Mobile Accessibility: Building & Testing Accessible Mobile Sites and Native Apps

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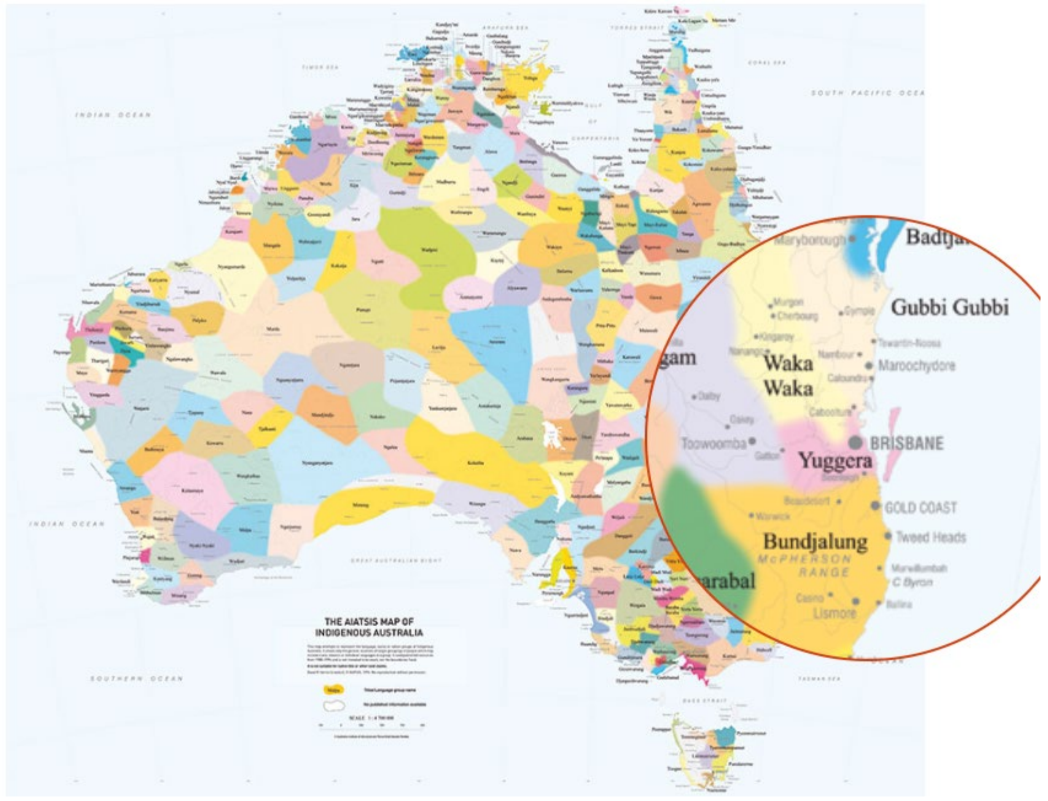
Land acknowledgement

Acknowledge Yuggera as the traditional owners of this land.



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Meet our team

- Dyslexia
- Moderate vision impairment
- Severe vision impairment
- Epilepsy
- Migraines
- Physical impairment
- Fibromyalgia
- Multiple Sclerosis
- Crohn's Disease
- PTSD
- Autism
- Long COVID

It’s not just about vision impairments

About Gian

1998

- Worked on first accessible website in Australia
- Created Australia’s first automated accessibility testing tool
- Invited Expert to W3C WCAG2 Working Group
- Worked on Melbourne 2006 Commonwealth Games
- Managed Usability and Accessibility Services at Monash University

Founded AccessibilityOz

Released OzPlayer

Released OzART

Spoke at the United Nations on web accessibility

Nominated for Australian of the Year

Inducted into the Centre for Accessibility's Hall of Fame as Accessibility Person of the Year 2019

