

ITU study on the assessment of digital accessibility policies in Serbia



In collaboration with the Government of Serbia



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- Ministry of Public Administration and Local Self-Government
- Office for Information Technologies and E-Government
- National Academy of Public Administration
- Social Inclusion and Poverty Reduction Unit
- Public Procurement Office
- Users of Assistive Technology Association
- Mental Disability Rights Initiative of Serbia
- National Organization of Persons with Disabilities of Serbia
- Association of amputees of Serbia
- Inclusive Society Development Center, Belgrade
- Association for informatics education and sport and recreation for persons with disabilities "SHIFT"
- Out of circle - Nis
- Centre for independent living of persons with disabilities of Serbia
- Serbian Alliance for Accessibility

Preface

Since the beginning of the COVID-19 pandemic, the world has been facing an unprecedented situation in which billions of people have been forced to transition to the digital ecosystem as their primary means of access to vital information and services.

Governments should ensure that this vital information is accessible and available to all citizens, without any discrimination based on gender, age, ability, or location, so that everyone is aware of how to protect themselves and survive these exceptional circumstances of crisis. Private sector stakeholders have also needed to make this transition to continue their operations, needing to adapt swiftly to the new ways of doing business, training, and marketing their products and services.

In this global context, it has become clear that if information and communication technologies (ICTs) are not designed to ensure the accessibility of digital information, products and services, some people will be left out.

The abrupt surge in the use of and demand for technological solutions during the COVID-19 crisis has amplified the divide between those who are digitally “connected” and those who are not, thereby heightening inequalities in access to opportunities and making those with limited access to technologies more vulnerable than ever.

In this regard, limited access to digital technology can prevent older people in particular from receiving important information delivered online, as well as hampering their access to support and services, including telemedicine and online shopping and banking facilities. In situations of national or local lockdown, the risks and challenges associated with social isolation and loneliness among older people are exacerbated by lack of digital access.

Furthermore, persons with disabilities are particularly affected by lack of accessibility of digital technology, since this can prevent them from obtaining critical information with regard to their health, security and social protection, and can hamper their participation in social and economic activities. This inequity has been exacerbated by the fact that the COVID-19 pandemic has given rise to new working, educational and socializing cultures, reliant on online conference tools, many of which remain inaccessible to persons with disabilities, in particular those who need accurate real-time captioning, such as anyone who is deaf or hearing impaired.

Ensuring accessibility is not only to the benefit of persons with disabilities but also older people who might not be adept at using ICTs, and anyone who is not a native speaker of their local language. Universal design is the key approach in this regard.

The COVID-19 pandemic has thus underscored the critical importance of ensuring that ICTs are accessible. To that end, governments must include ICT accessibility considerations in their laws, policies, regulations, strategies and standards, as the key to equal and equitable access to public information and services.

To ensure that everyone is included in this digital transformation process and that no one is left behind, ICT products and services should be developed applying universal design principles and accessibility considerations as key enablers of digital inclusion.

The COVID-19 pandemic constitutes a challenge of unprecedented dimensions, with a particularly strong impact on vulnerable populations, including older people, persons with disabilities, persons with low literacy and refugees. In many countries large proportions of the population, having been forced to remain at home for several months, have had to adapt almost overnight to teleworking, online learning and online shopping.

This sudden and almost immediate shift has shown that persons with disabilities and older people are at higher risk than ever of facing digital accessibility barriers, which prevent them from shopping safely online for food and other items, accessing emergency communications and health services, and participating safely in distance learning and working opportunities using the Internet.

Governments have been urged to develop national emergency communication plans designed to meet the needs of persons with disabilities and older people, to ensure well-managed preparedness for and swift and efficient response efforts in the event of new pandemic outbreaks or other emergency situations.

In the context of the COVID-19 pandemic, digital accessibility has become critical for the socially vulnerable, and more important than ever before as an enabler of health, safety, and well-being for persons with disabilities and older people.

The Government of the Republic of Serbia is encouraged to take action to develop and implement policies for ICT accessibility and digital inclusion that will prevent mass exclusion of and discrimination against vulnerable populations, including persons with disabilities and older persons, in future emergency situations.

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1 Introduction

Digital inclusion can contribute to bridging the digital divide between persons who have access to and use of ICTs and vulnerable groups, including those with low income, rural or remote populations, older people, and persons with disabilities. Digital inclusion does not just mean owning and using a computer, having access to a broadband Internet connection, or owning a mobile device; it is a key means of guaranteeing personal autonomy and advancing towards decent standards of living and prosperity through full participation in economic, social, and cultural life.

The United Nations Convention on the Rights of Persons with Disabilities, which was adopted in 2006 and entered into force in 2008, is the fastest-negotiated human rights treaty in history, with the most signatories (164 signatories and 182 ratifications). The Convention gives new impetus to the transition from considering persons with disabilities as “objects” of charity, medical treatment and social protection, to treating them as “subjects” with rights, who are capable of claiming those rights and making decisions about their lives based on their free and informed consent, as well as being active members of society.¹

[Video 1: Convention on the Rights of Persons with Disabilities in Serbian Sign Language.](#)



Source: [CODCentar](#)

The Convention stresses that if a person with a disability has difficulty fully participating in society, this is not due to a functional limitation, but rather the result of the barriers that he or she faces in physical and digital spaces, and other people’s attitudes towards his or her impairments.

While the Convention predominantly recognizes ICTs as a facilitator, some articles refer to access to ICTs as a human right, together with the physical environment and access to transport.

¹ [United Nations Convention on the Rights of Persons with Disabilities.](#)

In particular, [article 9, "Accessibility"](#), requires States parties and the private sector to: take proactive action in removing barriers; consider all accessibility aspects in facilities and services; and implement accessibility standards and guidelines.

Pursuant to the Convention, all individuals with disabilities shall have the right to access, on an equal basis with others, to facilities and services, including ICTs. It emphasizes that the accessibility of ICTs is an integral part of the access rights of persons with disabilities, equal to the access to transport and to other facilities and services open or provided to the public. The Convention calls on States parties to provide "access to cultural materials in accessible formats" (article 30) and to increase the affordability of ICTs by promoting "the design, development, production and distribution of accessible information and communications technologies and systems at an early stage, so that these technologies become accessible at minimum cost" (article 9).

[Video 2: Treaty Bodies - Committee on the Rights of Persons with Disabilities \(CRPD\).](#)



Source: [UN Human Rights](#)

The absence of accessibility is a barrier that impedes the use of ICT products and services in equal conditions.

[Article 4, "General obligations"](#) not only mandates States parties to implement legislation, regulation and policies prohibiting ICT barriers that constitute discrimination against persons with disabilities, but also encourages States to promote the availability and use of ICTs.

The [2030 Agenda for Sustainable Development and its accompanying Sustainable Development Goals \(SDGs\)](#) are based on the premise that no one should be left behind, including persons with disabilities. The SDGs reinforce the role of digital inclusion in ensuring that everyone, including persons with disabilities, can have access to and use of ICTs.

Figure 1: The 17 Global Goals for Sustainable Development



Source: [UN Department of Economic and Social Affairs, Population Division](#)

ITU is the specialized United Nations agency for ICTs, with 193 Member States and a membership of over 900 companies, universities, and international and regional organizations. ITU and its membership are united in connecting the world and play a pivotal role in universal service policy and planning.

The Telecommunication Development Sector (ITU-D) is one of the three Sectors of ITU, and is responsible for policy creation, regulation and the provision of training programmes and financial strategies to developing countries. ITU-D's key objectives are to:

- foster international cooperation on telecommunication and ICT development issues;
- foster an enabling environment for ICT development and the development of telecommunication and ICT networks;
- enhance confidence and security in the use of ICTs;
- build human and institutional capacity, provide data and statistics, promote digital inclusion, and provide concentrated assistance to countries with special needs; and
- enhance environmental protection, climate change adaptation and mitigation and disaster-management efforts through ICTs.

Video 3. Welcome to ITU Development Sector.



Source: [ITU](#)

The ITU Connect 2030 Agenda for Global Telecommunication/ICT Development – [Resolution 200 \(Rev. Dubai, 2018\)](#), which is linked to the strategic plan for the Union for 2020-2023 contained in [Resolution 71 \(Rev. Dubai, 2018\)](#) – sets out the following vision for the development of the telecommunication/ICT sector: “an information society, empowered by the interconnected world, where telecommunications/ICTs enable and accelerate social, economic and environmentally sustainable growth and development for everyone”. The Connect 2030 Agenda comprises five strategic goals, listed below.

- 1) **Growth:** Enable and foster access to and increased use of telecommunications/ICT in support of the digital economy and society.
- 2) **Inclusiveness:** Bridge the digital divide and provide broadband access for all, including persons with disabilities.
 - a) Target 2.9: By 2023, enabling environments ensuring accessible telecommunications/ICTs for persons with disabilities should be established in all countries.
- 3) **Sustainability:** Manage emerging risks, challenges and opportunities resulting from the rapid growth of telecommunications/ICT.
- 4) **Innovation:** Enable innovation in telecommunications/ICT in support of the digital transformation of society.
- 5) **Partnership:** Strengthen cooperation among the ITU membership and all other stakeholders in support of all ITU strategic goals.²

² [ITU - Connect 2030 – An agenda to connect all to a better world.](#)

Figure 2: The five strategic goals of the Connect 2030 Agenda for Global Telecommunication/ICT Development



Source: [World Telecommunication and Information Society Day, 17 May 2020. Toolkit. "Connect 2030: ICTs for the Sustainable Development Goals"](#)

Through the Connect 2030 Agenda, ITU and its members are committed to bridging the digital divide by promoting ICT accessibility in all countries for everyone, including older people and persons with disabilities. The Connect 2030 Agenda will contribute to:

- strengthening the role of ICTs in accelerating the attainment of the SDGs;
- raising awareness of the importance of connectivity, as well as specific ICT-enabled solutions and emerging trends for fostering economic, environmental, and social sustainability;
- increasing the use of ICTs, including from the demand side perspective;
- reducing the digital divide both between and within countries;
- enhancing collaboration by sharing experiences in implementing the "Connect 2030 Agenda" to reflect on the ICTs advances for transition to smart and sustainable development.³

ITU work on ICT accessibility for fostering digital inclusion is fully in line with the [United Nations Disability Inclusion Strategy](#) and strongly supports the implementation of the "[Policy brief: A disability-inclusive response to COVID 19 - Towards a better future for all](#)", issued by the Secretary-General of the United Nations in May 2020. Endorsed by 138 United Nations Member States and observers, in a demonstration of their commitment to investing in and directly supporting a disability-inclusive response to COVID-19, the policy brief states that: "A disability-inclusive COVID-19 response and recovery will better serve everyone and prevent the gains made in the inclusion and rights of persons with disabilities from being lost. It will provide persons with disabilities with accessible and agile systems capable of responding to the pandemic. As every crisis can also become an opportunity, let us pave the way for a better future for all, where no one is left behind." Persons with disabilities and their representative organizations must be actively included in COVID-19 response and recovery through awareness raising, advocacy activities, and must be able to contribute to building equal, inclusive, sustainable, and resilient communities.

Effective social and economic responses to a pandemic must include both mainstream and specific policy-making, which benefits persons with disabilities on an equal basis with others, and empowers them in all aspects of life. To assess and continuously improve the effectiveness of the COVID-19 response, it is essential to measure actions and collect disability-disaggregated data that may help policy-makers make better decisions.

The Republic of Serbia signed the Convention on the Rights of Persons with Disabilities and its Optional Protocol on 17 December 2007 and ratified them on 31 July 2009 (Official Gazette of the Republic of Serbia - International Agreements, No. 42/2009 of 2 June 2009). As a candidate

³ [World Telecommunication and Information Society Day, 17 May 2020. Toolkit. "Connect 2030: ICTs for the Sustainable Development Goals"](#).

country for accession to the European Union, Serbia is encouraged to prioritize digital inclusion for persons with disabilities in its European social inclusion and poverty reduction integration policy.

Purpose of the report

The main purpose of this report is to support the Government of Serbia, in particular policy-makers and related stakeholders, to fulfil global commitments and meet targets, such as target 2.9 of the Connect 2030 Agenda, which focuses on how technological advances will contribute to accelerate the achievement of the SDGs. This report will provide an updated overview of the status of ICT accessibility and digital inclusion in Serbia, along with a comprehensive vision of national ICT accessibility policies and strategies and a set of good practices and recommendations for national policy-makers and stakeholders on how to ensure that inclusiveness is included in key domains, such as e-government, education, employment, and emergency communications. The report will serve as background information for future national ICT accessibility initiatives, as a means of improving digital inclusion.

In this report, we explore the general situation of digital inclusion and ICT accessibility in Serbia, providing an overview of current social, legislative, and institutional frameworks, policies and programmes, and offering general recommendations on creating ICT accessibility policy frameworks and promoting accessible ICTs for the empowerment of persons with disabilities.

The report also includes an analysis of the current situation by key policy area, based on desk research and feedback provided by representatives of government bodies and persons with disabilities and their representative organizations, sought through surveys and focus groups. Specific recommendations are offered on how to improve ICT in each of the key policy areas.

The main aim of the report is to contribute to making Serbia more inclusive to persons with disabilities by promoting the accessibility of ICTs as a tool for creating new opportunities for social inclusion, improving human development, reducing poverty and having a positive impact.

2 Overview of digital inclusion and ICT accessibility in Serbia

Although data from the 2011 census indicated that a total of 571 780 citizens were considered to have disabilities in Serbia (8 per cent of the total population), international data shows higher disability prevalence in the general population (10–15 per cent). It is estimated that, as at 2020, there were between 700 000 and 800 000 persons with disabilities living in Serbia.⁴

Feedback from national government officials to survey questions formulated during the preparation of this report highlighted major challenges to promoting digital inclusion and ICT accessibility in Serbia, listed below.

- Integrating accessibility standards at local government level is challenging, as there is insufficient awareness of the importance of ICT accessibility; disability inclusion and capacity building are needed across teams in charge of municipal digital services. This has had a negative impact on the provision and promotion of accessible digital services for persons with disabilities at local level.
- There is a limited availability of trained experts with knowledge of digital inclusion and ICT accessibility.
- Most recent accessibility and disability inclusion-related initiatives in Serbia have focused on physical or architectural accessibility.
- According to 2020 data collected by the Statistical Office of the Republic of Serbia:⁵
 - 72.4 per cent of individuals aged 16–74 use a computer
 - 81 per cent of households in the Republic of Serbia have a broadband Internet connection (90.5 per cent fixed and 71.9 per cent mobile)
 - 78.4 per cent of individuals aged 16–74 use the Internet
 - 94.1 per cent of individuals aged 16–74 use a mobile phone and
 - 37 per cent of Internet users (1,415,000 persons) use e-government services.

The Government of Serbia Social Inclusion and Poverty Reduction Unit published two reports on digital inclusion, for [2011-2014](#) and [2014-2018](#). These described initiatives that have contributed to the improvement of digital inclusion and included:

- an overview of the legal, strategic, and institutional framework in this area;
- an analysis of the current situation;
- an overview of implemented measures and programmes;
- examples of national and global good practices in the context of constant development of ICT; and
- recommendations and suggestions for improvement in the field of digital inclusion for the coming period.

The following are examples of some recent activities aimed at raising awareness of digital inclusion and ICT accessibility.

- In 2020, in cooperation with UNICEF and the Serbia Ministry of Education, Science and Technological Development, SIPRU created a [list of digital tools for working with children and students who need additional support during distance learning](#).
- The Social Inclusion and Poverty Reduction Unit translated the [Guidance on providing open and distance learning for students with disabilities during school closures: Enhancing](#)

⁴ [Strategy for improving the situation of persons with disabilities in the Republic of Serbia, 2020-2024.](#)

⁵ [Statistical Office of the Republic of Serbia. Usage of ICT in the Republic of Serbia 2020.](#)

[inclusive learning under COVID-19](#) issued by the Smart Learning Institute of Beijing Normal University.

- Under the slogan "[Serbia without barriers](#)", 2020's National Giving Day was dedicated to the theme of solidarity with persons with disabilities and the fight for full accessibility, including actions to remove obstacles and build infrastructures that allow for access to information and movement for all, including persons with disabilities and older people.
- Also for National Giving Day, SIPRU translated into Serbian, subtitled and added sign language interpretation to the video entitled, "[Meet the Normals - Adventures of Universal Design](#)", which was created by the Centre for Excellence in Universal Design of Ireland's National Disability Authority, in partnership with the Dublin Institute of Technology, the Maynooth National University of Ireland, Dundalk IT, the National Learning Network, Cambridge University, the Cork Institute of Technology and the Institute of Technology Blanchardstown, as part of the study "Integrating Universal Design Content in Third Level Curriculum".

