

Novice to Know-How Module Text

Course 7: Providing Access to Preserved Digital Content

Module 3: Accessibility

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1. Introduction.

The previous module explained how carrying out a user needs analysis helps assess and improve access provisions at your organization. Understanding accessibility requirements for access provisions is an also important part of that process.

In this module, we will identify what accessibility means in the context of digital preservation, why it matters, and explain some of the key issues and concerns which can affect the access and use of preserved digital content at your organization. We will then give examples of relevant legislation in the UK and the US that will help you begin a basic accessibility risk assessment for compliance, and provide some recommended standards and tools to help address and support accessibility at your organization. Please note that the information and guidance offered in the module do not constitute legal advice. The module aims to provide general summaries and guidance for legal issues. The authors recommend you seek legal counsel for your specific circumstances and guidance for individual requirements.

2. What is Accessibility?

The aim of preservation is access, and by access, we mean allowing our users to discover digital content of interest, understand their options for accessing that digital content, and access the content.

The term accessibility relates to access but has specific meanings in different contexts. In general, it means the ability to access and use something.

Accessibility is also a term used to describe certain legal requirements for access provision in many situations. It is frequently used in legislative contexts to mean making a resource or space accessible to people with long-term, permanent or temporary disabilities.

It is worth noting that the language used in this module is largely drawn from the medical version of disability used within the UK and US legal contexts. Under the UK Equality Act 2010, a person has a disability if they (a) have a physical or mental impairment, and (b) the

impairment has a substantial and long-term adverse effect on their ability to carry out normal day-to-day activities. Depending on the context and the preferences of your users, there may be differences in the use of 'person-first' and 'identity-first' language.

3. Why is it Important to Understand Accessibility?

An understanding of accessibility issues and requirements is important because it helps us ensure users are not excluded from accessing or using something based on disability or impairment, and consider how accessibility impacts all users who will have "different needs at different times and in different circumstances." Understanding accessibility will help us determine:

- What resource discovery options we offer
- What access functionality is provided
- What user guidance is supplied
- What file formats preserved digital content is available in, and
- In what environment (online or on-site) it is provided.

4. Accessibility Improves Policy and Practice.

While accessibility primarily focuses on understanding the different needs and requirements of people with different disabilities, the implementation of policies, practices, and measures to improve accessibility for these users can help improve access and usability for everyone.

For example, offering captions to audio or video recordings can benefit users in quiet or noisy environments. Providing large print formats can help those with age-related visual limitations. The option for keyboard, mouse or trackpad alternatives can help those accessing materials through different devices.

5. Accessibility and the Levels of Born-Digital Access.

Accessibility is listed as one of the five areas of access provision activities in the DLF's Levels of Born-Digital Access.

In fact, it is listed first within the document. This is because accessibility interrelates with the four other access areas and because it is important to be aware of accessibility issues and factors impacting access first so they can be addressed early on.

For this reason, before we list the specific actions needed to achieve Level One of Accessibility in the Levels of Born-Digital Access, we will first introduce some common accessibility barriers to highlight how they might affect the access or use of preserved digital content at the organization.

These examples of barriers should both inform and be informed by a user needs analysis to help determine the best approach to address them in access provision at your organization. By the end of this module, you should be able to list some of the common ways accessibility impacts access to preserved digital content. From that, we can start to think about next steps for putting accessibility measures and policies in place.

6. Disabilities and Barriers.

To understand where accessibility issues can arise, it is helpful to first recognize the range of attributes or abilities that can affect a person, and the barriers that may hinder their access and use of digital materials and collections at your organization. These barriers or restrictions effecting different users' access and use of digital content at your organization can occur when visiting the organization on-site or looking for materials made available online.

Accessibility encompasses a range of various disabilities, which may include (but not be limited to) those relating to:

- Vision or visual
 - For example, users who are blind, colour blind, or have low vision.
- Hearing or auditory
 - For example, users who are deaf or hard of hearing.
- Physical or motor
 - For example, users who have limited mobility due to injury, paralysis, missing digits, limbs, or other parts of the body.
- Cognitive, learning, or neurological
 - For example, users with learning, attention, or reading-related difficulties.
- Speech or language
 - For example, users with muteness, dysarthria, or stuttering.
- Multiple disabilities or impairments
 - For example users with deaf-blindness.

