



GOVERNANCE



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EQUITABLE GROWTH, FINANCE & INSTITUTIONS INSIGHT

World Bank Guidebook for Accessible GovTech

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List of Acronyms

AAPD	American Association of People with Disabilities
AT	Assistive Technologies
CAO	Chief Acquisition Officers
CASDO	Canadian Accessibility Standards Development Organization
CIO	Chief Information Officer
CRPD	Convention on the Rights of Persons with Disabilities
DEPwD	India Department of Empowerment of Persons with Disabilities
DGB	Digital Government Blueprint
DSS	Digital Service Standards
EEA	European Accessibility Act
ESCAP	Economic and Social Commission for Asia and the Pacific
ESF	Environmental and Social Framework
EU	European Union
G3ICT	Global Initiative for Inclusive ICTs
GOALS	Gaining Online Accessible Learning through Self-Study
GSA	US General Services Administration
ICT	Information and Communication Technology
IDA	International Development Agency
IT	Information Technology
ITU	International Telecommunication Union
NCDAE	The National Center on Disability and Access to Education
NCSS	Singapore National Council of Social Services
OGCIO	Hong Kong Office of the Government Chief Information Officer
PWD	Person with Disability
SDG	Sustainable Development Goal
UN	United Nations
US	United States
UX	User Experience
VPAT	Voluntary Product Accessibility Template
W3C	World Wide Web Consortium
WAI	Web Accessibility Initiative
WCAG	Web Content Accessibility Guidelines



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Introduction

1. Context and Purpose

Governments, industries, and all types of organizations are leveraging Information and Communications Technologies (ICT) and innovative solutions to increase agility, foster innovation, and achieve important development goals. The outcomes of these solutions include better resource management, expanded opportunities for globalization, enhanced levels of collaboration, improved customer insights, better customer experience, new levels of transparency, and wider reach. Importantly, many governments are deploying technology to support achievement of the Sustainable Development Goals (SDGs) and to promote broader social, financial, and economic inclusion. For example, for SDG 16 on Peace, Justice and Strong Institutions, countries such as Tanzania and Kenya are working to employ technology in the provision of judicial services, such as videoconferences, e-filing, and e-payment for court fees.

The benefits of government investments in technology do not accrue equally to everyone in society, and the disabled may lose the opportunity to gain from new technological approaches unless their concerns are carefully integrated into the design of projects. The World Bank estimates that 15 percent of the world's population – one billion persons – have a disability, and 80 percent are living in low and middle-income countries.¹ This presents a huge opportunity to align deploying accessible GovTech solutions with achieving the World Bank's twin goals of ending extreme poverty and boosting shared prosperity. When designed for such user groups, the deployment of digital technologies can break traditional barriers to communication, interaction, and access to information for persons with disabilities (PWDs).

1. World Health Organization. World Report on Disability, 2011. Also cited in McClain-Nhlapo, Charlotte Vuyiswa, Lauri Heikki Antero Sivonen, Deepti Samant Raja, Simona Palummo, and Elizabeth Acul. 2018. *Disability inclusion and accountability framework (English)*. Washington, D.C.: World Bank Group. <http://documents.worldbank.org/curated/en/437451528442789278/Disability-inclusion-and-accountability-framework->

The ability to use voice, text, touch, and gestures to receive, create, and communicate content fundamentally alters the ways in which public sector actors can interact with and serve PWDs. Persons with visual, hearing, cognitive, learning, dexterity, and mobility disabilities can use voice recognition and text-to-speech, short message service (SMS), instant messaging, video messaging, and hands-free navigation to participate in their communities and independently interact with government agencies and services. For instance, countries such as Panama and Peru have used digital technology through television or online videos to deliver contextualized educational content and activities, using sign language or remote learning websites with accessibility features for children with disabilities. The World Bank has committed to supporting the development of universally accessible GovTech in the lower income countries that benefit from resources of the International Development Association (IDA)—the part of the World Bank that helps the world’s poorest countries. This guidebook aims to provide development practitioners and governments with steps and actions to mainstream accessibility concerns in the development of GovTech projects and adopt accessibility as a systematic feature of digital solutions in the provision of public services.

The COVID-19 pandemic has increased the need for governments to promote and adopt GovTech solutions to limit in-person interactions, maintain government operations and service delivery, and strengthen resilience and preparedness to future risks. Many countries such as Ghana, Malaysia, Nigeria, Singapore, Tunisia, and Uganda are quickly deploying solutions in response to COVID-19, particularly citizen engagement mechanisms. The need for GovTech solutions is expected to increase as countries plan for the post-COVID-19 period. As such, there is an urgent imperative to design these new GovTech solutions with accessibility in mind.

The digital divide exists in all countries and impacts many different groups, including the poor and vulnerable, who have less access to technology. This guidebook therefore examines how to expand access to persons with temporary or permanent disabilities and different functional needs, for example old age. In the Asia-Pacific region, the International

Telecommunication Union (ITU) estimates that more than half of the population does not have access to the internet, making the region the most digitally divided in the world.² More than 690 million persons in this region are living with disabilities, representing some 16 percent of the region’s population. Yet, only 40 percent of government public websites in Asia-Pacific are available in accessible formats—defined as alternate formats that are adapted for people who face difficulties or do not read print—such as large prints, text-to-speech, or audio files.³ Additionally, according to the United Nations (UN), there are 80 million PWDs in Africa, while the World Health Organization (WHO) maintains that the true figure is closer to 300 million, representing around 40 percent of the total population in Africa.⁴ However, research shows that only three percent of e-government services in Africa are accessible to PWDs.⁵ According to a recent 2020 survey, 51 percent of countries do not have any policy in place for implementing ICT accessibility and, where they are in place, only 46 percent of those policies are being implemented.⁶

Designing GovTech solutions to be accessible to PWDs could result in opening independent access to government services for the first time to a significant proportion of citizens. By contrast, investing in new ICT infrastructure and solutions without inclusion in mind could inhibit users who require specific assistive technologies such as screen readers, magnification, and hearing aids, resulting in further exclusion and marginalization of PWDs and others with functional difficulties.

By developing policies and legal frameworks to promote accessibility in the terms of reference for new ICT procurements and the design of new projects, web-enabled services, and website content, governments can widen access to those with disabilities. In addition, capacity on both the supply and demand side will need to be developed to ensure policies are implemented and effective.

The primary audience for this guidebook is World Bank task teams and government public service managers focused on the design and implementation of technology solutions and strategies. This guidebook will equip World Bank staff, client

2. UN ESCAP - Regional Breakout Session of the Expert Group Meeting on Socially Just Transition towards Sustainable development: The Role of Digital Technologies on Social Development and Well-being of All. Concept note. ESCAP’s calculation is based on ITU’s World Telecommunication/ICT Indicators database 2019 (23rd Edition/ December 2019). The calculation used data from 2017, as that was available for most countries.

3. ESCAP (2017). Midpoint Review of the Implementation of the Incheon Strategy to “Make the Right Real” for Persons with Disabilities in Asia and the Pacific.

4. African Studies Centre, Leiden. Disability in Africa.

5. Davids, Natheer, Salah Kabanda, and Millicent Agangiba. (2017). [Accessibility of African E-Government Services for Persons with Disabilities](#). For example, an accessibility evaluation of 19 E-Government portals and websites in Ghana that they were all inaccessible to persons with disabilities (PWDs). Their findings showed that PWDs will encounter difficulties perceiving the content and operating the interface of most E-Government portals and websites. Similar results are reported in several African countries.

6. The G3ict 2020 DARE Index report (submitted for publication) is designed to provide an overall assessment of the progress made by States Parties to the Convention on the Rights of Persons with Disabilities in implementing its provisions on the accessibility of information and communication technologies – also referred to as digital accessibility.

countries, and other audiences with knowledge and guidance on actionable steps to help ensure that PWDs have access to and are able to use GovTech solutions. The guidebook does not intend to provide a single best approach, but rather showcases how different countries have approached the development of accessible services and what activities can improve capabilities for accessible government digital services. The guidebook also provides readers with additional resources for reference. Governments at all levels will be able to refer to the guidebook as they work to streamline universal accessibility and inclusiveness in digital transformation initiatives.

What is GovTech?

GovTech is as a whole-of-government approach to public sector modernization that promotes simple, efficient, and transparent government with the citizen at the center of

reforms. The GovTech approach represents the current frontier of government digital transformation. As presented in Figure 1, it is distinct from previous phases as it emphasizes three aspects of public sector modernization:

- Citizen-centric public services that are universally accessible.
- A whole-of-government approach to digital government transformation.
- Simple, efficient, and transparent government systems.

To support countries in adopting sound practices and solutions in GovTech, and to ensure a broad global partnership for effective exchange and transfer of knowledge and good practice, the GovTech Global Partnership (GTGP) was established by the World Bank's Governance Global Practice in December 2019. The GovTech areas of focus are: (i) public service delivery; (ii) core government systems; (iii) mainstreaming citizen engagement; and (iv) GovTech enablers.

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FIGURE 1 - GovTech Vision for Integrated Human Centered and Responsive Services



Source: World Bank GovTech Launch Report, 2020

There are potential benefits from GovTech projects which, if designed with the user in mind, can reach previously unconnected communities who can then start to interact with the government, policy makers, and service providers through new channels. Providing services online can limit the need for physical visits to a government office – which is likely much more arduous for those living with disabilities – creating significant time savings and efficiencies for people. Online services also have the benefit of reducing any face-to-face discrimination that might occur, requests for “facilitation fees” or other bribes, and can level the playing field for access for users. When accompanied by appropriate policies for data access and transparency, digitalizing government services enables the rest of the economy to benefit from both the efficiency gains and the data generated, which can result in a boost for the local tech ecosystems and small-scale businesses.⁷

GovTech creates new and better ways to enable people to engage with their government and their communities. Public services powered by digital technologies provide broad benefits across multiple sectors. Some examples of GovTech projects include:

- Modernizing core government systems such as financial management, public procurement, tax and customs collection, and human resource management for efficiency and effectiveness.

- Providing public services in a digital format that can be faster, simpler, and up to 50 times more cost-effective for governments than doing so in-person.⁸
- Helping to extend public services to reach more people by offering services online and enabling 24/7 access.
- Coordinating and organizing public services into more easily accessible and integrated solutions, simplifying the citizens’ journey throughout their interaction with public services.
- Training public officers to become digitally aware and able to use the new technology.
- Managing the large volumes of public sector data that arise once transactions become digital and developing data access and governance policies so that both the government and private sector can analyze the data and gain insights to offer new or improved support and services.⁹
- Making ICT procurement processes faster, more competitive, and efficient to reduce administrative costs.

More information about the benefits of GovTech can be found in the [GovTech Launch Report and Action Plan](#).¹⁰

7. Zapata, E. CAF Development Bank of Latin America (2019). [How GovTech Can Reinvent the State](#).

8. UK Cabinet and Government Digital Service, (2012), [Digital Efficiency Report](#), as cited in UN 2018 eGov Report.

9. World Bank GovTech works with Center of Government counterparts and Central Finance Agencies to move from data to insights; it also works with external partners to engage stakeholders on the ethical and legal dimensions of the use of Artificial Intelligence in the public sector and helps propose global principles in this space.

10. GovTech Launch Report and Short-Term Action Plan. 2020. EFI Insight-Governance. Washington, D.C.: World Bank.



Digital Accessibility and GovTech

1. Digital Accessibility – A Working Definition

Digital accessibility is an important element in ensuring digital inclusion. Digital inclusion refers to a set of broader elements that are necessary to ensure that communities and individuals, including the most disadvantaged, can have access to ICTs. For the purposes of this guidebook, accessibility is defined as use by the widest range of users possible, regardless of their functional capacities. The National Digital Inclusion Alliance in the United States has identified five elements that can ensure digital inclusion: (i) affordable, robust broadband internet service, (ii) internet-enabled devices that meet the needs of the user; (iii) access to digital literacy training; (iv) quality technical support; and (v) applications and online content designed to enable and encourage self-sufficiency, participation, and collaboration.¹¹

This guidebook focuses on issues of access for PWDs, recognizing that other aspects such as affordability, digital literacy, and access to devices will also need to be addressed for full digital inclusion. Digital inclusion must evolve as technology advances. It requires intentional

11. The National Digital Inclusion Alliance: <https://www.digitalinclusion.org/definitions/>.



strategies and investments to reduce and eliminate historical, institutional, and structural barriers to access and use technology. Examples of applications of accessible digital services include:

- On-screen buttons designed to respond not only to a mouse click but also by pressing the “Enter” key on a keyboard making it easier to use for people with a range of physical or mobility disabilities.
- Digital forms where the labels of input boxes and controls – for example, name, choice of payment method – are displayed in a way that can be read by text-to-speech software, such as that typically used by a blind person.
- The use of consistent, page-to-page visual design and layout of websites, making them clear and easy to learn for people with some cognitive or learning disabilities.
- Use of assistive technologies such as time-based media, including videos or audio, that include synchronized text captions (subtitles) for spoken information and other audio content as well as synchronized audio descriptions for visual content for people with hearing impairments. Other examples may also include screen enlargement applications, or voice recognition programs.¹²
- Kiosks and self-service terminals with screen and keyboard placement allowing for easy use by someone in a wheelchair or those with smaller stature.

