ACCESSIBLE EUROPE 2019 BACKGROUNDER

STANDARDS IN THE PROCUREMENT OF ACCESSIBLE ICT PRODUCTS AND SERVICES

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1 Introduction

"For people without disabilities, technology makes things convenient. For people with disabilities, it makes things possible." - Judith Heumann[1]

1.1 Background and context

This paper has been prepared within the context of two European Regional Initiatives approved by WTDC-17 on "A citizen-centric approach to building services for national administrations" (aiming at facilitating the development of transformative and paperless citizen-centric services that could be accessible and available to all members of society) and on "Accessibility, affordability and skills development for all to ensure digital inclusion and sustainable development" (aiming at bridging the digital divide and equip all groups of society, including persons with disabilities and specific needs, to take advantage of ICT, by enabling capacity building in digital skills). [2]

1.2 Accessible ICT products and services

Accessibility is defined within EN ISO 9241-112:2017 as the

"extent to which products, systems, services, environments and facilities can be used by people from a population with the widest range of user needs, characteristics and capabilities to achieve identified goals in identified contexts of use"[3]

An accessible ICT product or service is one, therefore, which can be used by all its intended users, taking into account their differing capabilities. A person's ability to use technology may be impaired due to various physical, sensory, emotional or cognitive disabilities. This difficulty may be due to a temporary or permanent disability. However, it may also be due to the situation in which they are using the ICT, such as while driving or in a noisy environment.

Accessible ICTs are a powerful enabler of peoples' ability to participate in every aspect of modern life. In many countries there are laws, policies and regulations that require sectors such as government and education to ensure the services they provide through ICT are fully accessible.

In the telecommunications sector, universal service regulations require equitable access to telecommunication devices and services by all citizens regardless of their geographical location, income level or disability.

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[1] Judith Heumann is the U.S. Department of Education's Assistant Secretary of the Office of Special Education and Rehabilitative Services.

[2] https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Pages/Events/2019/eServices/Enhancing-Human-Life-Using-e-Services.aspx

[3] https://www.iso.org/standard/64840.html

This empowerment of people through accessible ICTs is part of the wider global agenda on development, equality and human rights, as well as standards development. There are a number of key actors and lead organizations involved in progressing this agenda.

1.3 International Telecommunications Union

The ITU is committed to connecting the world and all people without any discrimination. The ITU's Strategic Goal No.2 is "Inclusiveness".[4]

The ITU Plenipotentiary Conference 2018 renewed ITU's mandate in the area of ICT accessibility. The new mandate includes a revision of Resolution 175 and the establishment of the new Connect 2030 agenda, which sets out the vision, goals and targets that ITU and its Member States have committed to achieve by 2023.[5] Connect 2030 includes an ambitious target directed at cultivating an ICT sector that is inclusive to persons' disabilities and specific needs:

> Target 2.9: Enabling environments ensuring accessible telecommunications/ICTs for persons with disabilities should be established in all countries by 2023

The ITU has a long history of promoting the accessibility of ICTs across all its sectors.[6] ITU-T produces ICT technical standards to ensure interoperability. Its experts have helped to incorporate accessibility needs into standards for a range of technologies and technology platforms such as multimedia, network interoperability, multimedia service descriptions, multimedia conferencing and Next generation networks (NGN).[7]

For example the ITU-T Study Group 16 on Multimedia have many achievements in terms of accessibility.[8] Study Group 16 leads ITU's standardization work on multimedia coding, systems and applications, including the coordination of related studies across the various ITU-T SGs. SG16 is active in all aspects of multimedia standardization. ICT accessibility is one of its key areas of study. Examples of ITU-T Study Group 16's completed and *ongoing* work items related to accessibility include:

- ITU-T F.791 on accessibility terms and definitions
- ITU-T H.702 on accessibility profiles for IPTV
- ITU-T F.930 on multimedia telecommunication relay services

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[4] https://www.itu.int/en/council/planning/Documents/ITU_Strategic_plan_2020-2023.pdf

[5] https://www.itu.int/en/action/accessibility/Pages/ITUmandate.aspx

https://www.itu.int/en/connect2020/pages/default.aspx

[6] In 1994 the international text telephone standard, Recommendation ITU-T V.18, was published. A text telephone is a type of telephone for the hearing impaired which is attached to a keyboard and a screen on which the messages sent and received are displayed. Recommendation ITU-T V.18 was a major landmark tying together text telephone protocols allowing different - previously incompatible - textphones in different countries to communicate

[7] https://www.itu.int/en/ITU-T/accessibility/Pages/default.aspx

https://www.itu.int/en/ITU-T/studygroups/com16/accessibility/Pages/achievements.aspx

[8] https://www.itu.int/en/ITU-T/studygroups/com16/accessibility/Pages/default.aspx

- ITU-T F.921 on audio-based indoor and outdoor network navigation system for persons with vision impairment
- Safety requirements for personal sound amplifiers
- Requirements for captioning and audio description for accessibility
- Guidance on audio descriptions (twin text of ISO/IEC TS 20071-21:2015, Information technology - User interface component accessibility - Part 21)
- Guidance on the Visual presentation of audio information, including captions and subtitles (twin text of ISO/IEC DIS 20071-23, Information technology - User Interface component accessibility Part 23)
- Guidance on the audio presentation of text in videos, including captions, subtitles and other on-screen text (twin text of ISO/IEC 20071-25:2017, Information Technology - User interface component accessibility Part 25)
- Guideline on the use of AI for ICT accessibility

The full ITU-T Study group work plan is available to read on the ITU-T website.[9]

ITU-D promotes international cooperation and ensures the provision of technical assistance to the Member States in the creation, development and improvement of telecommunications and ICT policies, equipment and networks.[10] The activities of ITU-D in the field of Digital Inclusion, are designed to promote the accessibility of ICTs and their use for the social and economic empowerment of persons with disabilities. ITU-D has developed a suite of key resources consisting in training materials and policy guides[11] on a wide range of technology and policy areas such as television, mobile telecommunications, the World Wide Web and public procurement indicated in the ITU-G3ict Model ICT accessibility Policy Report. More details of these are available in the section below on "Key resources and guidance".

