



# Introduction to Digital Accessibility

Joana Condeco

21<sup>st</sup> October 2021



# Welcome

---

This session will introduce the basics of digital accessibility.

- Live captions during the session – toggle on/off
- Slides, a transcript and recording will be made available
- Please use the Q&A window for questions
- Please use the chat window for general conversation
- Feedback form will be shared after the session

## About AbilityNet



Web Accessibility  
Initiative WAI

*Strategies, standards,  
resources to make the Web  
accessible to people with  
disabilities*



ABILITYNET  
TECH4GOOD  
AWARDS



The Future of Accessibility  
and Inclusive Design

**TECH SHAREPRO**

# ICS NDA Web Accessibility Directive Training Series





## Outline of today's training

---

### What we aim to cover

- Gentle introduction to accessibility
- Why accessibility is important
- Inclusive design and accessibility
- Accessibility standards and why they're important for creating inclusive digital platforms

We will be pausing to **answer questions** throughout

## **Poll 1: Why have you come to today's training? (multiple choice)**

- General interest - to learn about digital accessibility
- Relevant to my work – I am employed in a digital role
- Relevant to my organisation – digital accessibility is on our agenda
- Digital accessibility advocate – I am checking my accessibility knowledge is up-to-date
- Other (please use the chat window)



**Accessibility is primarily about people and barriers to participation**

## Poll 2: Who is disabled here?



A



B



# Being disabled ≠ having an impairment

---

Disability happens when  
barriers exist between  
people and their **environment**

## Social Model

---

People are disabled by **barriers in society**, not by impairments or difference.

These barriers can be **physical** or caused by **people's attitudes** towards difference.

When barriers are removed, disabled people can be **independent, autonomous, and equal**.



## Digital accessibility

---

People are disabled by **inaccessible digital products**.

Accessibility is the ability for **everyone to access and benefit** from something, such as a website or app.

Accessibility is about finding and dismantling the **barriers to entry and use**.



