



Cognitive Disability Digital Accessibility Guide

A practical resource for organisational support

About Media Access Australia

We believe that all Australians have the right to access all forms of media and information, through technology, so they can participate fully in society.

Media Access Australia is Australia's only independent not-for-profit organisation devoted to increasing access to media for people with disabilities.

At the core of our work is the understanding that exclusion from mainstream media has profound effects on educational outcomes, workforce participation and social inclusion.

Access to media through technology empowers people to be independent, gain knowledge, make their own choices, and be active members of our society.

About this guide

Media Access Australia has created this resource to provide guidance on how best to address accessibility-related issues for people with cognitive disability in a media context.

This guide provides support to organisations in meeting the needs of people with cognitive disability across a range of digital media. Organisational roles supported in this guide include policy officers, ICT professionals, marketing and communications staff and content producers

The opinions, comments and/or analysis expressed in this guide are those of the author and Media Access Australia.

Access to media through technology empowers people to be independent, gain knowledge, make their own choices, and be active members of our society.

Support from service providers

As always, Media Access Australia grounds its research and solutions in the real world. The information in this guide is based on the extensive experience and interaction that we have with a wide range of organisations. We would like to particularly acknowledge and thank our collaborative partner working in cognitive disability, Scope (<http://www.scope.org.au>).

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About the author

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Scott has completed a PhD entitled *The Disability Divide: an examination into the needs of computing and internet-related technologies on people who are blind or vision impaired*, and has a background in computer science and a wealth of experience in both the information technology and not-for-profit sectors. Scott is legally blind and as such understands the importance of access at a personal level.

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Chapter 1: Introduction

1.1 Purpose of this guide

Cognitive disability is one of the most misunderstood aspects of disability, particularly because the term covers such a wide range of conditions. There is also little general knowledge about digital accessibility solutions for dealing with issues resulting from cognitive disability. This guide is designed to help professionals working in digital environments (with websites, digital communications, social media, digital and online documents, etc) to:

- Understand the different needs of people with cognitive disability
- Identify existing standards and approaches for dealing with those needs
- Find practical solutions to accessibility issues associated with cognitive disability
- Recognise that solutions and approaches for other disabilities can also benefit people with cognitive disability
- Make your digital content and communications accessible to people with cognitive disability (and other disabilities as well)

This guide can be viewed in conjunction with our comprehensive resource the Service Providers Accessibility Guide, which provides more detailed information about specific programs, media and approaches.

1.2 Why is it important for you?

- People with disabilities are your customers, colleagues and stakeholders, and it is important that you provide services, content and communications that they can access themselves, rather than relying on the assistance of carers, family and friends.
- By providing accessible communications that meet the needs of people with cognitive disability you are showing that your organisation is responsive and inclusive to all disabilities.
- By ensuring your communications are accessible to all people with disabilities you are ensuring that you are complying with disability discrimination legislation and related standards (including WCAG 2.0 guidelines).

This guide is designed to provide you with a practical, hands-on, step-by-step way to effectively prepare and deliver content and communications to meet the needs of people with cognitive disability.

Through following these approaches, you will also assist people with other disabilities and make your content and communications accessible to all people, including those for whom English is a second language and those who find it easier to process information in non-text formats.

1.3 How to use this guide

The guide is structured around common questions that are asked about cognitive disability and how it is supported through the formal web accessibility standards, the impact on different organisational roles, and how to plan your approach to incorporate the needs of people with cognitive disability.

The guide operates as a stand-alone resource, but also supports the Service Providers Accessibility Guide that has been produced by Media Access Australia as a comprehensive resource for anybody seeking practical knowledge on digital accessibility for people with disabilities.

Chapter 2: Defining cognitive disability clarifies what is meant by a cognitive disability, covering a wide range of conditions and identifying the specific issues that are faced by people with a cognitive disability in dealing with digital communications and information.

Chapter 3: Creating content that supports people with cognitive disability immediately moves into the area of reviewing organisational roles, reviewing formal regulations and policies, and pointing out specific guidance on different issues.

