

Output Report on ITU-D Question 7/1 **Telecommunication/ICT accessibility to enable inclusive communication, especially for persons with disabilities**

Study period 2022-2025



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inclusive communication,
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Table of contents

Acknowledgements	iii
Executive summary	vi
i Introduction.....	vi
ii Statement of the situation	vii
Abbreviations and acronyms	xii
Chapter 1 – Telecommunication/ICT accessibility policy and regulatory framework	1
1.1 Policy and regulatory frameworks for telecommunication/ICT accessibility for persons with disabilities and other persons with specific needs, and tools to foster their implementation.....	1
1.2 Guidelines for amending existing legislation to implement ICT accessibility.....	7
1.3 Overview of current policies and regulations for telecommunication/ ICT accessibility for persons with disabilities and other persons with specific needs	10
1.4 Good practices, challenges and available case studies.....	11
Chapter 2 – Technologies and solutions in an ICT-accessible ecosystem	14
2.1 Mobile communication accessibility policy framework	16
2.2 Television/video programming accessibility policy framework.....	19
2.3 Other technologies and solutions.....	22
2.4 Policy approaches to web accessibility	25
2.5 Accessible ICT public procurement policies and strategies	27
Chapter 3 – Requirements and guidelines to promote, implement and use accessible public telecommunication and ICT spaces	29
3.1 Requirements for relay services for persons with disabilities and other persons with specific needs.....	29
3.2 ICT accessibility in education.....	31
3.3 Requirements for accessible devices and apps for older persons with age-related disabilities	34
3.4 Accessibility of e-government and other services and applications	37
Chapter 4 – Conclusions and guidelines.....	40
4.1 Key issues to be considered for implementing a telecommunication/ ICT accessibility policy and regulatory framework for persons with disabilities and persons with specific needs in all countries	40

4.2 Promoting accessibility in public ICT spaces, such as telecentres and public payphones.....	41
4.3 Promoting accessibility tools for accessible e-education, which can be used for people who have difficulties mastering reading and writing.....	41
4.4 Key policy considerations for web accessibility	42
4.5 Key policy considerations for accessible mobile phones and services	43
4.6 Key issues identified by members regarding developing policies and services for accessibility of audiovisual media content.....	44
4.7 Key considerations in public procurement.....	44
4.8 Final comments – way forward	45
Annex 1: Overview of good practices and achievements in ICT accessibility worldwide.....	46
Annex 2: List of contributions and liaisons statements received for Question 7/1.....	48
Annex 3: List of lessons learned received for Question 7/1.....	56

Executive summary

i Introduction

Promoting digital inclusion in the context of the global information revolution

In our contemporary era, as the digital revolution continues to gain momentum, the profound global impact of information and communication technologies (ICTs) is undeniable across all sectors. Recognizing this, it is imperative for policy-makers, non-profit organizations and businesses to expand access to telecommunications/ICTs comprehensively. Moreover, they must ensure that digital information products and services are universally accessible, transcending factors such as gender, age, abilities, location or financial means. This approach is not only essential for creating a more enabling and competitive global society but is also fundamental to achieving digital inclusion.

This overarching objective aligns seamlessly with target 2.1 of the strategic plan of the International Telecommunication Union (ITU) for 2024-2027: *All digital gaps to be bridged (in particular gender, age and urban/rural)*.¹

To translate these aspirations into reality, ICT accessibility policies and strategies must be prominently placed on the global policy agenda. Industry and the private sector play a pivotal role in this endeavour to achieve the development of accessible ICTs. Importantly, the United Nations recognizes access to information, including digital information and the Internet, as a basic human right. Enjoyment of this right should be extended to all citizens worldwide, and in this regard the full implementation of the United Nations Convention on the Rights of Persons with Disabilities (CRPD) will be a key aspect of achieving digital inclusion.²

The CRPD designates ICTs as integral components of accessibility rights, alongside transportation and the physical environment. Implementation of the CRPD resonates with and influences the United Nations Sustainable Development Goals (SDGs) and the global commitment to ensuring that "no one is left behind." Realizing this commitment is contingent upon making ICTs available, accessible and affordable to all segments of society, particularly disadvantaged groups – persons with disabilities, those with specific needs (including indigenous peoples and rural inhabitants), women and girls, youth, children and older persons.

While the proliferation of new ICTs has a positive impact on sustainable development, it also poses potential risks that demand policy responses. Notably, nearly half of the world's population remains unconnected to the Internet. The advent of technological changes, including the influence of artificial intelligence (AI) and the emergence of smart cities and societies, holds the potential to create new divisions. Timely implementation of enabling environments, with appropriate policies, strategies and regulatory frameworks, is therefore pivotal to ensuring that the contribution of ICTs to sustainable development is positive and truly leaves no one behind.

Every individual should have access to the Internet, mobile phones, television, computers and the myriad associated applications and services. These technologies play essential roles in

¹ ITU Strategic Plan 2024-2027 <https://www.itu.int/en/council/planning/Pages/default.aspx>

² <https://www.un.org/disabilities/documents/convention/convoptprot-e.pdf>

education, economic and social life, cultural activities, e-government and e-health. Exclusion from these ICT-enabled services not only isolates individuals from the information society and hinders access to crucial public services but also denies them the opportunity to lead independent lives.

ITU has a specific mandate on accessibility from its statutory body³. It has been leading this topic with expertise since 2006, working with all through the Study Group 1 Question on ICT accessibility to make communication inclusive for all, including persons with disabilities and persons with specific needs.

The Kigali Action Plan⁴, the ITU strategic plan, and the resolutions of the World Telecommunication Development Conference 2022 and the Plenipotentiary Conference 2022 reiterate the importance of guaranteeing that the digital transformation agenda is inclusive for all people, without any discrimination on the basis of age, gender, level of education or geographical location. Common efforts are employed by ITU members and all involved stakeholders towards ensuring an inclusive digital transformation in which all people are equally and equitably empowered through ICTs to be digitally included and active contributors within digital societies, economies and environments.

To reach this target, it will be vital to implement ICT/digital accessibility policies and strategies and mainstream them across all sectors and activities in which the use of technology is intended for all end users. By extension this Study Group Question has a critical role to play in achieving both an inclusive digital transformation as well as inclusive digital communication for all people.

ii Statement of the situation

Advancing ICT accessibility: a call to collective action

The World Health Organization estimates that 1.3 billion people – or 16 per cent of the global population – are currently living with a significant disability.⁵ The 2022 United Nations report on the ageing of the world population indicates that the share of the global population aged 65 years or more will rise from 10 per cent in 2022 to 16 per cent in 2050.⁶

Between 2015 and 2030, the number of people in the world aged 60 years or over is projected to grow by 56 per cent, from 901 million to 1.4 billion, and by 2050, the global population of older persons will approach 2.1 billion. Given the higher disability rates among older persons, the result of a lifetime of exposure to health risks including disease, injury, and chronic illness, there is urgency for countries to review and further explore the complementarities between the discourses on ageing and on disability. Around the world, persons with disabilities face obstacles including attitudinal, environmental and institutional barriers preventing their full and equal participation in all aspects of life. Older persons with disabilities are often among the most adversely affected, compounding the other age-related barriers they face in society.⁷

Furthermore, as remarked within the framework of “Making Listening Safe”, a joint initiative of ITU and the World Health Organization (WHO), 1.1 billion young people are at risk of suffering

³ <https://www.itu.int/en/ITU-D/Digital-Inclusion/Pages/ICT-digital-accessibility/default.aspx> (ITU mandate)

⁴ <https://www.un.org/disabilities/documents/convention/convoptprot-e.pdf> (Kigali Action Plan)

⁵ <https://www.who.int/news-room/fact-sheets/detail/disability-and-health> (WHO, 2023)

⁶ https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/wpp2022_summary_of_results.pdf

⁷ <https://www.un.org/development/desa/disabilities/disability-and-ageing.html>

hearing loss due to unsafe listening habits.⁸ These data suggest that, in the next 30 years, the number of people affected by some form of disability could increase to constitute half of the world's population, all of whom will require accessible ICTs. Accessibility of ICTs for everyone means equitable access to information and communication, without limitation.

Realizing the vision of universal ICT accessibility requires concerted efforts and strategic measures at various levels. Key steps towards achieving this goal involve the formulation of national policies and legal frameworks, the development of standards, capacity building, awareness-raising, sharing best practices, and the prompt implementation of solutions to adapt to evolving technological trends. In this regard, stakeholders across the spectrum are urged to actively participate in global and regional initiatives that promote ICT accessibility, including engagement with ITU regional initiatives, the ITU Digital Inclusion programme, and ongoing technical standardization endeavours in the field of ICT accessibility. Effective implementation of existing accessibility legislation is equally paramount.

To support stakeholders in their pursuit of ICT accessibility, ITU provides a wealth of resources. These include model policies and guidelines, training courses, video tutorials offering insights into the creation of accessible digital content, and a dedicated programme focusing on web accessibility. Additionally, the Rapporteur Group on Question 7/1⁹ serves as a platform for collaboration, working closely with other ITU sectors and external partners.

Through these mechanisms, ITU plays a vital role in fostering a sustainable and engaged membership, while actively driving the implementation of key steps at the national, regional, and global levels. This collaborative approach is integral to building an inclusive digital landscape that ensures equitable access to ICTs for all.

Promoting digital inclusion: the crucial role of ITU

ITU is a pivotal player in the Internet governance landscape, dedicated to fostering inclusivity in digital societies and environments. Its efforts extend to promoting affordable broadband connectivity, establishing technical standards for interoperability, and alignment with ICT/digital accessibility principles and universal design criteria. Accessibility is the on-ramp to the digital realm, ensuring that technology as a medium for communication is accessible to all.

ITU works to increase access to ICTs for persons with disabilities by raising awareness of their right to access ICTs, mainstreaming accessibility in the development of international technical standards, and providing education and training on key accessibility issues.

ITU-T

In the ITU Standardization Sector (ITU-T), the World Telecommunication Standardization Assembly (WTSA) has adopted Resolution 70¹⁰, on telecommunication/information and communication technology accessibility for persons with disabilities and persons with specific needs, recently revised by WTSA-24 (New Delhi, 15-24 October 2024). For an overview of accessibility-related activities in ITU-T and in the Telecommunication Standardization Bureau (TSB), see ITU-T and Accessibility website¹¹.

⁸ WHO (2015). Prevention of blindness and deafness (PBD). Make Listening Safe. <https://www.who.int/pbd/deafness/activities/MLS/en/>

⁹ <https://www.itu.int/en/ITU-D/Study-Groups/2022-2025/Pages/reference/SG1/questions/Question-7-1.aspx>
¹⁰ <https://www.itu.int/pub/T-RES-T.70-2024>

¹¹ <https://www.itu.int/en/ITU-T/accessibility/pages/default.aspx>

ITU-R

In the Radiocommunication Sector (ITU-R), five publications that take into consideration various aspects of accessibility were revised and approved during 2023. This was in response to Resolution ITU-R 67-2, on telecommunication/ICT accessibility for persons with disabilities and persons with specific needs (approved by RA-23 on 17 November 2023) and Recommendation ITU-R BT.1702-3, on guidance for the reduction of photosensitive epileptic seizures caused by television (approved on 22 November 2023, – responsible group SG 6 (WP 6C))¹².

Why addressing accessibility is integral to achieving digital inclusion

Within the digital ecosystem, accessibility and inclusion are intricately connected. In the pursuit of digital inclusion, three foundational pillars demand attention: access to the Internet, affordability, and ICT/digital accessibility.

Internet access: Guaranteeing universal Internet access is paramount, irrespective of geographical location, socio-economic status or other factors. Numerous regions still grapple with limited or non-existent Internet access. Initiatives to enhance access include the expansion of broadband infrastructure, provision of Internet access in public spaces, and promotion of low-cost mobile devices.

Affordability of Internet services: Beyond access, affordability is equally critical. Even with Internet access, individuals may be hindered by the cost of Internet services, particularly challenging for low-income households and individuals in developing countries. Efforts to promote affordability encompass reducing Internet service costs, providing subsidies for low-income households, and advocating for the use of low-cost devices and data plans.

ICT/digital accessibility: This constitutes the final building block, ensuring that ICTs empower everyone, transcending discrimination on the basis of age, gender, ability, or geographical location. ICT accessibility encompasses measures to enable all individuals, regardless of background, to utilize ICT products, services, and applications for social and economic empowerment.

Only when all three pillars are addressed can digital inclusion be realized, allowing everyone to participate fully in the digital age. ITU is committed to ensuring that ICT technology is human-centred and digitally accessible, from the outset, that is to say the design phase, so as to foster equal access for all users without discrimination.

ITU acknowledges the diverse needs of individuals, including those with disabilities and older persons. Digital accessibility supports these groups in achieving an independent life. According to WHO¹³, around 1.3 billion people. About 16% of the world's population experience significant disabilities today. WHO notes that this figure continues to rise, driven by factors such as an aging population and increasing prevalence of noncommunicable diseases.

By 2050, the number of people who will need accessible ICTs to participate fully in digital communities and economies is anticipated to exceed 5 billion¹⁴. Accessibility features such as text-to-speech, captioning, and magnifiers are increasingly recognized as essential in various regions, where they are mandatory for digital products and services.

¹² <https://www.itu.int/en/ITU-R/information/Pages/disabilities-divide.aspx>

¹³ <https://www.who.int/news-room/fact-sheets/detail/disability-and-health>

¹⁴ https://www.itu.int/pub/D-PHCB-DIG_AGE-2021

ITU collaborates with governments, industry and civil society to formulate and implement ICT accessibility policies and strategies, and provides an array of tools and resources,¹⁵ including thematic reports, guidelines, online self-paced training, video tutorials and educational materials. Over 70 resources are available free of charge, in multiple languages and accessible formats, aimed at accelerating implementation and increasing impact to achieve digital inclusion globally.

The pivotal role of ITU in promoting ICT/digital accessibility is central to achieving digital inclusion. By ensuring equal access to ICTs, ITU contributes to forging a more equitable and inclusive information society. Challenges persist, particularly for vulnerable groups, necessitating ongoing collaboration with governments, industry and civil society. The role of ITU is key in shaping appropriate curricula to address digital accessibility, responding to the evolving demands of education in the digital era and contributing to the long-term and secure development of digital space.

The work of the ITU Telecommunication Development Bureau (BDT) in ICT accessibility supports the advancement of the global disability-inclusive agenda and the development of inclusive digital communities. It does this by raising awareness, building capacity and providing policy and strategy advice to ITU membership. BDT is also facilitating joint working platforms, such as study groups and regional “Accessible – ICT for ALL” knowledge development forums where stakeholders can share good practices and engage in national and regional digital accessibility implementation. The goal of ITU Member States is to guarantee that all their citizens can benefit from digital information, products and services equally and equitably. BDT supports their efforts in mainstreaming digital accessibility to ensure full and effective participation of everyone in the digital economy and contributes by developing and making freely available the resources.¹⁶ BDT applies a holistic and intersectional approach to advancing ICT and digital accessibility for inclusive communication, particularly for persons with disabilities. Through its activities, projects, events, tools and resources, it supports the ITU membership in promoting equitable digital inclusion regardless of age, gender, ability or location encouraging the members to share this information within their networks and build expertise and accelerate the implementation of ICT accessibility. The goal is to enable persons with disabilities and specific needs to actively participate in the digital society, economy and environments promoting equal and equitable digital inclusion.

ITU-D Study Group 1 Question 7¹⁷ aims to accelerate implementation at the regional and global level and make an impact by ensuring that no one is left behind in the digital era. A workshop on ICT accessibility was held on 19 May 2023, with the aim of strengthening ITU member knowledge on the topic,¹⁸ and gathered around one hundred participants (online and in person). The members were offered an in-depth overview of the role of ICT accessibility within the overarching goal of digital inclusion in the context of global trends including the rise of technology, ageing populations, urbanization and AI/metaverse, as well as the work, tools and resources of ITU-D on the topic of ICT/digital accessibility aimed at supporting the ITU membership and stakeholder efforts in building digitally accessible and inclusive society, economy and environments. All ITU-D resources are freely available in official languages of the United Nations, most in digitally accessible formats and localized where applicable and possible.

¹⁵ <https://www.itu.int/en/ITU-D/Digital-Inclusion/Pages/ICT-digital-accessibility/default.aspx>

¹⁶ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0359>

¹⁷ <https://www.itu.int/en/ITU-D/Study-Groups/2022-2025/Pages/reference/SG1/questions/Question-7-1.aspx>

¹⁸ <https://www.itu.int/en/ITU-D/Study-Groups/2022-2025/Pages/meetings/session-Q7-1-may23.aspx>

Such initiatives on behalf of ITU members have also been supported by the International **Network of Women Experts in Digital Technology (RIFEN)**.¹⁹ During the study period RIFEN highlighted the initiatives being undertaken in terms of strategies and policies to determine the specific needs of persons with disabilities and challenges associated with ICT accessibility for persons with disabilities, through open dialogue on the opportunities and challenges of digital accessibility for women and girls, also outlining expectations and challenges²⁰ persons with disabilities are facing concerning the use of digital technology.

¹⁹ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0348> from RIFEN

²⁰ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0347> from RIFEN

Abbreviations and acronyms

This table contains abbreviations/acronyms relating to international, regional or supranational bodies, instruments or texts, as well as technical and other terms used in this report.

Abbreviation	Term
ACCAN	Australian Communications Consumer Action Network
AI	artificial intelligence
AVMSD	Audiovisual Media Services Directive
AVMS	audiovisual media services
BCI	brain-computer interface
BDT	ITU Telecommunication Development Bureau
BTK	Information and Communication Technologies Authority, in Türkiye (abbreviation is in Turkish)
BSL	British Sign Language
CIC	Communication Intermediation Centre, in Brazil
CITRA	Communication and Information Technology Regulatory Authority, in Kuwait
CONADIS	National Council on Disability, in the Dominican Republic
CRPD	Convention on the Rights of Persons with Disabilities
GARI	Global Accessibility Reporting Initiative
GCYLP	Generation Connect Young Leadership Programme
G3ICT	Global Initiative for Inclusive ICTs (abbreviation is in Spanish)
HAKOM	Croatian Regulatory Authority for Network Industries
ITU-D	ITU Telecommunication Development Sector
ITU-R	ITU Radiocommunication Sector
ITU-T	ITU Telecommunication Standardization Sector
MWF	Mobile & Wireless Forum
NRA	national regulatory authority
ONTI	National Office of Information Technology, in Argentina (abbreviation is in Spanish)
OPDs	organizations of persons with disabilities
RIFEN	International Network of Women Digital Experts (abbreviation is in French)

(continued)

Abbreviation	Term
SDG	Sustainable Development Goals
SNE	special needs education
TMC	TransMedia Catalonia
URA	Units Responsible for Accessibility, in Spain
UCC	Uganda Communications Commission
UCUSAF	Uganda Communications Universal Service and Access Fund
USF	universal service fund
WAI	Web Accessibility Initiative
WCAG	Web Content Accessibility Guidelines
W3C	World Wide Web Consortium

Chapter 1 – Telecommunication/ICT accessibility policy and regulatory framework

1.1 Policy and regulatory frameworks for telecommunication/ICT accessibility for persons with disabilities and other persons with specific needs, and tools to foster their implementation

Fostering ICT accessibility: a holistic approach for inclusion

Promoting and implementing accessible telecommunications and ICTs for persons with disabilities is imperative for various compelling reasons. In some countries, persons with disabilities are reluctant to adopt ICTs due to the lack of accessibility, which hinders their access to knowledge. The absence of Internet connectivity constrains their learning options, and a significant percentage refrains from engaging in social networks due to issues related to the web and mobile accessibility. Principal challenges include the absence of legally binding regulations, insufficient funds, limited awareness of existing accessible services, and the necessity to develop enhanced solutions.

National regulatory authorities (NRAs) and governmental institutions are pivotal in addressing these challenges. Their role involves updating legislation, promoting ICT accessibility and focusing on eliminating barriers faced by persons with disabilities. The inclusion of the voice of persons with disabilities in policymaking, in line with the principle of "Nothing about us without us," is crucial for a comprehensive approach that encompasses legal aspects and attitudinal changes.

The BDT, in collaboration with the Global Initiative for Inclusive ICTs (G3ICT), has developed the Model ICT Accessibility Policy report²¹. This tool aids national policy-makers and regulators in creating ICT accessibility policy frameworks. The report, available in the six official languages of ITU and in an accessible e-book format, offers generic steps and requirements to promote accessibility for persons with disabilities, providing adaptable guidance based on national circumstances. Additionally, the ITU/G3ICT E-accessibility policy toolkit serves as a valuable resource.

In the digital era, technological paradigms and business models challenge existing regulatory patterns. NRAs are expected to provide robust mechanisms to protect consumers, including rules on data protection, privacy, data portability and accessible redress mechanisms for consumer complaints. These mechanisms are vital to supporting digital transformation across economic sectors and ensuring the safeguarding of consumers' interests.

Digital inclusion comprises four critical elements: ICT accessibility, access (Internet connectivity), adoption (digital literacy, workforce development, education, health care, civic engagement), and affordability (accessible Internet and devices). Amendments to promote accessibility should

²¹ https://www.itu.int/pub/D-PHCB-SIS_A.01-2014

ideally be incorporated into new laws, or existing laws may undergo amendments to specifically promote ICT accessibility.

