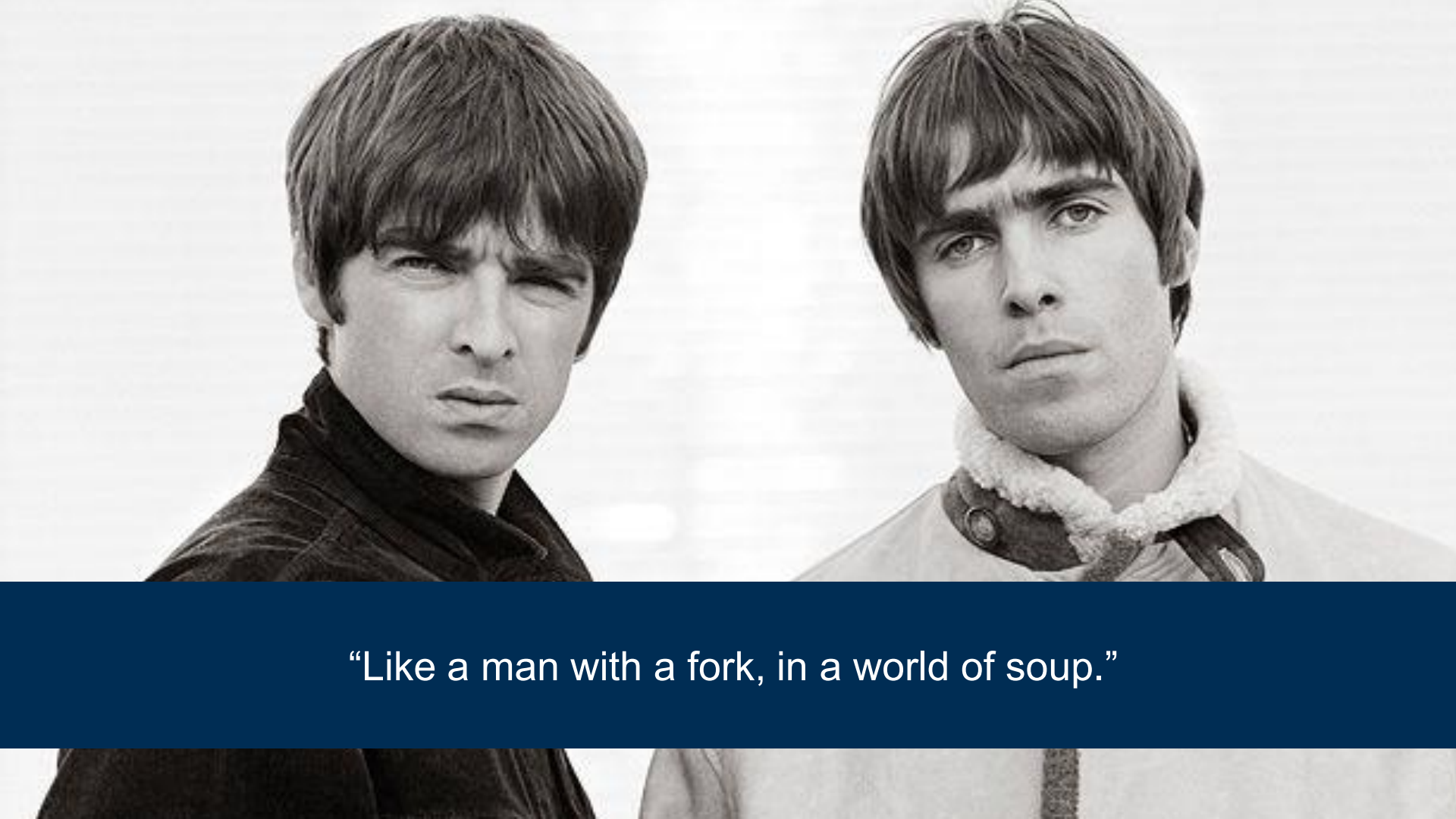
Introduction to Digital Accessibility

Agenda

Introduction	**5 minutes**
Why	**10 minutes** Reasons for accessibility
Impairments	**15 minutes** Overview
Quick checks	**15 minutes** Kicking the tires
Planning	**10 minutes** Accessibility in programmes
Q&A	**20 minutes**

Introduction



“Like a man with a fork, in a world of soup.”