The final specific content for cognitive disability is *Chapter 4: Devices that support people with cognitive disability*. This looks at practical issues around physical devices and operating systems.

Finally, *Chapter 5: Next steps* outlines the services that Media Access Australia provides that can assist you in making your content and communications accessible to people with cognitive disability. The appendix is a useful, practical checklist summarising the issues discussed in the guide.

Chapter 2: Defining cognitive disability

2.1 What is a cognitive disability?

In broad terms, cognitive refers to the act of processing information such as thinking, remembering or reasoning. A cognitive disability affects these functions, making it more difficult to process information in a recognised, meaningful way for the individual.

There are a number of disabilities where a cognitive disability may be a significant factor for an individual. Such disabilities include acquired brain injury (ABI), autism, dementia, developmental disability, Down syndrome, intellectual disability and traumatic brain injury (TBI). There are other disabilities where people may have a cognitive disability, such as attention deficit disorder (ADD), dyslexia (difficulty reading), dyscalculia (difficulty with math) and learning disabilities in general.

2.2 Cognitive disability in the digital media context

In relation to the access of digital media such as web content and mobile apps, cognitive disability may make it more difficult to process information unless it is presented in a particular way. The ability to access online content not only provides access to a variety of products and services, but also has the potential to provide independence. Web AIM has identified six key functions in which accessibility should be considered to best support people with cognitive disability online. They include additional support in the areas of:

- Memory
- Problem-solving
- Attention
- Reading, linguistic, and verbal comprehension
- Math comprehension
- Visual comprehension

This guide can assist your organisation by providing guidance across the digital media currently being developed by your staff. It can also provide ways in which that content can be optimised for people with cognitive disability based on specific organisational roles.



Chapter 3: Creating content that supports people with cognitive disability

3.1 Accessibility and organisational roles

While different people will have different requirements for incorporating accessibility in their work practices, it is vital that accessibility is approached as an organisation-wide initiative and ongoing support is provided in an effective team environment.

To achieve this, the information provided in this chapter is designed to help you make sure that your web presence, apps, documents and emails can be created and distributed in ways that best support people with cognitive disability and their support networks.

The roles supported in this chapter include:

- Government policies and legislative requirements
- ICT professionals building accessible web and app content
- Content producers creating online documents
- Preparing accessible emails

3.2 Policies relating to accessible digital media

In November 2009, the Online and Communications Council (OCC) endorsed a mandatory requirement that all Australian Federal, state and territory government websites conform to the World Wide Web Consortium (W3C) Web Content Accessibility Guidelines (WCAG) 2.0. Furthermore, the *Disability Discrimination Act 1992* requires agencies to ensure that people with disabilities have the same fundamental rights to access information and services as others in the community. The initial implementation of this requirement by government agencies was known as the National Transition Strategy (NTS) and is currently supported by the Digital Transformation Office (DTO).

The *UN Convention on the Rights of Persons with Disabilities* (UNCRPD) also specifically recognises (under Articles 9 and 21) that access to information, communications and services, including the internet, is a human right. As such, it is imperative that all web content complies with the WCAG 2.0 standard.

WCAG 2.0 is recognised as the world standard for creating accessible websites and has wide international adoption. It is classified as the ISO/IEC 40500 standard and contains three implementation levels, 'A', 'AA' and 'AAA'. The NTS committed to having all Federal government websites meet WCAG 2.0 Level 'AA' by the end of 2014 and this has been a mandatory requirement ever since.

In relation to cognitive disability specifically, the WCAG 2.0 standard includes the following requirements:

- Provide captions in online video which provides both audio and visual reinforcement of spoken dialogue
- Create content that can be presented in different ways
- Give users enough time to read and use content
- Make text readable and understandable, ensuring that the language of a page is clearly defined and easy to read
- Help users avoid and correct mistakes, especially around inputting information into forms and clear guidance on how to fix mistakes

Within these points are also specific success criteria which are discussed in more detail in the following section, 3.3.

