Payment Terminals, Ticketing Systems, Queuing Systems etc., cannot offer tactile feedback or voice activated instructions or guidance for people with visual impairments or large text on small screens for older people then these systems have limited usability.

Simply put, can the user of a product or service perceive the information being accessed by them? For most, vision is the primary mode of perception and this explains why so much effort is placed on the visual presentation while missing out on hearing and tactile feedback. Usable product or service design should encompass all these perceptions from the beginning ensuring capability for easily interchanging between visual, auditory, and tactile support to cater to the user needs.

Accessibility addresses that what is the extent to which a product or service can be used by anyone regardless of disability. Can users interact with your digital products and services? The traditional perception that electronic information can be accessed easily using a mouse and keyboard does not account for people who are unable to use such devices or simply rely on assistive technology to do so.

For example, PWDs or aged people with visual impairment will find it hard to access an Automated Teller Machine (ATM) or Self-Service Ticketing Machine at a bus stop or train station if it was only designed for people with full sight abilities. Such machines could have some form of bio-metric or voice activated assistance to help PWDs. Products and services for all should take into account all possible interactions between devices and human beings so that everyone irrespective of disability should be able to access it.

### ***Losing Out on Business Opportunity***

Although, there are known and easy to implement guidelines to address the barriers, many developers of web content, mobile applications and related digital technologies usually do not consider people with disability while designing or updating their products. With such a large number of the population with disabilities, businesses are potentially losing out if accessibility issues are not considered, and the universal design concept is not understood and adopted. Universal design means that businesses improve consumer products such as hardware, software, websites and applications to make them usable for a broader section of the community including people with disability, in

turn, gain reach to a much larger consumer base in more situations. According to the World Wide Web Consortium (W3C), accessibility overlaps<sup>16</sup> with other best practices such as mobile web design, device independence, multi-modal interaction, usability, design for older users, and search engine optimization (SEO).

Accessible websites have better search results, reduced maintenance costs, and increased audience reach, among other benefits. Missing out on incorporating accessibility features results in losses for designers and developers of various digital products and services around the globe. On the other hand, in some countries where digital accessibility has been legislated as national law, law suits on businesses are common for non-compliance while developing digital products and services such as website content. Non-compliance with web accessibility laws and regulations may lead to fines, lost business, monetary settlements, cost remediation and loss of goodwill or damage to reputation.

### ***Legislation, Policies and Regulations***

Digital accessibility laws, regulations and compliance mechanisms have the potential to enable an environment for creating new technologies while making existing technologies usable by persons with various disabilities. It is very important to recognize PWDs as one of the stakeholders in the development of policies and technologies, and to educate the community (especially content developers) about the importance of equal access for PWDs. Promoting digital accessibility contributes to the achievement of the United Nations Sustainable Development Goals (SDGs) and ensure that the rights of PWDs are met.

Governments cannot ensure effective public service delivery without incorporating accessibility requirements into public sector procurement policies so that all citizens are included. Lacking digital accessibility regulations and compliance across electronic channels of public service delivery ultimately becomes a barrier towards inclusion. The same goes for enabling a market economy without putting in place regulations and compliance that incorporate digital accessibility as part of universal design of products and services. Governments are also faced with human resource and skills shortages.

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<sup>16</sup> W3C Accessibility. <https://www.w3.org/standards/webdesign/accessibility>

## Developing Accessible Content

The W3C Web Accessibility Initiative (WAI)<sup>17</sup> provides detailed guidelines that help in addressing potential barriers that people with disabilities face while accessing digital content. These barriers can be grouped under five broad categories of disability<sup>18</sup>:

- auditory,
- cognitive and neurological,
- physical,
- speech, and
- visual.

### ***Auditory Disabilities***

Auditory disabilities include various levels of hearing impairment from the moderate (hard of hearing) to the severe (deafness). It also includes people who are both deaf and blind.

#### **Barriers to access**

For people with these disabilities, information cannot be accessed if it relies on sound. Examples include:

- Audio content that doesn't provide captions or transcripts
- Media players that do not allow for captions, or players that do not allow for volume controls
- Any interaction that requires someone to speak

#### **Removing those barriers**

To make content accessible to people with auditory disabilities, you need to:

- Provide alternatives to audio content in the form of captions or transcripts, depending on the type of media
- Give the user the ability to control any audio they encounter, including the ability to stop, pause, or adjust the volume

**Note:** Those who are deaf or hard of hearing may use sign language as their first language; therefore, they might have more difficulty understanding written English. As an aid anyone who might have difficulty comprehending, your writing should be concise, straightforward, and easy to understand.