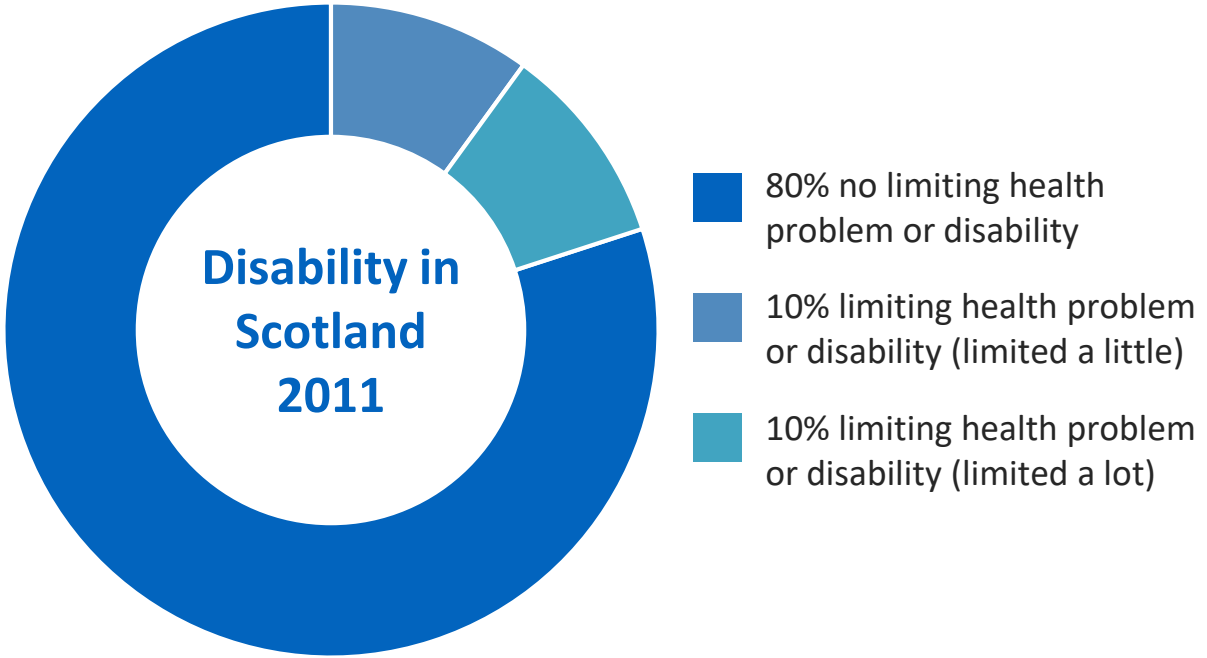
Accessibility isn’t just about meeting guidelines

Why?: Reasons for accessibility

1 in 5

of people living in Scotland had a long term limiting health problem or disability

Source: Census 2011



Reasons to make stuff accessible

- Legal
- Technical
- Financial
- Social

Legal

- UN Convention on the Rights of Persons with Disabilities
- Equalities Act 2010
- The Public Sector Bodies (Websites and Mobile Applications) Accessibility Regulations 2018
- A Fairer Scotland for Disabled People
- Disability Recruitment and Retention Plan

Technical

- Reduce development and maintenance time
- Reduce bandwidth use and server load
- Reuse of content and device-independence
- Future proofing content

Financial

- Server load/cost
- Upgrade costs
- Exposure to legal expenses

Social

- Services are provided for all citizens
- Improved usability
- Increase employment opportunities

Social Model of Disability

Medical Model

- Medical model suggests something ‘wrong’ with the person.
- Medical model promotes low expectations and leads to loss of independence, choice, and control.