7. Associated Barriers.

There are different barriers that can prevent or impede an individual from accessing digital content in different circumstances (e.g. online or on-site). It is also important to note that not all people with disabilities or impairments encounter these barriers. Nevertheless, there are some more commonly experienced barriers encountered which can include:

- Visual barriers.
 - Visual content that has no text alternative.
 - Visually complex or excessive amounts of visual content.
 - Inability to easily navigate within a page of content.
 - Unstructured content, for example, missing proper headings.
 - Multimedia without alternative text description.
- Auditory barriers.
 - Audio without written transcript.
 - Multimedia without captions or transcript.
 - Verbatim transcripts that are unreadable or in need of editing for clarity.
 - Automated transcripts that are unreadable or in need of editing for clarity.
- Motor or mobility barriers.
 - Clickable areas that are too small.
 - Inability to easily navigate within a page of content.
 - Functional elements that cannot be controlled with a keyboard.
 - Time limits not allowing sufficient time to complete tasks.
- Cognitive and Neurological barriers.

- Overly complex language.
- Overly complex or excessive amounts of content.
- Time limits not allowing sufficient time to complete tasks.
- Unstructured content, for example, missing proper headings.

8. Knowledge Check (Interactive Slide).

Knowledge check question: Which of the following are barriers that can affect people with visual impairments or disabilities (please select all that apply)?

- Videos without closed caption.
- Unstructured content without headings.
- Audio without a written transcript.
- Excessive amounts of visual content.

The two correct answers are "Unstructured content without headings" and "Excessive amounts of visual content".

9. Assistive Technologies.

There are assistive technologies that, depending on the nature of the user's digital content and needs, can reduce or eliminate common barriers.

For example there are:

- Screen readers which read aloud text for users who cannot read text due to blindness or visual impairments.
- Screen magnifiers for users with low vision.
- Voice recognition software for users who cannot use a keyboard or mouse due to motor, mobility, or other barriers.
- Selection switches for users who cannot use a keyboard for similar reasons, for example using a toggle switch rather than a QWERTY keyboard to input data or information.
- Braille keyboards and refreshable braille display devices for users with visual and auditory impairments to input information and read text from a digital screen.

10. Accessibility Features.

There are also accessibility features that, like assistive technologies, can reduce or eliminate common barriers depending on the nature of the user's digital content and needs.

For example there are:

- Audio description narrations that describe important visual details of a video. They can be placed during natural pauses in the audio, or in separate audio files or audio tracks.
- Auditory, tactile, and visual notifications prompting or alerting the user in different ways. Blinking images or visual dialogues can be represented by sound or vibration.
- Captions that include descriptions of relevant auditory information that appears simultaneously with the audio.

- Text-to-speech (sometimes called “speech synthesis” or “speech output”) which does an automatic conversion of text into a synthesized voice reading aloud.
- Transcripts like text manuscripts containing the correct sequence of verbatim recording of any speech, including descriptions of important auditory or visual information.
- Option for the user to change the background colour or contrast, as a strong contrast can be disorienting and make the text harder to read, or too little contrast can conversely make text difficult to read.
- Option for added headings or infographics as markers in text to offer context or provide structure to complex content.

11. Knowledge Check (Interactive Slide).

Knowledge check question: True or False, Audio narrations should include descriptions of important visual details of video content.

The correct answer is “True”.

12. Introduction to Accessibility Legislation and Compliance.

As mentioned, accessibility is required by law in many situations. For example, public sector organizations have a legal duty to meet accessibility requirements and regulations.

Locating relevant legislation and standards for compliance can be daunting at first. But by already having an awareness of the kinds of accessibility needs and challenges users might face, many of the regulations will seem far more straightforward than you first expected.

