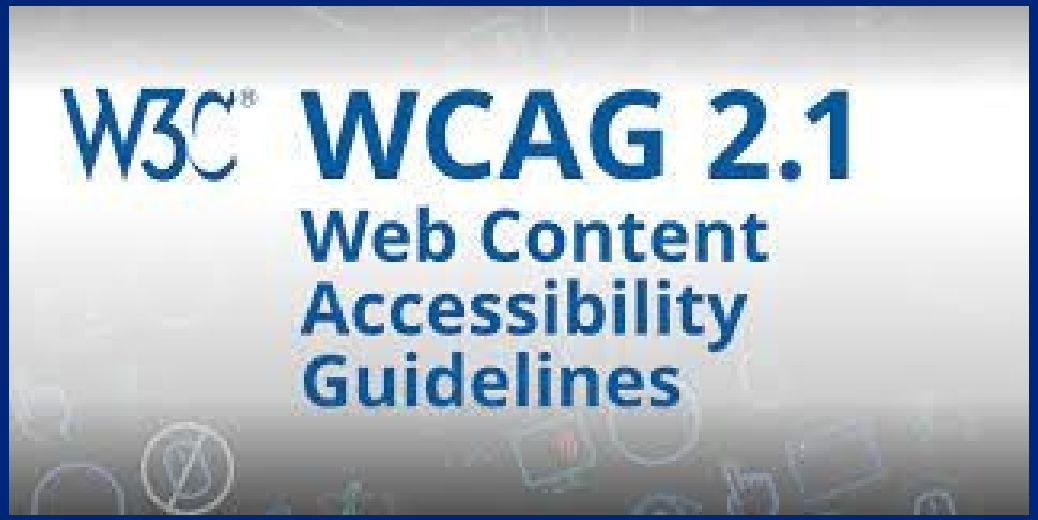
Università di Genova

WEB & DIGITAL ACCESSIBILITY

How do I know if a website is accessible?



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Web Content Accessibility Guidelines

Set of principles, guidelines, and success criteria to build accessible web content

Published by **W3C**

Web content creators and developers should adopt them into their practice

- **WCAG 1.0** (1999, now obsolete)
- **WCAG 2.0** (2008, complete rewrite, with new principles and a new structure)
- **WCAG 2.1** (2018, adds new criteria without removing or changing anything from 2.0 guidelines)
- **WCAG 2.2** (2023, backward compatible with WCAG 2.x)

Web Content Accessibility Guidelines

1. Principles
   - basic **qualities** web sites need to have when considering accessibility
2. Guidelines
   - allow the design of web sites staying in the **right track** when considering accessibility
3. Success criteria
   - allow to **verify the work done** to see if principles and guidelines were successfully followed
4. Levels of conformance (accessible criteria)
   - A, AA, AAA

Levels of Conformance

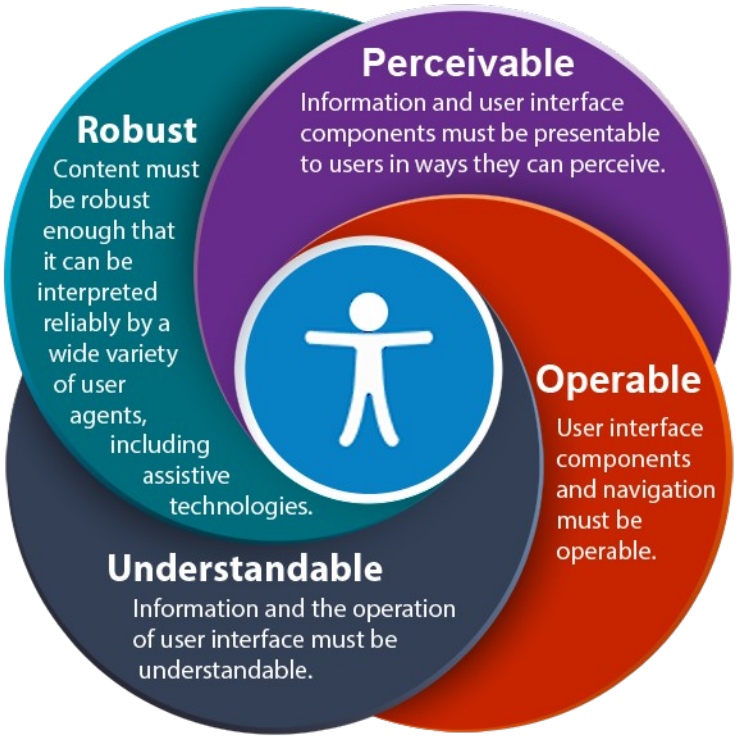
Level A, bare minimum but may not meet the needs of many users with disabilities

