

# Applying Website Accessibility to Gibraltar Government Websites

*A report by G A Linares :: April 2009 :: Gibraltar*



## Background

Due to the lack of a local survey I have based this report on the UK Governments guidelines for website accessibility which, has been agreed with the GoG, is a suitable comparison. The UK has used results from various surveys to gauge what level of accessibility disabled users may require.

This report is based on various publications;

- **DRC “The Web: Access and inclusion for disabled people”<sup>[4]</sup>**
- **Publicly Available Specification (PAS 78: 2006)<sup>[5]</sup>**
- **Guidelines for UK Government Websites<sup>[2]</sup>.**
- **Public consultation on Delivering Inclusive Websites (TG102)(2007)<sup>[3]</sup>**

Where possible, copies of these publications have been included with this report. Other reports may have been too large to include here or were not available as a hard copy.

However all publications cited have been included in the reference section together with links on how to obtain them.

Publications available as downloads have also been included in the disk accompanying this report.

This report is not definitive and should be revised as/when new guidelines become available. In fact while writing this report it was necessary to change the working targets twice due to new/updated information and guidelines which became available during the production of the same.

## Introduction

This report explains how the UK Government applies Website Accessibility Standards, what these standards are, the conditions required to comply with them and how to apply these to Gibraltar Government Websites.

This report covers section **2.4 Building in universal accessibility + checklist only** of the *Guidelines for UK Government Websites*<sup>[2]</sup>

This report is based on UK guidelines and is itself a guideline document. This means that the recommendations included within are not law and do not constitute a legal obligation.

## Accessibility for disabled staff employed by Government

This report is aimed at Government websites which are publicly available over the internet.

Another aspect of Accessibility applies to websites on intranets and other IT systems which may be used within Government departments by employees with disabilities.

While the accessibility standards discussed in this report can be applied to internal websites and similar systems, other aspects like specialised hardware/software (known as Assistive Technology) might be a requirement to cater for disabled employees.

These requirements are not discussed in this report, however descriptions of types of Assistive Technologies can be found at Appendix C.

## Types of Impairment to Consider

There are four main categories of impairment to consider when applying accessibility. These are vision impairment; motor difficulties, cognitive and learning; and deaf and hard of hearing.

### Vision impairment

- **Users with severe vision impairment:** e.g. users of screen reader software. Screen reader users typically have issues with poorly labelled images, or links which don't make sense when read out of context.
- **Users with medium vision impairment:** e.g. users of magnification software. Magnification users are hindered by images of text (which become pixelated at high resolutions).
- **Users with mild vision impairment:** e.g. users who might enlarge text in the browser with high contrast and use colour preferences.

### Motor difficulties

- **Users with severe motor difficulties,** e.g. users who are quadriplegic who might use voice recognition software.
- **Users with medium motor difficulties** or upper limb disorder, e.g. users who might only use a keyboard, a mouse being too difficult to use. Keyboard users have issues with navigation or forms that don't have a logical tab order.
- **Users with mild motor difficulties,** e.g. users who might use a mouse or equivalent adaptive technology but who might have fine mouse control difficulties. Link size is an important issue for this group of users.

### Cognitive and learning

- **Users with medium dyslexia,** e.g. users who might change site colours and text formatting, and who in many cases might supplement this with text to speech software for reading sections of text.
- **Users with mild to medium learning or cognitive disabilities,** e.g. users who might use a symbol browser to convert web pages to symbols or have no special access methodologies and rely on someone else assisting them.

### Deaf and hard of hearing

- **British Sign Language (BSL) users** are especially relevant if there is multimedia content on the site or language issues.
- **Non-BSL deaf or hard of hearing,** e.g. users who might benefit from captions or transcripts of audio content.



## Website Accessibility Standards

There are various levels or standards available that can be applied to websites in order to make them more accessible to persons with disabilities.

The options comprising these standards have been investigated and compiled by various organizations like the **Website Accessibility Initiative (WAI)**<sup>[6]</sup> from the **World Wide Web Consortium (W3C)**<sup>[7]</sup> based on reports conducted by the **Disability Rights Commission (DRC)**<sup>[8]</sup> and other bodies.

The UK's British Standards Institution is currently working on a draft of a new British Standard; **BS 8878 Web accessibility – Building accessible experiences for disabled people**<sup>[9]</sup>.

Based on the British Standards Institution's **Publicly Available Specification (PAS 78: 2006), Guide to good practice in commissioning accessible websites**, DPC BS 8878 informs organizations of their legal responsibilities in relation to web accessibility, calling on them to appoint a specific person or department to oversee activity.

The **PAS** is intended to help people who commission or “request” the web design, rather than developers (web designers) themselves. It is written as a document that commissioners can understand and can discuss with web design project managers.

The **PAS** report took into account the research undertaken in 2004 by the **DRC** “**The Web: Access and inclusion for disabled people**” – (a copy of this was supplied to me by the Hon Mr Netto as a base for my investigation.)

PAS 78 suggests that the following principles are followed when commissioning an accessible website:

- Uphold W3C guidelines and specifications
- Check for conformance
- Involve disabled people in the requirements gathering and conceptual design process
- Arrange regular testing by disabled people

The main concept included in the **PAS** report is upholding the **W3C's** guidelines on Web Content Accessibility Guidelines (**WCAG**).