The next slides give a brief overview of relevant legislation in the UK and US, as well as the *WCAG International Accessibility Guidelines for Digital Content on the Web* to help you conduct a basic accessibility risk assessment. From this, you can develop a basic accessibility statement to explain and inform users how your organization is complying according to legislation or planning to comply with accessibility standards to provide access to digital content.

The list of Additional Resources provided for this course will also provide links to relevant legislation in other countries.

13. The UK Equality Act 2010.

The UK Equality Act 2010, or Disability Discrimination Act 1995 in Northern Ireland, legally protects people from discrimination in the workplace and wider society, in both the public and private sectors. You’re disabled under the Equality Act 2010 if you have a physical or mental impairment that has a ‘substantial’ and ‘long-term’ negative effect on your ability to do normal daily activities. People with disabilities must have an equal opportunity to benefit from information services, resources and technologies provided in both the private and public sector.

This includes the responsibility to make digital information accessible. Digital content should be provided in an alternative format if requested by a user with a disability or disabilities. For digital content, this would typically involve generating and providing an access copy of the information in an alternative way through another format, for instance, alternative formats such as large print, easy read, or audio, and could include an alternative file format such as Word document instead of PDF, or vice versa.

You do not need to produce alternative formats until a request has been received. Still, it is good practice (and will save time and effort) to create access copies in more flexible formats, which can allow for more flexibility to change the settings for users as required.

14. UK: Website Accessibility.

The Public Sector Bodies (Websites and Mobile Applications) (No. 2) Accessibility Regulations 2018 (known as the 'Accessibility Regulations') enforced by the Equality and Human Rights Commission (EHRC), has two main requirements for public sector websites and mobile apps relating to accessibility for all users, especially those with disabilities.

The first requirement is that public sector websites and apps must be 'perceivable, operable, understandable and robust' and meet the international accessibility standard Web Content Accessibility Guidelines (WCAG) 2.1 (or the European Standards EN 301 549). We will revisit these WCAG 2.1 Guidelines later.

The second requirement is that there must be a published accessibility statement explaining how certain accessibility standards have been met. The Government Digital Service provides a sample accessibility statement template to help with this, which includes wording that is legally required to include.

In summary, websites must be accessible, and users should be informed on how content on and provided through a website complies-or will comply-with accessibility regulations and standards.

15. USA: Americans with Disabilities Act.

In the USA, there are accessibility regulations with similar kinds of requirements, including the United States Americans with Disabilities Act (ADA). Like the UK Equality Act, the ADA is a broad anti-discriminatory law prohibiting discrimination against any person on the basis of a disability. It works to ensure those in both the public and private institutions provide reasonable adjustments to reduce or eliminate barriers in various aspects of everyday life such as education, employment, and transportation, and more.

ADA also applies to electronic and information technology. There are guidelines for information services and technology in publicly accessible facilities. A few examples of these services and technologies include information kiosks, computers, ancillary equipment, and software to ensure equal access to those with disabilities.

In summary, people with disabilities must have an equal opportunity to benefit from information services, resources, and technologies provided by a public or private institution that receives federal funding.

16. USA: Section 508 Standards.

In the USA there are also Section 508 Standards for Accessible Electronic and Information Technology, a federal law that applies to federal agencies and departments, and directly affects organizations that do business with the federal government. It mandates that federal agencies develop, acquire, maintain, and use information and communications technology (ICT) that people with disabilities can access.

This includes access not just for federal employees with disabilities but also for members of the public who use federal resources. Under this law, federal agencies and departments must create an ADA compliant website, built with capabilities for assistive technologies and accessibility features.

It sets 16 standards: e.g. the website must have screen reader capability to convert text to speech. Just as with the UK legislation, the international Web Content Accessibility Guidelines (WCAG) 2.1 are mentioned in the standards. However, unlike the UK, compliance with WCAG 2.1 is not required.