Level AA, recommended standard for most websites, it provides a good balance between accessibility and feasibility; it is **required by many laws and regulation**

Level AAA, ideal for content that needs to be as accessible as possible but can be difficult or unrealistic to achieve for all types of content

WCAG 2.x Principles (POUR)

Four main principles (technology agnostic)



https://www.webaccessibile.org/normative/wcag-2-1-i-nuovi-requisiti-rispetto-alle-wcag-2-0/

WCAG 2.x Principles (POUR)

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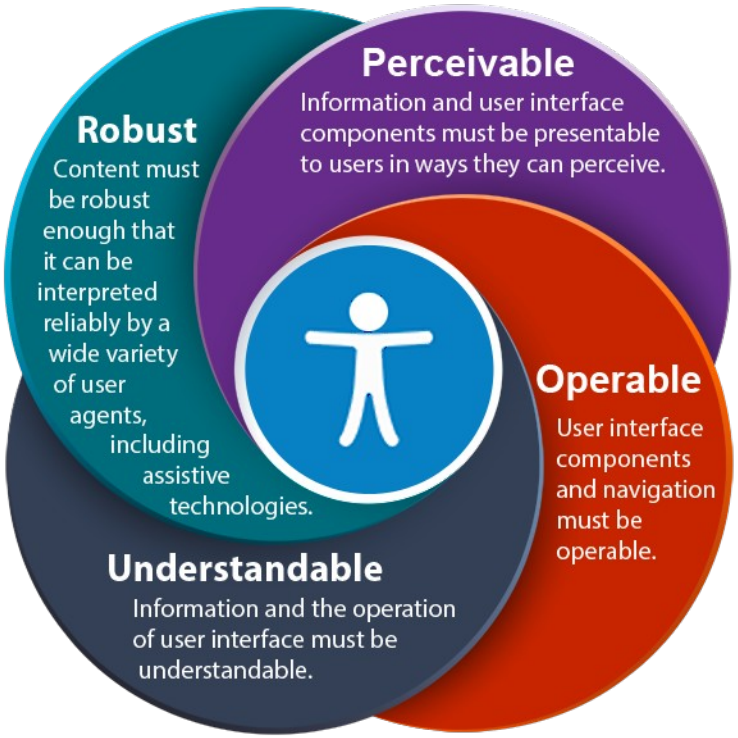

For example, make images available with alt-text, videos available through captions and audio descriptions, provide sufficient color contrast between foreground and background

https://www.webaccessibile.org/normative/wcag-2-1-i-nuovi-requisiti-rispetto-alle-wcag-2-0/

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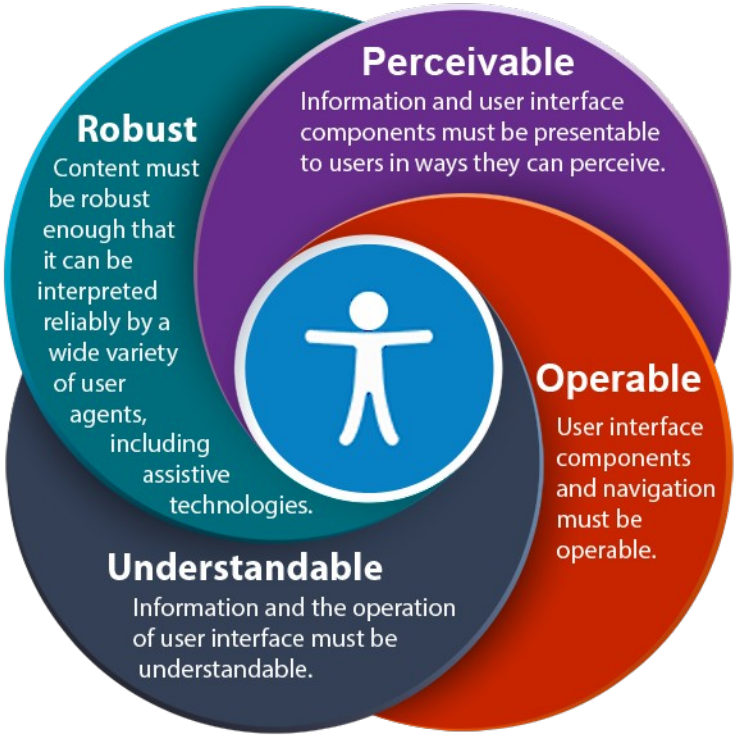