**WCAG 2.0 (11 December 2008)**<sup>[10]</sup> succeeds **Web Content Accessibility Guidelines 1.0 [WCAG10]**<sup>[11]</sup>, which was published as a W3C Recommendation May 1999. Although it is possible to conform either to WCAG 1.0 or to WCAG 2.0 (or both), the W3C recommends that new and updated content use WCAG 2.0. The W3C also recommends that Web accessibility policies reference WCAG 2.0.

## How does the UK Government implement website accessibility?

Between the years 2002-06 all UK Government websites were expected to achieve, as a minimum, and adhere to the single 'A'; **(Priority 1 items) level of W3C's** guidelines available in the Web Content Accessibility Guidelines **(WCAG)**.<sup>[1]</sup>

In 2007 a new guidance: **Public consultation on Delivering Inclusive Websites (TG102)**<sup>[3]</sup> stated that

*“In order to meet European objectives for inclusive e-government and so that the UK public sector meets its obligations with regards to disability legislation, we have proposed that all government websites must meet **Level Double-A (AA) of the W3C** guidelines by December 2008.”*

It is worth noting that the UK's accessibility targets increased in 2008 from the initial requirements aimed at in 2002/06.

This report initially catered only for “Level A” as per original requirements laid out in **Guidelines for government websites**. During the production of this report I obtained information on a revision publication (TG102)<sup>[3]</sup> that had superseded part of the *Guidelines for government websites* and now opted to implement the “double A” (AA) Level. Achieving “Level AA” has now been incorporated into this report.

These targets will probably continue to change in the future and this report should be revised reflecting these new considerations.

### European perspective

In 2002, the European Parliament set the minimum level of accessibility for all public sector websites at Level Double-A. **E-inclusion** is a European policy initiative which aims to ensure that ICT (Information & Communications Technology) is usable by a wider population; and to promote the use of ICT to achieve social inclusion objectives. The **Riga Inclusion Declaration** agreed to promote inclusive e-government by ‘ensuring accessibility of all public web sites by 2010, through compliance with the relevant W3C common web accessibility standards and guidelines’.

## How to meet the WCAG standards locally

WCAG provides three levels of standards; “Level A” being the most basic to “Level AAA” which is the highest level of accessibility. Levels must be implemented sequentially i.e. to comply to “Level AA” the site must comply fully to “Level A” requirements plus “Level AA” requirements,

In my opinion, it would be acceptable to implement Level AA locally as has been done in the UK. This level is officially referenced as **W3C WAI WCAG 2.0 Level AA**. “Level AA” has only a few additional requirements to “Level A”.

Once BS 8878 is available, the UK may update their accessibility standards, but this may still be some time away. Although “Level AA” might be superseded in future, it still provides the foundation from where all other levels would build from.

Adopting the UK Government’s model of achieving “Level AA” of the WCAG 2.0 should not pose a large problem. It would mainly entail the addition or updates of various alternatives or tags to media such as images, videos ensuring text can be readable and viewed properly when fonts are enlarged, etc. Further details are available at Appendix A & B.

Existing websites can be checked at the W3C<sup>[10]</sup> website for compliance and updated as required. The W3C WCAG 2.0 website provides tools and information on Understanding WCAG Guidelines and Criteria, examples, implementation techniques, and glossary of terms.

Appendix A lists some of the things that can be done to enhance the accessibility of Government websites. This is not an exhaustive list of web accessibility guidelines and should be used with Appendix B; WCAG Guidelines.

Appendix B, includes all the requirements to which websites would need conform to in order to achieve Level AA of WCAG 2.0 and thus provide the same level of accessibility as the UK and Europe.

Although at the time this report was written the guidelines laid out at appendix A were effective, they should be checked against the latest WCAG 2.0 guidelines available at the W3C website in case of any updates.

## **Development of an Accessibility Policy**

UK Government website owners are strongly recommended to develop an accessibility policy according to section 6 of PAS 78, 'Defining the accessibility policy for the website'.

Likewise Gibraltar Government websites commissioners should ensure that an accessibility policy is in place for their websites.

The accessibility policy should include the accessibility targets set and any future measures to be taken to enhance access.

The accessibility policy should be referenced in any tender and contract documents or other types of requisitions that might contain a requirement for a website. Contractors should be asked specifically to commit to attaining the requirements laid out in the accessibility policy.

The accessibility policy should avoid using technical jargon and be written in clear and appropriate language so that people can understand it.

The accessibility policy should reference the W3C guidelines and specifications that the websites upholds. (I.e. W3C WAI WCAG 2.0 Level AA)

More info on developing an accessibility policy can be found in the PAS78 publication.

## **Publicly available Accessibility Policy Statement**

A summary of the accessibility policy should be made available on the website. The summary should include information on how to access details on optimizing the website user experience, eg how to change screen colours and text sizes followed by an outline of the information contained in the accessibility policy.

An example of a simple accessibility statement would be:

This <website name> is committed to ensuring access for people with disabilities. Each page on our website will conform to the Web Content Accessibility Guidelines (WCAG) Level Double-A. etc

Details of how to optimize the user experience of websites can be found at <http://www.bbc.co.uk/accessibility>. Website commissioners may consider linking to this site<sup>[12]</sup>.

More info on developing an Accessibility Policy Statement can be found in the PAS78 publication.

## Measuring Accessibility

The only way to find out if a website is accessible is to test it. There are two elements to verifying that a website is accessible: technical accessibility and usable accessibility. Technical accessibility determines whether the site will work with a range of assistive technologies. Usable accessibility determines whether the site will be usable by disabled people.

