ITU Publications

International Telecommunication Union
Development Sector

Towards building inclusive digital communities

ITU toolkit and self-assessment for ICT accessibility implementation












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Acknowledgements

"Towards building inclusive digital communities": ITU toolkit and self-assessment for ICT accessibility implementation was developed by Ms Ana María Carrillo, COO and founder of HearColors and expert in digital accessibility, under the guidance of Ms Roxana Widmer-Iliescu, Senior Coordinator (Digital Inclusion) and ITU-D Focal Point for ICT Accessibility, with inputs from experts in ICT accessibility certified by the International Association of Accessibility Professionals (IAAP), Ms Monica Duhem and Mr Ricardo Garcia Bahamonde, who also peer-reviewed this toolkit.

The toolkit was prepared within the scope of the ICT Accessibility (Digital Inclusion) work of the ITU Telecommunication Development Bureau Digital Society Division, headed by Ms Sylvia Poll.

Disclaimer

ISBN
978-92-61-32381-3 (Paper version)
978-92-61-32391-2 (Electronic version)
978-92-61-32401-8 (EPUB version)
978-92-61-32411-7 (Mobi version)

This publication is produced in accessible format.

Please consider the environment before printing this report.

Background

What is information and communication technology (ICT) accessibility? Across the world, the use of technology has increased tremendously. Information and communication technologies (ICTs) are changing, in innovative ways, how governments, industries, and societies interact. Technology makes people more productive, enables growth, and aids social and economic development. ICTs have become so widely used, facilitating the provision of basic and critical services such as e-health and distance learning, that having access to them is now considered a human right.

Countries are implementing different strategies to accomplish digital inclusion to guarantee equal access to ICTs and, accordingly, equal opportunities in this interconnected world. It is crucial for everyone to understand the different components needed to support the goal of inclusion. In order to achieve this, connectivity and ICT accessibility are vital.

Connectivity is related to infrastructure. Distant and marginalized communities need to be connected, the bandwidth required needs to be sufficient to support ICT services and products, and people with low incomes should be able to afford it. At the national level, laws, policies, and regulations ought to be developed to ensure the coverage, quality, availability, and sustainability of this infrastructure. Industries must be innovative, creative, and partner with the authorities to meet their obligations and remain profitable. Standards must be developed and harmonized to secure interoperability, scalability, and infrastructure quality.

Accessibility is related to the concrete experience of using ICT. If ICTs are not accessible, older persons, persons with disabilities or with low literacy levels, among many others, will not be able to utilize them. At the national level, decision-makers must establish laws, policies, and regulations to ensure that devices, products, and services are usable by everyone on an equal basis, regardless of their gender, age, ability, or location. Standards must be developed and harmonized to secure accessible, scalable, and affordable ICTs. Innovation and creativity are key in the ICT sector to ensure that products and services are universally designed and usable by most of the world's population.

Digital inclusion requires connectivity, digital abilities, affordability, and accessibility. "Towards building inclusive digital communities": ITU toolkit and self-assessment for ICT accessibility implementation focuses on the latter variable not without recognizing the crucial importance of the other subjects.

Foreword

In the 21st century, the remarkable advancements in information and communication technologies (ICTs) have transformed our world. As we progress, it is crucial to ensure that no one is left behind in digital transformation. The immense power of technology and the rapid evolution of AI require a collective effort in building inclusive digital societies that cater to everyone, regardless of age, gender, ability to use technology, level of education, or geographical location.

For over two decades, the Telecommunication Development Bureau has championed digital inclusion by collaborating with ITU members to make technology available, affordable, and accessible to everyone. As we work to build an inclusive digital society, it is essential to integrate ICT accessibility into national and regional policies, strategies, and initiatives. This is an important step towards closing the digital divide and building digital societies based on inclusivity, diversity, as well as equal and equitable opportunities for all people.

This newly revised edition of the ITU toolkit and self-assessment for ICT accessibility implementation, "*Towards Building Inclusive Digital Communities*", incorporates updates aimed to support the efforts of ITU members and all stakeholders in understanding and implementing ICT accessibility at national and regional level. Furthermore, the toolkit's self-assessment provides tailored expert advice and recommendations for enhancing digital inclusion, in line with the United Nation's global commitments, such as the Convention on the Rights of Persons with Disabilities and the 2030 Agenda for Sustainable Development. The toolkit will also enable ITU members and stakeholders to evaluate their advancement in implementation with efficiency and find good practices and solutions to make digital information, services, and products digitally accessible for all intended users.

Fostering inclusive digital societies is a mutual endeavour that requires our collective commitment. Strengthening the ITU's role in mainstreaming ICT accessibility for an inclusive digital transformation, while guaranteeing accessible and universally designed technology, are key measures towards establishing a global diverse and inclusive society that embodies equality, equity, and digital inclusion for all.

Cosmas Luckyson Zavazava
Director
Telecommunication Development Bureau
International Telecommunication Union

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1. Introduction to ICT accessibility within the inclusive digital global ecosystem

1.1. Digital transformation: An accelerated reality

The 4th revolution is driven by major technologies that have changed how people live and interact with one another. According to the International Telecommunication Union (ITU) data, 4 billion people were connected to the Internet in 2020[1]. In recent years, consumer practices have been highly influenced by ICTs, such as artificial intelligence, the Internet of Things, blockchain and 5G, among others.

These trends have pushed the public and private sectors, including all branches of government, entrepreneurs and small businesses, academia, and other organizations to engage in digital transformation. This implies serious rethinking to transform processes and communication channels and adapt to new market requirements.

The COVID-19 global crisis has accelerated this digital transformation. During the pandemic, ICTs have proven their effectiveness as a unique and exclusive way for people to communicate, ensure access to vital health and security information, as well as pathways to essential products and services.

Humanity will continue to become more dependent on ICTs as the primary medium for communications, information, transactions, education, and entertainment. Actors such as national, state, and local governments, private-sector stakeholders such as essential industries, service providers, academia, small businesses, and entrepreneurs, will have to speed up their digital transformations to survive.

1.2. The importance of inclusive digital transformation

In this new reality, making sure that no one is left behind is critical. Indeed, if vulnerable groups including persons with disabilities, older adults, people in marginal or remote areas without access or connectivity, women and girls, individuals with low literacy levels, indigenous peoples, migrants, and members of other groups are not taken into account in the digital transformation process, their marginalization could increase with disastrous consequences.

Within the next 30 years half of the world population could be affected by some form of disability.

Pre-existing inequalities are a global reality. Vulnerable groups, particularly persons with disabilities who experience intersectional and varied forms of discrimination as a result of their gender identity, age, abilities, ethnicity, race, sexual orientation, place of origin, location, and legal status, are already less likely to have access to health care, education, and employment, find it hard to participate in the local community and are more likely to live in poverty and suffer from higher rates of violence, neglect, and abuse[2]. Current trends, or crises including the COVID-19 pandemic, should not be left to further exacerbate these inequalities in the digital world.

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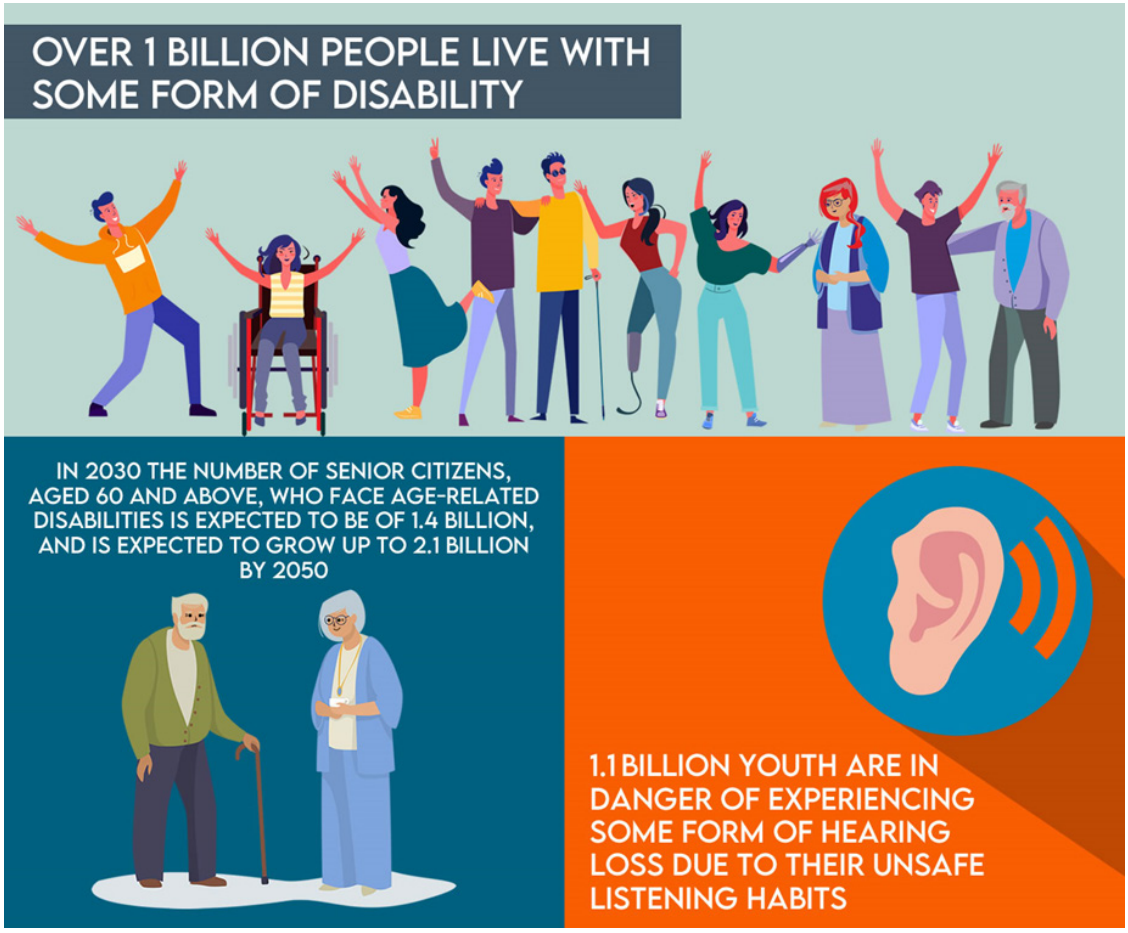
1 ITU-D Statistics: https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx.

2 For more information regarding demographics and other variables related to persons with disabilities refer to the WHO and World Bank World Report on Disabilities https://www.who.int/teams/noncommunicable-diseases/sensory-functions-disability-and-rehabilitation/world-report-on-disability#:~:text=About%2015%25%20of%20the%20world's,a%20figure%20of%20around%2010%25 .

Figure 1: Over one billion people live with some form of disability



Source: ITU

Over one billion people live with some form of disability. In addition, in 2030 the number of older persons, aged 60 and above, who face age-related disabilities is expected to reach 1.4 billion, rising to 2.1 billion by 2050[3]. Moreover, 1.1 billion youth are in danger of experiencing some form of hearing loss due to their unsafe listening habits[4]. Considering these figures, within the next 30 years half of the world population could be affected by some form of disability.

[3] 2017 U.N Report on World Population Ageing: http://www.un.org/en/development/desa/population/publications/pdf/ageing/WPA2017_Highlights.pdf.

[4] U.N. WHO-ITU Making Listening Safe Initiative: https://www.who.int/activities/making-listening-safe .

Video 1: Safe listening, ITU-WHO*

* More information on safe listening at: https://www.youtube.com/watch?v=Nm6T0f8SeHs&feature=emb_logo.
Source: ITU

1.3. Digital accessibility: The best solution

In this context, digital accessibility is the key to ensuring respect for the right to communicate in this interconnected world, as it ensures digital inclusion and enables across-the-board discourse for all people, regardless of their gender, age, ability, or location.

When working on topics of inclusion, stakeholders must understand that this is a key and imperative factor. To achieve digital accessibility, ICTs should not only be available and affordable, but also accessible, meaning that they are designed to meet the needs and abilities of as many people as possible, including people with disabilities.

Novel platforms and new ways of meeting should be usable by all. By being accessible, they allow persons with disabilities to work from home, provide access to distance education including e-learning portals and courses, and create increased opportunities to use public healthcare and assistance services, especially useful in disaster situations.

Accessible ICTs are the best way to increase opportunities for traditionally non-included and non-digital populations. They will ensure more inclusive, accessible, and agile systems capable of responding to complex situations, reaching between connected communities and those that are the furthest behind.

1.4. Global commitment to ensure that the digital world leaves no one behind

Access to information and ICTs is a human right. To ensure digital inclusion, accessibility has been recognized as a key priority in several global commitments.

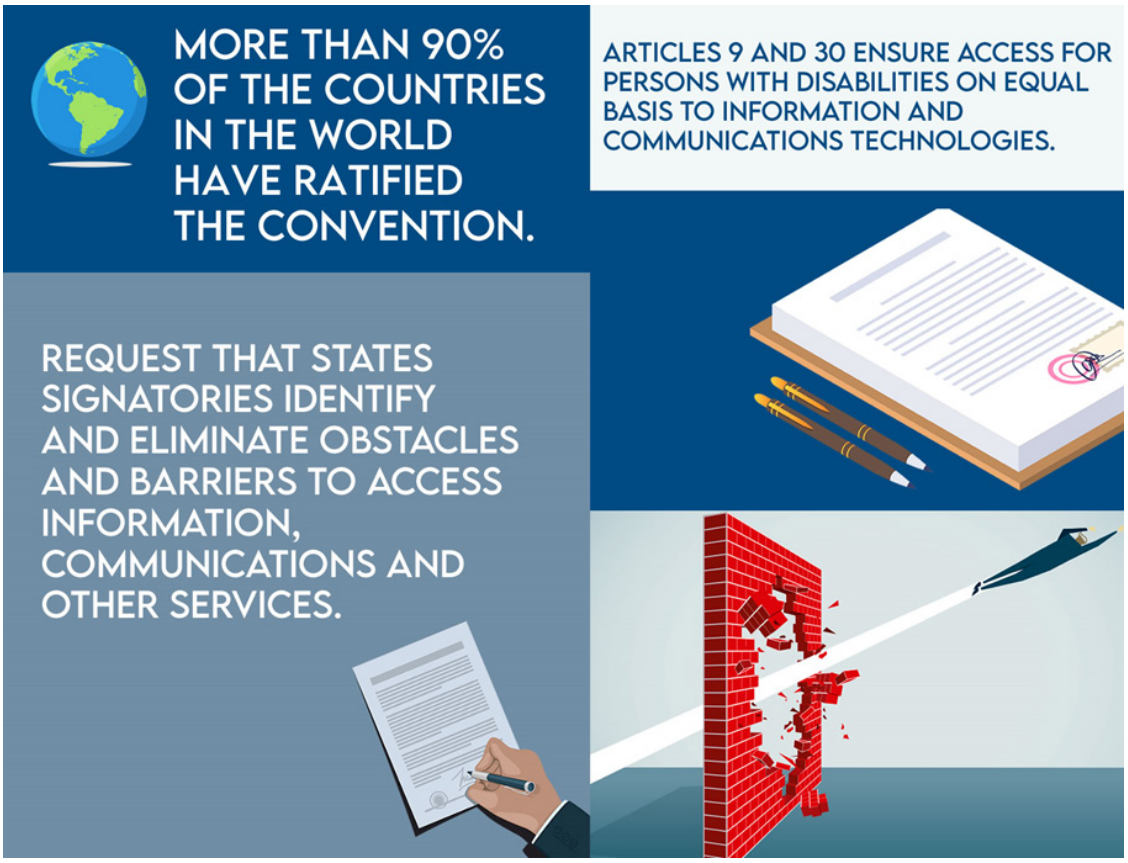
Figure 2: UN Convention on the rights of persons with disabilities*

* Text of the Convention on the rights of persons with disabilities at https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities.html.
Source: ITU

In 2006, the United Nations adopted the Convention on the Rights of Persons with Disabilities (CRPD) which has been ratified by more than 94 per cent of the countries[5] in the world. Articles 9 and 30 of the Convention ensure equal access for persons with disabilities to information and communication technologies. These articles also ensure that persons with disabilities have access to television and video programming in usable formats and request that States signatories identify and eliminate obstacles and barriers to the exploitation of information, communications, and other services.

[5] United Nations Treaty Collection https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=IV-15&chapter=4&clang=_en.

Figure 3: CRPD and access to ICT



Source: ITU

Furthermore, information and communication technologies have the potential to accelerate human progress and are recognized as enablers of the Agenda for Humanity[6], the Sendai Framework for Disaster Reduction[7], Transforming the World 2030 Agenda[8], the UN Disability Inclusion Strategy[9]:

Figure 4: Sustainable Development Goals*

* Sustainable Development Goals: https://www.un.org/sustainabledevelopment/sustainable-development-goals/
Source: ITU

6 Agenda for Humanity at https://www.unocha.org/about-us/agenda-humanity.
7 Sendai Framework for Disaster Reduction: https://www.undrr.org/implementing-sendai-framework/sf-and-sdgs.
8 Transforming the World Agenda: https://sustainabledevelopment.un.org/post2015/transformingourworld.
9 UN Disability Inclusion Strategy: https://www.un.org/en/content/disabilitystrategy/.

More recently, the provisions included in the UN Secretary-General's May 2020 Policy Brief: "A Disability Inclusive Response to COVID-19"[10] safeguarded the strategy of accessibility within the COVID-19 response and recovery information, including facilities, services, and programmes, as one of its main areas of action.

ITU has been fully committed to supporting the implementation of digitally inclusive societies. Through Strategic Goal Number 2:[11] "inclusiveness" and Target 2.9[12], the ITU Strategic Framework calls on members to establish enabling environments to ensure accessible telecommunications/ ICTs for persons with disabilities in all countries.

Figure 5: ITU Telecommunication Development Bureau commitment

"ITU is committed to making ICTs accessible and to promoting digital accessibility policies around the world."
Ms Doreen Bogdan-Martin, BDT Director

Source: ITU

To achieve this, the ITU Digital Inclusion programme[13] related to ICT accessibility for persons with disabilities and other persons with specific needs supports members in their efforts to empower all people – regardless of gender, age, ability, or location – to benefit, on an equal basis, from opportunities offered by ICTs. ITU does this by raising awareness through advocacy and capacity-building efforts, as well as by providing policy-related and strategic advice to Member States.

[10] A disability inclusive response to COVID-19: https://unsdg.un.org/sites/default/files/2020-05/Policy-Brief-A-Disability-Inclusive-Response-to-COVID-19.pdf.
[11] ITU Strategic Framework: https://www.itu.int/en/council/planning/Pages/default.aspx.
[12] Final Act of the Plenipotentiary Conference 2018: https://ccdcoe.org/uploads/2019/10/ITU-181116-Final-Acts-of-PP18.pdf.
[13] More at ITU-D site: https://www.itu.int/en/ITU-D/Digital-Inclusion/Persons-with-Disabilities/Pages/Persons-with-Disabilities.aspx.

Figure 6: UN Secretary General's address on more inclusive and accessible societies*

> *"We have a unique opportunity to design and implement more inclusive and accessible societies."* Mr António Guterres, United Nations Secretary-General

* https://inclusivesocial.org/en/un-secretary-general-guterres-corona-crisis-as-an-opportunity-for-inclusive-social-development/

Source: United Nations

1.5. "Towards building inclusive digital communities": ITU toolkit and self-assessment for ICT accessibility implementation

Taking into account the rate at which digital transformation is evolving, one of the main challenges to achieve and promote smart and inclusive digital communities has been the low level of implementation of digital accessibility among governments, academia, civil society, industry, service providers, and the private sector.

Sixty-one per cent of the UN Member States[14] have developed disability laws and acts with the aim to abolish discrimination against persons with disabilities and eliminate barriers towards the full enjoyment of their rights and their inclusion in society. These laws and acts contribute to progress towards the implementation of the Convention on the Rights of Persons with disabilities (CRPD) in national legislation. Nevertheless, only a small percentage of countries have laws and regulations aimed at eliminating the digital divide specifically.

[14] List of disability laws and acts by country: https://www.un.org/development/desa/disabilities/disability-laws-and-acts-by-country-area.html.

Figure 7: List of laws and legislation contributing towards the achievement of the Sustainable Development Goals (SDGs), and the pledge of the 2030 Agenda for Sustainable Development to leave no one behind.

Source: ITU

To tackle this challenge affecting all interested stakeholders, the ITU Telecommunication Development Sector (ITU-D) developed "Towards building inclusive digital communities": ITU toolkit and self-assessment for ICT accessibility implementation as a practical tool, with the following goals:

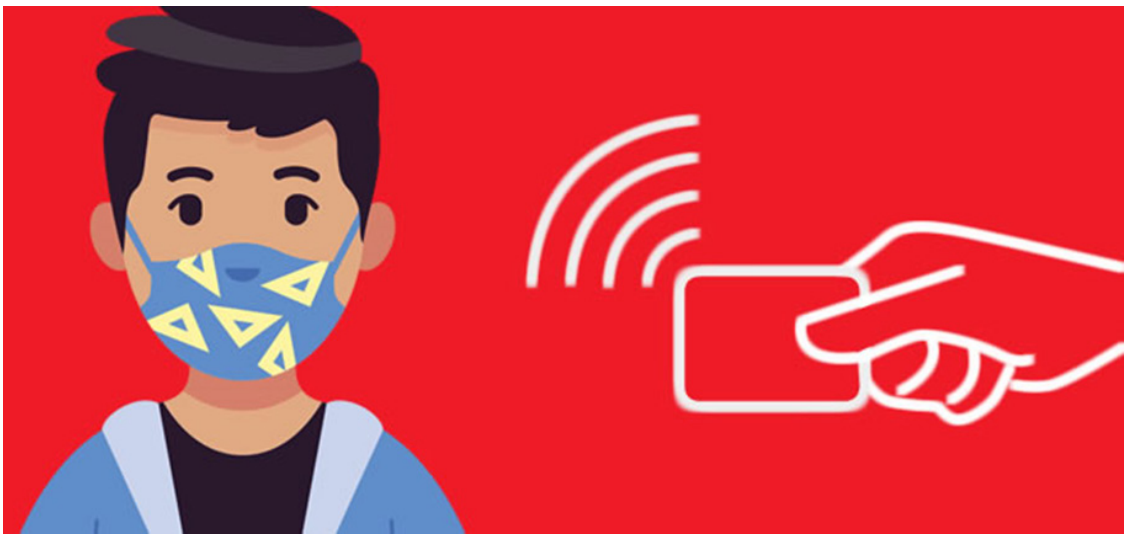
- Support all countries in obtaining an immediate overview of their national level of ICT/ digital accessibility implementation.
- Based on the assessment result (which will consist of five levels of implementation), countries will receive tailored guidelines to support the development of appropriate policies and strategies in order to advance implementation.
- The toolkit will serve to ensure quality monitoring of implementation processes in ICT/ digital accessibility at the national level, and further serve to evaluate regional and global advancements in implementation.
- The toolkit will also help ITU Member States to achieve their national, regional, and global commitments towards ensuring that all citizens (without discrimination based on gender, age, abilities, or location) benefit equally and equitably from digital information products and services, thus assuring that no one is left behind in the digital transformation.

2. Basics of inclusive digital transformation

Digital transformation is already a reality, having become one of the global areas with the largest growth opportunities for public and private-sector organizations. Remaining oblivious to this reality jeopardizes the relevance and survival of any organization.

Business transformations are expected to continue. Experts predict that, after the COVID-19 global crisis, consumer habits will not be the same, but will privilege a low-contact type of preferences and services. Within this reality, it is imperative to understand and consider the accessibility of all ICT products and services, otherwise, there is the risk the digital divide will keep increasing.

Figure 8: Contactless payment



Source: ITU

The time-frame for governments to consolidate digital transformation has been dramatically reduced for all stakeholders since the COVID-19 crisis, as the role of digital technology has shifted from driving efficiency to enhancing innovation and allowing continuity in everyday life.