Social Model

- Social model suggests something ‘wrong’ with the environment, the design, or the attitude.
- Social model inspires thinking about removing barriers.

Impairments




Blindness

What is it?

- ‘Blindness’ is defined as visual acuity of less than 3/60,

  OR

- corresponding visual field loss to less than 10°, in the better eye with the best possible correction.

What is the impact?

- Unable to see the page being navigated.
- Can’t usually navigate using a mouse.

Challenges

- Images, photos and graphics cannot be relied upon.
- Users often use TAB to skip through links on a page.
- Controls that are not keyboard friendly
- Complex data tables and graphs are often hard to understand.
- Badly marked up forms can be difficult or impossible to complete.

Challenges

- Information conveyed using colour alone may not be appreciated
- Multimedia content may be unusable
- Changes elsewhere on a page may not be perceived

Assistive Technologies

Screen Reader Software

Braille Reader

Low Vision

What is it?

- Usually caused by injury or eye disease.
- Visual acuity of 20/70 or poorer in the better-seeing eye and cannot be corrected or improved with regular eyeglasses.

What is the impact?

Normal vision

Macular degeneration reduces central vision and causes dim or black holes

Cataracts are caused when the normally clear lens of the eye clouds over. Most common cause of visual impairment in old age.

What is the impact?

Normal vision

Tunnel vision commonly caused by glaucoma

Diabetic Retinopathy is a common source of visual impairment in middle age

What is the impact? – Colour Perception

Normal vision

Deuteranomaly – reduced sensitivity to green light

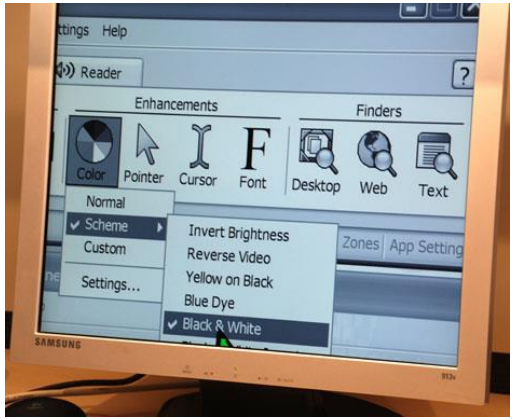
Protanomaly – reduced sensitivity to red light

Tritanomaly – reduced sensitivity to blue light

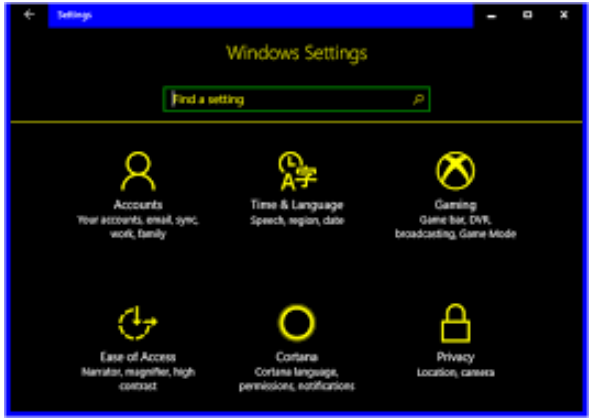
Challenges

- Often cannot see all of the page at the same time.
- Can miss important on screen alerts if they are outside of the current viewport.
- Requirement to scroll both horizontally and vertically.
- Can become lost in the page and also within complex page elements such as tables.
- Reliance on colour alone can cause difficulties.

