WEB ACCESSIBILITY FOR PEOPLE WITH DISABILITIES IN GEORGIA:

STATE OF AFFAIRS AND GLOBAL BEST PRACTICE REPORT

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BEST PRACTICE REPORT*

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ABBREVIATIONS

CRPD
UN Convention on Rights of Persons with Disabilities

ICTs
Information and communication technologies

WCAG
Web Content Accessibility Guidelines

W3C
World Wide Web Consortiums

WHO
World Health Organization

EU
European Union

GoG
Government of Georgia

EXECUTIVE SUMMARY

In assessing the state of affairs and global best practice of web accessibility for Persons with Disabilities (PwD) in Georgia, this report finds that data on disability in Georgia is limited and fragmented. The lack of concrete statistics of the persons with different abilities makes it impossible to discern the real picture of the problems faced by, and the needs of, PwDs and their families. For instance, no specific data by gender, age groups, income or educational attainment levels exists for PwDs in Georgia. As of October 2020, Ministry of Internally Displaced Persons from Occupied Territories, Labour, Health and Social Affairs (MoIDPOTLHSA) estimated that 127,132 individuals are registered as recipients of state social assistance related to disability (up from 118,651 in March 2015). This is well below global estimates of 10-15% of the world's population having some form of permanent or temporary disability.

The project's two online surveys in March 2021 were conducted with the PwD community and stakeholders working with or representing the PwD community in Georgia respectively. The PwD community survey finds that a third have not been in contact with the public sector in the last 12 months, highlighting the potential underestimation of the community's size in Georgia. Of the survey respondents, 8 in 10 live with the family. A quarter is unemployed, with half living on an annual income below GEL 2,999, and a majority of respondents rely on government pensions or financial support from family. The respondents indicate that the PwD community generally have access to mobile phones, with roughly half using laptops

and PCs regularly. There is a preference for independent living and self-managed access to government services through the internet, by telephone or physically (in that order of preference). The stakeholder survey generally supports the PwD community feedback, not least in relation to the use of screen readers, and internet access via mobile phones. A majority of stakeholders indicate that all genders and age groups have access and web accessibility challenges with most of PwDs, no matter where they reside, relying on others to access public services due to circumstances rather than and preference.

A simple web accessibility assessment of a selected number of public and private websites in Georgia found that none fully comply with the W3C WCAG AA level.[1] Public sector websites generally perform better than their private sector equivalents. The lack of compliance with the WCAG standard is partially due to this standard not being introduced in Georgia at present. Compared to international good practice, Georgian government websites do not perform badly, but there is improvement potential across the broad range of areas, not least in relation to Georgia's commitment to the UN Convention on Rights of Persons with Disabilities (CRPD).

In light of the findings of survey, three recommendations are made for the Georgian approach to promote implementation of the CRPD and the improve web accessibility for PwDs.

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1. The W3C WCAG is a standard for web accessibility. It is the key international standard for web accessibility and good end-user design. See section 3.1., pages 18-19 for more.

First, Georgia must introduce the missing **legal and regulatory components** and align these to the EU approach and the WCAG standard. It is recommended that Georgia transposes the Directive (EU) 2016/2102 into its national legislation, by either adopting a special Law on the Accessibility of the Websites and Mobile Applications of Public Institutions and All Non-Governmental Entities (recommended) or adopting a Regulation on the Accessibility of the Websites and Mobile Applications of Public Institutions and All Non-Governmental Entities. Non-governmental entities refer to all entities including private, non-profit, and other forms of companies, organisations etc.

Second, a whole-of-government online usability and web accessibility standard, including the WCAG standard, level AA, should be introduced. Standard will also align Georgia with international and EU practice and requirements. It is recommended to assign that responsibility to the Data Governance Agency (DGA) and to incorporate as an initiative in the upcoming Digital Governance Strategy for Georgia 2021-2024. Relevant resources must be provided to DGA for this expanded mandate.

Third, a **governance and compliance framework** facilitating improved online usability and web accessibility, with a particular focus on the public sectors' online service offers, should be introduced in Georgia. It is recommended to strengthen the existing mandate of DGA to include monitoring and compliance assurance of both the legal and regulatory framework related to online usability and the web accessibility standard. Relevant resources must be provided to DGA for this expanded mandate.

1. INTRODUCTION AND BACKGROUND

1.1. Why is web accessibility important?

CRPD recognizes the critical role of ICTs to enable and empower Persons with Disabilities (PwDs) and facilitate their full enjoyment with the same human rights and fundamental freedoms on par with the general population.

Article 9 and 21 of the CRPD stress the importance of access to both information and the technology. They call on UN Member States to provide equitable access and remove barriers in accessing ICTs. The Sustainable Development Agenda positions technology enabled innovation as a key enabler of the 2030 goals. Crucial for the development of digital inclusion for PwDs and of the general population goal 9, target C, specifically focuses on increasing the access to ICTs, affordable and universal access to the internet by 2030.

Web accessibility is a broad topic, with no one-size-fits-all solution as there are as many definitions of "accessibility" as there are users of the internet. A website that appears to be fully accessible to the users with vision disabilities can contain serious obstacles for a user with a cognitive disability.

1.2. Web accessibility affects many people

About one billion people, or 15% of the world's population has some form of disability which may affect the way they use the internet. The disability prevalence is higher for developing countries and approximately one-fifth of the estimated global total, or between 110 million and 190 million people, experience significant disabilities.[2] Increased longevity compounds this number. Forecasts predict that the world's aging population will more than double in 2050 and more than triple by 2100.

As the population's abilities change with age, they will require online experiences tailored to their needs. Internet and online service offers represent a significant amount of traffic for any public or private organisation. 71% of PwDs states that they simply leave a website which is either inaccessible or have no alternatives available to them.[3] This is supported by surveys highlighting the lack of success of the solutions which does not address user-friendliness and web accessibility.

As PwDs are more likely to experience adverse socio-economic outcomes such as less education, poorer health outcomes, lower levels of employment, and higher poverty rates[4] access to services become even more important. Technology is evolving in favour of greater accessibility. Aassistive tools and aids are increasingly prevalent for online browsing and digital services.

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2. World Bank (2020).
3. SiteImprove (2020).
4. World Bank (2020).

Through automated scans that identify accessibility issues across a website, governments perform ongoing spot or mandatory compliance check for new solutions, or even annual awards schemes highlighting the best and worst government websites. As more online solutions adapt to new technologies, the ones which do not run the risk of falling behind and marginalize or exclude users including PwDs.

1.3. Who is affected by web accessibility?

Just as there is no single definition of accessibility, there is no single definition which covers all forms disability. The users with disabilities are a varied and diverse group of individuals. That said, the most of accessibility issues can be divided into four main categories:

- **Visual challenges** affecting users with impaired vision, blindness, or colour blindness. Screen reader compatibility, colour contrasts, scalable content, audio descriptions, and alternative text for images and videos are important considerations in this category.

- **Motor skill challenges** affecting users with various forms of restrictive movement. Keyboard navigation, compatibility with various auxiliary technologies such as mouthpieces, head 'magic wands' and contact-operated devices, properly labelled controls and easy error correction processes are important considerations in this category.

- **Auditory challenges** affecting users who are deaf or hard of hearing. Subtitles and transcription of audio and video content are the primary elements to consider in this category.

- **Cognitive challenges** affecting users with challenges related to memory, attention, or the ability to interpret information. Readability, easy-to-navigate design, uninterrupted browsing experience, and adequate text spacing are factors in this category.