Countries worldwide have adopted various regulatory approaches, ranging from light-touch frameworks relying on industry self-regulation to more traditional approaches with promulgation of regulations. The regulator role encompasses actions such as implementing policy, drafting and enforcing regulations, setting targets and licence conditions, monitoring and enforcing obligations, approving codes of practice, and driving awareness campaigns.

Regional approaches to fostering ICT accessibility vary. During the workshop "ICT Accessibility – the key to inclusive communication for ALL people"²² the European Commission provided a comprehensive overview of the European legislation framework on accessibility and presented a European resource, Directive (EU) 2019/882 of the European Parliament and of the Council of 17 April 2019, on accessibility requirements for products and services²³, along with other resources related to the European Union legislative framework on accessibility.²⁴

ITU and its Member States acknowledge the crucial role of access to telecommunications/ICTs in societal life. Regulatory frameworks must focus on the needs of persons with disabilities to ensure equal access to telecommunication/ICT services and technologies. Strengthening legal and regulatory frameworks is essential, alongside promoting accessible telecommunications/ICTs for persons with disabilities and specific needs.

Telecommunication/ICT accessibility is not solely a concern for persons with disabilities; it is relevant across demographic categories and throughout life. As age-related disabilities become increasingly common, global awareness of the importance of telecommunication/ICT accessibility is crucial. The world must unite to achieve accessibility, creating a future where everyone can benefit equally.

While some countries have integrated ICT accessibility policies, others are still navigating challenges in implementation. In response to the common challenge, BDT has developed an interactive toolkit and self-assessment for ICT accessibility implementation, entitled "Towards Building Inclusive Digital Communities."²⁵ The toolkit aims to support countries in assessing their level of national ICT/digital accessibility implementation, providing tailored guidelines based on the assessment, monitoring implementation processes and aiding ITU members in progressing towards the goal of building inclusive digital communities. This initiative aligns with the broader objective of ensuring that all citizens benefit equally from digital information products and services, leaving no one behind in the ongoing digital transformation.

Several ITU Member States presented case studies outlining both good practices and challenges in the process of development of policy and regulatory frameworks for telecommunication/ICT accessibility for persons with disabilities and other persons with specific needs, and tools to foster their implementation.

Since its establishment in 2014, the Communication and Information Technology Regulatory Authority (CITRA) of **Kuwait**²⁶ has provided advanced communication and information technology services to the entire society. The authority places a strong emphasis on ensuring accessibility

²² <https://www.itu.int/en/ITU-D/Study-Groups/2022-2025/Pages/meetings/session-Q7-1-may23.aspx>

²³ <https://eur-lex.europa.eu/eli/dir/2019/882/oj>

²⁴ https://www.itu.int/dms_pub/itu-d/oth/07/2e/D072E0000060007PDFE.pdf

²⁵ <https://www.itu.int/hub/publication/d-phcb-toolkit-01-2023/>

²⁶ <https://www.itu.int/md/D22-SG01.RGO-C-0005/> from Kuwait

for all segments of society, with a particular focus on persons with disabilities. To achieve this goal, CITRA has issued regulations requiring licensees and operators to offer facilities catering to persons with disabilities. Operators and equipment importers must adhere to the Web Content Accessibility Guidelines (WCAG 2.0) when providing software, user interfaces and emergency services. They are obliged to provide accessible multimedia content, conversion, and communication systems, as well as special plans and pricing tailored for persons with disabilities. Services must be offered in accessible formats. Operators are further mandated to collaborate with relevant authorities to establish emergency services that enable persons with disabilities to request assistance through audio calling, video calling or text messages. Additionally, operators must renovate their service centres and equip them with the necessary facilities and apparatus to enhance accessibility for persons with disabilities.

In **Kenya**²⁷, the focus is on enhancing the digital inclusion of special needs learners through broadband connectivity. The urgency of digital inclusion in the education sector is underscored by the significant inequalities highlighted by the impact of COVID-19 on education in Africa. There is a need to address three key issues: establishing baseline data for special needs education (SNE) learners lacking access to broadband connectivity, understanding the impact of this lack on SNE learners, and exploring strategies to enhance meaningful connectivity for this group. The goal is to expedite the deployment of recommended strategies to ensure sustainable and meaningful broadband connectivity, contributing to digital inclusivity goals at regional and global levels. Despite ongoing efforts by African governments to enhance digital inclusion, much remains to be done to achieve the goal of connecting citizens meaningfully and leaving no one behind. The status and impact of broadband connectivity, particularly for SNE learners, are not clearly defined in most national telecommunication/ICT policies, blueprints and strategies. This is attributed to several factors, including the absence of baseline data for assessing broadband connectivity needs, the lack of appropriate national frameworks for systematic deployment, the absence of uniform mechanisms for monitoring and evaluating impact, and inadequate sustainability strategies for ensuring accessible, affordable and available broadband connectivity for all SNE learners.

Bosnia and Herzegovina²⁸ is actively promoting and implementing digital technologies in the country and around the Western Balkans, emphasizing accessibility for persons with disabilities. Key provisions include the ongoing implementation of accessibility quotas for public service broadcasters, with a gradual increase to 25 per cent by 2025. Additionally, the transposition of the European Union Audiovisual Media Services Directive (AVMSD) into national legislation aims to enhance accessibility of audiovisual content for persons with disabilities. Provisions for electronic communication services include ensuring equal availability for users with disabilities, providing trained contact persons, offering text communication for hearing-impaired users, and facilitating access to special information services. Other measures being considered to enhance accessibility include discounts for persons with disabilities and the publication of detailed information on services offered for them. Consumer protection regulations aimed at the protection of end users in Bosnia and Herzegovina include several provisions to ensure accessibility for persons with disabilities using publicly available electronic communication services. Some key provisions include equal availability of services, trained contact persons for assistance, two-way text communication for hearing-impaired users, the provision of devices for text-based calls at equal pricing, and making information services accessible to persons with

²⁷ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0047/> from Kenya

²⁸ ITU-D Document <https://www.itu.int/md/D22-SG01.RGQ-C-0032/> from Bosnia and Herzegovina

disabilities. The country remains committed to fostering ICT accessibility to create an inclusive digital ecosystem.

In **Côte d'Ivoire**²⁹, the growing number of persons with disabilities presents challenges in the domain of telecommunication/ICT. Taking the WHO estimate that some 16 per cent of the world's population have disabilities, it is estimated that Côte d'Ivoire had approximately 4 702 264 persons with disabilities in 2022, according to the General Population Census. Law 2017-803 of 7 December 2017 outlines the overall framework for the information society in Côte d'Ivoire, emphasizing access to the Internet and electronic communication networks as a basic human right and universal good. The law imposes an obligation on the State to create conditions for high-speed accessibility for all. The current situation in Côte d'Ivoire includes challenges such as a lack of specialized equipment for certain types of disabilities, the high cost of devices with the necessary functions and of specially adapted software, a lack of digital culture, and the high cost of Internet access. To overcome these challenges, it is crucial to develop a domestic market for equipment adapted for persons with disabilities, provide training professionals to produce specifications for adaptive terminal devices, and implement preferential rates for accessible content.

Brazil³⁰ has implemented measures to prioritize emergency calls and reduce waiting times for assistance via Communication Intermediation Centres (CIC). Since 2017, major mobile service and fixed telephone service providers have been required to offer full-time and free access to the CIC for people with hearing impairments. The CIC facilitates intermediation by interpreters via video and messages, following Anatel Resolution No. 667/2016. In 2022, the five largest telecommunications service providers in Brazil modified the CIC to prioritize calls to emergency services for quick, efficient and safe access for persons with hearing impairments, in line with Recommendation ITU-T F930. The providers also took action to reduce CIC waiting times. The changes were based on studies and meetings conducted by Anatel, which identified a need to optimize waiting times for deaf CIC users. Today, the average waiting time is capped at two minutes for regular CIC calls. Emergency service calls by deaf persons are prioritized, and the person is answered as soon as interpreters are available, without waiting for the designated two-minute limit. These changes will be evaluated in the "Accessibility Ranking" exercise, an annual assessment of providers' performance in meeting accessibility commitments. Anatel continues to pursue regulations that promote inclusion and expand access to telecommunications services for all, recognizing the increasing urgency of this action in the context of citizenship, knowledge expansion, and information dissemination.

Senegal³¹ is actively working towards ensuring telecommunications/ICT accessibility for people with disabilities, aligning with its broader vision outlined in the "Digital Senegal 2025" strategy. This strategy aims to make digital technology accessible to all, emphasizing inclusivity and sustainability. At the international level, Senegal is part of the commitment made during the first phase of the World Summit on the Information Society to build an information society that is human-centric, inclusive, and sustainable for development. This commitment aligns with global efforts reflected in various legal texts advocating for the rights of people with disabilities. On the national front, Senegal has a social orientation act, law no. 2010-15, which defines disabled persons as those with lasting physical, mental, intellectual or sensory disabilities that can hinder their full and effective participation in society on a footing of equality. According to the 2013

²⁹ ITU-D Document <https://www.itu.int/md/D22-SG01.RGO-C-0035/> from Côte d'Ivoire

³⁰ ITU-D Document <https://www.itu.int/md/D22-SG01.RGO-C-0040/> from Brazil

³¹ ITU-D Document <https://www.itu.int/md/D22-SG01.RGO-C-0067/> from Senegal

national census, the prevalence of disability is 5.9 per cent, with visual and motor limitations being the most widespread forms. Senegal has implemented various policies, programmes, projects and initiatives to ensure the rights and duties of persons with disabilities. The Digital Senegal 2025 strategy plays a crucial role in this context, with a vision of achieving digital for all by 2025. The strategy focuses on open and affordable access to digital networks and services, reflecting the commitment to ensuring inclusivity in the digital landscape. Other efforts include equipping centres and laboratories for disabled people and providing training as part of the ICT and disability project.

The **Russian Federation**³² has implemented various digital support measures for people with specific needs, emphasizing accessibility, inclusion and skill development. Through the digital economy national project, people with disabilities in the Russian Federation can learn digital professions for free. Remote courses are offered in various programmes, including business analysis, data science, digital marketing, game development and more. The training is part of a federal project known as "Personnel for the Digital Economy", part of the national project "Digital Economy" which in turn supports the "Online Assistance for Disability" super service. This service operates through the unified national public service portal to facilitate remote scheduling of medical and social examinations and the filing of appeals, changes to rehabilitation programmes, requests for disability certificates and so on. It aims to provide a seamless online experience for persons with disabilities accessing essential services. Persons with disabilities can also apply for an electronic certificate on the unified portal entitling them to be reimbursed for the purchase of rehabilitation equipment. The certificate allows direct payment for products such as crutches, wheelchairs and hearing aids, streamlining the reimbursement process. Avito, a major Internet platform in the Russian Federation, initiated the #ServiceWithoutBorders project, recognized in the CCGuru Awards as the best corporate social responsibility programme. The project focuses on providing internship opportunities for people with disabilities at the Avio customer service centre. Interns are placed in user support, personnel development and project management services, with the aim of fostering an inclusive IT community in the Russian Federation. These measures reflect the Russian Federation's commitment to creating an inclusive digital environment, providing opportunities for skills development and ensuring that digital services are accessible to all, including persons with specific needs.

The communications regulator of the **United Kingdom**³³, Ofcom, implements a regulatory requirement for telecommunications service providers to provide video relay services for emergency communications for deaf British Sign Language (BSL) users. The UK introduced a regulatory requirement for Internet access service providers and providers of number-based interpersonal communications services to offer a free BSL emergency video relay service. BSL users in the UK can contact emergency services using BSL via video relay. The service involves a video call to a qualified BSL interpreter who translates the user's signing into spoken English for the emergency services and signs back the emergency services responses. The regulatory requirement applies where it is technically feasible to provide the BSL emergency video relay service to end users and where applicable is provided at no cost to users; any data allowance used for the communication is zero-rated.

The regulatory initiative aligns with European Union Directive 2018/1972, emphasizing equivalent access for end users with disabilities and free-of-charge emergency communications. Regulators are encouraged to adopt inclusive consultation procedures that engage industry

³² ITU-D Document <https://www.itu.int/md/D22-SG01.RGQ-C-0086/> from Russian Federation

³³ ITU-D Document <https://www.itu.int/md/D22-SG01.RGQ-C-0092/> from United Kingdom

experts and incorporate consumer experiences, ensuring a more informed and inclusive regulatory decision-making process. Translation of consultation materials into languages such as BSL enhances accessibility and inclusion in the regulatory process. While additional resources may be required, the benefits of more inclusive and well-informed regulatory decisions outweigh the costs. Regulatory efforts to improve ICT accessibility should extend beyond technology to include more inclusive regulatory processes, accommodating the diverse needs of people with different abilities. This case study from Ofcom serves as a model for regulators and policy-makers seeking to implement inclusive services for persons with disabilities, emphasizing the importance of engaging diverse communities and ensuring accessibility in both services and regulatory procedures.

The inSuit platform from Everycode of **Spain**³⁴ presents good practices resulting from the transposition of the European Accessibility Directive, stressing specifically the positive elements of the transposition of Directive (EU) 2016/2102 into national legislation through Royal Decree 1112/2018 (hereinafter RD 1112/2018). During the last six years, the evolution of digital accessibility standards and the legislative framework was significant, with the publication of WCAG 2.1 in 2018, the publication in 2018 of the European harmonized technical standard EN 301 549 v2.1.2 (currently in its version 3.2.1) and the publication of European Directive 2016/2102,³⁵ known as the Web Accessibility Directive, and European Directive 2019/882,³⁶ known as the European Accessibility Act. As a result of these developments, the Web Accessibility Observatory of Spain instituted a requirement for accessibility offices (URAs) in public bodies, responsible for periodic tasks mandated by RD 1112/2018.

Burkina Faso³⁷ made progress in the electronic communications sector through the adoption of Law No. 061-2008/AN and Decree No. 2011-093/PRES/PM/MPTIC/MI, defining modalities for implementing universal access and service of electronic communications. Burkina Faso adopted a national strategy for the development of universal access and service in 2017, covering the period 2017-2021. The strategy was implemented through structuring projects and activities, while the Ministry in charge of electronic communications conducted an evaluation of the strategy implementation to enhance electronic communications through legislative measures and strategic planning.

The Australian government³⁸, through the Telecommunications (Consumer Protection and Service Standards) (Accessibility of Standard Telephone Services) Regulations 2023, set to take effect in April 2024, aims to modernize consumer protection for vulnerable individuals by maintaining support provided under previous regulations while embracing new technologies. The government consulted with Telstra and disability advocacy groups, including the Australian Communications Consumer Action Network (ACCAN), to ensure the regulations better serve those who are deaf, hard of hearing, or have speech communication difficulties. Feedback supported a flexible, technology-neutral approach that integrates mainstream solutions.

As part of its commitment to accessible telecommunications for persons with disabilities, **the Dominican Institute of Telecommunications (INDOTEL)**³⁹ launched the "Charter of Rights and Duties for People with Visual and Hearing Disabilities" in the Dominican Republic. This initiative

³⁴ ITU-D Document <https://www.itu.int/md/D22-SG01.RGQ-C-0091/> from Spain

³⁵ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32016L2102>

³⁶ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32019L0882>

³⁷ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0173/> from Burkina Faso

³⁸ ITU-D Document <https://www.itu.int/md/D22-SG01.RGQ-C-0188/> from Australia

³⁹ ITU-D Document <https://www.itu.int/md/D22-SG01.RGQ-C-0169/> from Dominican Republic

enables users with visual and hearing impairments to access high-quality telecommunication services and exercise their rights equally, including filing complaints and learning about their rights with the regulator and telecom providers. In collaboration with CONADIS and telecom companies, INDOTEL also developed a Braille Guide distributed to visually impaired users, while CONADIS fosters an inclusive environment by providing support through trained professionals proficient in sign language and braille. For hearing-impaired persons, guides are shared via videos on social media.

The Government of the **United Republic of Tanzania**⁴⁰ recognized the need to promote the accessibility of communications services to persons with disabilities, stressing that the provision of accessible ICT/communications services is a key for the successful implementation of a digital inclusion agenda. National communications regulatory authorities play a vital role in ensuring that licensees of communication services provide accessible communication services to all consumers.

Following the role of other policy-makers, **Türkiye**⁴¹ has implemented a regulatory framework through the Information and Communication Technologies Authority (BTK) to enhance the inclusion of disadvantaged groups – particularly persons with disabilities – in the electronic communications sector. Operators with over 200 000 subscribers are required to offer measures such as a minimum 25 per cent tariff discount, data- or SMS-only packages, accessible shop maps, and priority access to real agents at call centres. Services are tailored to various impairments, including video/text support for hearing-impaired users and voice messages for the visually impaired. Websites and mobile apps must meet accessibility standards, and special offers must be communicated twice annually. BTK monitors compliance, requiring operators to report beneficiary numbers and imposing sanctions when obligations are unmet. These measures have significantly supported digital inclusion, with millions benefiting from improved service accessibility.

1.2 Guidelines for amending existing legislation to implement ICT accessibility

To build the capacity of ITU members in the different aspects of ICT accessibility, the BDT, in cooperation with G3ICT, has elaborated the Model ICT Accessibility Policy report⁴², as a tool to assist national policy-makers and regulators in developing ICT accessibility policy frameworks. The report, which is available in all six ITU official languages as well as in an accessible e-book format, helps countries understand the generic steps and requirements necessary to promote accessibility for persons with disabilities and provides guidance in areas where these can be adapted to national circumstances. Members can also turn for guidance to the ITU/G3ICT E-accessibility policy toolkit for persons with disabilities.⁴³

Depending on what strategies are suitable for them, countries around the world have adopted different regulatory approaches, ranging from “light-touch” regulatory frameworks that rely on industry self- and co-regulation to more traditional regulatory approaches entailing the

⁴⁰ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0320> from Tanzania

⁴¹ ITU Document <https://www.itu.int/md/D22-SG01-C-0381/> from Türkiye

⁴² https://www.itu.int/pub/D-PHCB-SIS_A.01-2014

⁴³ ITU/G3ICT E-accessibility policy toolkit for persons with disabilities. <https://g3ict.org/publication/e-accessibility-policy-handbook-for-persons-with-disabilities#:~:text=The%20e-Accessibility%20Policy%20Handbook%20for%20Persons%20with%20Disabilities,Disabilities%20%28www.e-accessibilitytoolkit.org%29%20which%20was%20released%20in%20February%202010>

promulgation of regulations. According to the Model ICT Accessibility Policy report, the regulator role in facilitating ICT accessibility covers a range of actions, from implementing policy to drafting and enforcing regulations, setting targets and licence conditions, monitoring and enforcing obligations, drafting or approving codes of practice and driving awareness campaigns and consultations. However, NRAs in some countries do not have ICT accessibility as a priority and thus rely on voluntary actions on the part of the industry. In any event, NRAs need to adopt a proactive approach and consider taking steps to improve the current situation.

In the pursuit of instituting telecommunication/ICT accessibility policies and regulatory frameworks, several countries and regions have initiated efforts to foster implementation within their jurisdictions. However, the journey to overcome associated challenges remains an ongoing work-in-progress. To facilitate further advances in this critical domain, the members addressed a range of topics guiding them in their efforts to implement ICT accessibility. The identified guidelines are intertwined and only if applied as complementary could deliver sustainable results. These include:

Policy evolution and adaptation: Continual review and adaptation of telecommunication/ICT accessibility policies to align with evolving technological landscapes and emerging challenges. Flexibility in policy frameworks to accommodate advancements, ensuring they remain relevant and effective over time.

Inclusive stakeholder engagement: Active involvement of a diverse range of stakeholders, including persons with disabilities, industry representatives, policy-makers, and advocacy groups, in the formulation and evolution of accessibility policies. Establishing platforms for ongoing dialogue and collaboration to address emerging concerns and identify innovative solutions.

Capacity building and awareness: Investment in comprehensive capacity-building programmes for regulatory authorities, policy-makers, and industry players to enhance their understanding of telecommunication/ICT accessibility. Robust awareness campaigns targeting the public, industry and decision-makers to foster a collective understanding of the importance of accessibility and its impact on society.

Financial support mechanisms: Exploration of funding mechanisms to address financial constraints associated with implementing telecommunication/ICT accessibility measures. Collaboration with international bodies, development partners and industry stakeholders to mobilize resources for supporting accessibility initiatives.

Regular assessments and benchmarking: Implementation of regular assessments and benchmarking exercises to evaluate the effectiveness of existing telecommunication/ICT accessibility policies. Utilization of findings to identify areas for improvement and refine strategies to enhance accessibility outcomes.

Legal empowerment and enforcement: Strengthening legal frameworks related to telecommunication/ICT accessibility, ensuring enforceability and accountability. Empowering regulatory authorities with the necessary legal tools to act against non-compliance and foster a culture of accessibility within the industry.

Global collaboration and best practices sharing: Active participation in international forums and collaboration with global entities to share best practices, experiences, and successful

strategies in telecommunication/ICT accessibility. Integration of lessons learned from successful implementations in other jurisdictions to inform policy development and implementation.

Technology and innovation integration: Embracing technological advancements and innovations to enhance telecommunication/ICT accessibility. Encouraging the development and adoption of assistive technologies, applications and solutions that cater to diverse needs.

User-centric design principles: Incorporation of user-centric design principles in the development of telecommunication/ICT products and services, ensuring that accessibility features are integrated from the outset. Collaboration with industry stakeholders to promote the adoption of universally designed technologies.