2024

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A little background…

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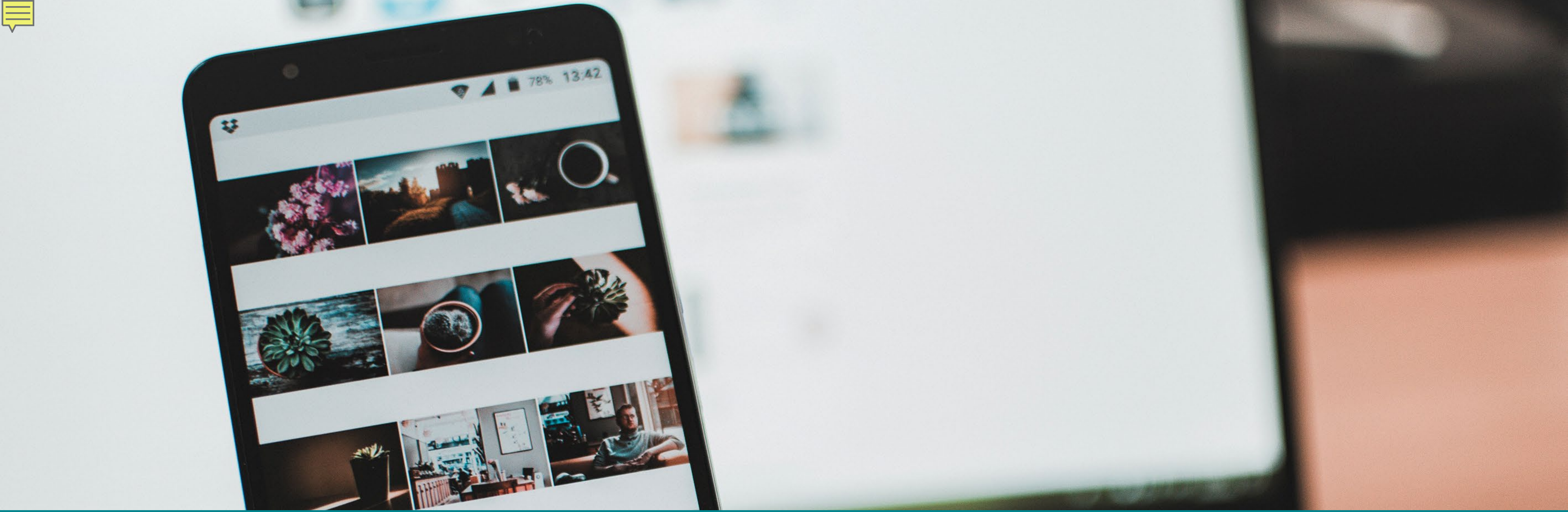
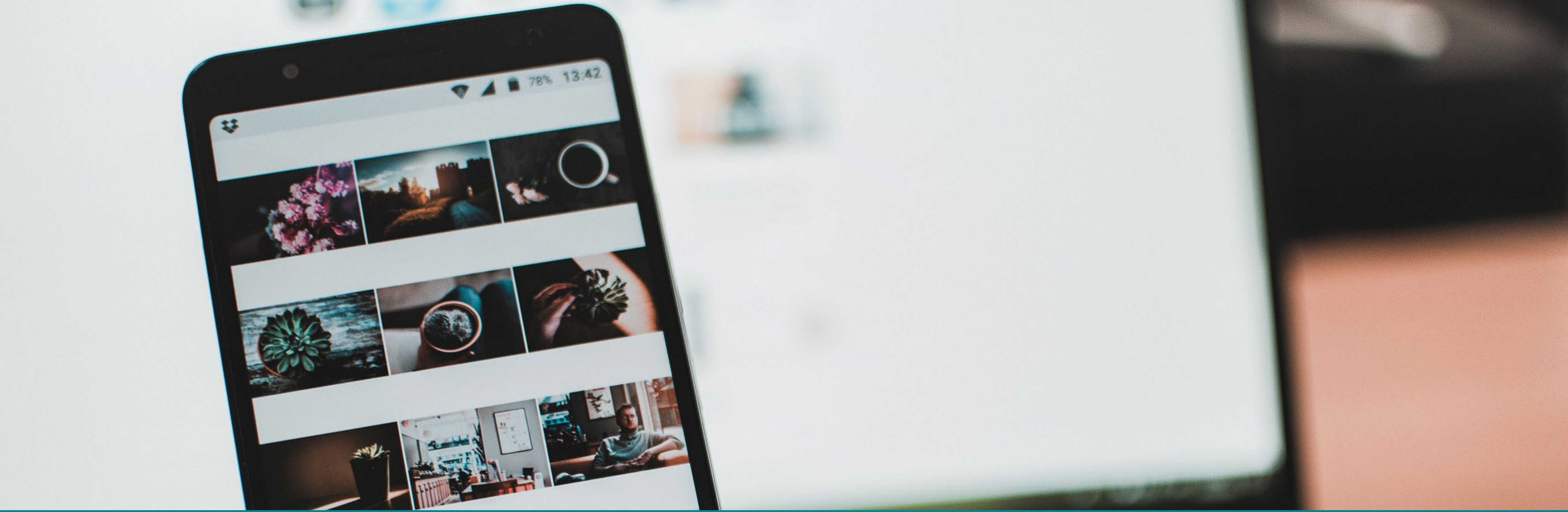


Why did we develop this methodology?

Introduction

ICT Accessibility Testing Symposium has developed a methodology for evaluating the accessibility of mobile web sites. This document is an amalgamation of accepted mobile accessibility testing standards from around the world, including additional developments from the ICT Accessibility Testing Symposium's Mobile Sub-Committee.



What about WCAG2.1?

WCAG2

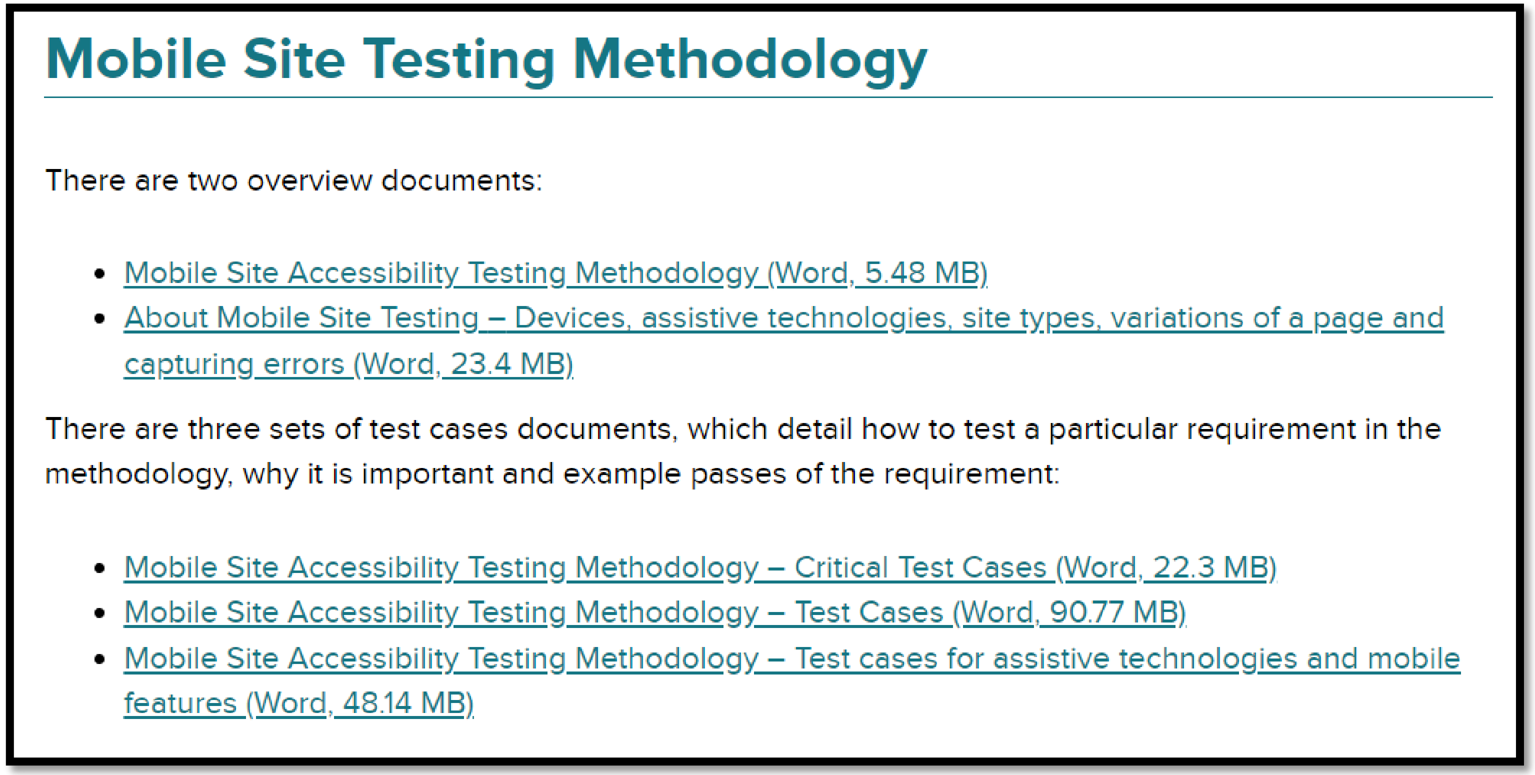
WCAG2 success criteria are applicable to mobile, however, not all aspects of mobile accessibility are specifically covered by WCAG2. For example, although WCAG2 requires sites to be accessible to the keyboard user, it does not specify that it should also be accessible to the touchscreen user.