Annex 3 highlights several global standards available that define in more practical terms what digital accessibility means.

2. Accessibility and User Experience

Barriers to accessible GovTech solutions put many PWDs at risk of being even further excluded from important information, significant decisions, and numerous activities.¹³ These barriers are relatively easy to avoid and most often are the result of:

- A lack of ICT accessibility policy and governance criteria at top levels of public and private sector organizations, which when in place can drive a whole-of-government approach to include accessibility in the design of GovTech solutions.
- Insufficient ICT accessibility general awareness, lack of access to training for development, content production, procurement, and other areas within government organizations.
- The absence of the integration of ICT accessibility criteria and requirements into key government business processes or service delivery processes.
- The need for conducting manual testing due to technical limitations of automated accessibility test tools.

Understanding the specific challenges that users of GovTech services encounter is important for the design of accessible solutions that responds to their needs. Formulating user personas to model actual observations of specific user experience can be helpful to understanding the attitudes, motivation, skills, and challenges of specific target groups. Box 1 presents specific example of user personas.

12. Assistive technologies are defined by the Assistive Technology Industry Association as: “Assistive technology (AT): products, equipment, and systems that enhance learning, working, and daily living for PWDs.” <https://www.atia.org/home/at-resources/what-is-at/>.

13. Oliveira, Alberto, Souza, Eliane, and Marcelo Eler. 2017. [Accessibility Model in Electronic Government: Evaluation of Brazilian Web Portals](https://sol.sbc.org.br/index.php/sbsi/article/view/6060/5958). <https://sol.sbc.org.br/index.php/sbsi/article/view/6060/5958>.

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BOX 1 - User Experience: Barriers and Impact on GovTech Services

The following user personas describe how persons with different kinds of disabilities might use GovTech services and the barriers they may encounter:

Giovanna, a screen reader user who is blind, encounters problems when applying online for support for housing expenses. Occasionally, she finds herself trapped in areas of the webpage and is unable to move the focus to another area. She must abandon the page altogether and start again.

Carolyn is a person with a mobility disability. She is a wheelchair user. When she needs to use a kiosk in a courthouse or when visiting a museum exhibit, she often finds she cannot get close enough to the kiosk screen and the keyboard is not positioned appropriately for her to reach properly. She then must either ask for assistance or go to a reception desk.

Fatima is an older person with a cognitive disability. She has difficulties keeping track of different login details and passwords when trying to use various GovTech applications like scheduling an appointment with her public healthcare doctor, checking her social security retirement pension information, or renewing her national television license. As such, she keeps her confidential information in a notepad that can get lost, stolen, or deteriorate over time.

Musa is deaf. He is a sign language user. When trying to talk to someone from the national health administration about important safety recommendations related to a global pandemic, the helpdesk service is only provided by phone and through a WhatsApp number. There is no video relay or video remote interpreting service available. Musa is forced to physically go to a health center and hope there is a sign language service available to make the consultations and get the information he needs. Otherwise, he needs to find someone who is verbal and a sign language user to assist him get important public health information.

Peter is hard of hearing and is unemployed. He is taking some training courses offered by the national vocational training service to improve his digital skills and employment prospects. However, some of the training videos have poor quality captions with errors and the transcripts do not let him know what is being said in different scenes of the video. The training resources available to him do not support his goal to find a new career.

Maria has a spinal cord injury and cannot use her hands for typing or using a mouse. When trying to use speech recognition software that enables her to speak words to type and say commands to control the computer to apply online for social security disability benefits, the virtual desktop used by this application does not work with her voice recognition software. Maria is forced to travel to a physical location to complete her registration to for social security benefits.

3. Emerging Global Policy Framework for Accessibility and Accessible GovTech

International and Country Specific Framework for Disability Inclusion and Accessible GovTech

Public policy impacts accessibility, digital inclusion, and human rights of PWDs. By extension, public policy at both the international and national levels is relevant to GovTech programs and the deployment of technology in support of public services. There has been a strengthening of international and country-specific initiatives to ensure that PWDs have access to the digital solutions supporting delivery of public services. Many countries and regional bodies have adopted

innovative laws, policies, and programs that drive greater digital accessibility. These policies and programs are broader than GovTech and are related to how governments deploy accessible GovTech. Reference to these leading international, regional, and national policies can also be useful in guiding the design and implementation of accessible GovTech programs and justifying a commitment to them.

The United Nations Convention on the Rights of Persons with Disabilities (CRPD) adopted by the United Nations General Assembly on December 13, 2006 defines access to ICTs as an integral part of accessibility rights, on par with accessibility to the physical environment and transportation. This international engagement has been renewed and reinforced through the 2030 Agenda for Sustainable Development adopted in 2015, which promotes that no one be left behind, including PWDs.¹⁴ The **2030 Agenda for Sustainable Development** recognizes the crucial role that GovTech can play in the achievement of many of its goals and targets.^{15,16} Additional international engagement also includes the **New Urban Agenda** reflecting the United Nations' member states' pledge to work toward universal access to city spaces and infrastructure for PWDs and older persons.¹⁷

To support these engagements, organizations and countries have adopted guidelines and directives for the integration of accessibility in digital services. The World Wide Web Consortium (W3C), the leading international standards organization for the internet, has issued the **Web Content Accessibility Guidelines (WCAG)**.¹⁸ The European Union passed its Web Accessibility Directive in October 2016 and the European Accessibility Act in June 2019. These two sets of regulations have contributed to providing PWDs with better access to government websites and apps, as well as digital media more generally. A description of these international standards and policies is included in Annex 3.

The World Bank Policy and Framework for Disability Inclusion

In addition to the various international frameworks for disability inclusion on digital services, the World Bank also implements in its operations a policy framework which makes a strong case that disability-inclusive development is critical to realizing the World Bank's twin goals of ending extreme poverty and boosting shared prosperity. Through its operations and good practice policies the World Bank ensures that disadvantaged

or vulnerable persons, including PWDs, can equally access economic opportunities and public services as other citizens.¹⁹ This concept also applies to the use of GovTech solutions in operations supported by the World Bank.

The World Bank Group's Environmental and Social Framework (ESF) for Investment Project Financing, launched on October 1, 2018, enables the World Bank and its borrowers to manage environmental and social risks linked to the projects supported by the Bank. It makes important advances in areas such as transparency, non-discrimination, public participation, and accountability. Under the ESF, the Bank has strengthened its commitment to identifying vulnerable or disadvantaged individuals and groups, including PWDs, and then assessing and preventing potential risks and negative impacts that could affect them disproportionately in the implementation of development projects, as well as barriers to accessing project benefits.²⁰

The ESF helps identify and assess relevant questions within GovTech programs to understand potential barriers that may prevent PWDs from accessing governance processes and government services, and also assess whether ICTs can be leveraged to reduce or eliminate access barriers.²¹ The World Bank ESF comprises a "Vision for Sustainable Development," the "World Bank Environmental and Social Policy for Investment Project Financing," and the "Environmental and Social Standards."

The World Bank Disability Inclusion and Accountability Framework supports the implementation of the ESF in World Bank operations but is also relevant for government and development organizations promoting inclusion of PWDs. Launched in June 2018, the framework offers a roadmap for: (i) the inclusion of disability in the World Bank's policies, operations, and analytical work; and (ii) building internal capacity for supporting World Bank clients in implementing disability-inclusive development programs.

14. United Nation. [The Sustainable Development Agenda](#).

15. United Nations. E-Government Survey 2018. [Gearing E-Government to Support Transformation towards Sustainable and Resilient Societies](#).

16. United Nations SDG Knowledge Platform. [Transforming our world: the 2030 Agenda for Sustainable Development](#).

17. United Nations. [The New Urban Agenda](#).

18. The Web Accessibility Initiative, [Web Content Accessibility Guidelines](#).

19. "Disadvantaged or vulnerable" refers to those individuals or groups who, by virtue of, for example, their age, gender, ethnicity, religion, physical, mental or other disability, social, civic or health status, sexual orientation, gender identity, economic disadvantages or indigenous status, and/or dependence on unique natural resources, may be more likely to be adversely affected by the project impacts and/or more limited than others in their ability to take advantage of a project's benefits.

20. The World Bank. [Environment & Social Framework for IPF Operations. Non-Discrimination and Disability. Good Practice Note](#).

21. Ibid.

The World Bank IDA19 commitment for universally accessible GovTech. As part of the IDA19 policy commitments, the World Bank will support IDA countries to design and implement universally accessible their own GovTech solutions and services. In this context, “universally accessible” refers to GovTech solutions, including the modality, content of the service, hardware, and software that are designed such that they can be accessed, understood, and used by all persons regardless of disability, age, use of assistive devices, location,

or means of internet access.²² Both disability inclusion and technology are cross-cutting themes of the IDA 19 financing cycle. Under IDA 19, the World Bank (i) commits to do more to help reduce inequalities within and among countries (SDG 10) by helping them to expand equitable opportunities for people with disabilities, and (ii) recognizes that technology has the potential to unlock development and accelerate progress toward the SDGs and the World Bank’s twin goals.

22. This applies to hardware—for example, electronic kiosks and touch screen interfaces; and software components such as websites, electronic documents, forms, e-portals, and multimedia.



The Accessible GovTech Roadmap

Governments worldwide and at all levels can integrate accessibility into their GovTech adoption programs and technology deployments. An objective of GovTech systems should be to support a strong and explicit commitment to accessibility as an integral part of ICT strategies and deployments. Governments that have adopted GovTech strategies should ensure that the ongoing digital transformation of government supports greater, not less, inclusion and access to public services for PWDs.

The Starting Point

The adoption of GovTech solutions and improving the efficiency of government services through digitalization has become a priority for many governments around the world. However, the deliberate integration of accessibility in governmental initiatives and policies has not always been as important. As such, identifying entry points or initiating the dialogue on how to incorporate accessibility in technology initiatives may not seem obvious for many governments and development practitioners. To effectively incorporate accessible GovTech solutions as part of their digital transformation processes, governments will need to properly identify, communicate, and prioritize their goals. Moreover, governments will need to put in place policies, guidelines, and rules to ensure that accessibility is included in GovTech strategies and initiatives.

Assessing government digital services most used by citizens and businesses according to the different levels of accessibility they provide, is a good way to initiate the dialogue and allows countries and organizations to gauge their trajectory in adopting accessible solutions. It is crucial that the assessment process brings together all relevant stakeholders and those interested in the agenda.

The results of these assessments can help structure the approach around the country's areas of strength and gaps and ways to address them. Proposed solutions and approaches should also consider a country's level of sophistication and ability to effectively implement them and should be derived from broad consultations with a wide range of stakeholders both for policy design and for solution/service design. For instance, countries can integrate specific accessibility design features into their new GovTech project based on user experience assessments and testing. As part of this process, it is important that target groups, including PWDs, are included in the design, and testing of government systems and services. Designing systems with inputs from users can help show early results in specific government services and documenting these experiences will provide lessons for further engagements.

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BOX 2 - Good Practices and Resources- Accessibility Assessment

- The [Accessibility Maturity Model \(AMM\)](#): is a self-assessment tool which enables organizations to drill down to get more information on different levels of IT accessibility. The tool is designed to be informative and action orientated, allowing you to see your organization's current IT accessibility performance and support in the making of decisions about future focus areas.²³
- The [Digital Accessibility Maturity Assessment \(DAMA\)](#): allows organizations to understand how advanced their business processes and practices are in addressing the legal and policy requirement to make digital media – websites, apps, documents, video, and content – accessible to the broadest possible audience.²⁴

In the medium to longer term, building the overall ecosystem – including infrastructure and developing the country institutions, policy and legal frameworks to enable the adoption of accessible GovTech solutions – is important to ensure the sustainability of accessible GovTech solutions. This includes putting in place the institutions and staffing for the accessible GovTech agenda, developing institutional processes for systematically incorporating accessibility in GovTech projects, and defining and putting in place the regulatory framework and standards. For that purpose, this guidance note provides two complementary tools for developing an accessibility roadmap: the GovTech Accessibility Areas Checklist and the GovTech Core Capabilities Checklist.