1.4. Web accessibility is a legal requirement in most countries

The W3C'sWCAG is the basis of global web accessibility standards for online content and services including website, apps, transaction services, etc.[5] Compliance with the WCAG standard ensures that online content is easy to use and accessible for all uses, and particularly PwDs. This includes, ensuring variable font sizes (e.g., for weak sighted), ensure contrast colours (e.g., colour blind), alternative texts (e.g., for images), taps etc. It also sets the standard on usable devices by PwDs to access digital content, including screen readers and software for read-aloud or translating content into brail. In short, it is linked to both SDGs on ensuring equitable access which leaves no one behind, plus underpins international conventions such as CRPD.

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5.   See section 3.1, pages 18-19 for more.

2. STATE OF AFFAIRS IN GEORGIA

2.1. People with Disabilities in Georgia

Data on disability in Georgia is very limited and fragmented. The lack of concrete statistics on the persons with different abilities makes it impossible to discern the real picture of the problems and the needs of people with disabilities and their families. For instance, no specific data by gender, age groups, income or educational attainment levels exists for PwDs in Georgia.[6]

The MoIDPOTLHSA estimated that in October 2020 127,132 individuals were registered as recipients of state social assistance related to disabilities (up from 118,651 in March 2015).[7] Estimated to 3% of the total population residing in Georgia, this is well below both the World Bank and the WHO's more conservative estimates of a global disability prevalence – around 10%.[8,9] Various sources nonetheless indicate that similar patterns exist in Georgia. For instance, women with disabilities are more vulnerable and less likely to be able to access government support or grants and amongst internally displaced PwDs, women and youth aged 15-24 are far more vulnerable compared to the general IDP population and the average Georgian.[10,11,12]

Table 1: *Regional distribution of individuals receiving social assistance related to disabilities in Georgia as of October 2020 (Source: MoIDPOTLHSA, 2020)*

Region	0-18 PwDs	Persons with severe disabilities	Persons with profound disabilities	Persons with moderate disabilities	Regional total of PwDs
Tbilisi	3.834	7.316	16.302	2.806	30.258
- Gldani-Nadzaladevi	1.138				
- Didube-Chughureti	428	709	1.811	221	3.169
- Isani-Samgori	1.119	2.147	4.788	884	
- Vake-Saburtalo	833	1.413	3.011	504	
- Dzveli Tbilisi	316	776	1.617	324	3.033
Guria	362	1.053	2.967	375	4.757
Racha-Lechkhumi and Kvemo Svaneti	63	337	936	128	1.464
Kakheti	906	2.421	6.849	1.089	11.265
Imereti	1.613	5.547	14.482	1.868	23.510
Mtskheta-Mtianeti	228	650	1.652	317	2.847

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6. MoIDPOTLHSA data on individuals receiving social assistance related to disability is only segmented for geographical location (i.e., national, regions and Tbilisi districts), for the age groups of 0-18 and 19 and above, and individuals with severe, profound and moderate disabilities.
7. MoIDPOTLHSA (2020). Beneficiaries of state social package per groups.
8. IDFI (2015)
9. UNDP (2019c)
10. IBRD (2016)
11. Coalition for Independent Living (2017).
12. International Foundation for Electoral Systems (2019)

Samegrelo-Zemo Svaneti	916	2.950	7.833	1.007	12.706
Samtskhe-Javakheti	375	1.136	2.723	474	4.708
Kvemo Kartli	1.251	2.648	5.728	966	10.593
Shida Kartli	636	2.047	5.634	1.319	9.636
Autonomous Republic of Adjara	1.444	3.787	8.756	1.401	15.388
Total	11.628	29.892	73.862	11.750	127.132

While the total population for Georgia has been relatively stable between 2015 and 2020, the 2015 data does not account for the rate of urbanization in Georgia in the period or rapid expansion and changing population density of e.g., Tbilisi and Batumi. As mainly younger Georgians are leaving rural areas and smaller towns for the larger cities of Tbilisi, Batumi and Kutasi.

If scaling the MoIDPOTLHSA number of PwDs in Georgia to the conservative 10% global estimate by WHO[13] number, Georgians with some form or degree of disability in 2020 would be approximately 398,000 – or roughly the number of official residents in Kutaisi, Batumi and Zugdidi combined. If using 15% estimate by the World Bank (2020) the number would be closer to 600,000 people equivalent to around half the population of Tbilisi.

In an online survey distributed to PwDs in Georgian and English, in February-March 2021 a number of complimentary findings emerged in relation to the PwD community.[14] While not statistically valid (due to sample size) it does provide a number of interesting insights. Close to 90% of respondents are aged 19 to 59, of which 72% live in the greater Tbilisi area and 78% in towns with 200,000 or more inhabitants. A full 86% live with family while only 8.3% live alone. Half the respondents indicated annual income levels below GEL 2,999, with 22.2% and relying mainly on government pensions and 13.9% receiving financial support from family. A full 47.2% of PwD respondents are employed in the private sector, 25% are unemployed, 8.3% are government employees, with a similar number of PwDs being self-employed, and 2.8% studying.

A full 33% of respondents had not been in contact with any government entity in the last 12 months, while 58.4% had been at least twice, and 38.9% have been more than five time in the last year. This highlights the need for government assistance but also that all PwDs are not potentially captured by MoIDPOTLHSA data.

A number of behavioural and preferential trends emerge from the online survey of the PwD community. The vast majority of respondents prefer to access government online and by themselves. This is followed by a preference for telephone or physical contact to government. There is a lower preference for personal assistance, indicating that PwDs aim to live and function independently and without special assistance of family or friends.

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13. UNDP (2019c)
14. Web accessibility for People with Disabilities in Georgia (2021). Survey was in Feb-March 2021 online. Survey sample is 36. Survey questions and responses provided in separate report.

In relation to access, mobile phones are the most common digital device PwDs in Georgia have access to and use with over 61% or respondents using it frequently. This is followed by half commonly using laptops and some four out of ten using desktop PCs. The use of tablets and other devices is low. For communication with family, in-person interaction dominates with 75% indicating it is the most common form of interaction. By comparison telephone and internet-based contact is common for about half of the respondents.

Respondents with visual challenges tend to use screen readers and read aloud functions on websites, but often have personal assistance. Survey respondents prefer the former, plus audio translations of online content. Respondents with restrictive body movements tend to use contact-operated devices, with mouthpieces, voice-command and audio-description functions being important tools. Preference is for similar tools but also for improved audio description software installed on websites and read-aloud functionality. Respondents with hearing problems tend look for sub-titles on videos, text transcripts of audio, and alternative texts. Sign-language is also looked for. These are also the preferred options but combined with screen-readers. Respondents with cognitive challenges tend to get help from others (e.g., family and friends), but also use read-aloud and voice command software. The preference is for having assistance and alternative means of information and services.

The stakeholder feedback generally aligns with the findings of the PwD survey and reaffirm that the PwD community prefers independent living with or without ICT and technical aids. It also confirms that women are more likely to have accessibility challenges compared to men, with all genders and age groups facing serious challenges. Although stakeholders confirm that the majority of PwDs have mobile phones and mobile internet access, they also emphasis that the vast majority require assistance from others to access public services whether online or not. This is required by circumstances rather than preference.