WCAG2.1

WCAG2.1 builds on this and addresses more criteria related to touch screen (pointer gestures), sensors and small screen devices, however it still does not cover all user needs related to mobile accessibility.

Please note that this methodology does not include those errors already included in **WCAG2 but does include those errors in WCAG2.1**

Where can you find these?



Mobile Site Testing Methodology

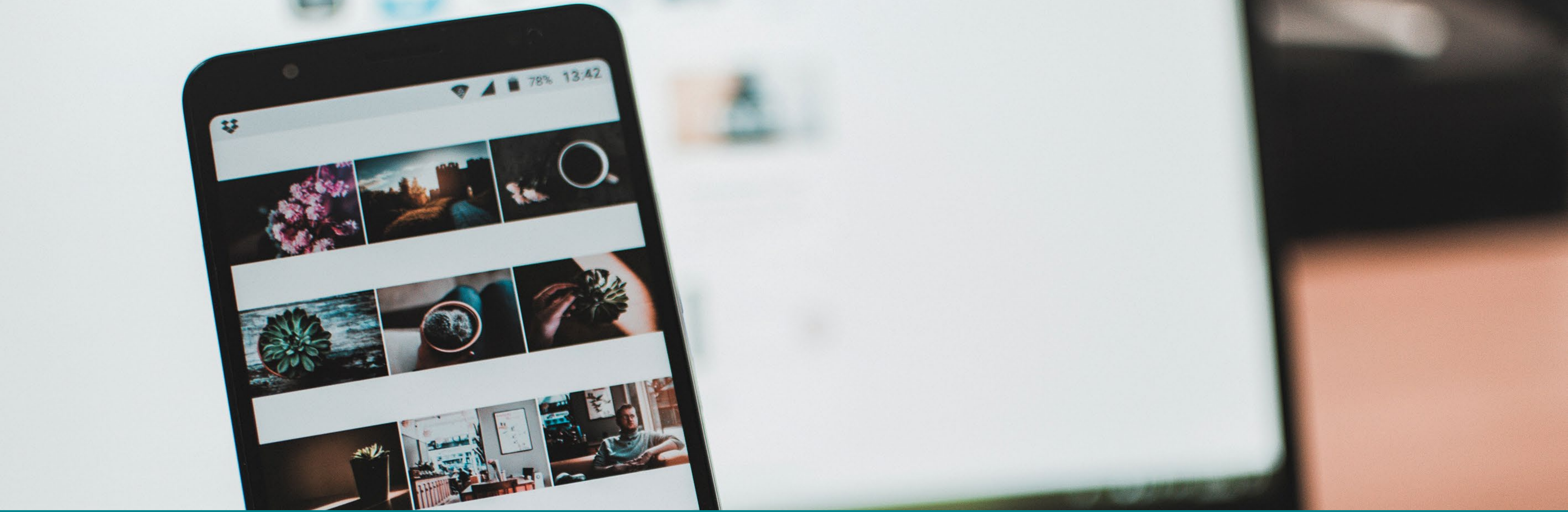
There are two overview documents:

- Mobile Site Accessibility Testing Methodology (Word, 5.48 MB)
- About Mobile Site Testing – Devices, assistive technologies, site types, variations of a page and capturing errors (Word, 23.4 MB)

There are three sets of test cases documents, which detail how to test a particular requirement in the methodology, why it is important and example passes of the requirement:

- Mobile Site Accessibility Testing Methodology – Critical Test Cases (Word, 22.3 MB)
- Mobile Site Accessibility Testing Methodology – Test Cases (Word, 90.77 MB)
- Mobile Site Accessibility Testing Methodology – Test cases for assistive technologies and mobile features (Word, 48.14 MB)

You can download the guidelines at **www.accessibilityoz.com/resources/mobile-testing/**



Mobile issues

Mobile accessibility features

- Native screen readers
  - TalkBack (Android)
  - VoiceOver (iOS)
- Volume control
- Haptic keyboard
- Visual, auditory and vibrational notifications
- Screen rotation
- Mono audio
- Voice Control
- Increase text and display size
- Reduction of motion
- Zoom
- Reader view / Simplified view