When interviewed during the preparation of this report, persons with disabilities said that they generally felt that the public services made available to them tended to be based on medical models, which translated into a general lack of accessibility. They also underscored that, as a general rule, persons with disabilities have more difficulty than others in accessing employment, which becomes even more acute in the case of persons with intellectual or psychosocial disabilities. While large companies do not seem to have great difficulty in adapting the workplace to make it more accessible, getting to work seems to be problematic, due to lack of accessibility of public transport. Persons with disabilities may be employed while still exercising the rights to a personal assistant and a care allowance. Bearing in mind that, in Serbia, persons with disabilities in employment usually do not earn more than the minimum wage, it should be noted that the combination of care benefits and the allowance for a carer or assistant adds up to an income higher than the minimum wage. On the other hand, a person with a disability earning more than the combined value of those benefits would no longer be eligible to receive them. Both of these scenarios mean that persons with disabilities are disinclined to seek employment. The community of persons with disabilities is therefore calling for the introduction of two salary limits: a lower limit, up to which the person with a disability remains eligible for care benefits, and an upper limit over which those benefits would not be calculated.

3 Overview of national ICT policies, laws and programmes supporting the implementation of digital inclusion and ICT accessibility in Serbia

The Republic of Serbia ratified the Convention on the Rights of Persons with Disabilities and its optional protocol in 2009. In April 2016, the Committee on the Rights of Persons with Disabilities, the body responsible for monitoring the application of the treaty, reviewed the situation in Serbia, based on the [State party report](#) submitted to it by the Government of Serbia. The Centre for Independent Living and the National Organization of Persons with Disabilities also participated actively in the review process, by preparing and submitting an alternative [report](#) to the Committee in 2015. Following its review of the State party report, the Committee issued its [concluding observations](#) in May 2016, which recognized positive achievements (such as legislation) and featured some accessibility-related recommendations, including:⁶

- developing a comprehensive accessibility plan and roadmap to remove barriers and promote accessible information and social media;
- setting specific targets in the Action Plan for Inclusive Education 2016–2020;
- taking measures to ensure that elections are inclusive of and accessible to all persons with disabilities, including accessibility of voting facilities and campaign materials and content; and
- ensuring that organizations for persons with disabilities are involved in monitoring implementation of the Convention in Serbia.

Serbia has achieved several key milestones in building a legislative framework for digital inclusion and ICT accessibility, as outlined below.

- 2013: adoption of a strategy and action plan on prevention of and protection from discrimination (2014 - 2018).
- April 2015: enactment of the Law on the Use of Sign Language recognizing the right to use sign language in procedures before State authorities.
- February 2016: amendment to the Law on the Prevention of Discrimination against Persons with Disabilities guaranteeing the right of persons with disabilities, especially those who are blind or visually impaired, to use personal facsimile stamps to sign legal documents.
- March 2015: adoption of the Guide Dog Assistance Law, which recognizes the right to use guide dogs on public transport and in public places.
- Inclusion of questions about persons with disabilities on the national census form, a key step towards obtaining relevant data in future.
- Law on Electronic Communications (first enacted in 2010, amended in 2012, 2014 and 2018): Includes several articles with provisions protecting the digital rights of persons with disabilities:
 - Article 3 "Objectives and principles of regulating the electronic communications sector":
 - ✓ 4) ensuring the availability of universal service to all citizens of the Republic of Serbia and meeting the needs of specific social groups, including persons with disabilities, the elderly, and socially vulnerable users.

⁶ European Network on Independent Living – ENIL (2016). CRPD Committee Reviews Serbia's Record, <https://enil.eu/news/crpd-committee-reviews-serbias-record/>.

- √ 8) ensuring maximum benefit to users of electronic communications, including persons with disabilities, the elderly, and socially vulnerable users, especially regarding the choice, price, and quality of services.
- Article 37 "General conditions":
 - √ 12) protection of user rights in the electronic communications sector, according to the provisions of this Law, as well as enabling conditions pertaining to the availability of services which fall within universal service for persons with disabilities.
- Article 55 "Universal services":
 - √ 5) special measures aimed at giving persons with disabilities and socially vulnerable users equal access to publicly available telephone services, including calls to emergency services, directory enquiries services and access to public telephone directories.
 - √ Universal services shall be provided on the principle of technological neutrality with the prescribed level of quality and at affordable prices, and at even more affordable prices to persons with disabilities and socially vulnerable users.
 - √ At the proposal of the Regulatory Agency for Electronic Communications and Postal Services, the Ministry [responsible for telecommunications and information society] shall designate the scope, geographic area coverage and quality of universal service provision, as well as the requests related to the equal possibilities of access to universal services by persons with disabilities, considering the level of development of public communications networks and the availability of public electronic communications services in the Republic of Serbia.
- Article 56 "Designation of universal service operators":
 - √ The Regulatory Agency for Electronic Communications and Postal Services may mandate one or more operators to universal services to ensure universal service coverage of all or a part of the territory of the Republic of Serbia, and to modify their prices or conditions to ensure equal opportunities for their use by persons with disabilities. The operator(s) shall make information on geographical availability, prices, conditions of access and use (including limitations) and quality publicly available.
- Article 110 "Ensuring availability of service for persons with disabilities":
 - √ The operator of publicly available electronic communications services shall, to the extent deemed technically feasible, ensure equal availability of its services to persons with disabilities. The Agency may impose special obligations on this operator to make electronic communications services availability to the persons with disabilities.
- Article 139: penalties in amounts ranging from 250,000 to 500,000 dinars shall be imposed on legal entities that fail to ensure equal availability of their services to persons with disabilities, and/or fail to act in accordance with Article 110.
- Law on Electronic Administration (Official Gazette of the Republic of Serbia No. 27/2018): States that all e-government service users shall have access to electronic data and documents in the same way and under the same conditions and are equal in exercising this right. The e-government service provides access to persons with disabilities without technical, audio-visual, semantic and linguistic restrictions. More specifically:
 - Article 16 "Software solutions", indicates that the body is obliged to respect accessibility standards when designing, developing, maintaining and updating the software

solution, so that e-government services are accessible to everyone, especially to persons with disabilities.

- Article 28 "Creating and maintaining a website", indicates that the authorities are obliged to enable the content of the website to be accessible on mobile devices and accessible to everyone, especially persons with disabilities.
- Article 31 "Conditions for establishing e-government", states, in paragraph 19, that the body is obliged to provide access to the content and services of electronic government to everyone, in accordance with accessibility standards.
- [Decree on detailed conditions for creating and maintaining a government body website \(Official Gazette of the Republic of Serbia No. 104 / 2018-10\)](#):
 - Article 5 refers to accessibility and activities that should be performed by government bodies in order to make their websites accessible.
 - Article 13 states that State bodies are obliged to, at least once a year, conduct a procedure for analysing website compliance with the conditions set out in this regulation - through the self-assessment procedure, using the self-assessment software solution of the body's website of state bodies. The administrator of the competent authority shall grant the right of access to the administrator of the authority for the aforementioned software solution. The competent authority ([Office for IT and e-government](#)) shall report to the Government on the degree of compliance of the websites once a year, and shall publish the report on its website.
- [Strategy for improving the situation of persons with disabilities in the Republic of Serbia for the period 2020-2024](#) (adopted in March 2020): aims to provide persons with disabilities with access to the built environment, accessible transport, information, communications and services intended for the public, and through the development and implementation of an accessibility plan, remove barriers and ensure the provision of accessible facilities and spaces, services, information and communication.

However, the 2018 Law on Electronic Communications does not refer to international ICT accessibility standards (W3C WCAG 2.1, ISO/IEC 40500:2012, EN 301 549).

4 General recommendations

ICT accessibility for persons with disabilities is a priority for ITU members, recognizing the need to ensure that the one billion people living with some form of disability can use ICTs for their empowerment. Establishing an enabling environment is one of the key steps to making ICT accessibility a reality. While most countries have created policy and regulatory frameworks that have triggered unprecedented growth in the use of mobile, Internet and other technologies by billions of people worldwide, very few have taken steps to create policy and regulatory frameworks to ensure that persons with disabilities can use those technologies in equal terms. The following are examples of countries in Europe and the ICT accessibility regulatory frameworks that they have implemented.

- Denmark: [Agreement on the use of open standards for software in the public sector](#) (Mandatory policy)
- Finland: [Act on electronic services and communication in the public sector](#) (Accessibility law)
- France:
 - [Law 2005-102, article 47](#) (Accessibility law)
 - [Order of 29 April 2015 on the general accessibility framework for public administrations](#) (Accessibility law)
 - [Law 2016-1321, article 106](#) (Digital governance law)
- Germany: [Federal Ordinance on barrier-free information technology](#)
- Ireland: [The Disability Act, 2005](#) (Accessibility law)
- Italy: [Law of 9 January 2004, No. 4 "Provisions to support the access of persons with disabilities IT tools - Stanca Law"](#) (Accessibility law)
- Netherlands:
 - [Procurement Law, 2012](#)
 - Policy in the Netherlands (Mandatory policy)
- Spain: [Royal Decree 1112/2018, of September 7, on the accessibility of websites and applications for mobile devices in the public sector](#), which transposes [Directive \(EU\) 2016/2102 of the European Parliament and of the Council, of October 26, 2016, on the accessibility of websites and applications for mobile devices of public sector bodies](#) (Web Accessibility Directive), into the Spanish legal system. (Accessibility law)
- United Kingdom: [The Public Sector Bodies \(Websites and Mobile Applications\) \(No. 2\) Accessibility Regulations 2018](#) (Accessibility law) for the creation and implementation of specific national ICT accessibility policy and regulation frameworks, which support the principles of universal access to ICTs that cater to the needs of persons with disabilities, and which can empower persons with disabilities and enable them to access and enjoy the use of mainstream ICTs on equal terms, and open doors to inclusive e-government services, mobile technologies, education, employment, health services, entertainment, emergency communications and culture, among other possibilities.

The Convention on the Rights of Persons with Disabilities requires States parties to define minimum standards in line with the Convention. This is particularly important, since promoting international standards is essential to States parties' success in ensuring ICT accessibility and implementing programmes and policies for assistive technologies. States must also try to ensure the affordability of accessible goods and services, as well as assistive technologies.

Provisions on accessibility include general ICT accessibility requirements in line with Article 9 of the Convention, as well as sector-specific accessibility stipulations with direct implications for e-government, media and the Internet, education, employment, political rights, emergency response, culture and leisure, and special international information and programmes related to the Convention.

The Convention defines obligations in relation to desired outcomes by area of implementation, rather than in specific technical terms. It is therefore the responsibility of States, civil society and industry to define the required solutions in their respective jurisdictions.

Efforts to develop accessible ICTs must be made in an integrated and cross-cutting manner. It is important to involve a variety of actors in the development of digital inclusion policies and strategies; a collaborative environment should be encouraged among all parties interested in and responsible for accessibility and inclusive actions. Everyone must work together to ensure that achievements, such as those indicated in this research, become the norm. This is a task for all, with no one party solely responsible, and which must be led by a variety of national and international organizations.

In many countries, understanding the needs of persons with disabilities poses a challenge. The lack of systematic information about this sector of the population and about the activities and services available is also an obstacle. Proposing specific research where data and needs can be compared can therefore be a positive step towards developing more integrated policies. Despite cultural differences, the resources available, priorities and the needs of the population with disabilities tend to be very similar in all countries, which facilitates comparison and the search for common solutions. It is also important to intensify civil society activities and their mapping, and to seek greater alignment of strategies, allowing for a more effective analysis of policy-related progress. This research should be aligned with international frameworks, in particular United Nations treaty monitoring, which may be an important source of information for crossing data, and as a secondary source.

It is also essential to search for alternative sources of financing and resources for policy implementation. Few countries have sufficient resources from universalization funds to invest in accessible ICT initiatives. In developing regulatory frameworks, resources must be allocated for the effectiveness of these policies, and clear sanctions must be set out for non-compliance. Advocating the inclusion of funding for ICT accessibility in financing mechanisms and projects with incentives to promote initiatives in the area, will make the implementation of these policies more viable.

In addition to public resources, private funding would increase investment in solutions to meet the needs of persons with disabilities. One approach would be to incorporate accessibility considerations into public and private procurement processes. In this way, financing may also originate from the demand for solutions, products and services to meet the increasing needs of persons with disabilities.

4.1 Recommendations

The following general recommendations⁷ are intended to help policy-makers build and improve ICT accessibility policy frameworks:

- Awareness Raising:
 - Raise awareness around disability: Making disability more visible is an essential step towards including the needs of persons with disabilities on the priority list. Often, stigma, negative stereotypes and misinformation still surround the topic of disability which, when discussed, can be met with silence, discomfort, or condescendence. Persons with disabilities must be given an amplified voice to openly discuss this reality and their needs in public settings, through specific and mainstream actions, including public media campaigns, film festivals, events marking the International Day of persons with disabilities (3 December), and by including disability-specific subject matters on school curricula.
 - Raise awareness of ICT accessibility: Efforts should be made to improve awareness and knowledge, among government officials, policy-makers, educators, and companies, of the barriers faced by persons with disabilities when using ICTs and the solutions needed to boost their inclusion and improve their quality of life. Awareness should also be increased with regard to the adoption of international ICT accessibility standards (ISO, W3C, EN 301 549). Actions may include incorporating ICT accessibility and universal design into academic programmes and promoting ongoing ICT accessibility capacity-building programmes among government bodies, professional associations and the education system.
 - Use an experimental approach to raise awareness of the reality faced and lived by persons with disabilities in society in general.
- Policy improvement:
 - Involve persons with disabilities in the design of ICT accessibility policies: Article 33 of the Convention instructs States parties to “develop and enact systematic formal processes to involve organizations of persons with disabilities in policy-making and monitoring.” Bringing persons with disabilities into every stage in the development of public policies is the most effective way to properly understand and address their ICT accessibility needs.
 - Include the country on the emerging international support agenda, creating fair and equitable opportunities for personal development and inclusion in the labour market of persons with disabilities.
 - Replicate successful experiences from other countries. This approach has proven particularly useful.
 - Review policies in force.
 - Define inclusive public policies in the telecommunication sector and the information society.
 - Create permanent working groups to build strategies for implementing accessible policies.

⁷ Ideas extracted and adapted from A. Darvishy, D. Erocal and J. Manning, *Delivering Together for Inclusive Development: Digital Access to Information and Knowledge for Persons with Disabilities*, Zurich University of Applied Sciences, Zurich, Switzerland, 2019.

- Create a specific national ICT accessibility centre: A State-run national centre could help centralize ICT accessibility initiatives and oversee and monitor the development and implementation of ICT accessibility policies and directives.
- Discuss with relevant stakeholders how to remove barriers to the use of telecommunication/ICT services.
- Create a database to exercise effective monitoring of entities bound by the national law.
- Review policies that restrict the promotion of accessibility and support for accessible ICTs.
- Capacity building:
 - Prioritize leveraging accessible ICTs to improve access to vocational training and higher education for persons with disabilities: Persons with disabilities generally have lower academic attainment and experience lower employment rates than their counterparts. Successfully completing education and acquiring professional skills directly impacts financial opportunities and employment. Online courses and educational materials in accessible digital formats may be the key to providing opportunities for persons with disabilities to develop their skills and knowledge.
 - Build capacity on ICT accessibility among public agents.
 - Implement capacity building programmes on:
 - √ assistive technologies;
 - √ communication tools and information access for persons with disabilities; and
 - √ mobile classrooms to bring ICT to unserved areas and raise public awareness – the project foresees hydraulic or electric lifts for persons with disabilities, and a workplace with basic equipment for persons with physical, intellectual, and sensorial learning disabilities, such as keyboards with extra-large keys and flexible mouse supports.
 - Implement accessible social inclusion alternatives through government projects and initiatives, and contribute to events on a variety of social matters to change the collective impressions of disability.
 - Strengthen the role of relevant non-governmental organizations.
- Access to Internet and devices:
 - Make broadband Internet access available and affordable for persons with disabilities: today, having access to affordable broadband Internet service is probably the most important element of digital inclusion; it is the gateway to ubiquitous communication, job opportunities, access to information, education and services, and to actively participating in society. Programmes, policies and regulations should be designed, which ensure Internet access for persons with disabilities at affordable conditions.
 - Adopt an action plan on public telecom services for users with disabilities.
 - Fund start-up programmes for the development of assistive technologies and applications for persons with disabilities.
 - Use a rights-based approach: persons with disabilities should have access to information and knowledge of their rights as users of public telecommunications services, which should be promoted through workshops and informative talks, as well as the circulation of information materials in accessible formats.

- Inform persons with disabilities about their rights; lack of information tends to result in a lack of interest in accessing the benefits offered by ICTs.
- Involve the target population in building solutions, from the very beginning.
- Use universal service funds to identify gaps in telecommunications, and use the funds to promote access.
- Facilitate and promote public-public partnerships to provide:
 - ✓ Web accessibility: Distribute JAWS and MAGIC software free of charge to private companies, to ensure that their content and websites are accessible.
 - ✓ Telephone accessibility: Work with company call centres to ensure accessibility for deaf people.
 - ✓ Face-to-face accessibility: Provide services for deaf and blind people, including sign language and accessible information for the visually impaired, and understandable and easy-to-navigate digital content.
- Guidelines:
 - Build a community of experts on ICT accessibility: A group of nationally recognized ICT accessibility experts could provide ongoing guidance and expert advice to the Government.
 - Prepare specific documentation, guidelines, and recommendations to improve the accessibility of websites and digital documents.
 - Adjust automatic evaluation of web accessibility tools.
 - Prepare and share guidelines and recommendations, documenting the experience of organizations that have implemented good practices, to serve as models for application by others.
 - Elaborate and adopt ICT accessibility standards.
 - Apply the Web Content Accessibility Guidelines (WCAG) 2.1 in the national public administration.
 - Develop an initial version of a tool to assess website accessibility.
 - Introduce a “web accessibility stamp” for government entities and companies with websites that conform to accessibility standards.
 - Increase research on issues related to ICT accessibility and consult with related organizations.