For example, enabling navigation using only the keyboard, meaningful links, allowing enough time to complete a task

https://www.webaccessibile.org/normative/wcag-2-1-i-nuovi-requisiti-rispetto-alle-wcag-2-0/

WCAG 2.x Principles (POUR)

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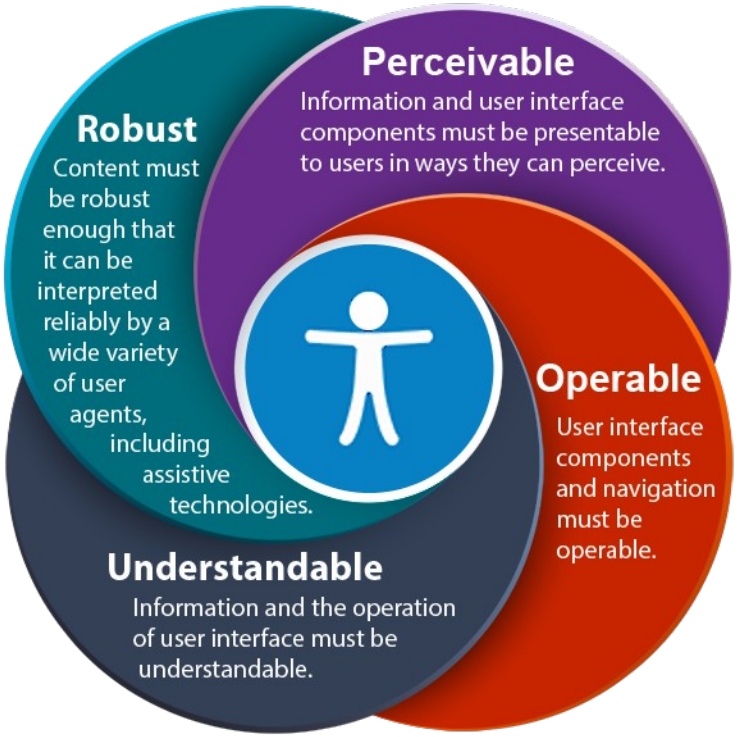


For example, specifying the language of the page and assisting users when filling forms fields, predict or correct mistakes

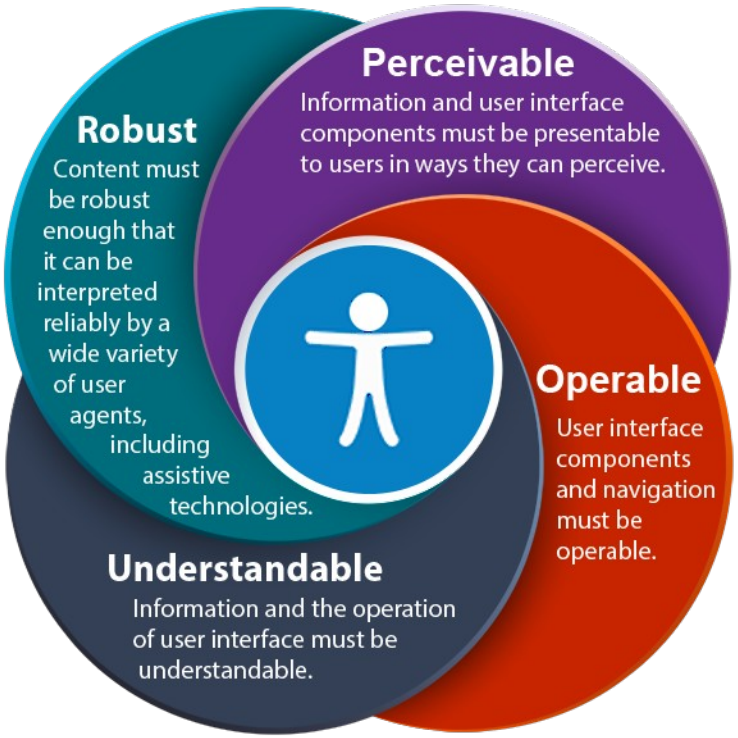
https://www.webaccessibile.org/normative/wcag-2-1-i-nuovi-requisiti-rispetto-alle-wcag-2-0/