Page variations

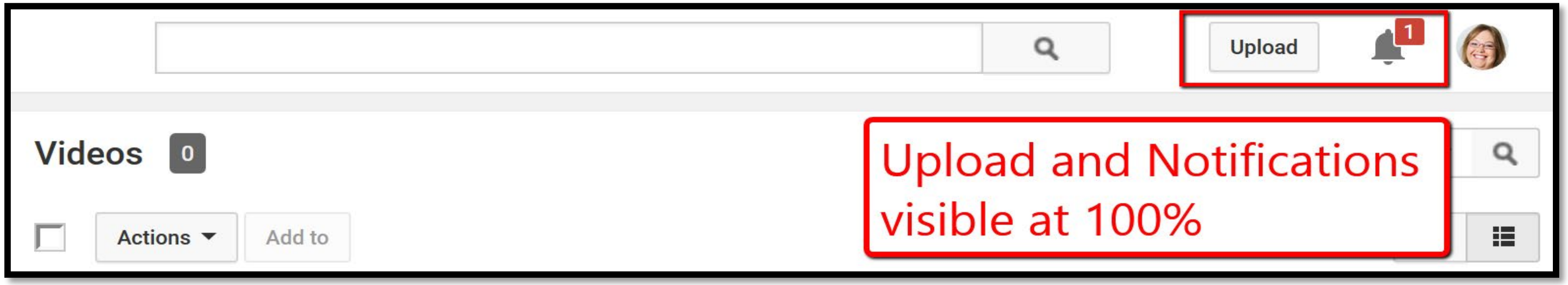
As part of WCAG2, zooming to 200% should already be included in regular testing (and therefore is not included in this methodology).

Low vision users (who use the zoom function inherent in the browser) are often restricted to a mobile view of the site on their desktop.

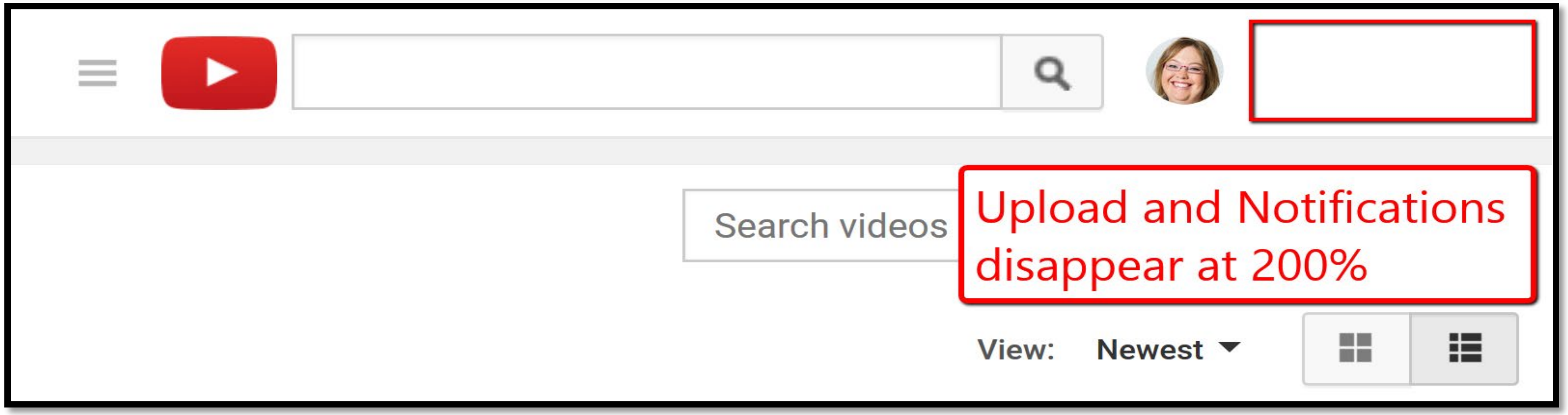
Therefore it is essential that functionality is not removed due to a variation in the page.

WCAG2.1 page variations

WCAG Conformance Requirement – Full Pages – Page variations



Upload and Notifications visible at 100%



Upload and Notifications disappear at 200%

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WCAG2.1 Accessibility Supported

WCAG Conformance Requirement - Accessibility Support - Implementation techniques that supports Assistive technology used on mobile devices such as Talkback, VoiceOver, and switch control. (Also applicable to WCAG 2.0)

What does A11y Supported mean for mobile?

Testing (especially Native Apps) with the following assistive technologies on mobile must be conducted

Android assistive technologies and features

- TalkBack
- Keyboard
- Keyboard and switch
- Magnification
- Remove animations
- Color Inversion
- Grayscale
- Color Correction
- Increase display size
- Increase font size
- Increase text size (with Chrome)
- Simplified view (mobile sites only)

iPhone assistive technologies and features

- VoiceOver
- Keyboard
- Keyboard and switch
- Zoom
- Reduce Motion
- Invert colours
- Grayscale
- Larger text (native app only)
- Reader view (mobile site only)
- Reader view and increase text size (mobile site only)

iPad assistive technologies and features

- VoiceOver
- Keyboard
- Keyboard and switch
- Zoom
- Reduce Motion
- Invert colours
- Grayscale
- Larger text (native app only)
- Reader view (mobile site only)
- Reader view and increase text size (mobile site only)

Testing methods

Testing methods – Mobile Sites

There are four main testing methods in mobile testing:

- **Devices:** test on mobile and tablet devices
- **Devices with assistive technology:** test on mobile and tablet devices with assistive technologies
- **Responsive Window:** test on responsively sized window on desktop
- **Desktop:** test on desktop