## Meet Adi

---



# Impairment types that can affect access

---



**Motor**



**Vision**

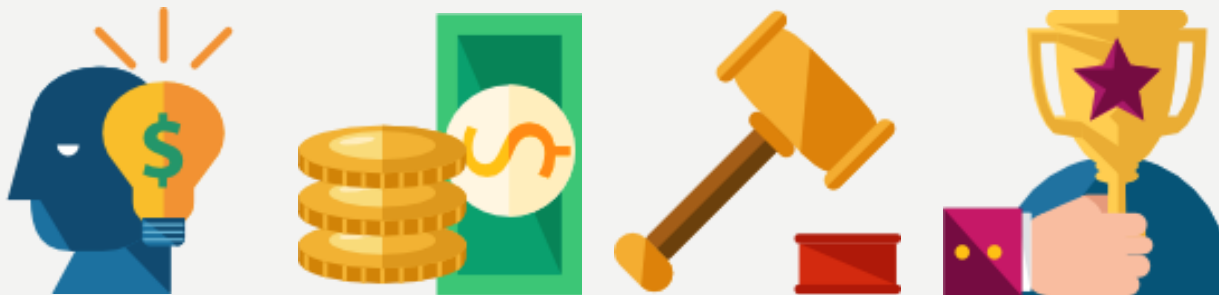


**Hearing /  
Communication**



**Cognitive /  
Learning**

## Business and Legal Context



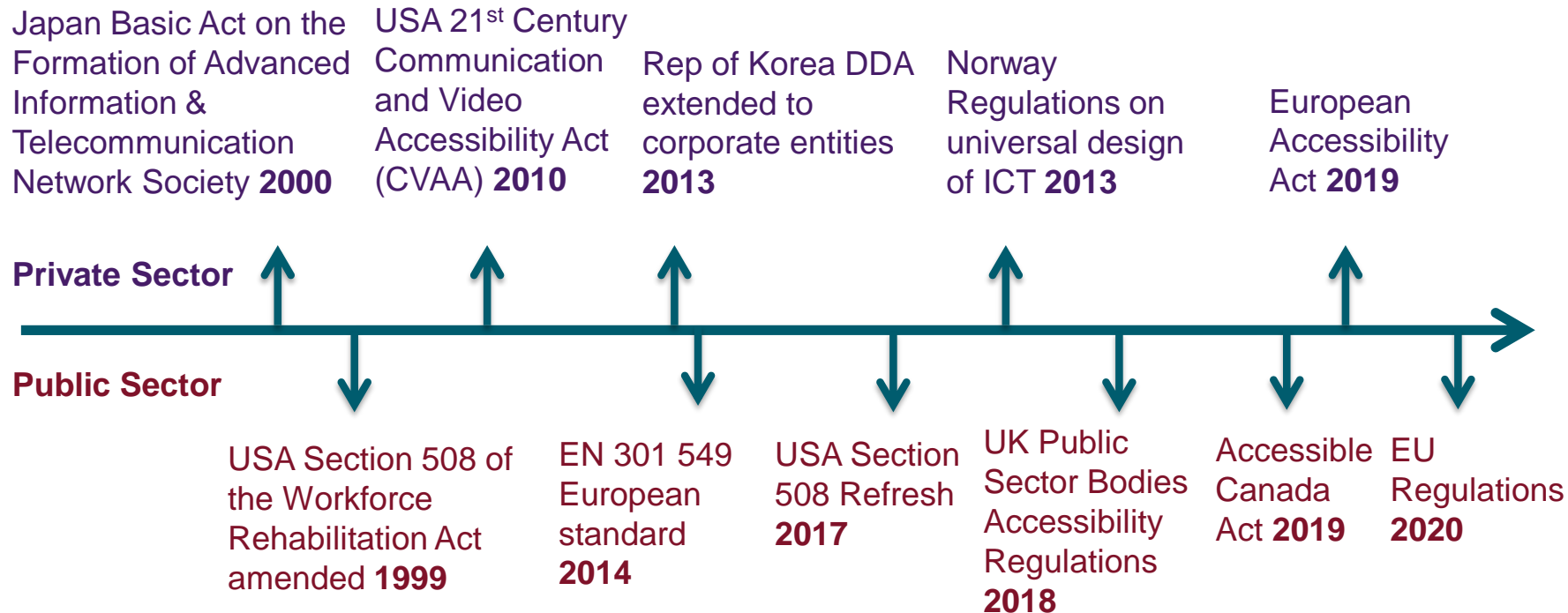
## Business

---

- On average **15% of the world's population is disabled**
- 80% of disabled people are of working age
- The purple pound is worth **over £274 billion a year** in the UK
- Disabled people are the fastest growing minority group
- 75% of disabled people say UK businesses are losing out because their digital products and services are not designed well enough for them.

[Big Hack, Business Case for Inclusive Design](#)

# Legal





## European Union Directive 2016

---

- European Union Directive 2016
- Applies to most public sector organisations
- Websites and mobile apps must meet **WCAG 2.1 Level AA**
- Applies to most types of content (e.g. office file formats, videos, forms, etc.)
- Must have an accessibility statement

















# Inclusive Design and Accessibility

## **Poll 3: Which of these accessible solutions have you used before? (multiple choice)**

- Ramps
- Keyboard navigation
- Dropped kerbs
- Screen reader
- Subtitles or captions
- Speech recognition
- Browser zoom
- None of the above

# Impairments not always permanent

Touch			Hear		
Permanent	Temporary	Situational	Permanent	Temporary	Situational
					
One arm	Arm injury	New parent	Deaf	Ear infection	Bartender
See			Speak		
					
Blind	Cataract	Distracted driver	Non-verbal	Laryngitis	Heavy accent

Addressing potential barriers for all will help everyone.