The following are recommended actions to be taken by national institutions to encourage national stakeholders to promote ICT accessibility policies and programmes, and others to upgrade their knowledge, expertise, and skills to promote ICT accessibility:

- Sign cooperation agreements with other government entities to promote events and disseminate information on the rights of persons with disabilities to telecommunication/ ICT services.
- Organize workshops and information sessions for public and private entities, on the rights of persons with disabilities and the public telecommunication services.
- Launch ICT accessibility awareness campaigns that seek to educate the public and persons with disabilities on accessibility options. Specifically, such campaigns could include advertising in newspapers and on social media, publishing information brochures on accessibility features of ICT devices, and exhibition displays of same.
- Involve telecommunication services operators and disability-related civil society associations in government projects and initiatives.

- Host international events on telecommunication/ICT accessibility.
- Promote the implementation of government projects and initiatives.
- Partner with associations of persons with disabilities to support and promote their work.
- Prepare and disseminate information on the use and benefits of ICTs for persons with disabilities, available for use by any interested stakeholder.
- Establish a national disability council as a provisional government working body, which can coordinate government and civil society entities to develop actions to promote accessibility policies and programmes.
- Hold annual national campaigns to raise awareness among the public and private sectors about permanent accessibility updates to new technologies, provide free assistance and the necessary accessibility tools for persons with disabilities, and facilitate communication between sectors.

4.2 The ITU-G3ict Model ICT accessibility policy report

The ITU-G3ict [Model ICT accessibility policy report](#) is a practical tool for national policy-makers and regulators, for creating ICT accessibility policy frameworks and promoting accessible ICTs and the empowerment of persons with disabilities. It looks at developing national policies in consultation with persons with disabilities, and includes six modules focused on different aspects of ICT accessibility:

- amendments to the existing ICT legal framework
- public ICT access
- mobile communications
- television/video programming
- public procurement of accessible ICTs.

The following are good practices for developing and implementing ICT accessibility and digital inclusion policies, suggested in the Model ICT accessibility policy report.

- **Mainstream ICT accessibility** through inclusive language, definitions and provisions in policies, laws, and regulations.
- **Identify key steps that can be taken quickly** to promote ICT accessibility, such as ensuring accessible devices are available (mobile phones, etc.).
- **Raise awareness** among key stakeholders by promoting ICT accessibility through public outreach programmes, working with industry to develop universally designed products, and gathering and publishing reports on developments with respect to ICT accessibility.
- **Build consensus and inclusive policy-making** by encouraging national debate and discourse, setting up specialized forums and committees, inclusive regulation-making and public consultation processes, and encouraging the uptake of voluntary codes of conduct and charters.
- **Drive collaborative efforts** by promoting public-private-partnerships.
- **Set clear targets** and carry out periodic reporting to monitor implementation, and define roles and responsibilities.
- **Promote training**, capacity building and disability awareness among information policy-makers, as well as capacity building on digital literacy among disability policy-makers.

5 Current situation and recommendations by key area

5.1 Internet access

5.1.1 Current status

Pursuant to article 55 of the Law on Electronic Communications, basic universal service includes special measures to provide equal opportunities to persons with disabilities and vulnerable groups, such as ensuring access to publicly available telephone services, including free calls to emergency services and access to information services and public telephone directories. Universal service will be provided on a technologically neutral basis, at the prescribed quality and an affordable price, particularly to persons with disabilities and vulnerable social groups.

In the European Union, the [Universal Service Directive](#) sets the regulatory framework for telecommunications, establishing mandates for Member States, including providing special measures for users with disabilities to ensure they enjoy services that meet their needs and are of an equivalent standard to those enjoyed by other users. Access must be functionally similar, but provided by different means.

Examples from European Union Member States:

- Bulgaria: Law of Telecommunications Prom. SG. 88/7 October 2003, as amended SG. 19/1 March 2005, amended in 2010, establishes universal service obligations, including access to fixed voice telephone services under special conditions and/or providing terminals for persons with disabilities or the underprivileged.
- Czech Republic: Act No. 127/2005 on Electronic Communications establishes that the National Regulatory Authority must mandate providers bound by universal service obligations to ensure access to telephone services and special tariffs for persons with disabilities.
- France: The Universal Service Decree provides for geographically averaged tariffs and reduced-rate social tariffs for specific categories of the population, such as persons with disabilities. Universal service obligations include special provisions for users with disabilities.
- Poland: The Telecommunications Act, 2004, established universal service obligations between 2006 and 2011 including the provision of facilities for persons with disabilities.

5.1.2 Focus group

Serbia's [Universal Service Rulebook](#) defines the scope, geographic coverage and quality of provision of universal service, and requirements regarding equal access to these services for persons with disabilities, taking into account the level of development of public communications networks and accessibility of publicly available electronic communications services in Serbia. The Rulebook deals with the specifics of Internet accessibility from two perspectives, as described below.

- 1) **Simplifying access to the Internet and use of electronic services for persons with disabilities.** The Universal Service Rulebook defines the obligations of operators of electronic communications to provide devices that are easy for persons with disabilities to use. The Rulebook does not, however, cover some of the obligations that fall under the jurisdiction of ministries other than that responsible for telecommunication.
- 2) **Measures to provide Internet access to all persons in remote or rural areas.** Functional Internet access is provided with a flow of data not less than that provided by dial-up

access. There is, however, a plan for 2021 to use an incentive scheme to broaden universal service obligations to include fixed Internet broadband coverage in rural areas where there is currently no economic interest for operators to provide broadband service. The Government will build middle mile and backbone connections to rural settlements while operators compete through public tenders to obtain subsidies for high-capital expenditure infrastructure. The Ministry is also signing contracts with operators under which it assumes responsibility for building middle mile connections to rural settlements while operators build the access network. Phase one of this programme is already under way and will cover 90,000 households in 600 rural settlements by 2022. Phases two and three will cover a further 150,000 households. The programme, together with complementary universal service obligation programmes for basic broadband, is expected to achieve coverage for 99 per cent of households in Serbia with next-generation network or basic broadband connections by 2025.

Serbia's universal service fund (funded by monies received from telephone bills as a regular and consistent source of income for various inclusion initiatives), is currently not being applied to initiatives for promoting ICT accessibility or digital inclusion for persons with disabilities; there is recognition that its funding mechanisms in that regard need to be improved. There are therefore plans to provide stable financial resources for universal services and expand areas that could be covered from the universal service fund, including by providing subsidies to persons with disabilities and low-income households in general, through vouchers or other types of financial help for purchasing the equipment needed to get connected, or payment of monthly service fees.

While guaranteeing service provision to underprivileged populations is not currently a prerequisite for granting a communications provision license in Serbia, communications providers are obliged to cover rural areas to a certain extent. There is no obligation, however, to facilitate access for persons with disabilities. Instead, a market approach is being used. The provisions included in the new Law on Electronic Communications and their enforcement will be aligned with the relevant provisions of European Union legislation.

Legislative changes are foreseen in 2021-2022, which will support additional inclusion programmes, including:

- working with the Ministry of Finance to amend tax laws to allow for the transfer of funds from taxes collected from operators to the universal service fund; and
- directing incentives towards two different channels: coverage of rural areas and access for persons with disabilities.

It is expected that mechanisms will be put in place to analyse and monitor eligibility for incentives and subsidies. Large-scale incentive schemes based on market-oriented approaches have been used successfully in the past, analysing income-level data from thousands of households, and giving those that were eligible vouchers to purchase digital TV set-top boxes. There are plans to use this same approach, introducing subsidies to assist persons with disabilities in the purchase of equipment and payment of monthly service fees. Monitoring mechanisms will also be established to determine who is entitled to subsidies and aid, and who is not.

Digital inclusion-related prerequisites for the award of a service license, such as offering specific service packages for persons with disabilities, under favorable conditions or at a discounted rate, are not foreseen. Instead, a market-oriented approach will be used.

In 2021, under the new Law on Electronic Communications, Serbia will proceed in full alignment with the [European Services Directive](#) enforced in the European Union. Other pieces of European

Union legislation on ICT accessibility will also be translated into the Serbia legal framework, setting out obligations for electronic communication operators.

The National programme for broadband access development and the Strategy for the development of next-generation networks are expected to result in Internet accessibility for all citizens, including persons with disabilities.

Organizations of persons with disabilities have, however, expressed their concerns regarding obstacles to privacy for persons with disability who reside in institutions, when trying to communicate with family members or others. They underscored the critical importance of those individuals having and using their own personal devices, rather than shared telephones, which was the standard in some institutions. Privacy was also deemed particularly important when working with women with disabilities who are in a situation of violence. Many of the women who approached those organizations were unable to speak freely owing to the presence of family members.

5.1.3 Recommendations

- Hold public consultations with persons with disabilities and their representative organizations on the development of accessibility policies and regulations.
- Promote availability of accessible mobile telephones.
- Promote accessible printed information.
- Install accessible public telephones.
- Fund the customization of basic assistive technology tools in local languages, including text-to-speech, voice recognition and screen readers (in conjunction with or instead of the Ministry of Education).

In coordination with other government sectors:

- Use universal service funds to support ICT accessibility programmes, including in schools and vocational training facilities.
- Collect data on ICT use, disaggregated by disability and type of ICT.

5.2 Web accessibility

5.2.1 Current status

In 2018, under the [Law on Electronic Administration](#), the Regulation on detailed conditions for the development and maintenance of websites of State bodies and organizations, provincial bodies and organizations, local government bodies and organizations, institutions, public enterprises, special agencies (hereafter, "the Regulation") was adopted. Article 5 of the Regulation pertains to the accessibility of websites of public administration bodies (State bodies and local self-government entities) in the Republic of Serbia.

With regard to the annual assessment of website compliance with the Regulation, the Office for Information Technology and Electronic Administration (hereafter, "the Office"), as the competent put in place a [self-assessment questionnaire](#), section 5 of which covers e-accessibility, using the following criteria:

- validation of e-accessibility;
- option of navigating using the <Tab> key, which is clearly indicated to the user;

- documents offered for download are in a readable format, with no scanned documents in the form of an image;
- website content is adapted for the use of tools, such as text-to-speech or screen reader;
- documents can be downloaded in several formats: text (.pdf, .docx, .odt) and tabular (.xlsx, .ods); and
- images and photographs on the website are accompanied by text captioning.

The criteria, according to the Regulation, are aligned to the Web Accessibility Initiative (WAI) Web Content Accessibility Guidelines (WCAG) 2.0 of the World Wide Web Consortium (W3C) and to the European Commission's Europa Web Guide Accessibility rules and guidelines.

The Office has established and adopted a list of [technical interoperability standards](#) (updated February 2020), Chapter 3.4 of which prescribes e-accessibility standards for the websites of organizations:

- Web Content Accessibility Guidelines WCAG v.1.0 and v.2.0,
- Authoring Tool Accessibility Guidelines ATAG 1.0 and 2.0, and
- User Agent Accessibility Guidelines UAAG 1.0.

The list was compiled as a planned activity in the action plan for the implementation of the [National strategy for information society development of the Republic of Serbia](#).

An analysis of State body website accessibility compliance conducted in 2020 showed an average compliance rate of 193.13 points, or 57.65 per cent, slightly higher than that of local governments, which had an average of 169.26 points or 50.52 per cent. The governance bodies in autonomous regions scored the highest at 61.01 per cent. The average rates of compliance with e-accessibility criteria in 2020, by type of government body, is as follows:⁸

- 47.47 per cent of state administration bodies,
- 35.58 per cent of local self-government units, and
- 45.90 governance bodies in autonomous regions.

5.2.2 Recommendations

Serbia is encouraged to decide where a web accessibility policy should be situated in its institutional, policy and legislative frameworks. In countries with legislation on web accessibility, there is considerable variation in the sectoral contexts and types of legislative instrument used. Options include:

- referring to web accessibility through specific legislation, such as in legislation on one or more of the following: ICTs, e-government, public procurement, health, education or other sector-specific legislation; or
- addressing web accessibility, explicitly or implicitly, in anti-discrimination and equality legislation directed towards equitable access to goods and services for persons with disabilities. This approach can afford persons with disabilities, individually or collectively, the right to seek redress if a public service provided through the Internet is not accessible to them.

⁸ Information provided by the [Office for IT and e-Government, from its](#) analysis of accessibility compliance of State bodies' websites, conducted in 2020, in line with the Regulation on detailed conditions for the development and maintenance of websites of state bodies and organizations, provincial bodies and organizations, local government bodies and organizations, institutions, public enterprises, special agencies.

The Serbia web accessibility regulatory framework must comply with the European Union's body of common rights and obligations, which is binding on all European Union Member States, including the Web Accessibility Directive. The Directive refers to EN 301 549 V2.1.2 (2018-08) as the harmonized standard for websites and mobile applications, which provides for the presumption of conformity with the accessibility requirements found therein.

An example of detailed, step-by-step language to include in a web accessibility policy can be found in the [ITU-G3ict Model ICT accessibility policy report](#) (page 78).

5.3 E-government

5.3.1 Current status

E-government platforms and services should be inclusive and provide equal access opportunities to all citizens, regardless of the technologies used and the user's capabilities. In its Employment, Social Affairs and Inclusion programme, the European Commission advocates for the full participation of persons with disabilities in society and states that "disability is a rights issue and not a matter of discretion". In addition, accessibility is becoming increasingly relevant due to the ageing of the European population, with older people are expected to face increased difficulties in using technology.

In the European Union, e-government is a key component in promoting the participation and inclusion of all citizens, and is expected to contribute to building European citizenship and driving change in public services through technology. The [eGovernment Action Plan 2016-2020](#) includes three policy priorities:

- to modernize public administration;
- to build the digital Internet market by enabling the mobility of citizens and businesses by cross-border interoperability; and
- to facilitate the engagement of more administrations, citizens and businesses and promote the digital interaction between them.

The Action Plan is articulated through specific actions to which citizens, businesses and public administrations contribute through an online stakeholder engagement platform.

The accessibility of public service websites in European Union Member States is regulated by several laws and, most prominently, by the Web Accessibility Directive adopted by the European Parliament in 2016, which mandates all European Union Member States to make all public sector websites and mobile applications accessible by 23 September 2021. In practical terms, websites are recommended to conform to the W3C Web Accessibility Initiative (WAI) Web Content Accessibility Guidelines (WCAG) 2.1. at AA level.

The [Law on Electronic Administration](#) establishes that everyone, including persons with disabilities, shall have the right to use e-government services, including access to electronic data and documents in the same manner and on equal terms, without technical, audiovisual, semantic and language barriers:

- Article 7, paragraph 3, "Prohibition of Discrimination", reads: "Electronic government service is provided in a way that provides access and use to persons with disabilities without technical, audio-visual, semantic and linguistic restrictions".

- Article 16 mandates State bodies to comply with accessibility standards in designing, developing, maintaining, and updating software applications, so that e-government services are accessible for everyone, in particular persons with disabilities.
- Article 28 mandates State bodies to make the content of their websites accessible on mobile devices, for everyone, in particular persons with disabilities.
- Article 31 requires State agencies to enable access to e-government content and services for everyone, conforming to accessibility standards, although it does not stipulate which ones.

As indicated in the section of this report on web accessibility, in 2018, the Government of Serbia adopted a Regulation on detailed conditions for the development and maintenance of websites of state bodies and organizations, provincial bodies and organizations, local government bodies and organizations, institutions, public enterprises, special agencies. Article 5 of the Regulation provides a detailed description of the accessibility criteria to be met by public sector websites:

- option of navigating the entire website using the <Tab> key, which must be clearly indicated to the user;
- navigation using drop-down lists that are accessible using the keyboard;
- documents for download and upload offered in multiple machine-readable formats (.pdf, .doc, .docx, .odt) and tabular formats (.xlsx, .ods);
- adequate text offered as an alternative to the website's non-textual content (captioning for images, photographs, etc.);
- gradual text scaling enabled (the font size must be defined relatively) where possible on the website (taking account of scalability) in proportion with the size of the screen, enabling a minimum increase in the font size to 18-point text;
- links adjusted in line with e-accessibility standards that reflect units or sections of the website's content to enable screen readers (for the blind and visually impaired) to "read" them effectively;
- subtitles or transcripts offered for download as separate text documents for all media presented in non-text format, with a written description of video contents;
- accessibility of online documents (forms, templates and similar);
- high contrast applied between the website's text and background colour (from light to black);
- accessibility of all elements of forms (text boxes, check fields, etc.), so that they can be filled in using the keyboard only, which applies to electronic services in particular;
- specific page listing web accessibility-enabling elements, with a contact for any questions on accessibility of the information presented and accompanying published documents;
- graphs and audio elements that are easy to control using the published control procedure;
- content adjusted to the use of tools such as the text-to-speech software (screen readers); and
- use of the CAPTCHA system, adjusted for the blind and visually impaired, to make speech intelligible.