GovTech Project Accessibility Areas Checklist

This guidebook has identified *five areas* that need to be addressed in designing accessible GovTech projects:

- Strengthen Institutions, Leadership, and Policy.
- Budget for Accessibility.
- Procure Accessible Solutions.

- Implement a user-centric design cycle.
- Maintain engagement and build capacity.

These five areas provide a structure that can help governments and development practitioners think about and act on policies and practices to ensure accessibility concerns are considered in all stages of designing a new GovTech project. Activities for each area can be developed in parallel.

GovTech Core Capabilities Checklist

In addition to the five areas, there are 13 identified “capabilities” that need to be built. The relationship between them is shown below in Figure 2. This guidebook suggests specific activities that contribute toward strengthening each core capability. For reference, resources drawing from international experience and practices are listed for each capability. Some of these capabilities are relevant also to the development of GovTech roll-out more generally and are not specific to inclusion of accessibility. Figure 2 also lists the five areas and 13 Core capabilities with suggested prioritization of their consideration, and the sections that follow describe enabling activities, good practices, and resources for each area and core capability.

23. Business Disability Forum: <https://businessdisabilityforum.org.uk/>.

24. Center for Inclusive Design: <http://centreforinclusivedesign.org/services/dama/>.

FIGURE 2 - 5 Areas and 13 Core Capabilities for Designing Accessible GovTech Projects

Areas	Core Capabilities to Be Developed	Priority Level
Area 1: Strengthening Institutions, Leadership, and Policy	Core Capability 1: Structure and Organization Core Capability 2: Leadership and Engagement Core Capability 3: Strategy and Policy	<ul style="list-style-type: none"> • Medium to long term effort • Medium to long term effort • Long term effort
Area 2: Budgeting for Accessible GovTech Projects	Core Capability 4: Budgeting	<ul style="list-style-type: none"> • Immediate
Area 3: Procurement of Accessible GovTech Solutions	Core Capability 5: Procurement Core Capability 6: Global Standards	<ul style="list-style-type: none"> • Immediate • Medium to long term effort
Area 4: Implementing a User-Centric Development Cycle	Core Capability 7: User-Centric Design Core Capability 8: Deployment, Maintenance, and Remediation Core Capability 9: Innovation	<ul style="list-style-type: none"> • Immediate • Immediate to long term effort • Medium to long term effort
Area 5: Maintaining the Engagement and Building Capacity	Core Capability 10: Capacity Building Core Capability 11: Culture of Diversity Core Capability 12: Transparency Core Capability 13: Community Engagement and Grievance Redress Mechanism	<ul style="list-style-type: none"> • Immediate to long term effort • Medium to long term effort • Immediate to long term effort • Immediate

Area 1: Institutions, Leadership, and Policy

Governments around the world – for example, Albania, Moldova, Poland, Singapore, Uruguay, and the UK – have created central teams to guide and coordinate the entire process of developing and deploying new GovTech solutions. These digital government units have supported the definition of government-wide standards for digital services, resulting in more integrated government services, cost savings of digitalization, and service improvements. Each team member can contribute to building accessibility into GovTech services by considering accessibility and inclusive design in their respective roles. Government departments comprising implementing team members might include:

- The Chief Information Officer or the IT department chief.
- IT professionals (front-end developers, User Experience designers).
- Communications personnel—content authors, visual designers.
- Business decision-makers from relevant departments.

For government-wide digital units as well as for specific project teams in different government units, it can be effective to appoint an individual as the accessibility lead to work with the team to inform and supervise all accessibility and digital inclusion-related issues. The accessibility lead should:

- Have the necessary knowledge, skills, and available resources to ensure that accessibility is appropriately integrated throughout the GovTech project.
- Have enough authority to ensure that the project team includes accessibility as part of building or purchasing GovTech products and services.
- Understand global ICT accessibility standards that apply to GovTech services and/or coordinate the specific standards adapted to country context.
- Collaborate in the design of User Experience (UX) assessment and testing and ensure inclusion of standards and requirements related to accessibility in GovTech projects.

Core Capability 1: Structure and Organization

Streamlining accessibility into government requires that governments be structured to effectively manage the topic of accessibility and digital inclusion in relationship to GovTech programs and technology deployments.

Enabling Activities:

- Establish a central Digital Government Unit to define, adopt and ensure that desired norms, standards, universal accessibility, service delivery, cybersecurity, etc. are streamlined and implemented across government.
- Appoint a Chief GovTech Officer for each government level – national/state/region/province/county, municipality – or government agency, department, or body with proven expertise and/or experience in disability, accessibility, and digital inclusion aspects, to oversee the design and implementation of GovTech projects and ensure accessibility and digital inclusion are designed into them.
- Staff the Digital Government Unit and specific project teams with necessary skills including a specific Accessibility Officer with a defined role to manage accessibility and digital inclusion – for example, assign an accessibility officer to each Ministry or government agency.
- Ensure that there are skills and capabilities for user centric design. GovTech units and project teams should also include a User Experience designer that understand the processes of user centric design.
- Provide a clear mandate, executive and/or political sponsorship, and resources to the unit or manager tasked with producing accessibility and digital inclusion supports, rolling-out training, establishing standards, and providing advice for departments and staff, including those related to GovTech programs.
- Define points where government departments undertaking GovTech projects should consult with the unit or manager responsible for Accessible GovTech and digital inclusion to ensure alignment of all new GovTech programs to accessibility standards.

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BOX 3 - Good Practices and Resources– Structure and Organization

- The United States Section508.gov website includes [training courses](#) intended to improve understanding of IT accessibility and the Section 508 law, and helps people produce digital tools and content that conforms to the Revised 508 Standards.
- The US government's "[Technology Accessibility Playbook: How to Build an Effective Technology Accessibility Program](#)" course includes a module titled, "Play 1: Establish a Technology Accessibility Program Manager: Lesson Overview," which aims to identify the role of the Technology Accessibility Program Manager and to describe what makes a successful one.
- The UK has created a [Government accessible empathy Lab](#) inside its Government Digital Service (GDS unit) to bring awareness on disability and digital accessibility and to provide the possibility for government units to be familiar with the array of technology that can be used to improve accessibility. UK GDS mandated that all services go through testing at the "empathy lab" to ensure that they meet accessibility standards.



Core Capability 2: Leadership and Engagement

The success of Accessible GovTech programs is dependent on good leadership. Strong leadership in the government or agency responsible for designing and deploying GovTech solutions proactively advances both digital transformation and digital inclusion objectives and strategies to achieve greater access to GovTech services for PWDs.

Enabling Activities:

- Government executive leadership (e.g. Chief Information Officers, heads of key agencies and ministries, etc.) provides public commitments to the digital inclusion of and access to GovTech services for PWDs and older persons.
- Government leadership builds coordination across multiple departments – for example, finance and administrative services, planning and GovTech department services, research and information services, GovTech department operations, GovTech department security, finance, and human resources – for the implementation of accessible GovTech programs.
- GovTech department leadership engages disability groups, ICT industry, and citizens as part of external stakeholder processes to support improving GovTech accessibility.

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BOX 4 - Good Practices and Resources – Leadership and Engagement

- The US government’s “[Accessibility of Information and Communication Technology \(ICT\): an Overview for Government Executives](#)” course is designed for Heads of Federal Agencies, Chief Information Officers, Chief Acquisition Officers, and other Federal agency officials to assist them in successfully deploying Section 508 programs and leverage the skills and abilities of their employees and manage and mitigate the risk to the agency from potential litigation due to limited ICT accessibility.

Core Capability 3: Strategy and Policy

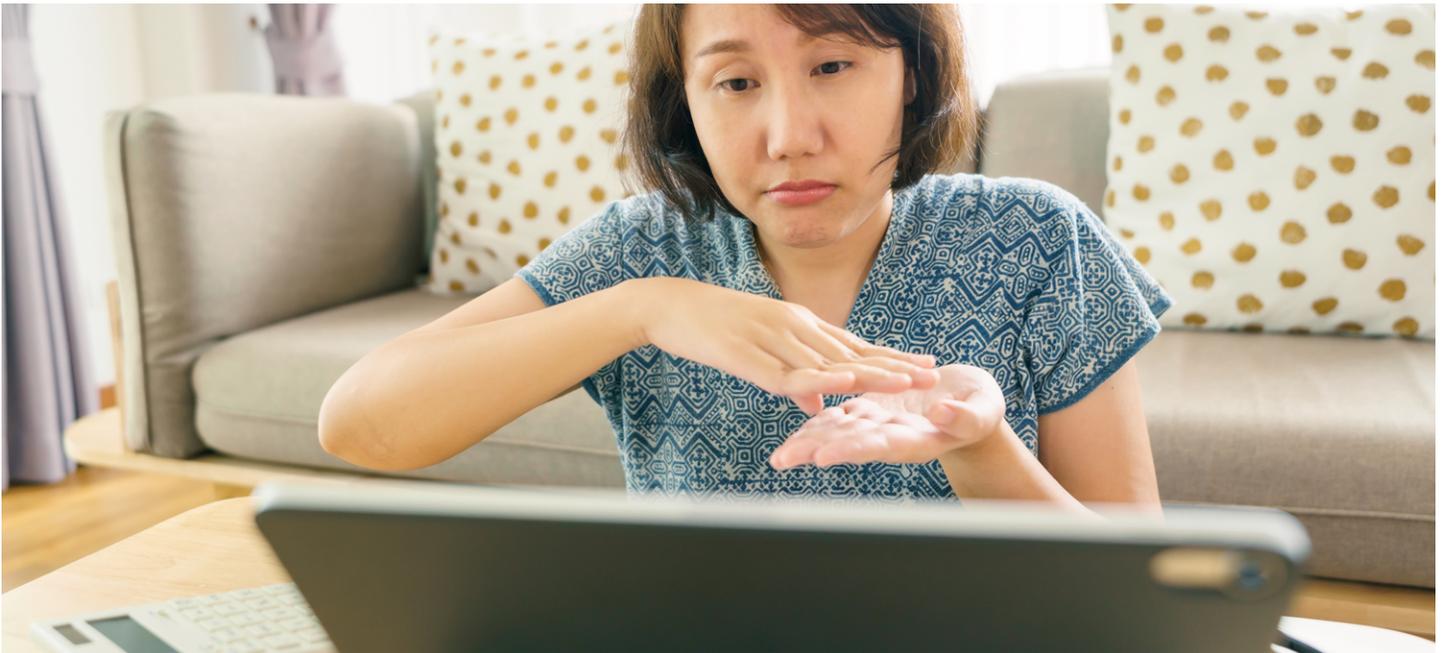
Implementation and streamlining of accessibility across government GovTech services requires a deliberate approach to develop and implement a digital inclusion strategy that optimizes for accessible GovTech, broad inclusion, and access to government services for PWDs and older persons. Digital government units as well as specific project teams are tasked to implement such strategies.

The adoption of relevant legislations or guidelines ensuring that government entities consider issues of accessibility

while designing government digital services provides an engagement statement as well as a mandatory framework, for all government entities to implement accessible services. However, the adoption of legislation would not be enough if deliberate steps and processes are not taken to include accessibility throughout implementation of GovTech projects. The next areas will focus on steps and activities that would ensure that strategies and policies would translate into implementation.

Enabling Activities:

- Create accepted processes, standards, guidelines, and defined metrics for developing, deploying, and maintaining accessible GovTech technology assets. Build accessibility guidelines and frameworks for GovTech projects. These standards and guidelines can be adopted into the country's legal and regulatory framework for implementation.
- Develop and implement across all government departments a formal digital inclusion strategy addressing broad connectivity, access, and digital skills. Include both process and outcome metrics specifically related to PWDs and older persons (e.g. digitalization of procedures and online dispute resolution) and benefitting PWDs both among the public and GovTech department employees.
- Define PWDs across various disability groups, for example, those who have long-term physical, mental, intellectual, or sensory impairments, as specific target beneficiaries in digital inclusion strategy work. Be sure to use country-specific data and outreach and also to include people with non-visible disabilities and consider people who may have a temporary disability due to injury. Article 1 of CRPD defines persons with disability as “those 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.”
- Identify discrete inclusion issues to be addressed for each disability group as part of its strategy. For example:
 - Can a deaf person get the messages of important public safety videos? Are the videos captioned for reading?
 - Can a person who is blind fill out a digital form? Is it tagged appropriately?
 - Can a person with intellectual and developmental disabilities use digital payment systems? Does it time out too quickly?
- Document GovTech accessibility metrics that are well-defined, quantitative, and relate to specific disability groups and improved access to GovTech services outcomes—for example, tracking and systematizing accommodation requests.
- Build a repository of domestic and international best practices and case studies in implementing accessibility and inclusion standards in GovTech projects that can be progressively expanded and updated to leverage new projects.
- Adopt legislation mandating that accessibility be a feature of government digital services, and specific guidelines and standards for their applications in government agencies.