Figure 1: ITU-D reports and guidelines

[9] https://www.itu.int/itu-t/workprog/wp_search.aspx?sg=16&isn_status=-1,1,3,7,2

[10] https://www.itu.int/en/ITU-D/Pages/default.aspx

[11] https://www.itu.int/en/ITU-D/Digital-Inclusion/Pages/Reports_and_Resources.aspx

ITU-R Sector contributes wireless technological development though the production of Recommendations, Reports and Questions relating to people with disabilities. A range of ITU-R deliverables relate to wireless and broadcasting communication systems for people with disabilities.[12]

The Dynamic Coalition on Accessibility and Disability facilitates interaction and ensures that ICT accessibility is included in the key debates around Internet Governance Forum (IGF) in order to build a future where all sectors of the global community have equal access to the Information Society. DCAD has organized workshops and activities at IGF events.[13]

1.4 Accessible ICTs and the Sustainable Development Goals

The Sustainable Development Goals highlight the impact of ICTs on the economic and social development of people with disabilities. They emphasise that ICTs influence all aspects of peoples' lives. The use of ICTs allows the removal of many of the remaining barriers faced by persons with disabilities.

Sustainable Development Goal no. 10 is to "Reduce Inequality within and among Countries". This requires Member States to:

> **"By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status"**

Figure 2: ICT accessibility and the sustainable development goals

1.5 UN Convention on the Rights of Persons with Disabilities

The UN Convention on the Rights of Persons with Disabilities (CRPD) was passed by the UN General Assembly on 13th December 2006 and came into force on 3rd May 2008.[14] It enshrines the principle that persons with disabilities must be able to enjoy human rights and fundamental freedoms on an equal basis with others. It is the first international human rights treaty requiring that information and

[12] https://www.itu.int/net/ITU-R/index.asp?category=information&rlink=disabilities-divide&lang=en

[13] https://www.itu.int/en/ITU-T/accessibility/dcad/Pages/default.aspx

[14] https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities.html

communications technologies and systems be accessible as a necessary condition for persons with disabilities to live independently and with dignity on an equal basis with others. As of March 2019, 177 countries have ratified the CRPD. This is over 90% of the countries in the world. 161 countries have signed the CRPD which means they are willing to be bound by its commitments.

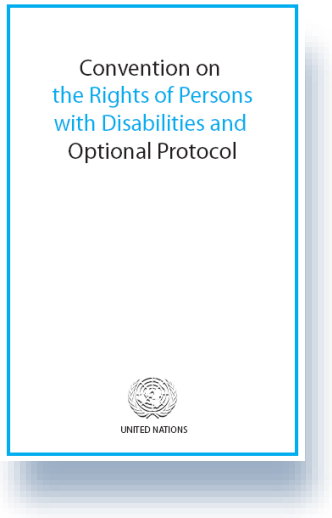

Figure 3: UN Convention on the Rights of Persons with Disabilities

Articles 9 of the CRPD relates specifically to accessibility. It refers to transportation, the built environment and ICT accessibility. It states that,

> **"To enable persons with disabilities to live independently and participate fully in all aspects of life, States Parties shall take appropriate measures to ensure to persons with disabilities access, on an equal basis with others to the physical environment, to transportation, to information and communications, including information and communications technologies (ICTs) and systems and to other facilities and services open or provided to the public, both in urban and in rural areas."**

To achieve this Article 9 requires,

> **"the identification and elimination of obstacles and barriers to accessibility…" and that this elimination of barriers shall apply to" Information, communications and other services, including electronic services and emergency services."**

Articles 9 contains many other dispositions for State Parties that are directly applicable to ICTs. It includes an obligation on State Parties "To develop, promulgate and monitor the implementation of minimum standards and guidelines" (Art 9.2(a)).

Article 9 also requires that accessibility be included as a consideration at the earliest stages during the design and development of ICTs. (Art 9.2(h)). One practical way in which this can happen is that governments include accessibility as a mandatory requirements when procuring ICTs.

The Convention contains dispositions on many other rights for rights for persons with disabilities such as the right to education (Art. 24), the right to health (Art. 25) or the right to independent living (Art. 19).

Where ICTs play a role in the normal, day to day enjoyment of a person's rights, Article 9 required that these ICTs must be accessible to persons with disabilities.

Now that we have considered the global framework for accessible ICTs, let's consider more closely the importance of Digital Inclusion for persons with disabilities.

1.6 Drivers for accessible ICTs

1.6.1 Population trends

The 2008 "World Report on disability" by the WHO and the World Bank estimates that 1 in 7 persons alive in the world have some form of disability. That's over 1 billion people.

However, the world's population is set to rise to 9 billion people by 2050. Correspondingly that means that the number of persons with disabilities is set to rise to 1.5 billion persons. However, the global population is not only increasing, it is also ageing. We are all likely to develop new difficulties and impairments as we age. These may be sensory (vision and hearing), cognitive (thinking and communication) or motor (locomotion, reach and stretch, and dexterity). In any population in which the age profile is getting older, the total number of people with difficulties and impairments will increase. Therefore the 2017 UN Report on World Population Ageing[15] predicts that the number of persons with disabilities is set to rise to 2.1 billion by 2050. That means that the number of persons with age related disabilities will considerably increase and therefore, we can estimate that over a third the global population will live with some sort of disability in the next 30 years.

1.6.2 Social motivators

In the same way as ICTs are an enabler of social and economic benefits for the wider society, accessible ICTs enable persons with disabilities, and other who benefit from accessibility features in mainstream ICTs to participate in social and economic life.

Accessible ICTs facilitate communication and social inclusion for persons with disabilities. They provide access to

- key public and government services
- health care
- education and training, and
- access to the job market

Very often persons with disabilities are able to gain greater access to education, employment and government services through the use of accessible ICTs than through any other means. Therefore, accessible ICTs are indispensable for persons with disabilities to lively as independently as possible and to reach their full potential.

[15] http://www.un.org/en/development/desa/population/publications/pdf/ageing/WPA2017_Highlights.pdf

1.6.3 Economic benefits

As we have seen, the numbers of persons with disabilities, at over one billion people in the world is high – and is set to rise. In economic terms, this is a powerful group, representing some $1 trillion USD of spending power annually.

However, accessible ICTs do not just benefit persons with disabilities and older persons. The features in everyday technology that make them accessible for people with sensory, physical or intellectual difficulties can also benefit other people as well, depending on their situation and context of use.

1.7 Policy context

Many countries have implemented policies, laws and regulations to improve the accessibility of ICTs for persons with disabilities.

These policies cover categories of ICTs such as:

- Websites – both public and private[16]
- Broadcasting - including the provision of access services such as captioning, and the accessibility of TV equipment[17]
- Mobile phones – including accessibility requirements for handsets and their interoperability with assistive technology such as hearing aids[18]
- Emergency services – including the ability to SMS an emergency directly or via text relay services or video relay service[19]

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[16] In Italy the "Stanca Law" is a specific law on web accessibility requires all public sector website to be accessible by conforming with the Web Content Accessibility Guidelines 2.0.