The e-Government Development Programme and accompanying Action Plan 2020–2022, adopted by the Government of Serbia in June 2020, outline plans for the further development of e-government infrastructures and services. The Programme was built around the key principles of the European Union's e-Government Action Plan 2016–2020, including a section on inclusiveness and accessibility, which provides that inclusivity and accessibility of e-services must be ensured at the design stage.

The Programme was also designed to follow user-centred principles for design and delivery of digital public services of the European Union's Ministerial Declaration on eGovernment (Tallinn

Declaration) including “accessibility, security, availability and usability”, which implies, as stated in the Declaration, that “services that are made more accessible (including findable) and secure and can be used by all in a non-discriminatory manner, with adequate assistance available upon request” and that “universal design principles also apply here.”

The Serbia e-government regulatory framework must comply with the European Union's body of common rights and obligations, which are binding on all European Union Member States, in particular the Web Accessibility Directive.

The Office for IT and e-Government and the Ministry of Public Administration and Local Self-Government are responsible for measures and activities to meet the objectives of the e-Government Development Programme, including:

- designing, harmonizing, developing and implementing e-government and information systems, as well as infrastructure of State administration bodies and government services;
- developing and implementing standards when introducing ICTs in State administration bodies and government services, as well as supporting the application of ICTs in those bodies and services;
- providing services for designing, developing, and functioning of Internet access and services, and other centralized electronic services; and
- planning the development and procurement of computer and communication equipment State administration bodies and government services, as well as other tasks determined by special regulations.

Two key milestones in the development of e-government services in Serbia were the launch of the [e-ZUP information system](#) that connects 14 databases of six large institutions in Serbia (civil registers of the Ministry of Public Administration and Local Self-Government, databases of the Ministry of the Interior, tax administration, pension and disability fund, national employment service, and Central Register of Mandatory Social Insurance).

By October 2020, through the Government Service Bus for data exchange, there were more than 15 million service calls. A total of 28 data sets are available from eight institutions (Ministry of Public Administration and Local Self-Government - 5 data sets, Ministry of Justice - 3, Ministry of the Interior - 5, national employment service - 3, tax administration - 4, Republic Geodetic Authority - 4, pension and disability insurance fund - 2, Central Register of Mandatory Social Insurance - 2). A total of 332 institutions exchange data through the service-management-office (SMO) platform.⁹

Serbia's e-government portal contains a special section that enables access to several services relevant for the exercise of the rights of persons with disabilities, such as tax and customs relief, applying for social care, and services related to vehicle and parking facilities. The range of these services has broadened over the years to include the “Baby, Welcome to the World” programme for electronic birth registration, e-Kindergarten, e-Foreigner and local tax administration services.

The most recent version of the Government website includes an aid for blind and visually impaired users, in the shape of “Danica”, a piece of text-to-speech software that makes use of state-of-the-art neural networks.

The new website of the Office for Information Technology and eGovernment, uses reader software to allow persons with disabilities to control their computer by eye movement.

⁹ [e-government portal of the Republic of Serbia](#) and [e-ZUP system](#).

Despite the enactment of the [Law on Electronic Administration](#) in 2018 and its implementing Regulation, all public administration bodies (national and local) need to make greater efforts to ensure that their websites meet accessibility requirements.

The [Office for Information Technologies and e-Government](#) is tasked with planning the development and procurement of computer and communication equipment for State administration bodies and Government services, as well as carrying out other tasks determined by special regulations.

The [List of Interoperability Standards v.2.1](#), sets out the e-accessibility standards in Table 1.

Table 1: List of interoperability standards

Designation	Name of standard	Status	Versions and source
WCAG	<i>Web Content Accessibility Guidelines</i>	Recommended	V1.0 (http://www.w3.org/TR/WCAG10/), V2.0 (http://www.w3.org/TR/WCAG20/)
ATAG	<i>Authoring Tool Accessibility Guidelines (software and services guidelines)</i>	Recommended	V1.0 (http://www.w3.org/TR/ATAG10/), V2.0 (http://www.w3.org/TR/ATAG20/)
UAAG	<i>User Agent Accessibility Guidelines (internet browsers, media players, assistive technologies)</i>	Recommended	V1.0 (http://www.w3.org/TR/UAAG10/)

Each year, the Office evaluates the accessibility of government bodies' websites of government bodies and their compliance with article 5 of the [Regulation on detailed conditions for the development and maintenance of websites of State bodies and organizations, provincial bodies and organizations, local government bodies and organizations, institutions, public enterprises, special agencies](#). This compliance analysis is conducted through a self-assessment procedure, using self-assessment software. Each government body conducts its own self-assessment using a web application, with results monitored by the Office, and a compliance score awarded. Following the evaluation, a report is compiled, which is forwarded to the Government and published online.

E-identification schemes deemed to have basic and intermediate reliability by the Office for Information Technology and Electronic Administration are entered in a register of e-identification service providers and e-identification schemes. A national portal for authentication of e-government users (e-ID) and two-factor (multifactor) authentication of users of e-government services have been set up. The eHealth Portal was the first connected public administration information system for which the functionality of a single application was enabled via the e-ID portal, which was particularly important during the COVID-19 pandemic. All other information systems and public administration portals are being connected.

Persons with disabilities interviewed in focus groups reported that e-government was not sufficiently accessible: instructions are often inadequate, and are updated without any notification. While the current format might be accessible to those working with a legal representative, it can be more problematic for persons with disabilities using the service independently. A step-by-step video would be preferable. Although it is possible to register directly for some services online and by email, for others, in-person attendance is still required before electronic services can be used. Anyone with an electronic certificate or e-signature should be allowed to register for services directly online, without an in-person visit. In Belgrade, to apply for a disabled parking badge, for example, first-time applications or vehicle change applications must be made in person, whereas renewals can be filed online.

Persons with disabilities also reported that registration for e-government services can be incredibly challenging for persons with intellectual disabilities; it is almost impossible to register without significant assistance. While it is possible to apply for many services online, physical attendance is still required for the collection of documents.

5.3.2 Recommendations

- Harmonize ICT accessibility provisions between laws from different sectors.
- Provide user instructions in an easy-to-understand format, or step-by-step video, for each service or transaction.
- Consider adding new services, relevant to persons with disabilities, to the e-government portal.
- Ensure that policies include specific steps for the development and deployment of accessible and inclusive e-government solutions:
 - Build and consolidate a small accessibility leadership team:
 - ✓ Create a small team (including CIO/IT department chief, front-end developers, user experience designers, web content authors, visual designers, decision-makers from relevant departments and public procurement department officials) to guide the process of developing and deploying new e-government services, web portals and mobile applications.
 - ✓ Appoint an accessibility lead to work with the team, influencing, motivating and supporting them on all accessibility and digital inclusion-related matters.
 - Determine and secure budget to support accessibility in the overall e-government deployment project budget (as has been done for privacy and cybersecurity):
 - ✓ Allocate funding for critical items, such as staff costs, training, software licenses, equipment, standards maintenance, external accessibility evaluations, and expert accessibility consulting if needed.
 - ✓ Resources to consult: the W3C Web Accessibility Initiative provides a useful resource entitled "[Determine budget and resources](#)", which includes aspects to be considered when determining the budget resources required to carry out the activities planned.
 - Implement a user-centred development lifecycle:
 - ✓ create and use government-wide design guides that define and support improving accessibility and digital inclusion;
 - ✓ define specific and effective roles and responsibilities related to accessibility across the entire development lifecycle;

- ✓ establish quality control plans to review and validate accessibility at each phase of the development process;
- ✓ make the use of accessible development elements a requirement (pattern libraries, reusable accessible interface components, accessible wireframes for web pages, etc.);
- ✓ involve persons with disabilities in accessibility testing as part of project completion decisions; and
- ✓ consider having using external entities to support the Office in providing proof of conformity with global accessibility standards.

Examples of good practices:

- Malta:
 - The [Department of Information](#) is committed to making online services on the [gov.mt portal](#) accessible to all, as mandated by the anti-discrimination requirements of the Equal Opportunities Act (Persons with Disability) of 2000. The Department adheres to accessibility standard EN310549 and WCAG2.0 guidelines. Evaluations are done both manually and programmatically, in compliance with WCAG 2.0 Level AA guidelines.
 - Since January 2020, the Government of Malta monitors the accessibility of all public entity websites to ensure they comply with the [European Union Web Accessibility Directive](#).
 - The Foundation for Information Technology Accessibility, created in 2000 by the Malta Information Technology Agency, is in charge of overseeing the accessibility of government websites by providing services and resources:
 - ✓ [Web accessibility guidelines](#)
 - ✓ [Web accessibility for public entities: Legal frameworks and technical standards](#)
 - ✓ Quick Accessibility Audit checklist.
 - ✓ Accessibility statement requirements and template.
 - ✓ web accessibility [evaluation](#) and [certification](#) services, and
 - ✓ [Recommendations on steps for ICT accessibility compliance](#).
- Denmark:¹⁰
 - In June 2018, the Danish Act on Accessibility of Websites and Mobile Applications of Public Sector Bodies (Act no. 692 of 8 June 2018, Web Accessibility Act), which implements the European Union Web Accessibility Directive, entered into force, making compliance with European Standard EN 301 549 (which in essence requires compliance with WCAG 2.1) obligatory.
 - The Act aims to make the websites and mobile applications of public sector bodies more accessible to users and especially, but not exclusively, to persons with disabilities. Public sector bodies must fulfil accessibility requirements in the design and operation of their websites and mobile applications. According to the Act, these institutions must also publish a statement indicating any content that does not fulfil the requirements. It must also include contact information for recourse by users in the event of inaccessible content.

¹⁰ [Guidance on digital-ready legislation on incorporating digitisation and implementation in the preparation of legislation, Denmark.](#)

- A development guide (in English) has been made available, listing 27 requirements for user-friendliness and accessibility. The guidelines are mandatory for the public services that can only be accessed online. In addition, a [portal](#) has been developed for newcomers to Denmark, with information for non-Danish speaking foreigners who want to visit Denmark to study, work, or live.
- The [Danish Agency for Digitization](#) oversees the accessibility of Danish public bodies' websites and mobile applications, in accordance with the Web Accessibility Act. Public bodies must state the extent to which their website complies with the requirements for web accessibility, as set out in harmonized standard EN 301 549 (fully, partially, or hardly). They must state how they have evaluated their website (self-assessment, evaluation by an external party, or another method).
- Public bodies must indicate any inaccessible web-based content that either does not comply with the Web Accessibility Act, is exempt from compliance with the Act owing to its disproportionately large burden (such as an extensive report), or is not covered by the Act (such as the subtitling of live broadcast videos).

Resources:

- ✓ United Kingdom GOV.UK Service Manual. [Making your service accessible: an introduction.](#)
 - ✓ UK Government Digital Service. [The importance of creating inclusive government services.](#)
 - ✓ UK Government Digital Service. [Policy paper: Government Transformation Strategy.](#)
 - ✓ UK Government Digital Service. [Benefits of Accessible Design](#)
 - ✓ European Parliament (2015). [eGovernment. Using technology to improve public services and democratic participation.](#)
 - ✓ The Government of Singapore published the [Digital Government Blueprint](#) to help build user-centred digital government services that cater to all citizens' needs, including those of persons with disabilities, by involving them during the design and development of digital government services.
 - ✓ McKinsey & Company's guide, [Implementing a citizen-centric approach to delivering government services](#), includes detailed steps for governments to design and deliver customer-centred services by understanding and translating the needs of their citizens into targeted, effective service-delivery improvements to increase citizen satisfaction and reduce costs.
 - ✓ USA.gov (the official guide to Government information and services) published a blog post entitled [Journey Mapping Our Customer Experience](#), which gives a practical description of how to use journey maps to visually represent a user's entire experience in using a service from start to finish, explore key interactions and experiences, and identify pain points and gaps in the user's experience.
 - ✓ The United States Federal Government's [Usability.gov](#) portal provides resources and guidance on user-centered design processes and tools for making digital content more usable and useful.
- Leverage public procurement: include accessibility language in calls for tender or requests for proposal documentation, clearly specifying the accessibility criteria to be met by the vendor, referencing national and internationally recognized accessibility standards (such as European Standard EN 301 549), and including specific obligations regarding conforming with ICT accessibility standards. Also:
 - ✓ include in contract language penalties if the vendor does not meet accessibility standards;

- ✓ require vendors to provide detailed responses to accessibility criteria;
- ✓ conduct testing prior to awarding contracts;
- ✓ track the provision of alternative means or of a remediation/accommodation plan when a fully accessible solution cannot be procured.

Resources:

- ✓ European Standard EN 301 549, [Accessibility requirements for ICT products and services](#) sets out functional accessibility requirements applicable to ICT products and services, together with a description of the test procedures and evaluation methodology for each accessibility requirement in a form that is suitable for use in public procurement.
 - ✓ ITU has partnered with G3ict to create a [model ICT procurement policy for governments](#). The policy language can be adopted in whole or adapted to improve existing government procurement policies. The complete procurement cycle is covered, from defining procurement personnel roles and responsibilities through to management of awarded contracts.
 - ✓ European Commission [standardization mandate 376](#) on accessibility requirements for public procurement of products and services in the ICT domain.
- Training: provide general disability awareness training for all staff and vendors, and specific role-based training depending on the technical accessibility requirements of the role (such as for developers and IT professionals).
- In all government areas, e-service accessibility guidelines should be developed to include:
 - public consultations with persons with disabilities and their representative organizations on the development of accessibility policies and regulations;
 - accessible e-government websites in line with W3C-WAI standards, and the promotion of accessible private websites;
 - accessible telephone services;
 - accessible electronic kiosks;
 - accessible electronic documents across all areas of government;
 - accessible digital signage;
 - provisions for workplace accommodations.
 - public procurement of accessible ICTs; and
 - benchmarking, measuring, and reporting of progress on actions taken, as this is an essential tool for policy-makers to assess the effectiveness of national policies and programmes.
 - Local governments should be encouraged to:
 - collaborate with each other;
 - ensure full commitment to accessibility from the executive office;
 - involve the local disability community in programme efforts;
 - identify and adopt comprehensive ICT accessibility standards;
 - integrate accessibility into IT governance, project management, and procurement processes;
 - train employees on adopted ICT accessibility standards;
 - utilize tools that facilitate adherence to accessibility standards;

- test products using common assistive technologies;
- audit and report on progress regularly to ensure compliance; and
- upgrade assistive technology tools and adapt accessibility standards regularly.

5.4 Mobile Communications and devices

5.4.1 Current status

Article 4 (g) of the Convention on the Rights of Persons with Disabilities requires States parties to undertake or promote research and development of, and to promote the availability and use of new technologies, including information and communications technologies, mobility aids, devices, and assistive technologies, suitable for persons with disabilities, giving priority to technologies at an affordable cost.

Mobile telephones have proven a very empowering technology for persons with disabilities. Through a combination of handset features, hardware add-ons, accessibility options in operating system and third-party software, accessible services, applications and content, they have enabled communication and independent living for persons with disabilities and empowered them to control their lives and pursue their opportunities in an unprecedented manner. Attention should be paid to ensuring that these products and services conform to accessibility specifications and good practices, significantly bolstered by policy or legislative compliance requirements.

Also, since nowadays almost any product a user may want is available on the market, regulators and policy-makers should ensure that there is enough customer service regulation that is disability-conscious and takes into account the special needs that users may have, and which can be a source of feedback on accessibility issues.

In Serbia, universal service providers are mandated to provide equal conditions for the use of telecommunications services by persons with disabilities and socially vulnerable users:

- Telekom Serbia provides special postpaid mobile telephone packages tailored to the needs of persons with visual or hearing impairments or other types of disabilities.
- Telenor offers two mobile telephone packages geared towards individuals categorized as disabled under regulations on pension and disability insurance.