### ***Cognitive and Neurological Disabilities***

In addition to affecting mobility and language, cognitive and neurological disabilities can affect how people understand and process information. Examples of this include:

- Attention Deficit Hyperactivity Disorder

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<sup>17</sup> W3C Web Accessibility Initiative (WAI). <https://www.w3.org/WAI/intro/people-use-web/>

<sup>18</sup> Note: Each disability category includes different types and levels of severity with many areas of overlap.

- Developmental disabilities that affect intelligence and ability to understand complex concepts
- Learning disabilities, such as dyslexia
- Memory impairments
- Mental health disorders that may affect the ability to remember to and focus
- Seizure disorders

### **Barriers to access**

For people with these disabilities, a barrier to access is anything that causes confusion, distraction, or otherwise makes your content difficult to understand.

Examples include:

- Complex navigation and page layouts
- Long passages of text without images, graphs, or other illustrations to reinforce context
- Moving, blinking, or flickering content that cannot be paused or turned off
- Background audio that cannot be turned off
- Visual page designs that cannot be adapted using custom style sheets

### **Removing those barriers**

To make content accessible to people with cognitive and neurological disabilities, you need to present information in a clear, concise, and consistent way while minimizing possible distractions.

- Write in a way that is concise, straightforward, and easy to understand--including graphs and illustrations where beneficial.
- Structure your content so that people can orient themselves to the page and get an overview of it before moving to any one part
- Label links, page controls, and forms consistently so that the function is always apparent
- Provide different ways to navigate your site, such as a search box or site map
- Provide the option to turn off or hide blinking, flashing, or otherwise distracting content

### ***Physical Disabilities***

Physical disabilities can affect mobility, strength and endurance, and fine motor control. Examples of such disabilities include:

- Amputation or limb deformity
- Arthritis
- Reduced ability to control hand movements
- Repetitive stress injury
- Tremors and spasms
- Various forms of paralysis

## Barriers to access

For people with these disabilities, a barrier to access is anything that fails to consider the difficulty users may have inputting information or otherwise interacting with your content, including:

- Parts of the page that cannot be accessed using only the keyboard
- Insufficient time limits for completing tasks, such as filling out forms
- Lack of location cues to tell people where they are on the page
- Links and other controls that are too close together or have small click targets

## Removing those barriers

To make content accessible to people with physical disabilities, you need to:

- Ability to access all elements of a page using only the keyboard
- Extended (ideally no) time limits for interacting with page
- Large clickable areas
- Error identification and suggestions when filling out forms
- Visual focus indicator on all elements that receive keyboard focus
- Ability to skip over repeated items, such as navigation menus
- Design that minimizes the number of clicks needed to get to information

## *Speech Disabilities*

Speech disabilities are those which lead to speech that is difficult to understand.

Examples include:

- Issues with fluency
- Stuttering
- Muteness

## Barriers to access

For people with these disabilities, a barrier to access is any interaction that requires the use of speech, including the use phone numbers as the only point of contact with your organization.

## Removing those barriers

To make content accessible to people with speech disabilities, you need to:

- Provide text-based alternatives to voice interactions
- Provide keyboard commands as an alternative to voice-operated applications
- Provide email or chat options in addition to phone number as point of contact

## *Visual Disabilities*

Visual disabilities include various levels of vision impairment from the moderate (low vision) to the severe (blindness). It also includes people who are both deaf and blind and those who live with various forms of colour blindness.

## Barriers to access

For people with these disabilities, a barrier to access is anything that relies on a visual component to convey information. Examples include:

- Images, controls, and other structural elements that do not have text alternatives
- Text, images, and page layouts that cannot be resized, or that lose information when resized
- Missing visual and non-visual orientation cues, page structure, and other navigational aids
- Video content that does not have text or audio alternatives, such as an audio-description track
- Inconsistent, unpredictable, and overly complex navigation mechanisms and page functions
- Text and with insufficient contrast between foreground and background colour combinations
- Websites that do not support use of custom colour combinations

## Removing those barriers

To make content accessible to people with visual disabilities, you need to:

- Allow for the presentation of your content to be independent of its structure, i.e. content needs to be able to be presented in ways that best fit the user.
- Create headings, lists, and links that maintain their original meaning if their presentation changes, such as being taken out of context
- Provide text alternatives for all non-text content, such as images, controls, and form fields
- Allow text to be magnified without becoming cut off or obscured
- Ensure that any information that is relayed through colour is also relayed through text
- Provide full keyboard access for those not able to see a pointer

## Organising Dialogues between Developers and PWDs

In order to assess user's need and challenges, organising interactive dialogues between software / website developers and PWDs are found very useful. Ideally, these dialogues can be organised as one-day workshop, inviting PWDs (cross-disability groups) as core audience, to share their accessibility requirements, identify challenges and highlight the barriers that limits them from interacting with the Internet and the World Wide Web.