Assistive Technologies



Zoomtext Screen Magnifier



Windows High Contrast Mode

Deaf and Hard of Hearing

What is it? - Deafness

- Deafness is more than just an impairment
- Strong community and culture based on a shared language
- Profoundly deaf school-leavers can have a lower than average reading age

What is it? - Hard of hearing

- Usually relates to people who have a relative insensitivity to sound in the speech frequencies
- Categorised by the increase in volume required for sound to be heard
- Can be high or low frequency hearing loss
  - High frequency can particular sounds (s, h, f) harder
  - Low frequency can make group conversations or noisy environments harder

Challenges

- Audio is problematic.
- English may not be user’s first language.
- Reading may be difficult or tiring.

Deafness

Closed captions

Open captions

Sign language

Physical Impairment

What is it?

- Usually as a result of medical condition or injury.
- Permanent, temporary or situational.
- Limitation of muscle control.
- Loss of limb.
- Weakness, spasms or paralysis.
- Tremors.
- Lack of coordination.

What is the impact?

- Small links and buttons can be hard to interact with.
- Controls which are close together.
- Excessive scrolling.
- Drag and drop interfaces.
- Form fields where the label isn’t associated programmatically.

Challenges

- Mouse may not be used as input device
- Fatigue and pain may limit prolonged use
- Some assistive technologies are more tiring to use
- Voice activated software requires good code
- Seizures can be induced by strobing, flickering or flashing effects
- Even if no seizure, possibility of nausea or dizziness

Assistive Technologies

Assistive Joystick

Switch input

Head wand

Voice activated software

Cognitive Impairment

What is it?

- Can range from mild to severe, permanent or temporary.
- Dementia and Alzheimers.
- Dyslexia, Dyscalculia, Dyspraxia.
- Autism.
- Medicine side-effects.
- Sleep deprivation.
- Depression.

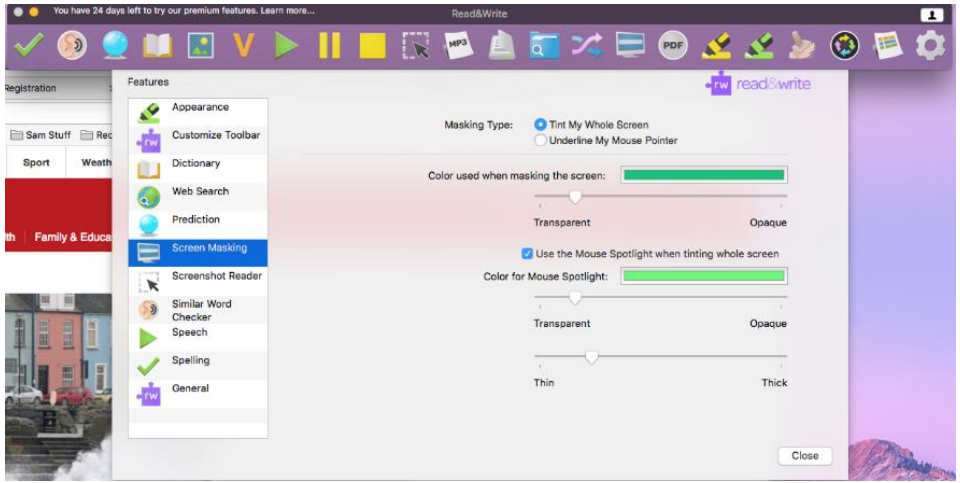
What is the impact?

- Issues with attention.
- Memory.
- Organisation and management.
- Decision making.
- Language, written and spoken.
- Maths comprehension.

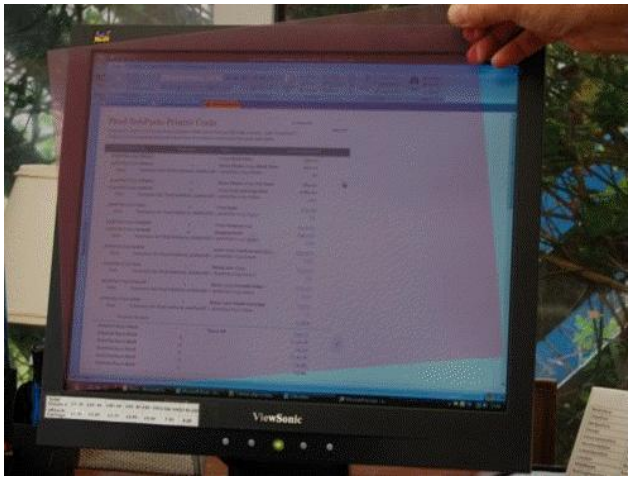
Challenges

- Complex or inconsistent layouts or navigation
- Completing forms
- Focusing on and comprehending sections of text
- Moving or flashing content or background audio
- No way to control animation or multimedia