Yet, while there is sufficient broad policy to support people with cognitive disability, some of the specific implementation requirements of the policies currently exclude key requirements.

While the current implementation level of WCAG 2.0 at Level AA includes many supporting elements for people with cognitive disability, the success criteria that are arguably most significant for cognitive-specific support mechanisms are listed in the Level AAA implementation level, which is not currently recommended by government.

While many of the Level AAA requirements are considered difficult to implement as a whole, Media Access Australia recommends that cognitive-specific elements of Level AAA should be considered. The detail relating to Level AAA is included in this guide.



3.3 Guidance for ICT professionals building websites and apps

To ensure that people with disabilities can access your websites and apps, ICT professionals involved in the development and maintenance of content should be familiar with the Web Content Accessibility Guidelines (WCAG) 2.0 published by the W3C. As noted in the previous section, the requirement in Australia is for any web content to be developed based on the WCAG 2.0 Level AA implementation level. Please note that the success criteria discussed in this guide only represent a cognitive-specific subset of the Level AA requirements and is not a complete list of all the Level AA requirements.

For creating web and app content specifically for people with cognitive disability, ICT professionals should focus on implementing the following WCAG 2.0 success criteria from Level AA:

- 1.2.2 Captions (Pre-recorded): Ensuring that all video content has captions
- 1.2.4 Captions (Live): Ensuring that all live video content has captions
- 1.3.3 Sensory Characteristics: Making sure that visual content like maps is also represented in words
- 2.2.1 Timing Adjustable: Allowing the user to take extra time to complete a task if required
- 2.2.2 Pause, Stop, Hide: Ensuring that if content is flashing, moving or refreshing the user can pause, stop or hide that content
- 2.4.2 Page Titled: Clear description of the title of a web page or app screen
- 2.4.4 Link Purpose (In Context): Links should be descriptive and meaningful, avoiding phrases like 'click here' or 'read more'
- 2.4.5 Multiple Ways: Providing more than one way for people to find content
- 3.1.1 Language of Page: Making sure that the language is clearly defined so that speech recognition software interprets the page correctly
- 3.1.2 Language of Parts: Making sure that if the language changes, that change is clearly indicated
- 3.2.1 On Focus: Making sure nothing unexpected happens when an element receives focus
- 3.2.2 On Input: Making sure that users are able to select an option and then confirm that option rather than immediately taking them to their choice
- 3.2.3 Consistent Navigation: Ensuring that the navigation of the website is predictable and consistent
- 3.2.4 Consistent Identification: Making sure that language is used consistently, e.g. not interchanging a full name with an acronym
- 3.3.1 Error Identification: Making sure the user knows that an error has occurred
- 3.3.2 Labels or Instructions: Making sure that it's clear what you want the user to enter
- 3.3.3 Error Suggestion: Providing guidance to the user as to how they can fix their error
- 3.3.4 Error Prevention: providing guidance on what type of information needs to be entered in the form.

While these cognitive-related success criteria are generally implemented as part of a WCAG 2.0 Level AA implementation, there are additional success criteria found in Level AAA that are generally not adopted. To maximise support for people with cognitive disability, it is strongly recommended that the following success criteria found in Level AAA are also considered:

- 3.1.3 Unusual Words: Words that are not common or considered jargon are specifically defined such as in a glossary
- 3.1.4 Abbreviations: Abbreviations are clearly defined
- 3.1.5 Reading Level: Information should be readable at a lower secondary level. This could potentially include a specific sheet written in Easy English
- 3.1.6 Pronunciation: The correct pronunciation is indicated for difficult words

For additional information relating to the full success criteria required to achieve WCAG 2.0 compliance, please refer to the full WCAG 2.0 standard, located on the W3C website. An additional resource providing comprehensive practical guidance on implementation techniques can be found on the Access IQ website.