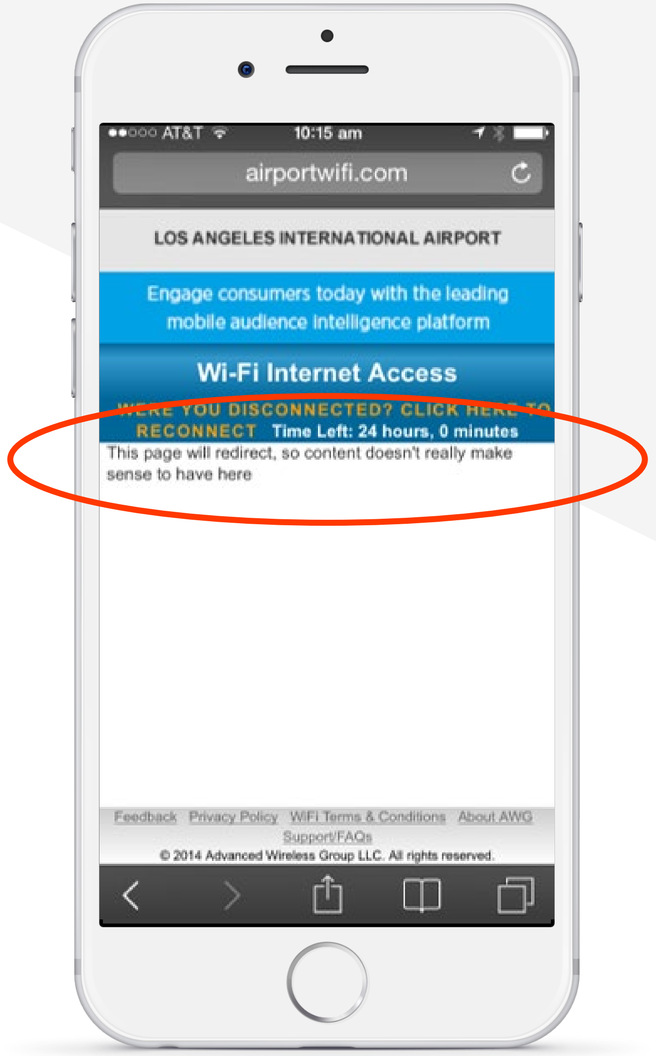
Testing methods – Native App

There are two main testing methods in native app:

- **Devices:** test on mobile and tablet devices
- **Devices with assistive technology:** test on mobile and tablet devices with assistive technologies

Test with real devices

I don't feel safe giving you my contact details…



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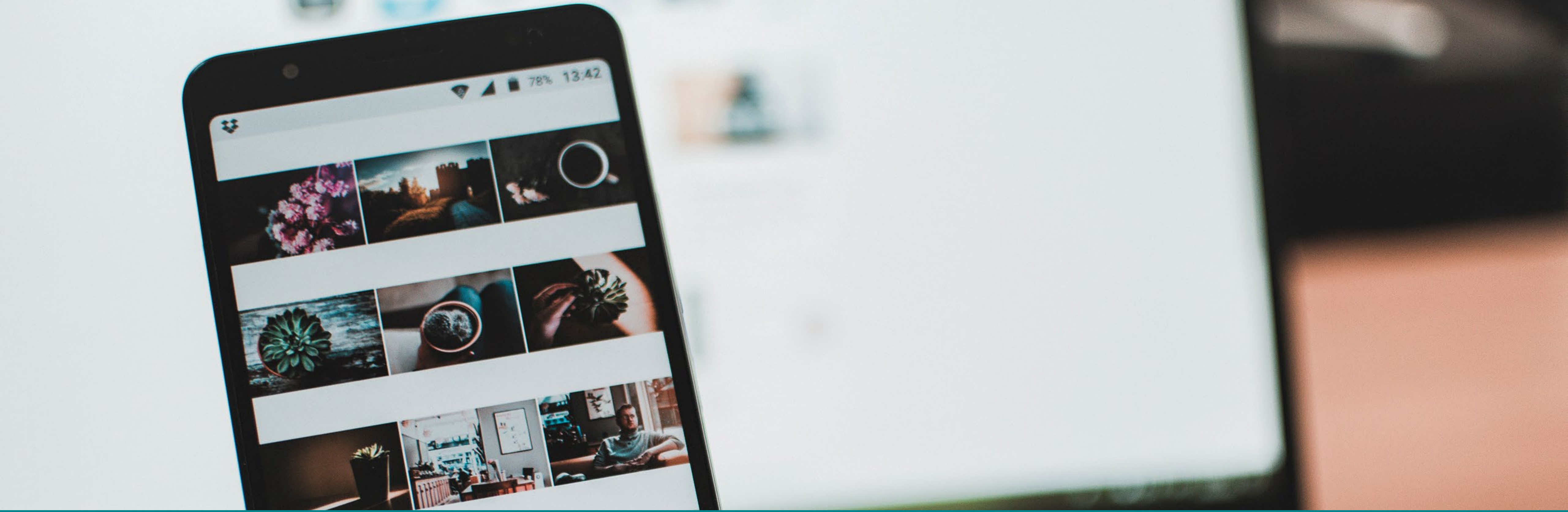

Mobile Site & Native App Testing Methodologies

Mobile Site Testing Methodology Overview

Step 1: Identify devices

Step 2: Identify site type and variations

Step 3: Test critical issues

Step 4: Test mobile-specific issues

Step 5: Test mobile assistive technology and feature support

Native App Testing Methodology Overview

Step 1: Identify devices

Step 2: Define application functionality

Step 3: Test critical issues

Step 4: Test mobile-specific issues

Step 5: Test mobile assistive technology and feature support

1. Identify devices

Determining which devices to test on

In the United States, Australia, and other western countries, iOS devices are most popular. In Asia and other eastern countries, Android devices are most popular. To best find which devices to test on, review the Google Analytics or other analytics system for the requisite web site.

Choosing devices

Due to the popularity of the Android system, there are tens of thousands of Android operating systems and browser combinations available. It is not possible to test on all these systems.