2.2.   *Web accessibility in Georgia*

Technology is widely acknowledged as a tool to assist PwDs in daily life but also as a way to increase the access to information and services. Despite some positive changes, PwDs in Georgia face challenges in accessing ICTs and assistive technology. To address the challenges the Public Defender recommended the adoption of detailed regulations at the normative level in its annual report for 2019.[15] Other studies advice the Government of Georgia and the public sector to elaborate ICTs accessibility policies and regulations for ensuring adequate accessibility for PwDs and by interference in both the physical and digital sphere.[16]

To ascertain web accessibility in Georgia a simple assessment of thirteen (13) key central government and twelve (12) non-governmental websites was carried out.[17] The selected sites were tested against the global WCAG 2.0 AA standard, as well as compliance with the often-challenging mark-up and CSS stylesheet standards.[18]

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15.   Public Defender of Georgia (2018)
16.   UNDP (2019b)
17.   Public sector sites were selected based on their relative importance in relation to public sector service provision. Non-governmental sector sites include a sample of banks, media, transport and civil society organisations.
18.   The following tools are used on: WCAG 2.0 AA standard https://achecker.ca/checker/index.php; CSS style sheet https://jigsaw.w3.org/css-validator/, and; Markup validity https://validator.w3.org/.

The WCAG assessment results for public sector websites are summarised in Table 2. Four (4) of thirteen (13) public sector sites are fully compliant with WCAG 2.0 AA but have improvement potential in relation to the CSS and mark-up standards. The remaining nine websites are incompliant with major improvement potential. Only one site (Government of Georgia) is fully compliant with the CSS style sheet standards though interestingly is incompliant with the WCAG 2.0 AA standard. Only one site (my.gov.ge) is compliant with the mark-up standard. The two best performing sites are my.gov.ge and the Parliament of Georgia.

Table 2: *Results of simple WCAG test of selected Georgian public sector websites (Source: Author, 2020)*

Name of site	URL	Result of simple WCAG test (11 November 2020)		
		WCAG 2.0 AA	CSS style sheet	Mark-up
Government of Georgia	http://gov.ge/	no, 45 known problems	yes, 0 errors, 25 warnings	no, 476 errors, 855 warnings
Parliament of Georgia	http://www.parliament.ge/	yes, 0 known problems	no, 5 errors, 903 warnings	no, 89 errors, 1 warning
my.gov.ge	https://www.my.gov.ge/ka-ge/services/10	yes, 0 known problems	no, 13 errors, 1306 warnings	no, 8 errors, 0 warnings
Public Service Hall	http://psh.gov.ge/	yes, 0 known problems	no, 16 errors, 456 warnings	no, 21 errors, 11 warnings
Ministry of Foreign Affairs	https://mfa.gov.ge/	no, 26 known problems	no, 34 errors, 412 warnings	no, 183 errors, 6 warnings
Legislative Harald of Georgia	https://matsne.gov.ge/	yes, 0 known problems	no, 11 errors, 522 warnings	no, 245 errors, 33 warnings
Ministry of Justice	https://justice.gov.ge/	no, 20 known problems	no, 2 errors, 279 warnings	no, 17 errors, 0 warnings
Ministry of Finance	https://www.mof.ge/	no, 119 known problems	no, 25 errors, 82 warnings	no, 204 errors, 1 warning
Ministry of Education, Science, Culture and Sport	mes.gov.ge	no, 101 known problems	no, 11 errors, 868 warnings	no, 80 errors, 31 warnings
State Procurement Agency	procurement.gov.ge	no, 42 known problems	no, 23 errors, 160 warnings	no, 25 errors, 12 warnings
Tbilisi City Hall	http://www.tbilisi.gov.ge/	no, 56 known problems	no, 3 errors, 156 warnings	no, 141 errors, 7 warnings
Batumi Municipality City Council	http://www.batumicc.ge/	no, 99 known problems	no, 6 errors, 229 warnings	no,94 errors, 71 warnings
StopCoV.ge	https://stopcov.ge/	no, 23 known problems	no, 3 errors, 895 warnings	no, 48 errors, 6 warnings

NB: 0 errors (no problems) equal compliance (marked green); 1-20 errors (known problems) equal partially compliant (marked orange); 21 and more errors (known problems) equals major incompliance (marked red).

The WCAG assessment results for non-governmental sector websites are summarised in Table 3. Three (3) of twelve (12) non-governmental sector sites are fully compliant with WCAG 2.0 AA but have improvement potential in relation to the CSS and mark-up standards. The remaining nine websites are incompliant with six of them having major improvement potential. No sites are fully compliant with the CSS style sheet and mark-up standards. On average non-governmental sector sites have less errors, known problems and warnings compared to their public sector counterparts. The two best performing sites are Bank of Georgia and Transparency International.

Table 3: *Results of simple WCAG test of selected Georgian non-governmental sector websites (Source: Author, 2020)*

Name of site	URL	Result of simple WCAG test (11 November 2020)		
		WCAG 2.0 AA	CSS style sheet	Mark-up
Bank of Georgia	https://bankofgeorgia.ge/en/	yes, 0 known problems	no, 7 errors, 221 warnings	no, 2 errors, 1 warning
Tbilisi Airport	http://www.tbilisiairport.com/	no, 16 known problems	no, 9 errors, 2926 warnings	no, 57 errors, 31 warnings
Georgian Railway	http://www.railway.ge/	no, 50 known problems	no, 3 warnings, 1148 warnings	no, 6 errors, 6 warnings
Amindi – weather, traffic, news	https://amindi.ge/	no, 23 known problems	no, 1 error, 29 warnings	no, 42 errors, 9 warnings
Georgian Public Broadcaster (public)	https://1tv.ge/	no, 127 known problems	no, 29 errors, 582 warnings	no, 6 errors, 4 warnings
Rustavi 2 (commercial)	https://rustavi2.ge/	no, 155 known problems	no, 2 errors, 1031 warnings	no 136 errors, 18 warnings
Interpress News	https://www.interpressnews.ge/	yes, 0 known problems	no, 3 errors, 255 warnings	no, 61 errors, 10 warnings
Georgian Young Lawyers' Association	https://gyla.ge/ge	no 63 known problems	no, 9 errors, 469 warnings	no, 42 errors, 7 warnings
Transparency International	https://transparency.ge/	yes, 0 known problems	no, 4 errors, 404 warnings	no, 12 errors, 2 warnings
myvideo.ge	https://www.myvideo.ge/	no, 269 known problems	ERROR	no, 45 errors, 27 warnings
Jobs.ge	https://jobs.ge/	no, 20 known problems	no, 5 errors, 59 warnings	no, 137 errors, 10 warnings
iMovies	https://www.imovies.cc/	no, 2 known problems	no, 21 errors, 7663 warnings	no, 2 errors, 2 warnings

NB: 0 errors (no problems) equal compliance (marked green); 1-20 errors (known problems) equal partially compliant (marked orange); 21 and more errors (known problems) equals major incompliance (marked red).

2.3. Legal framework and approach to web accessibility in Georgia

CRPD was ratified by the Parliament of Georgia in 2013. It came into force on 12 April 2014,[19] making Georgia the 143rd in the world to join the group of States Parties to the CRPD.[20] The Optional Protocol to CRPD was ratified by the Parliament on 5 March 2021 and entered into force on 12 May 2021.[21]

Although ratified in 2014, the supporting legal, regulatory, governance and compliance mechanisms for increased web accessibility for PwDs is not completely defined in Georgia. The issue of the rights of the people with disabilities in Georgia currently is regulated by the Law of Georgia on the Rights of Persons with Disabilities.[22] Articles 1 and 4 does specify the principle of universal design and independent living but does not refer to any standards. Article 21 does define a number of responsible entities in relation to governance and mandates but there is a lack of compliance vis-à-vis the intention of the law. The issue of electronic communications in Georgia is regulated by the Laws of Georgia on Electronic Communications[23] and on Electronic Documents and Electronic Trust Services.[24]

the following institutions are mandated to act at the strategic or operational level and to perform oversight of the implementation of the legislation in the area of electronic communications: Ministry of Justice, Georgian National Communications Commission, and the Digital Governance Agency (established by the Law of Georgia on the legal entity under public law called the Digital Governance Agency[25]).