Monitoring and evaluation frameworks: Establishment of robust monitoring and evaluation frameworks to track the impact of telecommunication/ICT accessibility policies over time. Regular reporting and transparency to keep stakeholders informed of progress and challenges. Besides strengthening legal and regulatory frameworks, it is crucial to promote accessible telecommunications/ICTs for persons with disabilities and persons with specific needs.

It should not be assumed that protecting persons with disabilities and ensuring equal rights in terms of access to telecommunication/ICT services is a matter of concern only for persons with disabilities. Telecommunication/ICT accessibility is in fact of lifelong relevance for everyone. With age, very few of us will avoid age-related disabilities. Therefore, the global population must understand the importance of telecommunication/ICT accessibility, join forces, and make the world accessible when they still have the capability and opportunity to effect the necessary changes, because they are creating the future for themselves.

By embracing these contributions, countries and regions can fortify their efforts to enhance telecommunication/ICT accessibility, moving closer to the goal of creating inclusive digital communities for all citizens. Guidelines and recommendations shall be aligned with the essential objectives of ITU and its three Sectors: ITU-D⁴⁴, the ITU Telecommunication Standardization Sector (ITU-T)⁴⁵ and the ITU Radiocommunication Sector (ITU-R)⁴⁶.

The **Australian**⁴⁷ Government shared a case study outlining initiatives to enable equitable access to telecommunications services for vulnerable consumer cohorts, in particular those who are deaf/hard of hearing. The Australian Government emphasizes the importance of providing quality telecommunications services for vulnerable consumers, acknowledging the critical role of such access in participating in a digital society. The 2022/23 Corporate Plan outlines the objective of enabling safe, effective and inclusive communication services and technologies, with specific criteria related to disability access, audio description implementation, and broadcaster captioning compliance. The National Relay Service (NRS) is highlighted as a case study, illustrating its role in connecting persons with hearing or speech impairments to other telephone users. Additionally, the Broadcasting Services (Television Captioning) Standard 2013 is discussed, emphasizing readability, accuracy and comprehensibility of captions for deaf and hearing-impaired viewers. Audio descriptions are introduced as verbal commentary to enhance the accessibility of visual elements for blind and vision-impaired consumers. The Australian Communications Consumer Action Network plays a crucial role in researching and reporting

⁴⁴ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0173/> from Burkina Faso

⁴⁵ ITU-T <https://www.itu.int/en/ITU-T/Pages/default.aspx>

⁴⁶ ITU-R <https://www.itu.int/en/ITU-R/Pages/default.aspx>

⁴⁷ ITU-D Document <https://www.itu.int/md/D22-SG01.RGQ-C-0060/> from Australia

on telecommunications pricing and accessibility, representing the interests of consumers in various communication domains.

1.3 Overview of current policies and regulations for telecommunication/ICT accessibility for persons with disabilities and other persons with specific needs

Policies and regulations regarding telecommunication/ICT accessibility for persons with disabilities and other persons with specific needs vary across countries and regions. These policies are typically aimed at ensuring that ICTs are inclusive and accessible to all, irrespective of disabilities or specific needs. Below are some common elements found in such policies:

Universal design principles: Many policies emphasize the incorporation of universal design principles in the development of ICT products and services. Universal design ensures that technology is usable by people with the widest range of abilities.

Web accessibility standards: Policies often reference or adopt international standards for web accessibility, such as the Web Content Accessibility Guidelines developed by the Web Accessibility Initiative (WAI) of the World Wide Web Consortium (W3C). These guidelines provide recommendations for making web content more accessible.

Accessibility features: Regulations may require ICT manufacturers and service providers to include accessibility features in their products. This could include features like screen readers, magnification, captioning and voice control.

Communication services for persons with hearing impairments: Many countries require the provision of services like text relay or video relay services to facilitate communication for persons with hearing impairments.

Emergency services accessibility: Some regulations focus on ensuring that emergency services are accessible to persons with disabilities. This could involve text-based emergency services or other accessible communication methods.

Education and awareness: Policies often call for educational initiatives to raise awareness about the importance of ICT accessibility and to train professionals in creating accessible content.

Government websites and services: There is often an emphasis on making government websites and online services accessible to all citizens, including those with disabilities.

Collaboration with stakeholders: Policies may encourage collaboration between public bodies, industry stakeholders and disability advocacy groups to ensure a comprehensive and inclusive approach to accessibility.

Digital inclusion strategies: Some policies extend beyond accessibility requirements to encompass broader digital inclusion strategies, addressing issues like affordability and digital literacy.

Reporting and compliance: Regulations may include provisions for reporting on accessibility compliance, and penalties for non-compliance might be outlined.

The **United Kingdom**⁴⁸ shared the practice inclusive consultation procedures that draw from industry expertise and consumer experiences to inform regulatory measures. This also applies to ICT policies and regulations aimed at making the communications market more inclusive of people with disabilities. Where efforts to protect consumers' rights are targeted towards particular communities, those communities should be engaged in the regulatory process from the start. This experience offers a case study on how regulators can open their rulemaking processes through consultations and translation of consultation materials into other languages, such as was done in this example with British Sign Language. Doing so requires regulators to devote additional resources to the consultation process but provides benefits in more inclusive and more well-informed regulatory decisions. As regulators look to improve the accessibility of ICT services within their markets for people with different abilities, this consideration should extend not just to communications services and the technology capabilities available but also the ways in which the regulatory process itself can be more inclusive.

Argentine Republic⁴⁹ ratified the Convention on the Rights of Persons with Disabilities in 2008, committing to web accessibility under W3C guidelines. Law No. 26,653 (2010) mandates accessibility for public and private websites, with Decree No. 656 (2019) empowering the National Office of Information Technology (ONTI) to regulate it. The ONTI Web Accessibility Guidelines 2.0 include 38 criteria, assessed through the "Web Accessibility Observatory" tool and manual checks. ONTI provides compliance tutorials and training via INAP. Internationally, Argentina collaborates with ITU and CITELE, launched a TIC Accessibility Cooperation Network within MERCOSUR, and hosted events like "Americas Girls Can Code" to promote accessibility.

1.4 Good practices, challenges and available case studies

While some countries and regions have made moves to institute some form of telecommunication/ICT accessibility policy and regulatory framework in order to foster the implementation of accessibility within their jurisdiction, overcoming the difficulties associated with this task means that it is still a work-in-progress. To facilitate further advances, following good practices and case studies could be of benefit to the members.

In the **Russian Federation**⁵⁰, various support measures for people with disabilities, including benefits, allowances and electronic certificates for rehabilitation equipment are provided. The Digital Economy national project offers free digital skills training to enhance employment opportunities. The Unified Portal of Public Services enables remote applications for disability-related services, with upcoming updates and expanding features. It also allows direct use of electronic certificates for rehabilitation equipment, eliminating upfront costs. Additionally, the Avito #SERVICEWITHOUTBORDERS initiative, awarded for corporate social responsibility, offers internships in customer service, promoting inclusivity in the Russian Federation IT sector.

Spain⁵¹ implements the European Accessibility Directive (2016/2102) through Royal Decree 1112/2018 (RD 1112/2018), mandating the accessibility of public sector websites. It established accessibility offices (URAs) within public bodies to ensure compliance through audits, accessibility declarations, user feedback channels and training initiatives. Monitoring is shared between national agencies and URAs, with annual reporting to the Ministry of Economic Affairs

⁴⁸ ITU-D Document <https://www.itu.int/md/D22-SG01.RGQ-C-0092/> from United Kingdom

⁴⁹ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0183/> from Argentina

⁵⁰ ITU-D Document <https://www.itu.int/md/D22-SG01.RGQ-C-0086/> from Russian Federation

⁵¹ ITU-D Document <https://www.itu.int/md/D22-SG01.RGQ-C-0091/> from Spain

and Digital Transformation. Compared to the centralized models in some countries, Spain's decentralized approach has improved compliance and consistency. Private sector solutions, such as the comprehensive accessibility service (SIA) on Everycodes inSuit platform, further support accessibility efforts, positioning Spain as a leader in digital accessibility.

The second international conference "Accessible Future" organized by the Croatian Regulatory Agency for Network Activities (HAKOM)⁵² brought together policy-makers, regulators, industry experts, media, technology experts and users, particularly those with disabilities, to discuss challenges and solutions for improving digital and physical accessibility. In the Republic of Croatia the proportion of the population with disabilities is approximately 16 per cent or one in six, on a par with the European Union (EU). The conference focused on three thematic sessions discussing the role of regulatory bodies in implementing accessible electronic communication services. It addressed experiences and plans for enhancing accessibility in electronic communication services and rail passenger transport. Recognition and certificates were awarded to companies, institutions and students as part of the "Experience is worth gold" project. HAKOM, as the regulator of electronic communications and postal and railway services, chaired BEREC (the Body of European Regulators for Electronic Communications) in 2024. During its presidency, HAKOM worked to make accessibility in electronic communications a key topic, contributing to the broader European regulatory landscape.

Bearing in mind that the ITU membership is dedicated to advancing ICT accessibility implementation globally, **Mexico**⁵³ proposed a workshop on using the ITU toolkit to help Member States achieve their goals of inclusive digital communities. The workshop aimed to enhance national ICT accessibility policies, support global disability rights commitments, and develop action plans for implementation. Mexico highlighted ITU key resolutions promoting inclusiveness, accessibility and affordability in telecommunications/ICT, including ITU strategic goal 2 (on ensuring ICT access for all, including marginalized groups) and target 2.9 (2018) (on establishing accessible ICT environments by 2023), and Resolution 175 of the Plenipotentiary Conference, Resolution 58 of the World Telecommunication Development Conference, Resolution 70 of the World Telecommunication Standardization Assembly, and ITU-R Resolution 67-1, on ICT accessibility for persons with disabilities and persons with specific needs. The workshop would support Member States in achieving digital inclusion and support work under ITU-D Question 7/1 to monitor progress and develop tailored resources.

The Australian Government⁵⁴ launched a redesigned Access Hub website in June 2023, aimed at providing accessible information on telecommunications options for people who are d/Deaf or hard of hearing, or who have speech communication difficulties. Co-designed with user groups, the site focuses on simplicity, easy navigation, and accessibility, offering content in Plain English and Auslan (Australian Sign Language), as well as compatibility with assistive technologies such as screen readers. The site, which helps users find suitable communication technologies, has averaged around 50 000 visitors per month since its launch. Persons with disabilities, as vulnerable consumers, are entitled to protection, especially with the development of haptic technologies that enhance accessibility, such as remote controls, voice announcements in public transport, and sound signals at pedestrian crossings.

⁵² ITU-D Document <https://www.itu.int/md/D22-SG01-C-0230/> from Croatia

⁵³ ITU-D Document <https://www.itu.int/md/D22-SG01-221128-TD-0005/> from Mexico

⁵⁴ ITU-D Document <https://www.itu.int/md/D22-SG01.RGQ-C-0188/> from Australia

To improve access, the regulator in the Republic of **Haiti**⁵⁵ is advocating for the creation of online public communication services for people with disabilities to access State, local and public services. Additionally, in collaboration with the Secretariat of State for Persons with Disabilities, the regulator plans to train 50 young people with disabilities through its RepairNet programme to teach them how to repair defective phones, enabling them to generate income and participate in the digital economy.

Uzbekistan⁵⁶ reported on its initiatives at the annual summer school ("Digital youth in defining a common future") with the aim of bridging digital gaps towards universal and meaningful connectivity with an ITU data visualization hackathon.⁵⁷ The hackathon, entitled "Bridging Digital Gaps" and designed to support youth inclusion, was held on 27 June 2024, in Tashkent, during the ICT Statistics Week for the Commonwealth of Independent States region.

As part of the promotion of accessible ICT equipment and services, **Japan**⁵⁸ presented an initiative of the Ministry of Internal Affairs and Communications concerning the call for submissions of ICT-accessible equipment and services ("Information Accessibility Good Practices 2023") with the aim of raising awareness of accessibility-conscious products among the public and supporting companies and other organizations that are actively working on information accessibility. In particular, it highlighted a product that uses AI to detect emergency sounds and convert them into notifications on smartphones, allowing deaf or hard-of-hearing persons to receive alerts during disasters.

FM radio broadcasting remains a popular technology in **Hungary**, making it a viable option for enhancing accessibility for visually impaired persons.⁵⁹ Accordingly VHF band II is being used as a low-cost, widely accessible communication channel to enhance accessibility of public events for the visually impaired. It interprets the potential usage through the case presented and considers challenging factors based on feedback from the operator. The National Media and Infocommunications Authority of Hungary explored the possibility of allocating frequencies within VHF band II for accessibility purposes, including live coverage of sports events and stadium tours. The primary use case involves such real-time sports coverage, and the orientation of visually impaired persons in the facilities, in Hungarian and English.

⁵⁵ ITU-D Document <https://www.itu.int/md/D22-SG01.RGQ-C-0171/> from Haiti

⁵⁶ ITU Document <https://www.itu.int/md/D22-SG01-C-0328/> from Uzbekistan

⁵⁷ A data hackathon is an event where participants collaboratively analyse and visualize data to solve specific challenges within a limited time-frame.

⁵⁸ ITU Document <https://www.itu.int/md/D22-SG01-C-0385/> from Japan

⁵⁹ ITU Document <https://www.itu.int/md/D22-SG01-C-0388/> from Hungary

Chapter 2 – Technologies and solutions in an ICT-accessible ecosystem

Fostering inclusive societies through ICT accessibility: a collective imperative

ICT accessibility stands as a fundamental prerequisite for the advancement of inclusive societies. To realize this vision, a collaborative and comprehensive approach is indispensable. Governments, the private sector, industry, academic institutions, and regional and international organizations must unite in a concerted effort to ensure the creation of an ICT-accessible ecosystem that includes all persons without discrimination.

This collective imperative involves the following key principles:

Holistic collaboration: Governments, private sector entities, industry players, academic institutions and international organizations must engage in collaborative efforts, recognizing the collective responsibility to drive ICT accessibility initiatives.

Inclusive design principles: Prioritizing inclusive design principles in the development of ICT infrastructure, products and services to ensure they meet the diverse needs of all individuals, regardless of abilities, age or background.

Policy harmonization: Promoting cooperation and coordination across sectors to foster a more consistent approach that enhances ICT accessibility.

Capacity building and awareness: Implementation of robust capacity-building programmes to enhance the understanding of ICT accessibility among stakeholders, fostering a culture of awareness and inclusivity.

Strengthening the legal framework: Strengthening legal frameworks to enforce and safeguard the rights and interests of individuals with diverse needs, ensuring that ICT accessibility is a legally protected aspect of digital inclusion.

Resource mobilization: Collaborative efforts to mobilize resources from various sectors, including public and private funding, to address financial constraints and facilitate the implementation of ICT accessibility initiatives.

Global standards adherence: Adherence to global standards and best practices in ICT accessibility to facilitate interoperability, consistency and seamless connectivity on a global scale.

Research and innovation: Encouraging and supporting research and innovation initiatives that contribute to the development of new technologies and solutions that enhance ICT accessibility.

Education and training: Integration of ICT accessibility education and training programmes within academic institutions to equip future generations with the knowledge and skills necessary for inclusive technology development.

User involvement and feedback: Active involvement of end users, including persons with disabilities, in the design and evaluation processes of ICT products and services, ensuring that their experiences and needs are considered.

Monitoring and evaluation frameworks: Establishment of robust monitoring and evaluation frameworks to assess the impact of ICT accessibility initiatives, enabling continuous improvement and refinement of strategies.

International cooperation: Fostering international cooperation and knowledge-sharing to leverage best practices, experiences, and successful models in ICT accessibility, promoting a global community committed to inclusion.

By embracing these principles and working collaboratively across sectors and borders, stakeholders can contribute to the development of inclusive societies where ICT accessibility is not just a goal but a shared reality for every individual, fostering equal opportunities and participation in the digital age.

In an ICT-accessible ecosystem, a diverse range of technologies and solutions plays a crucial role in ensuring that digital services, products and infrastructure are inclusive and meet the needs of persons with diverse abilities and requirements. Here are some key technologies and solutions in an ICT-accessible ecosystem:

Assistive technologies: screen readers: Software that converts digital text into synthesized speech, enabling persons with visual impairments to access digital content.

Magnifiers: Tools that enlarge on-screen text and graphics for persons with low vision.

Braille displays: Devices that convert digital text into Braille for users who are blind or have visual impairments.

Real-time captioning: Providing live, synchronized captions during online meetings, webinars and events for persons with hearing impairments.

Subtitling: Adding text to audiovisual content, making it accessible to persons who are deaf or hard of hearing.

Voice recognition technology speech-to-text systems: Converting spoken language into written text, facilitating communication and content consumption for persons with speech impairments or those who prefer text input.

Accessible user interfaces: adaptive interfaces: Interfaces that can be customized based on individual preferences and needs, including font size, colour contrast and navigation options.

Voice commands: Allowing users to control devices and applications through voice commands, enhancing accessibility for persons with mobility impairments.

Universal design principles: Incorporating universal design principles in the development of ICT products and services to ensure accessibility for users of all abilities without the need for additional adaptations.

Haptic feedback: tactile feedback devices: Providing tactile sensations or vibrations to users, enhancing the user experience for persons with visual or hearing impairments.

Accessible websites and applications: web accessibility standards: Adhering to international web accessibility standards (e.g. WCAG) to ensure that websites and applications are navigable and usable for persons with disabilities.

Gesture recognition: motion and gesture controls: Allowing users to interact with devices through gestures, benefiting persons with mobility impairments.

Closed captioning and descriptive audio in media: descriptive audio: Adding audio descriptions of visual content to assist persons with visual impairments in understanding the context of videos and movies.

Accessible document formats: accessible PDFs and documents: Creating digital documents that are compatible with screen readers and other assistive technologies.

AI-powered accessibility features: Leveraging AI to enhance accessibility features, such as automatic image descriptions and context-aware assistance.

Interactive learning tools: accessible educational platforms: Developing educational tools and platforms that accommodate different learning styles and provide accessible content for students with disabilities.

Wearable and IoT accessibility: accessibility features in wearables: Integrating accessibility features into wearable devices and the Internet of Things (IoT) ecosystem for seamless user interaction.

Telecommunication accessibility video relay services: Facilitating communication for persons with hearing impairments through video relay services that provide sign language interpretation.

These technologies and solutions, when integrated thoughtfully, contribute to the creation of an ICT-accessible ecosystem that ensures digital inclusion and equal opportunities for all individuals, regardless of their abilities or disabilities.

2.1 Mobile communication accessibility policy framework

There are more mobile phones in the world than any other form of ICT. According to ITU estimates⁶⁰, there are 7 billion mobile phones in use. Mobile phones range from simple handsets that receive and make calls and texts to sophisticated smartphones that support access to the Internet and other applications. Increasingly, mobile phones are not used just for telephone calls but have become the primary means by which people access the Internet.

A mobile communications accessibility framework typically refers to a set of guidelines, standards or regulations aimed at ensuring that mobile communication devices, services and applications are accessible to persons with disabilities or specific needs. Accessibility in the context of mobile communication involves designing and implementing technologies that can be easily used and understood by a diverse range of users, including those with visual, auditory, motor or cognitive impairments.

Below are some key aspects commonly addressed in a mobile communications accessibility framework:

⁶⁰ <https://www.itu.int/itu-d/reports/statistics/2024/11/10/ff24-subscriptions/>

User interface design

- Adaptable interfaces: Ensuring that mobile interfaces can adapt to different user needs, including adjustable font sizes, colour contrasts and other display settings.
- Touchscreen accessibility: Making touchscreens usable by persons with motor impairments through features like touch gestures, voice commands or switch controls.

Speech and audio accessibility

- Text-to-speech (TTS): Integration of TTS technology to provide spoken feedback for persons with visual impairments.
- Speech recognition: Inclusion of speech recognition features for hands-free operation, benefiting users with mobility impairments.

Visual accessibility

- Screen readers: Compatibility with screen readers that provide audio descriptions of on-screen content for users with visual impairments.
- Magnification and contrast: Options for magnifying and adjusting contrast to support users with low vision.

Hearing accessibility

- Hearing aid compatibility: Ensuring that mobile devices are compatible with hearing aids and cochlear implants.
- Subtitle and captioning: Providing options for closed captions or subtitles for multimedia content.

Navigation and interaction:

- Voice navigation: Incorporating voice-guided navigation to assist users in operating the device or application.
- Accessible touch targets: Ensuring touch targets are large and easily distinguishable for users with motor impairments.

Cognitive and language accessibility:

- Simplified interfaces: Offering simplified user interfaces to accommodate users with cognitive impairments.
- Language support: Providing multiple language options and support for communication in various languages.

Emergency services accessibility:

- Accessible emergency calls: Ensuring that emergency communication services are accessible to users with disabilities, possibly through text-based communication options.

Standards compliance:

- Adherence to WCAG for web-based mobile content.
- Regulatory compliance: Meeting relevant accessibility regulations and standards set by governmental bodies or industry organizations.

User education and support:

- Training and support materials: Providing resources and materials to educate users with disabilities on accessibility features.
- Customer support accessibility: Ensuring that customer support services are accessible and can assist users with accessibility-related queries.

Regular audits and updates:

- Accessibility testing: Regularly conducting accessibility testing to identify and address any new issues.
- Software updates: Ensuring that accessibility features are maintained and improved through software updates.

These aspects contribute to creating an inclusive mobile communications environment. Different countries or regions may have specific regulations or guidelines in place to enforce mobile communications accessibility, and these frameworks are often developed in collaboration with industry stakeholders and accessibility experts.