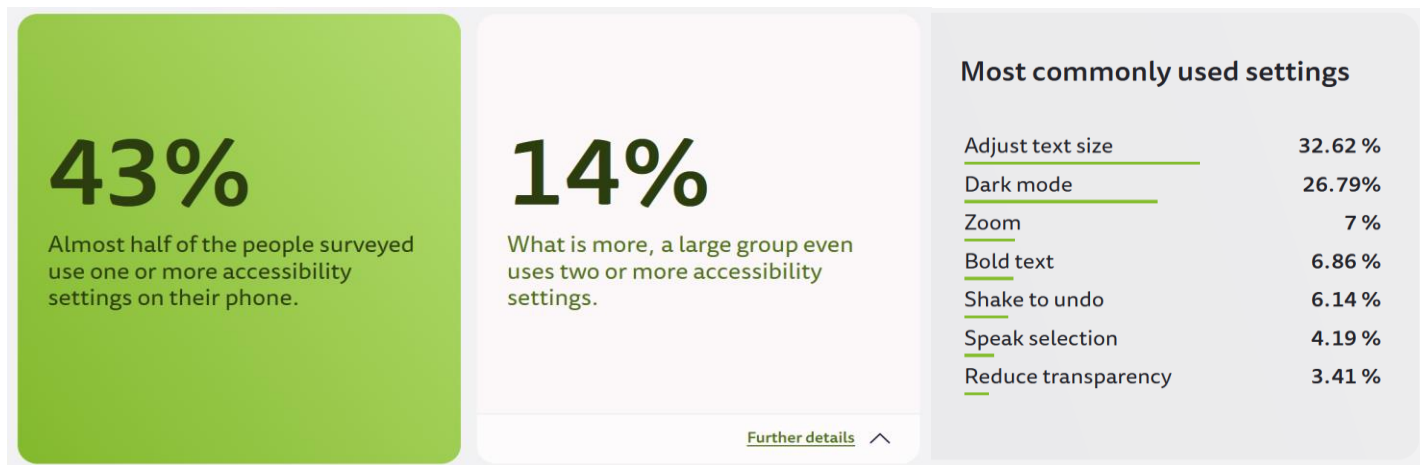
## Designing inclusively

---

- Who is your user?
- Including disabled people in research, testing, personas
- [Microsoft inclusive design toolkit](#)
- Usability / accessibility

## “We don’t have any disabled users”

---



[Study by Dutch agency Q42](#)



# Accessibility Standards



# Accessibility Standards

## Why?

Web content will work as expected across the web and different devices, browsers etc.

## How?

Developed by international experts

## What?

“Success criteria” - testable statements: pass/fail

Accessibility standards cannot cover all aspects of accessibility

# WCAG

---

## Web Content Accessibility Guidelines (WCAG) 2.1 Level AA

**Perceivable**

**Operable**

**Understandable**

**Robust**

# Useful accessibility terminology

---

## Semantic mark-up:

HTML that adds meaning, not just visual presentation

```
<html>

<h1>This is a Heading</h1>
<p>This is a paragraph.</p>
<p>This is marked as <b>important</b>
in this paragraph</p>

<ul>
<li>This is a list item</li>
<li>This is another list item</li>
<li>This is yet another list item</li>
</ul>

</html>
```

### This is a Heading

This is a paragraph.

This is a paragraph. I'm the **important bit** in this paragraph

- This is a list item
- This is another list item
- This is yet another list item

## Examples:

- Headings
- Paragraphs
- Emphasis
- Lists

## Programmatically conveyed?

ROSES BY CATEGORY —

<input checked="" type="checkbox"/> Shrub Roses	22
<input type="checkbox"/> Climbing & Rambling Roses	3
<input type="checkbox"/> Standard Tree Roses	10

KEY FEATURES —


<input type="checkbox"/> New Varieties	11
<input type="checkbox"/> Highly Recommended	20
<input type="checkbox"/> Highly Fragrant	151
<input checked="" type="checkbox"/> Abundant Flowering	22
<input type="checkbox"/> Particularly Healthy	15

★ BEST FOR FRAGRANCE

**GABRIEL OAK**

English Shrub Rose

£19.50 - £27.00



3L Potted Climbing Red Rose 'Dublin Bay' Fragrant RHS Award of Garden Merit



25 ratings

Price: **£15.99**

# Useful accessibility terminology

---

## WAI-ARIA

- Web Accessibility Initiative – Accessible Rich Internet Applications
- Complex websites and components may not be straightforward HTML (Ajax/JavaScript)
- WAI-ARIA adds markup which tells assistive technology what elements are and do.