Chapter 3: Creating content that supports people with cognitive disability continued

For ICT professionals focusing on the development of apps on mobile devices, W3C has produced an advisory note relating to 'Guidance on Applying WCAG 2.0 to Non-Web Information and Communications Technologies (WCAG2ICT)'. While WCAG2ICT is not a mobile accessibility standard as such, it can be helpful in determining which cognitive-related WCAG 2.0 success criteria are applicable to the development of mobile apps.

3.4 Publishing documents online

To ensure that documents are as accessible as possible for people with cognitive disability, consideration should be given to producing the document in Easy English. As noted by Scope Victoria regarding the use of Easy English, it allows a document to be more easily understood by people who have difficulties reading. This can include the use of simplified language and grammar, minimal punctuation, simplified font, simplified layout and design and the use of images that illustrate headings and key messages.

While it may be difficult to convert every piece of content into Easy English, particularly technical or legal content, it is likely possible to provide a summary document or tip sheet in Easy English to ensure that people with cognitive disability are still able to access the core information on a document or website.

3.5 Preparing accessible emails

Emails provide an effective way to advertise your services to people with cognitive disability. In order to effectively convey information via an email, consider creating an Easy English version of the content. Emails are generally sent as HTML, meaning that the part of WCAG that applies to cognitive disability discussed for ICT professionals can also apply. In particular, ensuring that links are descriptive, using a simple layout and ensuring that visual content is also represented by text descriptions can significantly improve the accessibility of email messages.



Chapter 4: Devices that support people with cognitive disability

4.1 Planning your approach

People with cognitive disability tend to favour devices that are intuitive and provide clear guidance on how to use them. While desktop and laptop computers can be useful, many people with cognitive disability use tablets such as an iPad or Android tablet due to the way in which apps allow the user to complete a specific task, and because tablets have a generally simple layout and are generally interactive. Both platforms also provide many learning-specific and disability-specific apps which can help, particularly for disabilities such as autism.

In the case of Android tablets, there is also the added benefit of affordability, with generic brands being priced at under \$100 while maintaining compatibility with most of the apps in the Play Store.

To maximise the opportunities for people with cognitive disability, keep the following questions in mind when assessing specific individual needs:

- Should the tablet's operating system be upgraded to maximise the quality and availability of accessibility features?
- Do the tablet's specifications support the apps that the person with a cognitive disability needs?
- Is one platform better than another in terms of supporting the apps that a person with a cognitive disability needs?
- Are there free or low-cost apps available that can improve accessibility?
- Is the initial cost of a tablet important given there is a significant difference between the cost of an Android tablet and an iPad?
- If additional support is required, are there specialist products that can help?

4.2 Accessibility features in popular tablet devices

4.2.1 Apple iOS (iPad)

As highlighted on the Apple accessibility website, recent versions of iOS found on iPad models contain a number of accessibility features. The features most beneficial to people with cognitive disability include a simplified version of the Voiceover screen reader and captioned video playback. Other popular beneficial features include the Siri voice-activated digital assistant.

The iPad is also able to install a number of apps that can specifically assist people with cognitive disability, particularly autism.

4.2.2 Google Android

Google Android is the most popular operating system available on smartphones and tablets, running on devices made by companies such as LG, Samsung and Motorola as well as most lesser-known brands. Android devices running version 4.4 KitKat or later contain many accessibility features including the Talkback screen reader and captioned video playback.

While Apple iOS-based products like the iPad are generally considered to be more accessible, Android products have evolved to a point where they can meet the accessibility needs of most users, and devices are generally considered more affordable. Android is also generally considered more customisable with apps such as BIG Launcher, providing a simplified, accessible interface for most Android devices which is particularly useful for people with cognitive disability. BIG Launcher can be purchased from the Play Store for \$12.

Furthermore, many apps are now released as dual-platform, meaning that many that used to be exclusively on the iPad are now often on Android tablets as well.

Chapter 5: How Media Access Australia can help

This guide focuses on the specific accessibility issues for people with cognitive disability and approaches and solutions covering these issues. A number of those solutions also assist with accessibility for other disabilities and are covered in greater detail in other Media Access Australia resources, such as the Service Providers Accessibility Guide.

