

Design for impactful communication

# Visual perception and accessibility

# The importance of digital accessibility

Did you know that roughly **9 in 10 websites are not accessible**?

Below are some of the chief reasons why designing with digital accessibility in mind is so vital:



## Inclusivity

It ensures that people with disabilities, including those with visual, auditory, motor, and cognitive impairments, can access and use digital content.



## Legal compliance

Many countries have legislation and regulations that require websites to be accessible. Non-compliance can lead to legal issues and fines.



## Better UI/UX

Good accessibility practices often lead to a better overall user experience, which benefits all users.



## Better SEO rankings

Accessibility features often improve search engine optimisation (SEO) by making content more structured and understandable to search engines.



## Mobile and multilingual users

Accessibility practices benefit mobile users and those who speak different languages, making content more adaptable and translatable.



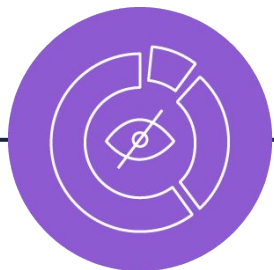
## It's the right thing to do

Promoting web accessibility is a matter of ethics, ensuring that all individuals have equal access to information, services, and opportunities on the Internet.

# Web accessibility for data professionals

What are some tasks in the **day-to-day role** of a **data professional** that might be **affected by web accessibility** guidelines and best practices?

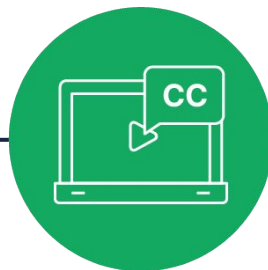
Visual media such as **charts and graphs** need an alternative way to be understood by non-sighted individuals.



**Data dashboards and reports** need to be navigable by keyboard input and those who use screen readers.



**Demo videos** of tools or dashboards need to be shared with a text alternative for hearing-impaired individuals.



**User testing** needs to include participants with different abilities and impairments.



# Web Content Accessibility Guidelines (WCAG)

There are many **different associations involved with promoting web accessibility** and setting **guidelines** and **best practices** for its implementation (for example, the Web Accessibility Initiative (WAI) and the World Wide Web Consortium (W3C), etc.).

The **Web Content Accessibility Guidelines (WCAG)** are the most commonly used standards.

**WCAG** is broken down into **three levels of “success criteria”**:

**A** = the bare minimum conformance level

**AA** = the mid-range conformance level

**AAA** = advanced conformance (rare)



**AA** is the **standard most legal requirements are based on**. It ensures an equivalent experience for all users and is **the standard we should aim for** when designing content for the web.

# The four principles of web accessibility

## Perceivable

Content must be presented so that users can sense it (for example, readable text, alt text for images).



## Understandable

Information and interface should be clear and easy to grasp.



## Operable

Users can navigate and interact easily (for example, keyboard-friendly, no time limits).



## Robust

Content should work reliably across different technologies, including assistive tools.



# POUR: Perceivable

Content must be available for users to **interact with via their senses** – sight, hearing, and/or touch.

→ Use descriptive **alternative text** for **images and non-text content**.

**Hint:** Alt text should not include phrases like “image of” or “link of”.

→ Use **sufficient contrast** to make content easy to see and hear.

**E.g.** music and spoken audio should not compete in volume within video or audio content.

→ Programmatically **label** input **fields** and **buttons**.

All inputs and buttons should have labels that accurately **define their purpose**.



Alt text



# POUR: Perceivable

→ **Don't use colour alone to convey meaning or differentiation.**

For those with difficulty distinguishing between colours, **another differentiator** should be used.

**E.g.** underlining on text links

**E.g.** icons to accompany colour coding:



Piped water



Wells and boreholes



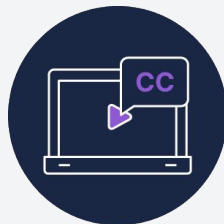
Dams

→ **Provide captions and/or transcripts for video and audio content.**

**Captions** can be:

**Open** (baked into the video), or  
**Closed** (toggle on and off).

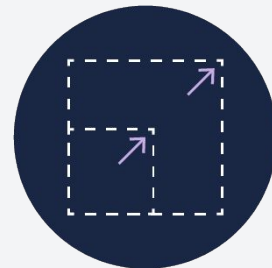
Transcripts should be **downloadable** and in a text **format that screen readers can interpret.**



→ **Make content adaptable and adjustable.**

Volume, text size, contrast, brightness, playback speed, proportional scaling, etc.