17. Legislation, Compliance, and Your Organization.

While these accessibility requirements in UK and US legislation may not directly apply to your organization in terms of legal compliance, they are nevertheless useful to identify basic measures your organization can take to assess, address, and improve accessibility for your users. Broadly understood and generally applied, they inform us of the need to:

- Ensure physical spaces meet minimum requirements so that users with disabilities can access digital information on-site.
- Allow or provide assistive technologies and accessibility features for accessing resources on-site and/or remotely.
- Offer and generate digital content in alternative formats for access,
- Provide information about current compliance through a published accessibility statement,
- Have a published accessibility statement on your public website to inform users about accessibility measures your organization has, or is planning to have, in place.

18. Knowledge check (Interactive Slide).

Knowledge check question: Which of the following is *NOT* a legal requirement in the UK and US accessibility legislation?

- Public sector organizations must provide information in alternative formats if requested by users with disabilities.
- All federal agencies in the US must create a 508-compliant website.
- All UK public sector websites must have a published accessibility statement.
- Public sector organizations must create a separate website for users with disabilities.

The correct answer is “Public sector organizations must create a separate website for users with disabilities”. This is not a legal requirement in the UK and US accessibility legislation.

19. WCAG Accessibility Guidelines.

The Web Content Accessibility Guidelines (WCAG) 2.1, curated by the World Wide Web Consortium, offers a set of standards for improving web accessibility, including guidance and actionable recommendations for creating an accessible website. The guidelines explain how to make digital services, websites, and apps accessible to everyone and has three compliance tiers:

Level A: A site that some users can access.

Level AA: A site that almost all users can access.

Level AAA: A site that all users can access.

WCAG 2.1 was published in 2018 and version 2.2. is due in 2021. In the UK, WCAG 2.1 compliance is required under the UK's Accessibility Regulations 2018. In the US, the guidelines function as a referenced set for standards for ADA or 508 website compliance. It is also internationally recognized as an ISO standard and go-to resource for improving web accessibility no matter what type of organization you work at or its national context.

20. Implementing WCAG. (slide 1 of 2).

WCAG is not a legal requirement for all, but it is still a useful guide or checklist when working towards compliance.

The WCAG 2.1 standards can be broadly grouped into four basic principles to make content on the web more accessible, by making it '**perceivable, operable, understandable and robust.**'

We can improve access to digital content made available online in the ways described below, many of them relating to accessibility features mentioned earlier in this module.

- **Perceivable** means 'Information and user interface components must be presentable to users in ways they can perceive.' It includes
 - Having text alternatives for non-text content.
 - Providing captions or other alternatives for multimedia.
 - Creating content or access copies of formats that can be presented in different ways, including by assistive technologies, without losing meaning.
 - Making it easier for users to see and hear content.

21. Implementing WCAG. (slide 2 of 2).

- **Operable** means 'User interface components and navigation must be operable.' It includes
 - Making content functionally available and navigable using a keyboard.
 - Giving users enough time to read and use content by eliminating or reducing time limits.

- Removing or providing warnings to content that may cause seizures or physical reactions.
- Offering information through textual, audio, or visual clues to help users navigate and find content.
- Making it easier for users to use inputs other than with a keyboard, such as toggle switches.
- **Understandable** means 'Information and the operation of user interface must be understandable.' It includes
 - Making text readable and understandable.
 - Making content appear and operate in predictable ways.
 - Helping users avoid and correct mistakes.
- **Robust** means 'Content must be robust enough that it can be interpreted reliably by a wide variety of user agents, including assistive technologies.' It includes
 - Maximizing compatibility with current and future user tools, keeping interoperability over time in mind.

The W3C Web Accessibility Initiative website has many resources and guidance to assess accessibility of web content, including a list of accessibility evaluation tools to help. The link to this page is available under the course's Additional Resources but if you would like to pause and test some of them out now, they are at <https://www.w3.org/WAI/ER/tools/>.

22. Knowledge Check (Interactive Slide).

Knowledge check question: To which of the four accessibility principles does keyboard functionality relate?

- Understandable.
- Operable.
- Robust.
- Perceivable.