In its report for 2018 the Public Defender specifically highlighted the continued lack of accessibility in the public spaces and the lack of information and specialized services – inferring to both the physical and digital sphere.[26,27] Consequently, despite far-reaching legal guarantees aimed at protecting the rights of PwDs, the challenges of the community remain unresolved, they remain largely invisible in Georgian society, are often marginalized or even discriminated against.[28,29] There is therefore a need prioritise the development of the national regulations, standards, governance and compliance mechanisms underpinning the Government of Georgia's commitment to the CRPD. Similarly, there is a need to ensure that national access plans, including communications and access to information are developed and that sanctions and enforcement oversight is carried out to ensure compliance.

19. Parliament of Georgia, Decree N1888-RS of 26 December 2013, https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=IV-15&chapter=4&clang=_en
20. IDFI, 2015
21. Optional Protocol to the Convention on the Rights of Persons with Disabilities (Georgian) https://matsne.gov.ge/ka/document/view/5173211?publication=0
22. Law of Georgia on the Rights of Persons with Disabilities, https://matsne.gov.ge/en/document/view/4923984?publication=0
23. Law of Georgia on Electronic Communications, https://matsne.gov.ge/en/document/view/29620?publication=40
24. Law of Georgia on Electronic Documents and Electronic Trust Services, https://matsne.gov.ge/en/document/view/3654557?publication=0
25. Law on the Legal Entity called the Digital Governance Agency, https://matsne.gov.ge/en/document/view/4893222?publication=0
26. Public Defender of Georgia (2018)
27. UNDP (2019c)
28. UNDP (2019a)
29. UNDP (2019b)

3. GLOBAL BEST PRACTICE

3.1. CRPD and web accessibility as legal requirements

Accessibility standards and the CRPD (or equivalent) was first introduced as legal requirements in Canada (1980) and the USA (1990). Nowadays, at least 40 countries have legislation governing web accessibility and the W3C WCAG standards specifically, although a majority of countries world-wide have incorporated the CRPD or web accessibility to some degree. The CRPD and its Optional Protocol (A/RES/61/106) was adopted in 2006, with Article 43 emphasising that by ratifying the CRPD each State Party consents to be bound by its provisions. Compliance none the less continue to be a challenge. all industrialized countries now enforce a certain level of web accessibility standards online.[30]

In a European context, all EU Member States have ratified the CRPD and are, like Georgia, bound by its provisions. The EU formally acceded to the Convention in 2010. The current candidate countries to join the EU (Albania, the Republic of North Macedonia, Montenegro, Serbia, and Turkey) have all ratified the CPRD as part of the process towards EU membership. With respect to the Optional Protocol, 22 of the EU members and four (4) of the candidate countries have ratified or acceded it as of 2020. Only Albania (a candidate country), Bulgaria, the Czech Republic, Ireland, the Netherlands, Poland, and Romania are not State Parties to the Optional Protocol.

Three specific elements for the CPRD are relevant to technology and web accessibility:

- Accessibility and specifically ICT and web accessibility;
- Independent living, specifically the quality of social services, and
- Provision of assistive devices at home.

ICT and web accessibility

Ensuring the accessibility and usability of ICT and digital content is an obligation under Article 9 (1)(b) CRPD.[31] The aim is for PwDs to have access to ICT and online information and services on an equal basis with others.[32] ICT is in this context used as an umbrella term which includes any information or communication device, any application, and any content accessed through or stored on these devices and applications.[33] It also includes television, radio, mobile phones, computers, fixed lines, network hardware and software. This emphasises the importance of ICT and web accessibility as tool to access a wide range of services, to transform existing services and create a greater demand for access to information.[34]

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30. Web Accessibility Laws & Policies, https://www.w3.org/WAI/policies/
31. CRPD Article 9 (1)(b) https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities/article-9-accessibility.html
32. CRPD Article 9 (1)(b) https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities/article-9-accessibility.html
33. CRPD Committee General Comment no. 2 on accessibility.
34. CRPD Committee General Comment no. 2 on accessibility.

The CPRD also specifies that ICT based solution provided to the general public must be accessible to all. The universal accessibility requirement applies to all solution and content managed by both public authorities and private enterprises. It means that access to information such as travel information presented in a visual form on e.g. busses or trains must be provided to PwDs on an equal basis.[35] It also means that it is the role of the government to implement relevant regulation and compliant mechanism to ensure that barriers are identified and removed on newly produced goods and services (physical or digital).[36] If accessibility is not ensured, this essentially constitutes a denial of access to services and a discriminatory act by both the service provider and the government responsible for compliance.[37]

In practice the CPRD emphasises the responsibility of government to consult with both PwDs directly, or though representative entities, and public entities to ensure access to all relevant information through accessible digital formats and reasonable accommodations when required.[38] The government, the public and private service provides each has an obligation to implement accessibility unconditionally and may not transfer the burden to PwDs whether this is for physical or virtual facilities, physical or digital products and services.[39,40]

In a European context, the ratification of the CPRD have been complimented by a number of directives applicable to both EU member states and candidate countries. The European regulatory framework consists of a set of inter-related and complimentary legal and regulatory elements and standards. This includes internet and telecommunication networks and terminals in both the public and private sector.[41] This also regulates the accessibility of key products and services in the internal market, such as computers, smartphones, tablets, TV sets, banking ATMs and services, payment terminals and ticketing machines, eBooks and eReaders, eCommerce websites, apps, and digital online services.[42] Essentially it establishes the rules to ensure that people with disabilities are able to access electronic communications, such as the telephone network, the internet and email, on an equal basis with others It also ensures the conformity of radio and telecommunications terminal equipment design to ensure that PwDs can use such devices with no or minimal adaptations.[43] Although never applied, European Commission is empowered to decide what types of apparatus should be designed in a way to support their use by persons with disabilities.[44]

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35. Individual Communication no. 21/2014 where the Committee on the Rights of Persons with Disabilities http://docstore.ohchr.org/SelfServices/FilesHandler.ashx?enc=6QkG1d%2fPPRiCAqhKb7yhsngJ%2fNK47OYUsZoEcumKOqIrvaIK38rcsG2KL1EmVRNVk7RaohiU57y67j93mP07IaC6UxkjFDQsOfuMJv2hpCH%2b3vAlHthqpcDYpdNYfc3DzBHoRNmP9cB7EgC6ewwDZw%3d%3d

36. CRPD Article 9 https://www.ohchr.org/EN/HRBodies/CRPD/Pages/ConventionRightsPersonsWithDisabilities.aspx#9 and General Comment no. 2 https://tbinternet.ohchr.org/_layouts/treatybodyexternal/Download.aspx?symbolno=CRPD/C/GC/2&Lang=en

37. General Comment no. 2, also specify that denial of access to ICT constitutes a discriminatory act, prohibited by Article 5 CRPD (prohibition of discrimination).