Mobile communications have become widespread, reaching even the most remote and underserved communities in both developed and developing countries. Universal access to mobile telephony remains a challenge, particularly for senior citizens and persons with physical or mental disabilities. This limitation arises due to the absence of necessary accessibility features in mobile phones and the lack of adapted phones and services. WHO estimates that some 1.3 billion people, or 16 per cent of the world's population, continue to face accessibility challenges linked to disabilities, so commercial opportunities remain for mobile service providers, manufacturers, and smartphone application developers.

The positive aspect is that technological advancements are making mobile phones and services more accessible. Screen readers cater to the needs of the blind, those with low vision and the illiterate. Visual or vibrating alerts, relay services and hearing aid compatibility devices make mobile phones accessible for the deaf and hard of hearing. Persons with physical disabilities benefit from features such as voice recognition and auto text. The market is witnessing the continuous development and launch of new accessibility applications for smartphones. However, affordability remains a major challenge, especially concerning smartphone solutions.

Widespread ratification of the CRPD, which mandates information and communication technology accessibility for all its States Parties, including the majority of ITU Member States, has prompted a comprehensive examination of regulatory and policy measures. The goal is to ensure that these measures effectively consider the accessibility needs outlined in the convention. This process has unveiled numerous valuable lessons that can be shared among the international community.

The ITU/G3ICT report⁶¹ "Making mobile phones and services accessible for persons with disabilities" serves as a valuable resource for all mobile stakeholders as they strive to implement successful accessibility features, services, business practices, policies and programmes.

⁶¹ <https://www.itu.int/en/ITU-D/Digital-Inclusion/Persons-with-Disabilities/Documents/Making%20Mobile-English.pdf>

The ITU-G3ict report on the model ICT accessibility policy⁶² presents practical suggestions for regulators and policy-makers to implement effective policies that enhance the accessibility of mobile phones and services. It includes a model code of conduct for the mobile industry and a set of model regulations for regulators. Key policy recommendations encompass:

- Involving persons with disabilities in the development of policies.
- Utilizing funds from the universal service/access fund to subsidize a national relay service provided by phone operators.
- Collaborating with emergency services and mobile phone operators to ensure equitable access for persons with disabilities.
- Ensuring mobile phone operators offer affordable and accessible devices for persons with disabilities.
- Providing comprehensive information on these mobile phones, emphasizing compatibility with assistive technologies like hearing aids.
- Offering data- or SMS-only packages for deaf users who may not use voice services otherwise.

2.2 Television/video programming accessibility policy framework

The landscape of television content production, distribution and consumption has undergone significant transformation due to the influence of digital technologies. Traditionally, broadcasters followed a model where linear broadcast television content was distributed through specific TV channels and dedicated networks, such as digital terrestrial, cable, satellite or IP networks. In the present scenario, this paradigm has evolved.

Creating accessible audiovisual media services (AVMS) for everyone is becoming increasingly challenging. The AVMS landscape is undergoing changes driven by technological advancements, innovation, new business models and shifting consumption habits. For instance, a growing number of people in Europe⁶³ are facing disabilities, with the prevalence of age-related disabilities on the rise due to the ageing population.

The transition from analogue to digital television represents a monumental technological leap in the history of television, reshaping the viewing experience for audiences, distributors and producers. While this transition has brought new possibilities for delivering accessible services, progress has been slower than expected.

The introduction of accessible services has experienced delays for several reasons:

Technological challenges: The multiplatform environment and the variety of standards across regions presents technological challenges. A lack of understanding of the entire end-to-end delivery chain for accessible AVMS, coupled with a lack of cooperation and consensus among stakeholders, further complicated matters.

Cost concerns: Broadcasters and service providers point to the high costs associated with providing accessible AVMS across the entire delivery chain. Managing these costs while ensuring accessibility remains a significant challenge.

⁶² https://www.itu.int/pub/D-PHCB-SIS_A.01-2014

⁶³ https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Documents/Events/2019/Accessible%20Europe/191107_AVMS%20Accessibility%20in%20Europe%20%28Final%20edition%29.pdf

Efforts to address these challenges and accelerate the implementation of accessible AVMS require collaborative action, improved understanding of the delivery chain, and a commitment to overcoming technological and financial barriers.

The advancement of digital technologies has revolutionized production and distribution of television content and access to it. This transformation has not only had an impact on how television is consumed but has also altered its value generation in broadcasting markets. There has been a transition from the traditional linear content model described above to the contemporary model where broadcasters and other media service providers increasingly offer non-linear content, commonly referred to as on-demand AVMS. AVMS can be categorized into two main types:

This categorization reflects the evolving landscape of AVMS, accommodating changing viewer preferences and technological advancements in the broadcasting industry. Contemporary media service providers, including broadcasters, have adapted to the changing preferences of audiences. In addition to the traditional linear broadcast approach, there is a growing emphasis on non-linear content delivery, commonly referred to as on-demand AVMS.

Accessibility policies for TV and video content often focus on ensuring that people with disabilities, including those with visual or hearing impairments, can access and enjoy audiovisual content. These policies may include requirements for closed captioning, audio descriptions and other features that enhance the accessibility of television and video programming.

Considering that broadcasting is a highly regulated area, regulators and legislators play a key role in implementing provisions on accessible services as well as in harmonizing national provisions with international standards. In particular, in the digital transition, legislators and regulators are identified as stakeholders that need to have a deep understanding of accessible television services.

Often, the basic problem the developing countries face is lack of statistical data on the number of persons with disabilities and the type of disability, and a lack of awareness of the existence of this problem. The challenge that developing countries face refers to the implementation of the universal design for all persons with disabilities, as well as finding means to finance it.

Government institutions and NRAs can play an essential role in improving the current situation by updating current legislation and promoting ICT accessibility.

In the process of developing and updating any general policies or laws that incorporate considerations of accessibility for ICTs, involvement of persons with disabilities and their representatives and related bodies/organizations should be considered from the conceptual stage of the process.

The traditional toolbox of regulatory measures⁶⁴ includes laws, public service contracts, broadcasting or access codes, and licensing agreements.

Most developed countries combine several legal instruments. For example, in some countries the legislation does not specify exactly what measures should be taken. The detailed provisions are instead to be found in public service broadcasters' contracts and decisions of the national regulatory authorities, while in others the regulatory authorities develop specific access codes,

⁶⁴ https://www.itu.int/en/ITU-D/Digital-Inclusion/Pages/Digital_Inclusion_Resources/Making_TV_accessible.aspx

or accessibility requirements for private television services are prescribed by a law, including the mandatory quotas that all news and information programmes will have to be subtitled. Accessibility of TV/video programme content for people with disabilities should be considered considering the type of disability, as well as the age. It is especially important to provide adequate content for children's and educational programmes from the aspect of development, education and inclusion of children with disabilities in community life.

Statistical data about the nature of the disability is crucial when planning the TV/video programmes for persons with disabilities: for a person who is visually impaired or blind subtitles do not help, but they do for persons with hearing difficulties. Among the elderly in particular, two or more disabilities are not uncommon (hearing, sight or other impairments affecting their ability to use an electronic programme guide).

The switchover to digital broadcasting provides a range of benefits for people with disabilities in having access to the programme content. However, there is the need to have audio descriptions, access to electronic programme guides, as well as a possibility to adjust the settings of the contrast and size of text when designing digital television systems.

Indeed, many countries appear to have introduced general provisions which do not correlate with some concrete obligations in terms of a required level of subtitling, sign language or audio description for the media service operators, either because they are not binding or would need to be implemented in a more concrete manner.

Accessibility of TV/video programmes for persons with disabilities is a global problem.

Concerning the Europe region, in 2022, 27 per cent of the EU population over the age of 16 had some form of disability. According to Eurostat estimates⁶⁵, that equals 101 million people or one in four people adults in the EU.

Accessibility is a precondition to their equal participation and active role in society, and it can contribute to ensuring smart, sustainable and inclusive growth.

The European Union has regulations and directives⁶⁶ that address TV accessibility, particularly for persons with disabilities. One key directive that addresses accessibility in the context of audiovisual media services is the Audiovisual Media Services Directive (AVMSD, Directive (EU) 2018/1808, which amends Directive 2010/13/EU). The AVMSD sets out rules for the provision of audiovisual media services across the EU but also for the accessibility of services for persons with disabilities, requiring European Union member States, but also non-EU countries that are part of the European integration process, to ensure that certain services provide access to their programmes for people with disabilities.

The directive specifies that measures should be taken to ensure that media service providers make their services gradually more accessible through subtitling and audio description. Subtitling is required for TV broadcasts of linear services and for on-demand services for a significant proportion of their programmes.

Audio description is required for TV broadcasts of linear services of feature films and other programmes with significant viewership. Media service providers are required to provide

⁶⁵ Eurostat statistics https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Disability_statistics

⁶⁶ <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX%3A02010L0013-20181218>

information about the accessibility of their services. This includes the provision of accessibility statements that inform users about the level of accessibility and any known limitations.

Member States are required to designate an independent regulatory authority responsible for ensuring the implementation of the AVMSD.

Bosnia and Herzegovina⁶⁷ has taken steps towards the implementation of the AVMSD by transposing its provisions into its regulatory framework. In June 2023, a new set of regulations in the field of broadcasting, aligned with the EU regulatory framework, came into effect. As part of this alignment, binding provisions were introduced for all other television stations, both commercial (private) and those in public ownership, concerning the accessibility of programme content to persons with disabilities and developmental difficulties. Furthermore, the mandatory provisions referring to commercial TV stations include the obligation to regularly broadcast informative, cultural, educational, entertainment, fictional and documentary programmes in a manner accessible to persons with disabilities and developmental difficulties, especially those with hearing or visual impairments, including children, with a binding quota of at least 10 per cent of the total broadcasted programme in the first year and the obligation of a gradual and continuous increase in this share so that within a five-year period, the share of accessible programmes reaches at least 20 per cent. There is also a requirement to develop and submit a five-year action plan, which has become an integral part of the licence conditions. The same applies to public service broadcasters.

In the **United Kingdom** the BBC⁶⁸, as a public service broadcaster, has extensively researched user needs for subtitles across TV and online platforms to enhance accessibility for viewers with hearing or language difficulties. Leveraging audience research and technical expertise, the BBC developed and updated subtitle guidelines based on user testing. A 2017 study by Sutherland Labs found a preference for the BBC Reith font and revealed that subtitle size requirements vary by device, emphasizing the importance of customizable text size. Implementing this feature required addressing technical challenges such as maintaining semantic units when scaling text. The research validated that user-driven customization significantly improves the viewing experience, leading to a notable reduction in complaints and confirming best practices through evidence-based design.

2.3 Other technologies and solutions

The **Mobile & Wireless Forum (MWF)**⁶⁹ initiated the Global Accessibility Reporting Initiative (GARI) in 2008 to provide information on accessibility features in mobile devices. GARI has evolved into an online database covering over 1 500 devices, aiding consumers, especially seniors and those with disabilities, in choosing devices that suit their needs. The project explores whether GARI-listed devices could qualify for national assistive technology (AT) funding, potentially bridging gaps in AT provision. The research finds that some features in GARI-listed devices align with international standards for AT, offering cost-effective solutions. ITU Member States could benefit by recognizing accessible consumer electronics as valuable AT, enhancing awareness and access for people with disabilities.

⁶⁷ ITU-D Document <https://www.itu.int/md/D22-SG01.RGO-C-0032/> from Bosnia and Herzegovina

⁶⁸ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0546/> from United Kingdom

⁶⁹ ITU-D Documents <https://www.itu.int/md/D22-SG01-C-0044/> and <https://www.itu.int/md/D22-SG01.RGO-C-0174/> from MWF

The **GARI**⁷⁰ user satisfaction survey, with over 12 500 responses by the third quarter of 2022, indicates that close to 40 per cent of respondents identify as people with disabilities. About 65 per cent state they found what they were looking for in GARI. Respondents seek additional information on using accessibility features (20 per cent) and accessible content (20 per cent). The MWF has published feature videos, explaining how to find and activate accessibility features on Android and iOS devices. ITU members can use GARI to promote mobile accessibility, fulfilling obligations under Article 9 of the CRPD. The MWF helps member States interested in implementing GARI on their websites and aims to expand its network of stakeholders.

The fifth **GARI**⁷¹ feature review in 2019 received detailed feedback from organizations in 11 countries across four continents. Stakeholders suggested 7 new features for mobile phones, 23 additional features, and 12 new features for smart TVs. The sixth GARI feature review proposes structural changes to enhance the search for speech and hearing-related features, focusing on blind, vision-impaired, and senior users. New features under consideration include audio streaming to hearing aids and recognition of atypical speech patterns. Stakeholders are invited to provide feedback on a potential new IoT devices section, recommend accessibility-related apps, suggest features for the GARI video series, and propose manufacturers and organizations for GARI participation. ITU Member States can contribute by providing comments and feedback to the MWF, even after the submission deadline, to be considered in discussions and brought to the attention of manufacturers.

The 2019 **GARI** research project⁷² affirmed the positive impact of mobile devices on users with disabilities. However, it also identified a lower penetration of mobile technology among people with disabilities, particularly in low-income countries. The research identified a knowledge gap among accessibility professionals and retail vendors, limiting their ability to provide advice to users with disabilities. GARI is positioned as a solution to bridge this gap by offering an overview of accessible devices and aiding users in identifying devices that meet their specific requirements. ITU members are encouraged to use GARI as a tool to promote mobile accessibility in their countries, aligning with their obligations under Article 9 of the CRPD. GARI serves as a central source of information on the accessibility features of devices, providing additional resources such as guides and videos demonstrating functionality and activation of features.

GSMA⁷³ reported the findings from the 2024 Mobile Industry Impact Report, which shows how digital connectivity and in particular mobile connectivity are advancing all 17 of the SDGs, hence supporting the members in the process of developing domestic policy on telecommunications/ICTs.

The recommendations outlined by **Côte d'Ivoire**⁷⁴ centre on the need for policies ensuring digital accessibility for persons with disabilities. Key recommendations include: training policy-makers to accelerate accessibility implementation; developing guidelines to make online government services accessible; creating dedicated digital spaces for persons with disabilities; organizing national events with non-governmental organizations (NGOs) to showcase ICT accessibility solutions; promoting the development and affordability of assistive tools and apps; distributing ICT tools to enhance accessibility; establishing training centres and digital academies for persons with disabilities; using digital channels and SMS to raise job access awareness; and

⁷⁰ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0045/> from MWF

⁷¹ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0046/> from MWF

⁷² ITU-D Document <https://www.itu.int/md/D22-SG01.RGQ-C-0022/> from MWF

⁷³ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0399/> from GSMA

⁷⁴ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0033/> from Côte d'Ivoire

launching national and regional projects for policy development and training. To enhance the implementation, Côte d'Ivoire stresses the importance of collaborating with NGOs on joint efforts to raise awareness about job access for persons with disabilities, developing national and regional projects to assist governments in formulating policies and strategies, and conducting joint training events to ensure digital inclusion.

Republic of Mozambique⁷⁵ reported on the implementation of an audiovisual and interactive mobile unit, referred to as the *Tablet Comunitario*, in local communities. This initiative, undertaken in collaboration with government ministries and organizations, aims to address challenges related to information dissemination, administration, and management of ICT accessibility. The *Tablet Comunitario* serves as a means of one-way and two-way communications, overcoming issues of data connectivity through a chat robot function. It incorporates an integrated mechanism with four sets of activities for persons with disabilities. These include touchscreen text, touch screen with images and sign language, touchscreen by voice/text, and non-touch screen with sign language. Different modes are designed to accommodate various disabilities such as auditory processing disorders, illiteracy, visual impairments, and the need for sign language. The contribution underscores the impact of technology, in particular the *Tablet Comunitario*, in addressing challenges and empowering communities in Mozambique. The inclusion of persons with disabilities is highlighted through the integrated mechanism, ensuring accessibility in various educational and empowerment activities. The success stories presented demonstrate the positive outcomes of leveraging technology for community development and awareness.

Korea⁷⁶ introduced initiatives to support deaf persons, focusing on education and disaster alerts. Over 90 per cent of deaf children are born into hearing families, often lacking sign language education. Many struggles with text-based alerts, limiting disaster information access. To address this, Korea leverages AI and advanced TV platforms. The EQ4ALL project, funded by the Ministry of Science and ICT and the National Information Society Agency (NIA), partnered with KT Skylife to develop AI-powered sign language learning content. Modern TV platforms with diverse connectivity options enhance accessibility. These innovations aim to improve education and emergency communication for the deaf community. Korea also presented a case study⁷⁷ leveraging the latest AI technologies to improve information accessibility for the hearing-impaired community. The case study showed the latest developments in AI-supported sign language translation technology and how web-based sign language accessibility solutions can easily provide accessible information complying with all requirements from web service operators. It also showed that this technology can contribute to accomplishing SDG 4 and SDG 10 by providing information to all people on an equal basis.

Promotion of digital inclusion in **Senegal**⁷⁸ has been identified as essential for Senegal's digital transformation. Although significant progress has been made, challenges remain, including in terms of coverage in rural areas, equitable access to technology for disadvantaged populations, and bridging the digital divide. To accelerate the process, several recommendations were introduced to reduce connectivity costs, strengthening infrastructure, promoting connectivity in public spaces, and improving the quality of services, in addition to actions to ensure the accessibility of emergency numbers in dead zones and providing the public with training in digital tools.

⁷⁵ ITU-D Document <https://www.itu.int/md/D22-SG01-RGQ-C-0007/> from Mozambique

⁷⁶ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0153/> from Republic of Korea

⁷⁷ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0338/> from Republic of Korea

⁷⁸ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0392/> from Senegal

As part of the Generation Connect Young Leadership Programme (GCYLP) and an ongoing collaboration with ITU, **Huawei**⁷⁹ stated that digital platforms, such as Web3 and blockchain technologies, offer new possibilities for economic inclusion. AURA was thus presented, as a Web3-Based initiative founded in 2023 by a group of students from the Faculty of Digital Economy at the National University of Management.

The national strategy of **Côte d'Ivoire**⁸⁰ for the development of the digital economy for 2020-2025 has a specific focus on disability. The vision is to make digital a motor for economic and social development by 2025. To achieve this, it is planned to build a digital administration serving all citizens and enterprises, providing inclusive digital services in economic sectors and make Côte d'Ivoire a regional ICT leader and exporter of services and technologies. The approved initiatives include revision of existing legislation on telecommunications/ICTs to promote accessibility, adoption of an accessibility standard for digital content, making digital services platforms accessible to persons with disabilities, improved access to education through the development of distance learning, and the creation of a national digital library accessible to all, including vulnerable persons.

China⁸¹ highlighted the potential of brain-computer interface (BCI) technology in improving information accessibility for persons with impairments. BCI enables real-time communication between the brain and external devices, bypassing peripheral nerves and muscles. It translates brain signals into computer commands, allowing users to control devices with their thoughts. BCI operates by classifying and recognizing the electrical signals generated by the brain nervous system when it encounters stimuli or engages in thought processes. This innovation enhances communication, mobility and access to information for people with disabilities.

To enhance communication accessibility for persons with disabilities, in fostering inclusivity there are several initiatives undertaken in **Japan**⁸² that enhanced communication accessibility for persons with disabilities through innovative digital solutions. A government-designated telephone relay service operates 24/7, enabling sign-language-based communication for people with hearing impairments, including in emergencies. Key applications include: KoeTora App (by the National Institute of Information and Communications Technology), which converts speech to text, supports multiple languages and includes customizable features for effective communication; SpeechCanvas App, which facilitates voice and handwritten communication, aiding workplaces and public institutions; and UD Talk App, which uses web-based speech recognition and multilingual translation for diverse communication needs, widely adopted in education. These initiatives demonstrate Japan's commitment to digital inclusivity, bridging communication gaps for persons with disabilities.

2.4 Policy approaches to web accessibility

In the contemporary digital age, the Internet plays an indispensable role, offering a myriad of benefits in daily life. For persons with disabilities, the Internet often becomes a crucial avenue, serving as their primary means to actively engage in social, economic and cultural activities on an equal basis. Assistive technologies play a pivotal role in enabling persons with disabilities to fully leverage the advantages provided by the Internet.

⁷⁹ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0416/> from Huawei Technologies Co., Ltd

⁸⁰ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0154/> Côte d'Ivoire(Republic of)

⁸¹ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0225/> from the People's Republic of China

⁸² ITU-D Document <https://www.itu.int/md/D22-SG01-C-0187/> from Waseda University, Japan

Web accessibility, as defined by the W3C⁸³, entails designing and developing websites, tools and technologies in a manner that ensures usability for people with disabilities. To foster the advancement and widespread adoption of web accessibility, W3C has established the Web Accessibility Initiative (WAI)⁸⁴. This initiative focuses on creating standards and support materials that facilitate a better understanding and implementation of accessibility measures.

Policy approaches to web accessibility⁸⁵ are crucial for ensuring that digital content and services are inclusive and accessible to all individuals, including those with disabilities. Below are some **key aspects and considerations regarding policy approaches to web accessibility**:

International standards and guidelines: Policy-makers often refer to established international standards and guidelines, such as the Web Content Accessibility Guidelines developed by WAI. WCAG provides a set of recommendations for making web content more accessible.

Legal frameworks: Many countries have enacted laws and regulations that mandate web accessibility. These legal frameworks vary, but they commonly require public sector websites, as well as certain private sector websites, to adhere to specific accessibility standards.