In India, the "Guidelines for Indian Government Websites" are a set of guidelines for use by public bodies to follow when designing, developing and procuring a website

[17] In 2010 the United States of America, the Federal Communications Commission, extended their access rules to include programming that is streamed online, over the Internet via the *Twenty-First Century Communications and Video Accessibility Act of 2010 - Pub. L. 111-260.* *https://www.fcc.gov/consumers/guides/21st-century-communications-and-video-accessibility-act-cvaa*

In Ireland, the Broadcasting Authority of Ireland's 'Access Rules' set out obligations on broadcasters in respect of the provision of subtitling, Irish Sign Language and audio description. https://www.bai.ie/en/bai-publishes-updated-access-rules/

[18] In alliance with the Mobile Manufacturers Forum, the Federal Telecommunications Institute in Mexico has created a website where users can find mobile handsets with accessibility functionalities according with their needs. http://movilesaccesibles.ift.org.mx/catalogo_desktop/app/web/busqueda.php

https://www.gari.info/government.cfm?lang=eng

[19] BEREC, "Update of the report on equivalent access and choice for disabled end-users". 2015. https://berec.europa.eu/eng/document_register/subject_matter/berec/reports/5549-update-of-the-report-on-equivalent-access-and-choice-for-disabled-end-users

For more details on ICT accessibility policies across the world, see the G3ICT DARE Index report.[20]

Governments fund and buy a huge array of ICT goods and services. Many of the above ICT areas above require government funding. We will see in **Section 3** that some regions and countries have developed accessible ICT procurement policies and systems. These policies require public authorities to procure accessible ICTs based on commonly agreed and accepted ICT accessibility standards.

2 Development of ICT accessibility standards to support public procurement

In order to be effective, a policy that requires public bodies to procure accessible ICTs must be supported by a clear and testable specification of what accessibility means. Technical standards ensure interoperability, for example for TV closed captioning, hearing aid compatibility or web accessibility for screen readers. Technical standards are also important for normative purposes such as for defining accessibility requirements for public procurement, or for establishing metrics for measuring quality of service for television/video programming and telephony and captioning reliability and synchronization.

Using accessibility standards in the procurement of ICT provides ICT suppliers and developers with certainty when offering solutions that meet the requirements set of by the procuring authority.

Most of the main standardizing bodies worldwide are involved in the development of standards for accessible ICTs. The following is an overview of their main activities.

2.1 Main activities

In December 2005, the European Commission sent a request to the European Standards Bodies, CEN, CENELEC and ETSI to produce a standard on ICT accessibility that is suitable for use in public procurement. Called "Mandate 376", this request aimed to harmonise the technical requirements across Europe for ICT products and services so as to

> "facilitate the work of industry, … enlarge markets, and provide potential buyers with better products and services through identifying a set of 'functional European accessibility requirements' for use in the public procurement of ICT products and services in the ICT domain."

The work of Mandate 376 concluded in March 2014 with the publication the first European standard on accessible ICTs; EN 301 549 'Accessibility requirements suitable for public procurement of ICT products and services in Europe'. The Standard is complemented by a series of three Technical Reports (TR 101 550, TR 101 551 and TR 101 552)[21]. Together, these documents set out accessibility requirements that can

[20] The DARE Index measures three categories of variables in each country: country commitments (legal, regulatory, policies and programs), country capacity to implement (organization, processes, resources) and actual digital accessibility outcomes for persons with disabilities in 10 areas of digital products and services. https://g3ict.org/publication/global-progress-by-crpd-states-parties

[21] https://www.cencenelec.eu/standards/Sectors/Accessibility/eAccessibility/Pages/default.aspx

be applied to a wide range of products and services related to ICT, including computers, smartphones and other digital devices, ticketing machines, websites and emails.

An online 'Accessible ICT Procurement Toolkit' providing detailed guidance on how to use the standard in public procurement was published in November 2014. We will consider this Toolkit in the next section.

EN 301 549 was developed by the ETSI Technical Committee on Human Factors,[22] supported by the CEN CELEC and ETSI Joint Working Group.[23]

With the finalization of the Web Accessibility Directive it was necessary to update EN 301 549. In April 2017 the European Commission produced a standardization request Mandate 554 "to the European standardisation organisations in support of Directive (EU) 2016/2102 of the European Parliament and of the Council on the accessibility of the websites and mobile applications of public sector bodies".[24] This required CEN, CENELEC and ETSI to update EN 301 549 so that it could be adopted as a harmonized standard and be referenced in the Official Journal of the EU (OJEU) to provide a presumption of conformity with the essential requirements contained in the Directive. The ESTI TC on Human Factors conducted the majority of the work to update the standard which was published in 2018 as **"EN 301 549 V2.1.2 (2018-08) Accessibility requirements for ICT products and services"**.[25] This version of the standard was subsequently referenced in OJEU in December 2018.[26]

ETSI continues to refine and upgrade EN 301 549.[27]

2.1.1 EN 301 549 V2.1.2 (2018-08) Accessibility requirements for ICT products and services

EN 301 549 V2.1.2 (2018-08) *Accessibility requirements for ICT products and services* provides two main resources for defining ICT accessibility:

1. A list of high-level **Functional Performance Statements** that describe the needs of the widest range of users when using ICT products, services or documentation.

2. A comprehensive set of testable **Functional Accessibility Requirements** related to the Functional Performance Statements. These contain a description of the test procedures and evaluation methodology for each accessibility requirement

Functional Performance Statements provide a relatively easy to read and understand set of 'user accessibility needs'. These describe both the capabilities that enable persons with disabilities to interact with an ICT product or service, and the features that the ICT needs to provide when a physical, cognitive or sensory capability is not available or cannot be used.

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[22] https://www.etsi.org/committee/hf

[23] https://www.cencenelec.eu/standards/Sectors/Accessibility/eAccessibility/Pages/default.aspx

[24] ftp://ftp.cencenelec.eu/CENELEC/EuropeanMandates/M554_EN.pdf

[25] https://www.etsi.org/deliver/etsi_en/301500_301599/301549/02.01.02_60/en_301549v020102p.pdf

[26] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:L:2012:316:TOC

[27] https://portal.etsi.org/webapp/WorkProgram/Report_WorkItem.asp?WKI_ID=56861

The Functional Performance Statements contained in clause 4 are summarized as:

- ✓ Usage without vision
- ✓ Usage with limited vision
- ✓ Usage without perception of colour
- ✓ Usage without hearing
- ✓ Usage with limited hearing
- ✓ Usage without vocal capability
- ✓ Usage with limited manipulation or strength
- ✓ Usage with limited reach
- ✓ Minimize photosensitive seizure triggers
- ✓ Usage with limited cognition
- ✓ Privacy

However, the Functional Performance Statements are very high level. They do not contain requirements that are detailed or testable in any way. In contrast the Technical Accessibility Requirements contained in Clauses 5 to 13 are very detailed. Clauses 5 to 13 cover the following aspects and types of ICTs:

- ✓ Generic requirements
- ✓ ICT with two way voice communication
- ✓ ICT with video capabilities
- ✓ Hardware
- ✓ Web
- ✓ Non-web documents
- ✓ Software
- ✓ Documentation and support services
- ✓ ICT providing relay or emergency service access

Each of the 11 Functional Performance Statement has a corresponding set of Technical Accessibility Requirements that describe in detail the features and functions an ICT product or service must have. Annex B of EN 301 549 provides informative content on how each of the Technical Accessibility Requirements (Clauses 5-13) map onto to the high-level Functional Performance Statements contained in

Clause 4.2. Annex C provides normative content on determination of compliance that sets out the means necessary to determine compliance with the individual requirements set out in the EN.