WCAG 2.x Principles (POUR)

Four main principles (technology agnostic)

Maximizing compatibility with current and future devices

Code with bugs or wrong use of components might have a negative impact on assistive technologies, that cannot interpret correctly the content



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WCAG 2.x Guidelines

1. Perceivable has **4** guidelines
    - Guideline 1.1 – Text Alternatives
    - Guideline 1.2 – Time-based Media
    - Guideline 1.3 – Adaptable
    - Guideline 1.4 – Distinguishable

See https://www.w3.org/WAI/WCAG21/quickref/?versions=2.1#principle1

WCAG 2.x Guidelines

2. Operable has **5** guidelines
   - Guideline 2.1 – Keyboard Accessible
   - Guideline 2.2 – Enough Time
   - Guideline 2.3 – Seizures and Physical Reactions
   - Guideline 2.4 – Navigable
   - Guideline 2.5 – Input Modalities

See https://www.w3.org/WAI/WCAG21/quickref/?versions=2.1#principle2

WCAG 2.x Guidelines

3. Understandable has **3** guidelines
   - Guideline 3.1 – Readable
   - Guideline 3.2 – Predictable
   - Guideline 3.3 – Input Assistance

4. Robust has **1** guideline
   - Guideline 4.1 – Compatible

See https://www.w3.org/WAI/WCAG21/quickref/?versions=2.1#principle3

See https://www.w3.org/WAI/WCAG21/quickref/?versions=2.1#principle4

WCAG 2.x Success criteria

Example **Success Criterion 3.2.4 Consistent Identification**

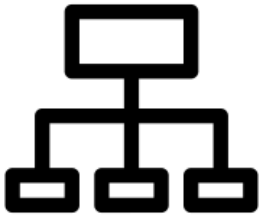
(Level AA)

Components that have the same functionality within a set of Web pages are identified consistently.

See https://www.w3.org/WAI/WCAG21/Understanding/consistent-identification.html

Most common accessibility issues

Navigation

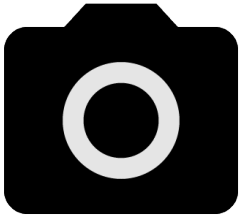


Site structure

Text

Links

Multimedia



Images

Forms

Testing for accessibility

Accessibility should be introduced from the **early stages** of the design, not at the end

- Determine the **required level of compliance**
- Define and use an **accessibility check list**

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- Determine the **required level of compliance**
- Define and use an **accessibility check list**
- **Ask yourself questions** such as

Automated testing: pros

Quick

Not all errors need human check

Can review hundreds of pages

First **validate HTML 5 code**, for example with https://validator.w3.org/

Then **automatically check for accessibility** (25% to 40% issues can been automatically detected)

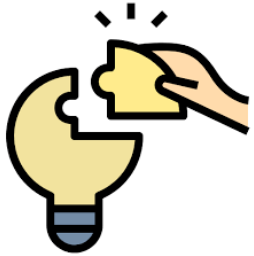
- https://wave.webaim.org/
- https://tenon.io/

Automated testing: cons

Incomplete coverage

Alt-text

Script and dynamic content



Compliance != Accessibility

Manual testing

Slower

Human judgment

Depends on the experience of the tester

To perform **manual testing** you can create **user stories**

- a user story usually focuses on the value a software feature will deliver to an end-user, and an accessibility user story is no different

Manual testing: user stories

Examples of user stories

- As a **keyboard-only user**, I want to know where I am on the screen so that I can perform an action or navigate to other areas of the site
- As a **screen reader user**, I want to hear the text equivalent for each image button so that I will know what function it performs
- As a **user who is color blind**, I want links to be distinguishable on the page so that I can find the links and navigate the site

https://tetralogical.com/blog/2022/05/26/how-to-write-user-stories-for-accessibility/

User testing

Real users

- including users with disabilities who access the web pages with assistive technologies

Real users usually discover problems testers can miss

Testing for accessibility: how to

Use assistive technologies

- Screen readers
  - JAWS (Windows) / Edge
  - NVDA (Windows) / Firefox
  - VoiceOver (Mac) / Safari
  - Orca (Linux)
- Others
  - Screen magnifiers
  - Speech recognition