In this context, and to prepare for the near future, governments, corporations, academia, and entrepreneurs need to make sure everyone who needs access to information, products, and services within the virtual environment can do so. Therefore, it is fundamental that all stakeholders understand the concept, along with the issues and costs that will arise if their digital transformation is not inclusive from the beginning. For this reason, digital transformation is not just about technology. Fundamentally, it is all about people.

2.1. What is digital transformation?

Digital transformation can be described as the process that allows governments, institutions, and organizations to become part of the online environment: *"the process through which an institution creates and adopts new operating models and processes that allow them to implement, integrate, and take advantage of the digital, mobile, social, and other emerging technologies […] while gaining new data insights to be more efficient, to reach more citizens and to improve the customer experience"* (Tchelet, 2019).

Others refer to the importance of digital transformation as "the level on which countries embrace and enable digital transformation today will determine their competitive stance and economic well-being for decades to come" (Siebel, 2019).

In other words, to be successful, digital transformation needs to integrate digital technologies in a way that allows governments and businesses to change their fundamental manner of operation along with how they deliver value to their citizens and customers. Because digital transformation is about people, it requires a cultural change to adopt new ways of thinking and rethink new ways of doing. One of the keys of this new culture involves being accessible and inclusive.

Some key considerations for a successful digital transformation process

Digital transformation should start with the citizen and/or the customer in mind.

- Get to know and understand the citizens and/or customers better.
- Improve the level of services you provide.
- Provide exceptional customer service and experience.
- Create and deliver accessible and inclusive content.

Digital transformation also requires training. Building employee/personnel skills is essential for a successful transformation. People need to acquire the right digital skills to use and leverage technology correctly. Individuals need to embrace a new culture aligned with the digital transformation process, combined with non-digital interactions.

Digital transformation is not a goal or a project; it is a process that will drive an institution towards:

- improving the citizen or customer experience;
- enhancing its efficiency;
- increasing citizen engagement and market share;
- reducing costs;
- driving innovation and the development of new products and services;
- effectively leveraging, developing, and empowering human talent;
- utilizing data analytics to obtain reliable insights;
- obtaining a better understanding of user needs;
- striving for continuous improvement.

To be successful, digital transformation needs to consider other variables based on the national and regional context, including cultural, environmental, educational, political, social, and economic considerations.

Figure 9: Digital transformation

Source: ITU

Accessibility can prevent the digital divide

Digital transformation strategies should enable citizens to benefit from the possibilities that connectivity and accessibility to digital information can provide, creating inclusive, safe, and resilient communities that empower disadvantaged groups. Accessibility and inclusiveness should be a baseline consideration, and by guaranteeing digital accessibility and inclusion, governments and organizations will be able to:

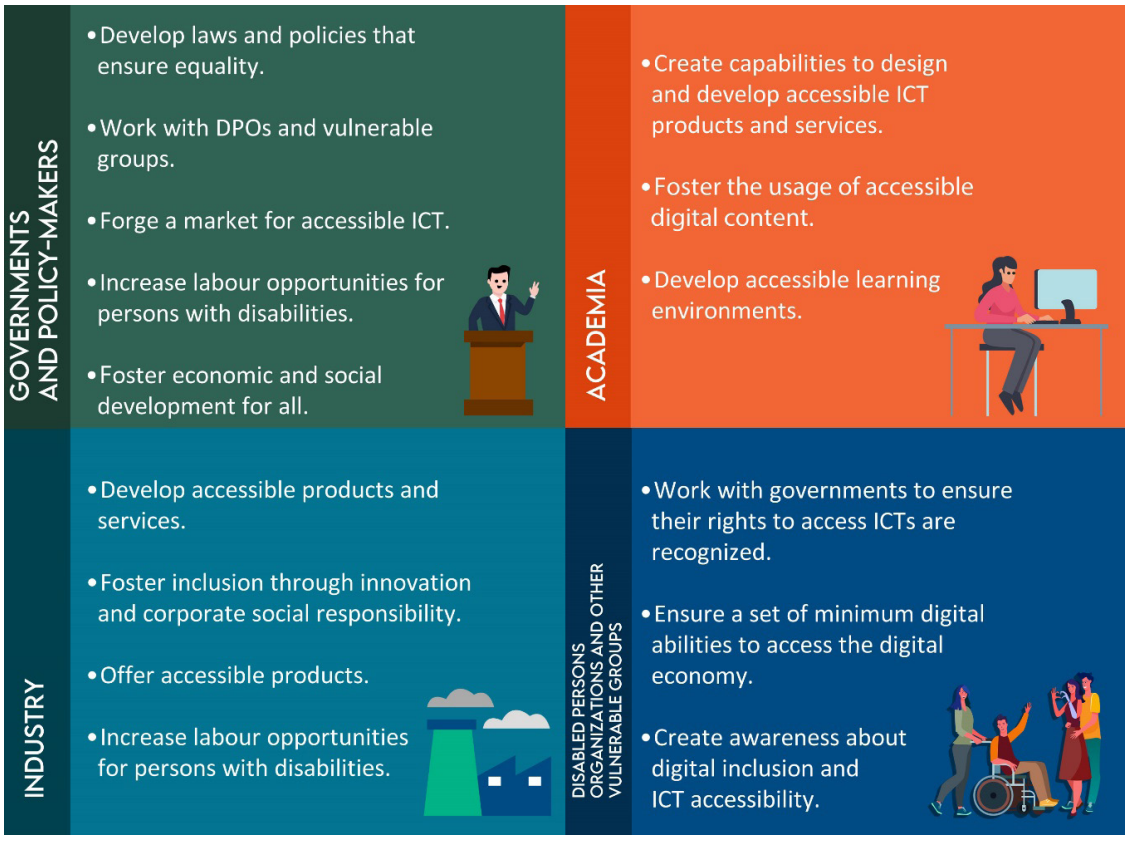
- bridge the disability divide through digital technologies, products, and services;
- democratize development by ensuring everyone has the same opportunities to access and offer products, services, information, lifelong learning, skills development, and employment;
- level the playing field by helping to close knowledge, digital, social, cultural, and political gaps among people;
- find new sources of talent as technology helps people with disabilities to become a more active part of society;

- change how we communicate and collaborate by allowing more flexibility to include different types of people in daily-life activities;
- provide new and distinct channels for income generation that will help reduce poverty;
- facilitate access to education and literacy, as well as employment opportunities and financial inclusion;
- allow e-governance and increased civic participation;
- improve disaster management by guaranteeing access to instant and reliable information and communications before, during, and after emergencies.

2.2. Stakeholders roles in an inclusive and accessible digital transformation

Governments, the private sector, academia, organizations of persons with disabilities and all involved stakeholders as well as interested parties, play an important role in achieving digitally inclusive communities.

Figure 10: Stakeholder roles for an inclusive and accessible digital transformation



Source: ITU

Stakeholders take on different responsibilities and opportunities.

Governments and policy-makers

- Develop laws and policies that ensure equality regarding access to information and communication technologies for all. It is a global commitment and a human right.
- Work with organizations of persons with disabilities and vulnerable groups while developing these laws and regulations to listen to, and incorporate, their input.
- Promote the creation of a market for accessible ICTs through well planned procurement policies and high standards.
- Increase labour opportunities for persons with disabilities by using accessible products and services.
- Foster economic and social development for all.

Industry

- Develop accessible products and services according to international standards.
- Foster inclusion through innovation and corporate social responsibility.
- According to the 2020 Annual Report: The Global Economics of Disabilities[15], persons with disabilities together with their friends and families control over USD 13 trillion in annual disposable income.
- Increase job opportunities for persons with disabilities by using and providing accessible products and services.

Academia

- Create capabilities among designers and developers to design and develop accessible ICT products and services.
- Foster the production and usage of accessible digital content.
- Develop accessible learning environments for students with disabilities.

Organizations of persons with disabilities and other vulnerable groups

- Work with governments to ensure their right to access ICTs is recognized.
- Ensure a set of minimum digital abilities to access the digital economy.
- Create awareness about digital inclusion and ICT accessibility.

Any other stakeholder involved and/or interested party

- Support implementation from top down and bottom up.
- Identify key partnerships to facilitate the process.

[15] More information on the 2020 Annual Report: The Global Economics of Disabilities: http://www.rod-group.com/sites/default/files/2020%20Annual%20Report%20-%20The%20Global%20Economics%20of%20Disability.pdf.

Figure 11: Make everyone part of the change

Source: ITU

Inclusive and accessible digital transformation represents a significant evolution of any organization into entirely new ways of working and thinking.

The easiest way to carry out transformation is by gathering enough information to share in a clear and persuasive manner with members of the institutions included in the process. This makes them part of the change, promotes the benefits of a new culture and a new way to use technology and, explains how these benefits will translate into better working conditions for everyone, while also achieving digital inclusion and increasing the competitive advantage of an organization.

To achieve this, it is essential that leadership drives the transformation from the top down. Culture is the wheel that will drive digital transformation to a safe port. In order to achieve success, culture needs to be conducive to change, adaptation in and adoption of new technology and inclusiveness.

However, culture requires practice and people's experiences, otherwise it is almost impossible to achieve longstanding changes. In this sense, training plays an important role. It is crucial for Member States and other stakeholders to develop and reinforce digital skills as well as soft skills such as communication, collaboration, and empathy. Expert assessments and the provision of quality information is vital, especially when a culture of accessibility and inclusion is being built.

Focus on improving customer experience

Citizens, customers, and users need to be the priority and the entire transformation process design must be created with them in mind.

Figure 12: Focus on improving customer experience

Source: ITU

People are diverse in their needs and expectations; providing an inclusive experience is about creating interactions that allow everyone to meet and exceed their needs and expectations about the service, product, or information provided.

When it comes to digital platforms and solutions, citizens will interact and engage. In order to do so, governments and organizations need to work with persons with disabilities to get to know the characteristics of their end users. This will foster accessible technologies, create appropriate content, and provide relevant training. Stakeholders need to guarantee that all technologies, content, and people are suitable for real diversity, accessibility, and inclusion.

Although organizations can use artificial intelligence (AI) solutions to learn and predict patterns of customer behaviour to offer a personalized service, this may not work as the sole solution. Due to people's diversity and the fact that it is impossible to get to know every citizen, institutions involved need to provide multiple options for accessing information people need.

The more diverse the organization talent, and the more appropriate and relevant the technology, the better experience the organization can provide for all users, regardless of their personal circumstances.

3. Methodology and how to run the toolkit and self-assessment

To ensure that no one is left behind in the digital world, society has the responsibility to implement digital accessibility as a key prerequisite to guarantee that content, services, and products are fully inclusive, safe and resilient for all.

"Towards building inclusive digital communities": ITU toolkit and self-assessment for ICT accessibility implementation is addressed to every stakeholder involved in the digital transformation process, from policy-makers, regulators, and ICT leaders in the private sector, to members of academia, end-user organizations, industry, and entrepreneurs.

This resource provides all these stakeholders and other interested parties the information needed to guarantee that everyone addresses the necessary policy-making, regulatory and strategic implementation components from their respective fields. This is collective work. Every stakeholder must be aware of, and appropriately attend to, his or her responsibility in ensuring digital accessibility in all related services, products, and information, assuring it is made available within his or her area of business.

The ITU toolkit is accompanied by a spreadsheet document that will allow users to run the self-evaluation, get the pertinent guidelines and recommendations according to their level of implementation, as well as print their results in order to monitor their improvements.

The results of the self-evaluation are based entirely on the responses to targeted questions, and the responsibility for the results of this self-evaluation lies with the Member States or any other stakeholder implementing it. As much information as possible should be provided to obtain the most valuable and accurate recommendations.

> Author's note: The spreadsheet mentioned here allows the process of evaluation to be interactive, with respondents only receiving recommendations and guidelines that correspond to their answers and to their specific level of implementation. Subsequent sections of the toolkit repeat recommendations and guidelines intentionally to reflect all levels of implementation.

Methodology and recommendations

As a practical tool and evaluation method, this ITU toolkit will provide each stakeholder with an assessment of the implementation of their ICT accessibility strategy according to the following phases:*

- Phase one – planning: Evaluation of the framework to implement ICT accessibility (such as regulation, policies, programmes, strategies, budget, timeline, and monitoring).
- Phase two – launching: Initial work in progress.
- Phase three – implementation in progress: Significant work in progress.
- Phase four – advanced implementation: Advanced work and visible/measurable results.

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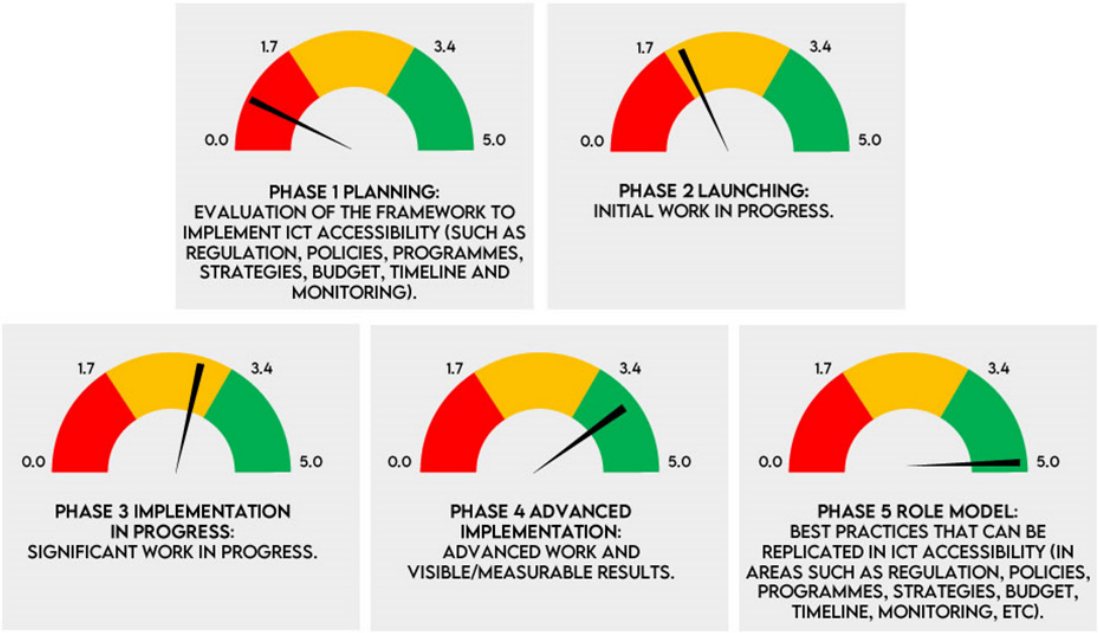
* The self-assessment methodology phases are aligned with the DARE Index methodology, which established 5 phases of digital accessibility implementation. Source: Digital Accessibility Rights Evaluation Index (DARE Index), G3ict

- Phase five – role model: Best practices that can be replicated in ICT accessibility (in areas such as regulation, policies, programmes, strategies, budget, timeline, monitoring, and so on).

Before using or taking the assessment, it is important to review the entire body of the toolkit information, including the glossary of main terms and their definitions.

Figure 13: Assessment for ICT accessibility implementation (spreadsheet examples)



Source: ITU

The toolkit and self-assessment is developed through a series of questions that are presented and classified under commitment and implementation and grouped into seven main categories:

Commitment to ICT accessibility

1. Law, regulation, and policy
2. Political buy-in
3. Development and inclusion of standards as references

Implementation capacity

4. Public procurement
5. Training
6. Monitoring
7. E-government.

Each of these seven areas will be composed of a group of different items or variables to be evaluated through targeted questions so that end-user responses will generate precise recommendations.

A scale of 1-to-5 will be used, where 1 will indicate the absence of a plan or action for each item or question and 5 will indicate that the action has already been fully implemented. The nomenclature used for the evaluation is set out in Table 1.

Table 1: Nomenclature for evaluation

Response	Value
Yes	5
About to be completed (above 50%)	4
Implementation in progress (up to 50%)	3
Starting / About to start	2
No	1

The evaluation can be repeated as often as needed or required to further obtain appropriate advice in each of the stages of implementation up to phase five which supposes that the country or stakeholder is a role model in the subject matter.

The numeric values serve to pinpoint appropriate recommendations through quantitative indicators that allow visualization of the score obtained – or degree of progress –of each of the seven areas evaluated.

Respondents receive immediate expert advice and tailor-made recommendations, including guidelines and best practices for consideration based on the specificity of the responses. This tool will enable Member States and other stakeholders to visualize results and monitor the implementation process of ICT accessibility to achieve inclusiveness of all people regardless of gender, age, ability in the digital ecosystem/economy.[16]

Member States and other stakeholders can use the toolkit as a monitoring tool to measure the national, organizational, or institutional level of advancement, and once recommendations have been implemented the toolkit has been designed to be reused to generate further milestones on a roadmap as a means to achieve faster and better results.

This ICT accessibility toolkit and self-assessment uses different variables within the seven areas that depend on the quality and exactness of answers to each question, and consequently ensure access to the most appropriate advice, recommendations, and best practices according to the true level or phase of ICT accessibility implementation.

ITU is not responsible for the results of this ICT accessibility toolkit and self-assessment as the results depend on the above-mentioned answers provided by each stakeholder.

[16] ITU members are urged to share their results with ITU-D Study Group 1 Rapporteur Group meetings as input for Question7/1: Access to telecommunication/ICT services by persons with disabilities and with specific needs.

4. ICT accessibility toolkit and self-assessment

Any strategy for ICT accessibility needs clear definitions to align all stakeholder efforts. To build inclusive digital societies, it is important to assess a country's legal commitments to ICT accessibility, as well as its capacity for implementation. It is not only essential to count on laws and regulations to ensure that every stakeholder understands their legal obligations vis-à-vis accessibility and inclusion, but also that government programmes and policies are aligned with the legal framework to facilitate implementation.

The following section includes a series of questions organized around different ICT accessibility topics. Each answer is assigned a value. At the end of each set of questions, according to the overall result, a series of guidelines and a roadmap will be provided.

4.1. Commitment to ICT accessibility assessment

The Convention on the Rights of Persons with Disabilities (CRPD) serves as a guiding framework. The CRPD equal access principle has a direct impact on an increasing number of information and communication technologies that are used to deliver a wide variety of essential services for accessing information.

Table 2: CRPD accessibility dispositions for ICT application areas

Application areas	CRPD article	Accessibility dispositions with implications for ICTs
Non-discrimination	5	No
E-government	9.2a	Yes
Media and Internet	9.1	Yes
Television	30.1b	Yes
Private sector services	9.2b	Yes
Liberty and security	14	No
Living independently	19	No
Education	24	Yes
Employment	27	Yes
Political rights	21,29	Yes
Emergency services	9.1b	Yes
Culture and leisure	30.5c	Yes
Personal mobility	20	No
Rehabilitation	2	No

Source: Adapted from Martin Gould and Viviana Montenegro 2016 CRPD ICT Accessibility Progress Report, published by G3ict, 2017.

4.1.1. Law and regulation

Governments need to define and establish a systematic mechanism to secure the development and availability of accessible ICTs. Some countries have included ICT accessibility as a right in law. Unfortunately, a lack of clear definitions and absence of standards can inhibit implementation. It is fundamental that every stakeholder (manufacturers, developers, procurers, government officials, and so on) understands what is meant by an accessible ICT and what is expected from products and services.

The questions in Table 3 concern a commitment to ICT accessibility for which there are five levels of implementation, and the following numeric values correspond to the answers:

- 5 = Yes
- 4 = About to be completed (more than 50 per cent)
- 3 = In process (50 per cent)
- 2 = Starting/about to start
- 1 = No

If the answer to the question is "yes," please add five points, "about to be completed" add four points, "in process (50 per cent)" add three points, "starting/about to start" add two points and, "no" add one point. A set of guidelines and best practices will be available at the end of the evaluation section according to the overall score.

Table 3: Commitment to ICT accessibility – Laws and regulations assessment

1. Commitment to ICT accessibility: Laws and regulations in line with CRPD	Yes	About to be completed	In process (50%)	Starting/ about to start	No
1.1: Do the laws and regulations in the following areas include or mention ICT accessibility? (please answer for each CRPD article) • Non-discrimination (Art. 5) • Accessibility e-government (access to digital information) (Art. 9.2 a) • Media and Internet (Art. 9.1) • Television (Art. 30.1 b) • Private-sector services (Art. 9.2 b) • Education (Art. 24) • Employment (Art. 27) • Political rights (Articles 21 and 29) • Emergency services (Art. 9.1 b) • Culture and leisure (Art. 30.5)					

Table 3: Commitment to ICT accessibility – Laws and regulations assessment (continued)

1. Commitment to ICT accessibility: Laws and regulations in line with CRPD	Yes	About to be completed	In process (50%)	Starting/ about to start	No
1.2: Do laws and regulations in the following areas define accessible ICTs? (please answer for each CRPD article) • Non-discrimination (Art. 5) • Accessibility e-government (access to digital information) (Art. 9.2 a) • Media and Internet (Art. 9.1) • Television (Art. 30.1 b) • Private-sector services (Art. 9.2 b) • Education (Art. 24) • Employment (Art. 27) • Political rights (Articles 21 and 29) • Emergency services (Art. 9.1 b) • Culture and leisure (Art. 30.5)					
1.3: Do the laws and regulations ensure that government electronic communications are delivered in accessible formats?					
1.4: Do laws and regulations ensure accessible government websites and mobile applications?					
1.5: Are organizations of persons with disabilities participating in the process of establishing laws, policies, and regulations about digital inclusion?					

4.1.2. Political buy-in

The effectiveness of implementation depends on awareness. Regional and national events should be part of any strategy of digital inclusion; to share information on the implementation and the impact as well as best practices. A top-down/bottom-up policy approach will be easier to achieve if stakeholders understand the components of digital inclusion and their impact on economic and social development.

Figure 14: Top-down/bottom-up approach

Source: ITU

Table 4: ICT accessibility – Political buy-in assessment

2. Commitment to ICT accessibility: Political buy-in	Yes	About to be completed	In process (50%)	Starting/ about to start	No
2: Are periodic events regarding ICT accessibility being held as a strategy for awareness and the creation of capabilities?					

4.1.3. Standards as references

Standards are developed though a consensus process by stakeholders such as industry, government, and consumer groups. This process is managed by standards bodies that operate at a national, regional, and international level. They define basic criteria in terms of the functionality, performance and structure of a product or service. Using accessibility standards provides ICT suppliers and developers with certainty when offering solutions for all.

Table 5: ICT accessibility – Development and inclusion standards assessment

3. Commitment to ICT accessibility: Development and inclusion standards	Yes	About to be completed	In process (50%)	Starting/ about to start	No
3.1: Do laws and regulations in your country refer to a national or international standard when defining ICT accessibility?					
3.2: Do laws and regulations in your country refer to national or international standards when defining web accessibility, including software?					
3.3: Do laws and regulations in your country refer to national or international standards when defining accessibility to electronic documents?					
3.4: Do laws and regulations in your country refer to national or international standards when defining accessibility to hardware, including digital kiosks?					
3.5: Do laws and regulations in your country refer to national or international standards when defining accessibility to videos?					

4.2. Implementation capacity assessment

There are five possible answers to every section. If the answer to the question is "yes," please add five points; "about to be completed" add four points; "in process (50 per cent)" add three points; "starting/about to start" add two points and; "no" add one point.

A set of guidelines and best practices will be available at the end of the evaluation section according to your score.

4.2.1. Public procurement

Governments fund and buy a very wide range of ICT products and services. The World Trade Organization estimates that on average, public procurement accounts for 10 to 15 per cent of a country's gross domestic product (GDP). Through public procurement, governments can promote policy objectives such as sustainable development and social considerations.

Table 6: Implementation capacity – ICT accessibility public procurement assessment

4. Implementation capacity Public procurement	Yes	About to be completed	In process (50%)	Starting/ about to start	No
4.1: Do laws and regulations regarding public procurement of ICTs include accessibility requirements?					
4.2: If the laws and regulations regarding public procurement of ICTs include accessibility requirements, are those requirements clearly defined in the following cases: • Software • Hardware • Digital kiosks • Websites • Video • Electronic documents (Please answer for each case)					

4.2.2. Training

Training is a keystone for digital inclusion. Professionals in all areas should understand what accessible ICTs are and how to guarantee digital inclusion from their field of influence.