The "Internet" browser that comes pre-packaged with most Samsung phones is very dependent on the operating system itself and it is a better representation to test with Chrome.

Even if the site is a desktop site, people will still use that desktop site on mobile

Devices with assistive technologies

It is important to remember that even assistive technologies that work across desktop and devices may behave differently on each system, and therefore they still need to be tested on mobile and tablet devices.

For the latest information on screen reader usage, please see the [WebAIM Screen Reader Survey.]

Additional device screen readers

Samsung includes an additional screen reader called “Voice Assistant,” however TalkBack is still available as part of the Accessibility Suite. Amazon Fire also utilizes a different screen reader called “Voice View”.

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Identify devices

Recommended devices and browser combinations:

- iPhone, (Safari)
- iPad, (Safari)
- Android phone, (Chrome)

Identify devices

Other devices to consider

- Android tablet, Chrome
- Alternative devices such as a Kindle device

Identify devices

Test on the latest version of iOS and iPadOS.

Test on latest two versions of Android.

When a site is directly aimed at people with a particular kind of disability, consider including assistive devices and/or other assistive technologies used by potential users.

You need to meet **WCAG2** and this mobile testing methodology

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2. Identify site type & variations of the page

Identify site type and variations

Is the site:

- Desktop
- M.dot
- Responsive

If the site is responsive, are there variations of the page?

Three types of mobile sites

Desktop web sites: that have only one display, whether viewed on desktop or mobile or tablet device

m.dot sites: that have a particular display for mobile and tablet sites. The m.dot site must also be tested against the entirety of WCAG2, **in addition** to the standard www version of the site.

Responsive web sites: that change depending on the screen size or other feature as determined by the developer

2. Define application functionality

Define application functionality

Through your understanding of the purpose of the native app, define which functionality is critical to its purpose and use and that must be tested for efficacy, operability, and workflow from a user experience perspective.

Define application functionality

Ask the question: how would the experience be impacted if the functionality failed, the content could not be reached, and or the experience caused a barrier to the user?

Prioritise. All functionality should be accessible within the native app; however, it is important to define and include the critical functionality for each individual app to be prioritised in your testing.

Common elements to test

- Navigation
- Landing screen(s)
- Emergency sections
- Login flows
- Settings
- Account and profile
- Contact Us
- Real-time updates
- Privacy policy, Terms and Conditions
- Interactional functionality
- Help section
- Widgets (calendars, etc)
- Geo-locational maps
- High-traffic areas

Find these methodologies on the **AccessibilityOz** web site under the **Resources** menu item

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3. Test critical issues

New features means new traps

Trap: Where a user is trapped within a component and cannot escape without closing the browser or app.

There are many more traps in mobile sites and native apps than on desktop.

Traps identified

- Exit trap
- Swipe / Scroll trap
- Text-to-speech trap
- Headset trap
- Layer trap

Exit trap

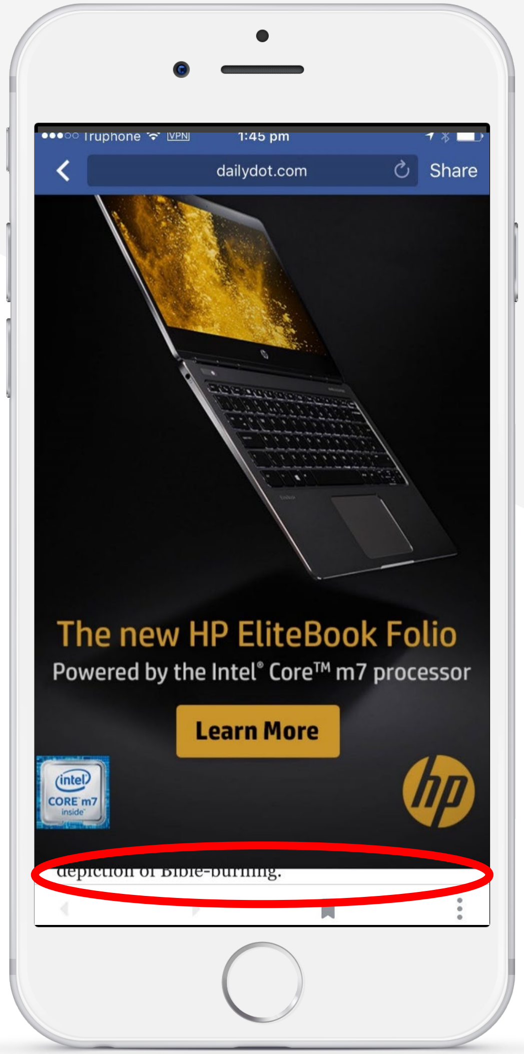
Ensure there is always an accessible actionable item (e.g. a close button that meets color contrast requirements and has an accessible name) that closes any feature that overlays the current page (such as a full-page ad).

Applies to: All users

Methodology: Mobile Site and Native App

Exit trap

No way to close the feature (usually an ad)