Government websites: Policies often focus on ensuring that government websites are accessible to all citizens. This includes making public information, services, and transactions available in accessible formats for persons with various disabilities.

Procurement policies: Governments may implement procurement policies that require the purchase of accessible ICT products and services. This encourages the private sector to develop and provide accessible solutions.

Education and training: Policies may include provisions for educating web developers, content creators, and other stakeholders about the importance of web accessibility and how to implement accessible design and development practices.

Monitoring and enforcement: Effective policies include mechanisms for monitoring and enforcing compliance. This may involve regular audits of websites, reporting mechanisms for users and consequences for non-compliance.

Collaboration with stakeholders: Policy-makers often collaborate with organizations representing people with disabilities, web developers and industry stakeholders to ensure that policies are practical, effective and accepted by the community.

Flexibility and innovation: Policies should be designed to accommodate evolving technologies and encourage innovation. Flexibility allows for the incorporation of new accessibility features and standards as they emerge.

Incentives for compliance: Some policies may include incentives for organizations that proactively adopt and exceed accessibility standards: awards, benefits or other forms of recognition.

⁸³ World Wide Web Consortium <https://www.w3.org/standards/#othertype>

⁸⁴ Web Accessibility Initiative <https://www.w3.org/WAI>

⁸⁵ https://www.itu.int/en/ITU-D/Digital-Inclusion/Pages/Digital_Inclusion_Resources/Model_ICT_Accessibility_Policy.aspx

Public awareness campaigns: Policies may involve public awareness campaigns to inform the general public about web accessibility, its importance, and how everyone can contribute to making the digital environment more inclusive.

Continuous improvement: Effective policies are not static; they evolve to address emerging challenges and opportunities. Regular reviews and updates ensure that policies remain relevant and effective in the ever-changing digital landscape.

Overall, a comprehensive and well-implemented policy approach to web accessibility is essential for fostering a digital environment that is inclusive and accessible to individuals of all abilities. As one of the positive examples **RIFEN**⁸⁶ singles out the practice of implementing Web accessibility for the hearing-impaired in **the Republic of Cameroon**. The presented work, serving as a prelude to a specific KAP (knowledge, attitudes, and practices) study, provided an overview of WCAG standards compliance in web content for the hearing-impaired in Cameroon.

2.5 Accessible ICT public procurement policies and strategies

Accessible ICT public procurement policies and strategies are initiatives aimed at ensuring that technology products and services purchased or utilized by public entities are inclusive and accessible to all individuals, including those with disabilities. These policies and strategies are crucial for promoting digital inclusion, eliminating barriers and fostering equal access to ICTs.

Key components and considerations for accessible ICT public procurement policies and strategies include:

Incorporation of accessibility standards⁸⁷: Policies should require adherence to established accessibility standards, such as the WCAG for websites and digital content. These standards provide guidelines⁸⁸ for making ICT products and services more accessible to people with various disabilities.

Clear guidelines and requirements: Policies should articulate clear guidelines and requirements for vendors and contractors to ensure that the ICT products and services meet specified accessibility criteria. This includes both hardware and software components.

Compliance monitoring: Establish mechanisms for monitoring and enforcing compliance with accessibility standards. This may involve regular audits, testing and evaluation of ICT products and services to ensure they meet the defined accessibility requirements.

Training and awareness: Provide training and awareness programmes for procurement officers, decision-makers and relevant stakeholders to enhance their understanding of accessibility requirements. This can contribute to informed decision-making during the procurement process.

Engagement with stakeholders: Involve stakeholders, including representatives from the disability community, in the development and implementation of accessible ICT procurement policies. This ensures that the policies are inclusive and address the diverse needs of persons with disabilities.

⁸⁶ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0378/> from RIFFEN

⁸⁷ https://www.itu.int/en/ITU-D/Digital_Inclusion/Documents/ICT%20Accessibility%20standards%20procurement%20FINAL.pdf

⁸⁸ ITU-T Guide for addressing accessibility in standards <https://www.itu.int/rec/T-REC-H.Sup17-201411-I/en>

Consideration of universal design: Encourage the adoption of universal design principles, aiming to create ICT products and services that are accessible to the widest possible audience, including persons with disabilities.

Evaluation criteria: Integrate accessibility considerations into the evaluation criteria used for selecting ICT products and services. This ensures that accessibility is a key factor in the decision-making process.

Documentation and reporting: Require vendors to provide documentation regarding the accessibility features of their products. Public entities should also maintain records and reports on the implementation of accessible ICT procurement policies.

Flexibility and innovation: Foster an environment that encourages innovation in accessible technology solutions. While adherence to standards is crucial, policies should also allow for advancements and emerging technologies that enhance accessibility.

Continuous improvement: Establish mechanisms for continuous improvement by periodically reviewing and updating accessible ICT procurement policies to align with evolving technologies and best practices.

By implementing accessible ICT public procurement policies and strategies, governments and public entities can contribute to building a more inclusive digital environment, ensuring that everyone, including persons with disabilities, can fully participate in the digital age.

Chapter 3 – Requirements and guidelines to promote, implement and use accessible public telecommunication and ICT spaces

3.1 Requirements for relay services for persons with disabilities and other persons with specific needs

Relay services are telecommunications services designed to facilitate real-time voice communication for persons who are deaf, hearing-impaired, speech-impaired or deaf-blind. Originating in the late 1960s in the United States, these services have expanded globally, offering persons with disabilities the ability to engage in voice telephony in real time. A crucial component of relay services is the human interface or communication assistant (CA), who ensures functional equivalence.

Despite the significance of relay services in fostering inclusivity, some countries and telecommunication entities consider them cost-prohibitive and advocate for the use of smart apps as alternatives. ITU has addressed this issue by developing Recommendation ITU-T F.930⁸⁹, which establishes standards for multimedia telecommunication relay services. Recommendation ITU-T F.930 sets guidelines and parameters for the implementation of relay services, ensuring a standardized and interoperable approach globally. Recognizing that the implementation of real-time relay services is essential for the inclusion of persons with disabilities, this approach proves more cost-effective than providing long-term financial assistance. Moreover, relay services contribute to job opportunities, benefiting citizens, including those with disabilities, in both developed and developing countries.

Relay services play a crucial role in ensuring effective communication for persons with disabilities, particularly those who are deaf or hard of hearing or have speech impairments.

Relay services support various modes of communication to meet different needs. This includes voice-to-voice, text-to-text, text-to-speech, sign-to-sign, and sign-to-speech or text. Flexibility in communication modes allows persons to choose the method that best suits their preferences and requirements. The above-mentioned human intermediary/CA facilitates the communication process by relaying messages between the caller and the person being called. The CA helps ensure that the communication is smooth and accurate, providing functional equivalence for all parties involved. One of the key features of relay services is their real-time capability. Users can make and receive telephone calls in real time, allowing for immediate and seamless communication. This is essential for both personal and professional interactions, contributing to the inclusion of persons with disabilities in various aspects of life.

While traditional relay services involve human intermediaries, technological advancements have introduced relay service applications. These apps, often available on smartphones, leverage

⁸⁹ ITU-T Recommendation on standards for multimedia telecommunication relay services <https://www.itu.int/rec/T-REC-F.930>

automatic speech recognition and other technologies to enable text-to-voice functionalities, providing an additional avenue for accessible communication. Beyond providing communication access, relay services contribute to the inclusion of persons with disabilities in society. Moreover, the establishment and operation of relay services create employment opportunities for persons with and without disabilities, particularly in developing countries. Relay services serve as a vital tool for fostering inclusive communication, breaking down barriers for persons with hearing or speech impairments, and promoting equal participation in various aspects of life.

The **United Kingdom**⁹⁰ regulatory authority **Ofcom** introduced a requirement for regulated providers to provide a free emergency video relay service. This service was added to pre-existing services for emergency text relay and emergency SMS. Ofcom carried out a two-round consultation process to create the regulation to introduce the service. This process started in December 2019 with a proposal to require communications providers to make available a free, 24/7 video relay service for deaf British Sign Language users, approved by Ofcom, to enable them to communicate with the emergency services via a dedicated app and website. In the light of specific points raised in responses to this first consultation, Ofcom issued a further consultation in February 2021 before making a statement in June 2021 to implement the rule (under General Condition C5). The Service was launched in June 2022. This experience offers a case study on how regulators can open up their rulemaking processes through consultations and translation of consultation materials into other languages, as was done in this example with BSL. Doing so requires regulators to devote additional resources to the consultation process but provides benefits in the form of regulatory decisions that are more inclusive and better-informed.

Japan⁹¹ submitted a contribution concerning a telephone relay service as a case study of information accessibility. The telephone relay service is a relay method via an operator with bidirectional interpretation between sign language (video) or text and voice. Building a national-level telephone relay service business requires human resources, equipment and funds, but also the enactment of laws, operation of networks, terminal equipment, and systems, procurement of equipment, employment of sign language operators, etc. Government support and collaboration involving disabled people's organizations are important for the realization of the project. The Nippon Foundation Telephone Relay Service has been appointed as the service provider, with an obligation to provide telephone relay services 24 hours a day, 365 days a year. In case of emergency, the interpreter operator is to be connected to police and fire departments. The specified telephone service provider can shift the burden to the telephone user. The paid contribution will be used for the cost of the work of the telephone relay service provider.

Kamaleon (Mozambique)⁹² shared a case on how to effectively seize the opportunities of the digital revolution using the Interactive Mobile Digital Unit (IMDU) - a technological infrastructure designed to bridge the digital divide in developing countries. The universal design (UD) of the IMDU is suitable to promote digital inclusion of rural communities in developing countries, facilitated by a communication approach based on the universal design for learning (UDL), a combination of various technological and digital tools with different types of communication in teaching-learning processes of development initiatives which causes a multidimensional effect

⁹⁰ ITU-D Document <https://www.itu.int/md/D22-SG01.RGO-C-0092/> from United Kingdom

⁹¹ ITU-D Document <https://www.itu.int/md/D22-SG01.RGO-C-0074/> from Japan

⁹² ITU-D Document <https://www.itu.int/md/D22-SG01-C-0147/> from Kamaleon (Mozambique)

on the cognition of communities, translated into greater impact of the message delivered, and consequently into social and behaviour changes.

3.2 ICT accessibility in education

ICT accessibility in education refers to digital technologies, software, and online resources that are designed and developed in a way that allows all individuals, including those with disabilities, to access and use them effectively. This is particularly important in the context of education, where technology plays a significant role in teaching, learning and educational support. To respond adequately, **key aspects of ICT accessibility in education** should be taken into consideration:

Inclusive design: Educational technologies, including websites, learning management systems and educational software, should be designed with inclusivity in mind. This means considering the diverse needs and abilities of all users, including those with disabilities, from the outset of the design process.

Accessible content: Educational materials, such as textbooks, presentations and multimedia content, should be created in accessible formats. This includes providing alternative formats like text descriptions for images, captions for videos and transcripts for audio content. Ensuring compatibility with screen readers and other assistive technologies is crucial.

Adaptive technologies: Implementing adaptive technologies can be beneficial for students with diverse needs. This might involve providing customizable interfaces, text-to-speech capabilities, or keyboard shortcuts that make it easier for students with disabilities to navigate and interact with digital content.

Training and awareness: Educators, instructional designers and support staff should receive training in accessibility with the best practices. Awareness campaigns within educational institutions can help promote a culture of inclusivity and ensure that accessibility is prioritized in technology adoption.

Standards compliance: Following established accessibility standards, such as WCAG for web content or the Section 508 standards in the United States, helps ensure that educational technologies meet recognized criteria for accessibility.

Assistive technologies: Educational institutions should be equipped to support students with disabilities through the provision of assistive technologies. This may include screen readers, speech recognition software and other tools that cater to various needs.

Policy and legislation: Many countries have policies and legislation in place to promote ICT accessibility in education. Institutions should be aware of and comply with these regulations to guarantee equal access to educational opportunities for all students.

Collaboration with stakeholders: Collaboration between educational institutions, technology developers, disability support services and students with disabilities is crucial. Engaging with the end users in the design and testing phases helps identify and address specific accessibility challenges.

In the contemporary landscape, ICTs serve as a pivotal infrastructure, offering accessible media to enhance knowledge and information access, particularly for persons with disabilities. The

utilization of ICTs has the potential to foster independent learning and education skills, catering not only to those with physical impairments but also persons dealing with mental health issues.

To optimize ICT resources in achieving accessible e-learning goals, advanced methodologies and technologies like artificial intelligence (AI), computational intelligence (CI), visualization, augmented reality and virtual reality come into play. AI/CI methods and tools can play a crucial role in crafting educational content that aligns with learners' models and conditions, providing mentors with professional solutions to navigate unforeseen challenges in their teaching roles. Moreover, AI/CI can contribute to the thoughtful design and planning of courseware that is genuinely beneficial in the specific knowledge domain.

In the context of disabilities, it is essential to tailor courses aimed at enhancing the knowledge and understanding of persons with disabilities without causing conflicts with their mental, emotional and physical conditions. Visualization, virtual reality and augmented reality methodologies and tools further enhance the entire educational process, making it more tangible and engaging by aligning with the priorities and interests of persons with disabilities. By prioritizing ICT accessibility in education, institutions contribute to creating a more inclusive learning environment, allowing students with disabilities to fully participate in educational experiences and reach their academic potential.

Telecommunication/ICT accessibility for persons with disabilities faces various challenges in developing countries, in particular. **Côte d'Ivoire**⁹³ described some of these obstacles, which include illiteracy, lack of digital skills, low income and communication difficulties. Its contribution also suggests a list of solutions that could be implemented by Member States to achieve full inclusion and give everyone the opportunity to benefit from digital transformation.

In 2018, the Government of **Kenya**⁹⁴ launched the Sector Policy for Learners and Trainees with Disabilities. This policy recognizes the importance of inclusive education and emphasizes the need for all learners to learn together in an inclusive environment. Through this policy, the Government expresses its commitment to, among other things, provide and maintain quality specialized learning resources and assistive devices, and adopt new technologies to improve learning and training in the targeted disability categories. The Communication Authority of Kenya in partnership with the Kenya Institute for the Blind plans to enhance access to quality and inclusive education for learners with print disabilities through deployment of ICTs. This project is in line with the authority vision of a digitally connected society. The project is being implemented through the USF objective of ensuring reasonable availability and affordability of ICTs targeting persons with disabilities and other vulnerable groups at the household and individual levels.

Cameroon⁹⁵ shared the practice of training the trainers in curricula that include a digital component for persons with visual impairments and persons who are deaf and mute. The direct result of this user-centric approach was the development of products and services intended for persons with physical, visual, hearing, mental or intellectual disabilities. The question remains, though, as to the accessibility and implementation of appropriate tools for information and protection for persons living with visual or hearing disabilities and for capacity building for educators in the use of new technologies, while considering cultural differences. Cameroon⁹⁶

⁹³ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0033/> from Côte d'Ivoire

⁹⁴ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0133/> from Kenya

⁹⁵ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0151/> from Cameroon

⁹⁶ ITU-D Document <https://www.itu.int/md/D22-SG01.RGQ-C-0159/> from Cameroon

also believes that, for inclusive education, the latest innovative ICT tools are necessary, but there are difficulties in procuring such equipment. Additionally, issues such as the lack of information on how to utilize new tools, lack of social consensus on embracing digitalization, and the absence of local language support remain to be resolved.

Argentina⁹⁷ provided information on the *Punto Digital* ("Digital Points"), a programme launched by the Undersecretariat of Services and Digital Nation and managed in conjunction with the municipalities, that allows access to digital public services, as well as to entertainment, cinema and digital training that relies heavily on synergy between the actors. The Virtual Learning Platform works with the Digital Points and offers courses, workshops and activities. To guarantee more and better Digital Points, it is vital to strengthen dialogue with municipalities, carry out periodic surveys to find out specific needs, and strengthen coordination with other public organizations of the Government.

TransMedia Catalonia (TMC)⁹⁸ at the Universitat Autònoma de Barcelona has developed various training resources and courses focused on media and digital accessibility, with an emphasis on easy-to-understand language and the Spanish language. TMC has been involved in the creation of open access educational resources and offers specialized courses in accessibility management, digital accessibility and easy-to-understand communication. Their expertise extends to linguistic, sensorial, and cognitive accessibility, including dubbing, subtitling, sign language interpreting and audio description. TMC training programmes aim to address the growing demand for accessibility professionals and can be adapted for various languages and user profiles. Through collaborations with stakeholders and organizations like the ITU Academy, TMC is open to expanding its educational offerings to ensure wider access to telecommunications and ICT for persons with disabilities.

Universitat Autònoma de Barcelona, Spain⁹⁹ reported on the Media Accessibility Platform (MAP), mapaccess.org, as an international hub for media accessibility that includes up-to-date information on media accessibility legislation, standards, training and research from an international perspective. Built thanks to the work of volunteers, MAP lists around 3 000 entries, including approximately 100 projects. This contribution presents MAP main features and calls for collaboration with interested stakeholders. Members are invited to consider the possibilities offered by this platform at an international level and are invited to contribute to it.

Considering that persons with disabilities are often excluded from technology and telecommunication/ICT training initiatives, especially in Africa, and in order to improve their accessibility and inclusion, **RIFEN**¹⁰⁰ shared the practice of visually impaired participants at the AI course organized by RIFEN in collaboration with the Smart Africa Digital Academy, as a joint effort by several African countries, including Republic of Benin, Republic of Burundi, Côte d'Ivoire, Cameroon, Republic of Mali, Republic of Guinea, Republic of Rwanda, Republic of Niger, Republic of Zambia, Togo, and Senegal. It highlights the importance of such inclusive capacity development initiatives for persons with disabilities and makes recommendations to improve inclusivity in telecommunication and digital skills.

⁹⁷ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0181/> from Argentina

⁹⁸ ITU-D Document <https://www.itu.int/md/D22-SG01.RGQ-C-0143/> from Universitat Autònoma de Barcelona, Spain

⁹⁹ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0287/> from Universitat Autònoma de Barcelona, Spain

¹⁰⁰ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0360/> from RIFEN

The *Ecole Nationale Supérieure des Postes, Télécommunications et TIC* explored the challenges and strategies related to integrating ICTs in the education of students with physical disabilities in **Cameroon**¹⁰¹. While digital technologies are widely recognized as essential tools for inclusive and quality education, significant barriers remain, including lack of infrastructure, high costs, limited teacher training and broader socio-economic issues such as poverty and inadequate public services. The study highlights that accessibility must go beyond physical infrastructure to encompass digital and didactic inclusion, ensuring all learners can meaningfully engage with educational content. Field research across three specialized schools reveals that, although some administrative strategies exist – such as state support and partnerships – pedagogical use of ICTs remains limited due to equipment shortages and systemic constraints. To address this, the study calls for coordinated efforts from governments, educators and private actors to improve affordability, build infrastructure and enhance teacher training to support sustainable and equitable ICT integration in education for learners with disabilities.

3.3 Requirements for accessible devices and apps for older persons with age-related disabilities

Older persons with age-related disabilities represent a diverse group with varying needs, experiences and challenges. Ageing is a natural part of life, often accompanied by changes in physical, sensory, cognitive and social capabilities. While digital literacy among older adults is increasing, there can still be challenges in adopting new technologies. Some may be unfamiliar with smartphones, tablets or computers. Many older individuals use assistive technologies such as hearing aids, magnifiers or voice-activated devices to enhance their daily lives. Advocacy for age-friendly policies and communities is essential for ensuring that the needs of older persons are considered in urban planning, health care and social services. Understanding the diversity within this demographic group is crucial for developing inclusive policies, products and services that cater to the needs of older persons with age-related disabilities. It is important to recognize and respect their individual experiences and preferences while fostering environments that promote active and healthy ageing.

Designing accessible devices and applications for older persons with age-related disabilities requires careful consideration of their unique needs and challenges. **Accessibility for older adults** often involves addressing physical, sensory and cognitive impairments. Below are **some key requirements** and considerations:

Vision impairments

- Text size and contrast: Ensure text is large and high-contrast for better readability. Provide options to adjust text size and contrast to accommodate varying visual impairments.
- Voice assistance: Include voice-guided navigation and commands for those with vision difficulties. Allow users to control the device or app through voice commands.
- Screen reader compatibility: Ensure compatibility with screen readers to provide audible descriptions of on-screen content. Implement proper labelling for interactive elements.
- Customizable display settings: Allow users to customize display settings, such as brightness and colour schemes, to suit their preferences.

¹⁰¹ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0515/en> from Cameroon.

Hearing impairments

- Captioning: Include captions for multimedia content to assist users with hearing impairments. Provide visual notifications for important auditory alerts.
- Volume controls: Ensure that volume controls are intuitive and offer a wide range of volume levels. Consider providing visual or vibration feedback for sounds.
- Hearing-aid compatibility: Test and ensure compatibility with hearing aids and other assistive listening devices.

Motor and dexterity issues

- Large touch targets: Make touch targets (buttons, icons) large enough to accommodate users with motor challenges. Allow users to adjust touch sensitivity.
- Gestures and navigation: Include alternative navigation methods (e.g. gestures and voice commands) for users with dexterity issues. Minimize the need for precise gestures.
- Customizable interaction: Allow users to customize interaction settings, such as touch and swipe sensitivity.

Cognitive impairments

- Simple and consistent design: Maintain a simple and consistent user interface to reduce cognitive load. Minimize distractions and provide a clear hierarchy of information.
- Clear instructions: Offer clear and concise instructions for various tasks. Provide help features or tutorials.
- Personalization: Allow users to personalize settings to match their preferences and capabilities. Provide reminders and notifications for important tasks.
- Testing with older users: Conduct usability testing with older adults to identify potential challenges and areas for improvement.