Technical accessibility can be easily tested by using W3C validators for HTML and style sheets available at the W3C website. Validation testing should be undertaken by website developers to ensure that their mark-up conforms to W3C guidelines and specifications. W3C's Mark-up Validation Service should be used to validate HTML and the W3C CSS Validation Service should be used to evaluate the validity of any CSS. This is an important exercise as many assistive technologies rely on mark-up meeting these specifications.

Assistive technology tool testing is a way to check that the tools commonly used by disabled users can read and interact with the web content and controls can be activated. If a website conforms to the W3C guidelines, assistive technologies should work with the site. Assistive technology tool tests can provide a relatively quick way for a tester with specialist knowledge of the tools to assess the website's technical accessibility. A list of Assistive technology items is available at Appendix C.

User testing involves recruiting a set of representative users and asking them to attempt to use a website to achieve a set of representative tasks. User testing should include users from a range of disabilities and preferences, including a mix of beginners and experienced web users using a range of assistive technologies.

It is recommended that user testing is included in all website development projects as it provides the best evidence that a website will be usable by disabled people.

## Conclusion

An accessible website can provide access to information on a far wider scale than previously possible. People with disabilities have easier access to printed, audio or visual material. Citizens can access services and information, regardless of experience or ability.

A user friendly and accessible website can help reduce costs both directly and indirectly. Accessibility is often viewed as an expensive afterthought, but it can provide many cost benefits. The key is to build in accessibility from the outset, making inclusive design a priority throughout the development lifecycle of the website.

## Further reading

For more information of the principles laid out in this report please read **PAS 78**, the **Guidelines for UK Government Websites** and the **Public Consultation on Delivering Inclusive Websites**.

## Website Accessibility General Guidelines

This is not an exhaustive list of web accessibility guidelines; it illustrates some of the techniques that may be used to make your website more usable by a wider population. These enhancements should be used together with the Web Content Accessibility Guidelines WCAG 2.0 Double A guidelines available at Appendix A.

### **Text**

#### **Keep the content simple**

- Avoid the use of jargon and complex words. This can be helpful users with cognitive impairments, and benefits all users. See also Guideline 14 of the Web Content Accessibility Guidelines 1.0

#### **Don't use justified text**

- Text shouldn't be fully-justified as users with dyslexia find this more difficult to read than if the text is left-aligned. They may also miss words which have been highlighted by bold, italics or underline.

#### **Use a non-serif font**

- A non-serif (also known as sans-serif) font like Arial or Helvetica should be used. Non-serif fonts are easier to read on screen.

#### **Limit the use of graphical text**

- The use of images of text (often used for important items such as headings or navigation) is undesirable for a number of reasons.
- Users who have low vision may prefer different fonts or colour combinations, may need to increase the text using browser options, or use magnification software to enlarge the text beyond the maximum size the browser can offer.
- Images of text cannot have their appearance altered by the user – they cannot be enlarged in most browsers, cannot have their colours altered to a higher contrast combination (e.g. white on black) and cannot have their font changed to one preferred by the user.
- Unlike normal text, images of text become pixelated when enlarged by magnification software (particularly at higher levels), so users reliant upon this method of access can have significant difficulty in reading the information.

#### **Ensure that font size can be increased**

- Ensure that text sizes are not fixed and can be resized in the. It is important that text is not a fixed size as some users need a larger print version to make the page more legible. This will enable users who have fine motor control difficulties to increase the font size enabling them to click more accurately on links.

## **Links and Navigation**

### **Make a big clickable area**

- Ensure that links and images are a decent size and not too close together. For example ensure that the graphical buttons such as the 'Go' button on a 'Search Form' is a good size enabling users who have poor motor control to be able to select the button more easily. Separate adjacent links by several pixels – not just one or two.

### **Use descriptive links**

- Link text should give the user a clear idea of the destination and make sense when read out of context. Avoid the use of 'click here', for example. This is important for screen reader users.

### **Provide a site map**

- A site map will allow users to gain an overall feel for the layout, whilst also allowing direct access to any page on the website. If possible, include images or icons to visually sign post the different areas. See also Guideline 13 of the Web Content Accessibility Guidelines 1.0

### **Provide skip links**

- Provide a means to skip over navigation via a 'skip navigation' link and on long pages a 'Back to Top' link between sections. This enhances the accessibility for users accessing the website via the keyboard as they will be able to select one link to jump over the navigation into the main page content instead of laboriously tabbing through each link.

### **Ensure that all functionality is available through the keyboard as well as the mouse**

- This can be checked by tabbing through links and forms using the keyboard to ensure they can be accessed – and in a sensible order. This is important because users with vision impairments will not have good hand-eye co-ordination and are more likely to interact with the website solely through the use of their keyboard. See also Guideline 9 of the Web Content Accessibility Guidelines.



## Images

### **Use images and icons**

- Images and other media used to enhance textual content can often aid in the understanding of the information. This can be helpful users with cognitive impairments.

### **Provide alternative (alt) text**

- Ensure that all images have meaningful alt text. This alt text is read out by the screen reader so that the user understands what is being shown on the screen. This is important for users with severe vision impairments. See also Guideline 1 of the Web Content Accessibility Guidelines 1.0

## Colour

### **Allow for flexibility**

- Some dyslexic users find it more comfortable to read text on a beige background. Ensure that colours can be changed in the browser and that they have not been forced by the web developer. If your website has been built using CSS for the layout and colours, you could also consider offering a different stylesheet.

### **Do not rely on colour alone to convey information**

- Blind users may not be able to get information about colour definitions from their screen reading software and using colour also presents difficulties for colour blind users.