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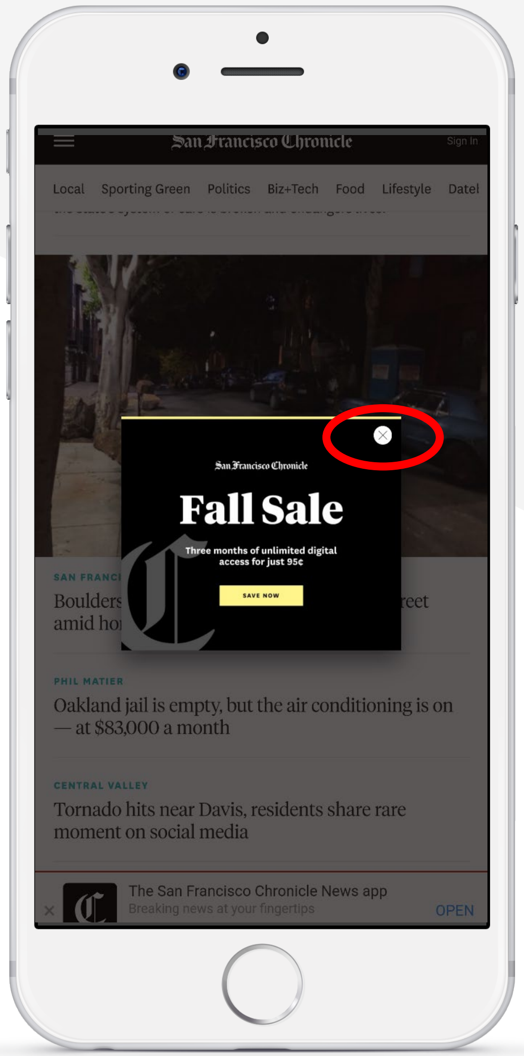
Exit trap

Close button does not meet color contrast or touch target size requirements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Swipe / Scroll trap

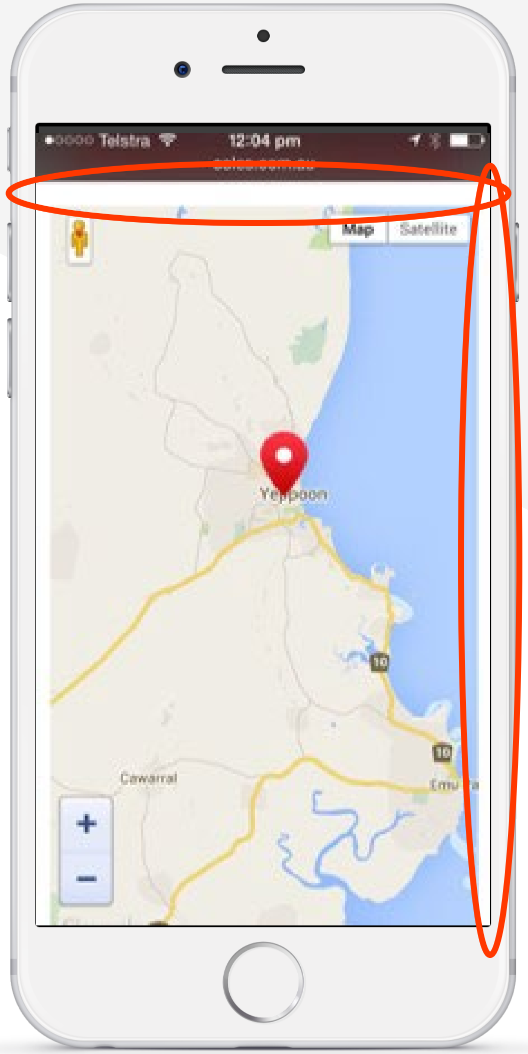
Ensure you do not override standard mobile touch functions (swiping, scrolling, etc.) on the majority of the page.

Applies to: Touch users

Methodology: Mobile Site and Native App

Swipe / Scroll trap

The zoom of doom



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Text-to-speech trap

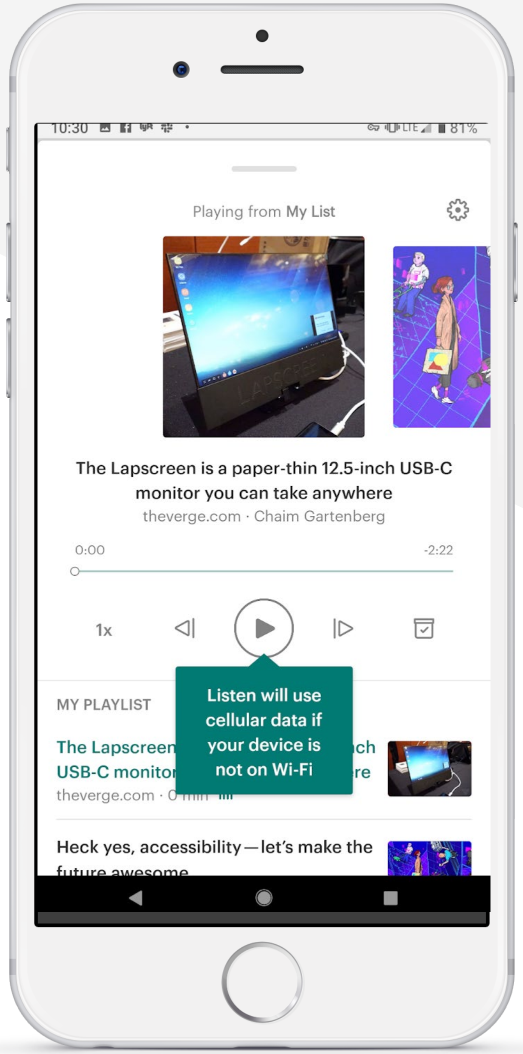
If the app has an ability to provide content via text-to-speech, the screen reader user must be able to pause or stop the app speaking in a simple manner, e.g. by performing a swipe on a screen.