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BOX 5 - Good Practices and Resources – Strategy and Policy

- India: [Accessible India Campaign \(Sugamya Bharat Abhiyan\)](#) is a nation-wide campaign launched by the Department of Empowerment of Persons with Disabilities (DEPwD) by the Ministry of Social Justice and Empowerment to provide universal accessibility to persons with disabilities. The campaign aims to provide equal opportunities to persons with disabilities to participate in all aspects of life and to live independently, including through the utilization of information and communication ecosystems.
- India: The government has developed the [Guidelines for Indian Government Websites](#), with a major focus on web accessibility, which is defined as addressing the needs of PWDs and ensuring that the sites are accessible with equal ease to all users on all of the major browsers and across all platforms and bandwidths—universally accessible.
- United Kingdom: the [Government Digital Service](#) is committed to making its websites accessible, in accordance with the [Public Sector Bodies \(Websites and Mobile Applications\) \(No. 2\) Accessibility Regulations 2018](#).
- Australia: All Australian Government agencies are required to ensure information and services are provided in a non-discriminatory accessible manner Under the Disability Discrimination Act 1992. [Australia.gov.au](#) has been designed to meet the Australian Government standard established in respect of this requirement.
- Brazil: The Brazilian government has adopted a set of legislations that aims at enforcing accessibility standards in access to information and government digital services. The country also adopted standards practices across the e-MAG, its website to ensure accessibility for PWDs: [Modelo de Acessibilidade em Governo Eletrônico –Government Electronic Accessibility Model](#).
- Austria: Austria has adopted a federal law, the [Web Accessibility Act](#), defining the requirements for accessibility of government websites and applications. Federal Ministries have each adopted an accessibility statement for their website, in accordance with the Web Accessibility Act and international standards.
- Hong Kong: The Office of the Government Chief Information Officer (OGCIO) launched a [Web/Mobile App Accessibility Campaign](#) and began implementing a multi-pronged strategy to drive the adoption of accessible design in websites and mobile applications for both the public and private sectors. Examples include government leadership, fostering awareness, promulgating guidelines and tips, nurturing expertise, and organizing recognition schemes.

Area 2: Budgeting for Accessible GovTech Projects

Implementing Accessible GovTech requires processes, steps, and investment that may come with costs. Nonetheless, those should be planned from the initiation of a project and should not be funded separately or as an afterthought. Backtracking digital services or redesigning those deployed initially without accessibility features will be more costly.

As with privacy and security, governments and public entities engaging on GovTech projects should budget for accessibility as an integral part of all GovTech deployments from their inception. Doing so will minimize costs through good universal, user-driven design, and avoid costly remediations after deployment. GovTech project budgets should support an accessibility plan by forecasting and allocating funding for critical items, such as personnel, training, software licenses, equipment, standards maintenance, external accessibility evaluations, and expert accessibility consulting. There should be agreement between business units about responsibility for accessibility changes, monitoring, and testing. In addition, active planning and budget management is critical considering changes throughout project lifetime including changing standards, the results of systematic assessment, new issues, and results of user feedback. In drawing up the project budget, agency or department finance staff should collaborate with the disability officer – as defined earlier – to have a basic understanding of any disability-related legal, regulatory, or operational standards requirements with which the GovTech solution should comply.

Budgetary considerations for the implementation and maintenance of accessibility in GovTech deployments include, for example:

- Personnel salaries and benefits: support for members of the dedicated accessibility leadership team, accessibility lead, IT professionals, and others that will undertake a range of accessibility-related activities including:
 - Developing, reviewing, testing, remediating, and on-going technical assistance related to accessibility of the GovTech solution.

- Creating training resources about accessibility and the GovTech solution for others.
- Organizing and supervising a help-desk system related to accessibility features and issues in the GovTech solution.
- Developing a technical accessibility “train-the-trainers” system for staff and partners involved in deploying, maintaining, and supporting the GovTech solution.
- Performing accessibility audits and periodic monitoring of accessibility.
- Running awareness and communication campaigns, both for government staff, organizations of PWDs and the broader public.
- Ensuring video captioning and other remediations of content that may be deployed via the GovTech solution.
- Equipment:
 - Purchase or licensing fees of enterprise-wide tools for monitoring and feedback.
 - Purchase or licensing fees of Assistive Technologies (AT) that can be used by the accessibility team for testing purposes.
 - Purchase of any additional computers, peripherals, or hardware needed to sustain the accessibility effort.
- Contracting with external experts or entities (including users with disabilities) for:
 - Accessibility training—for example, for web development staff.
 - Technical assistance over the lifecycle of the project.
 - User testing.

Some of these costs are incremental and some are already embedded as part of the design and rollout of any user-centric GovTech solution. For example, undertaking user acceptance testing is a good practice that should be carried out for any GovTech project.

Core Capability 4: Budgeting

Budgeting for accessible GovTech projects aims at supporting an innovative and integrated approach to improving accessibility. Accessibility should be designed as a feature from the beginning of a project including defining the budget required for implementation of Accessible GovTech.

Enabling Activities:

- Implement a documented, detailed approach to request funding for accessible GovTech as part of GovTech deployments.
- Conduct annual and multi-year financial planning and budgeting to support improving accessibility in GovTech programs. Funds can cover updating legacy systems, maintaining design guides and standards, staffing, training, and helpdesk support, for example.
- Tie budget allocations for GovTech digital transformation programs and technology investments to impacts and metrics that include outcomes for PWDs and older persons. Track return on investments for accessibility and inclusion initiatives.
- Allocate funding in GovTech project budgets for training and capacity building.

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BOX 6 - Good Practices and Resources - Budgeting

- The W3C Web Accessibility Initiative provides a useful resource titled, "[Determine budget and resources](#)," that includes aspects to be considered when determining the budget resources required to carry out the activities planned.
- The US National Center on Disability and Access to Education (NCDAAE) at Utah State University provides a resource titled, "[Budgeting for Your Web Accessibility Plans](#)," that features categories of budget expenses and descriptions of how each may be contributing to support the ICT accessibility work at an organization.
- The NCDAAE provides another valuable resource titled, "[Goals Cost Case Study - Costs of Web Accessibility in Higher Education](#)," a report created by the Gaining Online Accessible Learning through Self-Study (GOALS) project. Although it provides the experiences of six higher education institutions, it may be considered useful for government entities to understand some of the costs they may incur as they work to improve the accessibility of their ICT services.
- The Business Disability Forum provides a resource titled, "[Best Practice Guide – ICT Accessibility funding](#)," to help organizations consider the different types of ICT accessibility-related activities that need to be funded, and hence to make arrangements for budgets to be identified and managed.

Area 3: Procurement of Accessible GovTech Solutions

Some GovTech projects may only use internal IT professionals and tools to develop, deploy, manage, and maintain the solution. However, many GovTech solutions will involve procuring all or some aspects of the GovTech solution development and deployment through vendor contracts.

When using the public procurement process to support a GovTech project, language should be included in the call for

tender or request for proposal document that clearly specifies the accessibility criteria to be met by the vendor or developer. These criteria can be based on internationally recognized standards or any national standards, if they exist. Including specific obligations regarding conformance to accessibility standards and criteria in all vendor contracts allows for assessment of delivered products by the commissioning government units.

Core Capability 5: Procurement

Including accessibility features from the initiation of the procurement process and the call for tenders helps ensure that they are considered and are formally defined for accountability.

Enabling Activities:

- Develop and implement standard processes, policies, and guidelines for incorporating ICT accessibility and digital inclusion in the procurement and development process for technology products, services, and subcontractors.
- In all calls for tender and requests for proposals, include clear statements of user accessibility needs that are based on national and/or internationally recognized standards. Review existing ICT procurement policies and contracts to confirm they reference to a recognized global ICT accessibility standard. Core Capability 6 below highlights global standards.
- Engage GovTech technology vendors proactively and directly on accessibility throughout the procurement process, including when doing market research and evaluating proposals.
- Require systematic user experience assessment, testing, and adjustment throughout the project cycle. Perform testing prior to award for commercially available digital services and technology solutions, and prior to deployment for solutions that are developed, customized, and/or integrated with other technology components post award.
- Apply systematic and commonly used conformity assessment processes to confirm that the ICT products and services to be procured reach the stated level of accessibility. This would require creating processes and guidelines to determine vendor compliance with ICT accessibility standards and requirements prior to procurement, and may include testing, audits, use of relevant and readily available artifacts such as checklists, and scoring/vendor evaluation documents. Ensure all vendor obligations regarding compliance with ICT accessibility standards and requirements are included in the contract with the vendor. It is also important to require that vendors provide detailed responses to accessibility criteria.
- Give preference to solutions that support accessibility and digital inclusion outcomes such as increased participation and easier communication. For example, some applications come with built-in assistive technology and tools that check the web and document accessibility.
- Document which products meet the applicable accessibility standards. If not, product fully meets applicable standards, document which products “best meets” them. Include in contract language penalties to be applied if vendor does not meet accessibility standards and/or require remediation at contractor expense.
- Allocate a small budget to perform a “sniff test” accessibility validation after the vendor has tested for accessibility and provided test results. This should also be included in the contract.
- Develop and track the provision of alternative means or a remediation and accommodation plan when a fully accessible solution is not procured.

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BOX 7 - Good Practices and Resources - Procurement

- The US government has created a resource, [BuyAccessible.Gov](#), to help agencies and departments purchase accessible ICTs. It includes a menu-driven tool to help create a tender for accessible products and services as well as actual language to insert in a tender.
- The European Standard EN 301 549:2018, “[Accessibility requirements for ICT products and services](#),” 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 form that is suitable for use in public procurement.
- Many companies make publicly available a [Voluntary Product Accessibility Template \(VPAT™\)](#) document that explains how their ICT products meet the US federal government’s Section 508 Standards for IT accessibility. VPATs™ can help government agency contracting officials and buyers assess ICT for accessibility when doing market research and evaluating proposals.
- G3ict has created a web portal, [BuyICT4All.org](#), dedicated to supporting accessibility in ICT procurements. It includes [9 Steps to Procuring Accessible ICTs](#) and an [Accessibility Discussion Guide for Engaging ICT Vendors](#).
- The International Telecommunication Union (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 policy covers the complete procurement cycle, from defining procurement personnel roles and responsibilities through to management of awarded contracts.

Core Capability 6: Global Standards

Global standards can serve as guide in the definition of specific requirements to be included in GovTech solution but also serve to inform technology plans, investments, and budget.

Enabling Activities:

- Define as part of the tender the required use of global ICT accessibility standards to guide and inform ICT infrastructure technology plans and investments—for example, [EN 301 549](#) (EU); [Section 508 of Rehabilitation Act of 1973](#) (US) technical requirements; and [WCAG 2.0/ISO/IEC 40500](#) (2013) and its updated version [WCAG 2.1](#) (2018).
- Formalize and fund standards training activities for GovTech department staff, for example, IT and procurement professionals.
- Engage the national institute of standards and technical norms, or equivalent body, in adopting a national ICT accessibility standard to facilitate support for GovTech programs and accessible technology deployments. Many countries including Australia and Mexico have adopted EN 301 549 as their national standard.
- Stay informed of updates to important global GovTech accessibility standards. Partner with disability organizations, civil society, academia, and industry to support accessibility standards awareness and training for external users, developers, and IT professionals.

BOX 8 - Good Practices and Resources – Global Standards

- The [Guide to Implementing Priority ICT Accessibility Standards](#) provides an inventory of three key standards that define ICT accessibility criteria and presents a step-by-step checklist of impactful actions that leaders can take to ensure that their city is familiar with these standards and are utilizing them effectively to improve ICT accessibility.
- The US General Services Administration’s (GSA) [Section 508](#) requires that all US federal agencies’ electronic and information technology must be accessible to people with disabilities. The Section 508 website includes some of the most up-to-date resources on technologies accessible to people with disabilities – technologies that are also relevant to developing countries.
- The W3C [Web Content Accessibility Guidelines \(WCAG\)](#) provide a single shared standard for web content accessibility that meets the needs of individuals, organizations, and governments internationally, and explains how to make web content more accessible to people with disabilities.
- GovTech Singapore published the [Digital Service Standards \(DSS\)](#) guide to help agencies to implement digital services that meet the Digital Government Blueprint (DGB) goal of delivering digital services that are easy, seamless, and relevant for citizens and businesses.