Testing for accessibility: how to

Checklist

- WebAIM
  (see https://webaim.org/standards/wcag/checklist)
- The A11Y Project
  (see https://www.a11yproject.com/checklist/)

Testing for accessibility: how to

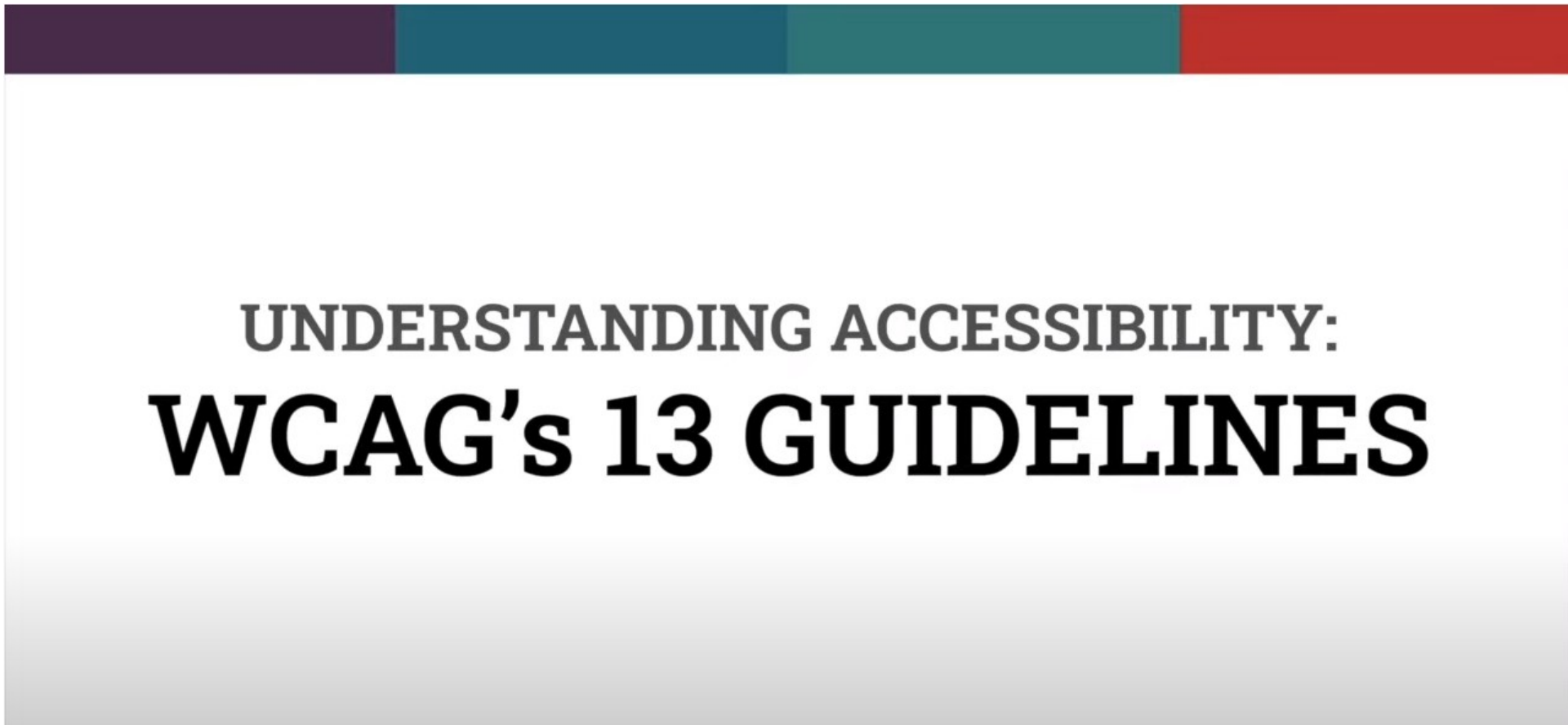
Allocating time and **resources** to accessibility planning and testing results in a **more inclusive product**, it can help **avoid expensive mistakes** which need to be remedied when accessibility is only considered after a feature has been released

This is especially true if accessibility standards have not been met which might result in a legal case

Very nice video

Understanding Accessibility: WCAG's 13 Guidelines with Kasey Bonifacio

https://www.youtube.com/watch?v=RjpvOqZigao



Additional technical details

If you like the subject you can read the introductory module on Accessibility

https://developer.mozilla.org/en-US/docs/Learn/Accessibility