## **Poll 4: Have you ever tested a website, document or digital content for accessibility?**

- Never
- Seen accessibility reports but have not done testing
- Done a few simple tests
- Confident doing accessibility checks

## Accessibility Principles: POUR

---



**Perceivable:** Content is presented in ways that can be accessed by all



**Operable:** Content is presented in ways that can be operated by all



**Understandable:** Content is presented in ways that can be understood by all



**Robust:** Content is reliable and compatible with assistive technology and standards



# Perceivable

---

**1.1 Text Alternatives** e.g. alternative text on images

**1.2 Time-based Media** e.g. captions on video, audio descriptions

**1.3 Adaptable** e.g. form field labels and headings

**1.4 Distinguishable** e.g. colour contrast

## Perceivable example guideline

---

1.1.1: All non-text content that is presented to the user has a text alternative that serves the equivalent purpose

except for the situations listed below.

- Controls, Input...
- Time-Based Media...
- Test...
- Sensory...
- CAPTCHA...
- Decoration, Formatting, Invisible...

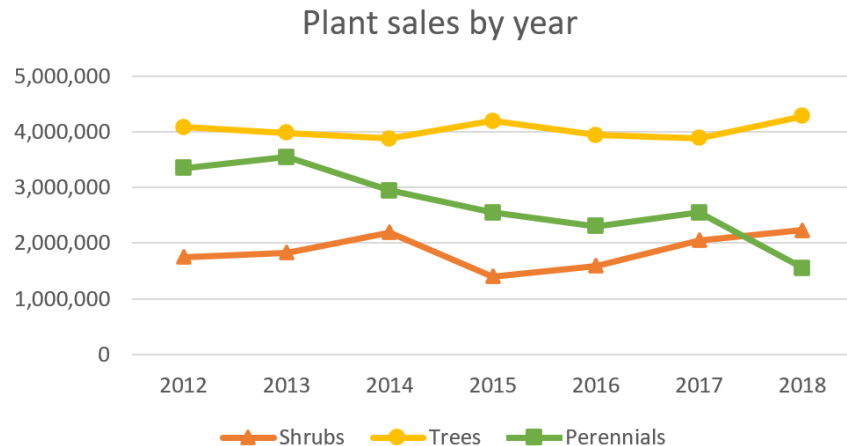
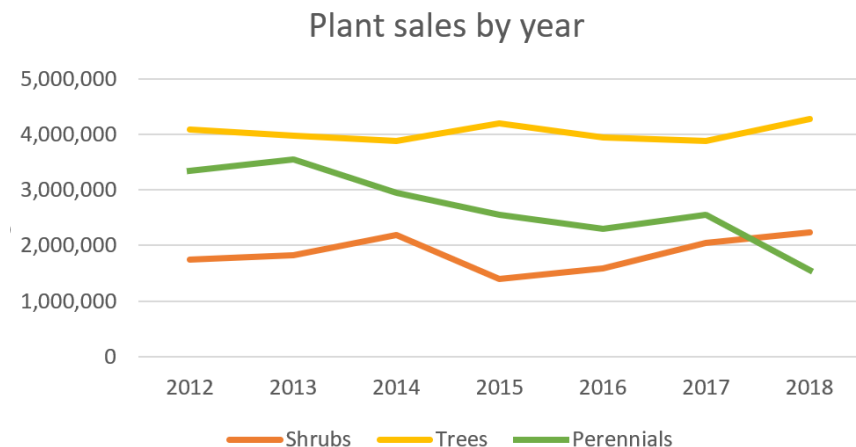
## Perceivable: Alternative text (1.1.1)