Area 4: Implementing a User-Centric Development Lifecycle

The GovTech project development lifecycle should ensure that all steps required to use the service are as accessible and easy to carry out as possible by everyone, including persons with a broad range of disabilities. This is best achieved when services are designed and delivered based on the needs of the people that they intended to serve. A user-centric and accessible development lifecycle should be required whether the GovTech solution is being developed internally or by a vendor.

Consider service co-creation tools, methodologies, and spaces, and the active participation of users with disabilities in the co-creation process—including as designers. This would require mechanisms for involving PWDs in all phases of the development process, for example:

- In the design stage, User Experience (UX) designers can approach accessibility as an aspect of user experience instead of simply assessing via a checklist of technical requirements. This can be done by observing how persons

with different disabilities interact with a computer, mobile phone, tablet or digital kiosk, using only a keyboard, through screen hand gestures or taps, and with assistive technologies such as screen readers and alternate input devices.

- User testing should be implemented throughout the lifecycle, going beyond technical and automated accessibility testing to functional testing with assistive technologies and by users with disabilities.
- Consider approaching and partnering with relevant disability organizations to identify users with disabilities to involve throughout the development lifecycle. These include employee resource groups for PWDs, social media group, Disabled Persons Organizations, local or regional government vocational rehabilitation services and other social services supporting PWDs, organizations of older persons, and independent living organizations.

Core Capability 7: User-Centric Design

Inclusive GovTech programs understand the needs and priorities of users with disabilities and the barriers they face when using and interacting with GovTech solutions and technology deployments.

Enabling Activities:

- Apply user-centered design techniques to create inclusive end-to-end GovTech services that allow for customizable applications and personalized services for people with disabilities.
- Prioritize areas for improvement by asking users with disabilities which services they find most problematic, and measure their level of dissatisfaction.
- Require that GovTech service designers not only collect, analyze, and understand customer data along the customer journey, but also formulate and validate assumptions on the way the service will be used by users with disabilities. This includes formulating assumptions about what certain steps and/or touchpoints of the customer journey look like, and what pain points exist for PWDs, and validating assumptions by:
 - Interviewing users with disabilities.
 - Observing users with various disabilities performing actions in their own day to day lives, including with their personal assistive technology devices.
 - Asking users with disabilities to note every action they take related to a specific goal of the service and how they felt during those interactions over days, weeks, or months during usability testing as well as during the course of the usage of the services.
- Define specific and effective roles and responsibilities related to accessibility across the entire development lifecycle.
- Implement a quality control plan with processes for reviewing and validating accessibility at each phase of the development process. Address potential accessibility issues at each stage of the lifecycle.
- Require the use of accessible development artefacts – for example, pattern libraries, reusable accessible interface components, and accessible wireframes for web pages – for each major stage of the development lifecycle.
- Require the filing of specific accessible development artefacts with a program office as part of the development and testing process.
- Provide easy-to-use, multi-mode grievance redress mechanisms/feedback loops so that PWDs can raise the issues they face throughout usage of the services.
- Require standard accessibility signoffs by senior executives for all project phases. Accessibility testing results are included as part of project completion decisions.

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BOX 9 - Good Practices and Resources – User-Centric Design

- The US Federal Government has a web portal, [Usability.gov](#), that provides resources on user experience (UX) best practices and guidelines to support practitioners in both the government and private sectors. The site provides overviews of the user-centered design process and various UX disciplines. It also covers the related information on methodology and tools for making digital content more usable and useful.
- GovTech Singapore published the [Digital Government Blueprint](#) to help build user-centric digital government services that cater to citizens' and businesses' needs and help focus on creating services around the needs of all citizens, including those of PWDs, by taking them into account during the design and development of digital government services.
- The Government of Canada organized a webinar, "[Effectively Engaging People with Disabilities](#)," that explores best practices for effectively engaging PWDs in government decision-making.
- McKinsey & Company published "[Implementing a citizen-centric approach to delivering government services](#)," which has detailed steps governments should take to design and deliver customer-centric services by understanding the needs of their citizens and translating those needs into targeted, effective service-delivery improvements to increase citizen satisfaction and reduce costs.
- [USA.Gov](#), the Official Guide to Government Information and Services, published "[Journey Mapping Our Customer Experience](#)," a practical description of how to use journey maps to visually represent a customer's entire journey in a service, explore key interactions and experiences, and identify pain points and gaps in the customer's experience, including channel, content, and device gaps.
- The [U.S. General Services Administration's Centers of Excellence \(CoE\)](#) has published articles on customer journey maps:
 - [What they are.](#)
 - [How to read them.](#)
 - [How to use them to get insights into your customers and to validate \(or reject\) assumptions.](#)
- In 2016, Design Singapore Council collaborated with Singapore's National Council of Social Services (NCSS) to lead a team tasked with understanding the unmet needs of people with disabilities by applying an immersive, ethnographic research method of shadowing a day in the life of 25 people with disabilities. It organized co-creation sessions involving more than 140 public servants, social services and healthcare professionals, people with disabilities, and caregivers, to design solutions collaboratively. The compiled ethnographic insights, trends, and solutions became an open source publication made available online, enabling other agencies in the ecosystem to leverage the ideas in other projects to improve life for people with disabilities. Read more [here](#).

Core Capability 8: Deployment, Maintenance, and Remediation

Accessible GovTech solutions are deployed with technology and assets that are inclusive, broadly adopted, and usable by everyone, including PWDs and older persons. Nonetheless, a service or system can evolve and be improved over time. It is then necessary to define tools and processes to allow for

regular assessment and revision. Also, even though steps are taken from inception to systematically include accessibility as a feature, issues requiring remediation may still arise after the service goes live.

Enabling Activities:

- Create and use government-wide design guides that define and support improving accessibility and digital inclusion.
- Perform regular accessibility assessments and audits of GovTech technology assets and deployments (both developed and procured) using global ICT accessibility standards such as EN 301 549, US Section 508, and World Wide Web Consortium's (W3C) Web Content Accessibility Guidelines (WCAG) 2.1.
- Allocate centralized funding for remediation of accessibility issues.
- Catalog accessibility and usability issues and remediations for continuous improvement, and share best practices across sectors.

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BOX 10 - Good Practices and Resources - Deployment, Maintenance, and Remediation

- The W3C Web Accessibility Initiative (WAI) provides useful resources to establish an [accessibility monitoring framework](#) and to [sustain accessibility](#) including monitoring websites, engaging with stakeholders, tracking standards and legislation, adapting to new technologies, and incorporating user feedback.
- The US GSA's "[Technology Accessibility Playbook: How to Build an Effective Technology Accessibility Program](#)" [course](#) is designed to provide guidance to Chief Information Officers (CIO), Chief Acquisition Officers (CAO), and Agency Section 508 Program Managers in federal government agencies on how to build and implement a Technology Accessibility Program.
- The City of Chicago Design Office Web Accessibility section features development best practices, testing guides, and tools.

Core Capability 9: Innovation

Accessible GovTech programs can take advantage of the use of leading-edge technologies – Artificial Intelligence, Internet-of-Things, Augmented Reality, Virtual Reality – and ICT innovation as part of technology deployments to address accessibility and inclusion issues such as indoor wayfinding, or to assess the accessibility of built environments.

Enabling Activities:

- Promote ICT innovation and the use of leading-edge technologies to address longstanding accessibility and inclusion issues. For example, Artificial Intelligence (AI) and machine learning could help GovTech departments digitize important legal documents that, unlike paper or images, can be read by assistive technologies for PWDs. Similarly, technology, including video and collaboration software as well as artificial and virtual reality, can support remote participation of PWDs in GovTech department proceedings, including with live captioning to provide additional support for those with auditory and other disabilities.
- Partner with disability organizations, industry, and academia on formalized and funded activities using ICT innovation and leading-edge technologies.



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BOX 11 - Good Practices and Resources - Innovation

- The 2018 report, [“Plug and Pray? A disability perspective on Artificial Intelligence, Automated Decision-making and Emerging Technologies,”](#) by the European Disability Forum:
 - Outlines the opportunities of emerging technologies for PWDs.
 - Highlights the concerns and risks that need to be addressed to ensure that emerging technologies are inclusive.
 - Provides practical recommendations to disability organizations, industry, and policymakers to enable them to engage in a meaningful and productive dialogue about emerging technologies.
- G3ict has created the [Inclusive Innovation Playbook](#) to help cities, their partners, and stakeholders to define inclusion as part of the technology innovation process and integrate it into urban innovation ecosystems such as incubators, accelerators, and investors. Other entities with an interest in both innovation and inclusion – universities, economic development zones, and national governments – will also benefit from the Playbook.
- The US National Council on Disability has published the [National Disability Policy: A Progress Report 2016](#), which demonstrates how ICT and assistive technology improves the lives of people with disabilities. The promising initiatives from the US government include: the mobile robot with two-way video between the classroom and a home-based student allowing students with disabilities to meet with peers and move around the school virtually; Health Information Technology supporting people with disabilities and chronic conditions for self-management, health monitoring, care coordination, and patient-clinician communications through mobile and telehealth technology, cloud-based services, and assistive technologies; and EyeNote, an aid for people who have a visual impairment to identify denominations of US paper currency by positioning a bill in front of camera built into a phone or device to allow the app on the Apple IOS platform to scan the bill and announce the bill’s denomination in English or Spanish.

Area 5: Maintaining the Engagement and Building Capacity

Effective disability and accessibility training for all impacted roles in the development lifecycle is essential to ensure a successful GovTech project as well as change management. Ideally, training will adhere to a defined organizational training plan. Effective training may commence with general disability awareness for all staff and extend to increasing levels of technical accessibility complexity based on needs of the role. Training should be required of vendors playing key roles throughout the project development lifecycle. For some GovTech projects, training on accessibility features and interfaces may even extend to users and the general public.

Additional aspects to consider as part of training to support effective development and deployment of accessible GovTech solutions include:

- Tailor trainings to specific roles and job descriptions.

- Create and publish a training calendar of available topics and sessions.
- Identify which trainings are mandatory for which roles, including vendors. Keep accessibility training completion records.
- Create or look to existing job aids/tools for additional support to specific job roles in implementing accessibility in GovTech solutions.
- Consider requiring ICT accessibility professional certification for some roles.
- Assess training quality regularly and update content on a pre-determined schedule.
- Ensure that all training resources are themselves accessible.
- Identify new areas of accessibility training based on overall program metrics.

Core Capability 10: Capacity Building

An inclusive GovTech program supports the development of inclusive and accessible citizen-centric public administration services. It also conducts training programs aimed at all stakeholders who play a role in procurement and those creating or delivering GovTech services.

Enabling Activities:

- Implement standard processes and policies for training on disability and inclusion for all staff who work on the design and delivery of GovTech solutions.
- Identify skill gaps in various roles within an organization to develop a role-based training program for all staff. Training could address:
 - Overview of policies and laws supporting ICT accessibility.
 - Role of ICT accessibility standards in public procurement and how public procurement can be leveraged to encourage innovation and improve the quality, availability, and affordability of accessible ICTs.
 - Basics of accessible digital content.
 - Technical skills for designing and developing accessible websites.
- Define points such as new employee onboarding where all staff – entire civil service or, where resources are limited, staff responsible for the delivery of GovTech services – must participate in disability and inclusion training.

Encourage staff to join accessibility-focused professional associations as well as to acquire relevant accessibility certification, especially in the field of digital inclusion and ICT accessibility.

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BOX 12 - Good Practices and Resources - Capacity Building

- The International Association of Accessibility Professionals convenes accessibility professionals from around the world to define, promote, and improve the accessibility profession through networking, education, and certification. It has created an accessibility body of knowledge to support training and certification of thousands of professionals worldwide.
- The Texas Health and Human Services Accessibility Center Training web page features training information and resources regarding accessible information and communications technology (ICT) content.
- The Missouri Assistive Technology program Information Communication Technology (ICT) Accessibility Training website contains numerous courses on different accessibility-related topics.
- Microsoft has an internal organizational training and certification program focused on increasing employee knowledge of accessibility. Earners of its Accessibility in Action digital badge must demonstrate their knowledge and skills in creating an inclusive culture, implementing accessibility best practices, presenting inclusively, and hosting inclusive events. More specific to their business, employees must demonstrate an understanding of how accessibility is part of Microsoft's corporate mission.