2.1.2 EN 17161:2019 'Design for All - Accessibility following a Design for All approach in products, goods and services - Extending the range of users'

The recently published European Standard EN 17161:2019 'Design for All - Accessibility following a Design for All approach in products, goods and services - Extending the range of users' aims to help organizations align with a consistent approach to address accessibility for persons with disabilities.[28] It specifies requirements that can enable an organization to design, develop and provide products, goods and services that can be accessed, understood and used by the widest range of users including persons with disabilities.[29] The process set out in EN 17161 is based closely on the ISO 9000 series for quality improvement.

This standard is the result of the European Commission Standardization Request M/473 to include 'Design For All' in relevant standardization initiatives.[30]

The requirements set out in this standard are generic and are intended to be applicable to all relevant parts of all organisations, regardless of type, size or product(s), good(s) or service(s) provided.

[28] https://standards.cen.eu/dyn/www/f?p=204:110:0::::FSP_PROJECT,FSP_ORG_ID:62323,2301962&cs=1D28CFDC66E7CEF3CE441294CAA9FEABE

[29] https://www.cen.eu/news/brief-news/Pages/NEWS-2019-014.aspx

[30] http://ec.europa.eu/growth/tools-databases/mandates/index.cfm?fuseaction=search.detail&id=461

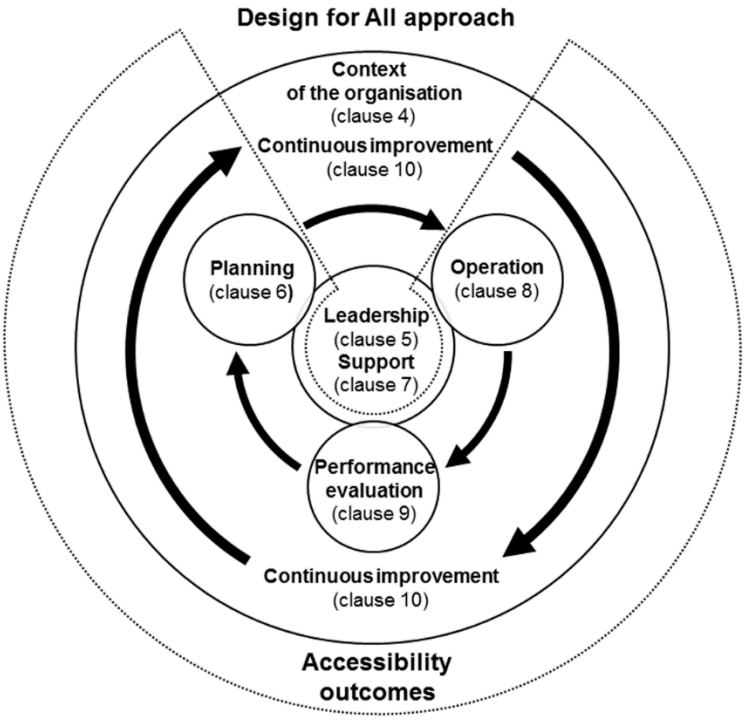

Figure 4: Integrating a Design for All approach into the continuous processes for design, development and provision of products, goods and services

EN 17161 has been developed by the CEN – CENELEC Joint Technical Committee 12 (CEN/CLC/JTC 12) – 'Design for All'.[31]

2.2 ISO/IEC JTC 1/SC 35 User interfaces

ISO/IEC JTC 1/SC 35 User interfaces is a standardization subcommittee (SC), which is part of the joint technical committee 1, ISO/IEC JTC 1, of the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC), which develops standards within the field of user-system interfaces in ICT environments. The scope of JTC1/SC 35's work is

> "Standardization in the field of user-system interfaces in information and communication technology (ICT) environments and support for these interfaces to serve all users, including people having accessibility or other specific needs, with a priority of meeting the JTC 1 requirements for cultural and linguistic adaptability."[32]

31 https://standards.cen.eu/dyn/www/f?p=204:7:0::::FSP_ORG_ID:2301962&cs=1C65D8F8443710CDBA64EE2A84948D9CB

32 https://www.iso.org/committee/45382.html

SC 35 has an extensive work program that includes many standardization activities on accessibility.[33,34] Of interest in the context of this report are:

- ISO/IEC 30071-1 "Information technology -- Development of user interface accessibility -- Part 1: Code of practice for creating accessible ICT products and services"
- ISO/IEC 13066 series describing interoperability with assistive technology (AT), in five parts; in particular: Part 1: Requirements and recommendations for interoperability
- ISO/IEC 20071 series on user interface component accessibility
- ISO/IEC 24786 on accessible user interface for accessibility settings
- ISO/IEC 29136 on user interfaces for accessibility of personal computer hardware
- ISO/IEC 29138-1 Information technology -- User interface accessibility -- Part 1: User accessibility needs from a user interface perspective

2.3 ITU-T H-Series Supplement 17 (2014) | ISO/IEC Guide 71:2014

ITU-T H-Series Supplement 17 (2014) and ISO/IEC Guide 71:2014 "Guide for addressing accessibility in standards" are a twin publication that provides guidance to standards developers on addressing accessibility requirements and recommendations in standards that focus, whether directly or indirectly, on systems (i.e. products, services and built environments) used by people.[35] To assist standards developers to define accessibility requirements and recommendations, it presents a summary of current terminology relating to accessibility, issues to consider in support of accessibility in the standards development process, a set of accessibility goals (used to identify user accessibility needs), descriptions of (and design considerations for) human abilities and characteristics, and strategies for addressing user accessibility needs and design considerations in standards.