38. CRPD Article 7 and General Comment no. 7 of the CRPD Committee emphasizes that in order to comply with the obligations under Article 4(3) https://www.ohchr.org/EN/HRBodies/CRPD/Pages/ConventionRightsPersonsWithDisabilities.aspx#4

39. CRPD Committee Concluding Observations on Bulgaria (CRPD/C/BGR/CO/1) https://tbinternet.ohchr.org/_layouts/treatybodyexternal/Download.aspx?symbolno=CRPD%2fC%2fBGR%2fCO%2f1&Lang=en

40. European Union Directive 2016/12 (Public Sector Web Accessibility Directive) https://eur-lex.europa.eu/eli/dir/2016/2102/oj

41. The Electronic Communications Code (Directive 2018/1972) https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L1972&from=EN

42. Note: These obligations will become binding on providers of products and services over a number of years but becomes mandatory from 28 June 2025.

43. Directive 1999/5 (R&TTE Directive) http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A31999L0005

44. Directive 1999/5 (R&TTE Directive) http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A31999L0005

For accessible online content and services, the eCommunications package covers several aspects related to web accessibility.[45] Specific legislation and standards are set for audio visual media content (including emergency services),[46] web accessibility of both public[47] and non-governmental sector information and services, as well as complaint mechanisms for PwDs.[48,49] For the public sector this implies that all online content, websites, apps and online service's are accessible to PwDs and that: online content is continuously and progressively made more accessible to all individuals and PwDs in particular; online content is perceivable, operable, understandable and robust; the public sector is obliged to monitor progress, and; establish a mechanism for persons with disabilities to submit accessibility-related complaints concerning the services covered by the directive.[50,51,52,53]

The aim of the EU regulatory framework is not only to ensure end-to-end connectivity and interoperability between equipment, networks, and services for end-users with disabilities,[54] but to guarantee equivalence of access through a set of national consumer protection requirements. The use of European standards[55] to achieve web accessibility of services is emphasized within the regulatory framework, with specific reference to the provision of electronic communications services and the terminal equipment used to provide them (currently covered by the R&TTE Directive), and on the public procurement procedures used to ensure universal accessibility.[56]

With specific reference to web accessibility, the ratification of CRPD must be followed up by policies and initiatives ensuring minimum level of usability and web accessibility, as defined by the WCAG AA standard, of online content, websites, apps and eService's. In EU member states and candidate countries various directives has been applied to ensure compliance and to strengthen the mandate of the European Commission to ensure compliance by individual countries.

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45.   The eCommunications package consists of six directives and one regulation, of which Directive 2002/21 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:108:0033:0050:EN:PDF and Directive 2002/22 http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32002L0022 have disability-specific provisions.

46.   Amended Audio-visual Media Services Directive 2018/1808 https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32018L1808&qid=1544013412694&from=EN

47.   Directive 2016/2102 on the accessibility of the websites and mobile applications of public sector bodies http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2016.327.01.0001.01.ENG&toc=OJ:L:2016:327:TOC

48.   2019 European Accessibility Act (2019/882/EU) https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2019.151.01.0070.01.ENG&toc=OJ:L:2019:151:TOC

49.   The 'Users' Rights' Directive http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:337:0011:0036:En:PDF

50.   Amended Audio-visual Media Services Directive 2018/1808 https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32018L1808&qid=1544013412694&from=EN

51.   2019 European Accessibility Act (2019/882/EU) https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2019.151.01.0070.01.ENG&toc=OJ:L:2019:151:TOC

52.   The 'Users' Rights' Directive http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:337:0011:0036:En:PDF

53.   Council Decision (EU) 2018/254 on the conclusion on behalf of the European Union of the Marrakesh Treaty to Facilitate Access to Published Works for Persons who are Blind, Visually Impaired, or otherwise Print Disabled https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32018D0254&from=EN

54.   The 'Better Regulation' Directive http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:337:0037:0069:EN:PDF

55.   European Standard Accessibility requirements for ICT products and services https://www.etsi.org/deliver/etsi_en/301500_301599/301549/01.01.01_60/en_301549v010101p.pdf

56.   'Users' Rights' Directive http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:337:0011:0036:En:PDF

Independent living and quality of social services

Article 19 of CRPD on the right to independent living[57] provides for the responsibility of the government and public entities to ensure availability and responsiveness of all physical and digital facilitates and services to PwDs needs.

Article 20 of CRPD on personal mobility[58] requires from the public sector to effective measures for ensuring personal mobility to allow for the greatest possible independence and independent living by PwDs. This includes facilitating personal mobility of PwDs in the manner and at the time of their choice, and at affordable cost. Furthermore, the article 20 extends to PwDs access to quality mobility aids, devices, assistive technologies, and forms of life assistance and intermediaries, including authorities by making such devices available to PwDs at affordable cost. Authorities should also provide training in mobility skills to PwDs and to specialist staff working with individuals with disabilities. It also means that services are made available within safe physical and geographical distance to all PwDs living in urban or rural areas and the service conforms with standard levels of quality and is gender, age and culturally sensitive.[59]

In relation to web accessibility, the ratification of CRPD must therefore be complimented by specific policies and initiatives to ensure that public service channels are designed to facilitate PwDs access in a non-discriminatory manner. This includes availability of alternative service points and ensuring minimum level of usability and web accessibility, as defined by the WCAG AA standard, of online content, websites, apps and eServices. This will enable PwDs to use assistive tools and devices online.

Provision of assistive devices at home

Article 19 stipulates[60] that the government and public entities must ensure that PwDs have access to a range of in-home, residential, and other community support services. This includes personal assistance, if necessary, for a PwDs to live independently and be included in their local community. The aim is to prevent isolation or segregation from the community. In-home support services can for instance include personal assistance, assistive devices, and technologies.[61]

Such support services must be available, accessible, affordable, acceptable, and adaptable to all persons with disabilities. Such support services must be sensitive to different living conditions, such as individual or family income, and individual circumstances, such as sex, age, national or ethnic origin and linguistic, religious, sexual and/or gender identity'.[62] In fact the CPRD Committee has in the past raised concern about the limited financial support given by authorities to PwDs to employ personal assistance that would allow them to live independently.[63]

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57. CRPD Article 19 (c) https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities/article-19-living-independently-and-being-included-in-the-community.html
58. CRPD Article 20 https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities/article-20-personal-mobility.html
59. CPRD General Comment no. 5 of the CRPD Committee on living independently and being included in the community.
60. CRPD Article 19 (b) https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities/article-19-living-independently-and-being-included-in-the-community.html
61. CPRD, General Comment no. 5 of the CRPD Committee on living independently and being included in the community.
62. CPRD, General Comment no. 5.
63. CPRD Committee observations on Malta, CRPD/C/MLT/CO/1.

With respect to web accessibility, the ratification of CRPD must be complimented by policies and initiatives providing PwDs with the assistive tools and services such as screen readers, read-aloud software, etc. This will enable PwDs to have higher degree of independence and a greater sense of freedom.

WCAG web accessibility standard

The WCAG standard[64] was first launched in May 1999. The current version 2.1 of the W3C WCAG 2.1 was released in June 2018 and had an immediate impact on the accessibility of websites. The specific requirements vary depending on where and with the organization does business, but in many cases, a website that does not offer equal access to all visitors runs the risk of fines and other legal penalties.

The current EU Directive on the Accessibility of Websites and Mobile Applications[65] requires EU member states to make sure their websites and mobile apps meet common accessibility standards. The Directive was transposed into the laws of each EU member state by 23 September 2018.

The Directive references EN 301 549 as the standard which will enable websites and apps to comply with the law. EN 301 549 is a set of Functional Accessibility requirements broken down into chapters, and chapter 9 on Web Content cites WCAG Level AA as the expected standard.