Assistive Technologies



Read/Write



Coloured filters

Easy Read

- Easy to understand.
- Text in short sentences with supporting images.
- One concept per sentence.
- Larger font sizes.
- Complex words and terms avoided or explained.
- Avoid certain fonts and italics.

Other Groups

Elderly people

- Can be impacted by multiple issues.
- Seldom self-identify as having an impairment.
- Often unaware of assistive technology that could help.
- Technology averse.

Mobile phone users

- Small viewing area.
- Contrast is challenging in bright areas.
- Unable to hear audio.
- Small target areas are hard to hit.

Standards

WCAG & Other Standards

- Web Content Accessibility Guidelines
- Current version is 2.1 (since 2018)
- Improved to better meet the needs of:
  - cognitive and learning disabilities
  - low vision
  - to reflect the growth in use of mobile devices.
- Other standards cover:
  - Authoring tools, such as content management systems
  - User agents, such as web browsers
  - PDFs

Perceive

?

Understand

Robust

Operate

Accessibility quick checks

Why do you need to know this?

- Suppliers claims may not match delivery
- You need to be intelligent clients

Caution

- These are not a full audit against standards.
- These are quick checks to identify easily found, common issues.
- Also note that some of these checks go beyond the standards and veer into good practice.

Please remember

- If these basic checks fail there are likely to be other problems.
- Passing these basic checks is no guarantee that there aren’t other problems.

Quick checks

- Text
- Keyboard
- Links
- Images
- Forms
- Contrast
- Multimedia
- Information
- PDF

Text

What to look for

- Text size – not too small
- Font family – readability, tend towards sans-serif
- Text alignment – not justified
- Content complexity – keep it simple, https://www.webfx.com/tools/read-able/

Keyboard

What to do

- Use the `TAB` key to move through the page
- User the `RETURN` key to activate links and submit forms

What to look for

- All interactive elements can be used with the keyboard only
- It is clear which element has focus (beyond the browser default outline)

Links

What to look for

- ‘Click here’, ‘More’, ‘Link to …’
- Icons as links – check there is alternative text
- URLs as links
- Really long link text
- Links opening up in new windows
- Distinctive styling for links, hover, focus, and visited

Images

What to do

- Hover over a sample of images

What to look for

- Alternative text
- Text reflects the purpose of the image

Forms

What to do

- Click on form labels
- Submit the form with errors

What to look for

- Label should link to field or check a radio or checkbox
- Errors should be highlighted with text, image, and colour
- Errors should be presented at the top of the page and also inline
- Errors should make sense