2.3.1 Section 508 Standards

In 1998 the U.S. Congress enacted the Workforce Investment Act to strengthen the ICT accessibility provisions of Section 508 of the Rehabilitation Act of 1973. The Act directed the U.S. Access Board to promulgate Electronic and Information Technology Accessibility Standards. Also known as the Section 508 guidelines, the Electronic and Information Technology Accessibility Standards became mandatory for use the procurement of ICT by federal agencies in 2001. They cover ICTs such as computers, telecommunications equipment, multifunction office machines such as copiers that also function as printers, software, websites, information kiosks and transaction machines, and electronic documents.[36]

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[33] Completed work: https://www.iso.org/committee/45382/x/catalogue/p/1/u/0/w/0/d/0

[34] Ongoing: https://www.iso.org/committee/45382/x/catalogue/p/0/u/1/w/0/d/0

[35] https://isotc.iso.org/livelink/livelink/fetch/2000/2122/4230450/8389141/ISO_IEC_Guide_71_2014%28E%29_Guide_for_addressing_accessibility_in_standards.pdf?nodeid=8387461&vernum=-2

[36] https://www.access-board.gov/guidelines-and-standards/communications-and-it/about-the-ict-refresh

The Access Board initiated an update of these Standards by organizing an advisory committee to review the original 508 Standards and to recommend changes. The 41 members of the Telecommunications and Electronic and Information Technology Advisory Committee (TEITAC) comprised a broad cross-section of stakeholders representing industry, disability groups, and government agencies. Its membership also included representatives from the European Commission, Canada, Australia, and Japan. The committee addressed a range of issues, including new or convergent technologies, market forces, and international harmonization and submitted its report to the Board in April 2008. The Access Board then went into a rule making process and in January 18, 2017, published a final rule updating accessibility requirements for information and communication technology covered by Section 508 of the Rehabilitation Act.

One of the goals of this refresh was to ensure that the Section 508 standards were harmonized with the European norm, EN 301 549.

2.3.2 Web Content Accessibility Guidelines 2.1

The World Wide Web Consortium (W3C) is the leading standards making body for the Web. W3C develops the Web standards (HTML, XML, CSS, etc.) and follows a formal process to ensure international, multi-stakeholder development and review.

The Web Accessibility Initiative (WAI) is part of W3C. WAI works with organizations around the world to develop strategies, guidelines, and resources to help make the Web accessible.

The **Web Content Accessibility Guidelines 2.1** (WCAG 2.1) is the formal Web Standard, called a "W3C Recommendation", for accessibility.[37] WCAG 2.1 is widely regarded as the voluntary international standard for web accessibility. They have been cited in legislation in some countries around the world as the standard with which public bodies should comply.

WCAG 2.1 is comprised of Principles, Guidelines and Success Criteria that define the functionality required by users.

The 4 Principles of the WCAG 2.1 set out that anyone who wants to use the Web must have content that is:

[37] WCAG 2.1 was made an official W3C recommendation on June 5, 2018. https://www.w3.org/TR/WCAG21/

1) Perceivable - Information and user interface components must be presentable to users in ways they can perceive.

This means that users must be able to perceive the information being presented (it can't be invisible to all of their senses)

2) Operable - User interface components and navigation must be operable.

This means that users must be able to operate the interface (the interface cannot require interaction that a user cannot perform)

3) Understandable - Information and the operation of user interface must be understandable.

This means that users must be able to understand the information as well as the operation of the user interface (the content or operation cannot be beyond their understanding)

4) Robust - Content must be robust enough that it can be interpreted reliably by a wide variety of user agents, including assistive technologies.

This means that users must be able to access the content as technologies advance (as technologies and user agents evolve, the content should remain accessible)[38]

2.3.2.1 WCAG 2.0 versus 2.1

WCAG 2.1 adds new success criteria to WCAG 2.0. This means web content that is compliant with WCAG 2.0 is still valid in WCAG 2.1. It also means that content that is compliant with WCAG 2.1, will at the same time, be WCAG 2.0 compliant.[39]

12 new Success Criteria have been added on level A+AA in WCAG 2.1, and 5 new success criteria have been added on level AAA. Most of the new WCAG 2.1 success criteria are related to:

- ✓ Mobile
- ✓ Cognition
- ✓ Low vision

2.3.2.2 WCAG 2.1 and EN 301 549 v2.1.2

When EN 301 549 was updated by ETSI to version 2.1.2 "Accessibility requirements for ICT products and services" it adopted Web Content Accessibility Guidelines (WCAG) 2.1 for information and communications technology (ICT) including:

- ✓ web content
- ✓ electronic documents

[38] https://www.w3.org/WAI/WCAG21/Understanding/intro#understanding-the-four-principles-of-accessibility

[39] https://support.siteimprove.com/hc/en-gb/articles/360004825651-FAQ-on-WCAG-2-1-The-new-standard-for-Accessibility

- ✓ non-web software, such as native mobile apps

Unlike the prior version of EN 301 549 that included WCAG 2.0 as an 'electronic attachment', this updated version directly references WCAG 2.1. This change simplifies the document and avoids duplication of WCAG text. With these updates, EN 301 549 v2.1.2 addresses the needs of the EU Web Accessibility Directive, which applies to websites and mobile apps of public bodies in Europe. Annex A of this updated EN 301 549 describes the relationship between the individual requirements of this standard and the Directive.[40]

2.3.3 Harmonizing the World's ICT Accessibility standards

In 2004, the international standards cooperation between the United States and the European Commission was initiated to avoid conflicts and to harmonize their ICT accessibility standards under development, in particular Section 508 of the Rehabilitation Act and European Commission Mandate M/376.

In 2004 the United States and the European Union initiated a process of cooperation to harmonize the standardisation of ICT accessibility requirements in order to avoid conflicts. Following the European Commission's Mandate 376, the European Standardization Organizations adopted EN 301 549 in 2014. The U.S. Access Board finalized the process of updating the requirements of its Section 508 standards in 2017. The collaboration between the two administrations has resulted in standards that are closely harmonized and compatible.

Harmonization of ICT accessibility standards is viewed as a critically important component towards the realization of an inclusive and accessible society for all. To quote Rodolfo Cattani, Secretary of the European Disability Forum, Italy:

> *Ambitious accessibility standards supported by public procurement policies are the key drivers for an inclusive society. Harmonising these ICT standards will lead to an unprecedented quantity and quality of accessible technologies that are available to all.*

Globally accepted and relevant ICT accessibility standards such as EN 301 549, WCAG 2.1 / ISO/IEC 40500 and the Section 508 standards are commonly referenced as criteria in Requests for Tenders (also called Requests for Proposals). Many ICT providers design and develop their products and services to meet these criteria. It is common practice for governments to request that vendors provide accessibility conformance reports demonstrating how they meet these standards.[41]

3 Use of ICT accessibility standards in public procurement

According to the European Commission, public procurements refers to

[40] https://www.w3.org/blog/2018/09/wcag-2-1-adoption-in-europe/

[41] https://g3ict.org/publication/procurement-of-icts-for-inclusive-government-and-public-sector-guide-for-engaging-ict-vendors

The process by with public authorities, such as government departments to local authorities, purchase goods or services from companies[42]

Public procurement is therefore the process whereby public monies are used to acquire goods, services and works from third parties. Public procurement ranges from routine items (e.g. stationery, temporary office staff, furniture or printers), to complex spend areas (e.g. construction, aircraft carriers or support to major change initiatives).