Table 7: Implementation capacity – ICT accessibility training assessment

5. Implementation capacity Training	Yes	About to be completed	In process (50%)	Starting/ about to start	No
5.1: Is training available on digital accessibility for different stakeholders so that they can understand what ICT accessibility means?					
5.2: Is training available for professionals to learn how to create accessible electronic documents according to national standards?					
5.3: Is training available for professionals to learn how to design and develop accessible websites according to national or international standards?					
5.4: Is training available for professionals to learn how to develop accessible software according to national or international standards?					
5.5: Is training available for professionals to learn how to develop accessible hardware and digital kiosks according to national or international standards?					
5.6: Is training available for procurement personnel and vendors to understand ICT accessibility in bidding processes according to national or international standards?					
5.7: Is training available for end users to engage with the government/organization digital channels?					

4.2.3. Monitoring

Monitoring is an essential part of the implementation. Policies and regulations should include mechanisms to measure the progress of implementation in line with pre-established milestones.

Table 8: Implementation capacity – ICT accessibility monitoring assessment

6. Implementation capacity Monitoring	Yes	About to be completed	In process (50%)	Starting/ about to start	No
6.1: Is there a monitoring agency or regulatory committee to ensure ICT accessibility across all public sectors?					

Table 8: Implementation capacity – ICT accessibility monitoring assessment (continued)

6. Implementation capacity Monitoring	Yes	About to be completed	In process (50%)	Starting/ about to start	No
6.2: Is there a defined reporting process?					

4.2.4. E-government

E-government refers to the use of ICTs to provide public (government) services to people in a country. It offers new opportunities to relate and serve the people and must be accessible to all.

Table 9: E-Government

7. Implementation capacity E-government	Yes	About to be completed	In process (50%)	Starting/ about to start	No
7.1: Are statistics on persons with disabilities and vulnerable groups included in e-government data strategies?					
7.2: Is ICT accessibility included (defined and required) in the following e-government solutions? Please answer for each field: • Emergency communications • Basic education • Higher education • Health services • Financial services • Social benefits • Justice • Mobility • Political participation					
7.3: Is a budget assigned for the implementation of ICT accessibility within the government?					
7.4: Are persons with disabilities involved in e-government processes?					

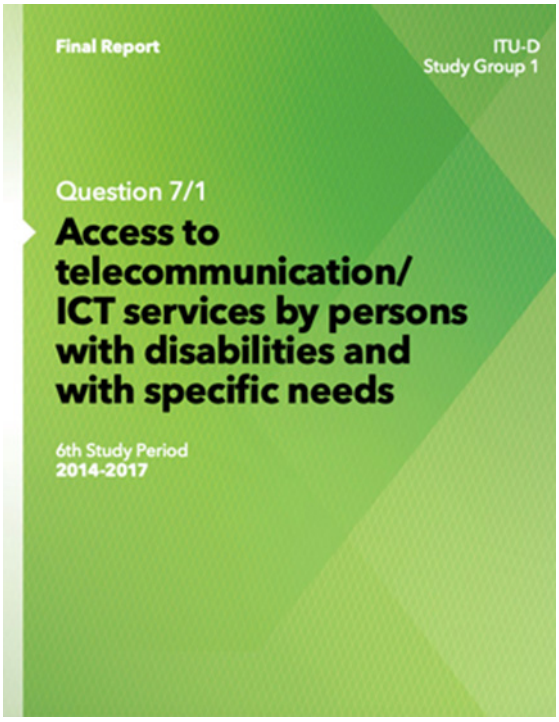
5. Guidelines and best practice

This section provides a roadmap that includes recommendations and best practices linked to the results of each category of the toolkit and self-assessment. ITU Member States have been

working together on the topic of ICT accessibility, particularly in ITU-D Study Group 1 through Question 7/1: Access to telecommunication/ICT services by persons with disabilities and with specific needs (2014-2017). For the study period 2018-2021, the title of this Question was changed to: "Access to telecommunication/ICT services by persons with disabilities and other persons with specific needs."

An important number of policies, regulatory measures, and strategies have been designed in ITU-D Study Group 1, generating a rich source of recommendations and best practices, many of which are presented in this self-assessment. ITU members are encouraged to continue participating in the work of ITU-D Study Group 1 to enrich these resources and to collaborate in achieving global digital inclusive communities.

Figure 15: Report to WTDC-17 on Question7/1: Access to telecommunication/ ICT services by persons with disabilities and with specific needs[17]



Source: ITU

[17] Review the report at the ITU website: https://www.itu.int/net4/ITU-D/CDS/sg/rgqlist.asp?lg=1&sp=2018&rgq=D18-SG01-RGQ07.1&stg=1

Commitment to ICT accessibility

5.1. Law and regulation best practice (1)

5.1.1. Laws and regulations including or mentioning ICT accessibility (1.1)

1.1: Do the laws and regulations in the following areas include or mention ICT accessibility?

- Non-discrimination (Art. 5)
- Accessibility e-government (access to digital information) (Art. 9.2 a)
- Media and Internet (Art. 9.1)
- Television (Art. 30.1 b)
- Private-sector services (Art. 9.2 b)
- Education (Art. 24)
- Employment (Art 27)
- Political rights (Articles 21 and 29)
- Emergency services (Art. 9.1 b)
- Culture and leisure (Art. 30.5)

(Please include all CRPD article responses in the overall score.)

Scores of 1 to 20

Government authorities are normally responsible for policy regarding the ICT sector. Nevertheless, in digital transformation, ICTs are present in every sector. It is important that the leading ministry or regulatory authority guides the effort to update laws and regulations to include ICT accessibility in every sector, with the participation of organizations of persons with disabilities.

Prior to the creation or revision of any legislation, it is important that the ministry or regulatory body has a clear understanding of the meaning of ICT accessibility and the implications of such policies. Technology is a global industry, hence the importance of harmonized definitions, requirements, and standards.

With an overall score of 10 to 20 points[18], the followings steps should be considered:

- **Revision of existing legislation.** This will ensure the inclusion of the right to ICT access. In this process it is important to recognize that technology is present in every sector of the economy. Revisions of existing legislation should look to the CRPD to guarantee access to ICTs for everyone.
- **Development and creation of new policies and legislation** to ensure accessibility to ICTs.
- **Consultations with organizations of persons with disabilities.** It is crucial that legislators include the participation of persons with disabilities, disability organizations, and other relevant stakeholders from the outset of all policy reviews, policy-making, and/or rule-making processes. This includes facilitating the participation and consultation of both specific ICT accessibility policies, and policies that impact ICT accessibility, such as tariff and licensing policies.

[18] For question 1.1, there are ten answers, with a minimum of 10 points (1 point for "no" for each answer) and a maximum of 50 points ("yes" for each answer).

- **Targeting and reporting.** New or revised laws and policies should establish, annual, measurable targets to be implemented by all relevant stakeholders, issue an annual public progress report, and take necessary enforcement actions when appropriate.
- **Periodic reviews.** Due to the fast-moving technological developments and market conditions, this policy should be reviewed at least every two years.
- **Awareness.** Promote advocacy and awareness of these laws and policies regarding the rights of persons with disabilities in the ICT sector (access to digital information, access to accessible ICTs, and so on).

Best practices recommend that the relevant ministry or regulatory body creates an accessibility committee. The main objective of this committee of experts would be to assist other ministries and regulatory bodies to revise and update their own regulatory frameworks. The committee would also promote user interests and ensure the involvement of organizations of persons with disabilities alongside other relevant stakeholders. These may include representatives of ICT service providers, ICT vendors, and assistive technology experts, including rehabilitation professionals, in the development of all policies, regulations, or industry codes from the onset. Such a committee may form sub-committees in specific technical areas such as technology and services.

Some of the committee mandates in line with the ministry and/or regulatory body involve:

- promoting the universal provision of ICT networks and services, and connectivity for all;
- promoting fair competition within the sector;
- protecting ICT consumers;
- encouraging investment and innovation;
- ensuring that users derive maximum benefits in terms of choice, price, and quality;
- promoting standardization to ensure interoperability and to guarantee that the means of access is predictable and similar across all platforms;
- promoting the use and international harmonization of standards.

It is best practice for ministries and regulatory bodies to follow a public consultation process before they promulgate any rules, regulations, or policies. Public consultation processes generally consist of the publication of an explanatory document for public comment, and the receipt of written and oral submissions at a public hearing. To ensure the participation of persons with disabilities, all documents utilized in these consultation processes must be published in accessible formats.

Scores of 21 to 40

Some regulations include ICT accessibility, but still need revising to ensure that the right to access to technology is included across all sectors. A systematic mechanism must be put in place to ensure the inclusion of ICT accessibility in pertinent legislation and policies. In cases where regulations need reviewing, the revision should be led by the relevant ICT ministry or regulatory body or by an accessibility committee of experts created by the ministry or regulatory body. The committee will also promote user interests and ensure the involvement of organizations of persons with disabilities alongside other relevant stakeholders and be part of the systematic mechanism put in place.

Every new adaptation or regulation should include:

- **Consultations with organizations of persons with disabilities.** It is crucial that legislation provides for the participation of persons with disabilities, disability organizations, and other relevant stakeholders from the outset of all policy reviews, policy-making, and/or rule-making processes. This includes facilitating the participation and consultation of both specific ICT accessibility policies and policies that impact ICT accessibility, such as tariff and licensing policies.
- **Targeting and reporting.** New or revised laws and policies should establish annual, measurable targets to be implemented by all relevant stakeholders, issue an annual public progress report on implementation, and take necessary enforcement actions when appropriate.
- **Periodic reviews.** Due to fast-moving technological developments and market conditions, policy reviews should be carried out at least every two years.

Scores of 41 to 50

In this case, the laws and regulations are aligned with the articles (highlighted in question 1.1) of the Convention on the Rights of Persons with Disabilities (CRPD). Nevertheless, due to fast-moving technological developments and market conditions, these policies should be reviewed at least every two years.

With the accelerating trends of digital transformation, it is imperative to work with organizations of persons with disabilities to explore the accessibility needs of new technologies, such as virtual reality and machine learning.

Best practice resources

Many countries in very different regions have developed and adopted disability laws and acts as instruments to abolish discrimination against persons with disabilities and eliminate barriers towards the full enjoyment of their rights and their inclusion in society. These laws and acts contribute to progress towards the implementation of the Convention on the rights of persons with disabilities[1] in national legislation and the vast majority include or mention ICT accessibility.

ITU-D digital accessibility resources

Figure 16: Model ICT Accessibility Policy Report

Source: ITU

The ITU-G3ict "Model ICT Accessibility Policy Report"[2] was developed to help all Member States to create an ICT national accessibility policy framework in consultation with persons with disabilities. The report includes six modules that focus on different aspects of the matter: amendments to the existing ICT legal framework, public ICT access, mobile communications, television/video programming and public procurement of accessible ICTs. The report is available in all six official languages of ITU.

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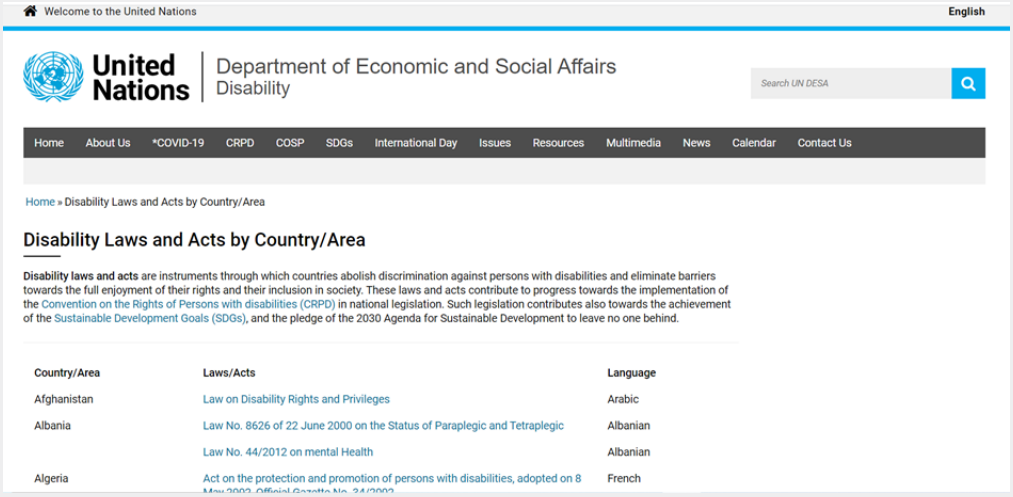
1 Text of the Convention on the Rights of Persons with Disabilities: https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities.html.

2 Model ICT Accessibility Policy: https://www.itu.int/en/ITU-D/Digital-Inclusion/Pages/Digital_Inclusion_Resources/Model_ICT_Accessibility_Policy.aspx.

The UN has published a website that lists disability laws and acts by country.[1] All Member States are encouraged to review the information and are asked to inform the ITU-D Rapporteur Group for Question 7/1: Access to telecommunications/ICT services by persons with disabilities and with specific needs, in case any law or regulation should be added to this compilation.

Figure 17: UN Disability Laws and Acts by Country/Area



Source: ITU

[1] List of disability laws and acts by country: https://www.un.org/development/desa/disabilities/disability-laws-and-acts-by-country-area.html.

5.1.2. Laws and regulations defining accessibility (1.2)

1.2: Do laws and regulations in the following areas define accessible ICTs?

- Non-discrimination (Art. 5)
- Accessibility e-government (access to digital information) (Art. 9.2 a)
- Media and Internet (Art. 9.1)
- Television (Art. 30.1 b)
- Private-sector services (Art. 9.2 b)
- Education (Art. 24)
- Employment (Art. 27)
- Political rights (Articles 21 and 29)
- Emergency services (Art. 9.1 b)
- Culture and leisure (Art. 30.5)

(Please include all CRPD article responses in the overall score.)

Scores of 1 to 20

It is not only fundamental to recognize the right to ICT accessibility, but also to define accessible ICTs. A lack of clear definitions often results in problems for law and policy implementation.

Government officials, device manufacturers, ICT and telecommunication services, product providers, end users (persons with disabilities), and human rights advocates, among others, need to understand what is considered accessible ICT according to their rights.

Moreover, ICTs and telecommunications are part of a global market. It is important that the selected definitions are adjusted to international standards or best practices to ensure the mainstreaming of accessible ICTs and the development of economies of scale.

Section 7 provides definitions and key principles related to ICT accessibility that are based on international standards and best practices. These can be included in national laws and regulations.

It is important to work with industry, manufacturers, and persons with disabilities so that both the public and private sectors have the same understanding of what makes ICT accessible.

Digital inclusion guarantees that all citizens have access to public information and communication as well as public services (health, government, emergency, education, and so on). But also, it reduces inequalities and increases economic growth.

From an industry point of view, developing accessible products and services incentivizes manufacturers and suppliers to innovate and produce better products especially by making ICT more user-friendly.

Scores of 21 to 40

ICTs and telecommunications make up part of a global market. It is important that the definitions included in national laws and regulations be adjusted to international standards or best practices to ensure that ICT accessibility can be mainstreamed, and economies of scale developed.

A revision of existing laws and regulations is recommended to ensure straightforward definitions of key principles related to ICT accessibility.

Section 7 provides definitions and key principles regarding ICT accessibility that are based on international standards and best practices. This information can be used in the development and/or revision of national laws and regulations.

It is important to raise awareness among all national key stakeholders (government, broadcasters, industry, private sector, academia, NGOs, and so on) about the need to promote ICT accessibility and to mainstream inclusion through adequate language, definitions, and provisions in national policies, laws and regulations.

Scores of 40 to 50

ICTs and telecommunications make up part of a global market. It is important that the definitions included in national laws and regulations adjust to international standards or best practices to ensure that ICT accessibility can be mainstreamed, and economies of scale developed.

Section 7 provides definitions and key principles regarding ICT accessibility that are based on international standards and best practices. This information can be used in the development and/or revision of national laws and regulations.

Revised definitions as well as the implications of ICT accessibility should be reviewed periodically, taking into consideration new trends and innovations in this sector.

Best practice resources

ITU-D digital accessibility resources

The ITU-D self-paced online course entitled "ICT Accessibility: The key to inclusive communication"[1] aims to develop a good understanding of ICT accessibility among all relevant stakeholders, in particular focusing on related policies, regulations, technology trends and public procurement rules.

Figure 18: ICT Accessibility: The key to inclusive communication*

* https://www.itu.int/en/ITU-D/Digital-Inclusion/Persons-with-Disabilities/Pages/Self-Paced-Online-Training-on-ICT-Accessibility.aspx
Source: ITU

The ITU Artificial Intelligence and Information Communication Technology Accessibility[2] background paper introduces how artificial intelligence (AI) has the potential to support and enhance the accessibility of information and communication technologies (ICTs).

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1 ITU Online training: https://www.itu.int/en/ITU-D/Digital-Inclusion/Persons-with-Disabilities/Pages/Self-Paced-Online-Training-on-ICT-Accessibility.aspx.

2 Artificial Intelligence and Information Communication Technology Accessibility: https://www.itu.int/en/ITU-D/Digital-Inclusion/Documents/AI%20and%20ICT%20Accessibility_webEA3_Final.pdf.

Following its mission, ITU has also published a compilation of Accessibility Terms and Definitions[1] to be used for improving the drafting of standards, and to facilitate the mainstreaming of accessibility in standards that will include persons with disabilities, older persons with age-related disabilities and persons with specific needs. These definitions were revised and include feedback from organizations of persons with disabilities, persons with disabilities and other stakeholders.

Two of the most important and detailed standards in terms of definitions of ICT accessibility are the European EN 301 549 and the American Section 508.

EN 301 549[2] was originally developed to assist with the public procurement of ICT products and services in Europe. It contains three main aspects:

1. A high level, and reasonable understandable description of accessibility features and functions required by people with certain functional limitations or disabilities.
2. A set of detailed accessibility requirements for each of these features and functions.
3. A series of tests to demonstrate that the requirements are met.

In 1998, the United States Congress amended the Rehabilitation Act of 1973 to require Federal agencies to make their electronic and information technology (EIT) accessible to people with disabilities. Under Section 508[3], agencies must give employees with disabilities and members of the public, access to information comparable to the access available to others. The U.S. Access Board[4] was responsible for developing ICT accessibility standards to incorporate into regulations that govern federal procurement practices, including Section 508.

It is important to mention that these two standards are harmonized and updated in response to market trends and innovations in technology. Any ICT product or service conforming with one standard, will also conform with the other.

They also include the World Wide Web Consortium (W3C) Web Content Accessibility Guidelines (WCAG 2.0)[5], a globally recognized voluntary consensus standard for web content and ICT.

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1 Accessibility terms and definitions: https://www.itu.int/rec/T-REC-F.791-201808-I/en.
2 EN 301 549: https://www.etsi.org/deliver/etsi_en/301500_301599/301549/02.01.02_60/en_301549v020102p.pdf.
3 Section 508 : https://www.section508.gov/manage/laws-and-policies.
4 US Access Board: https://www.access-board.gov/.
5 Web Content Accessibility Guidelines: https://www.w3.org/WAI/standards-guidelines/wcag/.

5.1.3. Laws and regulations in accessible format (1.3)

1.3: Do the laws and regulations ensure that government electronic communications are delivered in accessible formats?

Scores of 1 or 2

Governments across the world inform their citizens and others through digital platforms. These channels have broad reach and include television, radio, SMS, transit advertising, direct mail, and websites. These electronic communications should be delivered in an accessible format(s) for everyone in society.

Laws and regulations must be developed in order to guarantee that it is clear: all government electronic communications (photos, video, audio, social network content, infographics, charts, text documents, presentations, spreadsheets) are to be accessible to the entire population.

Clear definitions of accessible communications need to be included (and developed if they do not already exist). If government communications are to be delivered in an electronic or print version or via video or radio platforms, it is important to understand the different accessibility requirements for each scenario.

The Web Content Accessibility Guidelines, developed by the World Wide Web Consortium, include different success criteria to ensure accessible electronic communications. Also, most used software employed to create electronic communications have embedded the necessary functionalities to ensure the creation of accessible communications.

Persons with disabilities organizations should also be consulted during the development of and/or reforms to relevant laws and regulations.

Scores of 3 or 4

The right of access to information is recognized in some laws and regulations.

Further revision of existing laws and regulations is needed to ensure the presence of clear definitions regarding accessible communications. If these communications are to be delivered in an electronic format, what are the accessibility requirements when considering the assistive technologies or accessibility functionalities that will be used to consult the information. If government communications are to be delivered in print version or via video or radio platforms, it is equally important to understand the accessibility requirements for each scenario.

The Web Content Accessibility Guidelines, developed by the World Wide Web Consortium, include different success criteria to ensure accessible electronic communications. Also, most used software employed to create electronic communications have embedded the necessary functionalities to ensure the creation of accessible communications.

Persons with disabilities and persons with disabilities organizations need to be involved in this process. Assuring their needs and receiving their feedback will strengthen the final results.

Score of 5

Revision of the existing definitions of accessible communications in laws and regulations is recommended to ensure that they are aligned with international standards. These standards consider the assistive technologies or accessibility functionalities that persons with disabilities use to consult the information in electronic formats, printed versions, or in multimedia formats.

The Web Content Accessibility Guidelines, developed by the World Wide Web Consortium, include different success criteria to ensure accessible electronic communications. Also, most used software employed to create electronic communications have embedded the necessary functionalities to ensure the creation of accessible communications.

With the accelerated trends of the digital transformation, it is imperative to work with organizations of persons with disabilities to explore their accessibility needs of new communication formats.

Best practice resources

Canada: The Policy on Communications and Federal Identity[1] took effect in Canada in May 2016. The document refers to how communications are central to the Canadian Government. The public sector is responsible for communicating with its citizens to help protect their interests and well-being, and to promote Canada as a prosperous, diverse, and welcoming country. Communications requirements must comply with various elements. For more information, refer to the Standard on Web Accessibility[2], which is harmonized with WCAG 2.0.

Hong Kong (SAR of China): In March 2012, the Government of Hong Kong (SAR of China) published the Guidelines on Dissemination of Information through Government Websites[3]. This document states that the Government is committed to using information and communication technology in circulating information and delivering public services, taking advantage of the Internet ability to host a massive repository of dynamic information which can be made available to anyone, anywhere, at any time. Ensuring content accessibility is a guideline requirement. Besides providing practical examples of accessibility, the document refers to WCAG 2.0 as the standard to comply with, as well as the Technical Notes on Website Development and Maintenance[4], a more detailed technical document last updated in January 2021.

Japan: Japan's 2016 Disability Discrimination Act[5] came into force in April 2016. The policy refers to "information accessibility" and the term includes web content. The basic policy of the law strongly encourages organizations to make their information (including web content) accessible.

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1 For more information on Canadian policy visit: https://www.ontario.ca/laws/statute/05a11.
2 For more information on Canadian standards visit: https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=23601.
3 For more information on the policy of Hong Kong (SAR of China) visit: https://www.ogcio.gov.hk/en/our_work/community/web_accessibility/doc/disseminationguidelines.pdf
4 For more information on the policy of Hong Kong (SAR of China) visit: https://www.ogcio.gov.hk/en/our_work/community/web_accessibility/doc/technical_notes.pdf.
5 For more information on Japan´s policy visit: https://www.japantimes.co.jp/news/2016/05/02/reference/new-law-bans-bias-against-people-with-disabilities-but-shortcomings-exist-say-experts/#.Xb8Dz5JKg0o.

Russian Federation: Federal law 181-FZ "On social protection of persons with disabilities in the Russian Federation" represents the main legislation which provides an accessible environment, information and, equal access to ICTs for persons with disabilities. The following conditions were supplemented after the Russian Federation ratified the UN CRPD:

- facilities with inscriptions, text and other graphic information in large print, Braille including;
- people with disabilities with all the required information on communication services through all means available to them, guaranteed by the communication service provider;
- necessary information for people with disabilities in audio and visual communication facilities without charging an additional fee information;
- assistance for people with disabilities to use terminal equipment by the communication service provider;
- possibility that people with disabilities perform emergency calls by sending short messages via mobile radio system, as guaranteed by the communication service provider;
- access to people with disabilities to universal services;
- access official websites of federal government agencies, state authorities of subjects of the Russian Federation and local governments for visually impaired people;
- support for educational activity using e-learning technologies and distance learning;
- transition infrastructure and library files, museum, cinema, video and digital to guarantee free access to these funds audio;
- subtitling and audio of films produced with government support;
- availability of information in special libraries in accessible formats and in a variety of hardware for visually impaired people;
- establishing distance education centres for children with disabilities;
- providing to children with disabilities computers and software, telecommunications and special education;
- Internet access for all participants in the educational process;
- accessibility requirements to electronic resources in Russian language Internet for visually impaired (general requirements and requirements of the components of Internet resources).