Applies to: Screen reader users

Methodology: Native App

Text-to-speech trap

Once activated, screen reader users cannot stop the TTS



The Lapscreen is a paper-thin 12.5-inch USB-C monitor you can take anywhere
theverge.com · Chaim Gartenberg

Listen will use cellular data if your device is not on Wi-Fi

The Lapscreen ... USB-C monitor ...ch ...re

Heck yes, accessibility — let's make the future awesome

Headset trap

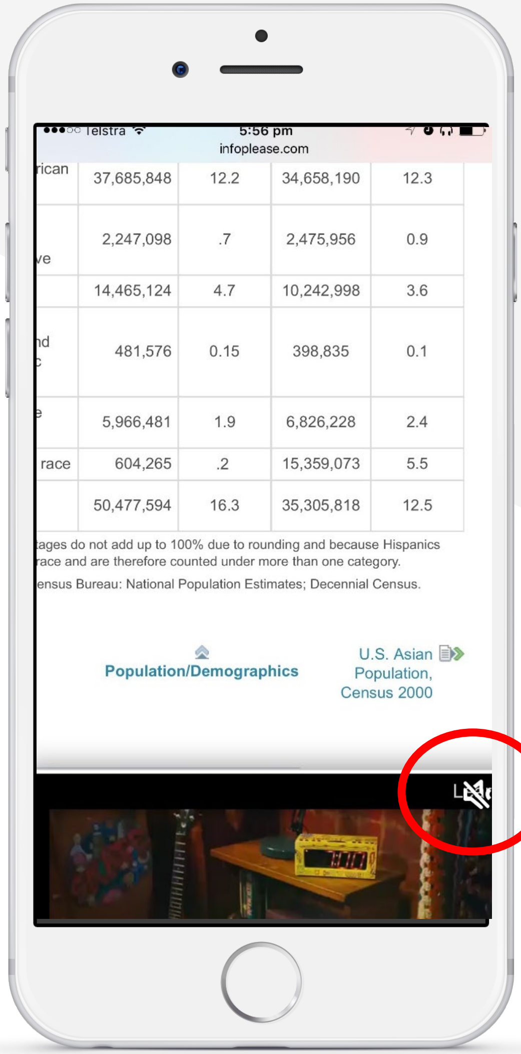
Headset users must always be able to pause media (audio or video) content by using the Pause/Play control on the headset.

Applies to: Screen reader users, Headset users

Methodology: Mobile Site and Native App

Headset trap

Cannot pause the audio using headset hardware (pause on the headset pauses the screen reader)



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tages do not add up to 100% due to rounding and because Hispanics race and are therefore counted under more than one category.

ensus Bureau: National Population Estimates; Decennial Census.

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Layer trap

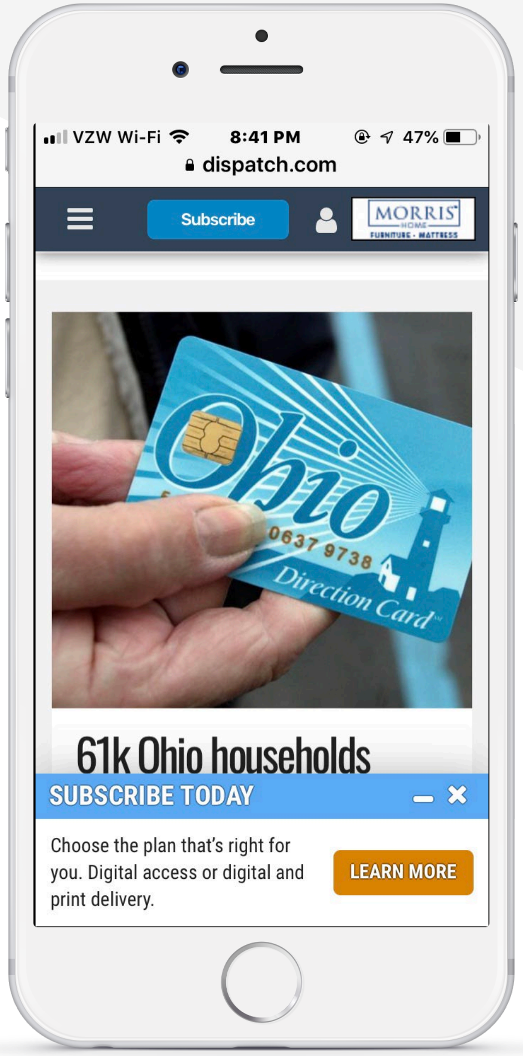
The user should not be trapped on a non-visible layer.

Applies to: All users (but mostly encountered by screen reader users and sometimes keyboard users)

Methodology: Mobile Site and Native App

Layer trap

Screen reader user cannot access the menu. Focus stays on the parent layer.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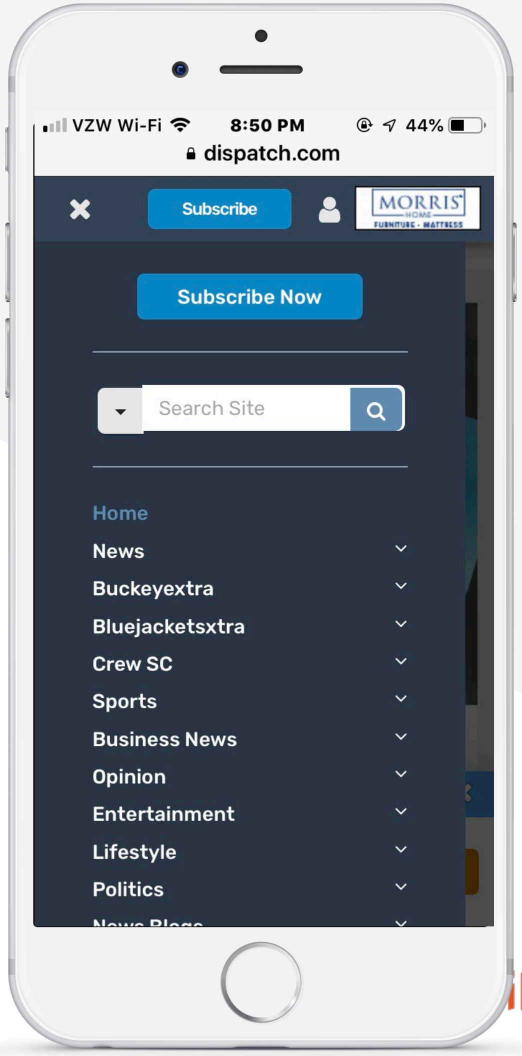

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Under “Past Conferences and Events 2024”

Find “WordPress Accessibility Meetup”

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