The Directive sets a timetable for compliance with the new regulations:

- New public sector websites must conform by 23 September 2019
- All public sector websites by 23 September 2020
- All public sector mobile apps by 23 June 2021

In order to comply with the Directive, it is the responsibility of individual public entities to continuously monitor and update the accessibility of their websites and mobile apps, make the monitoring report available in an accessibility statement and provide reports to a central coordinating authority in a given EU member state. These requirements mean that many European public sector organisations will need to rethink their accessibility strategy. In light of the long-term policy objective of Georgia to align with the EU the Directive and W3C WCAG standard is an essential component of any legal, regulatory and practical initiatives aiming to improve the web accessibility for PwDs.

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64.   WCAG standard https://www.w3.org/WAI/standards-guidelines/wcag/
65.   Directive (EU) 2016/2102 of the European Parliament and of the Council of 26 October 2016 on the Accessibility of the Websites and Mobile Applications of Public Sector Bodies https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32016L2102

3.2.   Usability and web accessibility models

As early adopters of technology, Europe and North America have had, since the late 1990s, various degrees of success in encouraging citizens to use government website and online service offers. Two decades of usability research has proven that despite the existence of the WCAG standard and various international and national commitments and legal requirements user-friendliness and web accessibility is not always guaranteed.

Many countries have adopted the W3C WCAG guidelines in their official legislation, and almost all industrialized countries, and the majority of European countries, now enforce a certain level of web accessibility standards online. An increasing number of countries use a combined approach to usability and web accessibility. Out of which at least twelve (12) countries and regions (see Figure 1) currently have usability guides. This section will look at the Danish, Portuguese, UK, and US approaches.

Figure 1: *Map of countries with online usability guides which includes web accessibility (Source: Author, 2020)*

Denmark is chosen for its documented achievement in relation to web accessible content and since it is a global leader in the level of online service use by citizens and businesses.[66,67,68,69,70,71]

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66.   UNDESA, (2016)
67.   Toshio Obi (2016)
68.   Meyerhoff Nielsen and Yasouka (2014)
69.   Meyerhoff Nielsen (2017)
70.   Gallo et al. (2012)
71.   UNDESA (2018)

The UK is chosen for its approach to service design and as a global trendsetter currently inspiring countries as diverse as Canada, Mexico, New Zealand, and Qatar, but also Denmark and Portugal.[72, 73,74] The US is chosen as it was one of the first countries that adopted usability and web accessible standards.[75,76] Portugal is chosen as it is one of the latest countries to have launched a national usability guide which also address web accessibility.

Common features of usability guides include their focus on development process, including procurement, whether it is developed in-house or through a private sector vendor. The use of clusters of design principles and criteria which specify concrete elements and features is also common. This include language use which should be short, to the point, action oriented and free of legalese or bureaucratic terminology, including in error messages. Look-and-feel across solutions, including common graphical design, navigation, outlining pre-conditions for successfully completing e.g., a transactional service, validation of data entry and receipt specification. Functionality is also addressed, including requirement for responsive web-design and device independence, re-use of existing data from existing government registries, single-sign-on and use of eID Public Key Infrastructure, digital post components, link and integration to national portals, compliance with interoperability, privacy and data protection standards, and cyber-security. Web accessibility is generally covered under functionality requirement or a separate cluster of principles and criteria referring directly to the WCAG AA standard. Table 4 summarise and cluster the usability principles and criteria found in the usability guides in Denmark, Portugal, UK, and USA.

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72.   UNDESA (2016)
73.   Toshio Obi (2016)
74.   Gallo et al. (2012)
75.   UNDESA (2008)
76.   Obi (2012)

Table 4: *Summary of criteria clusters in usability guides in Denmark, Portugal, UK, and USA (Source: Author, 2020)*

Criteria clusters	Denmark	Portugal	UK	USA
Development process	Yes (separate guide)	Yes	Yes	Yes
Language use	Yes	Indirect, generic reference	Indirect	Indirect, generic reference
Look-and-feel	Yes	Yes	Yes	Yes
Functionality	Yes	Yes	Yes	Yes
Reuse of components	Yes	Partial, only the guides	Yes	Partial, only the guides
Reuse of standards	Yes	Partial, only the guides	Yes	Partial, only the guides
Reuse of data	Yes	No reference	Yes	No reference
Device independence	Yes, and indirectly though examples and toolkit	Yes	Yes, and indirectly though examples and toolkit	Yes
WCAG 2.0 AA	Yes	Yes	No reference	No reference
Criteria groups	Yes (separate guide)	Yes	Yes	Yes

The usability guides also vary, particularly in relation to the WCAG standard. Some refer to the WCAG standard directly, while others refer to it indirectly but requiring online solutions to re-use stylesheets, code or key components which comply with the WCAG AA standard. Other variation includes pre-launch test requirements (e.g., recommended vs. mandatory) or the provision of self-assessment tools as seen in the Danish and Portuguese case. The precise level of specification also varies (e.g., minimum accept criteria vs. principles), as does post-launch processes (e.g., continued updates, checks, benefit realisation), and the level of monitoring actual use and usability of the solutions. Similarly, the support features provided to use of the usability guides varies. Again, the development process is covered in some, like the Danish

and UK examples, but all generally incorporate best practice examples, toolkits for developers including stylesheets and code for re-use and which complies with both the usability guides and the WCAG AA standard. Table 5 summarises the support features found in the usability guides in Denmark, Portugal, the UK, and USA.

Table 5: *Summary of support features in usability guides in Denmark, Portugal, UK, and USA (Source: Author, 2020)*

	Denmark	Portugal	UK	USA
Monitoring of use and usability	Yes	No reference	Yes	No reference
Minimum accept criteria	Yes, each criterion has a set of minimum accept criteria, plus self-assessment tool	Partially examples and though generic self-assessment tool	Yes, each criterion comes with alpha, beta, live set of accept recommendations	No reference, but assumed if assisted as a paying client
Test	Yes	No formal test	Yes	Partial, only if paying client
Examples	Yes, for each criterion	Yes, for each criterion	Yes, for each criterion	Yes
Toolkit	Yes, for each criterion	Yes, for each criterion	Yes, for each criterion	Yes
Stylesheet	Yes	Yes	Yes	Yes

3.3.   *Governance and compliance models*

Where the four usability examples particularly vary is in relation to their coverage and approach to compliance. Table 7 summarises the approaches to governance and usability and WCAG in Denmark, Portugal, UK, and USA. Coverage varies in relation to the levels of government covered with the majority making it mandatory for central government solutions. Only Denmark includes regional and local government solutions. Compliance also varies. Generally, their usability guides are mandatory for central government solutions but recommended for regional and local government solutions. Again, Denmark stands out. In terms of the approach to compliance mechanisms variation is once more observed. In the UK it is mandatory for new central government solution to be formally checked and signed-off by Government Digital Services (GDS). Similarly, GDS is actively engaged in the design and testing of new solutions. In Denmark, the strategic period 2012-2015 saw testing of 80+ high frequency, high volume service solutions to ensure that they were re-developed before they were made mandatory, follow-up testing of updated and new solutions were enacted after follow-up action plans were agreed with responsible authorities and their vendors. Since 2016 the Danish approach was focusing on random spot-checks and follow-up plans. In the USA, assistance is provided by the F18 team but only if the requesting authority pays F18 for the assistance. In Portugal compliance checks are currently not done. Table 6 summarises the governance and compliance approaches pursued in Denmark, Portugal, the UK, and USA.