5.1.4. Laws and regulations for accessible electronic communications (1.4)

1.4: Do laws and regulations ensure accessible government websites and mobile applications?

Scores of 1 or 2

More and more governments are using websites and applications to deliver information and services to citizens. To comply with ICT access by persons with disabilities, government websites and mobile applications need to be user-friendly for all users.

The goal of any web accessibility policy is to remove barriers that persons with disabilities face when using websites. For example, people who are blind or have impaired vision require websites that are compatible with screen readers that can read text aloud; provide text

alternatives for images which describe the content; allow for the resizing of text, images, and page layouts, and provide alternative web navigation aids. People who are deaf or hard-of-hearing will require captions for any spoken content, including videos, media players, and web applications (apps). People with mobility disabilities may require additional time to complete tasks on a website by using streamlined and keyboard-only compatible navigation mechanisms and page functions that permit the utilization of alternative input devices.

Web policies can be implemented by one coordinating governmental body, such as a Ministry of Communication and Information Technology, as part of its e-governance measures.

Alternatively, sector-specific ministries may adopt web accessibility policies for all websites under their responsibility. For example, a Ministry of Education may implement web accessibility policies for national universities, and Ministries of Finance may do the same for all customs and tax-related websites. Further, countries may decide to adopt standalone web accessibility policies or incorporate such policies into general government website guidelines.

The international standard regarding web accessibility is the Web Content Accessibility Guidelines (WCAG) and its equivalent ISO/IEC 40500:2012[19]. From a practical standpoint, while the ISO reference is essential to align international and national standards, referencing the last version of WCAG will allow government agencies to integrate the latest developments occurring in the field of web accessibility in an ever-changing technological environment. It is important to note that WCAG standards are backwards compatible. Content conforming with the last version of the standard will also conform with earlier versions. Even if WCAG do not deprecate or supersede earlier versions, international best practices encourage using the most recent version of WCAG when developing, updating content or accessibility policies[20]. When referring to the WCAG, best practice for government websites is a level of compliance "AA" of the standard.

A "Level A" refers to the minimum level of conformance that a website must satisfy in terms of the WCAG guidelines. "Level AA" refers to the intermediate level of conformance that a website must satisfy by meeting all Level A and Level AA success criteria in the WCAG guidelines. "Level AAA" refers to the highest level of conformance that a website may satisfy by meeting all Level A, Level AA and Level AAA success criteria described in the WCAG guidelines.

Specifically, what to do and/or consider:

- create a policy of web accessibility including definitions and clearly defining the standard used, the Web Content Accessibility Guidelines and the level of compliance expected from the government;
- clearly include the stakeholders' obligations;
- clearly include a time-frame for implementation;
- clearly include reporting requirements;
- communicate to all parties;
- procurement policies for purchasing websites should ensure the compliance of the accessibility standard;
- training should be provided to web developers on web accessibility;
- training should be provided to electronic document creators so that online published content complies with the accessibility requirements.

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19 ISO/IEC 40500:2012 https://www.iso.org/standard/58625.html

20 More information on WCAG versions: https://www.w3.org/WAI/standards-guidelines/wcag.

In relation to mobile applications, no international standard for accessibility has been approved to date. Nevertheless, it is important to mention that the Web Content Accessibility Guidelines (WCAG) and its principles, guidelines, and success criteria can be applied to mobile web content, mobile web apps, native apps, and hybrid apps that use web components inside native apps. It provides informative guidance but does not lay out specific requirements. It is also fundamental to work with organizations of persons with disabilities and ensure that these applications are compatible with the accessibility functionalities available in mainstream devices such as smartphones and tablets.

Private entities offering website services, applications and content to the public should be encouraged to at least consider on a voluntary basis all aspects of accessibility for persons with disabilities. To achieve a role model stage, it is recommended to create an obligation for private sector websites and mobile apps to be accessible, to protect the rights of persons with disabilities.

Scores of 3 or 4

A revision of the laws and regulations regarding government web accessibility should reference international standards for web accessibility.

The international standard regarding web accessibility is the Web Content Accessibility Guidelines (WCAG) and its equivalent ISO/IEC 40500:2012. From a practical standpoint, while the ISO reference is essential to align international and national standards, referencing the last version of WCAG will allow government agencies to integrate the latest developments occurring in the field of web accessibility in an ever-changing technological environment. It is important to note that WCAG standards are backwards compatible. Content conforming with the last version of the standard will also conform with earlier versions. Even if WCAG do not deprecate or supersede earlier versions, international best practices encourage using the most recent version of WCAG when developing, updating content or accessibility policies[21]. When referring to the WCAG, best practice for government websites is a level of compliance "AA" of the standard.

A "Level A" refers to the minimum level of conformance that a website must satisfy in terms of the WCAG guidelines. "Level AA" refers to the intermediate level of conformance that a website must satisfy by meeting all Level A and Level AA success criteria in the WCAG guidelines. "Level AAA" refers to the highest level of conformance that a website may satisfy by meeting all Level A, Level AA and Level AAA success criteria described in the WCAG guidelines.

In relation to mobile applications, no international standard for accessibility has been approved to date. Nevertheless, it is important to mention that the Web Content Accessibility Guidelines (WCAG) 2.1 and its principles, guidelines, and success criteria can be applied to mobile web content, mobile web apps, native apps, and hybrid apps that use web components inside native apps. It provides informative guidance but does not lay out specific requirements. It is also fundamental to work with organizations of persons with disabilities and ensure that these applications are compatible with the accessibility functionalities available in mainstream devices such as smartphones and tablets.

[21] More information on WCAG versions: https://www.w3.org/WAI/standards-guidelines/wcag.

It is also recommended to create an obligation for private sector websites and mobile apps to be accessible, to protect the rights of persons with disabilities.

Score of 5

A revision of the laws and regulations regarding government web accessibility should reference international standards for web accessibility.

The international standard regarding web accessibility is the Web Content Accessibility Guidelines (WCAG) and its equivalent ISO/IEC 40500:2012. From a practical standpoint, while the ISO reference is essential to align international and national standards, referencing the last version of WCAG will allow government agencies to integrate the latest developments occurring in the field of web accessibility in an ever-changing technological environment. It is important to note that WCAG standards are backwards compatible. Content conforming with the last version of the standard will also conform with earlier versions. Even if WCAG do not deprecate or supersede earlier versions, international best practices encourage using the most recent version of WCAG when developing, updating content or accessibility policies[22].

It is also recommended to create the obligation for private sector websites and mobile apps to be accessible, to protect the rights of persons with disabilities.

Best practice resources

India: In 2009, the India Government published the first edition of the Guidelines for Indian Government Websites[1], which were last updated in September 2019. One of the major focus areas of the Guidelines is web accessibility, which is defined as: 1) Addressing the needs of persons with disabilities, and 2) Ensuring that the sites are accessible with equal ease to all users on all of the major browsers and across all platforms and bandwidths (i.e. universally accessible). The Guidelines are very detailed concerning their content and comply with the WCAG 2.0 level "AA".

Ontario, Canada: Known for one of the most progressive Civil Rights Laws in the world, the Accessibility for Ontarians with Disabilities Act[2] was enacted in 2005 and amended in 2016. Its mission is to create a barrier-free society by 2025. It requires public sector organizations, large private sector companies, and non-profit organizations with more than 50 employees to make their websites accessible to people with disabilities using the WCAG 2.0 Level "AA" by 2021.

Europe: European Accessibility Act[3]: On March 13, 2019, the European Parliament adopted the European Accessibility Act. The Directive aims to improve the functionality of the internal market for accessible products and services by removing barriers created by divergent rules in different Member States of the European Union.

Businesses will benefit from:

- common rules on accessibility in the EU, leading to reductions in costs;
- easier cross-border trading;
- more market opportunities for their accessible products and services.

1 For more information on India´s policy visit: https://guidelines.india.gov.in/ .
2 For more information on Ontario´s policy visit: https://www.audioeye.com/blog/canadas-journey-to-website-accessibility/.
3 European Accessibility Act: https://ec.europa.eu/social/main.jsp?catId=1202.

22 More information on WCAG versions: https://www.w3.org/WAI/standards-guidelines/wcag.

Persons with disabilities and older persons will benefit from:

- more accessible products and services in the market;
- accessible products and services at more competitive prices;
- fewer barriers when accessing transport, education, and the open labour market;
- more jobs available in which accessibility expertise is needed.

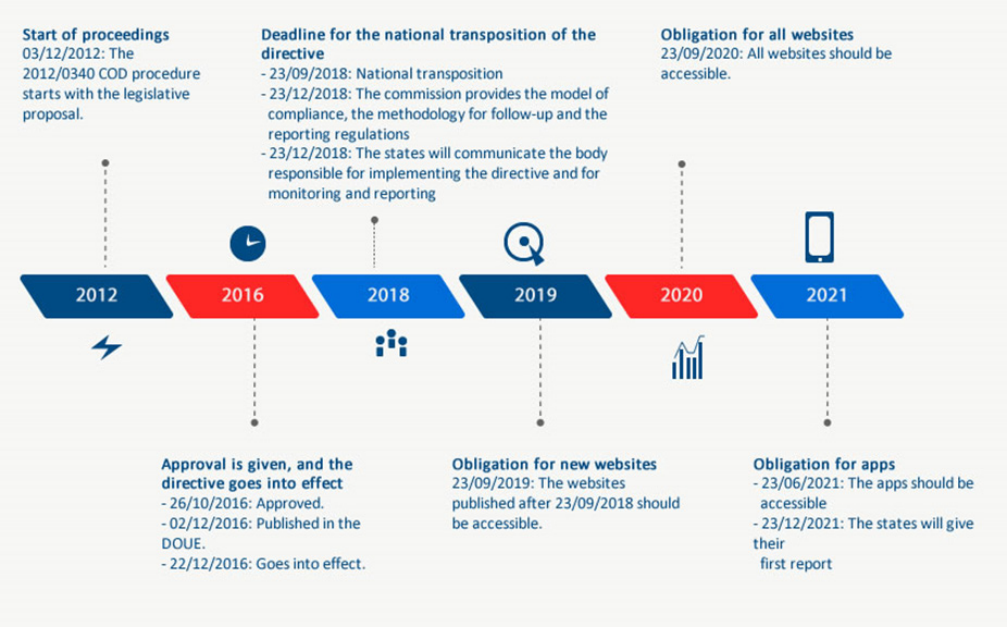
Products and services covered: The European Accessibility Act covers products and services that have been identified as those that are the most important for persons with disabilities, while also being most likely to have diverse accessibility requirements across EU countries.

The Commission consulted stakeholders and accessibility experts and took into account the obligations derived from the UN Convention on the Rights of Persons with Disabilities[1]. These products and services include:

- computers and operating systems;
- ATMs, ticketing, and check-in machines;
- smartphones;
- TV equipment related to digital television services;
- telephone services and related equipment;
- access to audio-visual media services, such as television broadcasting and related consumer equipment;
- services related to air, bus, rail, and waterborne passenger transport;
- banking services;
- e-books;
- e-commerce.

For Europe region countries, please be aware of the timeline in Figure 19.

Figure 19: Timeline



[1] UN CRPD: http://ec.europa.eu/social/main.jsp?catId=1138&langId=en.

5.1.5. Laws and regulations for websites and mobile applications (1.5)

1.5: Are organizations of persons with disabilities participating in the process of creating laws, policies, and regulations about digital inclusion?

Every score

"Nothing about us without us" (Latin: "Nihil de nobis, sine nobis") is a slogan used to communicate the idea that no policy should be decided by any representative without the full and direct participation of members of the group(s) affected by that policy. This involves national, ethnic, disability-based, or other groups that are often thought to be marginalized from political, social, and economic opportunities.

5.2. Political buy-in best practice (2)

2: Are periodic events regarding ICT accessibility being held as a strategy for awareness and the creation of capabilities?

Periodical events regarding ICT accessibility are being held as an awareness and creation of capabilities strategy.

Scores of 1 or 2

Accessibility to physical space in public offices and multinational enterprises has vastly advanced at the international level. Nevertheless, nine out of ten Internet sites are still not accessible. There are no ramps to the digital space. The main reason for this digital gap is the very poor knowledge about what ICT accessibility means. As a result, governments are not buying accessible sites, developers and content creators do not know that web accessibility standards exist, and manufacturers and operators are not innovating to create accessible products and services.

National and/or regional events are important to raise the visibility of ICT accessibility and to share best practices. These events should offer presentations on accessibility to information and communication technologies to relevant actors including ministers of ICT, education, health, and so on; telecommunication operators; university deans; civil society organizations; representatives of persons with disabilities, and industry members.

These regional events are also an opportunity for workshops and training.

Scores of 3 or 4

National and/or regional events are important to raise the visibility of ICT accessibility and to share best practices. These events should offer presentations on accessibility to information and communication technologies to relevant actors including ministers of ICT, education, health, and so on; telecommunication operators; university deans; civil society organizations; representatives of persons with disabilities, and industry members.

These events are an opportunity for end users to discuss their needs as well as for industry members to present new ICT trends in products and services.

Scores of 5

Best practices and experiences in national or regional events should be collected and shared with all stakeholders to achieve digitally inclusive communities.

Countries that are more advanced in ICT accessibility should lead their regions and support other countries in the implementation of their digitally inclusive strategy. By leading by example, global commitments such as the SDGs will be easier to achieve.

Best practice resources

Regional / national

Access Israel[1]: Access Israel, established in 1999, is the first non-profit organization in Israel whose main mission is to promote accessibility and inclusion to improve the quality of life of persons with disabilities and older persons. Access Israel strives to make a place where people with various disabilities are integrated into society with dignity, respect, equal rights, and maximum independence.

M-enabling[2]: Bringing together professionals, corporations, service organizations, and key thought leaders, the M-Enabling Summit is an all-inclusive conference and showcase featuring innovative technology, benefiting more than one billion users worldwide.

Accessible Americas[3]: Accessible Americas is the main ITU regional event focused on digital inclusion and ICT accessibility, which plays a role of vital importance in the empowerment of persons with disabilities, women and girls, youth, older persons, indigenous people, migrants, and other individuals with specific needs. The purpose is to present best practices in digital inclusion that will encourage stakeholders to join efforts in seeking solutions to eliminate barriers of access to ICT, enabling human development and promoting accessibility policies that will improve the quality of life of all individuals without discrimination. To date, there have been seven editions of the conference.

Accessible Europe[4]: This regional initiative aims at bridging the digital divide and equipping all groups of society, including persons with disabilities and other groups of people with specific needs, to take advantage of ICT, by focusing on capacity-building in digital skills. To date, there have been two editions of the event.

Bosnia and Herzegovina: Bosnia and Herzegovina implemented activities by the regulatory authority to ensure the implementation of accessible ICTs through a multi-stakeholder engagement. Furthermore, in support to the development of the legal and regulatory framework, the ITU Joint Coordination Activity on Accessibility and Human Factors devoted a session to discuss challenges and opportunities in ensuring accessible ICTs in the countries of the Western Balkans (Bosnia and Herzegovina, Republic of Serbia, Montenegro, North Macedonia).

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1 Access Israel: https://www.aisrael.org/eng.
2 M-enabling: https://m-enabling.com/.
3 Accessible Americas ICT for All 2014 (Brazil), Accessible Americas ICT for All 2015 (Colombia), Accessible Americas ICT for All 2016 (Mexico), Accessible Americas ICT for All 2017 (Costa Rica), Accessible Americas ICT for All 2018 (Jamaica), Accessible Americas ICT for All 2019 (Ecuador).
4 Accessible Europe ICT for All 2018 (Austria), Accessible Europe ICT for All 2019 (Malta).

5.3. Development and inclusion of standards as references best practice (3)

5.3.1. Standards defining ICT accessibility (3.1)

3.1: Do laws and regulations in your country refer to a national or international standard when defining ICT accessibility?

Scores of 1 or 2

ICT and telecommunications are a global market. Most ICT accessibility standards are harmonized. This means that an ICT product or service conforming with one standard will also likely conform with the other.

Significant economies of scale can be achieved by both industry and governments through the development and procurement of ICTs that follow common standards.

Fragmentation normally occurs when the use of locally developed standards is prioritized over adopting or contributing to the development of international standards. The systematic adoption and use of commonly accepted and utilized technical standards for procurement of accessible ICTs is critical to success for several reasons.

There is a growing global trend towards the acceptance and adoption of the same core set of accessible ICT standards by countries worldwide. Within these standards one can find:

- a high level and reasonably understandable description of accessibility features and functions required by people with certain functional limitations or disabilities;
- a set of detailed accessibility requirements for each of these features and functions;
- a series of tests to ensure and demonstrate that the requirements are met.

The standards also provide government officials and industry representatives with information on generic requirements of ICT accessibility, ICT with two-way voice communication, ICT with video capabilities, hardware, software, web, non-web documents, documentation and support services, and ICT that provides relay or emergency service access.

It is essential to continuously revise international standards and develop a national standard in harmony with them.

Scores of 3 or 4

Be sure to revise and update current national standards and harmonize them with international standards.

Industry members as well as organizations of persons with disabilities should contribute to the revision or creation of these standards.

Scores of 5

Revise and update current national standards and harmonize them with international standards.

Work with industry members to develop new standards that ensure accessibility of new ICTs.

Industry members as well as organizations of persons with disabilities should contribute to the revision or creation of these standards.

New trends in technology should be considered and added to current standards. Virtual reality and machine learning, among other emerging technologies, should be accessible. Industry members should be encouraged to work with end users to define new functional statements for these technologies.

Best practice resources

ITU-D resources on accessibility standards

ITU-D "Standards in the procurement of accessible ICT products and services"[1], prepared in the context of two European Regional Initiatives approved by WTDC- 17 aims at bridging the digital divide and equip all groups of society, including persons with disabilities and specific needs, to take advantage of ICT.

ITU-D "Toolkit and Global Standard for safe listening devices and systems"[2], provides practical guidance to support Member States, industry partners and civil society groups in the use and implementation of the WHO-ITU H.870 global standard on safe listening devices and systems.

Japan: The Japanese Industrial Standards JIS X 8341-3:2016[3] are identical to ISO/IEC 40500:2012 (Web Content Accessibility Guidelines 2.0) and have exactly the same success criteria as WCAG 2.0. The WAIC (Web Accessibility Infrastructure Committee in Japan) oversaw the update of JIS X 8341-3. JIS standards can be updated every five years and JIS X 8341-3 is scheduled for update in 2021. The Japanese Ministry of Internal Affairs and Communications encouraged public sectors websites to conform to Level AA of JIS X 8341-3:2016 by the end of March 2018. Public sectors include ministries, local governments, and independent administrative agencies.

China: With regard to the rules on accessibility of ICT, the Ministry of Industry and Information Technology (MIIT, the former Ministry of Information Industry) of the People's Republic of China scheduled work accessibility of information on their plan "sunny green project" and launched research tasks to develop a related standard. Thereafter, MIIT has issued a series of standards on access to information technology, facilities, services, products, among others, of the telecommunications network and the Internet. The standard "Technical requirements for web accessibility" (YD/T 1761-2012) issued by MIIT in 2012 is the main technical basis for the development of accessible websites in China. The next standard "Technical requirements for accessible mobile communications terminals" will become the main technical basis for developing mobile communication terminals accessible to native enterprises in China.

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1 Standards on procurement: https://www.itu.int/en/ITU-D/Digital-Inclusion/Documents/ICT%20Accessibility%20standards%20procurement%20FINAL.pdf.

2 More information on safe listening: https://www.itu.int/en/ITU-D/Digital-Inclusion/Documents/Toolkit_for_safe_listening_devices_and_systems.pdf.

3 More information on Japanese standards: https://waic.jp/docs/jis2016/understanding/201604/.

Republic of Korea: The Act on Welfare of Persons with Disabilities[1] applies to web-based and non-web assets and services within the Republic's private and public sector work-places. The Act uses the WCAG Version 2.0 to determine conformance with an acceptable level of accessibility. The Republic of Korea also makes use of its own standard, the Korean Web Content Accessibility Guidelines Version 2.1. Inspired by the W3C, these guidelines not only align well with Level A of the WCAG 2.0 but also contain additional technical specifications that lay out how web developers can make websites more accessible to citizens with disabilities. Finally, these Accessibility Guidelines include 12 domestic criteria alongside the WCAG 2.0, thus ensuring the relevant web content is fully accessible. With this approach alone, the Republic of Korea helps ensure that any web-related initiative proposed by the Act falls in line with the minimum level of WCAG conformance. Simply drafting and passing an Act like this might have been sufficient for some policy-makers, but by devising its own Accessibility Guidelines, the Korean Government gave the Ministry of Health and Welfare and all applicable organizations a clear and charted path to implementation and success.

[1] More information on Republic of Korea: https://dynomapper.com/blog/27-accessibility-testing/532-international-web-accessibility-laws-and-policies#Republic-of-Korea-1.

5.3.2. Standards defining web accessibility (3.2)

3.2: Do laws and regulations in your country refer to national or international standards when defining web accessibility, including software?

Scores of 1 or 2

The international standard regarding web accessibility is the Web Content Accessibility Guidelines (WCAG) and its equivalent ISO/IEC 40500:2012. From a practical standpoint, while the ISO reference is essential to align international and national standards, referencing the last version of WCAG will allow government agencies to integrate the latest developments occurring in the field of web accessibility in an ever-changing technological environment. It is important to note that WCAG standards are backwards compatible. Content conforming with the last version of the standard will also conform with earlier versions. Even if WCAG do not deprecate or supersede earlier versions, international best practices encourage using the most recent version of WCAG when developing, updating content or accessibility policies[23]. When referring to the WCAG, best practice for government websites is an AA level of compliance.

"Level A" refers to the minimum level of conformance that a website must satisfy in terms of the WCAG guidelines. "Level AA" refers to the intermediate level of conformance that a website must satisfy by meeting all Level A and Level AA success criteria in the WCAG guidelines. "Level AAA" refers to the highest level of conformance that a website may satisfy by meeting all Level A, Level AA and Level AAA success criteria described in the WCAG guidelines.

In relation to mobile applications, no international standard for accessibility has been approved to date. Nevertheless, it is important to mention that the Web Content Accessibility Guidelines (WCAG) and its principles and success criteria can be applied to mobile web content, mobile

[23] More information on WCAG versions: https://www.w3.org/WAI/standards-guidelines/wcag.

web apps, native apps, and hybrid apps that use web components inside native apps. It provides informative guidance but does not lay out specific requirements. It is also fundamental to work with organizations of persons with disabilities and ensure that these applications are compatible with the accessibility functionalities available in mainstream devices such as smartphones and tablets.

It is also recommended to create an obligation for private sector websites and mobile apps to be accessible, to protect the rights of persons with disabilities.

Scores of 3 or 4

Revision and update of the standard to include the latest version of the Web Content Accessibility Guidelines (WCAG).

Scores of 5

Revision and update of the standard to include the latest version of the Web Content Accessibility Guidelines (WCAG).

Best practice resources

Ireland: The Republic of Ireland established the act to assess needs, services, and employment opportunities for people with disabilities. Under the Act, the National Disability Authority was established, as well as The Centre for Excellence in Universal Design[1]. The National Disability Authority (NDA)[2] is an independent statutory board that advises the government and private sector in matters of disability policies and procedures while promoting Universal Design. For websites to be compliant, they must not contain barriers for people with disabilities. The NDA requires websites to conform by using the Web Content Accessibility Guidelines (WCAG) 2.0 Level AA.