---

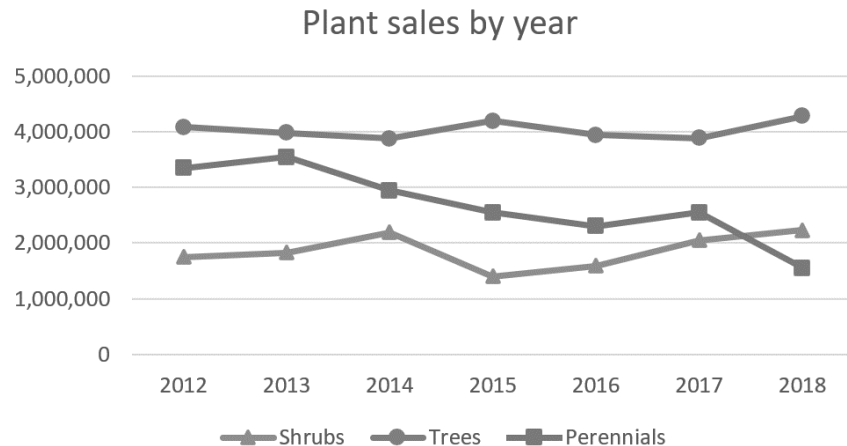
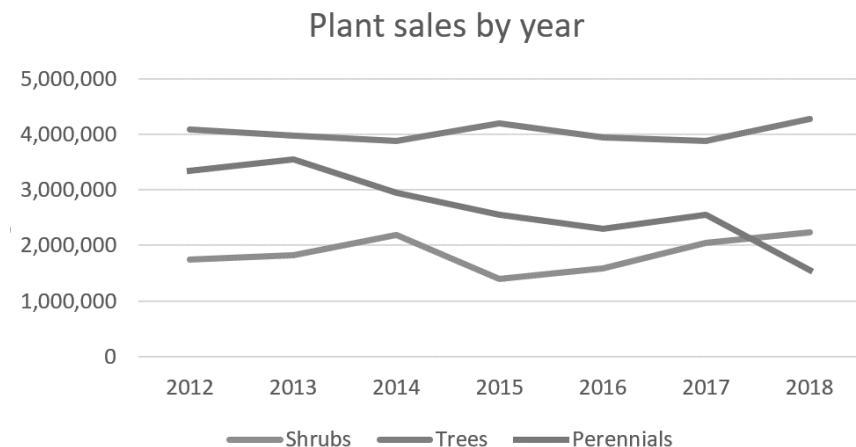


```
<img alt="Tulips"  
src=http://...2231456.jpg>
```

## Perceivable: Use of colour (1.4.1)



## Perceivable: Use of colour (1.4.1)



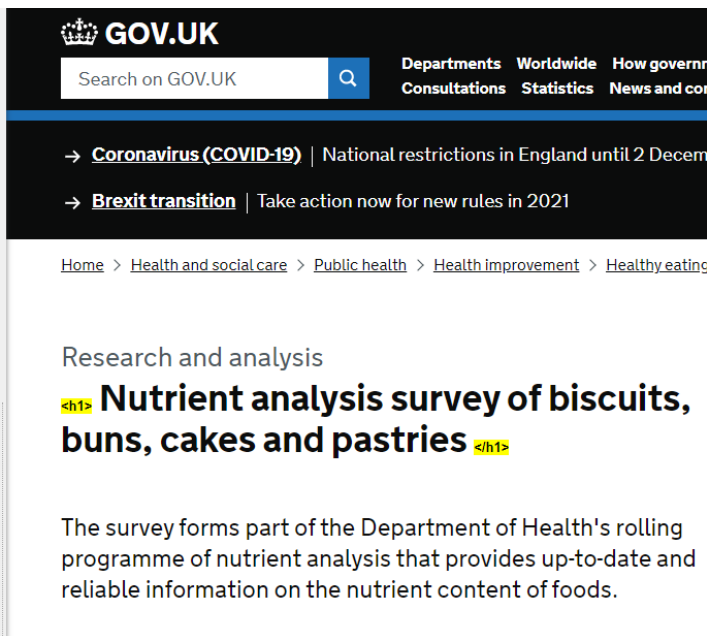
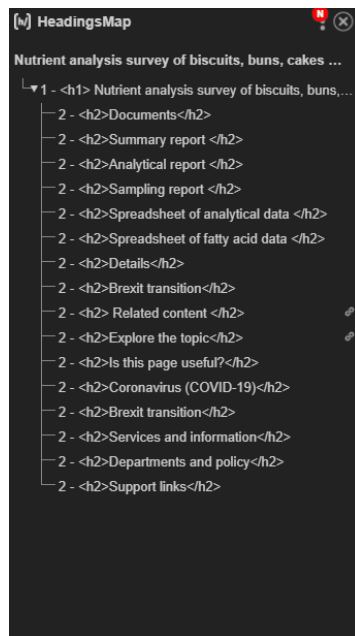
## Perceivable: Colour contrast (1.4.3)