Core Capability 11: Culture of Diversity

Inclusive GovTech programs create and sustain a culture of diversity to support achieving inclusion and access to GovTech solutions and strategies. Additionally, fostering a culture of diversity contributes to the development of a workforce that includes PWDs and promotes disability awareness across all GovTech department staff through training programs.

Enabling Activities:

- Implement standard processes and policies to support greater diversity across employee recruitment and hiring efforts. This means:
 - Ensure digital recruiting channels are accessible.
 - Invite candidates with disabilities to apply via dedicated pathways.
 - Train hiring teams on disability etiquette and accommodations.
 - Publish policies for workplace adjustments.
 - Inform all new employees about disability employee resource groups and other supports
 - Provide workplace adjustments supported by a centralized team and centralized funding).

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BOX 13 - Good Practices and Resources - Culture of Diversity

- The American Association of People with Disabilities (AAPD), published a [report](#) revealing that companies that embrace best practices for employing and supporting more PWDs in their workforce outperformed their peers and were, on average, twice as likely to have higher total shareholder returns than those of their peer group.
- Microsoft has developed and makes available a number of [resources on inclusive Hiring for People with Disabilities](#). The company has a goal for a diverse workforce that includes people with disabilities and has documented many effective strategies for employing people with disabilities, including holding hiring events, inclusive interviews, training human resource teams on disability etiquette, and providing interview accommodations.

Core Capability 12: Transparency

In inclusive GovTech programs, a culture of transparency is central to the digital inclusion of PWDs and older persons. Transparency extends to providing information in accessible formats that all persons can readily understand.

Enabling Activities:

- Make information about accessibility, digital inclusion, and available accommodations publicly available. Proactively disseminate this information.
- Collect and publish data on users to better understand whether or not solutions are being accessed by all citizens and formulate policies and solutions based on the data.
- Establish tracking mechanisms to ensure transparency and accountability in implementing accessibility and inclusion in all GovTech projects.
- Include an Accessibility Statement on all GovTech service websites to communicate and demonstrate commitment to accessibility and to users with disabilities. Users should also be provided with information about the accessibility of the content of the website.
- Define standard processes and policies to require that information made available digitally and through GovTech programs is in accessible formats—readable by screen readers, braille, Easy Read, for example.

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BOX 14 - Good Practices and Resources - Transparency

- The government websites of some countries include accessibility statements on their GovTech websites for example in the United Kingdom, Australia, New Zealand, and India.
- The W3C Web Accessibility Initiative (WAI) website has practical resources on [how to create an accessibility statement](#).
- The [GOV.UK](#) website includes a [sample accessibility statement](#) for a fictional public sector website or app based on the model statement published by the European Union.
- United Kingdom Government [Accessibility Statement](#).
- Australian Government [Accessibility Statement](#).
- New Zealand Government [Accessibility Statement](#).
- Digital India [Accessibility Statement](#).
- European Union [Model statement](#).
- The Australian Government provides guidance on making content accessible [Digital Guides on Accessibility and Inclusivity](#).

Core Capability 13: Community Engagement and Grievance Redress Mechanisms

Inclusive GovTech programs proactively and regularly solicit (e.g. through meetings, surveys, and social media) feedback and ideas from all disability groups to improve digital inclusion of GovTech programs.

Enabling Activities:

- Proactively solicit through public meetings, surveys, grievance redressal mechanisms, and social media feedback and ideas from all disability groups to improve digital inclusion and access to GovTech services.
- Provide easy-to-use, multi-mode, grievance redress mechanisms/feedback loops so PWDs can raise issues they face.
- Publish feedback from stakeholder engagement and grievance redress mechanisms.

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BOX 15 - Good Practices and Resources - Community Engagement and Grievance Redress Mechanisms

- The “[Effectively Engaging People with Disabilities](#)” webinar was organized by the Government of Canada as part of an inclusive open government series under the Open Government Partnership (OGP). It profiles engagement best practices that could be applied to OGP processes as well as specific initiatives that are increasing the involvement of diverse groups in government decision-making. Different communities of interest have different needs with respect to engagement and consultation processes. This first session explores best practices for effectively engaging PWDs.
- Recognizing that one of the biggest challenges to creating more inclusive public services is raising awareness of disability and ICT accessibility, G3ict has created a [tool designed to help effectively communicate](#) the advantages of incorporating ICT accessibility into digital services. It provides the business, human rights, and technical arguments for stronger commitment to the digital inclusion of persons with disabilities. It can be used to help communicate to a variety of stakeholders the idea that public services, including GovTech, must also be accessible. This tool is available in 9 languages.

While many of the examples provided in this note come from higher income countries, accessibility is a growing priority across all income groups. As of 2020, over 145 countries had launched a program to use technology to drive the transformation of their administrations and service delivery.²⁵ The approach taken by developing countries and their higher-income counterparts often differ due to a lack of resources. For instance, inequalities have been shown to exist in access to assistive devices and services between people living in

different countries, or regions of a country under different economic conditions.²⁶ As developing countries embark on the journey to adopt GovTech solutions, it is imperative that they take appropriate steps to ensure that the benefits of GovTech are inclusive and can be reaped by all. Some developing countries have taken impressive steps in this regard and have employed some of these capabilities to ensuring accessibility in the delivery of services.

25. The World Bank. GovTech Launch Report and Short-Term Action Plan, 2020.

26. Rohwerder, Brigitte. Assistive Technologies in Developing Countries, Institute of Development Studies, 2018.

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BOX 16 - Core Capabilities in an Emerging Economy – Kosovo’s Experience

The [State Portal of the Republic of Kosovo](#) is an example of a GovTech web-based service with reasonably high levels of accessibility that shows what can be done in developing countries. A number of Core Capabilities were deployed in building this portal, including:

Core Capability 2: Leadership and Engagement: The National Strategy on the Rights of Persons with Disabilities (“The National Strategy”) was drafted under the leadership and coordination of the Office of the Prime Minister/Office for Good Governance.

Core Capability 3: Strategy and Policy: The National Strategy is a mechanism to ensure that the United Nations Convention on the Rights of People with Disabilities principles are incorporated in the policies and programs that impact the life quality of People with Disabilities in the Republic of Kosovo. Under Strategic Objective 5 of the National Strategy, the state must undertake all the necessary measures in order to provide PWDs with access to information and technology and information systems on equal grounds.

Core Capability 6: Global Standards: as a result of the National Strategy, Universal Accessibility principles are applied to Kosovo’s public products, services, and environments developed by the government to ensure that they are accessible to the greatest extent possible. Also, preliminary accessibility testing of the State Portal of the Republic of Kosovo using automated accessibility check software, such as Wave, aXe, and ARC, indicated a low number of violations of the Web Content Accessibility Guidelines 2.1 success criteria.

Core Capability 7: User-Centric Design: The National Strategy focused on engaging PWDs to design accessible services and providing appropriate support and adjustments for participation in this process. As a result, Kosovo’s public services strive to be person-centered in response to the needs and wishes of every individual, including PWDs.

Core Capability 13: Community Engagement and Grievance Redress Mechanism: The National Strategy is the result of a joint effort of governmental Institutions of the Republic of Kosovo and national civil society organizations representing the interests of PWDs in Kosovo, which provided valuable contributions in developing this strategy. Kosovo’s public policies, practices and services developed by the government as a result of the strategy focus on engaging PWDs in designing and evaluating services and removing all barriers that affect them, providing appropriate support and adjustments for participation.



Conclusion

Globally, an increasing number of governments are taking steps to ensure that public services are delivered in an efficient, equitable, and accessible manner. Thus, more countries have embarked on the path of digital transformation and service delivery taking advantage of GovTech solutions. The COVID-19 pandemic has amplified the interest of countries for innovative ways to remotely deliver services and maintain government operations. Users of government's digital services come from different walk of life with specific interests and challenges in accessing these services. There are huge opportunities to reach the millions of people with disabilities, including those who are poor and facing other digital inclusion barriers with sufficient attention to the incorporation of these aspects in the design of GovTech strategies and solutions. Governments need to research and respond to the challenges related to accessing or using government digital services for diverse reasons. Such challenges include technological and infrastructure constraints and unsuitable digital government services that are not adapted to user constraints such as disability or illiteracy.

Disabilities, whether temporary or permanent, are challenges that users of digital services may face, affecting an estimated 1 billion people across the world. While GovTech solutions have the potential to impart many benefits on society, they need to be designed in a way that they are accessible and usable for all intended users. At the global level, development organizations, regional authorities, and countries have developed policy frameworks, guidelines, and practices to ensure that Government digital service are designed to ensure that they are accessible regardless of disabilities and physical capabilities. This guidebook has drawn from these experiences and resources to identify five key areas for development and their supporting core capabilities to which development practitioners and governments can refer to strengthen their capacity to develop GovTech solutions that are universally accessible. The five identified areas include:

- Area 1: Strengthening institutions, leadership, and policy
- Area 2: Budgeting for accessible GovTech projects
- Area 3: Procurement of accessible GovTech solutions
- Area 4: Implementing a user-centric development cycle
- Area 5: Maintaining the engagement and building capacity

While most these initiatives have been led in higher and middle-income countries, they are relevant to any country that is engaged in public sector digital transformation. Nonetheless, key take-aways are:

- For everyone to benefit from the use of GovTech solutions, these solutions require a people-first approach. Inherent to this approach is the responsibility on the part of governments, development practitioners, and policy makers to ensure that GovTech solutions are citizen-centric and accessible to all. Accessibility is a group responsibility that must be borne by all. The development of GovTech services should be done collaboratively with intended users, including those with disabilities and services must be tested for accessibility by a diverse

group of users. Throughout implementation, collecting feedback from users is also important for correcting and adjusting to ensure that the solutions are fit for purpose.

- Institutions, policies, leadership, and strategic engagement matter. They are important for ensuring the adoption of accessibility as a key feature of public services.
- Adopting accessible GovTech requires a deliberate approach. Accessibility, to be effective, should be included as a feature from the conception and initiation of digitalization projects, and should not be an afterthought. This includes budgeting for accessibility as part of a project's inception stage and through the procurement process. While remediation is possible, it is best to plan for accessibility from the beginning.
- Adopting accessible GovTech requires continuous work to build capacity and foster innovation. Technology is ever changing, therefore adopting accessible GovTech also requires that development professional and governments be attentive to technological evolutions that can offer improved accessibility for GovTech service users.