Australia: The Australia Disability Discrimination Act[3] (DDA) of 1992 requires all online information and services to be accessible. According to the Human Rights and Equal Opportunity Commission (HREOC), the body charged with ensuring the accessibility of website content under the DDA, this includes pages developed or maintained for purposes relating to employment; education; provision of services including professional services, banking, insurance or financial services, entertainment or recreation, telecommunication services, public transport services, or government services; sale or rental of real estate, sport; activities of voluntary associations; or administration of Commonwealth laws or programmes.

Republic of Korea: Since 2014, the Republic of Korea has been implementing its Web Accessibility (WA) Quality Certification system. Based on Article 32, paragraph 2, of the National Information Act, the WA Quality Certification system grants quality certification to those websites which have obtained a certain level of accessibility of their information and telecommunication services to promote access to, and user convenience of, those services by persons with disabilities and other persons with specific needs. Technical evaluation, the core of WA Quality Certification, is carried out based on KWCAG 2.1 (Korean Web Content Accessibility Guidelines 2.1), which is the national Web accessibility standard. Detailed criteria refer to the Standard Evaluation Guidelines established by the Ministry of Science and ICT as the minimum standard and the evaluation consists of expert usability testing.

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1 The Centre for Excellence in Universal Design: http://www.irishstatutebook.ie/eli/2005/act/14/section/52/enacted/en/html#sec52.

2 For more information on the Irish law: http://www.irishstatutebook.ie/eli/1999/act/14/enacted/en/html.

3 For more information on the Australian law: https://www.legislation.gov.au/Details/C2018C00125.

Russian Federation: In the Russian Federation, accessibility requirements are defined in the National Standard "Internet resources. Accessibility requirements for the visually impaired" (GOST R 52872-2012). The National Standard covers Russian-language electronic Internet resources and sets out general requirements to ensure access by persons with vision impairments. It takes into account the Web Content Accessibility Guidelines (WCAG 2.0).

The National Standard defines three levels of Internet resource accessibility:

- Level A: Minimal accessibility. This enables the visually impaired to access the Internet resource without information loss.
- Level AA: Full accessibility. This enables the visually impaired to access all structural elements of the Internet resource.
- Level AAA: Access to specialist Internet resources for the visually impaired. This enables the visually impaired to access the Internet resource by using the specialist technologies of that resource developed for this category of user.

Internet resources that promote social inclusion of persons with disabilities include the following:

- websites of public authorities and institutions;
- public service sites;
- sites of educational establishments (in particular those providing distance learning courses);
- major search engines;
- electronic payment systems;
- e-mail.

These sites are set up with the following functions in order to display information in accordance with the National Standard:

- adjustability of font size (normal, large, extra-large);
- adjustability of background colour (white, black, dark blue, light blue, green);
- ability to enable and disable images;
- adjustability of letter spacing (0,2,5).

5.3.3. Standards defining accessibility to electronic documents (3.3)

3.3: Do laws and regulations in your country refer to national or international standards when defining accessibility to electronic documents?

Scores of 1 or 2

The human right to access information includes electronic documents. Information published on websites and social networks must comply with accessibility standards. Laws and regulations aimed at ensuring citizens' access to information must refer to national or international standards to guarantee their accessibility. Clear definitions must also be included so everyone has a straightforward understanding of what an accessible electronic document is.

New national standards should consider the international standard regarding web accessibility: Web Content Accessibility Guidelines (WCAG) and its equivalent ISO/IEC 40500:2012.

WCAG presents the success criteria to ensure accessible electronic documents that are published online. There is a growing global trend towards the acceptance and adoption of the same core set of accessible ICT standards worldwide.

Work with organizations of persons with disabilities and other industries to develop a national standard.

Scores of 3 or 4

Revision and update of the standard to include the last version of the WCAG is necessary. Clear definitions must be included so everyone has a straightforward understanding of what an accessible electronic document is.

New content management systems are developed every day. It is important to launch awareness campaigns, so every member of the industry is aware of the accessibility criteria.

Score of 5

Revision and update of the standard to include the last version of the WCAG is necessary.

New content management systems are developed every day. It is important to launch awareness campaigns, so every member of the industry is aware of the accessibility criteria.

Best practice resources

The Marrakesh Treaty[1]**:** The Marrakesh Treaty objective is to facilitate access to published works for persons who are blind, visually impaired, or otherwise print disabled (MVT). It requires contracting parties to introduce a standard set of limitations and exceptions to copyright rules in order to permit reproduction, distribution and making available of published works in formats designed to be accessible, and to permit exchange of these works across borders by organizations that serve those beneficiaries.

The Treaty clarifies that beneficiary persons are those affected by a range of disabilities that interfere with the effective reading of printed material. The broad definition includes persons who are blind, visually impaired, or print disabled or persons with a physical disability that prevents them from holding and manipulating a book.

Works "in the form of text, notation and/or related illustrations, whether published or otherwise made publicly available in any media", including audio books, fall within the scope of the MVT regime.

[1] The Marrakesh Treaty: https://www.wipo.int/marrakesh_treaty/en/.

5.3.4 Standards defining accessibility to hardware (3.4)

3.4: Do laws and regulations in your country refer to national or international standards when defining accessibility to hardware, including digital kiosks?

Scores of 1 or 2

Most global ICT hardware manufacturers have products that comply with international accessibility standards. For example, on almost every physical keyboard, keypad, or remote control on the market today, there are tactile differences on certain keys and numbers. These differences allow people to find, without looking at the keyboard, letters or numbers.

National laws and regulations must refer to national or international standards when defining hardware accessibility. This will guarantee that the government buys accessible technology eliminating barriers for citizens´ public use. Moreover, the definition of accessible hardware will benefit national industry that will be able to offer competitive devices abroad.

There are various harmonized standards in the world that define hardware accessibility. The systematic adoption and use of commonly accepted technical standards are critical to the creation and deployment of a successful accessible ICT market. Significant economies of scale can be achieved by both industry and government. There is a growing global trend towards the acceptance and adoption of the same core set of accessible ICT standards worldwide.

As a reference, US Section 508 and the European EN 301 549 include technical accessibility criteria and functional statements for hardware and digital kiosks that are clearly defined.

Scores of 3 to 4

Revision and update of the national standard to harmonize its requirements to the globally accepted core set of accessible ICT standards. As a reference US Section 508 and the European EN 301 549 include technical accessibility criteria and functional statements for hardware and digital kiosks that are clearly defined.

Score of 5

Update the national standard to harmonize its requirements to the globally accepted core set of accessible ICT standards. As a reference, US Section 508 and the European EN 301 549 include technical accessibility criteria and functional statements for hardware and digital kiosks that are clearly defined.

Best practice resources

Australia: Australia developed a Bankers´ Association Industry Standard which includes W3C WCAG technical specifications in addition to US Section 508 requirements. The Australian Banking Association[1] also committed to following principles of accessible design covering all areas of banking, including general accessibility, digital channels (websites and mobile banking), device design and use, telephone services, voice activated services or AI, and specific areas related to customer authentication. The three dimensions to inclusive design encompass:

- Recognize diversity and uniqueness.
- Inclusive process and tools: include people from diverse groups, with diverse needs and perspectives, into product and service design.
- Broader beneficial impact takes into consideration the context and environment and seeks solutions that benefit everyone through flexibility, adaption and personalization.

To help keep up with rapidly changing technological advancements, the principles will be reviewed every two years.

Qatar: The Supreme Council of Information and Communication Technology (ictQATAR) recently introduced Qatar's first e-Accessibility Policy[2]. The policy aims to ensure people with disabilities in Qatar have equal access to the technologies that can enrich their lives, and covers a range of e-Accessibility issues, including websites, telecommunication services, handsets, ATMs, government services, access to assistive technologies and digital content. The policy is effective immediately and ictQATAR will oversee its implementation across sectors and monitor progress.

The primary provisions of the e-Accessibility Policy include:

- Requiring telecommunication service providers to provide accessible handsets, user interfaces, relay services, special rate plans, emergency services and accessible public payphones where appropriate.
- Requiring public sector organizations to develop websites and mobile content that can be accessed by persons with disabilities.
- Requiring all public sector organizations, including government-owned banks, to implement service improvements that will ensure that public access terminals/kiosks and ATMs are available at strategic locations and usable by people with low vision blindness, deaf or hard-of-hearing, physical disabilities and reading problems.
- Requiring the Qatar Assistive Technology Center (Mada) to establish a fund to improve access to assistive technologies (ATs) and services, encouraging the widespread procurement of ATs, spreading awareness of the available services and benefits of ATs and providing demonstrations, special training and evaluations.
- Calling to action all producers and distributors of digital media in Qatar to improve the accessibility of their content through accessible eBooks, online information, and special captioning for video programming.

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1 More information on the Australian policy: https://www.ausbanking.org.au/banking-products-to-be-designed-with-accessibility-in-mind/.

2 More information on Qatar´s policy: https://www.gco.gov.qa/en/accessibility/ .

European Union: The EN 301 549 includes a description of Functional Performance Statements. These statements describe the set of user needs that an ICT product or service must meet to be accessible for persons with disabilities. Functional Performance Statements provide a relatively easy to read and understand set of user accessibility needs. These describe both the capabilities that enable persons with disabilities to interact with an ICT product or service, and the features that the ICT needs to provide when a physical, cognitive or sensory capability is not available or cannot be used.

Functional Performance Statements:

- usage with limited cognition;
- minimum photosensitive seizure triggers;
- usage with limited reach;
- usage with limited manipulation or strength;
- usage without perception of colour;
- usage without vision or with limited vision;
- usage without vocal capability;
- usage without hearing or with limited hearing.

The Technical Accessibility Requirements, and their associated tests, are designed to be used to demonstrate that an ICT product or service meets all relevant Functional Performance Statements. Hardware and kiosks are included in these definitions.

India: The integration of accessibility features into the functioning of financial institutions in the public sphere, through the provision of accessible banking services, has become a strong model of how engaging the private sector in accessibility measures can facilitate the ease with which persons with disabilities interact with their environment. Led by the Reserve Bank of India and with support from the Indian Banks' Association, the Government of India, and other stakeholders in the country, issued directives to public and private banks in India to provide both physical and ICT accessibility features to support persons with disabilities in conducting their personal finances. Among other aspects, the directives required that one third of ATMs be "talking ATMs" with Braille keypads to allow persons with visual disabilities to handle standard ATM-based financial transactions independently. Banks were asked to coordinate amongst themselves to ensure that distribution of talking ATMs were placed so as to serve all localities, with a later scaled up directive to retrofit all and ensure that any new ATMs included these accessibility features.

5.3.5. Standards defining accessibility to videos (3.5)

3.5: Do laws and regulations in your country refer to national or international standards when defining accessibility to videos?

Scores of 1 or 2

Even if some countries have not yet migrated to digital television, television is rapidly going digital using a variety of platforms (for example, Netflix, Amazon, and Apple).

It is important to use "video programming" which means all types of transmitted programming are provided or distributed by licensed service providers. Content providers without a licence who want to upload their content must use a platform that offers accessibility features such as voice to text (subtitles) like YouTube.

It is also important for the industry and organizations of persons with disabilities to develop and adopt a television/video programming accessibility policy, either as a stand-alone document or integrated into an existing policy. This policy should ensure that:

- licensed service providers deliver access services such as audio description, audio subtitles, closed captions and signing;
- electronic programming guides (EPGs) indicate, using internationally recognized access service icons such as "CC" for closed captions and "AD" for audio description, video programmes that offer access services;
- licensed service providers encouraging content creators to deliver programmes with access services;
- licensed service providers ensuring that emergency information and public safety announcements are transmitted using access services.

Scores of between 2 or 3

Revision of laws and regulations to update them in line with new technologies and the transition to digital television.

Promote awareness of the laws and policies among organizations and video programming access services. Licensed service providers delivering access services such as audio description, audio subtitles, closed captions and signing.

Emergency communications delivered on video should be fully accessible.

Score of 5

Revision of laws and regulations to update them in line with new technologies and the transition to digital television and streaming platforms.

Emergency communications delivered on video should be fully accessible.

Best practice resources

ITU-D resources

The ITU-D "Making Television Accessible"[1] looks at the strategic implications of making audiovisual content (with an emphasis on digital media) accessible to persons with disabilities.

ITU-D "Future of accessible audiovisual media services, TV and video programming"[2], developed within the framework of the ITU Regional Initiative for Europe on accessibility, affordability and skills development for all to ensure digital inclusion and sustainable development.

United Kingdom: The UK Communications Act[3]was passed in 2003 and established that the Office of Communications (OFCOM) will regulate communications such as television, radio, fixed-line telecommunications, mobile, and wireless airwaves. OFCOM sets the rules, standards, and guidelines including a code describing how television providers must establish accessible services, such as subtitling, audio-descriptions and sign language, to ensure communications are accessible to a full spectrum of individuals, including people with disabilities. Last updated in 2021, the Code on Television Access Services[4] includes target dates for the television access services based on percentages.

European Union: According to good practices in the European region, all major national television stations with a market share larger than 5 per cent must broadcast programmes with sign languages or with captioning. In some countries, main television channels contain about 70 per cent of the accessible content (content with subtitles for different languages, captions) and nearly 90 per cent of subtitling content and audio description are in children's programmes.

Canada: Since 1995, the Canadian Radio-television and Telecommunications Commission (CRTC) has mandated some level of closed captioning. In 2007 that requirement became 100 per cent operational in English and French-language programming. In 2011 and 2012, quality standards for closed captioning in French and English programming, respectively, were put into place. Since 2001, certain amounts of described video – the narrated description of the main visual elements of the programme, such as settings, costumes, and body language – has been required. By September 2019, the amount of described video available to Canadians had increased significantly.

The Broadcasting Accessibility Fund[5] is a unique independent programme approved by the Canadian Radio-television and Telecommunications Commission (CRTC) in 2012. Its main role is to "support and fund innovative projects that provide platform-neutral solutions to promote accessibility of all broadcasting content in Canada". By investing in these initiatives, the Government of Canada aimed at promoting innovative and cost-effective solutions that use technology to ensure equal access to content for persons with disabilities.

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1 Making TV Accessible: https://www.itu.int/en/ITU-D/Digital-Inclusion/Persons-with-Disabilities/Documents/Making_TV_Accessible-English.pdf.

2 Future of accessible multimedia: https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Documents/Events/2019/Accessible%20Europe/191107_AVMS%20Accessibility%20in%20Europe%20(Final%20edition).pdf.

3 More information on UK´s laws: https://www.legislation.gov.uk/ukpga/2003/21/contents.

4 More information on UK´s programme: https://www.ofcom.org.uk/tv-radio-and-on-demand/broadcast-codes/tv-access-services.

5 More information on the Canadian Broadcasting Accessibility Fund: https://www.baf-far.ca/en/about-broadcasting-accessibility-fund#:~:text=The%20Broadcasting%20Accessibility%20Fund%20Inc,all%20broadcasting%20content%20in%20Canada.

Germany: The VerbaVoice app is a cost-effective solution to remove barriers to spoken communication on television and the Internet. The VerbaVoice app is a communication aid for hard-of-hearing and deaf people, which makes spoken language accessible as live text and /or sign language video. The combined use of the Interpreters Telepresence System (ITS) developed by VerbaVoice for live events and TV broadcast offers further opportunities to provide full inclusion for people with hearing, visual or mobility disabilities.

Japan: The country developed profiles for IPTV (Internet Protocol TV) in line with ITU-T H.702 standard. This software is included in a separate "set of box" and can provide open and close captioning, change colour of captions and backgrounds, include sign language interpretation in an additional window, as well as captioning in up to three languages.

5.4. Public procurement best practice (4)

5.4.1. Public procurement accessibility requirements (4.1)

4.1: Do laws and regulations regarding public procurement of ICTs include accessibility requirements?

Scores of 1 or 2

There are many harmonized standards that define hardware accessibility. The systematic adoption and use of commonly accepted technical standards is critical to a successful accessible ICT market. Significant economies of scale can be achieved by both industry and government. There is a growing global trend towards the acceptance and adoption of the same core set of accessible ICT standards worldwide.

Governments are the number one technology buyers. A procurement policy for accessible ICT products and services will have an enormous impact on inclusion. In addition, if governments ensure accessible ICTs, they will offer more labour opportunities for persons with disabilities.

A national procurement standard should include technical standards to define the functionalities expected from ICTs. These technical standards should be harmonized with the international standards to create economies of scale and to increase the competitiveness of the national technology.

If the government and public authorities purchase accessible ICTs they:

- create an accessible employment environment in the public sector;
- deliver better value for money to citizens;
- make them (accessible ICTs) affordable by reducing the cost.

"Considering that public procurement represents between 10 to 17 per cent of the GDP of an average country, through an accessible ICT public procurement policy, governments can develop a prosperous digital market".

Scores of 3 or 4

Revision of the national procurement standard to include new technologies. The revision should be conducted with the participation of organizations of persons with disabilities in the process.

Promote awareness of the national procurement law among stakeholders.

Score of 5

Revision of the national procurement standard to include new technologies. The revision should be conducted with the participation of organizations of persons with disabilities in the process.

Promote awareness of the procurement national law among stakeholders.

Best practice resources

ITU-D resources

ITU-D "Standards in the procurement of accessible ICT products and services"[1] prepared in the context of two European regional initiatives approved by WTDC-17, aim at bridging the digital divide and equipping all groups of society, including persons with disabilities and specific needs, to take advantage of ICT, by enabling capacity building in digital skills.

United States of America: The United States of America has developed technical standards on accessible ICTs and has enacted legislation that requires their use by all Federal agencies in the procurement of ICTs. Section 508 of the 1973 Rehabilitation Act is a set of enforceable ICT accessibility standards that Federal agencies must incorporate as a mandatory set of requirements (or technical specifications) that suppliers must meet in the procurement of ICTs. Developed by the United States Access Board, they were embedded into federal procurement regulations in 2001.

European Union: The first European standard on accessible ICTs, EN 301 549 "Accessibility requirements suitable for public procurement of ICT products and services in Europe", was published in March 2014. This standard was developed by the European Standards Bodies following a request of the European Commission. The accessibility requirements contained in EN 301 549 have been harmonized to match as closely as possible with those contained in US Section 508.

Australia: The Procurement standard guidance[2] is a governmental guideline not applicable to the general public and not limited to web content. It aims to make ICT goods and services purchased by the Australia Government more accessible to all employees. Specifically, the policy covers all video-based, two-way audio-based, hardware, software, and web-based ICT products, along with any support services. Any procurement process must ensure that ICT products can be utilized by all employees, regardless of any physical, emotional, or cognitive disabilities they may have. The Standard echoes the European Standard—EN 301 549. In terms of practicality, the Standard does not require all prior ICT goods and services to be replaced, as the majority are already compliant with several accessibility guidelines. The main application of the standard is when ICT goods and services require renewal or replacement, or when any coordinated procurements must be renewed. This standard is not a definitive procurement guideline and should be applied in tandem with Australia's existing procurement guidelines. As with the European Standard, the Australian Standard includes conformance Level AA of WCAG Version 2.0.

- The Digital Service Standard[3] is a set of best-practice principles for designing and delivering government services.
- The Australia Government Commonwealth Procurement Rules[4] require evidence of conformance with applicable Australian standards – from an accessibility perspective, AS EN 301 549[5] is applicable.
- The Digital Sourcing Consider First Policy[6] released by the Digital Transformation Authority in June 2019 also has a requirement for accessibility.

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1 More information on procurement: https://www.itu.int/en/ITU-D/Digital-Inclusion/Documents/ICT%20Accessibility%20standards%20procurement%20FINAL.pdf.

2 More information on Australian procurement standard: https://dynomapper.com/blog/27-accessibility-testing/532-international-web-accessibility-laws-and-policies#Australia-2.

3 More information on Australian policy: https://www.dta.gov.au/help-and-advice/about-digital-service-standard.

4 More information on Australian policy: https://www.buyict.gov.au/sp .

5 More information on Australian policy: https://infostore.saiglobal.com/en-us/Standards/AS-EN-301-549-2016-1892396/.

6 More information on Australian policy: https://www.dta.gov.au/help-and-advice/ict-procurement/digital-sourcing-framework-ict-procurement/digital-sourcing-policies/digital-sourcing-consider-first-policy.

5.4.2. Public procurement requirements definitions (4.2)

4.2: If the laws and regulations regarding public procurement of ICTs include accessibility requirements, are those requirements clearly defined in the following cases:

- Software
- Hardware
- Digital kiosks
- Websites
- Video
- Electronic documents

Scores of 1 or 2

There are various harmonized standards in the world that define hardware accessibility. The systematic adoption and use of commonly accepted technical standards are critical to achieving a successful and accessible ICT market. Significant economies of scale can be achieved by both industry and government. There is a growing global trend towards the acceptance and adoption of the same core set of accessible ICT standards worldwide.

As a reference, USA Section 508 or EN 301 549 in Europe can be used to develop a national procurement standard. Both standards include technical and functional statements for software, hardware, digital kiosks, websites, video programming, and electronic documents.

Scores of 3 or 4

Revision of the national procurement standard to include new technologies. The revision should be conducted with the participation of organizations of persons with disabilities in the process.

Promote awareness of the national procurement law among stakeholders.

Score of 5

Revision of the national procurement standard in accordance with international trends.

Best practice resource

United States of America: The United States of America has developed technical standards on accessible ICTs and has enacted legislation that requires their use by all Federal agencies in the procurement of ICT. Section 508 of the 1973 Rehabilitation Act are a set of enforceable ICT accessibility standards that Federal agencies must incorporate as a mandatory set of requirements (or technical specifications) that suppliers must meet in the procurement of ICT. Developed by the United States Access Board, these standards were embedded into federal procurement regulations in 2001.

European Union: The first European standards on accessible ICTs, EN 301 549 "Accessibility requirements suitable for public procurement of ICT products and services in Europe", was published in March 2014. This standard was developed by the European Standards Bodies following a request by the European Commission. The accessibility requirements contained in EN 301 549 have been harmonized to match as closely as possible those contained in US Section 508.

Australia: The Procurement Standard Guidance[1] is a governmental guideline not applicable to the general public and not limited to web content. It aims to make ICT goods and services purchased by the Australia Government more accessible to all employees. Specifically, the policy covers all video-based, two-way audio-based, hardware, software, and web-based ICT products, along with any support services. Any procurement process must ensure that ICT products can be utilized by all employees, regardless of any physical, emotional, or cognitive disabilities they may have. The standard echoes the European Standard—EN 301 549. In terms of practicality, the standard does not require all prior ICT goods and services to be replaced, as the majority are already compliant with several accessibility guidelines. The main application of the standard is when ICT goods and services require renewal or replacement, or when any coordinated procurements must be renewed. This standard is not a definitive procurement guideline and should be applied in tandem with Australia's existing procurement guidelines. As with the European Standard, the Australian Standard includes conformance Level AA of WCAG Version 2.0.

- The Digital Service Standard[2] is a set of best-practice principles for designing and delivering government services.
- The Australia Government Commonwealth Procurement Rules[3] require evidence of conformance with applicable Australian standards – from an accessibility perspective, AS EN 301 549[4] is applicable.
- The Digital Sourcing Consider First Policy[5] released by the Digital Transformation Authority in June 2019 also has a requirement for accessibility.

Australia also developed a Bankers´ Association Industry Standard which includes W3C WCAG technical specifications in addition to U.S. Section 508 requirements. The Australian Banking Association[6] also committed to following principles of accessible design covering all areas of banking, including general accessibility, digital channels (websites and mobile banking), device design and use, telephone services, voice activated services or AI, and specific areas related to customer authentication.

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1 More information on Australian policy: https://dynomapper.com/blog/27-accessibility-testing/532-international-web-accessibility-laws-and-policies#Australia-2.
2 More information on Australian policy: https://www.dta.gov.au/help-and-advice/about-digital-service-standard.
3 More information on Australian policy: https://www.buyict.gov.au/sp .
4 More information on Australian policy: https://infostore.saiglobal.com/en-us/Standards/AS-EN-301-549-2016-1892396/.
5 More information on Australian policy: https://www.dta.gov.au/help-and-advice/ict-procurement/digital-sourcing-framework-ict-procurement/digital-sourcing-policies/digital-sourcing-consider-first-policy.
6 More information on Australian policy: https://www.ausbanking.org.au/banking-products-to-be-designed-with-accessibility-in-mind/.