**E.g.** Page text and content should scale legibly to 200%.



# Example: Text contrast

- According to the WCAG guidelines, these are the **contrast ratios required for the AA success criteria**:

**Regular text = 4.5:1** | Regular text is anything smaller than 18pt.

**Large text = 3:1** | Large text is anything from 18pt upwards, or bolded text 14pt or larger.

In general, **it is easier to read dark text on a light background**, even though the contrast ratio is the same either way.

**Light text on dark backgrounds** should be used **sparsely** or otherwise when developing an **additional dark mode or theme** for websites and apps.

|       |   |       |   |
|-------|---|-------|---|
| 15:1  | <div> <div> <div>Regular</div> <div>Large</div> </div> </div> | 7.8:1 | <div> <div> <div>Regular</div> <div>Large</div> </div> </div> |
| 15:1  | <div> <div> <div>Regular</div> <div>Large</div> </div> </div> | 1.9:1 | <div> <div> <div>Regular</div> <div>Large</div> </div> </div> |
| 3.7:1 | <div> <div> <div>Regular</div> <div>Large</div> </div> </div> | 2.1:1 | <div> <div> <div>Regular</div> <div>Large</div> </div> </div> |
| 1.2:1 | <div> <div> <div>Regular</div> <div>Large</div> </div> </div> | 1.2:1 | <div> <div> <div>Regular</div> <div>Large</div> </div> </div> |

**Hint:** Don't place colour text on a colour background. The contrast will always fail, even when using complementary colours.



# POUR: Operable

Users should be able to navigate and interact with web content using a **variety of input methods** and **without time limits** that could be a barrier to people with disabilities.

→ Enable users to navigate with a **keyboard, mouse, or screen reader**.

→ Make navigation features **predictable and consistent**.

**E.g.** menu dropdowns should appear in the same place and operate in the same way on every page.

→ Allow users to **pause, stop, or adjust time-sensitive content**.

**E.g.** Speed controls on video playback.



# POUR: Understandable

The information and operation of user interface components must be **clear and comprehensible**, making it **easy for all users** to **understand and use** the content.

## → Use **consistent design** and **layout**.

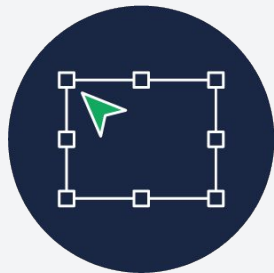
Use proper **text hierarchy** to indicate **importance** and **chronology**.

**Do not** use **different ordering systems** in different places (for example, left-to-right vs. right-to-left).

## → Use descriptive **section headings**.

Individuals who use **screen readers** often **navigate pages using headings**.

Logical headings and well-distributed content also **reduce cognitive load**, which **helps all users** make sense of content more easily.



# POUR: Understandable

- Make error messages **informative** and **easy to solve**.

**E.g.** providing clear visual and textual **feedback** for the reason why a form could not be completed.

- Present content in the **simplest possible language**.

Using succinct and straightforward language **benefits all users**, but specifically those with **cognitive impairments**.

- Make use of **easy-to-understand** and **inclusive** examples.

**Accessibility** and **inclusivity** are **closely linked**.

**E.g.** do we use examples only sighted individuals would relate to?

**E.g.** do we assume the lived experiences of our users?



# POUR: Robust

Web content must be designed to **work reliably across a variety of user agents**, including assistive technologies, ensuring that it **remains accessible as technology evolves**.

→ Use **web standards** and **coding best practices**.



→ Design to ensure **compatibility** with **assistive technologies**.

**E.g.** screen readers, adaptive keyboards, alternative input devices, screen magnifiers, etc.



→ **Design content responsively**, so it can be viewed optimally across devices.

This may mean making **multiple versions** of static content in different aspect ratios.