### **Use good contrasting colours**

- Colour contrast can be measured. Juicy Studio's colour contrast analyser can analyse colour combinations and let you know if they produce enough of a contrast against the W3C recommendations. See also Guideline 2 of the Web Content Accessibility Guidelines 1.0

## Layout

### **Provide a consistent design**

- This can be achieved through the use of Cascading Style Sheets where the web developer can reuse the same layout and design for each page in the website. This can be helpful users with cognitive impairments, and benefits all users.

### **Make use of white space**

- Good white space separating page elements makes it easier for users with cognitive difficulties to read web pages.

## Forms

### **Associate text labels with form fields**

- Associating labels with form fields is important for screen reader users so that they can identify which label describes each form field.

## **Tables**

### **Associate data cells with their headers for data tables**

- Using table headers for data tables helps a screen reader user to associate the content of a data cell with the row or column it's in.

## **Multimedia**

### **Ensure animation can be paused or switched off**

- Animation can be a distraction and seriously compromise the ability of people with learning disabilities to read content on a page. If you provide moving content ensure there is a way to disable the movement. Alternatively allow it to loop for a few seconds and then stop automatically. See also Guideline 7 of the Web Content Accessibility Guidelines 1.0

### **Provide captions or transcripts of important audio content**

- Audio content can be inaccessible to deaf and hard of hearing users. Providing a text equivalent is important for these users but also beneficial to others for example, users in a noisy environment.

### **Provide text equivalents for a movie**

- Text equivalents should be provided for an entire movie in cases where the movie can be conveyed using a single text equivalent. Examples include movies that show a simple animation, banner adverts or complex multi-media that cannot otherwise be made accessible.
- For Flash movies, the text equivalent should be placed in the name field. It is generally advisable to make the contents of this field short and focused in order to describe the function of the movie. The description field can be used for longer descriptions. Some screen readers will read this content by default. Be cautious as long descriptions used can result in an application that is tedious to listen to.
- In cases where a single text equivalent is used for an entire movie clip, the 'child' objects of the movie should be made inaccessible. This will prevent animations within the movie from causing frequent updates to the screen reader. It also assists automated testing of the content for accessibility.
- The text equivalent may be assigned using the accessibility panel.
- More detailed information on creating accessible Flash movies is available at the Adobe Accessibility Resource Centre.

## **Document accessibility**

The presentation of lengthy printed documents on the Web should generally be avoided in favour of web pages. However, there are instances where documents will need to remain in their original form e.g. when forms need to be printed and signed. For these documents, there are a basic set of guidelines which should be adhered to:

- Ensure the text is sans serif (e.g. Arial), with a minimum font size of 12.
- Ensure the text is left aligned, not justified as justified text leads to 'rivers of white text' being distracting to the reader.
- White space can be just as useful as the text. Over cluttering and complicating the page reduces readability.
- Avoid excessive use of capitalised, underlined or italicised text, consider bold for emphasis.
- Hyperlinks should be spelt out (e.g. in a footnote or endnote) because users may only have access to the printed version.

## **Styles and Headings**

One of the most important things to consider when creating a document is the appropriate use of styles and headings. The inbuilt structuring system of your word processing package should be used when creating any document.

Headings and sub-headings provide an intrinsic structure to the document. An appropriate style should be applied to headings and sub-headings so that the structure is also reflected visually.

## **Print Stylesheets**

Where the use of documents can be avoided, websites should use stylesheets to optimise web page content for printing. These stylesheets should follow the basic guidelines for printed documents.

## **Microsoft Word Documents**

As Microsoft Word is the most commonly used word processing package, it is important to ensure that consideration is given to accessibility and usability within a Microsoft Word document. If a document has been created using the styles and headings options, those reading the document (and also those creating them) can use an inbuilt navigation system (View > Document Map) enabling users to navigate a long document. Clicking the Document Map will allow the user to expand and contract headings or jump to the relevant section of a large document.

## **PDF (Portable Document Format)**

The portable document format (PDF) can be accessible if authors follow established best practices to include appropriate structure and equivalents for users with disabilities. It is important for PDF authors to incorporate within their PDF authoring workflows those steps that result in the creation of accessible PDF files.

PDF is a destination format, that is to say PDF files begin in other applications, such as desktop publishing and word processing programs or as another file type, typically as a TIFF file in the case of scanned content. Measures should be taken to maximise the accessibility in the source in order to enhance the accessibility of the resulting PDF file. The basic guidelines for printed documents should always be followed.

In addition to the basic guidelines for printed documents publishers of PDF files should:

- Favour tools and techniques that will result in the production of accessible PDF documents.
- Use the facilities (if available) in the word processing or authoring application to add alternative text to any graphics that appear in the document.
- Use styles for identifying document elements such as Titles and Headings. Avoid using character formatting techniques such as bolding text and modifying the font and size of text to create the appearance of these structural elements.
- For tabular information, use the product's table editor (if available).
- If possible, select products that provide authors with the option to export tagged accessible PDF. This will reduce the amount of time verifying structure after the PDF is produced.
- If you intend to create a PDF by scanning a paper document, submit the content to Optical Character Recognition (OCR) and add the necessary accessibility components prior to distributing the PDF file (see section on PDF accessibility repair below).