Inclusive design

- User feedback: Gather feedback from older users during the design and testing phases. Iterate on designs based on user input.
- Compatibility with assistive technologies: Ensure compatibility with a range of assistive technologies commonly used by older adults.
- Accessibility guidelines: Adhere to accessibility guidelines, such as WCAG, to ensure a high level of accessibility.

By considering these requirements, developers can create devices and applications that are more inclusive and user-friendly for older persons with age-related disabilities. Regular testing and feedback from the target user group are crucial to refining and improving accessibility features.

In the **Republic of Korea**¹⁰², the Ministry of Science and ICT held a public contest, “Project to Address Current Social Issues with Intelligence Information,” with the NIA to address difficulties and challenges faced by the socially disadvantaged, including persons with disabilities and the elderly, with intelligence information and technology. The project entitled “Intelligence KIOSK Barrier-free Services” was selected for sponsorship, and eITOV was chosen as a business operator. The purpose was to create kiosks that accommodate persons with different disabilities, as well as the elderly. This project to develop and demonstrate barrier-free Kiosks commenced

¹⁰² ITU-D Document <https://www.itu.int/md/D22-SG01-C-0073/> from Republic of Korea

in 2020 and implemented in two stages by 2021. In order to design a barrier-free kiosk, it is necessary to know the characteristics of each type of socially underprivileged (information-vulnerable group) and to consider technical design based on this. The definition of the socially underprivileged refers to the elderly and persons with disabilities (visual, hearing and mental) who need consideration because accessibility may be limited or marginalized when using kiosk devices and services provided by kiosks due to physical/psychological difficulties. This project developed barrier-free user modules taking into account scalability and maintenance and realizing the necessary functions. Usage for different types of disabilities, including physical, hearing and visual impairments, was also considered in designing the hardware. The base of the machine was designed to provide for adjustability of the height of the kiosk and accessibility for wheelchair users, and barrier-free modules were also arranged for better usability.

In **Mexico** the Federal Telecommunications Institute (*Instituto Federal de Telecomunicaciones*) has conducted various activities aimed at providing digital skills to persons with disabilities and older persons in order to ensure and promote their access to and use of ICTs.¹⁰³ In line with the 2022 Kigali Declaration, which recognizes that digital inequalities remain and continue to widen in the use of data and digital ICT-centric technologies, the Federal Telecommunications Institute has implemented various training and digital literacy initiatives targeting persons with disabilities and older persons, helping to promote their access to telecommunications and ICT services. This has been done through various courses and workshops (in person and remotely) intended to teach such persons to use their equipment (mobile phones, computers, tablets, etc.) and services (telephony, Internet, etc.) through the equipment accessibility features and existing assistive technologies.

In 2020 China introduced initiatives to address the challenges faced by the elderly and persons with disabilities in using intelligent technologies.¹⁰⁴ The General Office of the State Council and the Ministry of Industry and Information Technology issued plans to promote information accessibility, focusing on standards for terminal accessibility. China Telecommunication Technology Labs-Terminals (CTTL-Terminals) collaborated with the China Disabled Persons' Federation and mobile manufacturers to draft two standards: the *Technical Requirements for Mobile Terminal Suitability for Elderly Persons* and the *Technical Requirements for Rating Accessibility of Mobile Terminals*. These standards cover technical requirements such as visual and hearing enhancement, emergency applications and accessibility ratings. CTTL-Terminals also facilitated product development and compliance testing to foster an accessible information environment in China.

The Ministry of Industry and Information Technology of **China**¹⁰⁵ issued a series of information accessibility standards. Some research institutions, software development enterprises and terminal development enterprises carried out research on accessibility technical standards and improvement of products and services. Digital technologies such as AI, large-language models, and humanoid robots act as powerful catalysts for information accessibility, and some governments and enterprises in China have adopted new digital technologies to ensure that special groups such as the elderly and people with disabilities are fully integrated into digital life on a basis of equality. **China** also noted that the final report of ITU 2024 event “AI for

¹⁰³ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0150/> from Mexico

¹⁰⁴ ITU-D Document <https://www.itu.int/md/D22-SG01.RGQ-C-0232/> from the People's Republic of China

¹⁰⁵ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0415/> from the People's Republic of China

Good-Innovate for Impact” addresses global AI divides by promoting knowledge sharing, best practices and collaboration to bridge gaps in AI application and investment.¹⁰⁶

3.4 Accessibility of e-government and other services and applications

E-government websites and platforms should adhere to established accessibility standards, such as WCAG. Governments should incorporate accessibility considerations into policy development processes, ensuring that digital inclusion is a priority across all government initiatives.

Compliance with these standards ensures that digital content is perceivable, operable, understandable and robust. Websites should be designed with accessibility in mind, featuring clear navigation, well-structured content and compatibility with assistive technologies. This includes providing text alternatives for non-text content and ensuring keyboard accessibility. Government information, documents and services should be available in alternative formats, such as plain text, Braille and audio, to accommodate diverse needs, while multimedia content, including videos and audio, should be captioned and transcribed to make them accessible to persons with hearing impairments.

Online forms and documents should be designed to be accessible, allowing users of assistive technologies to complete them easily. This involves proper labelling, clear instructions and compatibility with screen readers. E-government platforms should be compatible with a range of assistive technologies commonly used by persons with disabilities, including screen readers, magnifiers and voice recognition software. It is crucial to conduct usability testing with persons with various disabilities to identify and address potential barriers to access. User feedback is crucial in refining and improving the accessibility of e-government services.

Government employees responsible for creating and maintaining digital content should receive training on accessibility principles. This includes understanding the needs of persons with different disabilities and ensuring that content is created with accessibility in mind. If the government provides mobile applications, they should be designed to be accessible on various devices. This involves responsive design, support for screen readers and consideration of touch-based interactions. Periodic accessibility audits should be conducted to assess the compliance of e-government websites and platforms with accessibility standards. This helps identify areas for improvement and ensures ongoing accessibility. By addressing these requirements, governments can enhance the accessibility of their digital services, fostering inclusivity and equal access to information and services for all citizens.

Since 2004, the federal Government of **Brazil**¹⁰⁷ has been developing effective actions to ensure accessibility in its Internet portals and digital services. These initiatives have advanced by promoting the internalization and dissemination of best practices based on international models, establishing standards to be followed and providing civil servants with the technology tools and solutions necessary to promote the usability of their products for people with disabilities. In this way, the actions range from a strategic level in the field of public policies to the operational level in specifying design standards for websites. Anatel, as a federal autarchic entity, has been monitoring and following these guidelines, as well as seeking new alternatives to enhance accessibility.

¹⁰⁶ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0447/> from the People's Republic of China

¹⁰⁷ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0205/> from Brazil

Inclusion and accessibility of telecommunications/ICTs for persons with disabilities is an ongoing concern of the Government of **Côte d'Ivoire**.¹⁰⁸ The Government devised a national strategy providing orientation for setting objectives in a coherent and coordinated manner at the national level and defining priorities for the sector. Given the role of telecommunications/ICTs in all domains of activity in Côte d'Ivoire, the national strategy for the development of the digital economy for 2020-2025 aims to make Côte d'Ivoire a leader and turn it into a subregional hub in the sector, with large-scale, rationalized utilization of digital at all levels of society: administration, citizens and companies.

Republic of Uganda¹⁰⁹ shared a case study on enhancing knowledge management, ICT adaptation, digital, skilling and access to e-services for persons with disabilities in Uganda and thereafter solicit complementary ideas for acceleration and sustainability. The Uganda Communications Commission (UCC) through the Uganda Communications Universal Service and Access Fund (UCUSAF), the country USF, partnered with the National Union of Disabled Persons of Uganda (NUDIPU) on a project to enhance knowledge management, digital skills and access to e-services for persons with disabilities. UCC/UCUSAF noted that ICTs can significantly improve the socio-economic livelihoods of communities in Uganda, including persons with disabilities, and ensure universal access and usage of ICTs.

In **Côte d'Ivoire**¹¹⁰ the national strategy for the development of the digital economy makes it possible effectively to coordinate government action in all domains and sectors contributing to building digital development. Plans for digital transformation aim to make companies more competitive, improve the quality of public services, open new socio-economic opportunities for all citizens in an inclusive manner, and hasten the achievement of the SDGs, while protecting individual and collective security.

Argentina¹¹¹ presented the *Mi Argentina* application which allows people with disabilities to access the Single Disability Certificate, the Universal Symbol of Access, and toll exemption digitally. This initiative is the result of collaboration between the National Disability Agency (ANDIS) and the Undersecretariat of Services and Digital Nation. Collaborative work and digital social inclusion in government management stand out. It is essential to continue improving digital services and inclusive communication, extend collaboration to other areas, and simplify procedures by expanding certificates in the *Mi Argentina* application.

Uganda¹¹² also shared a case study on the level of ICT awareness and access by persons with special needs in Uganda. The recommendations of this study have formed the basis UCUSAF interventions for persons with special needs in its five-year strategic plan running from 2023/24 to 2027/28.

To ensure equal access to new digital technologies, **Mozambique**¹¹³ introduced different initiatives to make digital technologies available to remote rural communities. However, these initiatives face several limitations as (i) using conventional ICT devices to deploy mass information or educational content has proved difficult to the few that have tried, due to a lack of electricity, widespread digital illiteracy, and mis-use of the devices provided for short term use; and (ii)

¹⁰⁸ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0154/> from Côte d'Ivoire

¹⁰⁹ ITU-D Document <https://www.itu.int/md/D22-SG01.RGQ-C-0044/> from Uganda

¹¹⁰ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0154/> from Côte d'Ivoire

¹¹¹ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0182/> from Argentina

¹¹² ITU-D Document <https://www.itu.int/md/D22-SG01-C-0231/> from Uganda

¹¹³ ITU-D Document <https://www.itu.int/md/D22-SG01-C-0147/> from Kamaleon (Mozambique)

initiatives do not always produce results that can be translated into increased effective social and economic participation to build “an integrated and inclusive digital society and economy in Africa” (African Union, 2020).

Chapter 4 – Conclusions and guidelines

4.1 Key issues to be considered for implementing a telecommunication/ICT accessibility policy and regulatory framework for persons with disabilities and persons with specific needs in all countries

Policy-makers should explore a comprehensive set of policy measures, encompassing market regulation via public procurement and legislation compelling service providers to ensure ICT accessibility. Additionally, policies can be implemented to empower persons with disabilities and disseminate knowledge on their active involvement in policy processes.

To enhance ICT accessibility for persons with disabilities, **adjustments to existing ICT legislation** are imperative. Changes may be required to achieve the following:

- Revising current ICT policies, legislation and regulations to champion ICT accessibility.
- Engaging persons with disabilities in the formulation of revised ICT policies through mechanisms such as a committee on ICT accessibility.
- Disseminating information about updated ICT policies, legislation and regulations to persons with disabilities.
- Embracing technical and quality of service standards for ICT accessibility.
- Introducing and modifying key definitions in legislation to promote ICT accessibility.
- Ensuring that quality of service requirements consider the specific needs of persons with disabilities and establish standards for accessible services.
- Reviewing legal frameworks for emergency communications to guarantee accessibility for persons with disabilities.
- Establishing clear targets and providing annual progress reports.
- Amending disability legislation to explicitly address ICT accessibility.
- Take into consideration the needs of rural and remote communities¹¹⁴, which will rapidly converge with those of their urban counterparts. Ensure universal connectivity so as to eliminate the digital divide currently separating many urban and rural areas.

National regulatory authorities should:¹¹⁵

- Examine the availability of services in the market and principles of universality vis à-vis users' different abilities and technological capacities within the market, such as relay services.
- Consider how to facilitate the interaction of people with different abilities with the regulator and enable their participation in consultations, e.g. making documents accessible for sign language users and providing transcripts of audiovisual materials.
- Take proactive steps to ensure that regulatory procedures are inclusive for people with disabilities (with particular regard to consumer-facing projects), evidence-based, and informed by industry and civil society stakeholders, for example by accommodating sign-language submissions to consultations.

¹¹⁴ ITU-D Document <https://www.itu.int/md/D22-SG01.RGQ-C-0034/> from Zimbabwe

¹¹⁵ ITU-D Document <https://www.itu.int/md/D22-SG01.RGQ-C-0092/> from United Kingdom

- Ensure timely implementation of binding regulations for making telecommunications services and digital content accessible to all.
- Adopt accessibility standards, providing appropriate tools and technologies.
- Integrate provisions for consumers with disabilities into operator requirements.
- Develop clear and precise regulations for network convergence that account for consumers with disabilities.
- Implement policies to inform persons with disabilities about their rights regarding telecommunications services.
- Establish a comprehensive digital accessibility framework that takes into account people with disabilities.
- Address gender considerations in relevant policies.
- Prioritize the development and adoption of assistive technologies for the empowerment of people with disabilities.

4.2 Promoting accessibility in public ICT spaces, such as telecentres and public payphones

Public ICT spaces, including telecentres and community access points, play a crucial role in ensuring access to telecommunication and ICT services, especially in remote areas. To bridge the digital divide and create an inclusive information space, it is essential to adapt public ICT centres and standalone communication facilities to the needs of users with disabilities.

Key requirements for ensuring accessibility of these spaces include:

- Providing unobstructed access and entry to, and exit from, public telecommunication/ICT centres and telecommunication facilities.
- Consider investments in suitable infrastructure, such as public Internet access centres equipped with assistive tools for people with disabilities.
- Display signs indicating accessibility for specific or all categories of disabilities.
- Install wheelchair-accessible ramps with handrails.
- Enable wheelchair movement, avoiding sharp turns and steep inclines.
- Use assistive technologies, tactile plans, Braille signs or other means for conveying information to users with vision impairments.
- Implement information induction systems (hearing loops) for remote audio transmission.
- Raise awareness and involve stakeholders.

4.3 Promoting accessibility tools for accessible e-education, which can be used for people who have difficulties mastering reading and writing

- Advocate for the procurement of mainstream ICTs that incorporate accessibility and assistive technology, especially in educational and public settings such as schools, universities, libraries and telecentres.
- Ensure that initiatives and programmes aimed at procuring and providing accessible ICTs for education and training align with the actual needs of consumers, as expressed through organizations representing persons with disabilities.

- Consider ongoing maintenance and upgrades of accessible ICTs in initiatives and programmes related to procurement for education and training.
- Consider training persons with disabilities in the use of accessible ICTs in initiatives and programmes related to procurement for education and training.
- Establish a field of study on adaptive IT to empower IT teachers regarding accessibility.
- Recognize universities as crucial partners in advancing mainstream progress and education on accessibility issues.
- Consider making schools and learning inclusive by using accessible telecommunications/ICT as support to access educational content and activities.
- Consider engaging accessibility professionals to meet the current and future demand for access services.
- Consider offering training in multiple languages, including sign languages, to reach the broadest possible audience.
- Consider providing training to people with disabilities on the maintenance of mobile terminals to support their professional integration.
- Adopt training programmes for women and for people with disabilities in digital skills using the universal service fund.

4.4 Key policy considerations for web accessibility

Web accessibility policies should align with international human rights and disability rights laws, particularly Article 9 of the CRPD. While current policies often focus on persons with disabilities, universal design principles, mandated by Article 4 of the CRPD, advocate for a more comprehensive approach. Universal design extends obligations beyond disability, acknowledging multiple forms of discrimination and addressing the diverse experiences of individuals with intersectional identities.

The distinction between Internet access and web accessibility must be recognized in policies. While access relates to connectivity, accessibility pertains to the design and development of websites and applications in accordance with international standards such as WCAG 2.1. Access to web technologies does not negate the need for accessible website design, and the provision of assistive technologies should align with websites designed for compatibility.

Clear definitions within policies are crucial. For example, “Accessible ICTs” refers to devices or services that include built-in accessibility features, designed to support users according to their individual abilities, needs, and circumstances. Accessibility extends to compatibility with assistive technologies, enabling digital inclusion for diverse users, including those with disabilities.

Assistive technology (separate hardware or software integrated into devices or services to empower persons with more severe disabilities) overcomes barriers to information and communication, aiding users with functional, motor, sensory or intellectual limitations.

Collaboration with persons with disabilities and their representative organizations is paramount in the design and implementation of web accessibility policies.

Policies should enhance capacity building and facilitate substantive participation of persons with disabilities in the development of new web technologies, ensuring equal access. In conjunction with universal design, web accessibility policies can promote human rights, social equality,

discrimination elimination, diversity recognition, usability and active participation of persons with disabilities in ICT and policy development.

Additional guidelines and recommendations include:

- Increasing the accessibility of governmental and organizational websites to foster social and economic inclusion.
- Establishing strong collaboration between governmental bodies and national societies for the blind to create a sustainable policy framework for web accessibility.
- Raising awareness among persons with disabilities about apps, services and devices for web accessibility.
- Developing national standards and guidelines to provide recommendations and unify general principles for web accessibility at the national level.
- Creating training programmes and certifications at the national level to build capacity among professionals for the development of accessible websites and mobile applications.

4.5 Key policy considerations for accessible mobile phones and services

The following considerations aim to **create a mobile phone environment** that is not only technologically advanced but also **inclusive, ensuring that persons with disabilities have equal access to communication services and emergency resources**:

- Inclusive policy development: Policies must be developed in collaboration with persons with disabilities, ensuring their perspectives and needs are considered.
- Universal service/access fund utilization: Policy-makers should explore using funds from the universal service/access fund to subsidize national relay services for persons who are unable to hear and use phones conventionally.
- Text and video relay services: Collaborate with network operators and stakeholders to develop relay services, both text and video (sign language), for persons with disabilities.
- Equitable access to emergency services: Work with emergency services, network operators and manufacturers to guarantee equitable access to emergency services for persons with disabilities.
- Availability, affordability and accessibility of mobile phones: Collaborate with mobile phone operators and manufacturers to ensure mobile phones are available, affordable and accessible for persons with disabilities.
- Information provision and compatibility: Liaise with mobile phone operators to ensure sufficient information about mobile phones, especially regarding their compatibility with assistive technologies like hearing aids.
- Data/SMS-only packages: Encourage mobile network operators to offer data/SMS-only packages tailored for deaf users who may not wish to use voice services.
- Role of ICT operators and manufacturers: Acknowledge the pivotal role of ICT operators and manufacturers in promoting the development of accessible services and equipment for persons with disabilities. Foster entrepreneurial innovation in ICT accessibility. Adopt a holistic approach, including ensuring the accessibility of devices and promoting digital inclusion in rural areas. Partner with telecommunications operators, Internet service providers and app developers to encourage the integration of accessibility features into their products and services. Create a permanent framework for exchanges with telephone operators, value-added service providers and consumer associations. Adopt standards for technological requirements related to devices to meet the needs of people with disabilities and the elderly.

4.6 Key issues identified by members regarding developing policies and services for accessibility of audiovisual media content

The following guidelines and recommendations aim to **create a more inclusive and accessible environment for audiovisual media content**, recognizing the importance of active participation and collaboration across various stakeholders in the process:

- Inclusive policy development: Policy-makers should actively consult persons with disabilities when formulating policies related to TV and video programmes.
- Awareness campaigns: Conduct awareness campaigns targeting persons with disabilities to inform them about applications, services and devices available for TV and video programmes.
- Accessible content delivery: Encourage service providers to offer audio description, subtitles/captions, and signing for enhanced accessibility.
- Broadcasting licence requirements: Include specific provisions for audio description, subtitles/captions, and signing in broadcasting licence requirements to ensure comprehensive accessibility.
- National standards and guidelines: Develop national standards and guidelines to streamline recommendations and establish fundamental principles for the accessibility of TV and video programmes at the national level.
- Quality of service criteria: Establish criteria for assessing the quality of service for accessible TV and video programmes, ensuring a high standard of accessibility.
- Funding support for public broadcasters: Allocate sufficient funding to public broadcasters to empower them to provide accessible TV and video programmes.
- Holistic approach to accessibility: View accessibility as a comprehensive, horizontal process involving collaboration among all stakeholders contributing to the development and delivery of TV and video content.

4.7 Key considerations in public procurement

In the realm of public procurement, the following key considerations emphasize the importance of **integrating accessibility into public procurement practices** through a collaborative and standards-driven approach, fostering awareness and capacity development among relevant stakeholders:

- Progressive implementation of policy and regulation: A combination of policy and regulation should be gradually introduced to establish the essential regulatory framework, incorporating policy standards and awareness campaigns. This framework is vital to ensure that public authorities procure ICTs that are accessible.
- Establishment of accessibility requirements: Accessibility requirements must be formulated based on standards that are collectively agreed upon by all stakeholders, including policy-makers, industry representatives, and persons with disabilities and their representative bodies.
- Consultation for policy update: Public procurement policy, legislation, and regulation should be revised through consultation with relevant stakeholders to include accessibility as a fundamental principle in public procurement processes.
- Reference to international standards: Accessibility requirements cited in public procurement policy, legislation and regulation should align with or exceed harmonized and universally accepted international standards. This ensures a consistent and commonly agreed-upon foundation for accessibility.

- Awareness and capacity-building initiatives: Implement initiatives to enhance awareness and build capacity regarding policy and standards among public procurement officials, industry professionals and persons with disabilities. This facilitates a more informed and inclusive approach in the procurement process.