5.5. Training best practice (5)

5.5.1. Stakeholder training on digital accessibility (5.1)

5.1: Is training available on digital accessibility for different stakeholders so that they can understand what ICT accessibility means?

Scores of 1 or 2

It is important for all stakeholders to understand ICT accessibility to ensure the development of an inclusive ecosystem. Governments should lead the way by ensuring that officials get training on ICT accessibility.

Accessible ICTs are necessary to ensure that all citizens have access to:

- public information and communication;
- public services (health, e-government, emergency services, and so on).

When governments and public authorities purchase accessible ICTs they need to:

- create an accessible employment environment in the public sector;
- deliver better value for money to the citizens;
- make it (accessible ICTs) affordable by reducing the cost.

Through regulating and promoting ICT accessibility, governments will:

- reduce inequalities;
- create an inclusive society in their country;
- ensure that all citizens participate in the country's development;
- increase the country's economic growth.

Persons with disabilities should participate in the training to ensure trainees´ understanding of the needs of the end users.

Scores of 3 or 4

Industry also has a big responsibility regarding ICT accessibility and should receive proper training.

The global market for disability/accessibility was worth USD 1.3 trillion in 2017 and is expected to grow to more than USD 5 trillion by 2050.

Developing accessible ICTs is an investment worth making because it:

- incentivizes manufacturers and suppliers to innovate and improve production;
- improves overall quality of ICTs by making them more user-friendly;
- creates a market for accessible ICTs;
- may help improve the bottom lines of businesses.

Persons with disabilities should participate in the training to ensure trainees´ understanding of the needs of the end users.

Score of 5

Organizations of persons with disabilities should also be trained in ICT accessibility to have the tools to better advocate for the achievement of this human right.

Best practice resource

ITU-D resources

ITU-D self-paced online course entitled "ICT Accessibility: the key to inclusive communication"[1] aims to develop a good understanding of ICT accessibility among all relevant stakeholders, in particular focusing on related policies, regulations, technology trends and public procurement rules.

Guyana: The ITU Internet for @ll: National Programme in Web Accessibility[2] implemented in Guyana consisted in a first half day high-level meeting to assure political buy-in, two days of training on creation and remediation of accessible electronic documents and a two and a half days of technical training on developing accessible websites. To get the ITU certification of this technical training, participants worked on the accessibility of 21 government websites as well as on the website of the University of Guyana. The university signed a Memorandum of Understanding (MoU) with the government to ensure the pursuit of the training and needed political reforms to ensure digital accessibility.

Video 2: ITU National programme in web*

* ITU National programme : https://www.youtube.com/watch?v=8QIbHUOk4jE&feature=emb_logo
Source: ITU

Republic of Korea: Guarantees ICT accessibility to people with disabilities including older adults to use products, systems, services, and facilities regardless of their physical or technical difficulties. In achieving this, the Republic of Korea focuses equally on the government role of: preparing the legal system for ICT accessibility and creating a standardized strategy for society, in the form of training, consultations, and promotion to ensure the participation of other stakeholders outside the public sector.

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1 ITU-D online course: https://www.itu.int/en/ITU-D/Digital-Inclusion/Persons-with-Disabilities/Pages/Self-Paced-Online-Training-on-ICT-Accessibility.aspx.

2 ITU Internet for @ll: https://www.itu.int/en/ITU-D/Digital-Inclusion/Persons-with-Disabilities/Pages/Internet-for-@ll.aspx.

5.5.2. Training for professionals on accessible electronic documents (5.2)

5.2: Is training available for professionals to learn how to create accessible electronic documents according to national or international standards?

Scores of 1 or 2

It is essential that digital government information is distributed and available in accessible formats to ensure that it will reach all people and no one will be left behind, including people with disabilities, in particular those with visual impairments or deaf or hard-of-hearing who require the use of alternative solutions for example, screen readers, captioning, or sign language to understand such information.

It is also important to provide training, so professionals know how to communicate in an accessible manner considering the use of multiple modes of communication.

Governments should work with the Academia to ensure the availability of training to create accessible digital content. Such training should consider that:

- Public information in audio and visual formats delivered through electronic displays in public spaces can reach people who may not have access to personal ICT devices. When possible, graphics and images should be displayed in addition to text. Sound alarms and/or sirens used during emergency situations must be accompanied by flashing lights to denote the nature and level of threat.
- Radios: Radios can be used with attachments or with special features to enable their use by people who are deaf or hard-of-hearing. For example, devices that can transmit broadcasts as vibrations, flashing lights, and simple texts to alert individuals who are deaf and hard-of-hearing. Live online radio broadcasts or podcasts should include the transcription of the content.
- Television: Closed captioning or subtitling in local languages must be provided. In addition, sign language interpreters should be included when providing televised vital information such as emergency, crisis and/or pandemic.
- SMS: If information is sent out only as SMS, people who need non-visual inputs and do not have access to high-end devices that can convert text to other formats such as audio, will be excluded.
- Social networks: The new versions of the most popular social media networks are increasingly becoming accessible. Facebook, Instagram, Twitter, and YouTube offer accessibility features.
- Digital documents (spreadsheets, presentations, text documents) may be unusable by persons using screen readers if they are in formats that cannot be read aloud, such as JPEG files or image-based PDFs (e.g. scanned images). For example, all documents should always include an alternative text to all images, review colour contrasts, use adequate document structure and styles to ensure their accessibility.

Any person who develops digital content such as marketing, government, advertising, and education should acquire these skills through training to guarantee inclusion and social and economic development.

It is recommended that persons with disabilities participate in the training to ensure trainees´ understanding of the needs of the end users. In addition, persons with disabilities could also validate the accessibility of the content delivered through different digital platforms.

Scores of 3 or 4

In collaboration with Academia or international associations, a certification validating the knowledge on how to develop and/remediate accessible electronic documents should be recognized to demonstrate this important skill in the labour market. Any person who develops digital content such as marketing, government, advertising, and education should acquire these skills through training to guarantee inclusion and social and economic development.

It is recommended that persons with disabilities participate in the training to ensure trainees´ understanding of the needs of the end users. In addition, persons with disabilities could also validate the accessibility of the content delivered through different digital platforms.

Score of 5

Training should be updated to include technological trends, new services, and products.

In collaboration with Academia or international associations, a certification validating the knowledge on how to develop and/remediate accessible electronic documents should be recognized to demonstrate this important skill in the labour market. Any person who develops digital content such as marketing, government, advertising, and education should acquire these skills through training to guarantee inclusion and social and economic development.

It is recommended that persons with disabilities participate in the training to ensure trainees´ understanding of the needs of the end users. In addition, persons with disabilities could also validate the accessibility of the content delivered through different digital platforms.

Best practice resources

ITU-D resources

ITU-D "Internet for @ll: National Programme in Web Accessibility"[1], empowers countries with the necessary know-how to ensure that all citizens, including persons with disabilities and older users, are able to access public online information products and services, thereby enabling their access to education and employment opportunities and giving them the opportunity to participate actively in the social and economic life of the country. It also proposes a national self-sustainable educational model in web accessibility. The programme includes a two-days training on creating accessible documents.

ITU-D "Creation and remediation of accessible digital contents"[2], contains tutorials that have been created with the objective of teaching the accessibility criteria and providing related recommendations for generating documents in any Microsoft Office format or Adobe PDF.

Video 3: Tutorials in creation of accessible digital contents

Source: ITU

United Kingdom: The UK government[3] offers information on how to choose an accessible format and make non-HTML documents meet accessibility standards. The guide was last updated in February 2021.

New Zealand: The Department of Internal Affairs[4] offers guidelines and information to create accessible digital content.

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1 ITU Internet for @all programme : https://www.itu.int/en/ITU-D/Digital-Inclusion/Persons-with-Disabilities/Pages/Internet-for-@ll.aspx.

2 ITU tutorials : https://www.itu.int/en/ITU-D/Digital-Inclusion/Persons-with-Disabilities/Pages/Video-Tutorials-on-Accessible-Digital-Content.aspx.

3 More information on UK policy: https://www.gov.uk/guidance/how-to-publish-on-gov-uk/accessible-pdfs.

4 More information on New Zealand policy: https://www.digital.govt.nz/standards-and-guidance/design-and-ux/accessibility/.

5.5.3. Training for professionals on accessible websites (5.3)

5.3: Is training available for professionals to learn how to design and develop accessible websites according to national or international standards?

Scores of 1 or 2

The Web Content Accessibility Guidelines (WCAG) are the international reference for web accessibility. Forty per cent of public websites are not accessible. This is due to the lack of training in web accessibility.

Academia should work hand in hand with professionals to guarantee the availability of accessible web development training.

Persons with disabilities should participate in the training to ensure trainees´ understanding of the needs of the end users. In addition, persons with disabilities could also validate the accessibility of the websites delivered through different digital platforms.

Scores of 3 or 4

National or international certifications should be required to ensure that professionals have the skills needed to develop an accessible website. In addition, these certifications should be considered as a key skill in the labour market for web designers, web developers and web maintenance teams.

Persons with disabilities should participate in the training to ensure trainees´ understanding of the needs of the end users. In addition, persons with disabilities could also validate the accessibility of the websites delivered through different digital platforms.

Score of 5

Training should be updated according to the new versions of the standard.

National or international certifications should be required to ensure that professionals have the skills needed to develop an accessible website. In addition, these certifications should be considered as a key skill in the labour market for web designers, web developers and web maintenance teams.

Persons with disabilities should participate in the training to ensure trainees´ understanding of the needs of the end users. In addition, persons with disabilities could also validate the accessibility of the websites delivered through different digital platforms.

Best practice resources

ITU-D resource

The ITU-D self-pace training course "Web Accessibility: the Cornerstone of an Inclusive Digital Society"[1] aims to develop an overall understanding about web accessibility among all ITU members, stakeholders and other relevant parties.

Figure 20: Digital society

Source: ITU

ITU-D "Internet for @ll: National Programme in Web Accessibility"[2], empowers countries with the necessary know-how to ensure that all citizens, including persons with disabilities and older users, are able to access public online information products and services, thereby enabling their access to education and employment opportunities and giving them the opportunity to participate actively in the social and economic life of the country. It also proposes a national self-sustainable educational model in web accessibility. The programme includes a two and a half days training on developing and designing accessible websites.

International Association of Accessibility Professionals (IAAP): The International Association of Accessibility Professionals (IAAP)[3] is a not-for-profit membership-based organization for individuals and organizations that are focused on accessibility or are in the process of building their accessibility skills and strategies. The objective is to help accessibility professionals develop and advance their careers and to support organizations integrate accessibility into their services, products, and infrastructure. IAAP mission is to define, promote and improve the accessibility profession globally through certification, education, and networking to enable the creation of accessible products, content and services. Currently the IAAP has developed three certifications and is working on new material to strengthen the accessibility community.

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1 ITU training course : https://www.itu.int/en/ITU-D/Digital-Inclusion/Persons-with-Disabilities/Pages/Web-Accessibility-Cornerstone-Training.aspx.

2 ITU Internet for @ll programme: https://www.itu.int/en/ITU-D/Digital-Inclusion/Persons-with-Disabilities/Pages/Internet-for-@ll.aspx.

3 More information on the IAAP: https://www.accessibilityassociation.org/.

Denmark: To promote web accessibility within Danish government agencies, an Interoperability Framework was developed. The document includes accessible web design standards and serves as a guideline for public agencies as they develop information technology plans and projects. It contains descriptions and recommendations of selected standards, technologies, and protocols for the implementation of e-government in Denmark. Both W3C WCAG and the US Section 508 are incorporated into the guideline.

Taiwan (Province of China): Web Accessibility Guidelines 2.0[1] is a mandatory policy for all public sector organizations. The scope of these guidelines is limited solely to online resources. As part of their conformance assessment criteria, the guidelines make use of a derivative of Version 2.0 of the WCAG. Employees in charge of such assessments also make use of specific Regulations for Issuing Web Accessibility Accreditation badges to the websites of eligible agencies or schools. Another resource available to these employees is a web accessibility checker offered by Freego; this gives newer employees a quick checklist to ensure web content makes the grade. The guidelines do not specify a minimum acceptable level of accessibility.

[1] More information on the policy of Taiwan (Province of China): https://dynomapper.com/blog/27-accessibility-testing/532-international-web-accessibility-laws-and-policies#Taiwan-1.

5.5.4. Training for professionals on accessible software (5.4)

5.4: Is training available for professionals to learn how to develop accessible software according to national or international standards?

Scores of 1 or 2

ICTs have an enormous impact on processing information and making data available that are eventually processed and used to offer better services for everyone. The inclusion of persons with disabilities is fundamental to ensure that they are not left behind in such data.

Software systems should be developed according to the latest version of Web Content Accessibility Guidelines (WCAG).

Authoring tools are software and services that "authors" (web developers, designers, writers) use to produce web content. Some examples of authoring tools are:

- webpage tools, for example, what-you-see-is-what-you-get (WYSIWYG) HTML editors;
- software for generating websites, for example, content management systems (CMS), courseware tools, and content aggregators;
- software that converts to web content technologies, for example, word processors and other office document applications with "Save as HTML" functionality;
- multimedia authoring tools;
- websites that let users add content, such as blogs, wikis, photo sharing sites, online forums, and social networking sites.

ATAG 2.0[24] is the international standard for the development of accessible authoring tools.

[24] More information on ATAG: https://www.w3.org/WAI/standards-guidelines/atag/.

Academia should work hand in hand with professionals to guarantee the availability of accessible web development training.

Persons with disabilities should participate in the training to ensure trainees´ understanding of the needs of the end users. In addition, persons with disabilities could also validate the accessibility of the software.

Scores of 3 or 4

National or international certifications should be required to ensure that professionals have the skills needed to develop an accessible software. In addition, these certifications should be considered as a key skill in the labour market for software developers.

Persons with disabilities should participate in the training to ensure trainees´ understanding of the needs of the end users. In addition, persons with disabilities could also validate the accessibility of the software.

Scores of 5

Training should be updated according to the new versions of the standards.

National or international certifications should be required to ensure that professionals have the skills needed to develop an accessible software. In addition, these certifications should be considered as a key skill in the labour market for software developers.

Persons with disabilities should participate in the training to ensure trainees´ understanding of the needs of the end users. In addition, persons with disabilities could also validate the accessibility of the software.

Best practice resources

Brazil: The Brazilian Web Accessibility Recognition Programme[1], seeks to increase awareness of the need for persons with disabilities to access websites by encouraging website developers and by granting awards to individuals and enterprises. There are three categories for awards under this programme, namely (i) for individuals and enterprises that implement actions to promote web accessibility, (ii) for web projects that follow W3C standards and are creative and usable, and (iii) for apps and assistive technologies developed without profit and with open-source code. This project is led by the Brazil "Comite Gestor da Internet" in partnership with W3C Brazil and other government entities.

New Zealand: Online Practice Guidelines[2]: these guidelines apply to government offices. Specifically, they apply only to web assets in government organizations and take heed of the WCAG Version 2.0. As a result, if they meet all five conformance criteria in the Web Accessibility Standard 1.0, relevant organizations will meet WCAG 2.0 Level AA conformance under these guidelines. In addition to defining their overall strategy and action plan which includes prior and planned accessibility reviews, the guidelines refer to learning resources to help employees familiarize themselves with accessibility principles. Furthermore, the guidelines state the products and services that they apply to, as well as any relevant initiatives and new updates to be aware of.

[1] More on Brazilian policy: http://premio.ceweb.br/english/.
[2] More on New Zealand policy: https://dynomapper.com/blog/27-accessibility-testing/532-international-web-accessibility-laws-and-policies#New-Zealand-2.

5.5.5. Training for professionals on accessible hardware and digital kiosks (5.5)

5.5: Is training available for professionals to learn how to develop accessible hardware and digital kiosks according to national or international standards?

Scores of 1 or 2

While communities are transforming and becoming digital, more hardware and kiosks are used to serve their citizens.

ATMs and kiosks should comply with accessibility principles as well as principles of universal design.

Academia should work hand in hand with professionals to guarantee the availability of accessible design and universal design training.

Persons with disabilities should participate in the training to ensure trainees´ understanding of the needs of the end users.

Scores of 3 or 4

National or international certifications should be required to ensure that professionals have the needed skills to design accessible hardware and digital kiosks.

Persons with disabilities should participate in the training to ensure trainees´ understanding of the needs of the end users.

Score of 5

Training should be updated according to the new versions of the principles.

Persons with disabilities should participate in the training to ensure that trainees have a better understanding of the needs of the end users.

Best practice resources

Ireland: The Republic of Ireland established the act to assess needs, services, and employment opportunities for people with disabilities. Under the Act, the National Disability Authority was established, as well as The Centre for Excellence in Universal Design[1]. The National Disability Authority (NDA)[2] is an independent statutory board that advises the government and private sector in matters of disability policies and procedures while promoting universal design.

GSMA (United Kingdom): GSMA publishes reports which highlight best practice case studies in ICTs and accessibility. The Assistive Tech programme works with the mobile industry and key stakeholders to address the digital inclusion gap of persons with disabilities and identify innovation opportunities for making mobile technologies enablers of assistive technologies. Research shows that in many countries, a disability and development gap is growing, and unless people with disabilities are routinely included in development efforts, their socioeconomic status often remains static while the status of their peers without disability surges ahead.

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[1] Centre for Excellence in Universal Design: http://www.irishstatutebook.ie/eli/2005/act/14/section/52/enacted/en/html#sec52.

[2] More on the Irish policy: http://www.irishstatutebook.ie/eli/1999/act/14/enacted/en/html.

5.5.6. Training for procurement personnel and vendors on ICT accessibility (5.6)

5.6: Is training available for procurement personnel and vendors to understand ICT accessibility in bidding processes according to national or international standards?

Scores of 1 or 2

There are many harmonized standards all over the world that define hardware accessibility. The systematic adoption and use of commonly accepted technical standards is critical to a successful and accessible ICT market. Significant economies of scale can be achieved by both industry and government. There is a growing global trend towards the acceptance and adoption of the same core set of accessible ICT standards worldwide.

As a reference, USA Section 508 or the EN 301549 in Europe can be used to develop a national procurement standard.

Procurement officials as well as vendors should receive training on ICT accessibility in the bidding processes according to international or national standards.

Persons with disabilities should participate in the training to ensure the trainees´ understanding of the needs of the end users.

Scores of 3 or 4

National or international certifications should be required to ensure that procurers will guarantee the acquisition of accessible ICTs.

Persons with disabilities should participate in the training to ensure trainees´ understanding of the needs of the end users.

Score of 5

Training should be updated according to the new versions of the standards.

Persons with disabilities should participate in the training to ensure trainees´ understanding of the needs of the end users.

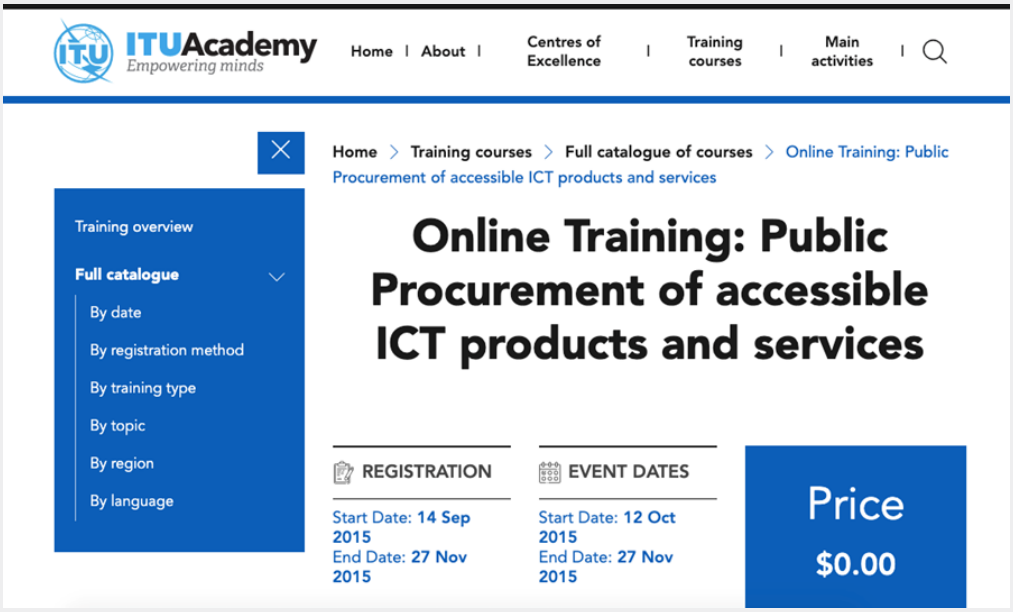
Best practice resources

There are several toolkits and pieces of guidance available to assist with including accessibility as a criterion in a procurement exercise.

ITU-D resources

ITU-D online training on "Public Procurement of Accessible ICT Products and Services"

Figure 21: ITU Academy*



* ITU Academy: https://academy.itu.int/training-courses/full-catalogue/online-training-public-procurement-accessible-ict-products-and-services-0.
Source: ITU

United States of America: Section508.gov[1] provides guidance to federal agencies staff who play a role in IT accessibility. It helps agencies understand how to define accessibility requirements for ICT procurements clearly. It also helps ICT vendors understand the need to demonstrate the accessibility of their IT products and services for potential federal buyers.

European Union: In Europe, mandate376.standards.eu[2] was produced to help public procurement officials get started in using and implementing the European standard EN 301 549.

[1] Section 508: https://section508.gov/.
[2] Mandate 376: https://ec.europa.eu/growth/tools-databases/mandates/index.cfm?fuseaction=search.detail&id=333.

5.5.7. Training for end users to engage with the government (5.7)

5.7: Is training available for end users to engage with the government/organization digital channels?

Scores of 1 or 2

End users should also have the digital skills needed to interact with accessible ICTs.

Academia should work hand in hand with the government to guarantee the availability of digital skills training for persons with disabilities.

Scores of 3 or 4

A national certification validating end-user digital skills will help end users in their economic and social development.

Score of 5

Training should be updated according to the new technologies and soft skills in demand in the market.

Best practice resources

ITU-D resources

ITU-D "Internet for @ll: National Programme in Web Accessibility"[1], empowers countries with the necessary know-how to ensure that all citizens, including persons with disabilities and older users, are able to access public online information products and services, thereby enabling their access to education and employment opportunities and giving them the opportunity to participate actively in the social and economic life of the country. It also proposes a national self-sustainable educational model in web accessibility. The programme presents a sustainable model where with the funds secured via a national professional certification, persons with disabilities and other vulnerable groups receive training on digital abilities.

Japan considered methods for selecting products and services that are accessible. In order to make it easier for persons with disabilities and older persons to recognize accessible telecommunication services and devices, products were marked with the letter "U" (universal). This work was an integral part of the efforts of the government, end-user associations, industries and academia.

China: In 2018, the State Council issued guidance on accelerating the establishment of a nationwide online government services platform and further promoting "Internet + government services" to optimize the business environment, bring convenience to enterprises and people, stimulate market vitality and social creativity, and build a service-oriented government with which people are satisfied. One of the efforts to promote innovative online applications to address the needs of persons with disabilities is a special application that allows persons with disabilities to apply for assistive devices directly from the government website; assistive device services are provided to all certified persons with disabilities who have a Beijing household registration, and they can get at least 50 per cent of the relevant subsidy for purchased auxiliaries on the service platform. Persons with disabilities only need to sign in on the Beijing Persons with Disabilities Online Service Platform or Beijing Municipal Administrative Service Centre website at home and submit their applications online. After the platform automatically identifies the candidates and the corresponding subsidy through data sharing, the administrative departments complete the examination and approval process online. The assistive devices can be purchased on the Internet and are delivered to people's homes in about a week, thus eliminating all certifications and intermediate procedures and enabling persons with disabilities to do all transactions from home.[2]

India: In December 2015 the government launched the Accessible India Campaign[3] mobile application, aimed to create a crowd sourcing platform to collect data about inaccessible places, process information for approving inclusive proposals and to channel corporate social responsibility resources with accessibility in mind as the key to inclusion and equal access for people with disabilities.