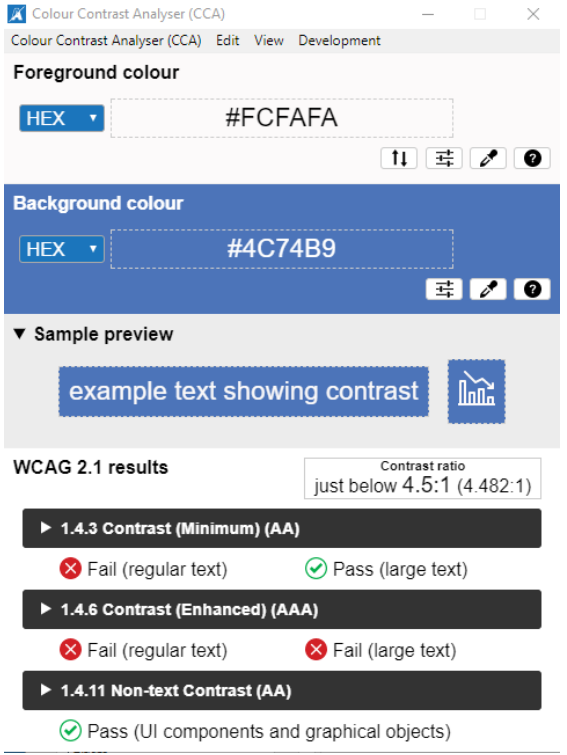
Contrast

What to do

- Request or install Colour Contrast Analyser

What to look for

- Spot check foreground and background colours
- Check for failures against the minimum standard for regular text



Contrast

What to do

- Press `Alt` + `Left Shift` + `Print Screen`

What to look for

- Text disappearing
- Important images or icons disappearing
- Tab through elements

Multimedia

What to do

- Watch video without sound.
- Listen to video with eyes closed.

What to look for

- Any loss of context or lack of access to information without one of your senses.
- Captions – not auto-generated.
- Transcript – link to or presented in full.
- Audio description.

Information

What to look for

- Accessibility statement.
- ‘Sitemap’ link.
- Easy way to contact us.
- Simple clear information in plain English (or whatever language the site is in).

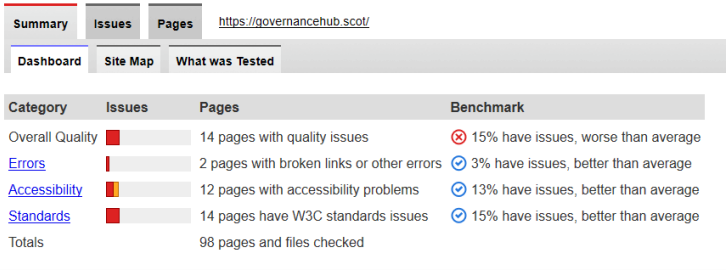
Exercise

- Using the checking principles you've learned, evaluate the following site:
  - https://www.mygov.scot/
- Write down all of the issues you found.

PDF Accessibility Checker 3.0

- Automated checks against the PDF standard
- Automated checks are not perfect
- Screen reader preview can be an interesting check
- Available via iFix
- Request PAC3

Automated testing tools



Other tools are available:
https://www.w3.org/WAI/ER/tools/

WAVE (http://wave.webaim.org)

Tenon.io (https://tenon.io)

Accessibility in Programmes

Discovery

- 1 in 5 people live with a long-term health condition or disability – what about your user base?
- Consider the needs of and conduct appropriate user research with disabled people
- Accessibility awareness training for whole team
- Define accessibility responsibilities
- Build accessibility into procurement for next phases
- Start building accessibility into programme standards
- Plan for accessibility in Alpha

Alpha

- Develop (or select) accessible interaction and visual standards
- Training for research and design team
- Include disabled people in all research activities
- Conduct regular expert reviews of prototypes
- Review development frameworks
- Develop assistive technology testing strategy
- Include accessibility annotations
- Plan for accessibility in Beta

Beta

- Training for content designers, test engineers and developers
- Automatic testing into build stack
- Include disabled people in all research activities
- Test with disabled people
- Test with common assistive technologies
- Conduct regular expert reviews of service
- Write and publish your accessibility statement

Live

- Monitor and respond to accessibility queries are responded to
- Ongoing training for new content authors
- Regular monitoring of accessibility
- Kick back and reap the rewards!

Resources

Useful resources

- http://www.w3.org/WAI/roles/ - has an overview of stuff based on role
- http://www.w3.org/WAI/perspective-videos/ - videos that outline different perspectives of web use
- http://www.w3.org/WAI/people-use-web/ - stories about how people with disabilities engage with the web
- https://www.w3.org/WAI/tutorials/

Questions and Answers