- We are more reliant on higher contrast as we age
- Bright lights and sunlight make it more difficult to read low contrast
- Some people may be unable to distinguish certain colour combinations

	Contrast Ratio
Text contrast examples	21:1
Text contrast examples	1.6:1
Text contrast examples	5.4:1
Text contrast examples	4.2:1
Text contrast examples	2.9:1
Text contrast examples	7.2:1

**Text should have a contrast greater than 4.5:1 with background colour**  
**Large text and graphical elements should have contrast greater than 3:1**

## Perceivable: Heading structure (1.3.1)



### Typical issues:

- Formatted headings not marked up as a heading semantically
- Headings used for styling
- Skipped heading levels
- No headings

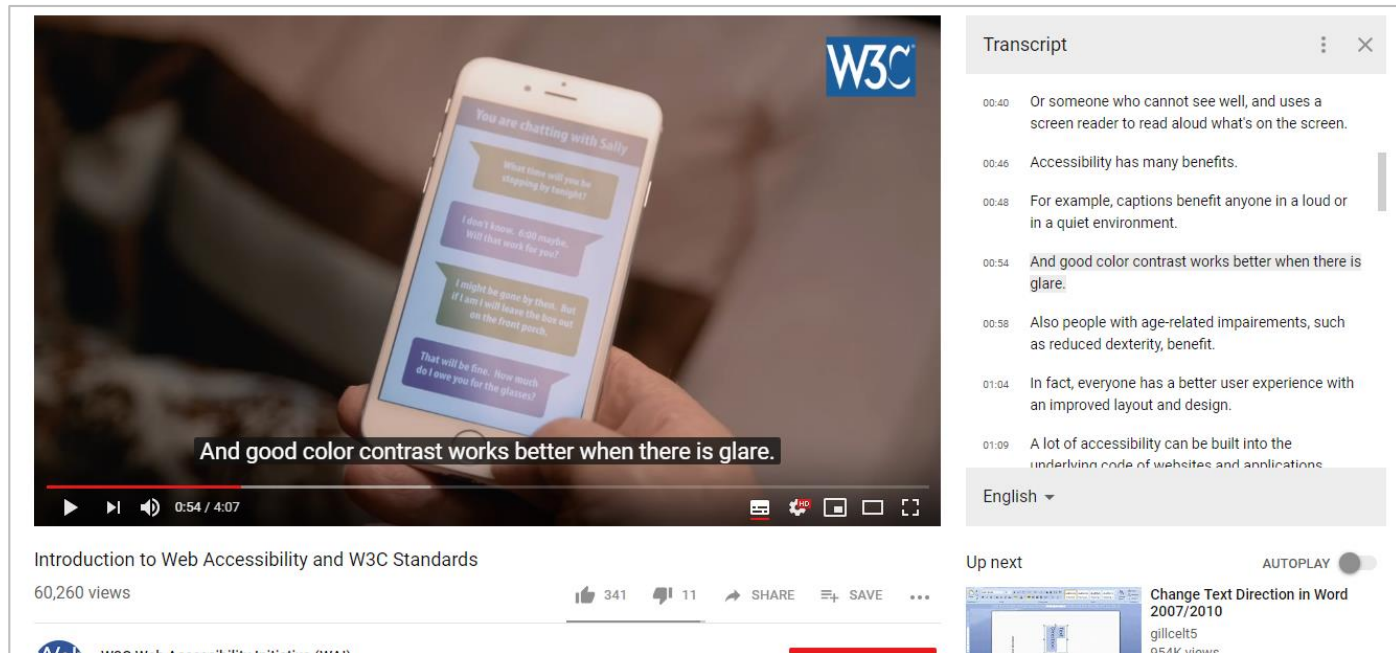
## Perceivable: Captions (1.2.2)

---





# Automatic captions are improving



The video player displays a scene where a hand holds a smartphone. The phone's screen shows a chat conversation titled "You are chatting with Sally". The chat messages are as follows:

- Sally: "What time will you be slapping by tonight?"
- User: "I don't know. 6:00 maybe. Will that work for you?"
- Sally: "I might be gone by then. But if I am I will leave the box out on the front porch."
- User: "That will be fine. How much do I owe you for the glasses?"