Annex 1: Resources

World Bank

- [GovTech: Putting people first.](#)
- [Environmental and Social Framework](#) (pdf).
- [Disability Inclusion and Accountability Framework](#) (pdf).
- [World Inclusive Cities Approach Paper, May 2015](#) (pdf).
- [GovTech Digital Transformation for User-Centric Public Services Project for Tunisia, 2019.](#)
- [Building Effective, Accountable and Inclusive Institutions in Europe and Central Asia. Case Study 3.1. Albania: Citizen-Centric Service Delivery.](#)
- [Environment & Social Framework for IPF Operations. Non-Discrimination and Disability. Good Practice Note.](#)

European Union

- [Exploring Digital Government transformation in the EU - Analysis of the state of the art and review of literature, 2019.](#)
- [Shaping Europe's digital future. Policy: Web Accessibility.](#) November 2019.
- [Putting accessibility at the heart of e-government.](#) November 2012.
- [EU eGovernment Benchmark Insight Report Vol I & II - 2016.](#)
- [EU eGovernment & Digital Public Services.](#)
- [The Digital Economy and Society Index \(DESI\).](#)
- [EU Digital Government Factsheet Estonia 2019.](#)
- [Exploring Digital Government transformation in the EU - 2019.](#)
- Mandate 376. [What is ICT accessibility? Examples.](#)
- European Parliament (2015). [eGovernment. Using technology to improve public services and democratic participation.](#)
- [European Accessibility Act.](#)

United States

- US Access Board. [Questions & Answers about Section 508 of the Rehabilitation Act Amendments of 1998.](#)
- US General Services Administration (GSA). [IT Accessibility Laws and Policies. Section 508 of the Rehabilitation Act of 1973.](#)
- US GSA. [“Technology Accessibility Playbook: How to Build an Effective Technology Accessibility Program”](#) course.
- US GSA. [Training courses.](#)
- [Missouri Assistive Technology program Information Communication Technology \(ICT\) Accessibility Training.](#)
- [Texas Health and Human Services Accessibility Center Training.](#)
- [International Association of Accessibility Professionals.](#)
- [Microsoft. Resources on Inclusive Hiring for People with Disabilities.](#)
- National Center on Disability and Access to Education (NCDAE). [“Budgeting for Your Web Accessibility Plans.”](#)
- National Center on Disability and Access to Education (NCDAE). [“Goals Cost Case Study - Costs of Web Accessibility in Higher Education.”](#)
- U.S. General Services Administration. [BuyAccessible.gov.](#)
- U.S. General Services Administration. [Usability.gov.](#)
- U.S. National Council on Disability. [National Disability Policy: A Progress Report, 2016.](#)
- Official Guide to Government Information and Services. [Journey Mapping Our Customer Experience.](#)
- Digital.gov. [Federal Social Media Accessibility Toolkit Hackpad. Improving the Accessibility of Social Media for Public Service.](#)

United Kingdom

- UK Government Digital Service. [The importance of creating inclusive government services,](#) 29 June 2018.
- UK Government Digital Service. [Policy paper: Government Transformation Strategy,](#) February 2017.
- UK Government Digital Service. [Benefits of Accessible Design.](#)
- GOV.UK Service Manual. [Making your service accessible: an introduction.](#)
- [UK Government Digital Service.](#)
- UK Government [Accessibility statement.](#)
- GOV.UK. [Sample accessibility statement.](#)

World Wide Web Consortium Web Accessibility Initiative (W3C WAI)

- [Resources on Alternative Text for Images.](#)
- [Determine budget and resources.](#)

- The European Standard [EN 301 549:2018 “Accessibility requirements for ICT Products and Services.”](#)
- [Developing an Accessibility Statement.](#)

G3ict – The Global Initiative for Inclusive ICTs

- [e-Accessibility Policy Toolkit for Persons with Disabilities.](#)
- [University of Wollongong \(Australia\) Accessible Communications - Tapping the potential in public ICT procurement policy.](#)
- [ICT Accessibility Standards & Guidance.](#)
- [Smart City Inclusive Innovation Playbook, 2019.](#)
- [E-Government Solutions for Persons with Disabilities from the Clarity Project, 2018.](#)
- IAAP: [Smart Cities for All: Leveraging Technology and Data for More Inclusive Cities Worldwide, April 16, 2020.](#)

ITU – International Telecommunication Union

- [Electronic Government for Developing Countries, 2008.](#)
- [G3ict – ITU Model ICT Accessibility Policy Report, 2014.](#)
- [Digital Skills Toolkit.](#)

United Nations

- UN DESA. [E-Government Survey 2020. Digital Government in the Decade of Action for Sustainable Development.](#)
- UN DESA. [Compendium of Innovative E-Government Practices. Volume V.](#)
- [2020 United Nations E-Government Survey.](#)
- UN ESCAP. [Incheon Strategy to “Make the Right Real” for Persons with Disabilities in Asia and the Pacific.](#)
- ESCAP/China Disabled Persons’ Federation (CDPF). [High-level Intergovernmental Meeting on the Midpoint Review of the Asian and Pacific Decade of Persons with Disabilities, 2013-2022 \(2017\).](#)
- United Nations SDG Knowledge Platform. [Transforming our World: The 2030 Agenda for Sustainable Development.](#)
- [E-Government Survey 2018. Gearing E-Government to Support Transformation towards Sustainable and Resilient Societies.](#)
- United Nations. [The Sustainable Development Agenda.](#)
- UN DESA. [UN Global E-government Readiness Report 2005 - From E-government to E-inclusion \(pdf\).](#)

Singapore

- [GovTech Singapore Annual Report 2017-18.](#)
- [GovTech Singapore. Digital Service Standards Delivering User-Centric Services 2018.](#)
- [GovTech Singapore. How GovTech created a web accessibility testing tool. March 2020.](#)
- [GovTech Singapore. Digital Readiness Blueprint 2019.](#)
- [GovTech Singapore \(2020\). Doubling down on cloud to deliver better government services.](#)
- [GovTech Singapore \(2018\). 6 things you need to know about the Digital Government Blueprint.](#)
- [GovTech Singapore \(2019\). How the government is building citizen-centric digital services.](#)

Canada

- Government of Canada. July 11, 2019. [Canada's first federal accessibility legislation comes into force.](#)
- Government of Canada. [Making an Accessible Canada for Persons with Disabilities.](#)
- Government of Canada. [Effectively Engaging People with Disabilities.](#)

Australia

- Australian Government, Digital Transformation Agency. [Digital Service Standard.](#)
- Vic.gov.au. [Make content accessible - Digital Standards.](#)

India

- Government of India. [Guidelines for Indian Government Websites.](#)
- Government of India. [Accessible India Campaign \(Sugamya Bharat Abhiyan\).](#)
- Digital India [Accessibility Statement.](#)

European Disability Forum

- [Plug and Pray? A disability perspective on Artificial Intelligence, Automated Decision-making and Emerging Technologies.](#)
- [How do the SDG support the Convention on the Rights of Persons with Disabilities?](#)
- [Our analysis of the European Accessibility Act.](#)
- [2030 Agenda & Sustainable Development Goals.](#)

Others

- New Zealand Government. [Accessibility Statement](#).
- The Netherlands Digital Government. [Digital Inclusion: Everyone must be able to participate](#). 2019.
- [Association for Information Systems Electronic Library \(AISeL\): E-Government Accessibility Research Trends in Developing Countries 2016](#) (pdf).
- [IE Govtech List: The top 100 startups delivering solutions to government's toughest challenges](#), 2020.
- [Apolitical - Building GovTech and digital government skills](#).
- Publictechlab. [Govtech & the new generation of digital public services](#), September 2019.
- MarketWatch. [GovTech Market 2020 Analysis by Industry Share, Business Strategies, Emerging Demands, Growth Rate, Recent Trends, Opportunity, and Forecast to 2026](#), March 2020.
- Internet Governance Forum (IGF). [IGF 2018 Digital Inclusion & Accessibility](#).
- Issues in Science and Technology. [Reducing Barriers to Online Access for People with Disabilities](#), 2011.
- Dyno Mapper. [International Web Accessibility Laws and Policies](#), August 9, 2019.
- Government Technology (GT). [Designing Accessible Government Websites](#), 2018
- Polish Economic institute. [GovTech – new technology in the public sector](#), September 2019.
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- AbilityNet (2018). [5 ways AI could transform digital accessibility](#).
- Dr. Inderjeet, S. (2016). Application of e-government in developing countries—issues, challenges, and prospects in India. S O C R A T E S, 4(3), 91-109. Retrieved from <http://www.socratesjournal.com/index.php/socrates/article/view/227>.
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- Bohn, R.B., Tobias, J. (2016). National Institute of Standards and Technology (NIST). [NIST Special Publication 500-317 \(DRAFT\): Cloud Computing and Accessibility Considerations](#).
- CNA (2018). [Singapore public agencies to observe new design standards for digital services by end-2018](#).
- Smart Cities for All. [Communicating the Case for a Stronger Commitment to Digital Inclusion in Cities](#).
- Smart Cities for All. [Guide to Implementing Priority ICT Accessibility Standards](#).
- McKinsey & Company. [Implementing a citizen-centric approach to delivering government services](#).



Annex 2: Glossary

Access: The ability of citizens to gain entrée to services and information. A general term of reference to the rights that citizens have to interact with a system entity in order to manipulate, use, gain knowledge of, and/or obtain a representation of some or all of a system entity's resources. To be distinguished from accessible and accessibility.²⁷

Accessible: Capable of being used, reached, or achieved, specifically by people with disabilities.²⁸

Accessibility: The degree to which a product, device, service, or environment (virtual or real) is available to as many people as possible.²⁹

Assistive Technology (AT): Piece of equipment, product system, hardware, software, or service that is used to enable, maintain, or improve functional capabilities of individuals with disabilities.³⁰

Braille: A system of writing for individuals who are visually impaired that uses letters, numbers, and punctuation marks made up of raised dot patterns.³¹

Disability: An evolving concept, which refers to the interaction between persons with impairments, and attitudinal and environmental barriers that hinder their full and effective participation in society on an equal basis with others.³²

Disabled Persons' Organization (DPO): Representative organizations or groups of persons with disabilities, where persons with disabilities constitute a majority of the overall staff, board, and volunteers in all levels of the organization.³³

E-Government: Activities of electronic government – or e-government, e-gov, digital government, online government or, in a certain context, transformational government – refers to the use of internet and other communication technology as a platform for exchanging information, providing services, and communicating both with citizens and between governments and governmental departments.³⁴

27. W3C eGov Wiki. [Glossary](#).

28. W3C eGov Wiki. [Glossary](#).

29. [ITU-T F.791 \(08/2018\) - Accessibility terms and definitions](#).

30. [ITU-T F.791 \(08/2018\) - Accessibility terms and definitions](#).

31. OER. [ICT Accessibility Glossary](#).

32. [ITU-T F.791 \(08/2018\) - Accessibility terms and definitions](#).

33. Disability Rights Fund. [What is a DPO?](#)

34. W3C eGov Wiki. [Glossary](#).

E-Learning: Electronic learning – or e-Learning or eLearning – includes a wide set of applications and processes, such as web-based learning, computer-based learning, virtual classrooms, and digital collaboration.³⁵

E-Service: Generic reference to ubiquitous use of the e- prefix to describe the growing number of services that can be delivered electronically via the internet.³⁶

GovTech: A whole-of-government approach to public sector modernization that promotes simple, accessible, and efficient government. It aims to promote the use of technology to transform the public sector, improve service delivery to citizens and businesses, and increase efficiency, transparency, and accountability.³⁷

Impairment: Term used to refer to the loss or limitation of physical, mental, intellectual, or sensory function on a long – term or permanent basis.³⁸

Inclusive Development: Inclusive development is 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 PWDs are recognized as rights-holding equal members of society, who are engaged and contributing to a development process for all. Inclusive development can be implemented at the national and local levels.³⁹

Information and Communication Technologies (ICT): Information technology and other equipment, systems, technologies, or processes, for which the principal function is the creation, manipulation, storage, display, receipt, or transmission of electronic data and information, as well as any associated content.⁴⁰

International Classification of Functioning, Disability and Health (ICF): a classification of health and health-related domains. As the functioning and disability of an individual occur in a context, ICF also includes a list of environmental factors. ICF is the World Health Organization framework for measuring health and disability at both individual and population levels.⁴¹

Interoperability: The ability of software systems that may be running under different operating systems and hardware to effectively exchange information; usually accomplished through compliance with technical specifications that typically define how different file formats and messaging protocols can work together. Interoperability has enormous consequences for full citizen access (older or hardware and software, assistive technology, mobile browsing devices, etc) and for the exchange of information among diverse local, regional, and national governments.⁴²

Persons with disabilities: Person with disabilities include those 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 (Article 1).⁴³

35. W3C eGov Wiki. [Glossary](#).

36. W3C eGov Wiki. [Glossary](#).

37. World Bank. [GovTech: Putting people first - World Bank Group](#).

38. United Nations Development Group. [Including the rights of persons with disabilities in United Nations programming at country level. A Guidance Note for United Nations Country Teams and Implementing Partners](#).

39. Ibid.

40. U.S. General Services Administration. [Courses. Section 508 basics](#).

41. [World Health Organization](#).

42. W3C eGov Wiki. [Glossary](#).

43. United Nations Development Group. [Including the rights of persons with disabilities in United Nations programming at country level. A Guidance Note for United Nations Country Teams and Implementing Partners](#).

Prevalence: The proportion of a population, per 1000 people, with a 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.⁴⁴

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.⁴⁵

Relay services: A telephone service that enables a person who is deaf or hard of hearing, or whose speech is not clearly understood, or who prefers to use sign language, to place and receive telephone calls in real-time.⁴⁶

Social media: Online technologies and practices that people use to share opinions, insights, experiences, and perspectives.