5.4.2 Recommendations

- An example of detailed, step-by-step language to include in a mobile communications accessibility policy can be found in the [ITU-G3ict Model ICT accessibility policy report](#) (page 30).
- When defining policies to ensure that websites and applications are made accessible to persons with disabilities when using mobile devices, policy-makers should follow proven, long-standing accessibility standards, guidelines and best practices developed and used by the mobile telephone industry. Examples of such standards include:
 - United States of America:
 - ✓ [FCC Order on Section 255](#)
 - ✓ FCC Rules on handset hearing aid compatibility
 - ✓ [United States Access Board Section 508 standard and Section 255 guidelines](#)
 - ✓ Information Technology Industry Council [voluntary product accessibility template](#)

- United Kingdom:
 - ✓ [Mobile industry good practice guide for service delivery for persons with disabilities and elderly customers in the UK](#)
- The Mobile and Wireless Forum, an international association of companies that recognize the importance of accessible mobile communications, has created the Global Accessibility Reporting Initiative not only to provide information on existing accessibility features on mobile devices available on the market, but also as a platform for policy-makers, industry and disability organizations to exchange information and work together on improving accessibility of mobile telephones, tablets and mobile applications. The Initiative is used by regulators in countries with mobile accessibility-related regulations, in order to fulfil manufacturers' reporting requirements. The following government bodies are implementing best practices under the Initiative:
 - Brazil: [Agência Nacional de Telecomunicações](#)
 - Belgium: [Belgian Institute for Postal services and Telecommunications](#)
 - Denmark: [Danish Energy Agency](#)
 - Finland: [Finnish communications regulatory authority](#)
 - France: [Autorité de Régulation des Communications Électroniques et des Postes](#)
 - Mexico: [Instituto Federal de Telecomunicaciones](#)
 - Portugal: [Autoridade Nacional de Comunicações](#)
 - Romania: [National Authority for Management and Regulation in Communications](#)
 - United States: [Federal Communications Commission Accessibility Clearinghouse](#)

5.5 Television and digital content accessibility

5.5.1 Current status

Article 12 of the Law on Public Information and Media establishes the principle of the right of persons with disabilities to access information, stating that "the Republic of Serbia, the Autonomous Province, and local government units shall take measures to enable unhindered access to public information by persons with disabilities, in a suitable format through the use of appropriate technology, and provide part of the funding or other conditions for the activity of media outlets that publish information in the sign language, or in Braille, or that enable these persons to exercise the right to public information in other ways." Access of persons with disabilities to public information is one of the elements that defines public interest in public information services (Article 15).

Specific legislation is in place in Serbia regulating electronic media and public service broadcasters (Radio Television Serbia (RTS) and Radio Television Vojvodina), which aims to improve the accessibility of public information for persons with disabilities.

According to the Law on Electronic Media, the Regulatory Body for Electronic Media is responsible for improving the accessibility of media services for persons with disabilities. Article 52 of the Law requires public media service providers to make their programmes and content accessible for persons with visual or hearing impairments (to the extent possible according to their financial and technical resources) and mandates the Regulatory Body to encourage them

to do this.¹¹ The Law on Electronic Media also prescribes that media services can be provided to meet the particular needs of certain segments of society (including persons with disabilities) and citizens' associations, with licenses for those services issued free of charge.

The Law on Public Service Broadcasters mandates public service broadcasters to provide access to information for all of society, including persons with disabilities, without discrimination. The Law also mandates the use of sign language as a form of communication for the deaf and hearing impaired.

The Law on the Use of Sign Language, enacted in 2015, boosted progress in making media content accessible to persons with disabilities, for instance, through subtitling. From June 2017, public service broadcaster RTS made every edition of its News 2 programme accessible to the deaf and hearing impaired viewers using subtitles in Teletext. For over 10 years, RTS has been broadcasting regular news in sign language every day at 4 p.m.; during crisis situations, all news and special programmes include sign language interpretation. The editorial board of the RTS schools programme produces subtitled programmes (no provision of sign language) for the deaf and hearing impaired, while RTS2 and RTS Satellite now air a twice monthly show devoted to persons with disabilities in sign language, entitled "A place for us". RTS Planet, the RTS digital platform, offers live streaming of television and radio programmes, catch-up services (deferred viewing) and the possibility of watching television and radio shows in Videoteka (video on demand) and Slušaonica (audio on demand). RTS Planet Videoteka contains a section with content in sign language, which includes documentaries, historical, travel, cultural and popular science shows.

Article 35 of the Law on Prevention of Discrimination against Persons with Disabilities establishes that State administration, provincial and local government bodies must ensure that information and communication are made accessible to persons with disabilities by means of appropriate technologies, including simultaneous speech-to-text conversion.

According to the public enterprise [ETV Digital](#), digital terrestrial population coverage is 98.37 per cent, 97.27 per cent and 96.82 per cent for the first, second and third multiplexes, respectively.

Government regulations set out support measures and detailed requirements for granting vouchers to subsidize the purchase of digital television signal receivers for socially disadvantaged groups, including persons with disabilities.

5.5.2 Recommendations

- Encourage private providers of audiovisual media services to adapt their content and make it accessible to persons with disabilities, to the extent permitted by their technical and financial capacities, in compliance with the Law on Electronic Media.
- Encourage private providers of audiovisual media services to revamp their websites to support text-to-speech conversion and font size scalability. These adjustments also apply to the RTS website, where text-to-speech ("Read Me") conversion is only enabled for some texts.

¹¹ The [Regulatory Body for Electronic Media's 2019 Report on programmes accessible to persons with disabilities](#) indicates, among other things, that content accessible to persons with disabilities on RTS1 in 2018 accounted for 2.93 per cent of total broadcast time, which is 16 times more than in 2013. While the share of programming remains very small, there has been gradual growth over recent years. In 2018, content accessible to persons with disabilities broadcast by RTS2 amounted to only 0.49 per cent of its total broadcasting. In the same period, RTV1 broadcast 1.53 per cent accessible content.

- Modify the RTS Planet platform so that the sign language section provides access to all content.
- The Ministry of Culture and Information should stipulate that any public authority inviting applications for public funding must see to it that part of the funds be allocated to ensuring that the media content produced be adapted to and thematically designed for persons with disabilities (access to information by persons with disabilities and other minority groups, among others, is defined as a public interest under the Law on Public Information and Media).
- Amend relevant laws that mandate all public administrative bodies (at the national and local levels) to include minimum content accessibility requirements.
- Ensure that the e-government portal (www.euprava.gov.rs) has optimal accessibility, ensuring that each new service made available on the portal is accessible to persons with disabilities immediately on uploading, thereby avoiding retrofitting costs.
- Ensure that persons with disabilities, the socially disadvantaged, and those in geographically remote areas can exercise their right of access to information of public interest, in the most convenient format, and have recourse to remedy if that right is not afforded to them (such as by filing a complaint with the Ombudsman). All Serbian citizens have the right not only to be informed about issues of public interest but also to actively seek information.
- Consider improving means of electronic communication with the public, as established by Article 57 of the Law on General Administrative Procedure (public authorities are required to publish information about the options and modalities for citizens to communicate with them electronically and receive access to electronic documents).
- Provide further financial and technical support for sign language interpreting services and the civil society organizations involved.

Recommended steps for implementing policy frameworks that promote television/video programming accessibility for persons with disabilities include:

- adopting a television/video programming accessibility policy, either as a stand-alone document or integrated into an existing policy;
- consulting with persons with disabilities on the development of a television/video programming accessibility policy;
- making persons with disabilities and their organizations aware of this policy and television/video programming access services;
- ensuring that licensed service providers deliver access services such as audio description, audio subtitles, closed captions and signing;
- ensuring that electronic programming guides indicate video programmes that offer access services (by using internationally recognized access service icons such as "CC" for closed captioning and "AD" for audio description);
- ensuring that licensed service providers encourage content creators to deliver programmes with access services;
- ensuring that licensed service providers guarantee that emergency information and public safety announcements are transmitted using access services;
- adopting technical standards for interoperable television/video programming services to enable users to receive, decode and display access services;
- adopting quality of service standards for access services;
- training customer service staff on how to serve customers with disabilities;
- providing adequate funding for public broadcasters to enable them to offer accessible television/video programming; and
- promoting fair and equitable representation of persons with disabilities in video programmes.

The following are examples of solutions that policy-makers may promote, depending on the local conditions in the country:¹²

- **Persons with hearing impairments:**
 - Providing optional subtitles is the principal method of making television programmes accessible. Deaf and hearing-impaired viewers tend to prefer programmes and broadcast, streamed, or downloaded content that include optional subtitles. Digital television systems have made it possible for subtitles to be easily embedded into the image on-screen, using an option on the remote control.
 - In-screen sign language is the secondary method of making programmes accessible, by providing a sign language interpretation of the audio. In-screen sign language can show permanently in the picture, or may be made optional for the user through a broadcast multimedia system. In some countries, broadcasters provide an additional channel for simultaneous broadcast with in-screen sign language.
 - For radio, the main method of making programmes accessible is to provide speech data, displayed on a receiver screen (speech-to-text conversion data).
 - Digital radio (audio) programmes, broadcast, streamed, or downloaded, can now include data for speech-to-text display in the receiver. A text display may also be helpful for deaf or hearing-impaired people to understand the programme.
- **Persons with visual impairments:**
 - Audio description is the most effective means of making television programmes accessible to visually impaired persons. Audio description constitutes an additional commentary, explaining what is happening visually on screen, describing body language, expressions, and movement. It is provided on a second audio channel, mixed in the receiver with the normal audio, and plays during natural pauses in dialogue.
 - Audio description can also help persons with age-related disabilities by emphasizing visual aspects of the content that are essential to the plot.
- **Older people:**
 - Older people can experience difficulties when radio or television broadcasts involve speech that is too fast for them to follow comfortably. The adaptive speech rate conversion function plays speech more slowly, maintaining speech quality and without overrunning the programme time slot. Natural silences in the dialogue are adjusted electronically, making the dialogue appear slower. Radio programmes available via Internet with several speed adjustment options may help a wider age range of listeners to understand the programs.
 - Adding audio description to television programmes during natural pauses in dialogue can also help the viewer to follow the storyline.
- **Receiver user-friendliness:**
 - Receiver devices must be designed and manufactured with users with disabilities in mind. Design features may include:
 - √ simple and self-evident controls, which operate in a similar way on all receivers.

¹² ITU-R Report BT.2207-4 (10/2018): [Accessibility to broadcasting services for persons with disabilities](#).

- ✓ visual and audio guides for programme selection and choice.
- ✓ facilities for subtitle display, signer display, and audio description.
- Device features may vary according to local broadcasting systems and formats. It is important to involve receiver manufacturers in the development of broadcasting accessibility policies, so that they can provide realistic views from market and technology standpoints.

5.6 Electronic kiosks

5.6.1 Current status

An electronic kiosk is a computer terminal that features specialized hardware and software providing access to information and applications for communication, commerce, entertainment, or education. Electronic kiosks include:

- ATMs (Automated Teller Machines)
- information kiosks
- ticket vending machines
- electronic product vending machines
- electronic voting machines
- information displays (such as flight information)
- point-of-sale customer card payment systems
- card door entry systems.

The user interface of an electronic kiosk may consist of several components, each of which has its own accessibility aspects, such as labels and instructions, smart cards, displays, keypads, and touch screens. There are two important concepts that pertain to accessibility of electronic kiosks: self-adaptive interfaces and security and access.

When interviewed, persons with disabilities reported that very few ATMs in Serbia are adapted for blind or visually impaired users, who often have to resort to using intuition or ask for help to obtain cash or perform transactions (which is problematic from a privacy perspective). Similarly, public transport ticket vending machines are not very accessible. The provision of step-by-step video instructions (using both images and sound) for the conducting the various transactions and operations would be particularly helpful.

5.6.2 Recommendations

- Apply European standard [EN 301 549](#), which describes functional accessibility requirements applicable to ICT products and services, including electronic kiosks, and the test procedures and evaluation methodology for each accessibility requirement suitable for use in public procurement.
- Take into account the [guidance on public access terminals](#) issued by the Centre for Excellence in Universal Design at the Republic of Ireland's National Disability Authority. The guidance covers all information and services delivered by means of electronic kiosks (or public access terminals), such as ATMs, information kiosks, ticket vending machines and e-voting machines.
- Provide and promote videos with step-by-step instructions (using both images and sound) for conducting ATM and ticket vending transactions and operations.

- Case study: In India, the integration of accessibility features into the functioning of financial institutions by providing accessible banking services, has become a strong example of how engaging the private sector in accessibility measures can increase the ease with which persons with disabilities interact with their environment. Led by the Reserve Bank of India, with support from the Indian Banks' Association, the Government of India, and other stakeholders in the country, directives were issued to public and private banks in India to provide both physical and ICT accessibility features to support persons with disabilities in conducting their personal finances. The directives required, among other aspects, that one third of ATMs be "talking ATMs" with Braille keypads to allow persons with visual impairments to perform standard ATM-based financial transactions independently. Banks were asked to coordinate to ensure that the distribution of talking ATMs served all localities; a subsequent, scaled-up directive was issued on retrofitting all existing ATMs and ensuring that any new ones included these accessibility features. Union Bank of India, one of the major banks to take steps to support accessibility in banking, has published a list of talking ATMs found around the country, which by 31 March 2016 amounted to 1,662.
- Recommended resources for consultation and guidance:
 - Harmonized European standard [EN 301 549 V3.1.1 \(2019-11\)](#) on accessibility requirements for ICT products and services: this describes functional accessibility requirements applicable to ICT products and services and the test procedures and evaluation methodology for each accessibility requirement, suitable for use in public procurement. Examples of ICT covered include those considered stationary. This means they either stand on the floor (such as an information kiosk), are wall-mounted (such as ATMs for cash dispensing or other banking services) or consist of another type of immovable structure.
 - United States Kiosk Manufacturer Association [14-point checklist for accessible self-service](#) (February 2021).
 - Republic of Ireland, National Disability Authority, Centre for Excellence in Universal Design, [guidance on public access terminals](#). This guidance covers all information and services delivered by means of electronic kiosks (public access terminals) such as ATMs, information kiosks, ticket vending machines and e-voting machines.
 - Republic of Ireland, National Disability Authority, Centre for Excellence in Universal Design, [guidance on smart cards](#). A smart card is a personal device that provides an intelligent link between the user and the system being used, and can render a system usable by the widest possible community of users as it offers the optimum interface for their needs. This guidance covers all information and services delivered by means of a smart card and include guidelines on physical access and user interface issues.
 - Republic of Ireland, National Disability Authority, Centre for Excellence in Universal Design, [compilation of International standards](#) (Australia, Canada, European Union, Japan, Norway, United Kingdom, United States) on procedures to be followed when making smart card services accessible.
 - United States, National Federation for the Blind, [Guidelines for purchasing an accessible voting system](#).

5.7 Education

5.7.1 Current status

In 2014–2018, several umbrella laws were amended to promote access to education for students with disabilities:

- The Law on the Fundamentals of the Education System, adopted in 2017, regulates additional support for the education of children with developmental challenges and disabilities. Article 54 of the Law provides for the establishment of resource centres to give professional support for the selection, application, and procurement of assistive technology for education, and to monitor new directions in support for children, students, and adults with disabilities.¹³
- The Law on Primary Education, as amended in 2018, establishes the right of parents or other legal guardians to choose to educate their child through home schooling or distance learning (Article 38 a). The specific regulations on the conditions for implementing and evaluating home-schooling or distance learning, announced at the time of enactment of the original law in 2014, have still not been issued. Online study and ICTs in the classroom are used to complement regular classes, and there are also individual distance learning projects.
- The Law on Secondary Education passed in 2017 stipulates that students with disabilities must be provided with the conditions to overcome physical or communication barriers (graduation or final examinations must be adapted; these students may also be exempt from certain parts of the graduation examination or permitted to adjust it according to their individual educational plan). The Law also provides for the possibility of distance learning.
- The Law on Higher Education passed in 2017 provides for the possibility of studies (or certain parts of studies) to be offered in a sign language, while also providing for the possibility of distance learning. Details of the conditions and ways in which distance learning study programmes are implemented are the responsibility of the individual higher education institution. The Law does not set minimum standards for such programmes.
- The Law on Textbooks, enacted in 2018:
 - provides for the use of textbooks or supplementary teaching tools in Braille when delivering educational activities to persons with disabilities or developmental challenges, and in electronic format or formats adapted to their abilities, needs and capacities;
 - allows for the possibility of financing textbooks from the budget of the Republic of Serbia for students and pupils from socially or financially disadvantaged families;
 - imposes upper limits on the retail prices of textbooks, manuals, and teaching materials;
 - provides for the digitalization of teaching content (2018 amendments), including the preparation and publication of digital textbooks, streamlined solutions and specified timeframes for the submission and approval of textbooks, and ways to purchase them through the school or students' cooperative; and
 - foresees the establishment of a centre for limited edition textbooks in national minority languages for secondary vocational schools, adapted to the needs of children with special needs.

The Ministry does not, however, provide universities with funds or resources to convert textbooks into accessible digital formats required by higher education students with print disabilities, nor does it have a system to convert books and distribute them to universities; universities are thus

¹³ At the time of writing, the rules on the establishment of resource centres was still under way.

required to make these provisions at their own expense. Each university has the independence and autonomy to make its own decisions regarding providing accessible digital textbooks but must also shoulder the financial burden. Given the cost of converting textbooks into accessible digital formats, this can be very challenging. Since 2015, the library of the University of Belgrade has had a robot book scanner, which students with visual impairments can use to apply for accessible digital copies of scanned textbooks, but challenges can arise with regard to copyright matters.

In 2018, the Republic of Serbia became a member of the European Agency for Special Needs and Inclusive Education. The Social Inclusion and Poverty Reduction Unit translated and upgraded its [Guidelines for information accessibility in learning](#), and published them as the [Instruction for the development of teaching material in accordance with universal design principles](#).