If a PDF file is created without following the previous guidelines, it may require additional enhancements to improve its accessibility. To optimise the accessibility of existing or legacy PDF files, the following process should be followed:

- First determine if the PDF file was created by scanning a printed page. Perform optical character recognition (OCR) on documents that were created as a result of scanning a document to create a PDF image of the scanned page.
- Second, determine if the PDF file is intended to be used as an interactive document or form. If so, add form fields and other controls with appropriate short descriptions for the form elements and controls.
- Third, determine if the PDF file has been given structure or “tagged”. If it has not been tagged, add tags to the file. Tags specify the logical read order of the PDF file and provide hooks for other accessibility elements such as alternative text descriptions for graphics.
- Once the PDF file has been tagged, add alternative text to graphics that are in the document and short descriptions to any form fields and interactive controls that are part of the document.
- Verify that the tagging is correct by evaluating its read order and ensuring all necessary alternate text elements are present for graphics and multimedia elements. If the document is a form or features interactive navigation, verify that short description labels are provided for form fields and interactive controls.
- For more detailed information refer to the Adobe website for information on PDF and Acrobat Accessibility.

### **Microsoft PowerPoint**

One of the most important features which should be utilised when creating a Microsoft PowerPoint presentation is the Notes Field. It provides presenters with an ideal opportunity to clarify content presented on the slides. It is also important that the Notes Field is used to exemplify the meaning of any visual content. For example if a presentation contains an image of a graph, the Notes Field should be used to explain the content of the graph and its reason for insertion. This will enable a screen reader user to understand the use of any images within the presentation.

### **Mobile Devices**

Designers should follow the W3C’s Mobile Web Best Practices guidelines when creating web sites to be accessed via mobile devices. Web sites should conform to the W3C Automated mobileOK basic tests, whilst aiming towards conformance to the full mobileOK tests.

# Web Content Accessibility Guidelines (WCAG) 2.0

W3C Recommendation 11 December 2008

## Level A and Level AA Guidelines

[Compiled from: <http://www.w3.org/TR/2008/REC-WCAG20-20081211/>]

Notes:

1. Although at the time this report was written the guidelines laid out below were effective, they should be checked against the latest WCAG 2.0 guidelines available at the W3C website.
2. Further information on Understanding Guidelines and Criteria, examples, implementation and techniques, glossary of terms etc can be found at the W3C website.

### **Principle 1: Perceivable - Information and user interface components must be presentable to users in ways they can perceive.**

**Guideline 1.1 Text Alternatives:** Provide text alternatives for any non-text content so that it can be changed into other forms people need, such as large print, braille, speech, symbols or simpler language.

**1.1.1 Non-text Content:** All non-text content that is presented to the user has a text alternative that serves the equivalent purpose, except for the situations listed below. **(Level A)**

- **Controls, Input:** If non-text content is a control or accepts user input, then it has a name that describes its purpose. (Refer to Guideline 4.1 for additional requirements for controls and content that accepts user input.)
- **Time-Based Media:** If non-text content is time-based media, then text alternatives at least provide descriptive identification of the non-text content. (Refer to Guideline 1.2 for additional requirements for media.)

- **Test:** If non-text content is a test or exercise that would be invalid if presented in text, then text alternatives at least provide descriptive identification of the non-text content.
- **Sensory:** If non-text content is primarily intended to create a specific sensory experience, then text alternatives at least provide descriptive identification of the non-text content.
- **CAPTCHA:** If the purpose of non-text content is to confirm that content is being accessed by a person rather than a computer, then text alternatives that identify and describe the purpose of the non-text content are provided, and alternative forms of CAPTCHA using output modes for different types of sensory perception are provided to accommodate different disabilities.
- **Decoration, Formatting, Invisible:** If non-text content is pure decoration, is used only for visual formatting, or is not presented to users, then it is implemented in a way that it can be ignored by assistive technology.

## Guideline 1.2 Time-based Media: Provide alternatives for time-based media.

**1.2.1 Audio-only and Video-only (Prerecorded):** For prerecorded audio-only and prerecorded video-only media, the following are true, except when the audio or video is a media alternative for text and is clearly labelled as such: **(Level A)**

- **Prerecorded Audio-only:** An alternative for time-based media is provided that presents equivalent information for prerecorded audio-only content.
- **Prerecorded Video-only:** Either an alternative for time-based media or an audio track is provided that presents equivalent information for prerecorded video-only content.

**1.2.2 Captions (Prerecorded):** Captions are provided for all prerecorded audio content in synchronized media, except when the media is a media alternative for text and is clearly labelled as such. **(Level A)**

**1.2.3 Audio Description or Media Alternative (Prerecorded):** An alternative for time-based media or audio description of the prerecorded video content is provided for synchronized media, except when the media is a media alternative for text and is clearly labelled as such. **(Level A)**

**1.2.4 Captions (Live):** Captions are provided for all live audio content in synchronized media. **(Level AA)**

**1.2.5 Audio Description (Prerecorded):** Audio description is provided for all prerecorded video content in synchronized media. **(Level AA)**

**Guideline 1.3 Adaptable:** Create content that can be presented in different ways (for example simpler layout) without losing information or structure.

**1.3.1 Info and Relationships:** Information, structure, and relationships conveyed through presentation can be programmatically determined or are available in text. **(Level A)**

**1.3.2 Meaningful Sequence:** When the sequence in which content is presented affects its meaning, a correct reading sequence can be programmatically determined. **(Level A)**

**1.3.3 Sensory Characteristics:** Instructions provided for understanding and operating content do not rely solely on sensory characteristics of components such as shape, size, visual location, orientation, or sound. **(Level A)**

Note: *For requirements related to colour, refer to Guideline 1.4.*



## Guideline 1.4 Distinguishable: Make it easier for users to see and hear content including separating foreground from background.