At the bottom of the video frame, a black caption bar reads: "And good color contrast works better when there is glare." The video player interface includes a progress bar at 0:54 / 4:07, standard playback controls, and a view count of 60,260 views.

**Transcript**

00:40 Or someone who cannot see well, and uses a screen reader to read aloud what's on the screen.

00:46 Accessibility has many benefits.

00:48 For example, captions benefit anyone in a loud or in a quiet environment.

00:54 And good color contrast works better when there is glare.

00:58 Also people with age-related impairments, such as reduced dexterity, benefit.

01:04 In fact, everyone has a better user experience with an improved layout and design.

01:09 A lot of accessibility can be built into the underpinning code of websites and applications

English ▾

Up next

**Change Text Direction in Word 2007/2010**  
gillicelt5  
0.54K views

# Operable

---

**2.1 Keyboard Accessible** i.e. all content can be accessed without a mouse

**2.2 Enough Time** e.g. users are warned if they are about to be logged out

**2.3 Seizures and Physical Reactions** e.g. content will not cause seizures

**2.4 Navigable** e.g. focus indicator is visible

## Operable example success criteria:

---

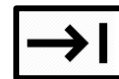
### 2.1.1 All functionality of the content is operable through a keyboard interface

without requiring specific timings for individual keystrokes, except where the underlying function requires input that depends on the path of the user's movement and not just the endpoints.

# Keyboard only techniques

---

- Move through interactive elements: **Tab** key / **shift +Tab** to move back
- Activate button: **Space** or **Enter** key
- Activate link: **Enter** key
- Scroll page: **up/down arrows**
- Move through selection lists and menus **up/down arrows** or **Tab** key



space



## Poll 5: (Activity) Choose a website and use the tab key to move around the home page.

- Can you access the navigation menus?
- Can you access the search box?
- Is there an indicator telling you where you are on the page (focus indicator)?
- Do you get stuck anywhere?
- Any other problems?
- **Give your website a score out of 5**

# Understandable

---

## **3.1 Readable**

e.g. define language of content (but not reading level)

## **3.2 Predictable**

e.g. consistent navigation & consistent identification

## **3.3 Input Assistance**

e.g. error messages on forms are accessible to all

## Language of page

---

3.1.1 The default human language of each Web page can be programmatically determined. (Level A)

```
<!DOCTYPE html>  
<html lang="en"  
▶ <head>...</head>
```

# Understandable: Predictable and consistent

---



Search or zoom ?



Back or undo?



## Understandable success criteria

---

3.3.1 If an input error is automatically detected, the item that is in error is identified and the error is described to the user in text.

## Form errors – typical problems

- No indication of required fields
- Errors indicated only by colour
- Error messages don't provide enough support
- Error messages are not linked to the fields they refer to

OK: Username:  ✓

Error: Expiry date:  Use the format MM/YYYY.

### Citylights Survey

This Week's Survey: More city parks - a pain or a gain?

Which is your favorite city park?

- |                                    |                                     |
|------------------------------------|-------------------------------------|
| <input type="radio"/> None         | <input type="radio"/> Jurassic Park |
| <input type="radio"/> Central Park | <input type="radio"/> South Park    |
| <input type="radio"/> Grand Park   | <input type="radio"/> Other         |

Which city do you find is the greenest?

Do you want to receive a free newsletter?

No title provided for your name.

Name: ☐ Mr. ☐ Mrs.

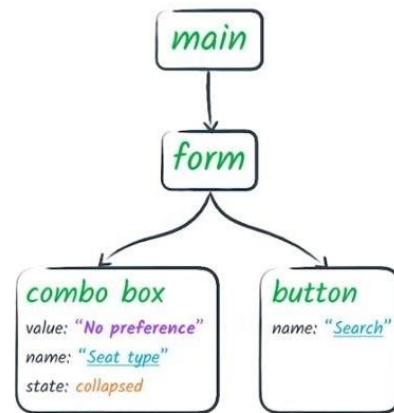
eMail Address

Retype eMail

# Robust

## 4.1 Compatible

- Name, role, value
- Status messages
- Parsing
- **Ensure the accessibility information is correct and can be communicated programmatically to the user**