Broadly, these dialogues can aim:

- Built capacity of developer's community on needs and requirements of PWDs.
- Built capacity of developer's community on approaches and design practices that would make their services and products accessible.
- Invite PWDs to speak and share on their accessibility challenges.
- Share best practices learned from experiences.
- Hear from local stakeholders including government on their current familiarity and approaches on digital accessibility.
- Strengthen cooperation and enhance partnerships among organizations working to address common challenges of digital accessibility.

### Training / Awareness

The first half of the workshop can include a dialogue and training on digital accessibility. Organising face-to-face interaction and discussion between developers and PWDs. Ideally, the workshop facilitator should be a PWD with an extensive experience and knowledge on digital accessibility standards and design principles.

### Stakeholders dialogue on digital accessibility

The second half of the workshop can host a multi-stakeholders dialogue on local digital accessibility issues and possible solutions inviting subject experts. Representatives from government, legislative bodies, industry, civil society and academia can be part of these dialogues.

Workshops organised on similar pattern by ISOC Asia-Pacific Bureau in Pakistan, Sri Lanka and Indonesia were very successful in bringing movements to local digital accessibility ecosystem.

## Towards Digital Accessibility

Enabling accessibility for PWDs through digital platforms and content remains a challenge especially for the developing world. Most of the digital hardware, operating system software and applications that run across various platforms, are developed and marketed by developed nations and are costly for adoption in developing countries. In some cases, both proprietary and community supported free and open source software do not take in to account digital accessibility guidelines. This may be due to a number of factors such as lack of awareness or capacity in government, business, educational or social settings.

### *Developing Policies for Promoting Digital Accessibility*

The Convention on the Rights of Persons with Disabilities calls for "Full and effective participation and inclusion in society" stressing on creating environments that provide access to all aspects for all people on an equal basis. Inclusion or "universal design" as defined in the Convention is "the design of products, environments, programmes and services to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design". This can be used as a starting point for public policy efforts. It should be ensured that PWDs are included in the overall design and development processes of public policy, legislations, regulations and compliance initiatives. They may be invited to participate from all walks of life and dealing with different needs so that a policies are sensitized towards "universal design".

84% or 42 of 50 Asia-Pacific countries have committed to empower individuals with disabilities where governments have developed policies, legislations and guidelines to ensure digital accessibility. Yet, the World Disability Report states that progress in achieving digital accessibility has been slow despite legislation. In some countries, the focus if legislation is on:

- the accessibility of websites (e.g., New Zealand)
- mobile applications (e.g., Japan and the Republic of Korea)
- in India and the Republic of Korea, private sector organizations are expected to ensure that their products and services are accessible to persons with disabilities.
- following are select policies were mandated by various countries in the Asia-Pacific that may be used as reference guides:

<b>Australia</b>	Disability Discrimination Act, Advisory Notes on World Wide Web Access, created in 2002 and updated in 2010, contain guidelines for web accessibility. Australian government departments and agencies are required to adopt the WCAG. The Digital Service Standard includes accessibility.
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<b>India</b>	Rights of Persons with Disabilities Act 2016 mandates the public and private sectors' conformance to accessibility standards, including ICT accessibility standards.
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National Policy on Universal Electronic Accessibility 2013 focuses specifically on ensuring digital accessibility for persons with disabilities.

The 2009 Guidelines for Indian Government Websites, based on the WCAG, provides a set of standards that all official government websites need to comply with.

#### **Japan**

JIS X 8341 is the ICT accessibility guidelines for older persons and persons with disabilities developed in 2004 with several updates. The JIS X 8341-3 was updated in 2010 and is compliant with WCAG 2.0. These guidelines are mandatory for national and local government agencies, but voluntary for private companies.

#### **Republic of Korea**

Anti-Discrimination and Remedy for Disabled Persons Act 2007 includes ICT accessibility obligations for both the public and private sectors. National Informatization Act 2009 covers ICT access and usage for persons with disabilities and older persons. Mobile Application Accessibility Guidelines 2012 (updated in 2015) is the world's first national-level standardization for the accessibility of mobile applications.

#### **New Zealand**

The Government Web Standards 2.0 developed in 2009 have been superseded by the Web Accessibility Standard and the Web Usability Standard in 2013 that the public sector needs to comply with, but not the private sector. The standards apply to both publicly available web pages and internally facing web pages for employees.