4.8 Final comments – way forward

Over the past decade, the concept of ICT and digital accessibility has significantly evolved in response to the rapid integration of technology into daily life. Initially focused on addressing barriers for persons with disabilities, digital accessibility is now recognized as beneficial for all users, especially in diverse environments and contexts. Features such as messaging for hearing-impaired persons or voice commands for visually impaired users also enhance usability for the broader population.

Recognizing this, the ITU membership has emphasized the need to integrate accessibility principles and standards from the design stage of digital products and services. Universal design and inclusive ICT policies are not only necessary for equal access but are also key to achieving an inclusive digital transformation. Discussions at ITU Question 7/1 meetings highlight the shift towards a holistic, human-centred approach that ensures digital technologies serve all persons equitably.

With one billion people worldwide living with disabilities, 80 per cent of them in low-income countries, the need for inclusive policies is more urgent than ever. Member States have advanced disability inclusion through accessible urban infrastructure, improved health care and non-discriminatory policies. The World Telecommunication Development Conference in 2010 reinforced the right to equal access to ICTs.

Global demographic trends further stress the need for accessibility. By 2050 the older population will outnumber those under 15, with nearly four in five elderly persons residing in developing countries. The number of people over 80 is set to surpass the number of infants by the mid-2030s, and by the late 2070s, the elderly will outnumber children under 18.

Given these trends – ageing populations, rising numbers of persons with disabilities, and increasing digital reliance – ensuring ICT accessibility is not just a necessity but a fundamental requirement for global inclusion. Making technology universally accessible will empower nearly one-half of the world's population to participate fully in the digital era.

Annex 1: Overview of good practices and achievements in ICT accessibility worldwide

Telecommunication/ICT accessibility policy and regulatory framework

Burkina Faso made progress in the electronic communications sector through the adoption of Law No. 061-2008/AN and Decree No. 2011-093/PRES/PM/MPTIC/MI, defining modalities for implementing universal access and service of electronic communications (Document [1/173](#)).

Japan presented the initiative of the Ministry of Internal Affairs and Communications concerning the call for submissions of ICT-accessible equipment and services as “Information Accessibility Good Practices 2023” with the aim of raising public awareness of accessibility-conscious products and incentivizing companies and other organizations that are actively working on information accessibility (Document [D22-SG01-C-0385](#)).

The regulatory authority of **Kuwait**, CITRA, has issued regulations requiring licensees and operators to offer facilities catering to persons with disabilities. Operators and equipment importers must adhere to the Web Content Accessibility Guidelines (WCAG 2.0) (Document [SG1RGO/5](#)).

Tanzania recognized the need to promote the accessibility of communications services to persons with disabilities, stressing that the provision of accessible ICT/communications services is a key for the successful implementation of a digital inclusion agenda (Document [D22-SG01-C-0320](#)).

Türkiye shared its good practice and outlined its regulatory framework and practice with regard to disadvantaged groups in the electronic communications sector to increase their engagement in the electronic communications sector (Document [D22-SG01-C-0381](#)).

Uzbekistan reported on initiatives within the annual summer school “Digital youth in defining a common future” with the aim of bridging digital gaps towards universal and meaningful connectivity in the ITU Data Visualization Hackathon (Document [D22-SG01-C-0328](#)).

Technologies and solutions in an ICT-accessible ecosystem

China highlighted the potential of brain-computer interface (BCI) technology in improving information accessibility for persons with impairments. BCI enables real-time communication between the brain and external devices, bypassing peripheral nerves and muscles (Document [1/225](#)).

The national strategy of **Côte d'Ivoire** for the development of the digital economy for 2020-2025 with has a specific focus on disability (Document [1/154](#)).

GARI listed devices that could bridge the gap between what is currently being provided to people with disabilities and what their actual needs are. The GARI list describes many devices that can be helpful to people with disabilities, with very useful and beneficial built-in accessibility features (Document [1/44](#), [SG1RGO/174](#)).

GSMA featured findings from the 2024 Mobile Industry Impact Report, which show how digital connectivity and in particular mobile connectivity are advancing all 17 of the SDGs (Document [D22-SG01-C-0399](#)).

Japan has appointed a provider to operate a telephone relay service 24/7, enabling sign language-based communication for people with hearing impairments, including in emergencies (Document [1/187](#)).

Republic of Korea introduced initiatives to support deaf persons, focusing on education and disaster alerts. These innovations aim to improve education and emergency communication for the deaf community (Document [1/153+Annex](#)).

Republic of Korea presented the latest developments in AI-supported sign language translation technology and explained how web-based sign language accessibility solutions can readily provide accessible information complying with all requirements from web service operators (Document [D22-SG01-C-0338](#)).

Requirements and guidelines to promote, implement and use accessible public telecommunication and ICT spaces

Argentina presented the *Mi Argentina* application which allows people with disabilities to access the Single Disability Certificate, the Universal Symbol of Access, and toll exemption digitally (Document [1/182](#)).

The Government of **Brazil** has been developing effective actions to ensure accessibility in its Internet portals and digital services. These initiatives have advanced by promoting the internalization and dissemination of best practices based on international models, establishing standards to be followed, and providing technology tools and solutions to assist its employees in promoting the usability of their products for people with disabilities (Document [1/205](#)).

Cameroon shared capacity building for trainers in the use of new technologies adapted for persons with visual impairments and persons who are deaf and mute (voice-to-text conversion for persons with hearing impairments; digital library for persons who are deaf or have visual impairments; adjustable font size or text-to-voice conversion for persons with visual impairments, etc.) (Document [1/151](#)).

China issued a series of information accessibility standards. Research institutions, software development enterprises and terminal development enterprises have done research on accessibility technical standards and improvement of products and services (Document [D22-SG01-C-0415](#)).

The Government of **Kenya** launched the Sector Policy for Learners and Trainees with Disabilities, recognizing the importance of inclusive education and emphasizing the need for all learners to learn together in an inclusive environment (Document [1/133](#)).

Uganda shared a case study on the level of ICT awareness and access by persons with special needs in Uganda (Document [1/231+Annexes](#)).

Universitat Autònoma de Barcelona, Spain reported on the Media Accessibility Platform (MAP), [mapaccess.org](#), an international hub for media accessibility that includes up-to-date information on media accessibility legislation, standards, training and research from an international perspective (Document [D22-SG01-C-0287](#)).

Annex 2: List of contributions and liaisons statements received for Question 7/1

Contributions for Question 7/1 for Rapporteur Group and Study Group meetings

Web	Received	Source	Title
1/447 +Ann.1	2024-10-22	China	AI for Good, bridge the AI divide
1/416	2024-10-22	Huawei Technologies Co., Ltd.	GCYLP program youth projects contributions
1/415 (Rev.1)	2024-10-22	China	Information accessibility practice in China
1/399 +Ann.1-2	2024-10-21	GSM Association	2024 Mobile Industry Impact Report: Sustainable Development Goals
1/392	2024-10-17	Senegal	Promoting digital inclusion in Senegal
1/388	2024-10-15	Hungary	Accessibility usage in VHF Band II
1/385	2024-10-09	Japan	Introduction of efforts to ensure information accessibility products in Japan
1/381	2024-10-03	Türkiye	The regulation regarding measures for socially disadvantaged groups in Türkiye
1/378	2024-09-29	RIFEN	Web accessibility for the hearing impaired in Cameroon: Prerequisites for a CAP study of IT companies in the city of Yaounde on digital accessibility
1/370	2024-09-16	Co-Rapporteurs for Question 7/1	Draft Final Report 2022-2025
1/360	2024-09-19	RIFEN	Good practices for digital inclusion: report from the digital-barrier-free programme on inclusive capacity building organized by RIFEN
1/359	2024-09-19	BDT Focal Point for Question 7/1	BDT progress report on the implementation of ICT /digital accessibility work including activities, events, tools, and resources since the last ITU-D Study Group 1 meeting on Question 7 held on 15th April 2024
1/348	2024-09-19	RIFEN	Initiatives for the involvement of persons with disabilities in national decision-making on digital inclusion strategy and policy

Telecommunication/ICT accessibility to enable inclusive communication, especially for persons with disabilities

Web	Received	Source	Title
1/347	2024-09-19	RIFEN	Inclusion of people with disabilities in digital awareness programmes: the case of the RIFEN TOUR
1/338	2024-09-19	Republic of Korea	Case Study leveraging the latest AI technologies to improve information accessibility of hearing-impaired community.
1/328	2024-09-18	Uzbekistan	"Bridging Digital Gaps towards Universal and Meaningful Connectivity": ITU Data Visualization Hackathon. The annual Summer School "Digital youth in defining a common future"
1/320	2024-09-14	Tanzania	Communications Regulator initiatives in Promoting Digital Inclusion
1/315	2024-09-16	Co-Rapporteurs for Question 7/1	Annual progress report for Question 7/1 for November 2024 meeting
1/287	2024-07-30	Universitat Autònoma de Barcelona (Spain)	MAP, Media Accessibility Platform
RGQ1/232	2024-04-02	China	CTTL-Terminals develops standards for mobile terminal information accessibility
RGQ1/201	2024-03-26	RIFEN	Initiatives to strengthen inclusive technology in Africa
RGQ1/196	2024-03-21	RIFEN	Web accessibility for the hearing impaired in Cameroon: prerequisites for a CAP survey of IT companies in the city of Yaoundé on digital accessibility
RGQ1/195	2024-03-22	RIFEN	Women leaders are needed for impactful digital connectivity policies and programmes
RGQ1/191	2024-03-11	RIFEN	Telecommunication/ICT accessibility to enable inclusive communication, especially for persons with disabilities
RGQ1/188	2024-03-05	Australia	Update on initiatives by the Australian Government to improve telecommunications accessibility for vulnerable consumers, particularly consumers with disability
RGQ1/187	2024-03-05	Burundi	Developing a national strategy for digital inclusion in Burundi: ITU guidance for holistic and inclusive transformation through accessible ICT

Web	Received	Source	Title
RGQ1/182	2024-02-29	RIFEN	Tackling the digital gender gap: the time is now
RGQ1/180	2024-02-29	Côte d'Ivoire	Value-added service
RGQ1/178 (Rev.1)	2024-02-29	RIFEN	The challenges of accessibility to telecommunications and ICTs and the actions that can be taken to achieve digital inclusion
RGQ1/177	2024-02-29	Côte d'Ivoire	The disability dimension of personal data protection
RGQ1/176	2024-02-29	BDT Focal Point for Question 7/1	BDT progress report on the implementation of ICT /digital accessibility work including activities, events, tools, and resources since the last ITU-D Study Group 1 meeting on Question 7 held on 24th October 2023
RGQ1/174	2024-02-29	MWF	The Global Accessibility Reporting Initiative (GARI): accessible information on accessible devices
RGQ1/171	2024-02-29	Haiti	Consumer protection through the prism of the regulator in Haiti
RGQ1/169 +Ann.1	2024-02-28	Dominican Republic	Initiative "Charter of rights and duties for people with visual and hearing disabilities"
RGQ1/168	2024-02-28	Co-Rapporteurs for Question 7/1	Draft Final Report 2022-2025
RGQ1/159	2024-02-24	SUP'PTIC (Cameroon)	Obstacles linked to the use of new technological aids for the inclusion of people with disabilities in the city of Yaoundé: case of the visually impaired
RGQ1/154	2024-02-21	Congo	ICT accessibility for persons with disabilities and the role of regulators
RGQ1/143	2024-03-06	Universitat Autònoma de Barcelona (Spain)	Training the trainers and professionals on digital and media accessibility
1/231 +Ann.1-2	2023-10-10	Uganda	A survey of ICT awareness and access by Persons with Special Needs (PWSNs) in Uganda
1/230	2023-10-10	Croatia	Second international conference "Accessible Future"

Telecommunication/ICT accessibility to enable inclusive communication, especially for persons with disabilities

Web	Received	Source	Title
1/225	2023-10-10	China	Brain-computer interface technology facilitates information accessibility for special populations
1/205	2023-10-09	Brazil	Brazilian federal government efforts to assure accessibility in governmental websites and electronic services
1/198	2023-10-09	RIFEN	Innovative use of regulation and policy to hasten digital transformation - The case of India's digital public infrastructure
1/187	2023-10-03	RIFEN	ICT Accessibility Initiative for telecommunication toolkit
1/183	2023-09-29	Argentina	Web Accessibility Guidelines
1/182	2023-09-29	Argentina	Accessibility in digital services for people with disabilities
1/181	2023-09-29	Argentina	Punto Digital Program and Virtual Learning Platform
1/173	2023-09-24	Burkina Faso	Evaluation of the National Strategy for the Development of Access and Universal Service
1/165	2023-09-07	Co-Rapporteurs for Question 7/1	Annual progress report for Question 7/1 for October 2023 meeting
1/154	2023-09-07	Côte d'Ivoire	The needs of persons with disabilities in the national strategy for the development of the digital economy
1/153 (Rev.1) +Ann.1	2023-09-07	Republic of Korea	Case studies utilizing TV platform to enable inclusive communication
1/151	2023-09-07	Cameroon	Training of trainers in the use of ICTs for persons with visual impairments and persons who are deaf and mute
1/150	2023-09-07	Mexico	Mechanisms for training and providing digital skills for persons with disabilities and older persons
1/147	2023-09-07	Kamaleon, Mozambique	Universal design for inclusive digital societies

Telecommunication/ICT accessibility to enable inclusive communication, especially for persons with disabilities

Web	Received	Source	Title
1/134	2023-09-06	BDT Focal Point for Question 7/1	BDT progress report on the implementation of ICT/digital accessibility work including activities, events, tools, and resources since the last ITU-D Rapporteurs Group meeting held on 19th May 2023
1/133	2023-09-06	Kenya	Overview of Kenya's initiative towards provision of Educational content to Learners with Print Disabilities
RGQ1/104	2023-04-25	State of Palestine (*)	Connect the unconnected (MTIT Initiatives to achieve SDG)
RGQ1/92	2023-04-25	United Kingdom	Inclusive ICT services, inclusive regulatory processes: a case study of sign language video relay implementation for emergency communications
RGQ1/91	2023-04-25	Everycode/inSuit (Spain)	The success story behind the transposition of the Web Accessibility Directive in Spain
RGQ1/86	2023-04-25	Russian Federation	"Digital" support measures for people with specific needs in Russia. Inclusive project #SERVICEWITHOUTBORDERS
RGQ1/74	2023-04-24	Japan	ICT Accessibility Initiative in Japan
RGQ1/67	2023-04-21	Senegal	Elements of the project
RGQ1/60	2023-04-12	Australia	Overview of initiatives by the Australian Government to improve telecommunications accessibility for vulnerable consumers, particularly consumers with disability
RGQ1/44 +Ann.1	2023-03-27	Uganda	Enhancing knowledge management, ICT adaption, digital skills and access to e-services for persons with disabilities in Uganda
RGQ1/40	2023-03-23	Brazil	Improvements in the Communication Intermediation Center (CIC)
RGQ1/35	2023-03-23	Côte d'Ivoire	Workshops and webinars
RGQ1/34	2023-03-23	Zimbabwe	The narrowing gap between the needs of Rural and Remote communities and those of Urban communities

Web	Received	Source	Title
RGQ1/33	2023-03-23	BDT Focal Point for Question 7/1	BDT report on the implementation of ICT accessibility work including activities, events and resources since the last ITU-D Study Group held on 2nd December 2022
RGQ1/32	2023-03-23	Bosnia and Herzegovina	Development of a legal and regulatory framework to ensure telecommunication/ICT accessibility for persons with disabilities and other persons with specific needs in Bosnia and Herzegovina
RGQ1/25	2023-03-23	Côte d'Ivoire	Virtual University of Côte d'Ivoire
RGQ1/22 +Ann.1	2023-03-22	Mobile & Wireless Forum	The Global Accessibility Reporting Initiative (GARI): 15 years of helping people find accessible devices that work for them
1/TD/9	2022-12-01	Co-Rapporteur for Question 7/1	Proposal towards the work plan for the study of Question 7/1
1/TD/5	2022-11-29	Mexico	Develop and enhance the national capacity of policymakers/regulators in ICT/digital accessibility from the perspective of digital inclusion to ensure that all citizens, including those with disabilities, to benefit equally from digital information products and services, thus assuring that no one is left behind
RGQ1/7	2021-08-24	Kamaleon (Mozambique)	Implementation of ICT Technological Solutions to Improve Digital Literacy, Capacity Building, Empowerment and Accessibility of ICT Services in Underdeveloped Communities
RGQ1/5 +Ann.1	2021-08-24	Kuwait	Access to communication and information technology services by persons with disabilities
1/73	2022-11-15	Republic of Korea	Intelligence KIOSK Barrier-free Services
1/53	2022-10-17	ISCG	Mapping of ITU-D Questions to ITU-T Questions and ITU-R Working Parties
1/52	2022-10-13	BDT Focal Point for Question 7/1	BDT report on the implementation of ICT accessibility work including activities, events and resources since the last ITU-D Study Group held on 14 October 2021
1/47	2022-10-13	Kenya	Enhancing digital inclusion for Special Needs Education (SNE) learners in Kenya through access to broadband connectivity

Telecommunication/ICT accessibility to enable inclusive communication, especially for persons with disabilities

Web	Received	Source	Title
1/46	2022-10-12	Mobile & Wireless Forum	The Global Accessibility Reporting Initiative (GARI): helping people find devices that best suit their needs and promoting mobile accessibility on national level - 6th GARI Feature Review
1/45	2022-10-12	Mobile & Wireless Forum	The Global Accessibility Reporting Initiative (GARI): helping people find devices that best suit their needs and promoting mobile accessibility on national level - feedback from over 12,500 GARI users and follow-up on feature video series
1/44	2022-10-12	Mobile & Wireless Forum	The Global Accessibility Reporting Initiative (GARI): helping people find devices that best suit their needs and promoting mobile accessibility on national level - Can accessible consumer devices bridge the gap in assistive technology provision?
1/33	2022-10-10	Côte d'Ivoire	Telecommunication/ICT accessibility for persons with disabilities in developing countries, in particular Côte d'Ivoire, and proposed strategies for effective inclusion

* Palestine is not an ITU Member State; the status of Palestine in ITU is the subject of Resolution 99 (Rev. Dubai, 2018) of the ITU Plenipotentiary Conference.

Incoming liaison statements for Question 7/1

Web	Received	Source	Title
RGQ1/51 +Ann.1	2023-03-30	ITU-T Study Group 2	Liaison statement from ITU-T Study Group 2 to ITU-D Study Group 1 Question 6/1 and Question 7/1 on progress of TR.MMWF, "Methodologies to mitigate Wangiri Fraud"
RGQ1/3 +Ann.1	2023-02-17	ITU-T Study Group 20	Liaison statement from ITU-T Study Group 20 to ITU-D Study Group 1 Question 7/1 to update progress of work related to accessible smart cities
RGQ1/2 +Ann.1	2023-02-17	ITU-T Study Group 20	Liaison statement from ITU-T Study Group 20 to ITU-D Study Group 1 Question 7/1 on information about the consent of draft Recommendation ITU-T Y.4219 (ex Y.ACC-UI-req) "Accessibility requirements for user interface of smart applications supporting IoT"
1/28 +Ann.1	2022-08-03	ITU-T Study Group 20	Liaison statement from ITU-T Study Group 20 to ITU-D Study Group 1 Question 7/1 on accessibility matters
1/27 +Ann.1	2022-08-01	ITU-T Study Group 20	Liaison statement from ITU-T Study Group 20 to ITU-D Study Groups 1 and 2 on guidelines on developing ICT services for accessible smart cities
1/19 +Ann.1	2022-03-22	ITU-R Study Group 6	Liaison statement from ITU-R Study Group 6 to ITU-D Study Group 1 on Information on the Progress of ITU-R Study Group 6 Rapporteur Group on A Vision for the Future of Broadcasting (RG-FOB)
1/4 +Ann.1	2021-10-22	ITU-T Study Group 20	Liaison statement from ITU-T Study Group 20 to ITU-D Study Group 1 Question 7/1 on accessibility matters

Annex 3: List of lessons learned received for Question 7/1

Web	Received	Source	Title
1/518	2025-04-15	Republic of Korea	Proposed survey on the current status of the ITU member countries' mobile application accessibility
The experience in the Asia-Pacific region demonstrated that the absence of standardized methods for evaluating mobile application accessibility results in inconsistent data and limited comparability across countries. To address this, a unified global survey framework is proposed – aligned with internationally recognized accessibility standards such as WCAG and G3ict indicators – to enable consistent evaluation, support evidence-based policymaking, and assist countries with limited resources in improving mobile accessibility.			

Web	Received	Source	Title
1/515	2025-04-15	Ecole Nationale Supérieure des Postes, Télécommunications et TIC (Cameroon)	Accessibility to digital tools in education for people with motor and physical disabilities: studies conducted among specialized schools in Cameroon

Types of disability with motor impairments:

- Lack of adaptation at the keyboard level
- Need to manipulate keyboard and mouse simultaneously

Auditory:

- Arrangement of sound signals without captions
- Video clips without text captioning

Cognitive:

- Misuse of structural elements of a page
- Lack of substantial structure for navigation

Types of disability barriers:

Visual:

- Identical links on the same page
- Lack of alternatives to frameworks or scripts
- Low colour contrast
- Images without alt text

Table 1. Summary of digital accessibility barriers by type of disability

Specific nature of disability types

Each disability is different from the other and, as such, it needs tools and methods that correspond to the situation of each person according to his or her disability, as shown in the following matrix:

Type of disability

Adapted, digital educational software

Dragon Naturally Speaking Motor Disability: This speech recognition software allows users to control their computers by voice, making text entry and navigation easier

Nemo: A computer-assisted reading software that adapts texts to make them accessible to people with intellectual disabilities. It simplifies texts and offers visual aids.