On 24 February 2020, the Republic of Serbia acceded to the [Marrakesh Treaty](#) to Facilitate Access to Published Works for Persons Who Are Blind, Visually Impaired, or Otherwise Print Disabled. It was the first country in the western Balkans to do so. The Treaty entered into force in Serbia on 24 May 2020 (the European Union ratified it in October 2018). The Treaty must now be transposed into Serbia national copyright laws. The Marrakesh Treaty sets standards by which the Republic of Serbia can create mandatory domestic copyright exceptions to allow entities authorized by the Government to convert printed works into accessible formats (such as Braille, audio, large print and digital accessible formats) for distribution to print-disabled people for education, instructional training, adaptive reading or information access on a not-for-profit basis, without having to request permission from rights holders, and to share these works across borders.

In that regard, [Article 30](#) of the Convention on the Rights of Persons with Disabilities, "Participation in cultural life, recreation, leisure and sport", establishes that:

"1. States Parties recognize the right of persons with disabilities to take part on an equal basis with others in cultural life and shall take all appropriate measures to ensure that persons with disabilities:

a) enjoy access to cultural materials in accessible formats

[...]

3. States Parties shall take all appropriate steps, in accordance with international law, to ensure that laws protecting intellectual property rights do not constitute an unreasonable or discriminatory barrier to access by persons with disabilities to cultural materials."

5.7.2 Surveys and focus groups

The Office of the Prime Minister conducted a brief questionnaire among all major State universities in Serbia, comprising two questions:

- 1) Are ICT accessibility training courses available at major universities or offered by professional educational services?
- 2) Is there an education policy in place or planned to ensure accessibility of online education in university environments both during and after the COVID-19 pandemic?

On question 1, 62 per cent of respondents answered “no”, while the rest indicated that although there were some ICT accessibility courses, most were somehow vague, only referred loosely to accessibility, or only provided basic information. Only a few universities stated that they are offered specific accessibility-related subjects. Some faculties indicated that, although they did not currently have any accessibility-related topics on their curricula, they planned to broaden their programmes to include some.

With regard to question 2, one-third of respondents either answered “no” or did not answer, while the rest emphasized availability rather than accessibility. This may indicate that the majority are not taking accessibility into account.

When interviewed about inclusive education policies regulating ICT accessibility conditions for distance learning, representatives of the Ministry of Education mentioned the following key areas.

- The Ministry has recorded classes (either using Camtasia or recorded in a studio by the public television system), which are available online, and were broadcast on national television during the COVID-19 lockdown.
- With the support of the United Nations Children’s Fund (UNICEF), the Ministry provided a text-to-speech function through the national television broadcaster RTS, so that all recorded classes are captioned. Some of the public information materials, including COVID-19 prevention recommendations, were made into videos with captioning and sign language options.
- Through the “Dositej” information system, the Ministry obtained data directly from schools on how many of their pupils do not have access to a television, Internet connection or computer at home to be able to take part in distance learning, in order to understand how many students would need additional support. The Ministry also plans to incorporate indicators for monitoring accessibility (both, architectural and informational) of educational institutions, which will be developed in cooperation with the Social Inclusion and Poverty Reduction Unit.
- With the aim of bridging the digital divide, the Ministry is starting a new project with UNICEF, bringing “digital libraries” to schools, to provide pupils with ICT support. Each school involved in the project will be given laptops, tablets and training for teachers.
- The COVID-19 pandemic forced an immediate transition from traditional teaching methods to distance learning using digital platforms. Over the course of the pandemic, the Ministry has taken an approach of continuous improvement, learning from experience and mistakes. Schools choose the platforms they prefer to use. Even though it is not ideal, most schools (75 per cent) use Google Classroom because it is easy to use. Through the Learning Digital Device Project funded by the European Union and UNICEF, the Ministry is therefore installing Moodle as a learning management system in all primary and secondary schools in Serbia, and encouraging them to use Microsoft Teams, Zoom and Google Meet for live conferencing. The goal is to give the schools a pack of tools, courses, resources and materials to ensure that children have a comprehensive approach to learning.
- Also, during the COVID-19 pandemic, the Social Inclusion and Poverty Reduction Union created a [database](#) on the distribution of emergency care to vulnerable groups, including the delivery of technical equipment to schools, to ensure that distribution was equal and needs-based.
- Teaching materials are developed following the principles of universal instructional design and universal design for learning.
- A digital competence training framework has been in place for teachers since 2017 and was updated in 2019. Policies support opportunities for teachers to organize teaching and learning and help transition from the traditional ways of teaching to current technology-based methodologies. The 2019 version of the framework includes a specific section on empowering learners:

Empowering learners

- Inclusion
 - ✓ **Basic:** Knows how to apply universal design principles in developing digital teaching and learning materials that are of high quality, clear, understandable, and accessible to learners in school and at home, and which are tailored to the needs of all learners, encompassing a diverse range of capabilities and needs (learners with developmental disabilities, talented learners).
 - ✓ **Intermediate:** Finds, adapts, and makes accessible to learners digital teaching and learning materials in line with universal design principles.
 - ✓ **Advanced:** Creates and makes accessible digital teaching and learning materials in line with the universal design principles.
- Differentiated teaching
 - ✓ **Basic:** Understands the potential of digital technologies for creating an educational setting that supports differentiation and individualization of teaching and learning.
 - ✓ **Intermediate:** Applies available digital technologies (such as digital textbooks and electronic add-ons) to create an educational setting that supports differentiation and individualization of teaching and learning.
 - ✓ **Advanced:** Uses digital technologies in creating an educational setting that ensures differentiation and individualization of teaching and learning.
- Accessibility
 - ✓ **Basic:** Understands the importance of ensuring equal accessibility of digital technologies and resources to all learners in line with their individual needs and socio-economic background.
 - ✓ **Intermediate:** Resolves issues related to accessibility of digital technologies and resources for all learners to close the digital gap.
 - ✓ **Advanced:** Works on continuously improving the accessibility of digital technologies and resources for all learners and preventing digital gaps, and monitors the efficiency of measures introduced and ensures their improvement.
- Assistive technology
 - ✓ **Basic:** Understands that assistive technology can play a compensatory function when used in teaching and learning for learners who need additional educational support.
 - ✓ **Intermediate:** Selects and applies appropriate pedagogic approaches, resources, and assistive technology in working with learners who need additional educational support.
 - ✓ **Advanced:** Reflexive on the assistive technology use redesigns and innovates pedagogic approaches in working with learners in need of additional educational support.
- As part of education policy monitoring systems, State-run schools use self-assessment tools, including a digital maturity model, which asks principals, teachers and pupils about various aspects of schooling to estimate schools' levels of digital maturity. More than 60 per cent of schools have undergone a self-assessment, which is a significantly higher proportion than the European average. This can be an example of good practice.

When asked whether there were any policies in place to ensure accessibility of online education during the Covid-19 pandemic, representatives of the Ministry of Education made the points set out below.

- The Ministry has been working on digitalization of education for several years.
- Every child aged 7-14 with special educational needs must be included in a mainstream school in the public education system, without any kind of discrimination, as all children have equal rights. Any special ICT or assistive technology needed will be provided.
- There is a catalogue of available assistive technologies on the Ministry's website, from which items can be chosen to meet the child's particular needs. The Ministry is also in the process of creating resource centres, where both assistive technologies and human resources support will be provided to students, families, and educators.
- According to the Law on Textbooks, the Ministry will provide adapted textbooks for primary and secondary school pupils with special needs. The Law also provides that a school can inform the Ministry of its need for adapted textbooks and the textbook publisher must provide the adaptation in the format required, such as screen-reader compatible. While together, the Law on Textbooks and the Law on Education provide the necessary legal framework to ensure provision of adapted textbooks, adaptation is costly, and the Ministry is therefore seeking funding for this purpose.
- For pupils aged 7-14, as a complement to traditional education methods, the Ministry has undertaken many activities for the digitalization of education, including equipping more than 10,000 classrooms with laptops and video projectors. By the end of 2021, more than 20,000 classrooms will be equipped with 25,000 new computers for IT classes for students aged 11-14, thereby promoting skills acquisition for their future careers.
- The Ministry has allocated budget for creating an aggregator for open educational resources, which will compile materials into one location, where they will be available as resources for teachers.
- The Ministry is building the legal framework that will support these actions, which are part of the current public education policy. The Ministry is currently working on an education strategy for the period up to 2030, and on an action plan for the coming three years.
- There are no laws or policies that foresee mandatory training for university lecturers on how to create accessible materials.
- There is no specific policy or general strategy saying that vocational education facilities must follow ICT accessibility in their digital education offerings; each is free to make its own decisions in that regard.

Finally, persons with disabilities interviewed reported that, in general, teachers are not trained on how to adapt their teaching materials. They felt that there should be more awareness raising and training for teachers to strengthen the support they are able to provide to students with learning disabilities.

5.7.3 Recommendations

- Expedite the establishment of above-mentioned resource centres that are expected to provide professional support in the selection, application, and procurement of assistive technology for education. Promote their importance and raise awareness around them once they have been established.
- Intensify the promotion of the catalogue of assistive technology to broaden its use and raise awareness about it among the teaching staff.
- Regulate the implementation and accessibility of quality home schooling and distance learning for primary and secondary education (this is urgent given the uncertainty of the duration and evolution of the COVID-19 pandemic).

- Create and disseminate guides and resources about accessibility in Moodle installations (see [Moodle Accessibility](#)).
- Propose that the National Entity for Accreditation and Quality Assurance in Higher Education of Serbia includes accessibility standards (physical and ICT) in its processes for evaluating quality assurance in higher education institutions.
- Accessible textbooks:
 - to effectively implement and enforce the provisions of the Marrakesh Treaty to Facilitate Access to Published Works for Persons Who Are Blind, Visually Impaired, or Otherwise Print Disabled in higher education, it is recommended that the Government of Serbia should not only revise its national copyright laws to authorize the making, use, and sharing of accessible format copies of educational materials, but also:
 - ✓ create legal remedies that allow beneficiaries and authorized entities to assert their rights to create and share materials in accessible formats;
 - ✓ vest appropriate domestic human rights and intellectual property institutions with authority over implementation of the Marrakesh Treaty; and
 - ✓ authorize these institutions to engage in monitoring and enforcement activities.
 - Once the provisions of the Marrakesh Treaty that allow for the conversion and sharing of textbooks in accessible digital formats have been transposed into national law, consider allocating funding (such as from the universal service fund) to create a centralized unit to manage the conversion of textbooks into accessible digital formats and their distribution to universities for students who need them.
 - Resources for consultation and guidance:
 - ✓ International Federation of Library Associations and Institutions and European Bureau of Library and Documentation Associations (2017), [Implementing the Marrakesh Treaty in European Union Member States](#) (see page 23 “Transposing the Marrakesh Treaty. Summary of Recommendations”).
 - ✓ European Commission. [Implementation of the Marrakesh Treaty in EU Law](#).
 - ✓ Legal frameworks from other countries:
 - France: Law No. 2016-925 of July 7, 2016 on freedom of creation, architecture and heritage ([Loi pour Liberté de la Création, à l’Architecture et au Patrimoine, LCAP](#))
 - United Kingdom: [The Copyright and Rights in Performances \(Disability\) Regulations 2014](#)
 - ✓ Examples of textbook conversion centres in libraries, universities, and not-for-profit entities:
 - [Royal National Institute of Blind People, National Library Service](#), United Kingdom
 - [University Library for Students with Special Needs \(Teiresias Library\)](#), part of the [Teiresias Centre](#) at the Masaryk University, Brno, Czech Republic.
 - The [Center for Inclusive Design and Innovation \(CIDI\)](#) at the Georgia Institute of Technology in Atlanta, Georgia, United States of America.
 - [Fondazione LIA](#), Italy.
 - [Nota - National Library for Persons with Print Disabilities](#), Denmark.
 - Australian Inclusive Publishing Initiative, Australia.
- Establish mechanisms that mandate the application of the principles of universal instructional design and universal design for learning when creating digital teaching materials in higher education.
- Fund the customization of basic assistive technology tools in local languages, including text-to-speech, voice recognition and screen readers.

- Train higher education lecturers in creating accessible instructional materials, including captioning images.
- Consider leveraging accessible ICT-enabled schools as resource hubs. This can be especially effective in areas where resources are limited, by concentrating accessible ICTs and assistive technology resources in one central location.
- Promote accessible open-access educational resources. Open-access online resources, such as massive open online courses, are growing in popularity and availability as knowledge-sharing platforms. They have huge potential for the education of persons with disabilities, and should therefore be offered in accessible formats. Wherever possible, open-access resources should also be made available at low or no cost; this is particularly beneficial in areas where educational resources are scarce.
- Make ICT accessibility a component of related study programmes. The issue of accessibility should be built into the curriculum of higher education programmes in technology, information processing, ICTs, and computer engineering, as well as general teacher training programmes. This could ideally involve the creation of dedicated modules or courses on ICT accessibility for students on the abovementioned courses, as well as including ICT accessibility as a topic in other related modules.
- Include ICT accessibility as a criterion in university ranking schemes. ICT accessibility in this case could refer to accessibility in various areas, such as the university website, online learning materials, or other ICT-based infrastructures.

5.8 Health care

5.8.1 Current status

[Article 25](#) of the Convention on the Rights of Persons with Disabilities contains provisions on the right to health. Creating and implementing national ICT accessibility policy frameworks can open doors to health services. These frameworks should include provisions to ensure public access to health-care systems and services.

Persons with disabilities interviewed during the preparation of this report stated that:

- Some assistive technologies are available through health insurance.
- The “e-Baby” and “e-Prescription” tools and the “Chosen Doctor” application are good practice examples of how new technologies can be used to improve accessibility. New functionalities, user safety and compliance with basic user data privacy standards must be improved through further development and investment.
- The COVID-19 website is easily accessible for blind or visually impaired users with screen reading software.
- Serbian citizens can apply for COVID-19 vaccinations by filling in a highly accessible online form, available on the e-government portal, after which they will be notified of the time and place of vaccination by e-mail or SMS. Blind service users reported that they found the process easily accessible.

5.8.2 Recommendations

ICT accessibility policies should reference importance of the use of ICTs for improving access to health-care services. ICTs – in the form of websites, mobile devices, television, radio and emerging technologies – play a key role in improving access to health services, disseminating information about basic aspects of independent daily living, such as public health information, and broadening access to health care through innovations, such as telemedicine and e-health.

The following are two examples of health-specific provisions that could be included in ICT accessibility policies.

- “Since the ICT accessibility policy applies to public services ICTs, it should be applied to the health service websites, electronic documents and mobile applications that are made available to the public.”
- “[Relevant provision of legislation] provides that the [responsible government authority] is the body responsible for monitoring and promoting the effective use of government-provided e-health services to citizens, including access to web-based content for persons with disabilities.”

Recommendations:

- Regardless of how the ICT accessibility policy is situated in the country’s institutional, policy and legislative framework, specify that since it applies to public services ICTs it should apply to public health-care system websites and digital documents that are made available to the public through public sector websites, mobile applications, or other digital means.
- Establish the mandate that all digital information, communications, and online services provided by the public health-care system must be in appropriate formats to be accessed, received, and understood by all users, including those with disabilities and older persons. This includes the Ministry of Health [e-health portal](#).
- Hold public consultations with persons with disabilities and their representative organizations on the development of accessibility policies and regulations for the provision of public health services and dissemination of public health information.
- Encourage and promote ICT industry and private sector efforts to develop and produce assistive technologies and related ICT equipment for persons with disabilities.

5.9 Emergency situation communications

5.9.1 Current status

[Article 9, paragraph 1](#) of the Convention on the Rights of Persons with Disabilities sets out that “To enable persons with disabilities to live independently and participate fully in all aspects of life, States parties shall take appropriate measures to ensure to persons with disabilities access, on an equal basis with others, to the physical environment, to transportation, to information and communications, including information and communications technologies and systems, and to other facilities and services open or provided to the public, both in urban and in rural areas. These measures, which shall include the identification and elimination of obstacles and barriers to accessibility, shall apply to [...] (b) Information, communications, and other services, including electronic services and emergency services”.

The Ministry of the Interior, in cooperation with the National Organization of Persons with Disabilities, has published a manual for behaviour in emergency situations, which has been prepared in an adapted version for visually impaired people and is available on the website of the Sector for Emergency Situations. Posters on dealing with emergencies have also been issued, adapted for persons with disabilities.

The [Office for IT and e-government](#) has launched a dedicated website for COVID-19 information and guidance. It has also issued guidance on good governance for responding to emergency situations and the role of civil servants.

5.9.2 Recommendations

The Government of Serbia is encouraged to revise its legal frameworks on emergency communications and services to ensure that they are inclusive and accessible for persons with disabilities, and to include measures how to ensure that the needs of persons with disabilities are given due consideration in emergency communications and services.

National policies promoting television and video programming accessibility should include specific language referring to public communications, announcements and information in emergency and disaster situations. The following are examples of clauses to include in a policy.