# POUR: Robust

- Ensure websites are **compatible** across **browsers**.

Websites should be **tested across a wide range of browsers** to ensure robustness in this area.



- Make certain **markup** is **valid**.

Enhance how well our content works with both current and future user tools, including assistive technologies, by making sure that content created using **markup languages** is **coded accurately** and includes **complete starting** and **ending tags**.



- Use **semantic HTML** and **proper document structure**.

Semantic HTML helps screen readers **recognise** different **elements** on a website, for example, headers, images, navigation bars, etc.



# Accessibility tools in Power BI

**Power BI** conforms to **WCAG 2.1** standards, as well as what is **legislatively required** when operating information and communication technologies (ICT) services in the **US and European regions**. There are many **accessibility features in Power BI** we can and should use to **make our dashboards and reports available to all users**.

## A high-level overview of some of Power BI's accessibility features:

The following features are **programmed into Power BI** and **don't require any configuration** from the author:

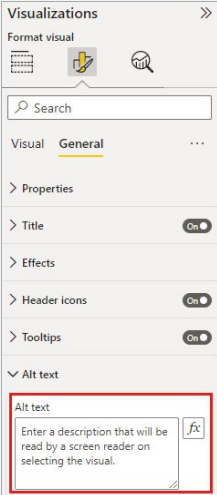
- Keyboard navigation
- Screen reader compatibility
- High-contrast colors view
- Focus mode
- Show data table

These features are also built into Power BI, but do **require author configuration**:

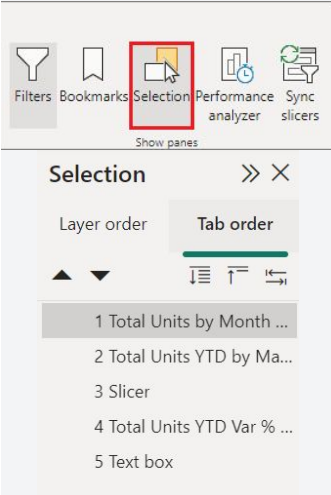
- Alt text
- Tab order
- Titles and labels
- Markers
- Report themes

# Accessibility tools in Power BI: Configurable


## Alt text



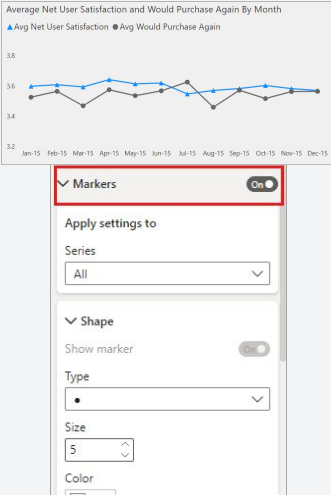
## Tab order



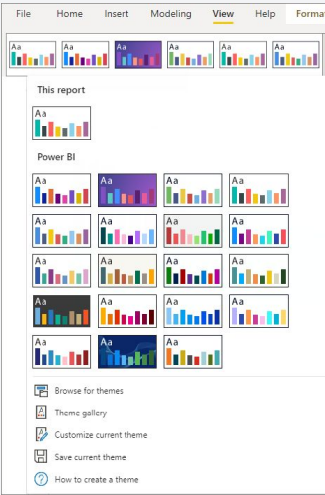
## Titles and labels



## Markers



## Report themes



Learn more detail about how to use [Power BI's configurable accessibility features](#) before creating your next dashboard or report.

[Power BI's report accessibility checklist](#) can be used to ensure we've utilised all of the accessibility features the software has to offer.

# Useful tools

Some of these **links and tools** could be **useful when next developing content** for viewing, sharing, or interacting with on the web:

We can use [this handy \(and well-designed\) checklist](#) when developing content. Each checkbox contains a drop-down with more information, and a link out to the in-depth WCAG guidelines on that topic.

Check out the [WebAIM contrast checker](#) to make sure our text, icons, and images are presented in sufficient contrast with their backgrounds.

Make use of [WebAIM's suite of WAVE tools](#) to test and evaluate the accessibility of our web content.

Take a look at [this Hubspot blog](#) for a succinct and digestible overview of the WCAG guidelines, along with some examples in context.