The World Trade Organization estimates that on average public procurement accounts for 10-15% of a country's Gross Domestic Product (GDP). In the European Union the figure is as high as 16-17% of GDP.

Governments fund and buy a huge array of ICT goods and services. Public procurement is one of the most flexible and far-reaching legislative instruments available to any Government. Increasingly, the "power of the purse" is being used to promote policy objectives such as sustainable development and social considerations.

One of the most important aspects of a procurement exercise is using clear, unambiguous descriptions of what the required product or service must be able to do. These mandatory requirements are best specified in terms that are unambiguous and have the same meaning to both the buyer and the supplier. For ICT, mandatory requirements are often best expressed in terms of the types of standards considered the previous section of this document.

Many countries have developed accessible ICT procurement policies and systems. These policies require that public authorities should procure ICTs that contain accessibility features.

3.1 Policies and legislation in support of the use of standards for public procurement

3.1.1 USA

The USA developed technical standards on accessible ICTs and enacted legislation that requires their use by all Federal agencies in the procurement of ICTs. Section 508 of the 1973 Rehabilitation Act was developed as a set of enforceable ICT accessibility standards that Federal agencies must incorporate as a mandatory set of requirements that suppliers must meet in the procurement of ICTs. Developed by the US Access Board they were embedded into federal procurement regulations in 2001. An updated version was published in 2017.

The use by Federal bodies of Section 508 guidelines when procuring ICT products and services has had a significant influence on the availability on the market place for ICTs.

Large ICT manufacturers such as IBM, Adobe and Microsoft include accessibility in their mainstream software and products that are compliant with Section 508 guidelines. These products, such as Adobe Acrobat and Microsoft Office are available on the market globally.

[42] https://ec.europa.eu/growth/single-market/public-procurement_en

The experience from the United States demonstrates that clearly defined and commonly accepted accessibility standards, that are backed up by policy and legislation that requires their use in public procurement, can greatly influence how manufacturers design and develop their ICT goods and services.

3.1.2 European Union Procurement Directives

The 2014 European Public Procurement Directive contain a strong focus on the use of public procurement to achieve social gains.[43] Specific obligations include:

1. Ensuring compliance with applicable legislation (social, environmental, labour)
2. Expanding possibilities to use social considerations in public tenders
3. Making accessibility compulsory
4. Facilitating social inclusion
5. Ensuring that certain social services benefit from a simplified regime.

Accessibility is arguably the strongest social consideration within the text of the new Directive.

Article 42 of the new Public Procurement Directive requires all public bodies in EU Member States to include accessibility as a **mandatory requirement** in the public procurement of goods and services for use by people, be they members of the public or employees of the government. Article 42.1 states:

> "For, the technical specifications, except in duly justified cases, be drawn up so as to take into account accessibility criteria for persons with disabilities or design for all users."

This Article goes on to state that

> "Where mandatory accessibility requirements are adopted by a legal act of the Union, technical specifications shall, as far as accessibility criteria for persons with disabilities or design for all users are concerned, be defined by reference thereto."

This requires that where other Acts, such as the Web Accessibility Directive or the European Accessibility Act define accessibility requirements, there requirements are relevant for use in public procurement.[44]

Accessibility is also included as a consideration in many other Articles. For examples Article 67 on Award Criteria allows for procuring authorities to award extra points for suppliers that provide a higher level of accessibility than the minimum level of accessibility specified under the Technical Specifications.

3.1.3 Web Accessibility Directive

"Directive (EU) 2016/2102 of the European Parliament and of the Council of 26 October 2016 on the accessibility of the websites and mobile applications of public sector bodies" requires public bodies within the EU to ensure their websites and apps are accessible to persons with disabilities.[45] All websites created

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[43] Directive 2014/24/EU of the European Parliament and of the Council of 26 February 2014 on public procurement and repealing Directive 2004/18/EC Text with EEA relevance. https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex:32014L0024

[44] Other articles of relevance include article 62 quality assurance standards; article 67 award of contracts; article 76 principle of awarding the contracts; article 84 public oversights.

[45] https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A32016L2102

after 23 September 2018 will have to be accessible by 23 September 2019. Existing websites will have to comply by 23 September 2020. All mobile applications will have to be accessible by 23 June 2021.

Accessibility is defined within the Directive as meaning web content and mobile apps must be "Perceivable, Operable and Usable" by persons with disabilities, and they must be "Robust" enough to work on different browsers, and with different assistive technologies. The Directive requires Member States to monitor and report on the accessibility of the websites and mobile apps of most public bodies. Reviews are to be conducted against the harmonised European standard, EN 301 549 v2.1.2.

3.1.4 European Accessibility Act

The European Accessibility Act (EAA), which was approved by the European Parliament on 13th March 2019, aims to improve the daily lives of disabled and elderly people, also opening the door for more innovation.[46]

The new directive, provisionally agreed with the Council in November 2018, set out requirements to make a number of products and services more accessible, such as:

- Ticketing and check-in machines,
- ATMs and other payment terminals,
- PCs and operating systems,
- Smartphones, tablets and TV equipment,
- Consumer banking services,
- E-books and dedicated software,
- E-commerce services,
- Air, bus, rail and waterborne passenger transport services, including real-time travel information.

The EAA outlines what needs to become more accessible, without imposing detailed technical solutions, thus allowing for innovation.

The draft directive now needs to be formally approved by the Council and published in the EU Official Journal to come into force. Member States will then have three years to introduce the new provisions into their national laws, and six years to apply them.

The EAA provides a list of essential accessibility requirements that the specified products and services must have. These essential requirements must be used for the public procurements of these products and services. In addition, the essential requirements that the EAA provide are relevant and may be used for the procurement of product and services that are required to be accessible according to other EU laws, such as those covered by the Public Procurement Directives, transportation directives, or European Structural Funds.