Table 6: *Summary of governance and compliance approaches connected with usability guides and WCAG in Denmark, Portugal, UK, and USA (Source: Author, 2020)*

	Denmark	**Portugal**	**UK**	**USA**
Coverage	Mandatory for all levels of government and all websites and eService's	Mandatory for national government websites and eService's. Voluntary for all others	Mandatory for national government websites and eService's. Voluntary for all others	Mandatory for national government websites and eService's. Voluntary for all others
Compliance model	National strategies, screening, and monitoring. Can escalate to joint-national portfolio committee responsible for eGovernment.	Not clear.	National strategies, screening, and hands-on development. Can overwrite national authorities and escalate cabinet office.	Not clear.

The approach to compliance is partly the result of the mandates and management approach pursued in relation to the usability guides and the WCAG standard. In all four countries the responsibility for usability and web accessibility is anchored in the specialized government entity for IT, technology, and digitization in general. Individual public sector service entities are responsible for their own service portfolio. The specialized entity in Denmark and the UK has a clear and strong mandate to check and enforce compliance if usability and web accessibility is lacking, they may even escalate it to the joint-national steering committees for eGovernment strategies and digital transformation. In Portugal and the USA, the existence of such mandates are not clear. Table 7 summarises the mandates and management approach to usability and web accessibility in Denmark, Portugal, the UK, and USA.

Table 7: *Mandates and management usability guides and WCAG in Denmark, Portugal, UK, and USA (2020)*

	Denmark	Portugal	UK	USA
Responsible authority for the usability guidelines and monitoring of compliance	DIGST – Danish Agency for Digitisation, Office for borger.dk	AMA – Agency for Administrative Modernisation	GDS – Government Digital Services	GSA – General Services Administration
Management model	Joint- and shared infrastructure model. Cross-governmental ownership, board, and funding model: 40% national government, 20% regional government, 40% local government. Mandatory for all authorities. Specialised agency responsible.	Single organisation ownership but mandatory for all national authorities. Specialised agency responsible.	Joint- and shared infrastructure model. Single organisation ownership but mandatory for all national authorities. Specialised agency responsible.	Single organisation ownership but mandatory for all national authorities. Specialised agency responsible.

To assess the status of web accessibility four comparative sites in each of the four countries are chosen. Selected sites provide portal for the national one-stop services. In all four countries the national portals generally comply with the usability standards with some sporadic examples of uncompliant areas identified in Portugal and the USA. Table 8 summarises the overall level of compliance of the portal content, the portal site, and eService's.

Table 8: *Summary of the usage of usability guides in Denmark, Portugal, UK, and USA (Source: Author, 2020)*

	Denmark	**Portugal**	**UK**	**USA**
Are eServices and portals build with / comply with national usability guidelines?	Yes, portals and eService's at all levels of government	Yes, but sporadic in relation to eService's	Yes, portal and eService's at central government level mainly	Yes, but mainly websites and only sporadically
Language use	Yes	Yes	Yes	Yes
Look-and-feel link between portal and eService's	Yes	Yes, but sporadic and national eService's only.	Yes	Sporadic, mainly website focused
Functionality	Yes	Yes	Yes	Yes
Reuse of components (e.g., eID, SSO, Post)	Yes	Partial	Yes	Partial
Reuse of standards	Yes	Yes	Yes	Yes
Reuse of data	Yes	No reference	Yes	No reference
Device independence	Yes	Yes	Yes	Yes
WCAG 2.0 AA	Yes, and style sheets and code available comply	Yes, and style sheets and code available comply	No reference, in practice style sheets and code available comply	No reference, in practice style sheets and code available comply

To assess the level of general web accessibility and compliance with the WCAG 2.0 AA standard the same methodology applied for selection of Georgian websites was used in the four countries. The sites assessed in Denmark, Portugal, the UK, and USA include the national one-stop portal, the national parliament, public broadcaster, and the capital city. This also allows for a comparison of the state of web accessibility vis-à-vis their Georgian counterparts. The results of the web accessibility assessment in the four countries are summarised in Table 9.

For Denmark, none of the four selected sites are compliant with the general WCAG 2.0 AA, CSS style sheet or mark-up standards. Overall, the Danish Parliament compliance is very high with very few errors recorded.

For Portugal the picture is similar, i.e., none of the four selected sites are compliant with the general WCAG 2.0 AA, CSS style sheet or mark-up standards. Generally, the number of errors and warnings are higher than those found in Denmark particularly for the Portuguese Parliament and the Public Broadcaster.

For the UK only London is compliant with the WCAG 2.0 AA standard. Again, the CSS style sheet or mark-up standards constitutes the main improvement areas. Generally, the number of errors and warnings are lower than those found in Denmark and Portugal. Like Portugal the UK Parliament and the Public Broadcaster have the biggest improvement potential.

For the USA only the national portal is compliant with the WCAG 2.0 AA standard. Again, the CSS style sheet or mark-up standards constitutes the main improvement areas. Generally, the number of errors and warnings are lower than those found in Denmark and Portugal, but higher than those seen in the UK. Like Portugal and UK, the US Congress and the Public Broadcaster have the biggest improvement potential.

For comparative purposes, the Georgian Parliament and national portal are both compliant with WCAG 2.0 AA which none of the assessed international examples does, and overall, both sites do better in the assessment (i.e., has less errors and warnings). The Georgian Public Broadcaster and Tbilisi perform substantially below their counter parts in Denmark, Portugal, the UK, and USA.

It should be noted that national portals and public broadcasters are faced with relatively larger challenges to ensure WCAG compliance. Complications of national portals are derived from their function as a hosts and/or links of the content and eServices developed by other government and non-governmental partners. Public Broadcasters in turn have a vast amount of content, images and audio-visual content which is more difficult to make fully compliant. Similarly, national parliaments often forget to ensure full WCAG compliance of the vast volumes of documents published.

Table 9: *Results of simple WCAG test of selected public sector websites in Denmark, Portugal, UK, and USA (Source: Author, 2020)*

Name of site	URL	Result of simple WCAG test (11 November 2020)		
		WCAG 2.0 AA	CSS style sheet	Mark-up
DENMARK				
Danish citizen portal	https://www.borger.dk/	no, 2 know problems	no, 4 errors 1789 warnings	no, 476 errors, 855 warnings
Danish Parliament	https://www.ft.dk/	no, 795 known problems	no, 66 errors, 1441 warnings	no, 89 errors, 1 warning
Danish Public Broadcaster	https://www.dr.dk/	no, 9 known problems	no, 58, errors, 651 warnings	no, 8 errors, 0 warnings
Copenhagen	https://www.kk.dk/	no, 4 known problems	no, 14 errors, 390 warnings	no, 3 errors, 19 warnings
Portugal				
Portuguese portal	https://eportugal.gov.pt/	no, 1 know problem	no, 85 errors, 2026 warnings	no, 11 problems, 32 warnings
Portuguese Parliament	https://www.parlamento.pt/	no, 473 known problems	no, 4 errors, 920 warnings	no, 72 errors, 53 warnings
Public Broadcaster Portugal	https://www.rtp.pt/	no, 7 known problems	no, 67 errors, 281 warnings	no, 39 errors, 47 warnings
Lisbon	https://www.lisboa.pt/	no, 10 know problems	no, 29 errors, 419 warnings	no, 7 errors, 3 warnings
UK				
UK portal	https://www.gov.uk/	no, 3 known problems	no, 11 errors, 764 warnings	no, 21 errors, 11 warnings
UK Parliament	https://www.parliament.uk/	no, 8 known problems	no, 5 errors, 550 warnings	no, 183 errors, 6 warnings
UK Public Broadcaster	https://www.bbc.com/	No, 4 known problems	no, 59 errors, 582 warnings	no, 245 errors, 33 warnings
London	https://www.london.gov.uk/	yes, 0 known problems	no, 6 errors, 1203 warnings	no, 2 errors, 29 warnings
USA				
US portal	https://www.usa.gov/	yes, 0 known problems	no, 12 errors, 277 warnings	no, 3 errors, 0 warnings
US Congress	https://www.congress.gov/	ERROR	no, 28 errors, 1040 warnings	no, 37 errors, 13 warnings
Public Broadcaster USA	https://www.pbs.org/	no, 5 known problems	No, 4 errors, 73 warnings	no, 236 errors, 41 warnings
Washington DC	https://dc.gov/	no, 1 known problems	no, 27 errors, 98 warnings	no, 56 errors, 29 warnings

NB: 0 errors (no problems) equal compliance (marked green); 1-20 errors (known problems) equal partially compliant (marked orange); 21 and more errors (known problems) equals major incompliance (marked red).