**1.4.1 Use of Colour:** Colour is not used as the only visual means of conveying information, indicating an action, prompting a response, or distinguishing a visual element. **(Level A)**

*Note: This success criterion addresses colour perception specifically. Other forms of perception are covered in Guideline 1.3 including programmatic access to colour and other visual presentation coding.*

**1.4.2 Audio Control:** If any audio on a Web page plays automatically for more than 3 seconds, either a mechanism is available to pause or stop the audio, or a mechanism is available to control audio volume independently from the overall system volume level. **(Level A)**

*Note: Since any content that does not meet this success criterion can interfere with a user's ability to use the whole page, all content on the Web page (whether or not it is used to meet other success criteria) must meet this success criterion*

**1.4.3 Contrast (Minimum):** The visual presentation of text and images of text has a contrast ratio of at least 4.5:1, except for the following: **(Level AA)**

- **Large Text:** Large-scale text and images of large-scale text have a contrast ratio of at least 3:1;
- **Incidental:** Text or images of text that are part of an inactive user interface component, that are pure decoration, that are not visible to anyone, or that are part of a picture that contains significant other visual content, have no contrast requirement.
- **Logotypes:** Text that is part of a logo or brand name has no minimum contrast requirement.

**1.4.4 Resize text:** Except for captions and images of text, text can be resized without assistive technology up to 200 percent without loss of content or functionality. **(Level AA)**

**1.4.5 Images of Text:** If the technologies being used can achieve the visual presentation, text is used to convey information rather than images of text except for the following: **(Level AA)**

- **Customizable:** The image of text can be visually customized to the user's requirements;
- **Essential:** A particular presentation of text is essential to the information being conveyed.

*Note:* Logotypes (text that is part of a logo or brand name) are considered essential.

## Principle 2: Operable - User interface components and navigation must be operable.

### Guideline 2.1 Keyboard Accessible: Make all functionality available from a keyboard.

**2.1.1 Keyboard:** All functionality of the content is operable through a keyboard interface without requiring specific timings for individual keystrokes, except where the underlying function requires input that depends on the path of the user's movement and not just the endpoints. **(Level A)**

*Note 1: This exception relates to the underlying function, not the input technique. For example, if using handwriting to enter text, the input technique (handwriting) requires path-dependent input but the underlying function (text input) does not.*

*Note 2: This does not forbid and should not discourage providing mouse input or other input methods in addition to keyboard operation.*

**2.1.2 No Keyboard Trap:** If keyboard focus can be moved to a component of the page using a keyboard interface, then focus can be moved away from that component using only a keyboard interface, and, if it requires more than unmodified arrow or tab keys or other standard exit methods, the user is advised of the method for moving focus away. **(Level A)**

*Note:* Since any content that does not meet this success criterion can interfere with a user's ability to use the whole page, all content on the Web page (whether it is used to meet other success criteria or not) must meet this success criterion.

## Guideline 2.2 Enough Time: Provide users enough time to read and use content.

**2.2.1 Timing Adjustable:** For each time limit that is set by the content, at least one of the following is true: **(Level A)**

- **Turn off:** The user is allowed to turn off the time limit before encountering it; or
- **Adjust:** The user is allowed to adjust the time limit before encountering it over a wide range that is at least ten times the length of the default setting; or
- **Extend:** The user is warned before time expires and given at least 20 seconds to extend the time limit with a simple action (for example, "press the space bar"), and the user is allowed to extend the time limit at least ten times; or
- **Real-time Exception:** The time limit is a required part of a real-time event (for example, an auction), and no alternative to the time limit is possible; or
- **Essential Exception:** The time limit is essential and extending it would invalidate the activity; or
- **20 Hour Exception:** The time limit is longer than 20 hours.

*Note: This success criterion helps ensure that users can complete tasks without unexpected changes in content or context that are a result of a time limit.*

**2.2.2 Pause, Stop, Hide:** For moving, blinking, scrolling, or auto-updating information, all of the following are true: **(Level A)**

1. **Moving, blinking, scrolling:** For any moving, blinking or scrolling information that (1) starts automatically, (2) lasts more than five seconds, and (3) is presented in parallel with other content, there is a mechanism for the user to pause, stop, or hide it unless the movement, blinking, or scrolling is part of an activity where it is essential; and
2. **Auto-updating:** For any auto-updating information that (1) starts automatically and (2) is presented in parallel with other content, there is a mechanism for the user to pause, stop, or hide it or to control the frequency of the update unless the auto-updating is part of an activity where it is essential.

*Note 1: For requirements related to flickering or flashing content, refer to Guideline 2.3.*

*Note 2: Since any content that does not meet this success criterion can interfere with a user's ability to use the whole page, all content on the Web page (whether it is used to meet other success criteria or not) must meet this success criterion. See Conformance Requirement 5: Non-Interference.*

*Note 3: Content that is updated periodically by software or that is streamed to the user agent is not required to preserve or present information that is*

*generated or received between the initiation of the pause and resuming presentation, as this may not be technically possible, and in many situations could be misleading to do so.*

*Note 4: An animation that occurs as part of a preload phase or similar situation can be considered essential if interaction cannot occur during that phase for all users and if not indicating progress could confuse users or cause them to think that content was frozen or broken.*

## **Guideline 2.3 Seizures: Do not design content in a way that is known to cause seizures.**

**2.3.1 Three Flashes or Below Threshold:** Web pages do not contain anything that flashes more than three times in any one second period, or the flash is below the general flash and red flash thresholds. **(Level A)**