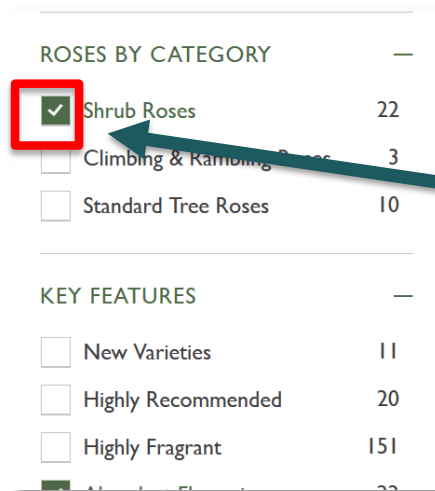


# Name, role, value for components

What is it for? = **name**

What can it do? = **role**

What is the  
current state? = **value /  
state**



ROSES BY CATEGORY		
<input checked="" type="checkbox"/>	Shrub Roses	22
<input type="checkbox"/>	Climbing & Rambling Roses	3
<input type="checkbox"/>	Standard Tree Roses	10

KEY FEATURES		
<input type="checkbox"/>	New Varieties	11
<input type="checkbox"/>	Highly Recommended	20
<input type="checkbox"/>	Highly Fragrant	151

Name = "Shrub roses"  
Role = Checkbox  
State = Checked

Designers / UX should consider programmatic as well as visual experience

## Most common accessibility issues

---

- Insufficient colour contrast or use of colour for meaning
- Missing alternative text on images
- Lack of keyboard access
- Missing focus indicator
- Missing form field labels and inaccessible error messages
- Incorrect heading structures
- No captions, transcripts or audio descriptions on videos



```
<img  
src=http://garden.org.uk/im  
ages/02937575948.jpg>
```

See [WebAIM One Million](#) study

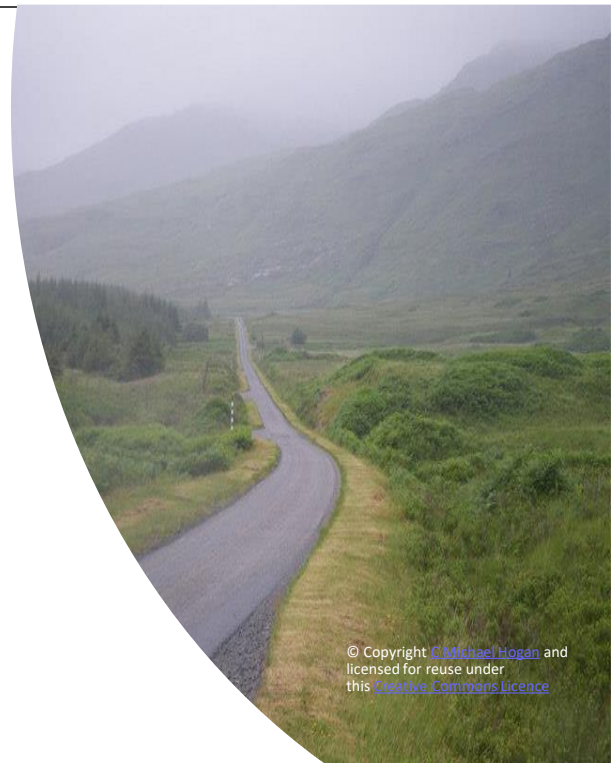
# **How do you make accessible products and services?**

# Accessibility is a journey, not a destination

---

Embedding accessibility:

- Requires policies, processes and quality assurance
- Has design, content, procurement and technical implications
- Will involve staff from across the organisation



## Many people are responsible for digital accessibility

---

- (Project) Managers
- Designers
- Content creators
- Developers
- Testers / Quality Assurance
- Procurement
- Senior managers





# Five stages of accessibility acceptance:



**Denial:** “It can’t be important, no one complains. People don’t use assistive technology with our site.”



**Anger:** “It’s not my problem. Don’t tell me how to do my job.”



**Bargaining:** “I can do a hack without having to do this properly.”



**Depression:** “You expect me to meet ALL these requirements.”



**Acceptance:** “Ok we see what needs to be done and we are working on a strategy.”