4. CONCLUDING RECOMMENDATIONS

In conclusion the following recommendations are made to underpin the alignment with the requirements of the CRPD and the improve web accessibility for PwDs in Georgia:

1. Introduce the missing **legal and regulatory components** and align these to the EU approach and the WCAG standard.
2. Introduce a whole-of-government online **usability and web accessibility standard,** including the WCAG standard, level AA.
3. Introduce the **governance and compliance framework** facilitating the improved online usability and web accessibility, with a particular focus on the public sectors online service offers.

4.1. *Recommended web accessibility legal and regulatory framework*

It is recommended that any future legislation in Georgia is aligned to the four principles of accessibility of websites and mobile applications – but also online content and transactional eServices – as used in Directive (EU) 2016/2102. That is:

- Perceivability, i.e., information and user interface components must be presentable to users in ways in which they are perceived;
- Operability, meaning that user interface components and navigation must be operable;
- Understandability, i.e., information and the operation of the user interface must be understandable, and
- Robustness, i.e., content must be robust enough to be interpreted reliably by a wide variety of user agents, including assistive technologies.

To underpin the CRPR commitment the following legal and regulatory recommendations are made:

1. Georgia should align its legal and regulatory approach to that of the EU by transposing Directive (EU) 2016/2102 into its national legislation. Either by adopting a special Law on the Accessibility of the Websites and Mobile Applications of Public Institutions and All Non-Governmental Entities (recommended) or adopting a Regulation on the Accessibility of the Websites and Mobile Applications of Public Institutions and All Non-Governmental Entities. Non-governmental entities refer to all entities including private, non-profit, and other forms of companies, organisations etc.

2. To ensure that all ICT devices and solutions are universally accessible to all, including PwDs, Georgia is also encouraged to review:

a. A public sector regulations giving equivalent access (incl. choice and affordability) to PwDs, which shall be aligned with the EU Users' Rights' Directive (2009/136), the Directive 2002/22 on universal service and users' rights relating to electronic communications networks and services (Universal Service Directive) to ensure that people with disabilities are able to access electronic communications. It shall further be aligned with the Amended Audiovisual Media Services Directive 2018/1808 to ensure that the disability accessibility is required from providers of audio-visual media services, including emergency services.

b. A public sector regulation, which should be aligned with the EU Directive 2016/2102 on the accessibility of the websites and mobile applications of public sector bodies regulating public sector online content, websites, apps and eServices.

c. A private sector regulations, that should include a standard for accessibility requirements for ICT products and services, which in turn should be aligned with the European Accessibility Act (2019/882/EU) and the Electronic Communications Code (Directive 2018/1972). The first, regulates accessibility of key products and services in the public and private sector, such as computers, smartphones, tablets, TV sets, banking ATMs and services, payment terminals, eBooks and eReaders, eCommerce websites, apps, eServices and ticketing machines. The second, the address access electronic communications, such as the telephone network, the internet and email, on an equal basis with others.

It is recommended that this initiative be incorporated into the 2021 work programme(s) and relevant strategies of the GoG and the entity responsible for digitization.

4.2.   *Recommended usability and web accessibility standard*

To compliment the legal and regulatory framework it is recommended that the GoG develop and introduce an online usability and web accessibility standard. The standard should have the following features:

1. Recommendation for the pre-development design, development, and post development process.

2. Mandatory requirements for language use, look-and-feel, functionality, web accessibility (i.e., WCAG AA).

3. Supporting elements like examples, code for reuse, stylesheets, self-assessment tool, and support by the responsible authority.

4. 4.Relevant mandate and responsibility to ensure compliance and support should be approved. It is recommended that the mandate and responsibility are anchored to the government entity responsible for digitization of the Government of Georgia, currently the Digital Governance Agency (DGA), but supported by a cross-governmental working group

and steering committee including representatives from key GoG entities like the Ministry of Finance, Ministry of Interior, local authorities etc.

It is recommended that the Danish approach is adapted to the Georgian context as it is a global good practice model. Contrary to other international good practice the Danish approach covers websites, apps and transactional online services but also incorporate measurable minimum accept criteria, guidelines, and tools for all levels of government (local, regional, and national). It is further recommended that an initial Georgian version(s), or a phase of at least four (4) years (to follow the upcoming Digital Transformation Strategy for 2021-2024) of the usability and web accessibility guide should include measurable minimum accept criteria. Subsequent versions, or a phase two, may be based on guiding principles to usability but with the WCAG standards at its core. This should be based on an assessment of the level of compliance with the usability standards in Georgia. If compliance is low, phase one should be continued to establish a user-centric service design culture.

It is recommended that these proposals are incorporated into the 2021 work programme(s) and relevant strategies of the GoG and the entity responsible for digitisation.

4.3.   *Recommended governance and compliance framework*

To underpin compliance with the legal and regulatory framework of the usability and web accessibility standard, it is recommended that the GoG:

1. Establish the mandate and responsibility to monitor, assess and enforce compliance with the new CRPD and an online usability and web accessibility standard (incl. WCAG AA). It is recommended that this mandate and responsibility be anchored to the government entity responsible for digitisation of the GoG, currently the DGA.

2. The mandate should include the mandatory follow-up on formal action plans signed by any government entity found incompliant. Formal action plans must specify key activities and a timeline. The incompliant entity is fully responsible for the follow-up and any associated costs.

3. The mandate should be accompanied with a relevant budget increase for the mandated entity.

4. The mandated entity has the right to escalate incompliance to the cabinet office of GoG and/or any national steering committee responsible for digitisation or PwD accessibility in the Georgia and the GoG.

5. Establish an annual assessment cycle of online government and key private sector service offers. The annual assessments should be broader and more in-depth for an initial five (5) years to improve the level of compliance across Georgia. The annual assessment report should be complimented by an assessment of PwD web accessibility as established in Georgia's CRPD commitment(s). The annual assessment reports should be aligned and linked to the Public Defender's reporting cycles.

It is recommended that the Danish approach is adapted to the Georgian context. Specifically, an initial phase one of five (5) years should be based on validation checks of all key high-frequency, high-volume government websites, apps, and eServices (as per usability and web accessibility standard). This could be linked also to reporting on the Public Service Quality Index developed by the Public Service Authority which includes criteria relevant to usability and web accessibility. A subsequent phase two, once compliance is a regular occurrence, could be based on regular spot-checks on guiding principles for usability but with the WCAG standards remaining at its core.

It is recommended that these recommendations are incorporated into the 2021 work programme(s) and relevant strategies of the GoG and the entity responsible for digitisation.

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