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46 http://www.europarl.europa.eu/news/en/press-room/20190307IPR30749/more-accessible-products-and-services-for-disabled-and-elderly-people

3.1.5 An EU Member State – Sweden

"Nytt regelverk om upphandling" or the "New regulations on procurement" is the Swedish procurement law that transposes the above.[47] The Public Procurement Act (LOU), a new Act concerning public procurement within the areas of water, energy, transport and postal service (LUF), and a new Act concerning the public procurement of concessions (LUK) came into force in Sweden from 1 January 2017. These acts implement EU Directives 2014/23 EC, 2014/24 EC and 2014/25. LOU and LUF include provisions relating to accessibility.

Chapter 9 of the LOU on Technical requirements states:

> **"Acquisition for use by natural persons**
>
> Article 2 When the object being acquired is to be used by natural persons, the technical specifications shall be determined considering the needs of all users, including accessibility for people with disabilities.
>
> An exemption may be made if there are exceptional reasons.
>
> If the European Union has adopted mandatory requirements for accessibility in a legal act, the technical specifications referred to in the first paragraph shall be defined by reference to the legal act."

The Swedish Post and Telecom Authority (PTS) has produced guidance to facilitate the application of Standard EN 301 549 for procurers and suppliers of ICT. The PTS procures a wide range of ICTs and has used the standard EN 301 549 during the procurement of significant ICT services such as a Text relay service and a telephone directory inquiry service.[48]

3.1.6 Australia

Other countries continue to adopt the approach of passing laws or creating policy that requires public bodies to include accessibility as a mandatory requirement in the procurement of ICT goods or services to be used by employees or the public.

In December 2016 Australia Standards published AS EN 301 549: 2016 'Accessibility requirements suitable for public procurement of ICT products and services'.[49] This new Australian Standard is a direct text adoption of the European Standard EN 301 549.

According to Wayne Hawkins, Disability Policy Advisor with G3ICT, a stakeholder working group, was formed in early 2016 to investigate developing an Australian Standard for public procurement of accessible ICT.[50] Initial discussions considered a number of alternatives for the development of an Australian Standard including the development of a stand-alone Australian standard, developing a standard using the US Rehabilitation Act Section 508 or the European standard EN 301 549 as a template,

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[47] https://www.regeringen.se/rattsliga-dokument/proposition/2016/06/prop.-201516195/

[48] https://www.itu.int/net4/ITU-D/CDS/InteractiveProgramme/Calendar/file_download_statement.asp?FileID=63

[49] https://infostore.saiglobal.com/en-gb/Standards/AS-EN-301-549-2016-100620_SAIG_AS_AS_211428/

[50] https://www.buyict4all.org/blog/australia-adopts-accessible-ict-procurement-standard#footnote-1

and a direct text adoption of the EN 301 549. The working group considered that the most expeditious process was to undertake the direct text adoption of the EN 301 549.

At the time the decision to adopt the EN 301 549 was announced there was wide support across all stakeholder groups with a number of high-profile media outlets carrying the story. The Minister for Finance, Senator the Hon. Mathias Cormann, stated

> *"The Accessibility requirements suitable for public procurement of ICT products and services establishes a minimum standard to ensure that websites, software and digital devices are accessible. […]The new standard can be used by all levels of government when determining technical specifications for the procurement of accessible ICT products and services."*[51]

Since the adoption of the Standard the Department of Finance has updated the Commonwealth Procurement Rules to include "Where an Australian standard is applicable for goods or services being procured, tender responses must demonstrate the capability to meet the Australian standard, and contracts must contain evidence of the applicable standards" and " Where applying a standard (Australian, or in its absence, international) for goods or services, relevant entities must make reasonable enquiries to determine compliance with that standard: this includes gathering evidence of relevant certifications; and periodic auditing of compliance by an independent assessor".[52]

Additionally, State and Local Government bodies are planning to include reference to the Standard in their procurement policies as well as including reference to the Standard in their Disability Access and Inclusion Plans.

3.2 Resources and guidance

There are a range of resources and guidance's available to assist in the use of accessibility standards in the procurement of accessible ICTs. These resources provide guidance that is applicable to private and public organizations seeking to 'buy accessible' as well as the suppliers wishing to 'sell accessible'.

3.3 Policy guide – The ITU/G3ICT "Model ICT Accessibility Policy Report"

The "Model ICT Accessibility Policy Report" provides policy guidelines and suggestions for accessible ICTs. It is designed to help countries develop their own ICT accessibility policies and regulations.[53] The Report provides 'model' policies for specific categories of ICTs for countries that have not already developed their own. It also provides more general guidance for countries on how to develop, promote, monitor and report on these policies.

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[51] https://www.financeminister.gov.au/media-release/2016/08/22/access-technology-made-easier

[52] https://www.finance.gov.au/procurement/procurement-policy-and-guidance/commonwealth-procurement-rules/

[53] https://www.itu.int/pub/D-PHCB-SIS_A.01

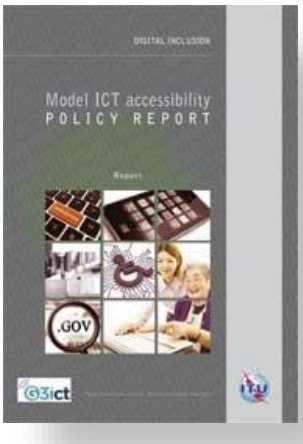

Figure 5: Model ICT Accessibility Policy Report

G3ict has produced a useful guide to implementing an ICT Accessibility Procurement policy based on the Model policy set out above.[54]

The model procurement policy:

- **provides** two levels of guidance:
  - High-level policy guidance to regulators and policy makers on developing national, regional or organizational level procurement policies that incorporate accessibility in a meaningful, measurable and practical way.
  - Practical advice to procurement officials and project managers on how to immediately begin to incorporate accessibility into their procurement exercises.
- **explains** the need for public procurement agencies at all levels to mandate accessibility to
  - promote employment of people with disabilities and;
  - create a market for ICT accessible products and services.
- **provides** sample language for a policy to consider across the main stages of procurement (see below).
- **references** a product accessibility template and a set of functional performance statements, which can be used to assess a range of ICT accessibility features (based on existing accessibility standards of the United States Section 508 or the European ETSI EN 301 549).

The Model ICT Accessibility Policy Report can be used to add accessibility into existing procurement policies and develop stand-alone ICT procurement policies at different levels of government, including municipal and regional, to complement existing policies.[55]

[54] Guide to Adopting an ICT Accessibility Procurement Policy, https://buyict4all.org/public-policy/guide-to-adopting-an-ict-accessibility-procurement-policy

[55] Guide to Adopting an ICT Accessibility Procurement Policy, page 7

3.4 ITU Academy - Self Paced Online Training on ICT Accessibility: The Key to Inclusive Communication

Figure 6: Self Paced Online Training on ICT Accessibility: The Key to Inclusive Communication.