Iran (Islamic Republic of): A national training programme by the ICT Ministry Office for Women & Family Affairs was conducted in 270 regions, including states, cities and villages with the aim of empowering women by applying ICT tools and services to boost entrepreneurship and create jobs for them.

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1 Internet for @all programme: https://www.itu.int/en/ITU-D/Digital-Inclusion/Persons-with-Disabilities/Pages/Internet-for-@ll.aspx.

2 Source: UN E-Government Survey 2020 https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2020-Survey/2020%20UN%20E-Government%20Survey%20(Full%20Report).pdf.

3 More on India's policy: https://disabilityaffairs.gov.in/content/page/accessible-india-campaign.php .

5.6. Monitoring best practice (6)

5.6.1. Monitoring agency or committee to ensure ICT accessibility (6.1)

6.1: Is there a monitoring agency or regulatory committee to ensure ICT accessibility across all public sectors?

Scores of 1 to 2

Promoting the setting of clear targets and periodic reporting to monitor implementation of the policies are fundamental to achieving digital inclusive communities.

A government agency, regulator, or committee has to be responsible for the promotion and monitoring of ICT accessibility.

Laws and regulations should establish the responsible agent and clearly include conditions, monitoring and enforcement of obligations, drafting or approval of codes of practice, awareness campaigns, and consultation.

Scores of 3 or 4

Periodic publications by government departments with responsibility for monitoring the achievement of accessibility targets.

Enforcement of the adherence to laws and regulations by monitoring actively the accessibility of public communication services and devices for persons with disabilities through spot checks, trials, and visits to public access facilities, taking necessary enforcement action when appropriate.

Score of 5

The input of organizations representing persons with disabilities should be taken into account and they should be consulted in the updating of the monitoring process to include new trends and technologies.

Best practice resources

Canada: The Accessible Canada Act[1] was passed to identify, remove, and prevent barriers to accessibility for persons with disabilities. Also known as the Act to Ensure a Barrier-Free Canada, it mandates compliance for digital content and tech for Parliament, the Government of Canada, and federally regulated organizations in the private sector. This includes sectors such as banking, telecommunications, and transportation industries.

The Accessible Canada Act created two specific positions that have enforcement obligations. The Accessibility Commissioner and Chief Accessibility Officer. The Commissioner has the authority to fine organizations up to CAD 250 000 for each violation.

The Commissioner office is tasked with investigating complaints, assessing fines, and ordering corrective measures.

Philippines: The National Council on Disability Affairs (NCDA)[2] is the agency mandated to formulate policies and coordinate the activities of all agencies, whether public or private, concerning disability issues in the Philippines, including digital accessibility initiatives.

[1] More on Canadian policy: https://laws-lois.justice.gc.ca/eng/acts/A-0.6/.
[2] More on Philippines policy: http://www.ncda.gov.ph/.

5.6.2. Monitoring reporting process (6.2)

6.2: Is there a defined reporting process?

Scores of 1 to 2

Establishing targets and reporting requirements for the delivery of accessible ICTs should be included in pertinent laws and regulations.

A regulatory agency should be appointed to be responsible for monitoring the reporting process.

A methodology and reporting mechanism should be put in place.

Scores of 3 or 4

Existing targets and reporting requirements for delivery of accessible ICTs should be revised and aligned with international and national standards.

Score of 5

Existing targets and reporting requirements for the delivery of accessible ICTs should be revised and updated in accordance with new technologies.

Best practice resources

EN 301 549: Annex C of the European Standard provides different models of "evidence of conformity" to adopt for manufacturers and suppliers to provide a statement that their product/service complies with the accessibility standards.

Brazil: ANATEL is in charge of creating a comparative classification of the operators according to their actions for promoting accessibility and a performance index aiming to improve telecommunication services for persons with disabilities.

5.7. E-government best practice (7)

5.7.1. E-government data strategies (7.1)

7.1: Are statistics on persons with disabilities and vulnerable groups included in e-government data strategies?

As technology becomes an important tool for interaction between people and their governments, more data have been collected ensuring better and more efficient services and public policies.

Persons with disabilities need to be part of the statistics and e-government data strategies to guarantee their rights and efficient public services.

Policies and strategies regarding the collection of information from citizens need to be determined including persons with disabilities.

Scores of 3 or 4

Policies and strategies regarding the collection of information from citizens need to be revised to ensure the inclusion of persons with disabilities, including the type of disability. This information is crucial to ensure cost-effective policies and equality.

Score of 5

Engagement strategies should be put in place to ensure the use of e-government platforms from citizens with disabilities.

Best practice resources

India: India is developing the "Unique ID for Persons with Disabilities"[1] with a view to creating a national database for persons with disabilities, and to issue a Unique Disability Identity Card to each person with disabilities. The project will not only encourage transparency, efficiency, and ease of delivering government benefits to persons with disabilities, but also ensure uniformity. The project will also help in streamlining the tracking of physical and financial progress of beneficiaries at all levels of hierarchy of implementation – from village level, block level, district level, state level and national level.

Israel: Israel issues a "Disability card"[2] to anyone who receives one of the following benefits from the National Insurance Institute: general disability pension, attendance allowance, benefit for a child with a disability, mobility allowance, compensation for scalp ringworm victims and polio victims.

[1] More on India´s policy: https://www.india.gov.in/spotlight/unique-disability-id#:~:text=Unique%20Disability%20ID-,Unique%20Disability%20ID,to%20each%20person%20with%20disabilities.
[2] More on Israel policy: https://www.btl.gov.il/English%20Homepage/Benefits/Disability%20Insurance/AdditionalRights/Pages/disabilitiescard.aspx.

5.7.2. E-government ICT accessibility requirements (7.2)

7.2: Is ICT accessibility included (defined and required) in the following e-government solutions?

- Emergency communications
- Basic education
- Higher education
- Health services
- Financial services
- Social benefits
- Justice
- Mobility
- Political participation

Scores between 1 and 18

ICT accessibility is a topic that encompasses all e-government solutions. For that reason, it is important to include definitions and requirements in pertinent laws and regulations.

Policies concerning the use of electronic platforms to provide emergency communications, basic education, higher education, health services, financial services, social benefits, justice, mobility, and political participation should include accessible ICT requirements.

Scores between 19 and 36

Revision of laws and regulations to ensure the inclusion of definitions and requirements of accessible ICTs in every sector of e-government.

Engagement strategies should be put in place to guarantee the use of these e-government solutions by vulnerable groups. The more citizens engage with these solutions, the more information the government will gather to guarantee better policies for all.

Scores between 37 and 45

Revision of laws and regulations to ensure the inclusion of definitions and requirements of ICT accessibility as well as new technologies in every sector of e-government.

Engagement strategies should be put in place to guarantee the use of these e-government solutions by vulnerable groups. The more citizens engage with these solutions, the more information the government will gather to guarantee better policies for all.

Best practice resources

Hong Kong (SAR of China): Web/Mobile App Accessibility Campaign[1]: The Office of the Government Chief Information Officer (OGCIO) is mounting a Web/Mobile App Accessibility Campaign and has adopted a multi-pronged strategy to drive the adoption of accessible design in websites and mobile applications of both public and private sectors. Examples include: Government Leadership, Fostering Awareness, Promulgating Guidelines and Tips[2] and Nurturing Expertise and Organizing Recognition Scheme.

Canada: 911 is Canada's National emergency line. Canadians who have a hearing or speech disability and who have registered can now send a text message of ¨9-1-1¨ in the case of an emergency.

Sweden: The Swedish education system (SPSM) has inspired a majority of Swedish municipalities to organize "skoldatatek", i.e. School Computer Centres, to ensure that all teachers know how to use ICT in making their teaching accessible to all pupils. It shows how inclusion can be made possible by using alternative tools such as speech synthesis and spellcheck software for pupils with reading difficulties.

United States of America: The United States Department of Labor with the support of the Partnership on Employment & Accessible Technology (PEAT)[3] launched TalentWorks[4], a free online resource that provides guidance for organizations to ensure that their web-based job applications and recruiting processes are accessible for persons with disabilities. Building a platform to provide accessibility guidance for employers may potentially improve hiring processes leading to a more diverse and inclusive workforce. Considering that most of the recruitment processes have moved online recently, this sort of initiative is necessary to promote equal opportunities to access the labour market.

Bookshare[5] is a digital platform initiated by Benetech, a non-profit organization engaged in using technology to address social challenges. Under the sponsorship of the US Department of Education's Office of Special Education Programmes, the "Bookshare and Innovation for Education" initiative offers more than 390 000 free titles to American students who have visual, physical or learning disabilities.

The Web Accessibility Toolkit for Research Libraries[6] project aims at helping research libraries achieve digital accessibility. The project commits to making digital resources usable and accessible in research libraries. The toolkit provides an explanation of standards, best practices, principles, and a step-by-step process to make an institution accessible. The toolkit was developed through a programme of the Library of Congress in partnership with the Institute of Museum and Library Services.

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1 More on the policy of Hong Kong (SAR of China): https://www.ogcio.gov.hk/en/our_work/community/web_mobileapp_accessibility/.
2 More on the policy of Hong Kong (SAR of China): https://www.ogcio.gov.hk/en/our_work/community/web_mobileapp_accessibility/promulgating_resources/.
3 More on USA's programme: https://www.dol.gov/agencies/odep/resources/peat.
4 https://peatworks.org/digital-accessibility-toolkits/talentworks/.
5 https://www.bookshare.org/cms/.
6 https://www.arl.org/news/web-accessibility-toolkit-for-research-libraries-launched-by-arl/ .

Australia: The Australian Government Profile of the Common Alerting Protocol (CAP) system[1] allows uniform text to appear as SMS text messages on the mobile phones of people travelling into or through a warning area and appear as text on electronic highway signs. The system also triggers the pagers of emergency service personnel and can activate warning sirens. This technology can be very beneficial for persons with disabilities, including the deaf, vision impaired and people from non-English speaking backgrounds, as it delivers consistent warnings and public-safety information through mobile devices.

New Zealand: The Government created Get Ready Get Through[2], a website that provides information on different types of disasters (for example earthquakes, storms, floods, tsunamis, and volcanoes) on how to prepare household emergency plans and emergency survival kit, and so forth. Information is provided in accessible formats (MP3 files, e-text, DAISY) and in multiple languages.

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[1] More on Australia´s programme: http://www.bom.gov.au/metadata/CAP-AU/About.shtml.
[2] More on New Zealand´s programme: http://www.getthru.govt.nz/.

5.7.3. E-government ICT accessibility budget (7.3)

7.3: Is a budget assigned for the implementation of ICT accessibility within the government?

Scores of 1 or 2

The achievement of inclusive digital communities requires training, the development of specialists, and the creation of a new ecosystem.

Governments should ensure sufficient budget to attain this goal.

Scores of 3 or 4

Governments should revise the implementation of their policies to revise the allocated budget with key stakeholders.

Score of 5

Indicators of social and economic development should be estimated in relation to the investment in ICT accessibility.

Best practice resources

Canada: The Broadcasting Accessibility Fund established in Canada by the Canadian Radio-television and Telecommunications Commission Broadcasting Regulatory Policy (CRTC 2012-430) is expected to:

- act as an independent and impartial funding body to support and fund innovative projects that provide platform-neutral solutions to promote accessibility of all broadcasting content in Canada;
- fund projects which provide practical solutions that tangibly increase accessibility in broadcasting as quickly as possible and, whenever possible, make use of inclusive design principles to promote accessibility at the earliest stages and in the most cost-effective manner for new technologies and applications in Canada;
- retain an independent funding officer who shall be responsible for the day-to-day operations of the corporation, subject to the overriding authority of the board of directors of the corporation.

Kenya: The Kenya Communications (Amendment) Act, 2009[1], provides for the establishment of a Universal Service Fund (USF), administered, and managed by the Communications Authority of Kenya. The purpose of the fund is to support widespread access to ICT services, promote capacity building and innovation in ICT services in the country. The sources of the fund include levies on licensees, appropriations from government as well as grants and donations. The fund, currently being put in place, is expected to finance national projects that have significant impact on the availability and accessibility of ICTs in rural, remote, and poor urban areas.

India: The Universal Service Obligation Fund[2] has the following main objectives:

- Provide widespread and non-discriminatory access to quality ICT services at affordable prices to people in rural and remote areas.
- Provide an effective and powerful linkage to the hinterland thereby mainstreaming the population of rural and remote parts of the country.
- Ensure that universal services are provided in an economically efficient manner.
- Ensure that by developing hitherto unconnected areas, the benefits of inclusive growth are provided, bringing in its wake rapid socio-economic development and improved standards of living.

[1] More on Kenya´s policy: https://ca.go.ke/wp-content/uploads/2018/02/Kenya-Information-Communications-Act-1.pdf.
[2] More on India´s policy: https://dot.gov.in/universal-service-obligation-fund-usof .

5.7.4. E-government ICT accessibility inclusive processes (7.4)

7.4: Are persons with disabilities involved in e-government processes?

Every score

"Nothing about us without us" (Latin: "Nihil de nobis, sine nobis") is a slogan used to communicate the idea that no policy should be decided by any representative without the full and direct participation of members of the group(s) affected by that policy. This involves national, ethnic, *disability-based*, or other groups that are often thought to be marginalized from political, social, and economic opportunities.

6. Accessible public access and mobile communications including an accessible equipment checklist for public access and accessible mainstream smartphones for mobile communications

To complement the toolkit and self-assessment, the following considerations are also important for policy-makers, regulators, operators, firms, organizations, and entrepreneurs that provide public access to communication services or mobile services to take into account.

Public access is usually provided for community members who cannot access high-speed Internet at home. Public Internet access is also an important part of digital literacy initiatives because it gives people an opportunity to practise their computer skills before starting their own Internet subscription. In many countries and rural areas, these public access facilities are the only way people can access the Internet. Some common public access communication spaces are public libraries, community computer centres, telecentres, Wi-Fi zones, and public schools, among others.

The impact of public access communication services on communities is undeniable. Many studies have proved that ICT is a development agent that brings sustained social and economic growth[25]. Telecentres in communities, for example, have proven to improve development in the fields of governance, civic engagement, gender empowerment, social equity, education, culture, language, income, and health. A telecentre is defined as a public place where people can access computers and the Internet. If these places and the available equipment are not accessible, people with disabilities will be excluded from the potential development that ICTs provide.

On the other hand, an estimated 69 per cent of the world population uses a mobile phone. Access to the Internet through these devices is increasing. It is important that people have access to devices that are universally designed.

Every smartphone operative system has assistive technologies that help users enhance and customize their experience. According to the 2016 US User Survey on Technology and Persons with Disabilities, 72 per cent of the users in 2016 had a smartphone versus 57 per cent in 2013. Smartphones have an impact on the ability of persons with disabilities to live independently.

The following section provides checklists of elements that regulators, policy-makers, operators, firms, organizations, and entrepreneurs should take into account to ensure accessibility in such important ecosystems.

6.1. Public access equipment accessibility requirements

In this report, public access should be understood to refer to all the public spaces that community members can use to connect to the Internet using their own devices or using public digital terminals or ICTs. Interacting online has become such an important part of society that many governments are offering free Internet access in public areas. This is true for parks, schools, government premises, and even many private businesses such as coffee shops and Internet cafés. Providers of public or private ICT services, generally to a person who does not have

[25] Tabassum (2018).

individual access, should be encouraged to ensure that the devices as well as the facilities are accessible and available on an equal basis to persons with disabilities. Those devices should also be responsive to their needs.

Kiosks, telecentres, phone shops, and ATMs should consider accessibility. A blind person who needs to use a kiosk in an airport to print a boarding pass will need to be able to listen to the instructions as well as use headphones for privacy reasons. In the same scenario, a wheelchair user should be able to reach the touchscreen of the kiosk. For this reason, guidelines are needed for providers to know the accessibility characteristics that those devices should have.

In the wake of the COVID-19 global crisis in 2020, the importance of a good Internet connection and a personal device for working, studying, and shopping has become very clear. It is evident that because of this global experience, things are and will continue to change. Policy-makers, regulators, and providers should take this moment of change to ensure the incorporation of inclusive principles to avoid exclusion and the increase of the digital divide. The coronavirus crisis has accelerated the uptake of digital solutions, tools, and services, speeding up the global transition towards a digital economy. The least developed countries and vulnerable groups are the most sensitive to the physical and economic consequences of the pandemic, and they also lag farthest behind in digital readiness.

In the light of this new reality, the demand for affordable and accessible digital information products and services is expected to increase. Digital inclusive societies will need to focus on fostering accessibility, affordability and adoption and use of ICTs by all people. That means providing affordable infrastructure and equipment, and delivering digital content in accessible formats to ensure inclusiveness of everyone.

In line with the ITU Model ICT accessibility Policy Report, it is important to:

- Put measures in place to ensure that persons with disabilities have access, on an equal basis with others, to public ICT devices, services, applications, and content in urban, suburban, and rural areas.
- Promote, at an early stage of design and implementation, the accessibility of public ICT services to lower costs of providing accessible public ICT services.
- Promote affordability in public ICT services through subsidies and incentives, and, where possible, identifying and mitigating the barriers to fully accessible public ICT access services.

Regulators and policy-makers can impose regulations when public access is offered with public funding or publish guidelines to ensure kiosks, cybercafés, co-working spaces, and telecentres are accessible for all.

The following checklist can be used by all providers of public access communication services to assist them in ensuring the accessibility of their equipment as well as their physical facilities.

Table 10: Hardware requirement

Hardware requirement	Yes	No
Is equipment accessible for people with sensory disabilities, including the deaf and hard-of-hearing, the blind, and people with reduced vision?		

Table 10: Hardware requirement (continued)

Hardware requirement	Yes	No
Is one large monitor, at least, available so that a greater amount of the screen can be viewed while magnified?		
Is equipment marked with large print and/or Braille labels?		
Can controls on computers, printers, scanners, and other information technology be reached from a seated position?		
Are adequate work areas available for both right and left-handed users? Or is hardware easily useable by both types of users?		
Do the devices offer the option of being used with headphones? Are headphones available for users ,who want to consult private information?		

Table 11: Software requirement

Software requirement	Yes	No
Do electronic resources, including the public access provider's webpages, adhere to accessibility guidelines or standards (Web Content Accessibility Guidelines WCAG 2.0 level A or AA)?		
Do you provide special software that is beneficial to persons with disabilities (e.g. screen readers, magnifiers)?		

Table 12: Assistive technologies and artificial intelligence (AI)

Assistive technologies recommended for accessible schools, telecentres, public libraries, and so forth (spaces aimed at offering communication services and creating capabilities for the community)	Yes	No
Keyguard		
Head pointer		
Head mouse		
Accessible mouse		
Alternative keyboards		
Keyboard for low vision/Braille keyboard		
Screen magnifier		
Screen reader		
Voice recognition software		
Text to voice software		
Voice to text software		

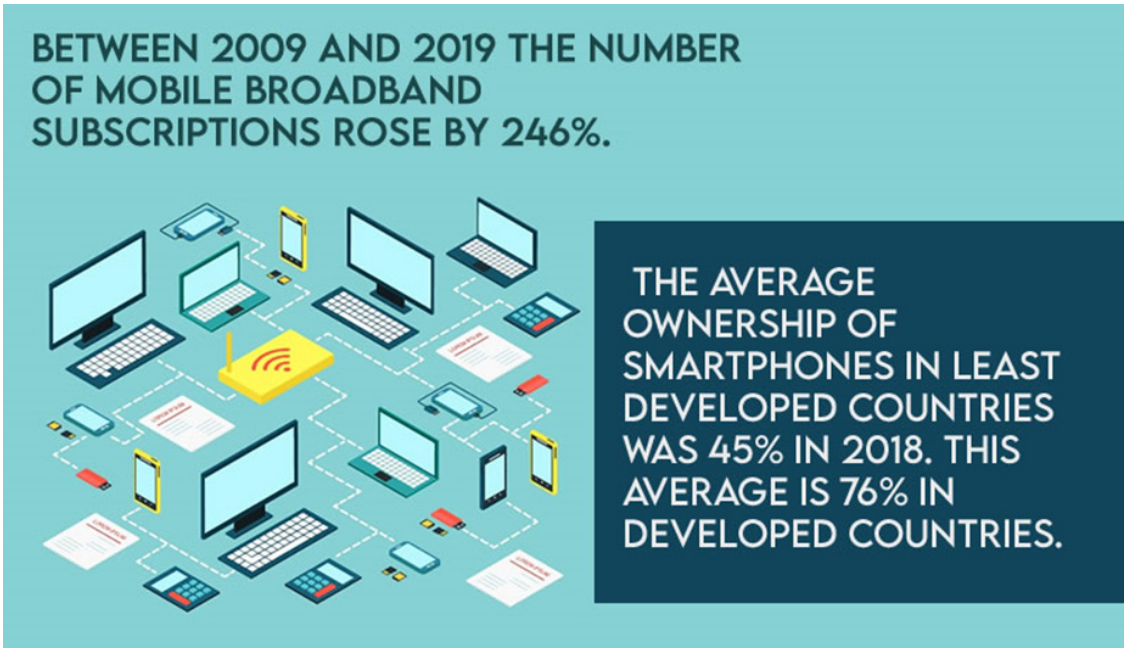
Table 13: Physical accessibility

Physical accessibility	Yes	No
Are parking areas, pathways, and entrances to the buildings wheelchair accessible and clearly marked?		
Are aisles wide, and clear of obstructions for wheelchair users as well as people with mobility or visual impairments?		
Do restrooms have an accessible bathroom?		
Is an adjustable-height table available for some of the workstations in the public access facility? Can the height be adjusted from a seated position?		
Is, at least, part of a service counter or desk at a height accessible from a seated position?		

6.2. Mobile phones accessibility requirements

In many regions, mobile phones have become the primary means of accessing the Internet. Digital transformation brings more opportunities for the connected and increases the digital divide for those who do not have digital literacy or lack access.

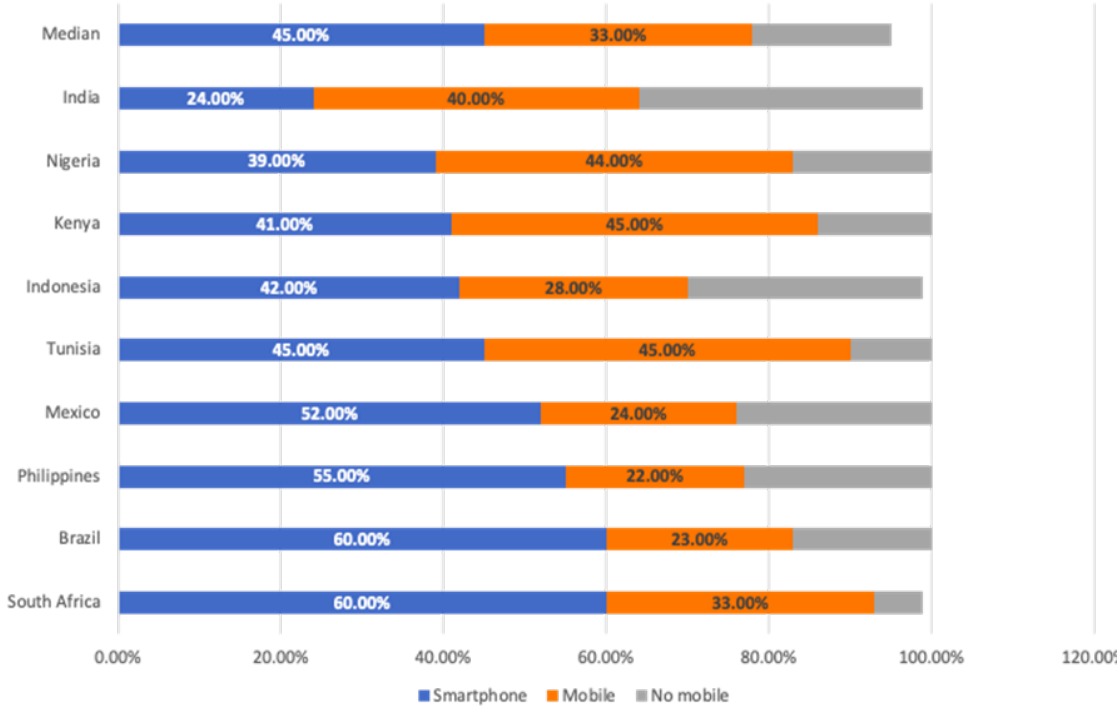
Figure 22: The average ownership of smartphones



Source: ITU

The use of smartphones has increased all over the world. According to ITU statistics, between 2009 and 2019 the number of mobile broadband subscriptions rose by 246 per cent. The average ownership of smartphones in the least developed countries was 45 per cent in 2018. This is due to the availability of cheaper devices in the market. In developed countries, the average is 76 per cent.