- “Public awareness about the availability of accessible emergency services for persons with disabilities is mandatory. It is the responsibility of the national regulatory authority, licensed service providers and public bodies responsible for the emergency services to create awareness about the availability and accessibility of emergency services for persons with disabilities.”
- “Emergency information made available to the public should also be provided in formats accessible to persons with disabilities, such as sign language and subtitles for the deaf and hearing impaired, and audio messages on television and video programming for those with visual disabilities.”
- “Public communications and announcements in natural disaster situations must be accessible to persons with disabilities in appropriate forms of communication to leverage mainstream communication channels. Licensed service providers must ensure that such announcements and alerts are broadcast in relevant formats, accessible to all persons with disabilities.”

The Government should determine the most effective strategies to promote accessible ICTs, including through legislation, policy, regulations, license requirements and codes of conduct. The following are some examples of emergency communications aspects to be included in policies:¹⁴

- Persons with disabilities must be able to access emergency information and contact emergency services free of charge, whatever mobile technology or device they use.
- Mobile operators must make it possible for deaf or hearing-impaired individuals to text with acknowledgment of receipt, via real-time text, or send video emergency notifications through video relay services, to the relevant emergency service in real time.
- Mobile operators must provide emergency and public safety alerts in accessible formats to persons with disabilities.
- Persons with disabilities must be informed about the emergency services that are available and accessible, by public awareness campaigns, which should describe how persons with disabilities can use those emergency services. Information in public awareness campaigns must be provided in accessible formats.
- Information materials must target persons with disabilities, and public awareness campaigns and training sessions should be conducted in multiple accessible formats in different languages.
- Following a disaster, response efforts should be reviewed to assess any challenges that may have arisen for persons with disabilities, and take action to fix any ICT-related issues.

¹⁴ [ITU-G3ict Model ICT accessibility policy report.](#)

The following are examples of recommended telecommunication and broadcasting requirements to include in policies and regulations pertaining to emergency communications:¹⁵

- Persons with disabilities should be able to use their everyday communication means to reach emergency services, and to contact emergency services free of charge.
- All public awareness campaigns must specifically provide information on how persons with disabilities can contact and use such services.
- Emergency information made available to the public should also be provided in alternative, accessible formats, such as by SMS.
- Persons with disabilities should be able to contact emergency services via ordinary emergency numbers. Numbers such as "112" are recommended.
- Emergency call centres should be able to receive and respond to SMS or other forms of text messages, as well as calls from relay services, to allow for emergency calling by people with hearing or speech disabilities.
- All public service announcements must include awareness messages specifically about how persons with disabilities can use emergency services.
- Emergency information made available to the public should also be provided in formats accessible to persons with disabilities, such as sign language and subtitles for the deaf and hard of hearing and audio messages on television/video programming for those with visual disabilities.
- Public communications and announcements broadcast during natural disaster situations must be made accessible to persons with disabilities in appropriate forms of communication. Licensed video programming service providers must ensure that broadcast announcements and alerts are provided in relevant, accessible formats.
- The various alert systems for emergency situations must meet the needs of persons with disabilities:
 - Public address systems: Alerts in audio and visual formats through public loudspeakers, electronic displays, and sirens in public spaces.
 - Radio: Add special features to broadcasts so they can be used by people who are deaf or hearing impaired, such as vibrations, flashing lights, simple texts.
 - Television: Use closed captioning or subtitling and sign language interpreters.
 - SMS: Send warnings and alert messages in multiple formats across different dissemination platforms.
 - E-mail: Send notifications in multiple languages and make sure both the software used and the content meet accessibility guidelines and can be operated with assistive technologies. Consider whether using graphics may help children and individuals with cognitive disabilities to understand the message.
 - Social networks: Use social media platforms that are known to conform to accessibility standards, and use accessible alternative social media sites when mainstream platforms are not fully accessible (such as Easy Chirp²⁰ alternative to Twitter, Emergency 2.0 Wiki Accessibility Toolkit²¹). Make sure any emergency information content published meets accessibility criteria and provide adequate training accordingly.
 - Websites: Test the accessibility of websites providing disaster management information. Make digital documents (factsheets, handbooks, manuals) available in accessible formats. Include images and graphics to depict emergency information content for children, people with cognitive disabilities, or people with linguistic differences, making sure all images have text alternatives.

¹⁵ [ITU Guidelines for national emergency telecommunication plans.](#)

- Resources:
 - In New Zealand, the Government has launched [Get Ready, Get Thru](#), a website that provides information on different types of disasters (including earthquakes, storms, floods, tsunamis, volcano eruptions), and how to prepare household emergency plans and emergency survival kits. Information is provided in accessible formats (MP3 files, e-text, digital accessible information systems) and in multiple languages.
 - [ITU Guidelines for national emergency telecommunication plans, 2020](#).

5.10 Access to assistive technologies

5.10.1 Current status

One particular challenge is to afford persons with disabilities access to assistive technologies free of charge or at low cost, through subsidies or grants. Persons with disabilities and those who assist them also need to be trained in the use of assistive technologies and the features available.

Responses to the surveys sent to Government officials in preparing this report pointed out that some assistive technologies are available through health insurance.

The Ministry of Education, in cooperation with UNICEF and the European Union delegation to Serbia, using Instrument for Pre-Accession Assistance funding, will establish resource centres for assistive technology, and other support for children, pupils, teachers and parents.

5.10.2 Recommendations

Assistive technology is an umbrella term for assistive, adaptive, and rehabilitative devices for persons with disabilities, and includes the process of selecting and using them. Assistive technology promotes independence by enabling people to perform tasks that they would otherwise not accomplish, or would have accomplished with great difficulty, by providing enhancements to, or changing methods of interacting with, the technology needed to do so.

Recommendations:

- Consider amending the Rulebook on medical and technical assistive devices provided for persons with disabilities through health insurance, and expanding the list of those devices to take account of rapid obsolescence and development of new technologies.
- The responsible national regulatory authority in Serbia should ensure that assistive technologies for use with mobile handsets or services are made available on the open market by putting in place incentive schemes to improve economies of scale in the purchase, production, distribution, and support of these technologies.
- To the extent that a large portion of assistive technologies are purchased or funded by public funds for special education, rehabilitation services, workplace accommodations or care for elderly citizens, the national regulatory authority should initiate, if not already under way, cooperation with other government agencies to optimize purchasing, training, and user support at the national level.
- The national regulatory authority, in cooperation with other government agencies, should develop a gap analysis of the availability of assistive technologies for persons with disabilities, in order to identify areas for which government action may be taken, such as public procurement of office software with embedded accessibility features, free downloadable assistive technologies or subsidized purchase thereof.

- When text-to-speech technology or voice recognition are not available in the official languages of the country, the national regulatory authority should work with the universal service fund, service providers, technology providers, as well as academic institutions, to call for proposals to develop, maintain and service such solutions.

5.11 Public procurement of ICT products and services

5.11.1 Current status

Policies to improve the accessibility of ICTS for persons with disabilities cover ICT categories such as websites, broadcasting, mobile telephones, and emergency services. Governments are required to purchase many of these ICT goods and services; some regions and countries have developed accessible ICT procurement policies and systems that require that public authorities procure accessible ICTs based on commonly agreed and accepted ICT accessibility standards.

The Convention on the Rights of Persons with Disabilities requires government and public-sector institutions to uphold its provisions; any procurement, for use by the public, of ICTs that are not usable and accessible by persons with disabilities may thus be deemed a violation of the Convention.

As a State party to the Convention, Serbia must guarantee persons with disabilities access to ICTs, emergency services and Internet services on equal basis to persons without disabilities. As stated in [article 32, paragraph 1 \(a\)](#) of the Convention, international cooperation programmes are required to be inclusive of and accessible to persons with disabilities. Tax revenue and funds from international aid programmes to purchase ICT products and services should therefore be spent on products and services that meet ICT accessibility standards.

The [2014 European Public Procurement Directive](#) places a strong focus on the use of public procurement for social gain. Specific obligations include:

- ensuring compliance with applicable legislation (social, environmental, labour);
- expanding possibilities to use social considerations in public tenders;
- making accessibility compulsory;
- facilitating social inclusion; and
- ensuring that certain social services benefit from a simplified regime.

Article 42 of the Directive requires all public bodies in European Union Member States to include accessibility as a mandatory requirement in the public procurement of goods and services for use by people, whether the public or government employees. The article states:

- “For all procurement [...], the technical specifications shall, except in duly justified cases, be drawn up so as to take into account accessibility criteria for persons with disabilities or design for all users.”
- “Where mandatory accessibility requirements are adopted by a legal act of the Union, technical specifications shall, as far as accessibility criteria for persons with disabilities or design for all users are concerned, be defined by reference thereto.”

This means that where other acts, such as the Web Accessibility Directive or the European Accessibility Act, define accessibility requirements, those requirements also apply to public procurement. Accessibility is also included in several more articles in the Directive. For example, article 67 allows procuring authorities to award extra points for suppliers that provide a higher level of accessibility than the minimum specified under the technical specifications.

European Standard [EN 301 549 V2.1.2](#) (2018-08) "Accessibility requirements for ICT products and services" (an updated version of [EN 301 549 V1.1.2 \(2015-04\)](#) "[Accessibility requirements suitable for public procurement of ICT products and services in Europe](#)") is the European standard that sets out accessibility requirements for websites, documents, software and hardware, and to which European legislation on accessibility refers. The document specifies the functional accessibility requirements applicable to ICT products and services, together with a description of the test procedures and evaluation methodology for each accessibility requirement in a manner suitable for use in public procurement within Europe. The document is intended to be used as the basis for an accessible ICT procurement toolkit and will primarily be useful to:

- public procurers, for identifying the requirements for their purchases; and
- manufacturers, for using in design, building and quality control procedures.

In Serbia:

- Article 98 "General Rules on Technical Specifications" of the Law on Public Procurement, states that "For all items of procurement intended for use by natural persons, technical specifications, except in objectively justified cases, are made in such a way that the accessibility criteria for persons with disabilities are taken into account, or that the solution is adapted for all users".
- European Union Public Procurement Directives ([Directive 2014/24/EU \(article 42\)](#) and [Directive 2014/25/EU \(Article 60\)](#)) require that "the technical specifications for all procurements which are intended for use by natural persons, whether the general public or staff of the contracting authority, shall, except in duly justified cases, be drawn up so as to take into account accessibility criteria for persons with disabilities or design for all users."¹⁶

5.11.2 Surveys

Government bodies interviewed were asked whether there were any public procurement policies or programmes implementing the [European standard EN 301 549 "Accessibility requirements for ICT products and services"](#) (which [adopts the Web Content Accessibility Guidelines -WCAG 2.1](#) for ICTs including web content, electronic documents and non-web software, such as native mobile applications, and which is mandatory for all European Union Member States and accession candidates) to take accessibility criteria into account when procuring ICT products and services?" Responses came from several bodies, as outlined below.

- The Social Inclusion and Poverty Reduction Unit stated that:
 - this remains a recommendation, and is therefore not mandatory;
 - there is a lack of awareness and understanding of what constitutes digital inclusion;
 - standards are a challenge, since many have not been adopted in Serbia and those that have are not monitored; and
 - the Public Procurement Office is not familiar with ICT accessibility – each public body is responsible for managing its own technical standards, and very few are aware of ICT accessibility.
- The Ministry of Labour, Employment, Veteran and Social Affairs stated that it did not know whether such policies or programmes were in place.

¹⁶ European Disability Forum (2017) [Directive on accessibility of the websites and mobile applications of public sector bodies, Toolkit](#).

- The Public Procurement Office stated that in Serbia there is no body or authority in charge of the control of public procurement from an accessibility perspective. If the interested party submits a request for specific monitoring of a public procurement in this regard, the Office, as the competent authority, shall act in accordance with article 179, paragraph 1, item 2) of the Law on Public Procurement. The Commission for the Protection of Rights in Public Procurement Procedures provides protection of rights in accordance with the Law on Public Procurement. With regard to implementation of the Public Procurement Law, each contracting authority is responsible for its own compliance.

5.11.3 Recommendations

Through public procurement policies, specific ICT accessibility guidelines must be added to public procurement procedures in a way that all stakeholders, including public sector and industry, can clearly understand.

Public procurement policies requiring government agencies to procure accessible ICT equipment and services have two key aims.

- 1) By procuring the most accessible ICT equipment and services, government bodies can provide an accessible work environment for their employees and accessible public services for their citizens.
- 2) The public procurement of accessible ICTs creates a market for them. Manufacturers and service providers are thus incentivized to produce accessible ICTs, and suppliers to stock them. This generates more competition, drives down costs, and promotes a wider availability of accessible ICT products and services in the marketplace.

In Serbia, while the procurement of ICT equipment is the responsibility of public authorities, commitment to and compliance with accessibility standards will not only facilitate and foster the implementation of all other pillars of ICT accessibility policies, but will also foster competition between manufacturers, service providers, and application developers.

Although the Convention on the Rights of Persons with Disabilities does not specifically mention public procurement policies, the Reporting Guidelines issued by the Office of the Secretary-General of the United Nations to States Parties do include them following the general obligations regarding government policies and programmes, established in line with the Convention:

- States parties shall “take into account the protection and promotion of the human rights of persons with disabilities in all policies and programmes”; and
- “Refrain from engaging in any act or practice that is inconsistent with the present Convention and to ensure that public authorities and institutions act in conformity with the present Convention,” - article 4.
- The purchase of inaccessible ICT products and services by States parties to the Convention would thus seem incompatible with those general obligations and more specifically with ICT accessibility provisions for communicating with the public or, if the purchases are made for government internal use, incompatible with the obligation to foster an accessible work environment.
- Furthermore, article 9 “Accessibility” specifies that “States parties shall also take appropriate measures to develop, promulgate and monitor the implementation of minimum standards and guidelines for the accessibility of facilities and services open or provided to the public”. In that regard, public procurement constitutes an excellent vehicle to promote standards.

The following are some recommendations on what to include in an accessible ICT public procurement policy:

- clear statements of user accessibility requirements in all calls for tender, based on internationally recognized standards;
- application of systematic and commonly used conformity assessment processes to confirm that the ICT products and services to be procured reach the stated level of accessibility conformity; and
- provision of general disability awareness training for all staff and vendors specific role-based training depending on the technical accessibility requirements of the role (such as for developers and IT professionals).

Module 6 of the [ITU-G3ict Model ICT accessibility policy report](#) provides guidance for government bodies on the public procurement of accessible ICT products and services. The module recognizes that addressing the ICT accessibility needs of persons with disabilities can be achieved more cost-effectively by considering them at the earliest stage of the procurement and development process. The report suggests that all public bodies procuring accessible ICTs should adopt a set of generally accepted functional performance statements, preferably by referencing European standard EN 301 549. It presents methods for assessing the accessibility of each proposed ICT solution, depending on the nature and complexity of the product or service purchased, including off-the-shelf products, custom built products, integrated systems, system development, content development or services. The report also recommends the use of templates for assessing the conformity of ICT products and services with the relevant accessibility standard used.

Spain:

- In Spain, the national equivalent to European standard 301 549 is standard [UNE-EN 301549:2020, Accessibility requirements for ICT products and services](#).
- This standard presumes conformity with the core requirements of the Web Accessibility Directive, transposed in Spain, on the accessibility of websites and applications for public sector mobile devices.
- The standard has WCAG 2.1 of W3C as its main reference.
- Tables A.1 and A.2 in the standard show the accessibility requirements of websites and mobile applications. The standard can, however, be applied to all ICT products and services.
- Annex E to the standard, gives a brief and simple explanation of the standard and how to use it.
- Chapter 14 of the standard, on compliance, states that if a requirement cannot be met by an ICT product or service because it is not applicable, it will no longer be considered to comply with the standard.

United Kingdom:

- In the United Kingdom, the [Government Digital Service](#) guidance on "[How to buy accessible technology](#)" with recommendations for making sure public bodies buy technology products that are as accessible as possible. It includes guidance on:
 - [procuring an accessible website or app](#);
 - using European standard EN 301 549, which covers procurement of web technologies and other types of technology, including hardware and non-web software, to understand accessibility requirements during the procurement process;

- searching for accessible technology using the [Digital Marketplace to access the G-cloud framework](#) and the [G-cloud buyers guide](#); and
- getting help from the [government buying digital community](#).
- The Government Digital Service issued “[How to supply accessible technology to the public sector](#)” with guidance on:
 - creating a statement about how the product meets accessibility standards;
 - reviewing the [functional performance statements](#) and [functional accessibility requirements](#) to discover which are relevant to the technology to supply;
 - applying European standard 301 549 in procurement frameworks to find out the accessibility conformity assessment or attestation that public buyers will request;
 - providing documented evidence that the product meets the relevant standard and that it was tested with [assistive technology](#);
 - [understanding WCAG 2.1](#) for websites and digital services; and
 - using the [GOV.UK Frontend](#) facility to help suppliers’ services meet WCAG 2.1.

Resources:

- [European standard EN 301 549](#) (Accessibility requirements suitable for public procurement of ICT products and services in Europe) should be used as guidance for developing accessibility requirements for public procurement in Serbia. The standard specifies the functional accessibility requirements applicable to ICT products and services, and describes the test procedures and evaluating methodology for each accessibility requirement in a form that is suitable for use in public procurement in Europe.
- The [Accessible ICT Procurement Toolkit developed by the European Committee for Standardization](#) is a useful tool for identifying accessibility requirements for ICT public procurement.
- In the Republic of Ireland, the Centre for Excellence in Universal Design, established by the National Disability Authority, has an [IT Procurement Toolkit](#) that defines the principles for accessible procurement and provides a stage-by-stage guide to ensuring accessibility across all stages in the procurement lifecycle.