RogerVoice: A real-time transcription app that allows people who are deaf or hard of hearing to make and receive text phone calls.

JAWS (Job Access With Speech): Screen reading software that allows blind or visually impaired users to access information on their computers via text-to-speech and Braille.

AUTISM ClassDojo: An app that helps teachers track student behavior and communicate with parents. It offers visual and interactive tools adapted to the needs of autistic students.

Web	Received	Source	Title
1/466	2025-01-29	Universitat Autònoma de Barcelona, Spain	AccessCat Catalogue
- AccessCat can be considered an example of a best practice as it enhances knowledge transfer in accessibility to information and communication: it is unique network as it considers the specificities of researchers working in the field of Social Sciences and Humanities. AccessCat has been funded by the Department of Research and Universities of the Government of Catalonia (2021XARDI00007) for the 2023-2025 period. - AccessCat catalogue provides a unique opportunity to research groups in Catalonia working on accessibility to information and communication to showcase their research outputs in the form of technologies, services and educational resources.			

QUESTION 7/1

Web	Received	Source	Title
SG1RGO/195	2024-03-22	RIFEN	Women leaders are needed for impactful digital connectivity policies and programmes
The design of programmes that impart digital skills to women, whether they are related to digital literacy or e-services, would benefit much from involving women leaders. The scheme under discussion was a unique policy initiative that involved an expansive interpretation of universal service policy to target rural women in the definition of inclusivity. It was also tailored to ensure the sustained entrenching of digital skills and digital connectivity benefits seamlessly through careful design, feedback, and course corrections.			

Web	Received	Source	Title
SG1RGO/187	2024-03-05	Burundi	Developing a national strategy for digital inclusion in Burundi: ITU guidance for holistic and inclusive transformation through accessible ICT
Among the ongoing groundwork initiatives for a digital economy, one project has the objective of establishing the component to facilitate local access and inclusion. The component aims to: - Target priority populations such as persons with disabilities, indigenous peoples and refugees, and work to overcome the obstacles that impede digital access. - Raise awareness about the advantages of accessing and utilizing digital technologies, improve access to broadband-compatible devices, and promote digital culture for basic use of smart devices and digital applications. - Structure activities to ensure maximum impact, while seeking to avoid social friction and complement existing initiatives of a similar nature. - Test pilot activities in selected communities, with an emphasis on rural areas and women, and in particular women's associations. Currently efforts are focused on dealing with existing demand-side obstacles that limit access to digital and concentrating on underserved populations, especially rural inhabitants, women and girls, and vulnerable subgroups.			

Web	Received	Source	Title
SG1RGQ/174	2024-02-29	MWF	The Global Accessibility Reporting Initiative (GARI): accessible information on accessible devices

While many of the mobile phones, tablets and Wearables on the market today have a wide range of features included that help older users and people with disabilities in accessing the devices as well as content and services, knowledge about these features is still not wide spread. With the GARI database, we want to help people find devices that work for them and help them with the first steps in using those devices.

It is a free resource, available in many languages and we invite all ITU members to use this tool to raise awareness about the potential of accessible telecommunications for independent living, participation in society as well as education and employment.

Web	Received	Source	Title
SG1RGQ/143	2024-03-06	Universitat Autònoma de Barcelona (Spain)	Training the trainers and professionals on digital and media accessibility

- Accessibility professionals are needed to respond to the present and future demand of access services. Apart from formal training through university degrees and free educational resources, ad hoc courses training the trainers and upskilling professionals are key to respond to this societal need.
- There is a need to offer training in languages other than English to reach the widest possible population.
- TransMedia Catalonia has a long-standing record of educational projects which can be easily converted into ad hoc courses in Spanish to cover the needs of diverse users.

Web	Received	Source	Title
SG1RGQ/154	2024-02-21	Republic of the Congo	ICT accessibility for persons with disabilities and the role of regulators

Table 2 of the document gives an overview of representative actions taken by different countries to promote telecommunication/ICT accessibility and enable inclusive communications for persons with disabilities.

Country	Action taken	References
Belgium	Adoption of accessibility standards for websites and mobile applications to ensure barrier-free use for persons with disabilities.	European standard EN 301 549
	Creation of resource centres and training activities for developers to raise their awareness of best practices for digital accessibility.	Digital agency

(continued)

Country	Action taken	References
Rwanda	Mainstreaming of accessibility in national ICT policies, with specific objectives to ensure the inclusion of persons with disabilities in digital initiatives.	National ICT policy
	Development of innovative technological solutions such as apps for mobile sign language interpretation to facilitate communication for deaf and hearing-impaired people.	
Nigeria	Development of policies and regulations aimed at promoting telecommunication and ICT accessibility for persons with disabilities.	Disabilities Act, 2018
	Support for awareness-raising and training initiatives to increase awareness of the needs of persons with disabilities in the ICT sector.	Ministry of communications and digitization
France	Adoption of laws such as the Law for a digital republic, which impose accessibility obligations on providers of online services and public administrations.	Law for a digital republic
	Introduction of sign language interpretation and captioning services for online audiovisual content in order to facilitate access for persons with hearing disabilities.	Ministry of culture
Algeria	Creation of public Internet access centres equipped with technologies adapted to the needs of persons with disabilities, such as large-character keyboards and screen readers.	Action plan for persons with disabilities (2018-2023)
	Awareness campaigns and training workshops to raise the public's awareness of the importance of digital accessibility	Law 02/09 on persons with disabilities
Mauritius	Provision of telecommunication services suitable for persons with hearing disabilities, including text messaging services and real-time translation applications.	National Computer Board Act, 2012
	Promotion of accessibility in public and private buildings, including telecommunication service providers, to ensure unrestricted access for persons with disabilities.	Disability act, 1996
Ghana	Collaboration with telecommunication operators to provide communication services adapted for persons with disabilities, such as voice messaging and translation services.	Disability act, 2006
	Action to raise awareness among telecommunication service providers of the specific needs of persons with disabilities to encourage innovation and adapted service offerings.	

Web	Received	Source	Title
1/231 +Ann.1-2	2023-10-10	Uganda	A survey of ICT awareness and access by Persons with Special Needs (PWSNs) in Uganda

Lessons learned (Key Findings)

- Concerning category of disability, majority of PWSN (63.6%) have a physical disability, followed by visual disability (18.12%) and hearing disability (15.78%).
- The mean age of PWSNs in Uganda is 35 years. More than half of the PWSNs (51.2%) are male, and 48.8% are female, while half (50.8%) are from the rural areas and the rest 49.2% are from Urban areas, less than a half (33.5%) have attained primary education, whereas (47.9%) are self-employed.
- Formal employment amongst the PWSNs is very low at 9%.
- Internet usage is low amongst PWSNs with majority (55.4%) of the persons with disabilities not using internet.
- Basic Digital Literacy skills are low amongst the PWSNs with 60% having never acquired basic skill such as basic operation of ICT hardware, typing, document creation, using of internet and computers safely.
- 75% of PWSN have never had a training in Digital Literacy, the use of assistive technologies, the use of e-commerce platforms, the use of e-government platforms and in e-learning.
- In terms of ownership of ICT devices, majority 54.8% of individual PWSNs own feature phones, 23% owned smart phones, 4.7% own a laptop, 51.7% owned Radios, 20.6% owned televisions and a few. The most used devices are radio, feature phones, television, and smart phones.
- In terms of usage of ICT devices, few individual PWSNs use their phones for education and news but use their devices mostly for entertainment and communication.
- There is a low awareness and usage of assistive devices among PWSNs with only 3.04% indicating to have active usage of the audio players and recorders, 1.7% actively using the Perkins braille, 1.34% actively using the talking web browser, 1.15% actively using the Magnifier and Braille note taker, 1.04% actively using text to audio convertors.
- Barriers to ICT usage and access by PWSNs included expensive devices, low levels of awareness (knowledge) of existence of assistive dev.

Web	Received	Source	Title
1/187	2023-10-03	Waseda University, Japan	ICT Accessibility Initiative for telecommunication toolkit

Communication between deaf or hard of hearing and persons who can hear, are usually done through sign language, text, and voice, depending on the communication ability of the communication partner. Currently, relay services that interpret human sign language, text, and voice are common. However, there are increasing cases where services are performed via a web server installed on a network between the sender and receiver. It seems to be effective in a simple local conversation environment. Common application software is required for the transmitter and receiver. In the future, in such an environment, it is important to comply with international standards or common industry standards for basic and common technologies as much as possible. Furthermore, certification tests and conformity evaluations of equipment that comply with the technical standards or guidelines of organizations that include people with disabilities will be necessary.

Web	Received	Source	Title
1/182	2023-09-29	Argentina	Accessibility in digital services for people with disabilities

Through the *Mi Argentina* mobile platform and application, which is the digital profile of citizens, people with disabilities have been able to access their Unique Disability Certificate digitally and in real time. Likewise, the process of obtaining the Universal Access Symbol was made available, which allows free parking for people with disabilities in Argentina 100% online, and the possibility of accessing the exemption from paying tolls through the "Telepase" device.

This policy of simplifying procedures for people with disabilities was possible thanks to collaborative work with the National Disability Agency (ANDIS). In this way, with the knowledge of the Agency in terms of the needs of its public, the regulatory frameworks and a social inclusion policy, together with the technical skills of the Undersecretariat of Services and Digital Country.

For the exemption from paying tolls, work was carried out not only with ANDIS but also with the National Highways Agency.

Also worth highlighting is the implementation of a Digital Point at the ANDIS main headquarters to guarantee the accessibility and use of digital devices for all people with disabilities who want to use the Digital Point. It is accompanied by professionals to guarantee that all communication needs through ICTs can be covered.

For all things, it is very important to once again highlight a collaborative work strategy between the Leading Agency for Disability and the Undersecretariat in charge of managing digital services. Likewise, we highlight a shared vision around the digital social inclusion of people that is horizontal to all government management.

Web	Received	Source	Title
1/181	2023-09-29	Argentina	Punto Digital Program and Virtual Learning Platform

The daily management of each Digital Point falls on each Municipality that demands the installation and equipment of a Digital Point from the Undersecretariat of Services and Digital Nation. From the Undersecretariat, not only is the building equipped and constructed, but also courses, workshops, activities are actively offered, and specific requests are also attended to. For this reason, we find that, for the operation of the digital points to be optimal, there must be synergy between the municipalities, referents of the Digital Points and the referents of each region of the Undersecretariat of Services and Digital Country.

On the other hand, from a comprehensive approach, we have the Virtual Learning Platform that, in coordination with the Digital Points, makes available the constant offer of different courses and workshops for citizens.

Likewise, one of the lessons learned was that the Digital Points are spaces in which citizens not only come to access connectivity or the use of devices but as a close contact with the National Government, through access to digital public services. Thus, the Digital Points functioned as spaces for consultation on procedures (such as, for example, identity validation for access to subsidies).

Thanks to its accessibility, through personal devices and through computers installed in the Digital Points, the Platform managed to reach the entire country. Integration with other digital solutions of the Secretariat was an important factor to take into account when designing digital inclusion policies.

Furthermore, another key lesson learned was the importance of adopting a comprehensive view of digital inclusion and reducing digital divides, to ensure that policies have an inclusive approach through multiple channels.

Web	Received	Source	Title
1/173	2023-09-24	Burkina Faso	Evaluation of the National Strategy for the Development of Access and Universal Service

Several lessons and lessons have been learned from the implementation of the 2017-2021 national access and universal service strategy. We can cite among others:

- The importance of respecting the monitoring and evaluation system, this will make it possible to avoid or minimize errors observed;
- The efficient and effective development and implementation of a strategy presupposes the existence of a solid and appropriate legal and institutional framework that clearly defines the roles and responsibilities of the different stakeholders involved.

Web	Received	Source	Title
1/153 +Ann.1	2023-09-07	Republic of Korea	Case studies utilizing TV platform to enable inclusive communication

Through the two projects, it has been proved that TV is one of impactful platforms to deliver social value to the deaf people. The two projects, funded by government, are just starting point as the AI based sign language translation technology is still in early stage. There had been a POC (Prove of Concept) project by two leading TV manufacturers to implement avatar sign language on their user guide. As the technology is evolving, we can expect all contents on TV to be automatically translated into avatar sign language. To make it come true, there should be strong support from government on AI training datasets (parallel corpus of sign language and spoken language) and on effective translation engine.

Web	Received	Source	Title
1/151	2023-09-07	Cameroon	Training of trainers in the use of ICTs for persons with visual impairments and persons who are deaf and mute

Capacity building for trainers in the use of new technologies adapted for persons with visual impairments and persons who are deaf and mute (voice-to-text conversion for persons with hearing impairments; digital library for persons who are deaf or have visual impairments; adjustable font size or text-to-voice conversion for persons with visual impairments, etc.).

Web	Received	Source	Title
1/147	2023-09-07	Kamaleon (Mozambique)	Universal design for inclusive digital societies

The Universal Design-UD of the Interactive Mobile Digital Unit - IMDU is suitable to promote digital inclusion of rural communities in development countries facilitated by the Universal Design for Learning -UDL-based communication approach that uses the combination of various technological and digital tools with different types of communication in teaching-learning processes of development initiatives which causes a multidimensional effect on the cognition of communities, translated into greater impact of the message delivered, and consequently into social and behaviour changes. The IMDU is a cross-functional platform that benefits communities in the following ways: (a) allows direct and individual interaction with specialists for; (b) faster comprehension of the message while; (c) ensuring the inclusion of persons with disabilities, with auditory processing disorder and visual impairment. The IDMU leads to a more comprehensive approach to attaining the global goals: the concept is (i) designed to promote quality education and capacity building (SDG 4); (ii) a green innovation solution using renewable resources and clean energy (SDGs 7 and 13); (iii) providing inclusive digital tools to remote and hard to reach communities (SDG 10); through which (iii) vocational training for women is delivered (SDG 5); (v) basic services such as healthcare provided (SDG 3); and (vi) effective government-citizen information flow facilitated (SDG 16).

Web	Received	Source	Title
1/133	2023-09-06	Kenya	Overview of Kenya's initiative towards provision of Educational content to Learners with Print Disabilities

From this example, ICT regulators should:

- Assess the number of learners with print disabilities with aim of providing assistive devices as discussed in this submission.
- Have adequate regulatory framework, in order to guarantee accessibility compliance.
- Promote digital inclusion for Persons with disabilities through the use of ICT enabled technologies.
- Provide conversion and communication systems, together with special plans and pricing, for all persons with disabilities.

Web	Received	Source	Title
SG1RGQ/92	2023-04-25	United Kingdom	Inclusive ICT services, inclusive regulatory processes: a case study of sign language video relay implementation for emergency communications

From this example, ICT regulators should:

- Examine the availability of services in the market and principles of universality vis à-vis users' different abilities and technological capacities within the market, such as relay services, as discussed in this submission.
- Consider the ways which people with different abilities are able to interact with the regulator and participate in consultations, such as making materials available for sign language users and providing transcripts for audio-visual materials as discussed in this submission.
- Take proactive steps to make their regulatory procedures inclusive for people with disabilities (with particular regard to consumer-facing projects), evidence-based, and informed by industry and civil society stakeholders affected, such as enabling individuals to submit consultation responses in sign language as discussed in this submission.

Web	Received	Source	Title
SG1RGQ/74	2023-04-24	Japan	ICT Accessibility Initiative in Japan

Building a national-level telephone relay service business requires a large number of human resources, equipment, and funds, including enactment of laws, operation of networks, terminal equipment, and systems, procurement of equipment, employment of sign language operators, etc., and securing of funds. Government support and collaboration involving disabled people's organizations are important for the realization of the project.

Web	Received	Source	Title
SG1RGQ/67	2023-04-21	Senegal	Elements of the project

The following proposals are made:

- Encourage ITU to accompany Member States in the implementation of ICT policies and strategies for the disabled.
- Invite Member States to share their experiences in this area.
- Encourage participatory approach in the implementation of projects for persons with disabilities.

Web	Received	Source	Title
SG1RGQ/44 +Ann.1	2023-03-27	Uganda	Enhancing knowledge management, ICT adaption, digital skills and access to e-services for persons with disabilities in Uganda

- i. The project led to improved membership data management for OPDs.
- ii. There has been timely information on PwDs available for national policy and program design and development.
- iii. Improved access to critical services to PwDs and their care givers.
- iv. The project contributed to the development of skilled human resource for the country.
- v. There is increased visibility of OPDs.
- vi. Different assistive technologies developed.
- vii. The PwD skills can be linked to development of Assistive Technologies through:
 - Profiling of key Assistive technologies available for PwD and increasing awareness about these technologies.
 - Documenting testimonies of use of assistance technologies by PwDs to disseminating them widely on OPD structures and ecosystems.
 - Promoting research and innovation in Assistive technologies through university partnerships, innovation seminars, organizing hackathons, and mentoring innovators in the area.
 - Using PwD testimonies to research outputs to shape government policies and strategic interventions.
 - Promoting technologies innovation co-creation among PwD and technologies developers.
 - Direct training in disability cases, through specialists, developers, special- education teachers, and volunteers.
 - Indirect training through communication with households and disabled parents.
 - Exchange of expertise with the other interested agencies, universities, researchers, and specialists.

Implementation of special e-learning networks for disabled teachers and students to exchange lessons, courses and information among themselves.

Web	Received	Source	Title
SG1RGQ/34	2023-03-23	Zimbabwe	The narrowing gap between the needs of Rural and Remote communities and those of Urban communities

There is need to accelerate Broadband connectivity in rural and remote areas, as the needs of rural communities are fast converging with those of their urban counterparts.

Web	Received	Source	Title
SG1RGQ/22	2023-03-22	MWF	The Global Accessibility Reporting Initiative (GARI): 15 years of helping people find accessible devices that work for them

15 years of maintaining and expanding the GARI database and website have shown how important it is to have the support of both the manufacturers and the disability community - manufacturers to provide their technical knowledge and the information on their devices and the disability community for their use of the technology, information needs and suggestions for further development. We believe that only this collaborative approach makes the project sustainable.

Web	Received	Source	Title
1/47	2022-10-13	Kenya	Enhancing digital inclusion for Special Needs Education (SNE) learners in Kenya through access to broadband connectivity

Whereas all efforts are being made by governments in the various African countries to deploy strategies to enhance digital inclusion, jurisdiction are far from achieving the goal of meaningfully connecting its citizens without 'Leaving No One Behind'. The status and impact of broadband connectivity in enhancing digital inclusion targeting SNE learners has not been clearly define in the majority of National Telecommunications/ICT policies, blue prints and strategies. This has been attributed to the lack of the following:

1. Lack of baseline data to inform the assessment of broadband connectivity needs for SNE learners in the Africa region.
2. Lack of appropriate national framework to inform systematic deployment of sustainable meaningful connectivity for SNE learners in the Africa region.
3. Lack of uniform mechanisms to monitor and evaluate impact of broadband connectivity for SNE learners in the education system.
4. Inadequate sustainability strategies to ensure accessible, affordable and available broadband connectivity for all SNE learners.

Web	Received	Source	Title
1/46	2022-10-12	MWF	The Global Accessibility Reporting Initiative (GARI): helping people find devices that best suit their needs and promoting mobile accessibility on national level – 6th GARI Feature Review

(continued)

Web	Received	Source	Title
The regular GARI feature reviews in which the MWF invites our extensive network of stakeholders (incl. accessibility experts, organizations of persons with disabilities, researchers, policymakers, national regulators and industry from all over the world) to comment on the features listed in GARI and to propose changes and additions to both the website and database, ensure that the information provided in GARI stays relevant and is shaped to best fulfil the mission of helping people find devices that work for them.			

Web	Received	Source	Title
1/45	2022-10-12	MWF	The Global Accessibility Reporting Initiative (GARI): helping people find devices that best suit their needs and promoting mobile accessibility on national level – feedback from over 12 500 GARI users and follow-up on feature video series

As mentioned in prior submissions, the use of the Global Accessibility Reporting Initiative (GARI) by member states helps fulfil commitments under Article 9 of the UN Convention on Rights for Persons with Disabilities (UNCPRD) namely: “enable persons with disabilities to live independently and participate fully in all aspects of life. [...] State parties shall also take appropriate measures: [...] to promote access for persons with disabilities to new information and communications technologies and systems, including the Internet.”

The feedback from over GARI users shows consistently that once they have found an accessible device, they wish to have guidance and training on how to use the device in general and the available accessibility features in particular. The MWF therefore continues the series of short videos with basic information on how to find and activate accessibility features in mobile devices. These videos are freely available via the GARI website and the GARI YouTube channel. In this submission, we wish to update ITU members on new videos added over the past months and invite ITU members to use this free resource to share with their own constituencies.

Web	Received	Source	Title
1/44	2022-10-12	MWF	The Global Accessibility Reporting Initiative (GARI): helping people find devices that best suit their needs and promoting mobile accessibility on national level - Can accessible consumer devices bridge the gap in assistive technology provision?

Overall, GARI-listed devices could bridge the gap in what is provided to people with disabilities and their specific needs. The GARI list describes many devices that can be helpful to people with disabilities keeping in mind that these devices are equipped with built-in accessibility features which are of great use and beneficial to people with disabilities. Supporting disabled people with access to AT can significantly reduce loneliness and allow them to be more active and participate in society.

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