A checklist for accessibility and cognitive disability is included as an appendix to this guide. This is designed to confirm that you have addressed the main accessibility requirements. In some cases these are simple to implement and may only take a few minutes for you to address. Other areas are more complex and depending on your resources and skill levels, you may need some external help to complete these tasks.

Media Access Australia provides a wide-range of training, consulting services and technical information covering accessibility issues, including cognitive disability.

5.1 Assessing priorities: the Digital Accessibility Maturity Assessment

Our Digital Accessibility Maturity Assessment (DAMA) is a low-cost review of your methods and processes assessed according to management best practice, against a clear set of external benchmarks. The detailed report examines the risk associated with these levels and puts forward key priority actions for these risks. This is a very effective tool for gaining senior management support and action.

5.2 Training

We offer a range of training programs that are all practically-based and use real-world situations. This includes creating accessible content in Word, PDF and InDesign. There are specific modules for accessible social media, video content, Excel and forms. For web professionals, we offer higher-level training, including our Professional Certificate in Web Accessibility course.

5.3 Digital Accessibility Consulting

For specific issues around accessibility and cognitive disability we provide a specialist consulting service covering your digital needs. Our service, delivered by world experts, covers a wide range of industries and situations and includes promotion and communication of your accessibility strategy to key stakeholders.

5.4 Document accessibility

If you have documents, forms and maps that need to be made accessible our document remediation service can provide this for you in a range of formats, always meeting benchmark accessibility standards. We can also help you create Easy English documents and forms.

5.5 Auditing existing web and app content

For a more formal audit of existing websites and apps, across a range of browsers and devices, we provide testing against the international WCAG 2.0 standards ('A', 'AA', 'AAA'). Our testing includes looking at key processes, as well as static content on the website.

5.6 Accessibility resources

As a specialist digital accessibility organisation, we are always up-to-date with the latest information and developments in accessibility. Our Access iQ website (<http://www.accessiq.org/>) provides extensive online information on specific issues aimed at web, digital and accessibility professionals.

For more information

Web: digitalaccessibilityservices.com.au Call: 02 9212 6242

Email: accessibleservices@mediaaccess.org.au

Checklist for accessibility



This checklist is designed to provide a simple way to confirm that the key accessibility requirements for people with cognitive disability have been addressed.

Our organisation is aware of cognitive concepts relating to:

- Memory
- Problem-solving
- Attention
- Reading, linguistic, and verbal comprehension
- Math comprehension
- Visual comprehension

Government policy

- Familiar with government strategic and legislative frameworks relating to accessible online content?

Website and app accessibility

Level AA:

- 1.2.2 Captions (Pre-recorded)
- 1.2.4 Captions (Live)
- 1.3.3 Sensory Characteristics
- 2.2.1 Timing Adjustable
- 2.2.2 Pause, Stop, Hide
- 2.4.2 Page Titled
- 2.4.4 Link Purpose (In Context)
- 2.4.5 Multiple Ways
- 3.1.1 Language of Page
- 3.1.2 Language of Parts
- 3.2.1 On Focus
- 3.2.2 On Input
- 3.2.3 Consistent Navigation
- 3.2.4 Consistent Identification

- 3.3.1 Error Identification
- 3.3.2 Labels or Instructions
- 3.3.3 Error Suggestion
- 3.3.4 Error Prevention (Legal, Financial, Data)

Level AAA

- 3.1.3 Unusual Words
- 3.1.4 Abbreviations
- 3.1.5 Reading Level
- 3.1.6 Pronunciation

Documents and emails in Easy English

- Use of simplified language and grammar
- Minimal punctuation, simplified font
- Simplified layout and design
- The use of images that illustrate headings and key messages.

Setting a tablet

- Should the tablet's operating system be upgraded to maximise the quality and availability of accessibility features?
- Does the tablet's specifications support the apps that the person with a cognitive disability needs?
- Is one platform better than another in terms of supporting the apps that a person with a cognitive disability needs?
- Are there free or low-cost apps available that can improve accessibility?
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