This course is available at: https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Pages/Events/2018/SelfPacedOnlineTraining/default.aspx.

This self-paced online course on " ICT Accessibility: The Key to Inclusive Communication" aims at developing good understanding of all stakeholders in the field of ICT accessibility, in particular focusing on related policies, regulations, technology trends and public procurement rules.

This course consists of three modules.

- ✓ Module 1: Enabling communication for all though ICT Accessibility
- ✓ Module 2: ICT accessibility policy regulations and standards
- ✓ Module 3: Achieving ICT accessibility through public procurement

This course is open to all stakeholders, is free and available in English only. Approximate time necessary for accomplishing all modules is eight hours. A certificate is available upon conclusion of all three modules and based on successful completion of testing phase for each module.

3.5 CEN CENELEC ETSI: Accessible ICT Procurement Toolkit

The "Accessible ICT Procurement Toolkit" was produced to help public procurement officials get started in using and implementing the European Standard.

Figure 7: The Accessible ICT Procurement Toolkit – available at http://mandate376.standards.eu

This Toolkit provides templates, samples, guidance, and other resources. The Toolkit was developed by CEN CENELEC and ETSI as part of Mandate 376, which also produced the EN 301 549 (see above). It was produced to help public procurement officials get started in using and implementing the European Standard.

The toolkit's resources are divided up into the main stages of procurement:

Preparatory study

Writing a call for tenders

Evaluating tenders

Evaluating deliverables, and

Managing contracts.

For each stage, the Toolkit provides information about how accessibility fits in to the process, and how the European Standard can and should be referenced.

Most "**Call for Tender**" documents contain a section on "**Technical Specifications**".

Technical Specifications are the mandatory requirements that any proposed solution must have. Therefore, all responses to the "Call for Tender" must at a minimum meet whatever is set out in the Technical Specifications section of the "Call for Tender".

Using accessibility requirements as part of the Technical Specification is an extremely powerful way to ensure that suppliers consider, demonstrate and provide accessibility in their solutions.

Accessibility requirements should always refer to relevant standards such as EN 301 549 or Section 508.

A procuring authority that 'invents' its own accessibility requirement in their "Call for Tender" runs the risk of receiving fewer responses or having responses with a higher price.

3.6 GSA: Revised Section 508 Standards Roadmap

On January 18, 2017, the U.S. Access Board published a final rule updating accessibility requirements for information and communication technology (ICT) covered by Section 508 of the Rehabilitation Act and Section 255 of the Communications Act.

The U.S. General Services Administration (GSA) Office of Government-wide Policy (OGP) provides technical assistance to help Federal agencies comply with these requirements, and ensure that covered ICT is accessible to, and usable by, individuals with disabilities.

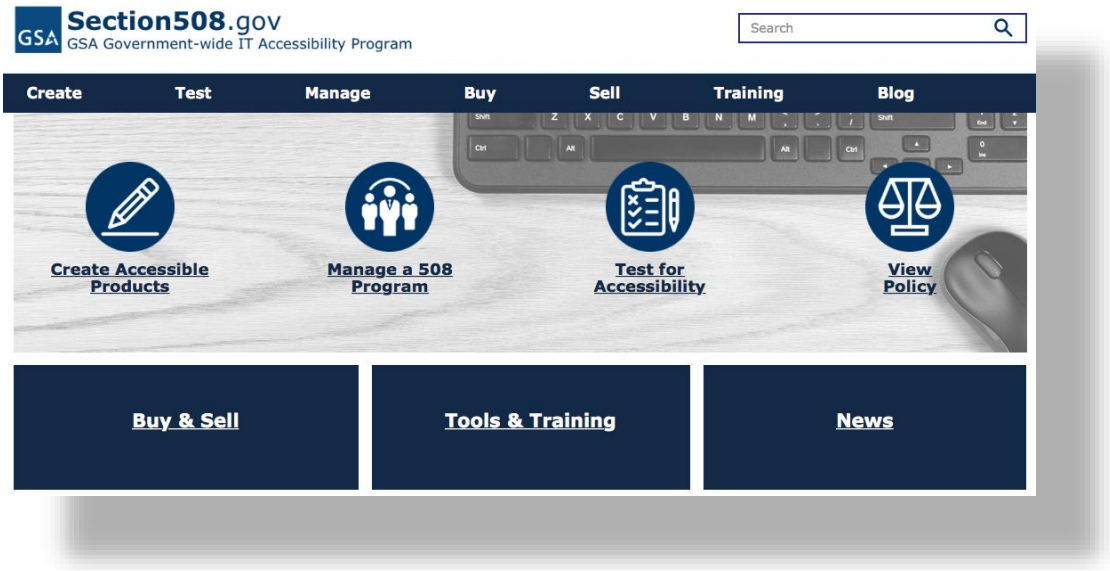

Figure 8: The GSA Section508.gov website

The GSA Section508.gov website provides guidance on several key topics, including:

Program Management - Provides best practices on how to manage an effective IT Accessibility program;

Procurement - Helps agencies understand how to clearly define accessibility requirements for ICT procurements, and helps ICT vendors understand the need to demonstrate the accessibility of their IT products and services for potential federal buyers;

Tools & Training - Conducts and facilitates training for IT Accessibility program managers and agency procurement officials, and offers tools to automate common accessibility-related management tasks and;

Policy Compliance - Helps Federal agencies understand and meet their responsibilities under Section 508 and related laws and policies.

Note: The Section 508.gov website contains advice and features that is specific to public procurement regulations for Federal agencies of the government of the United States of America.

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http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32014L0024

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http://mandate376.standards.eu

ETSI EN 301 549 V2.1.2 (2018-08) Accessibility requirements for ICT products and services

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G3ict. "Buy ICT 4 All"

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GSA. "Revised 508 Standards Roadmap"

https://section508.gov/manage/program-roadmap

ITU/G3ICT "Model ICT Accessibility Policy Report"

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

ITU Academy "Self-Paced Online Training on ICT Accessibility: The Key to Inclusive Communication"

https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Pages/Events/2018/SelfPacedOnlineTraining/default.aspx or

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

Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the approximation of the laws, regulations and administrative provisions of the Member States as regards the accessibility requirements for products and services

COM/2015/0615 final - 2015/0278 (COD).

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U.S. Access Board: "Information and Communication Technology (ICT) Standards and Guidelines" for Section 508 of the Rehabilitation Act and Section 255 of the Telecommunications Act of 1996.

http://www.access-board.gov/sec508/refresh/draft-rule.pdf

W3C Web Content Accessibility Guidelines 2.1

https://www.w3.org/TR/WCAG21/