*Note: Since any content that does not meet this success criterion can interfere with a user's ability to use the whole page, all content on the Web page (whether it is used to meet other success criteria or not) must meet this success criterion. See Conformance Requirement 5: Non-Interference.*

**Guideline 2.4 Navigable:** Provide ways to help users navigate, find content, and determine where they are.

**2.4.1 Bypass Blocks:** A mechanism is available to bypass blocks of content that are repeated on multiple Web pages. **(Level A)**

**2.4.2 Page Titled:** Web pages have titles that describe topic or purpose. **(Level A)**

**2.4.3 Focus Order:** If a Web page can be navigated sequentially and the navigation sequences affect meaning or operation, focusable components receive focus in an order that preserves meaning and operability. **(Level A)**

**2.4.4 Link Purpose (In Context):** The purpose of each link can be determined from the link text alone or from the link text together with its programmatically determined link context, except where the purpose of the link would be ambiguous to users in general. **(Level A)**

**2.4.5 Multiple Ways:** More than one way is available to locate a Web page within a set of Web pages except where the Web Page is the result of, or a step in, a process. **(Level AA)**

**2.4.6 Headings and Labels:** Headings and labels describe topic or purpose. **(Level AA)**

**2.4.7 Focus Visible:** Any keyboard operable user interface has a mode of operation where the keyboard focus indicator is visible. **(Level AA)**

## **Principle 3: Understandable - Information and the operation of user interface must be understandable.**

### **Guideline 3.1 Readable: Make text content readable and understandable.**

**3.1.1 Language of Page:** The default human language of each Web page can be programmatically determined. **(Level A)**

**3.1.2 Language of Parts:** The human language of each passage or phrase in the content can be programmatically determined except for proper names, technical terms, words of indeterminate language, and words or phrases that have become part of the vernacular of the immediately surrounding text. **(Level AA)**

### **Guideline 3.2 Predictable: Make Web pages appear and operate in predictable ways.**

**3.2.1 On Focus:** When any component receives focus, it does not initiate a change of context. **(Level A)**

**3.2.2 On Input:** Changing the setting of any user interface component does not automatically cause a change of context unless the user has been advised of the behaviour before using the component. **(Level A)**

**3.2.3 Consistent Navigation:** Navigational mechanisms that are repeated on multiple Web pages within a set of Web pages occur in the same relative order each time they are repeated, unless a change is initiated by the user. **(Level AA)**

**3.2.4 Consistent Identification:** Components that have the same functionality within a set of Web pages are identified consistently. **(Level AA)**

## Guideline 3.3 Input Assistance: Help users avoid and correct mistakes.

**3.3.1 Error Identification:** If an input error is automatically detected, the item that is in error is identified and the error is described to the user in text. **(Level A)**

**3.3.2 Labels or Instructions:** Labels or instructions are provided when content requires user input. **(Level A)**

**3.3.3 Error Suggestion:** If an input error is automatically detected and suggestions for correction are known, then the suggestions are provided to the user, unless it would jeopardize the security or purpose of the content. **(Level AA)**

**3.3.4 Error Prevention (Legal, Financial, Data):** For Web pages that cause legal commitments or financial transactions for the user to occur, that modify or delete user-controllable data in data storage systems, or that submit user test responses, at least one of the following is true: **(Level AA)**

1. **Reversible:** Submissions are reversible.
2. **Checked:** Data entered by the user is checked for input errors and the user is provided an opportunity to correct them.
3. **Confirmed:** A mechanism is available for reviewing, confirming, and correcting information before finalizing the submission.



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

### **Guideline 4.1 Compatible: Maximize compatibility with current and future user agents, including assistive technologies.**

**4.1.1 Parsing:** In content implemented using markup languages, elements have complete start and end tags, elements are nested according to their specifications, elements do not contain duplicate attributes, and any IDs are unique, except where the specifications allow these features. **(Level A)**

*Note: Start and end tags that are missing a critical character in their formation, such as a closing angle bracket or a mismatched attribute value quotation mark are not complete.*

**4.1.2 Name, Role, Value:** For all user interface components (including but not limited to: form elements, links and components generated by scripts), the name and role can be programmatically determined; states, properties, and values that can be set by the user can be programmatically set; and notification of changes to these items is available to user agents, including assistive technologies. **(Level A)**

*Note: This success criterion is primarily for Web authors who develop or script their own user interface components. For example, standard HTML controls already meet this success criterion when used according to specification.*

## Conformance Requirements

In order for a Web page to conform to WCAG 2.0, all of the following conformance requirements must be satisfied:

**1. Conformance Level:** One of the following levels of conformance is met in full.

1. **Level A:** For Level A conformance (the minimum level of conformance), the Web page satisfies all the Level A Success Criteria, or a conforming alternate version is provided.
2. **Level AA:** For Level AA conformance, the Web page satisfies all the Level A and Level AA Success Criteria, or a Level AA conforming alternate version is provided.
3. **Level AAA:** For Level AAA conformance, the Web page satisfies all the Level A, Level AA and Level AAA Success Criteria, or a Level AAA conforming alternate version is provided.

*Note 1: Although conformance can only be achieved at the stated levels, authors are encouraged to report (in their claim) any progress toward meeting success criteria from all levels beyond the achieved level of conformance.*

*Note 2: It is not recommended that Level AAA conformance be required as a general policy for entire sites because it is not possible to satisfy all Level AAA Success Criteria for some content.*

**2. Full pages:** Conformance (and conformance level) is for full Web page(s) only, and cannot be achieved if part of a Web page is excluded.