Figure 23: Access to mobile technology: smartphone/mobile/no mobile usage



Source: Spring 2018 Global Attitudes Survey

Access and use of mainstream wireless technology have become essential to social and economic participation. Smartphone and tablet manufacturers have been developing more and more universally designed devices. This is not only because of a market estimated at USD 13 trillion of accessible products and services[26], but also because universally designed products have a positive impact for all.

These accessible mainstream devices have taken on a new level of importance for the independent living of persons with disabilities. A blind person who used to carry a talking GPS device, a talking note-taker, a talking MP3 player, a talking barcode scanner, or any kind of talking device, now only needs to carry a smartphone.

The 2016 Smartphone Use and Activities by People with Disabilities: User Survey confirms the increase in ownership of smartphones and tablets among adults with disabilities versus the general population.

Table 14: Device ownership by adults with disabilities and in the general population

Device type	Persons with disabilities 2012-2013	Persons with disabilities 2015-2016	General population 2013	General population 2015
Basic mobile phone	27%	13%	35%	24%
Smartphone	57%	72%	56%	68%

[26] The Global Economics of Disabilities: http://www.rod-group.com/sites/default/files/2020%20Annual%20Report%20-%20The%20Global%20Economics%20of%20Disability.pdf.

Table 14: Device ownership by adults with disabilities and in the general population (continued)

Device type	Persons with disabilities 2012-2013	Persons with disabilities 2015-2016	General population 2013	General population 2015
Tablet	35%	50%	34%	45%

Source: Morris et all 2017 p.52

Regulators and policy-makers can impose regulations to ensure that mobile communication services are accessible for all.

Regulators should work with operators to guarantee the availability of special programmes and tariffs for persons with disabilities in accordance with their needs.

A very useful resource related to mobile accessibility is the Mobile & Wireless Forum (MWF) "Global Accessibility Reporting Initiative" (GARI)[27]. This initiative is a free online database that lists the accessibility features of mobile phones, tablets, apps, Smart TVs, and wearables. GARI provides information on more than 110 accessibility features of approximately 1 100 mobile phone models worldwide.

The following checklist can be used by all regulators and providers to ensure policies that foster an affordable and accessible mobile communication market.

Table 15: General considerations

General considerations	Yes	No
Regulation or policy ensuring retailers have available mainstream devices with accessibility features.		
Regulation or policy ensuring accessible service information websites, accessible service contracts, and accessible digital invoices.		
Regulation or policy ensuring emergency mobile communication is accessible for persons with disabilities, including the provision of real-time text and video-relay.		
Regulation or policy ensuring special or discounted rates for persons with disabilities such as text-only plans for the deaf and hard-of-hearing.		
Regulation or policy promoting the development and availability of accessible applications ("apps") for persons with disabilities and accessible in "app stores".		

Table 16: Smartphone/Tablet accessibility features

Smartphone/Tablet accessibility features	Yes	No
Vision: making text larger		
Vision: changing colours		

[27] More information on GARI: https://www.gari.info/index.cfm?lang=eng.

Table 16: Smartphone/Tablet accessibility features (continued)

Smartphone/Tablet accessibility features	Yes	No
Vision: screen reader		
Hearing: flash when a notification is received		
Hearing: adjust left/right volume balance		
Hearing: phone noise cancellation		
Motor: text replacement		
Motor: voice control		

Table 17: Mobile apps

Mobile apps	Yes	No
Captioning		
Text to speech compatibility		
Information designed for people with colour-blindness		
Adjustable time for people with learning disabilities		
Adjustable text size, colour, and brightness		

Table 18: Affordability

Affordability	Yes	No
Policy or programme to ensure the availability of affordable accessible devices in the market for persons with disabilities (subsidies, fiscal incentives).		
Are persons with disabilities beneficiaries of programmes funded by the Universal Service Fund?		
Policy or programme that guarantee proper take-back schemes, through refurbishing or recycling organizations to ensure availability of affordable and accessible smartphones or to minimize electronic waste.		

Best practice resources

ITU-D resources

ITU-D "Making Mobile Phones and Services Accessible for Persons with Disabilities" compiles and analyses different ways in which mainstream accessible mobile phone technologies and services are already implemented around the world by various stakeholders.

Figure 24: Making mobile phones and services accessible

Source: ITU
https://www.itu.int/en/ITU-D/Digital-Inclusion/Persons-with-Disabilities/Documents/Making%20Mobile-English.pdf

The "Global Accessibility Reporting Initiative" (GARI) is working with at least eight countries to promote their database of accessibility features for mobile phones, tablets, apps, Smart TVs, and wearables, generally through the public regulatory agency as evidenced in the following cases:

Brazil: Agência Nacional de Telecomunicações (Anatel)

https://www.gov.br/anatel/pt-br

Finland: Finnish communications regulatory authority (FICORA)

https://www.viestintavirasto.fi/en/internettelephone/purchasingatelephoneandbroadbandsubscription.htm

Portugal: Autoridade Nacional de Comunicações (ANACOM)

http://www.anacom.pt/render.jsp?contentId=1142009#.Vh6gWaJhrwQ

Romania: National Authority for Management and Regulation in Communications (ANCOM)

http://www.ancom.org.ro/en/baza-de-date-telefoane-persoane-dizabilitati_5252

United States: Federal Communications Commission (FCC) Accessibility Clearinghouse

http://ach.fcc.gov/products-and-services

7. Glossary of definitions and key principles related to ICT accessibility in the context of the global digital ecosystem[28]

It is essential that all stakeholders understand and use appropriate terms and principles related to ICT and digital accessibility in the context of the global digital ecosystem. Therefore, the following terms and definitions are provided:

Accessibility: Accessibility is the extent to which products, systems, services, environments, and facilities can be used by people from a population with the widest range of characteristics and capabilities, to achieve a specified goal in a specified context of use.[29]

Accessible communication: Accessible communication is defined in Article 2 of the Convention on the Rights of Persons with Disabilities as including "any means and formats of communication, whether delivered aurally, visually or tactilely, including spoken and sign language, display of text, Braille, tactile communication, large print, accessible multimedia as well as written, audio, plain-language, human-reader and augmentative and alternative modes, means and formats of communication, including accessible information and communication technology."[30]

Accessibility content: Content delivered by an audiovisual media solution, e.g. captions, subtitles, audio description, audio subtitles. These differ from the device´s interface accessibility that is accessible to persons with disabilities, as well as persons with specific needs.

NOTE – Access services are a primary means of delivering accessibility content.

Accessibility feature: An additional content component that is intended to assist people hindered in their ability to perceive an aspect of the main content.

Accessible ICTs: The equipment or the service that comply with accessibility requirements and as a result, can be accessed, understood and used by all persons with the widest range of abilities, taking into account their different needs and/or circumstances. Accessible ICTs are compatible with assistive technologies.

Accessible publication formats: Means making information available in formats such as Braille, audiotape, oral presentation, sign language (included in light of rich media being used in electronic publishing) or electronically for persons with reading impairments.

Accessible publishing: Making available in an accessible format, which may include, but is not limited to, alternate formats such as Braille, audiotape, oral presentation or an electronic file. An accessible publication is a publication which offers the maximum flexibility to users and allows content to be accessed and manipulated easily by users with or without disabilities.

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28 ITU-T Accessibility Terms and Definitions and European Mandate 376 definitions https://www.itu.int/rec/T-REC-F.791-201808-I/en.

29 ISO.

30 UN Convention of the Rights of Persons with Disabilities.

Affordability: Means the state of being cheap enough for people to be able to buy.

Therefore, affordability should be considered as a key element to ensure that persons with disabilities have access to ICTs.

Assistive listening device (ALD): Devices that enable persons who are hard-of-hearing to hear sounds and speech on an improved basis.

Assistive listening system (ALS): Assistive technology (AT) systems that utilize electromagnetic radiation, commonly radio or light waves, or a combination of the two, to enable the transmission of an acoustic signal from a sound source (e.g. a loudspeaker or a person talking) directly to the hearing aid or cochlear implant processor of a person who is hard-of-hearing.

Assistive technology (AT): Assistive technology is a separate hardware or software added to equipment or services to enable persons with more severe disabilities to overcome the barriers they face to access information and communication. Assistive technologies are used to enable or compensate users with functional, motor, sensory or intellectual limitations.

Audio subtitles; spoken subtitles: Subtitle text rendered into speech by a human voice artist or a synthetic voice from text-to-speech software.

Audio captions; audio captioning: Captions that are read aloud and reflected as speech. Audio captioning may also be called "audio subtitles" or "spoken subtitles" in the case of foreign language dialogue. Captions can also be used to designate the audio content of an audiovisual work or sequence in any language along with action. Captions are read aloud by a human or a specific apparatus that converts the text into speech.

Audio description; video description; visual description; described video: An additional audio track to aid persons with visual impairments who cannot follow the visual content.

Auxiliary services and aids: Aids and services that assist persons with disabilities to perceive and understand verbal and non-verbal communication. Auxiliary aids and services can include:

- qualified sign language interpreter services; note-takers; computer aided transcription services; written materials or exchange of written notes; telephone amplifiers; assistive listening devices and systems; telephones compatible with hearing aids and cochlear implants; closed caption decoders; open and closed captioning; voice, text and video-based telecommunication products and systems, including videophones and captioned telephones, or equally effective telecommunication devices; videotext displays; accessible electronic and information technology; or other effective methods of making aurally delivered information available to individuals who are deaf or hard-of-hearing;
- qualified readers; taped texts; audio recordings; Braille materials and displays; screen reader software; magnification software; optical readers; secondary auditory programmes (SAP); large print materials; accessible electronic and information technology; or other effective methods of making visually delivered materials available to individuals who are blind or have low vision;
- acquisition or modification of equipment or devices; and
- other similar services and actions.

Barrier: Attitudinal or environmental factor that, in relation to an impairment, limits functioning and participation in society on an equal basis with others.

Braille: A series of raised dots that can be read with the fingers. It is generally used by people who are blind or whose eyesight is not sufficient for reading printed material.

Broadcasting: Refers to programming provided via broadcast, cable, satellite, Internet, and programming provided on a stand-alone disc, tape or in any other removable media format.

Captions; captioning: A real-time transcription of spoken words, sound effects, relevant musical cues and other relevant audio information in live or pre-recorded events. Captions can be open, not adjustable by the user, or closed where they can be turned on and off by the users at will. See clause 3.13 of ITU-T F791[31] for further explanation of open and closed accessible services.

Clean audio: An enhanced audio signal by means of signal processing, with improved intelligibility of the dialogue with respect to ambient noise, background noise, music, etc. This can also apply to the quality of the audio used for audio captioning, audio description, and subtitles.

Closed/open accessibility service: An accessibility service – audio description, audio subtitling, captioning and sign language – that can have the option of being selected by the end user. If this is the case, it is closed. If it cannot be selected or turned off by the user, it is an open service – that is, open caption.

Cloud computing: On-demand availability of computer system resources, especially data storage and computing power, without direct active management by the user. The term is generally used to describe data centres available to many users over the Internet. Large clouds, predominant today, often have functions distributed over multiple locations from central servers. If the connection to the user is relatively close, it may be designated an edge server.

Data analytics: Science of analysing raw data in order to make conclusions about that information. Many of the techniques and processes of data analytics have been automated into mechanical processes and algorithms that work through raw data for human consumption.

Digital communication: Digital communication includes all types of information and communication made available through Internet, broadband, online radio, digital television, mobile phones or tablets including available electronic form, readable and manipulable by computer.

[31] https://www.itu.int/rec/T-REC-F.791.

Digital inclusion: Digital inclusion is the ability of individuals and groups to access and use information and communication technologies regardless of gender, age and location. Digital inclusion has two critical elements namely, infrastructure and ICT accessibility:

1. **Infrastructure:** Digital infrastructure comprises the physical resources that are necessary to enable the use of data, computerized devices, methods, systems and processes. Internet connectivity refers to the means to connect people and machines. It usually requires the core and access network infrastructure, the services and the user equipment.
2. **ICT accessibility:** ICT accessibility enables digital inclusion for the widest range of people, including persons with disabilities and other persons with specific needs by adding in addition to the digital equality the component of digital equity. Digital equity is necessary to respect civic and cultural participation, employment, lifelong learning, and access to essential services by all people including those with disabilities. ICT accessibility also refers to the products, services and content developed in conformity with the accessibility standards; and the legislations, policies and regulations that ensure the development and availability of accessible and affordable ICTs as well as their appropriation and adoption by all people.

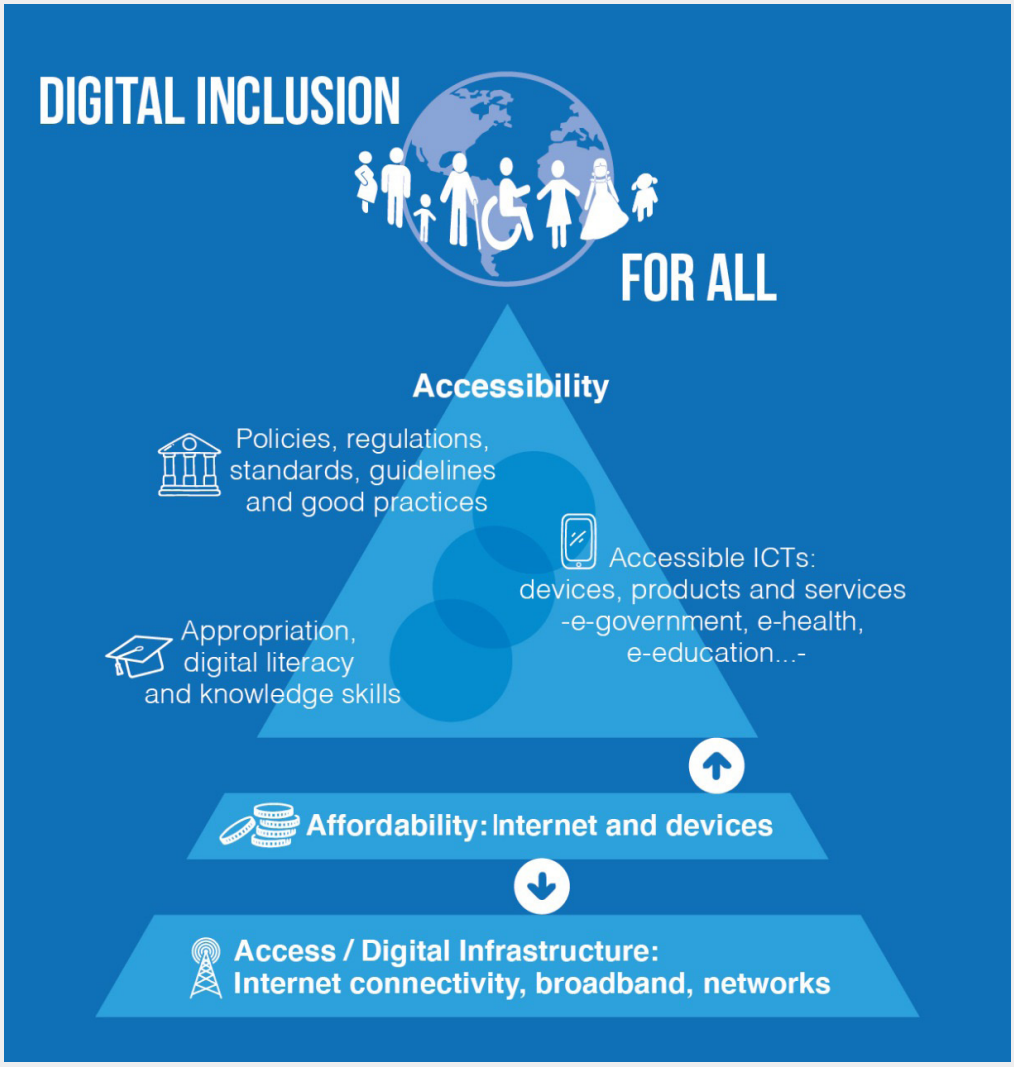
    a) Affordability: The price of telecommunication and Internet services is cited regularly as one of the major barriers to Internet access and usage.

Source: ITU on Affordability.

    b) Accessibility: Accessible ICTs require that the product and service have embedded accessibility features from design/fabrication stage, as a result the ICT can be used by ALL users based on their own capabilities, needs and/or circumstances.
    c) Adoption: Digital skills underpin nearly every aspect of work and life. From filling in a government form to communicating for work, it is difficult to find a job or life-task that does not require a basic level of digital functioning.

Source: ITU Digital Skills Toolkit.

Figure 25: Digital inclusion



Source: ITU

Digital skills: Digital skills exist on a spectrum, from basic to advanced, and encompass a "combination of behaviours, expertise, know-how, work habits, character traits, dispositions, and critical understandings."[32]

Digital transformation: Digital transformation is the process of using digital technologies to create new – or modify existing – business processes, culture, and customer experiences to meet changing business and market requirements. This reimagining of business in the digital age is digital transformation.

[32] ITU Digital Skills Toolkit: https://www.itu.int/en/ITU-D/Digital-Inclusion/Youth-and-Children/Pages/Digital-Skills-Toolkit.aspx.

Disability: An evolving concept, which refers to the interaction between persons with impairments, and attitudinal and environmental barriers that hinder their full and effective participation in society on an equal basis with others.

Effective communications: Any communication presented in a manner, or for which auxiliary aids are afforded, so that the information provided is equally accessible to individuals with disabilities, including those with visual, hearing, cognitive, learning, speech, or motor disabilities. Persons with disabilities shall be consulted whenever possible to determine what type of auxiliary aid is needed to ensure effective communication.

Electronic document: An electronic document is any electronic media content (other than computer programs or system files) that is intended to be used in either electronic form or as printed output.

Facilitator: An attitudinal or environmental factor, such as a person, environment or tool, that improves functioning and reduces disability through its absence or presence.

Human factors; ergonomics: Factors relating to usability and proper interaction between people and products and devices; services, systems, or environments, both real and virtual.

Impairment: term used to refer to the loss or limitation of physical, mental, intellectual or sensory function on a long -term or permanent basis.

Information and communication technologies (ICTs) encompass a wide range of hardware and software, devices and computers, formats and systems that enable communication through electronic means. This includes devices and systems used for the storage, processing, and retrieval of electronic information to the array of devices and software used to retrieve this information, as well as those used to communicate, in real-time, with other people.

Interface accessibility: Accessibility of the set of provisions that allow a user to operate and control audiovisual media solutions.

Keyboard emulator: Hardware or software input device that emulates the key press outputs of an alphanumeric keyboard.

Language: (Article 2, Convention on the Rights of Persons with Disabilities) Includes spoken and signed languages and other forms of non-spoken languages.

Lip reading; lip-reading interpretation: A form of communication or interpretation used by persons that are deaf or hard-of-hearing, regardless of whether they use sign language.

Lip speaker; oral interpreter: A trained interpreter for persons who are deaf and hard-of-hearing, who silently says the dialogue in the audiovisual content or in any other event in real time, so that the speech is clearly discernible for persons with hearing disabilities who can lip-read the words from the interpreter's mouth without the use of sign language.

Mainstreaming: Inclusion of persons with disabilities in everyday life without segregation from environment, education, or technology. For example, access to telephones, the Internet, and any other information or communication technologies (ICTs).

Mobile application: A mobile application, also referred to as a mobile app or app, is a computer program or software application designed to run on a mobile device.

Person with age-related disabilities: A person with cognitive or physical disabilities caused by the aging process. For example, impaired eyesight, deafness in varying degrees, or reduced mobility or cognitive abilities.

Persons with disabilities: means individuals who have long-term physical, mental, intellectual or sensory disabilities, which, in interaction with various barriers, may hinder their full and effective participation in society on an equal basis with others. The correct way to refer to a person with a disability.

Person with specific needs: Includes persons with disabilities, persons who are not literate, those with learning disabilities, children, indigenous people, older persons with age-related disabilities and anyone who has a temporary disability.

"Public access" or "public access communications services": refers to electronic communication services provided to the public, including persons with disabilities, on a stand-alone basis through public payphones or on a shared basis through devices placed in public spaces such as cyberlabs, Internet cafés, telecentres, multipurpose community centres, kiosks, public community Internet access points and phone shops.

Pixellation: A phenomenon caused by displaying a bitmap or a section of a bitmap at such a large size that individual pixels become visible, making the image blurred and more difficult to decipher.

Platform accessibility feature: Accessibility functionality provided as standard on a given hardware or software platform.

Profile setting: The ability for users to store and retrieve multiple profiles containing sets of user interface preference settings without having to reset them each time, including accessibility settings.

Real time: Data or services (e.g., broadcasting) that are transmitted with virtually no delay.

Relay service: A telephone service that enables a person who is deaf or hard-of-hearing, or whose speech is not clearly understood, or who prefers to use sign language, to place and receive telephone calls in real time.

Remote participation: Participation in a meeting from a separate geographical location, using communication technologies.

Respeaking: A technique to produce captions where the captionist ("the respeaker") listens to an audio source and repeats it exactly into a microphone, in such way that the vocal input of the respeaker is processed by speech recognition software that transcribes it and produces captions.

Screen magnification software: A software application used by visually impaired persons to magnify a portion of the text or graphics displayed on a video screen sufficiently to enable reading and comprehension.

Screen reader software: A software application used by a blind person or by someone who cannot read print to render text and image alternative text content displayed on the screen of a computer, mobile phone, tablet as speech or braille output.

Sign language; signed language; visual signing: A natural language that, instead of relying on acoustically conveyed sound patterns, uses signs made by moving the hands combined with facial expressions and postures of the body to convey meaning.

NOTE – Sign language varies from country to country, including many dialects, in a similar manner to spoken languages.

Sign language interpretation: Synchronized showing of an interpreter who uses sign language to convey the main audio content and dialogue to people who use sign language.

Sign language presentation: The process of presenting, in a unidirectional manner, a topic to an audience using sign language.

NOTE – In certain cases, a synthetic construct (e.g. an animated avatar) can be used in place of an interpreter.

Specific needs: This replaces the use of the term "special needs". This term refers to a wide range of categories including women, children, youth, indigenous people, older persons with age-related disabilities, persons who are illiterate, as well as persons with disabilities.

Speech to text interpretation (STTI): A simultaneous form of text interpretation conveying spoken content.

Subtitles: On-screen text translation of the dialogue in any audiovisual content.

Supplementary audio service: An additional audio soundtrack that provides additional features or functions over and above those provided by the main audio stream.

Universal design: 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. Universal design shall not exclude assistive devices for specific groups or persons with disabilities where needed.

Universal Service Fund: is a funding mechanism designed as an incentive to ensure that telecommunication services are accessible to the widest number of people (and communities) at affordable prices.

User experience: Perceptions and responses resulting from the use or anticipated use of a product, system or service, including the navigation of a physical or virtual environment.

NOTE 1 – User experience includes all the user's emotions, beliefs, preferences, perceptions, physical and psychological responses, behaviours, and accomplishments that occur before, during, and after use.

NOTE 2 – User experience is a consequence of brand image, presentation, functionality, system performance, interactive behaviour and assistive capabilities of the interactive system, the user's internal and physical state resulting from prior experiences, attitudes, skills and personality, as well as the context of use.

NOTE 3 – Usability, when interpreted from the perspective of the user's personal goals, can include the kind of perceptual and emotional aspects typically associated with user experience. Usability criteria can be used to assess aspects of user experience.

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ISBN: 978-92-61-32391-2

Published in Switzerland
Geneva, 2021
Photo credits: Shutterstock