Social Services: Social services cover a large and diversified range of services, which are intended to improve standards of living, especially of marginalized individuals and groups, those discriminated against or in vulnerable situations.⁴⁷

Transparency: Exhibiting openness, clear communication, and accountability. Data transparency refers to the ease of determining how and why information is conveyed through various means.⁴⁸

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.⁴⁹

User experience: A person's perceptions and responses resulting from the use or anticipated use of a product, system, or service, including navigation of physical and virtual environment.⁵⁰

Vocational rehabilitation and training: A series of services that are designed to facilitate the entrance into or return to work by people with disabilities or by people who have recently acquired an injury or disability. Some of these services include vocational assessment and evaluation, training, upgrading of general skills, refresher courses, on-the-job training, career counselling, employment searches, and consulting with potential or existing employers for job accommodations and modification.⁵¹

Web page: A non-embedded resource obtained from a single Universal Resource Identifier (URI) using HyperText Transfer Protocol (HTTP) plus any other resources that are provided for the rendering, retrieval, and presentation of content.⁵²

44. Ibid., page 72.

45. United Nations Development Group. [Including the rights of persons with disabilities in United Nations programming at country level. A Guidance Note for United Nations Country Teams and Implementing Partners.](#)

46. [ITU-T F.791 \(08/2018\) - Accessibility terms and definitions.](#)

47. United Nations Development Group. [Including the rights of persons with disabilities in United Nations programming at country level. A Guidance Note for United Nations Country Teams and Implementing Partners.](#)

48. W3C eGov Wiki. [Glossary.](#)

49. United Nations Development Group. [Including the rights of persons with disabilities in United Nations programming at country level. A Guidance Note for United Nations Country Teams and Implementing Partners.](#)

50. [ITU-T F.791 \(08/2018\) - Accessibility terms and definitions.](#)

51. National Rehabilitation Information Center. [What is Vocational Rehabilitation?](#)

52. U.S. General Services Administration. [Courses. Section 508 basics.](#)

Web Content Accessibility Guidelines: A set of standards developed through the W3C process in cooperation with individuals and organizations around the world, with a goal of providing a single shared standard for web content accessibility that meets the needs of individuals, organizations, and governments internationally.⁵³

Web standards: A set of rules, guidelines, and protocols for creating and interpreting web-based content. Web standards are carefully designed by the W3C and others through a consensual process to create common understanding of how content is rendered through various devices and user agents. Web standards promote interoperability and ensure the long-term viability of documents published on the Web.⁵⁴

53. W3C. [Web Content Accessibility Guidelines \(WCAG\) Overview](#).

54. W3C eGov Wiki. [Glossary](#).



Annex 3: International Policies and Standards for Accessible GovTech

The United Nations Convention on the Rights of Persons with Disabilities (CRPD)⁵⁵ was adopted by the United Nations General Assembly on December 13, 2006. It was the fastest negotiated and adopted human rights treaty in history. As of August 2020, it has been signed by 163 countries and ratified by 181 countries. With the CRPD, access to technology becomes a human rights issue. In the CRPD, ICTs have been defined as an integral part of accessibility rights, on par with accessibility to the physical environment and transportation. The CRPD requires countries to take appropriate measures to ensure that PWDs have access, on an equal basis with others, to information and communications technologies and systems. More specifically, and of relevance to GovTech programs, Article 9 of the CRPD focuses explicitly on accessibility. It requires states parties to develop, promulgate, and monitor the implementation of minimum standards and guidelines for accessibility, provide training for stakeholders on accessibility issues facing PWDs, and promote the design, development, production, and distribution of accessible information and communications technologies and systems at an early stage.

The 2030 Agenda for Sustainable Development was adopted in 2015 by the UN Member States. It advocates that no one be left behind, including PWDs.⁵⁶ The Agenda includes 17 Sustainable Development Goals (SDGs) as a universal call to action to end poverty, protect the planet, and improve the lives and prospects of everyone, everywhere. The SDGs reference disability in seven of their targets (4.a, 4.5, 8.5, 10.2, 11.2, 11.7, 17.18) across five goals (4, 8, 10, 11, 17). Another six goals (1, 3, 5, 9, 13, 16) have targets linked to disability-inclusive development through terminology such as *inclusion, for all, accessibility, and universal access*, and their efforts to support the most vulnerable groups.⁵⁷ The SDGs can support the monitoring and implementation of the UN CRPD⁵⁸ as an advocacy platform to draw the attention of decision-makers for the creation of disability-inclusive policies and programs.⁵⁹ The United Nations increasingly sees GovTech as a tool for building effective, inclusive, and accountable institutions to support policymaking and service delivery for the SDGs. In addressing the commitment to

55. [The United Nations Convention on the Rights of Persons with Disabilities \(CRPD\)](#).

56.

57. UN ESCAP. [Incheon Strategy strengthening the 2030 Agenda](#).

58. European Disability Forum. [2030 Agenda & Sustainable Development Goals](#).

59. European Disability Forum. [How do the SDG support the Convention on the Rights of Persons with Disabilities?](#)

leave no one behind, including PWDs, the 2030 Agenda for Sustainable Development recognizes the crucial role GovTech can play⁶⁰ and includes it at the center of many of the Sustainable Development Goals and targets.⁶¹

The New Urban Agenda reflects the pledge by UN member states to work toward universal access to city spaces and infrastructure for PWDs and older persons, as reflected in the CRPD. The UN [Sustainable Development Goal 11 \(SDG11\)](#) envisions future cities as inclusive, safe, resilient, and sustainable places for all, including over one billion PWDs. The commitments adopted in the New Urban Agenda include promoting equitable and affordable access to information and communications technologies to PWDs, ensuring that these services are responsive to their rights and needs, and encouraging the effective participation of PWDs. Additionally, the Agenda promotes the development of national ICT policies and e-government strategies, as well as citizen-centric digital governance tools to make ICTs accessible to PWDs.

The Incheon Strategy was adopted in 2013 by the countries of the Economic and Social Commission for Asia the Pacific, as the result of consultations with governments, disabled persons organizations, and other key stakeholders. The Incheon Strategy comprises 10 goals, 27 targets, and 62 indicators targeting poverty reduction, employment generation, political participation, ensuring accessibility in comprehensive terms, social protection, early intervention, education, and disability-inclusive disaster risk reduction. The Incheon Goals are based on the CRPD principles and provide the region with the first set of regionally agreed disability-inclusive development goals. The Incheon Strategy also aligns with the 2030 Agenda for Sustainable Development. Both frameworks promote national leadership in meeting specific development goals by considering local capabilities and realities. Some commitments in the Incheon Strategy have clear implications for building accessible and inclusive GovTech services. For example, Goal 1 calls for increase in the participation of PWDs in employment-support programs funded by governments,” including services available through government websites. Goal 2 requires that ICT-enabled Government services provide PWDs equitable access to appointments in the judicial, executive, and legislative branches of government. Goal 3 ensures the availability of mandatory technical standards for barrier-free access to ICT-based government services such as websites, taking into consideration internationally recognized standards.⁶²

The Web Content Accessibility Guidelines (WCAG). The Web Content Accessibility Guidelines are part of a series of Web Accessibility Guidelines published by the Web Accessibility Initiative of the World Wide Web Consortium (W3C), the leading international standards organization for the internet. Many higher income countries such as Australia, Canada, European Union member states, Israel, Switzerland, and the US have based their accessibility laws on the Web Content Accessibility Guidelines (WCAG) 2.0 standards.⁶³ The WCAG 2.0 standards were developed from the W3C in 2008 and offers recommendation for making web content such as text, images, sounds and code more accessible to those with disabilities including low vision, deafness and hearing loss, speech and physical disabilities and any combination of the above. These guidelines are regularly updated along with new technologies. For example, the WCAG2.1 published in 2018 was updated with criteria around mobile accessibility and cognitive and learning disabilities. The WCAG 2.2 is anticipated later in 2021.⁶⁴

The European Union (EU) Web Accessibility Directive was passed in October 2016 by the EU Parliament and the Council of the European Union. The Directive is the legal cornerstone of GovTech accessibility in the European Union. It requires Government bodies to ensure that they take the necessary measures toward the implementation and enforcement of uniform accessibility standards for public websites and services. It provides people with disabilities with better access to the websites and mobile apps of public services provided by States, regional or local authorities, bodies governed by public law, with a limited number of exceptions – for example, for broadcasters and live streaming. All EU Member States had until 23 September 2018 to transpose the Directive into national law and to designate monitoring and reporting functions as well as a body responsible for enforcement.⁶⁵ These directives require for Governments to make their websites and mobile applications more perceivable, operable, understandable, and robust, to the extent that doing so would not impose a disproportionate burden.

60. United Nations. [E-Government Survey 2018. Gearing E-Government to Support Transformation towards Sustainable and Resilient Societies.](#)

61. United Nations SDG Knowledge Platform. [Transforming our world: the 2030 Agenda for Sustainable Development.](#)

62. UN ESCAP. [Incheon Strategy to “Make the Right Real” for Persons with Disabilities in Asia and the Pacific.](#)

63. [https://www.w3.org/WAI/policies/.](https://www.w3.org/WAI/policies/)

64. [https://www.w3.org/WAI/standards-guidelines/wcag/.](https://www.w3.org/WAI/standards-guidelines/wcag/)

65. European Commission. [Shaping Europe’s digital future. Policy - Web Accessibility.](#)

The European Accessibility Act (EAA) passed in June 2019 removes barriers created by divergent rules across European Union (EU) member states and improves the functioning of the internal market. It covers products and services identified as most important for PWDs. The EEA sets new EU-wide minimum accessibility requirements for a range of technology products and services—computers and operating systems, ATMs, ticketing and check-in machines, smartphones, television equipment related to digital television services, telephone services, and related equipment. The requirements also apply to services related to air, bus, rail, and waterborne passenger transport, banking, e-books, online shopping websites, and mobile applications.⁶⁶ The technology and services defined in the EAA are directly related to GovTech. The EAA obliges public authorities to respect the accessibility requirements when purchasing products or services covered by it. GovTech services implemented by public bodies, as well as vendors providing the ICT products and services procured to implement them, must comply with obligations set forth in the EAA within a five-years from date of the EAA entered into force.⁶⁷

The United State Rehabilitation Act (Section 508) of 1973 requires all Federal agencies to make their electronic and information technology accessible to people with disabilities, and applies to all Federal agencies when they develop, procure, maintain, or use electronic and information technology.⁶⁸ Section 508 is pivotal to ensuring accessibility of GovTech services in the U.S. It requires Federal agencies to ensure their technology deployments are accessible to people with disabilities unless it would pose an undue burden to do so. Under Section 508, all Federal agencies and departments have an obligation to their employees and members of the public to provide the same (or comparable) access to, and use of, information and services.⁶⁹

The Accessible Canada Act (An Act to Ensure a Barrier-free Canada) identifies, removes, and prevents accessibility barriers to interaction by Canadians with entities under federal jurisdiction including banking, telecommunications, transportation industries, and the Government of Canada itself. It provides the framework to develop accessibility standards and new accessibility regulations, and contains compliance and enforcement measures, as well as an accessibility complaints mechanism.⁷⁰ The Act will impact GovTech because it applies to all areas under the control of the Government of Canada, including transportation, broadcasting, and telecommunications sectors, banking and financial sectors, federal lands, and the Government of Canada as a law- and policy-maker, employer, service provider, builder, and buyer. The Act ensures that all Government of Canada services and programs are accessible and that the goods and services purchased can be used by PWDs. The Act established the Canadian Accessibility Standards Development Organization (CASDO) to develop, in collaboration with the disability community and industry, accessibility standards and regulations that will provide clear guidance on accessibility requirements.

In many countries, accessibility is enshrined in the constitutions and legal frameworks to protect and promote the rights of persons with disabilities. Developed countries such as the US, UK, France, Japan, and others as well as developing countries – for example, Albania, Cambodia, Cameroon, Chad, Ghana, India, Nepal, Peru, Portugal, the United Arab Emirates, and Vietnam – have passed disability laws and acts. These laws and are often formulated as accessibility laws, non-discrimination laws, acts defining rights and privileges, and mandatory policies on issues such as online practices and public procurement. A brief review of these laws shows a focus on ensuring disabled persons remain active and productive citizens, have equal political, educational, social, and economic rights. Most of the laws and acts are recent, passed within the last 20 years, except for Nepal that passed an act on the “Protection and Welfare of Disabled Persons” in 1983.⁷¹

66. European Union. [European Accessibility Act](#).

67. European Accessibility Act. [Our analysis of the European Accessibility Act](#).

68. U.S. General Services Administration. [IT Accessibility Laws and Policies. Section 508 of the Rehabilitation Act of 1973](#).

69. U.S. Access Board. [Questions & Answers about Section 508 of the Rehabilitation Act Amendments of 1998](#).

70. Government of Canada. [The Accessible Canada Act](#).

71. A list of disability laws by country can be accessed at: <https://www.un.org/development/desa/disabilities/disability-laws-and-acts-by-country-area.html>.

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