#### **Pakistan**

Digital Pakistan Policy<sup>19</sup>, calls for setting up "ICT Accessibility Unit" within Public Sector Organizations and encouraging Private Sector to establish an equivalent unit in rural and urban areas to coordinate activities within and outside agencies and companies to train and facilitate PWDs. It also promotes collaboration with local and international software industry to introduce ICT infrastructure and software applications for PWDs along with local language support. It calls for formulation of standards in IT and Telecommunications to ensure that adoption of technologies is inclusive of PWD community and are developed on a universal design concept.

#### **Philippines**

The Philippine Web Accessibility Group is mandated by the National Council on Disability Affairs, the Department of ICT, and the Department of Interior and Local Government to promote full compliance of all government websites.

#### **Sri Lanka**

The ICT Agency has developed "Web Standards for Developing Government Website of Sri Lanka," which includes addressing

<sup>19</sup> <http://moitt.gov.pk/userfiles1/file/DIGITAL%20PAKISTAN%20POLICY.pdf>

accessibility issues. This document needs to be further improved, and developed into a comprehensive set of standards and guidelines.

<b>Thailand</b>	The Persons with Disabilities' Empowerment Act B.E. 2550 (2007), Provision 20 states the right of persons with disabilities to access and utilize public services and facilities, including ICTs. The Second National ICT Master Plan 2009-2013 includes specific targets to assist persons with disabilities, especially within the framework of universal service provisions. The Ministry of ICT developed the "Thai Web Content Accessibility Guidelines 2010" based on the WCAG 2.0.1
<b>Vanuatu</b>	Right to Information Web Accessibility Guidelines for Web Developers and Content Managers, developed in September 2016, is based on the WCAG 2.0.1
<b>Viet Nam</b>	Law on Persons with Disabilities 2010 includes Article 43: Information technology and communication.

### ***Developing a Business Case for Web Accessibility***

W3C provides detailed resources for creating an organizational business case for web accessibility in different settings<sup>20</sup>. It covers social, technical, financial, and legal and policy factors in developing the business case for Web accessibility:

Organizations can realize substantial return on investment (ROI) that offset any costs of implementing Web accessibility. In order to be willing to make the initial investment, many organizations need to understand the social, technical, and financial benefits of Web accessibility, and the expected returns. The justification to commit resources to a project is often called a "business case". Business cases usually document an analysis of a project's value in meeting the organization's objectives, the cost-benefit analysis, and the expected outcomes. An effective business case focuses on the organization's objectives and motivations.

The following factors are presented from the W3C website that organizations can integrate into a custom business case according to the nature of their business:

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<sup>20</sup> Developing a Web Accessibility Business Case for Your Organization. Shawn Lawton Henry and Andrew Arch, eds. Copyright © 2012 W3C® (MIT, ERCIM, Keio). Status: Updated 7 September 2012. <http://www.w3.org/WAI/bcase/>

1. A **corporation** might emphasize:
  - financial gains and cost savings from increased web use due to increased potential market share, search engine optimization (SEO), and increased usability
  - reducing risk of legal action, high legal expenses, and negative image
  - public relations benefits of demonstrating corporate social responsibility (CSR)
  - benefits of an inclusive workplace that supports employees with disabilities
  - increased productivity from supporting and retaining older employees and their experience
  
2. A **government ministry or agency** might emphasize:
  - laws and policies that require public services are available to all, such as anti-discrimination legislation or information and communications technology (ICT) policy
  - demonstration of social responsibility and provision of information and services that are accessible to all citizens
  - savings from improved server performance and decreased site maintenance
  - benefits from enabling people with disabilities and older users to interact with them online instead of more costly ways
  
3. An **educational institution** might emphasize:
  - number of students, faculty, or staff with disabilities in educational settings as a social responsibility consideration
  - benefits of Web accessibility to students with different learning styles, older computer equipment, or low bandwidth Internet connections
  - benefits to older employees who may be experiencing age-related impairments, an increasing percentage of employees as the workforce ages
  - legal or policy requirements
  
4. A **non-governmental (non-profit) organization (NGO)** might emphasize:
  - social responsibility factors, such as the organization's commitment to human rights, including the right to information
  - organization's interest in ensuring that its materials are available to all of its potential audiences
  - supporting older people with age-related impairments who may be donors
  
5. A **web design business** might emphasize:
  - competitive advantage and financial benefits of being able to meet increasing requests for accessible web design and development

- technical benefits and long term financial benefits to clients of providing sites according to web standards
- public relations benefits of being able to support clients' interests in demonstrating social responsibility

6. A **small to medium-sized enterprise (SME)** relying on e-Commerce might emphasize:

- positive impact on search engine optimization (SEO) from accessibility improvements
- importance of an increasing market among people with disabilities and older people who may significantly benefit from accessible online shopping
- increased general usability and trustworthiness of online shopping interfaces from improved accessibility
- reduced risk of legal action and negative publicity from not complying with anti-discrimination legislation.