6 Resources

This section includes a curated list of resources including training courses, guides, articles, and technical references that will provide policymakers, regulators, government ministries, department and agency administrators and other stakeholders with information and guidance to assist them in building and implementing ICT accessibility policies and initiatives and in developing training programmes and capacity-building exercises.

6.1 ITU knowledge development/training courses

- [ICT accessibility - The key to inclusive communication \(online self-paced training\)](#)
- [Web accessibility - The cornerstone of digital society \(online self-paced training\)](#)
- [How to ensure inclusive digital communication during crises and emergency situations \(online self-paced training\)](#)
- [Internet for @ll: national programme in web accessibility](#)
- [Government innovation based on emerging technologies](#)
- [Audio-based indoor and outdoor network navigation system for persons with vision impairment](#)
- [Video tutorials on the creation of accessible digital documents:](#)
 - [Creation of accessible digital content. criteria and recommendations](#)
 - [Accessibility remediation: PDF documents](#)
 - [Accessibility remediation: PowerPoint documents](#)
 - [Accessibility remediation: Excel documents](#)
 - [Accessibility remediation: Word documents](#)

6.2 ITU policies, strategies and guidelines

- [ITU guidelines on how to ensure that digital information, services and products are accessible by all people, including persons with disabilities during COVID-19 \(2020\)](#)
- [Toolkit and global standards for safe listening devices and systems \(2019\)](#)
- ["Artificial Intelligence and Information Communication Technology Accessibility" \(background paper, 2019\)](#)
- ["Future of Accessible Audiovisual Media Services, TV and Video Programming" \(background paper, 2019\)](#)
- ["Standards in the Procurement of Accessible Products and Services" \(background paper, 2019\)](#)
- ["Overview of remote captioning services" \(ITU-T technical paper FSTP-ACC-RCS, 2019\)](#)
- ["Audio-based indoor and outdoor network navigation system for persons with vision impairment" \(Recommendation ITU-T F.921, 2018\)](#)
- [Digital Skills Toolkit \(2018\)](#)
- ["Accessibility Terms and Definitions" \(Recommendation ITU-T F.791, 2018\)](#)
- [Multimedia Telecommunication Relay Services \(Recommendation ITU-T F.930, 2018\)](#)
- [Report to World Telecommunication Development Conferences \(WTDCs\) on Question 7/1: "Access to telecommunication/ICT services by persons with disabilities and with specific needs" \(2017\)](#)
- ["Use cases for assisting persons with disabilities using mobile applications" \(ITU-T Technical Paper, 2016\)](#)
- ["Guidelines for accessible meetings" \(ITU-T Technical Paper, 2015\)](#)

- [“Guidelines for supporting remote participation in meetings for all” \(ITU-T Technical Paper, 2015\)](#)
- [“Accessibility profiles for IPTV systems” \(Recommendation ITU-T H.702, 2015\)](#)
- [“Model ICT Accessibility Policy Report” \(2014\)](#)
- [“The ICT Opportunity for a Disability-Inclusive Development Framework” \(2013\)](#)
- [“Universal service funds and digital inclusion for all” \(2013\)](#)

6.3 ITU on awareness-raising and good practices

- [Digital Inclusion Newslog](#)
- ITU-D Study Groups 1 and 2: [Question 7/1: Access to telecommunication/ICT services by persons with disabilities and with specific needs](#)

6.4 ITU publications

- [“Guide for addressing accessibility in standards” \(H-Series Supplement 17, ISO/IEC Guide 71\), July 2015](#)
- [Model ICT Accessibility Policy Report November 2014](#)

6.5 General ITU

- [Connect 2030 Agenda “Access a better world” - Goal 2: Inclusiveness, “Bridge the digital divide and provide broadband access for all”](#)
- [Accessibility to ICTs: Achieving equitable communications for everyone](#)
- [Persons with Disabilities](#)
- [Accessibility](#)
- [Dynamic Coalition on Accessibility and Disability](#)
- [IRG-AVA Group](#)
- [ITU CWG-Internet online consultation on accessibility](#)
- [Making ITU an accessible organization for persons with disabilities](#)
- [ITU Accessibility Fund](#)
- [ITU mandate](#)
- [Archive of ITU activities on ICTs and persons with disabilities](#)

6.6 United Nations

- [Convention on the Rights of Persons with Disabilities](#)
- [United Nations Disability Inclusion Strategy \(UNDIS\)](#)
- [Secretary-General’s report on the implementation of the United Nations Disability Inclusion Strategy \(2020\)](#)
- [WSIS Forum session “UN collaborative efforts towards SDGs, CRPD and UNDIS implementation in digital accessibility” \(16 July 2020\)](#)
- [Darvishy, A., Eröcal, D., Manning, J. \(2019\). “Delivering together for inclusive development: digital access to information and knowledge for persons with disabilities”](#)
- [UNESCO Model policy for inclusive ICTs in education for persons with disabilities](#)
- [UNDESA: COVID-19 Outbreak and Persons with Disabilities](#)

6.7 European Union

- [European Disability Strategy 2021-2030](#)

- [European Accessibility Act](#) (Directive (EU) 2019/882 of the European Parliament and of the Council of 17 April 2019 on the accessibility requirements for products and services)
- [Web Accessibility Directive](#) (Directive (EU) 2016/2102 on the accessibility of the websites and mobile applications of public sector bodies)

6.8 Other

- ISO standard: [ISO/IEC 40500: 2012: Information technology -- W3C Web Content Accessibility Guidelines \(WCAG\) 2.0](#)
- Microsoft White Paper: [Microsoft Perspectives for Policymakers: Accessibility](#)
- [Universal Instructional Design](#), Western University, Centre for Teaching and Learning
- [Universal Instructional Design and Universal Design for Learning](#), University of Guelph
- European Disability Forum (EDF) toolkit "[Directive on accessibility of the websites and mobile applications of public sector bodies](#)" (2017)
- EU public procurement directives:
 - [Directive 2014/24/EU \(Article 42\)](#)
 - [Directive 2014/25/EU \(Article 60\)](#)
- [W3C article "The Business Case for Digital Accessibility"](#): tangible and intangible benefits of addressing accessibility.
- [W3C videos "Web Accessibility Perspectives"](#): impact and benefits of web accessibility for everyone
- European Disability Forum (EDF) publication "[Audiovisual Media Services Directive: Toolkit for transposition](#)" (2019)
- European Disability Forum (EDF) publication [European Accessibility Act: Toolkit for transposition](#)" (2020)
- European Disability Forum (EDF) publication "[European Electronic Communications Code: Toolkit for transposition](#)" (2020)
- European Disability Forum (EDF) publication "[The United Nations Committee on the Rights of Persons with Disabilities: A Guide for Organisations of Persons with Disabilities](#)" (2019)

Glossary

- **Accessibility:** the degree to which a product, device, service, or environment (virtual or real) is available to as many people as possible.
- **Assistive technologies:** separate hardware or software added to equipment or services to enable persons with more severe disabilities to overcome the barriers they face to access information and communication. They are used to enable or compensate users with functional, motor, sensory or intellectual impairments.
- **Assessment:** a process that includes the examination, interaction with, and observation of individuals or groups with actual or potential health conditions, impairments, activity limitations, or participation restrictions. Assessment may be required for rehabilitation interventions, or to gauge eligibility for educational support, social protection, or other services.
- **Braille:** a system of writing for individuals who are visually impaired that uses letters, numbers, and punctuation marks made up of raised dot patterns.
- **Disability:** an evolving concept. Disability results from the interaction between persons with impairments and attitudinal and environmental barriers that hinder their full and effective participation in society on an equal basis with others, as defined in the Convention on the Rights of Persons with Disabilities (CRPD). Under the International Classification of Functioning, Disability and Health (ICF) adopted by the World Health Organization (WHO) in 2001, disability is conceived as the outcome of the interaction between impairments and negative environmental impacts. The WHO emphasizes that most people will experience some degree of disability at some point during their lives. Accordingly, the ICF classification focuses on a person's abilities and strengths and not just impairments and limitations. It also grades functioning on a scale from non-impairment to complete impairment. By shifting the focus from cause to impact, ICF places all the health conditions on an equal footing.
- **Organization of persons with disabilities (DPO):** an organization representing persons with disabilities focused on the promotion of their rights. These organizations must be mainly composed of and led by persons with disabilities. In the case of persons with significant intellectual or multiple disabilities, they can also be family-based organizations advocating for the human rights of persons with disabilities.
- **Electronic document:** downloadable files which may be consulted, printed, or filled offline or on-line by users.
- **Empowerment:** a process that increases the strengths of a group or community and improves its capacity to accomplish its goals. Empowerment is the expansion of the group's or community's ability to participate in, negotiate with, influence, control, and hold accountable institutions that affect its members' lives.
- **EN 301 549:** European standard (at time of printing, version V2.1.2 (2018-08)) describing functional accessibility requirements applicable to ICT products and services, along with test procedures and evaluation methodology for each accessibility requirement in a form that is suitable for use in public procurement within Europe.¹⁷
- **European Accessibility Act** (Directive (EU) 2019/882 of the European Parliament and of the Council of 17 April 2019 on the accessibility requirements for products and services): directive that aims to improve the functioning of the internal market for accessible products and services, by removing barriers created by divergent rules in Member States. Products and services covered include computers and operating systems, ATMs, ticketing and check-in machines, smartphones, TV equipment related to digital television services, telephony services and related equipment, access to audiovisual media services (e.g. television broadcast and related consumer equipment), services related to air, bus, rail and waterborne passenger transport, banking services, e-books, and e-commerce.¹⁸

¹⁷ CEN, CENELEC, ETSI. [ETSI EN 301 549 - V2.1.2 - Accessibility requirements for ICT products and services](#)

¹⁸ European Commission. [European Accessibility Act](#)

- **Impairment:** term used to refer to the loss or limitation of physical, mental, intellectual, or sensory function on a long-term or permanent basis.
- **Inclusive development:** a rights-based process that promotes equality and the participation of the largest possible section of society, especially groups that face discrimination and exclusion. Inclusive development ensures that persons with disabilities are recognized as rights-holding equal members of society, who are engaged in and contributing to a development process for all. Inclusive development can be implemented at the national and local level.
- **Independent living:** a philosophy and a movement of people with disabilities, based on the right to live in the community but including self-determination, equal opportunities, and self-respect.
- **Information and communication technologies (ICTs):** any of a wide range of hardware and software, devices and computers, formats and systems that enable communication through electronic means. This includes devices and systems used for the storage, processing, and retrieval of electronic information; the array of devices and software used to retrieve this information; and those used to communicate, in real-time, with other people.
- **International Classification of Functioning, Disability and Health (ICF):** The classification that provides a unified and standard language and framework for the description of health and health-related states. ICF is part of the family of international classifications developed by the World Health Organization.
- **ISO/IEC 40500:2012** ("Information Technology – W3C Web Content Accessibility Guidelines (WCAG) 2.0"): a standard which covers a wide range of recommendations for making web content more accessible. Following its guidelines will make content accessible to a wider range of persons with disabilities, including those associated with blindness and low vision, deafness and hearing loss, learning disabilities, cognitive limitations, limited movement, speech disabilities, photosensitivity, and combinations of these. Following the guidelines will also often make web content more usable to users in general. The standard contributes to Sustainable Development Goals 8, 9 and 11.¹⁹
- **Marrakesh Treaty (full title: "Marrakesh Treaty to Facilitate Access to Published Works for Persons Who Are Blind, Visually Impaired or Otherwise Print Disabled"):** a treaty that sets norms for ratifying countries to create mandatory domestic copyright exceptions for creating accessible versions of books and other copyrighted materials aimed to facilitate access to them for persons who are blind, visually impaired or otherwise print disabled. It also limits duplication and increases availability of accessible works by enabling cross border sharing so that they can be shared freely all over the world, or at least in all the countries that have ratified the Marrakesh Treaty. The treaty came into force on 30 September 2016, and as of December 2020 had been signed by 76 countries and ratified by 39.
- **Persons with disabilities:** individuals who have long-term physical, mental, intellectual, or sensory impairments, which, in interaction with various barriers, may hinder their full and effective participation in society on an equal basis with others. Older persons with functional disabilities are also regarded as persons with disabilities (Article 1 of the Convention on the Rights of Persons with Disabilities).
- **Prevalence:** the proportion of a population, typically given as a per 1 000 figure, with a given condition at a given time. For example, the prevalence of child disability is the proportion of children in a population that are found to have a disability.
- **Print disability:** a difficulty or inability to read printed material due to a perceptual, physical, or visual disability. Print disability will affect individuals in different ways, depending on a wide range of issues, including degree of impairment, degree of motivation, support, education, available resources and more. A person experiencing a print disability could be denied a broad range of information that other persons may take for granted and, in many cases, the absence of such information will result in ignorance and lack of action or sole reliance on the advice of a third party. Reasons for print disability may include

¹⁹ ISO (2012). [ISO/IEC 40500:2012](#)

vision impairment or blindness; physical dexterity problems such as multiple sclerosis, Parkinson's disease, arthritis, or paralysis; learning disability, such as dyslexia, brain injury or cognitive impairment; literacy difficulties; early dementia.

- **Public sector:** ministries, national government departments, local government and other government or public agencies that provide e-government services and communication to the public as well as public education resources via websites, email, SMS, and other means of electronic communications.
- **Reasonable accommodation:** the necessary and appropriate modification and adjustments not imposing a disproportionate or undue burden, where needed in a particular case, to ensure to persons with disabilities the enjoyment or exercise on an equal basis with others of all human rights and fundamental freedoms.
- **Relay services:** phone services operated by interpreters that enable people who are deaf or hard of hearing or who have a speech impairment to communicate by phone through an interpreter with a person who can hear in a manner that is "functionally equivalent" to the ability of an individual without a disability.
- **Social services:** any of a large and diversified range of services intended to improve standards of living, especially of marginalized individuals and groups, those discriminated against or in vulnerable situations. Social services are linked to national welfare schemes and are important tools for the implementation of public policies in the field of social protection, non-discrimination, and the fight against poverty and exclusion. They are not conditioned by the contribution of the users and should enhance capacities of individuals for full inclusion and participation in society.
- **Universal design:** a strategy which aims to make the design and composition of different environments, products, communication, information technology and services accessible and understandable to, as well as usable by, everyone, as far as possible in the most independent and natural manner possible, preferably without the need for adaptation or specialized solutions. It promotes a shift towards user-centred design by following a holistic approach and aiming to accommodate the needs of persons with disabilities, regardless of any changes they might experience during their lives. Consequently, universal design is a concept that extends beyond the issues of mere accessibility of buildings for persons with disabilities and should become an integrated part of policies and planning in all aspects of society.
- **User:** a person who interacts with the product, service, or environment.
- **Vocational rehabilitation and training:** programmes designed to restore or develop the capabilities of persons with disabilities to secure, retain and advance in suitable employment - for example job training, job counselling, and job placement services.
- **Web Accessibility Directive (Directive [EU] 2016/2102 on the accessibility of the websites and mobile applications of public sector bodies):** directive of the European Parliament and of the Council Europe in force since 22 December 2016, which obliges websites and apps of public sector bodies from EU Member States, with a limited number of exceptions (e.g. broadcasters, live streaming), to meet specific technical accessibility standards. It requires an accessibility statement for each website and mobile app; a feedback mechanism so users can flag accessibility problems or request information published in a non-accessible content; and regular monitoring of public sector websites and apps by Member States and reporting on the results. The Directive refers to the EN 301 549 V2.1.2 (2018-08) as the harmonized standard for websites and mobile applications that provides for the presumption of conformity with the Directive.
- **Website:** the entire collection of electronic files that are accessible through a domain name. It includes all website home pages, pages referenced from them (including web applications and services and dynamically generated content), and web applications accessible from such webpages.
- **Web Content Accessibility Guidelines (WCAG) 2.1:** the web standard developed by the World Wide Web Consortium (W3C) Web Accessibility Initiative (WAI).

Abbreviations²⁰

- AD: audio description
- AT: assistive technology
- ATM: automated teller machine
- CAPTCHA: "Complete Automated public Turing test to tell computers and humans apart"
- DAISY: Digital Accessible Information System
- DPO: organization of persons with disabilities
- ICT: information and communication technology
- IT: information technology
- ITU: International Telecommunication Union
- SDG: Sustainable Development Goals
- STB: set-top box
- UNICEF: United Nations International Children's Emergency Fund
- W3C: World Wide Web Consortium
- WAI: Web Accessibility Initiative
- WCAG: Web Content Accessibility Guidelines
- WIPO: World Intellectual Property Organization
- WHO: World Health Organization

²⁰ Social Inclusion and Poverty Reduction Unit Government of Serbia (SIPRU). [Report on Digital Inclusion in the Republic of Serbia for the Period 2014–2018](#)

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