The correct answer is "Operable".

23. Four Actions for Reaching Level One for Accessibility.

So far, we have covered why accessibility matters, considered some of the barriers that can affect the access and use of digital content, and introduced some of the relevant legislation and international standards for addressing and improving it in providing access to digital content at your organization. It is now critical to talk about accessibility in terms of action.

In the last sections of this module, we will look specifically at what is needed to reach Level One of Accessibility in the DLF Levels of Born-Digital Access-to 'provide users with information on the accessibility of the organization's preserved digital content'.

We will look at four specific actions you can take, keeping in mind how we can apply what we have learned so far to accomplish them.

A list of helpful resources and tools, and relevant legislation, for getting started with each of these actions will be provided under Additional References in the course.

24. Action One: Create an Accessibility Statement.

The first action involves providing information to your users on how your organization is complying, or planning to comply, with accessibility requirements and standards to provide access to its digital content. Developing an accessibility statement that provides information about the accessibility of your content is a good approach for accomplishing this action.

The knowledge you gain from carrying out a user needs analysis, familiarizing yourself with relevant legislation and guidance, and conducting an accessibility risk assessment, will help produce the information included within the statement.

Making the accessibility statement available to users online, for example, on an informational web page, will demonstrate a commitment to organizational compliance and show your users that you care about accessibility and about them.

25. Action Two: Allow Use of Personal Assistive Devices.

This action deals with on-site requirements to anticipate, enable, and allow users to use personal assistive devices at your organization. These might include some of the assistive technologies mentioned earlier like screen readers, screen magnifiers, voice recognition software and selection switches.

Again, the knowledge gained from a user needs analysis can be used to inform an accessibility risk assessment to allow the use of personal assistive devices at your organization. There may be policies and security measures that make it difficult to change public access settings, which may mean working together with IT staff or system administrators to evaluate the risks and make needed revisions or updates to access provision and policies.

26. Action Three: Address On-Site Needs.

Similar to Action Two, Action Three pertains to users who physically visit on-site public access points, but focuses on ensuring the space of access points meet the minimal requirements for physical accessibility identified in applicable laws or guidelines like the UK Equality Act requirements and the US ADA requirements.

Suppose a space does not meet requirements or does not supply assistive technologies to users. In that case, your organization must look for ways to collaborate with internal or external assistive technology partners to accommodate on-site space and/or technology needs.

27. Action Four: Accessibility Software and Features.

This fourth action also relates mainly to on-site requirements, to identify and enable relevant accessibility features for on-site public access computers. Microsoft and Apple have

developed accessibility features built in their operating systems as well as different types of assistive technology products that are designed for individuals with disabilities.

For example, there are screen-reading apps, like Narrator in Windows and VoiceOver in Mac, designed to offer more simplified navigation for those who are visually impaired to explore content through their respective operating systems and software. There are also features enabling subtitles and caption and adjusting visual features to change colour and contrast.

On personal computers and devices, these are fairly easy to find and enable. However, there can be security challenges or other hurdles to easily enabling them for on-site public access computers at your organization.

28. Module Summary.

Understanding accessibility improves access provision by identifying barriers that affect users' access and use of digital content. Organizations have both a legal and moral duty to ensure users are not excluded from accessing or using something based on:

- Vision or visual impairments or disabilities.
- Sound or auditory impairments or disabilities.
- Physical or motor impairments or disabilities.
- Cognitive, learning, or neurological impairments or disabilities.
- Speech or language impairments or disabilities.
- Multiple impairments or disabilities.

Becoming familiar with different assistive technologies and accessibility features allows us to better understand users' needs and requirements and determine how they can be used to enable access and use digital content on-site or remotely.

While accessibility requirements and regulations in legislation can vary depending on the type of organization and national contexts, all organizations can benefit from undertaking a basic accessibility risk assessment to put processes in place or identify opportunities to improve accessibility and update related policies accordingly. This module offers general guidance but your organization should consult with a legal advisor to address your specific circumstances and guidance for individual requirements.