*Note 1: For the purpose of determining conformance, alternatives to part of a page's content are considered part of the page when the alternatives can be obtained directly from the page, e.g., a long description or an alternative presentation of a video.*

*Note 2: Authors of Web pages that cannot conform due to content outside of the author's control may consider a Statement of Partial Conformance.*

**3. Complete processes:** When a Web page is one of a series of Web pages presenting a process (i.e., a sequence of steps that need to be completed in order to accomplish an activity), all Web pages in the process conform at the specified level or better. (Conformance is not possible at a particular level if any page in the process does not conform at that level or better.)

*Example:* An online store has a series of pages that are used to select and purchase products. All pages in the series from start to finish (checkout) conform in order for any page that is part of the process to conform.

**4. Only Accessibility-Supported Ways of Using**

**Technologies:** Only accessibility-supported ways of using technologies are relied upon to satisfy the success criteria. Any information or functionality that is provided in a way that is not accessibility supported is also available in a way that is accessibility supported.

**5. Non-Interference:** If technologies are used in a way that is not accessibility supported, or if they are used in a non-conforming way, then they do not block the ability of users to access the rest of the page. In addition, the Web page as a whole continues to meet the conformance requirements under each of the following conditions:

- when any technology that is not relied upon is turned on in a user agent,
- when any technology that is not relied upon is turned off in a user agent, and
- when any technology that is not relied upon is not supported by a user agent

In addition, the following success criteria apply to all content on the page, including content that is not otherwise relied upon to meet conformance, because failure to meet them could interfere with any use of the page:

1. **1.4.2 - Audio Control,**
2. **2.1.2 - No Keyboard Trap,**
3. **2.3.1 - Three Flashes or Below Threshold,** and
4. **2.2.2 - Pause, Stop, Hide.**

*Note:* If a page cannot conform (for example, a conformance test page or an example page), it cannot be included in the scope of conformance or in a conformance claim.

## **Assistive Technology**

Assistive technologies are any item, piece of equipment, software or hardware system that helps a person with disabilities to interact with computers. The following page describes some of the more common examples.

### **Screen readers**

These are software applications that read a Web page one line at a time, horizontally across the screen. The text is spoken using a speech synthesiser.

### **Braille displays**

These are hardware devices that provide tactile outputs that are generally set up to output from screen reader software, but instead of outputting through a speech synthesiser they output to a refreshable retractable Braille display or a fixed single line display. Braille displays are unable to output multimedia or graphics content and totally rely on the provision of appropriate text and text alternatives.

### **Screen magnifiers**

Magnifiers or enlargers work by increasing the size of the image displayed on a screen. Navigation can be a problem as the user may only see a portion of the original screen at any one moment.

### **Speech recognition**

These applications allow a user to give commands and enter data by talking to their computer – so the input device is a microphone rather than a keyboard. Such software contains a vocabulary and users need to train the software to recognise their individual voices.

### **Adaptive hardware and input devices**

Users with a physical disability are more likely to struggle using the standard keyboard or mouse and may find it easier using ergonomic or specialised devices. Specialised keyboard and mouse designs are often referred to as assistive technology. Common technologies employed by physically disabled users are: alternative keyboards, on-screen keyboard emulators, mice, switches and pointing devices.

### **Speech enablement**

This falls into two categories:

First – applications that enable browsing of web content in audio. Combining text-to-speech technology they are generally limited to web browsing. This technology does not cope with multimedia or graphical content and therefore relies on the provision of appropriate text and alternative texts.

Second – there is speech enablement as a channel, either client-based or served-based, intended as an option for users who have difficulties reading a

website. This is a text-to-speech method that offers enhanced legibility for users with dyslexia, learning difficulties or with English as a second language.

### **Signing avatars**

This is an emerging technology using virtual humans, that is, computer animations that allow the creation and delivery of sign language content on a website. Avatars can also be used as virtual personalities to which a user may relate in a more natural way, eg, lip speaking avatars.

## **Main References:**

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[http://www.cabinetoffice.gov.uk/government\\_it/web\\_guidelines/past\\_consultations.aspx](http://www.cabinetoffice.gov.uk/government_it/web_guidelines/past_consultations.aspx)

**[4] The web: Access and inclusion for disabled people. DRC Report :**

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**[5] PAS78 Website accessibility guidance (BSI publicly available specification):**

[http://www.equalityhumanrights.com/Documents/Disability/Accessibility\\_guidance/PAS78.pdf](http://www.equalityhumanrights.com/Documents/Disability/Accessibility_guidance/PAS78.pdf)

**[6] Web Accessibility Initiative (WAI):**

<http://www.w3.org/WAI/>

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**[9] Draft BS 8878:2009 Web accessibility. Building accessible experiences for disabled people:**

<http://www.bsigroup.com/en/Standards-and-Publications/How-we-can-help-you/Consumers/Accessibilty-day/BS-8878-form/Thank-you/>

**[10] Web Content Accessibility Guidelines (WCAG) 2.0:**

<http://www.w3.org/TR/WCAG20/>

**[11] Web Content Accessibility Guidelines (WCAG) 1.0:**

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<http://www.bbc.co.uk/accessibility/>

## Other Useful References:

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<http://www.brucelawson.co.uk/2008/bs-8878-draft-british-accessibility-standard-for-public-comment/>

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