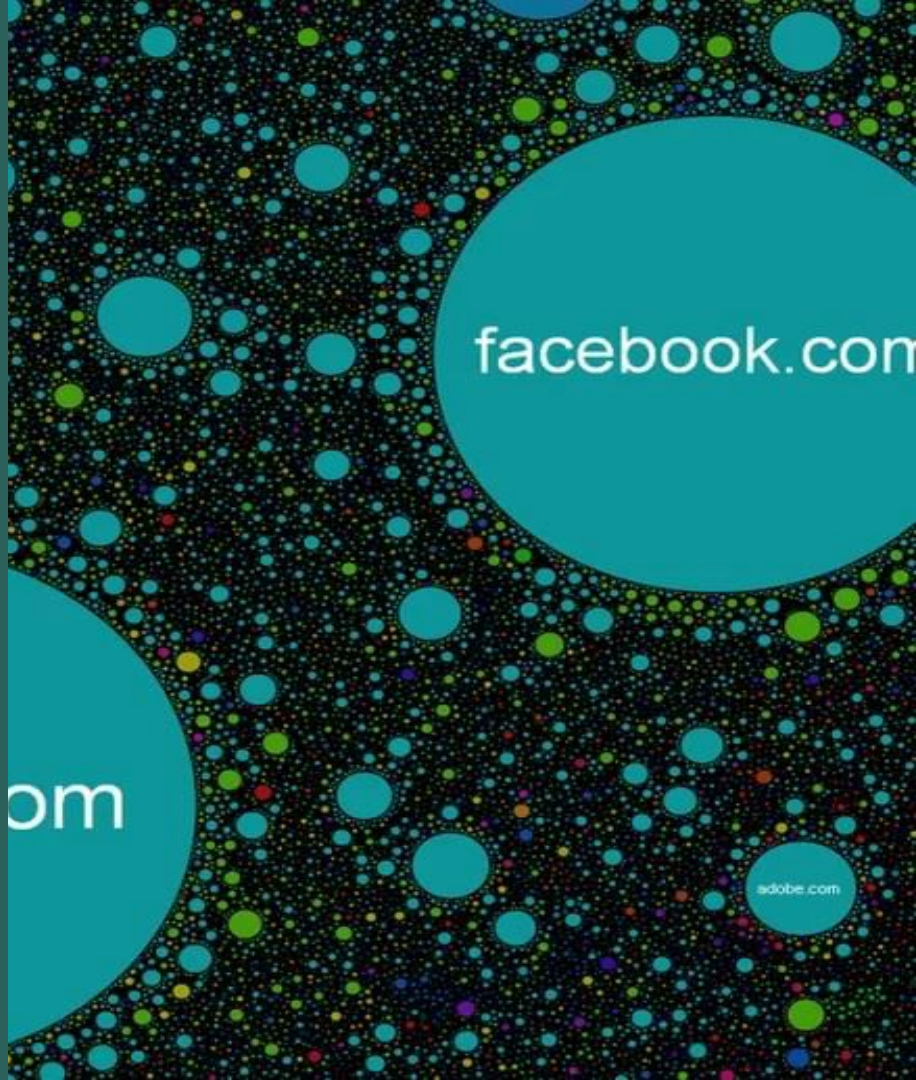
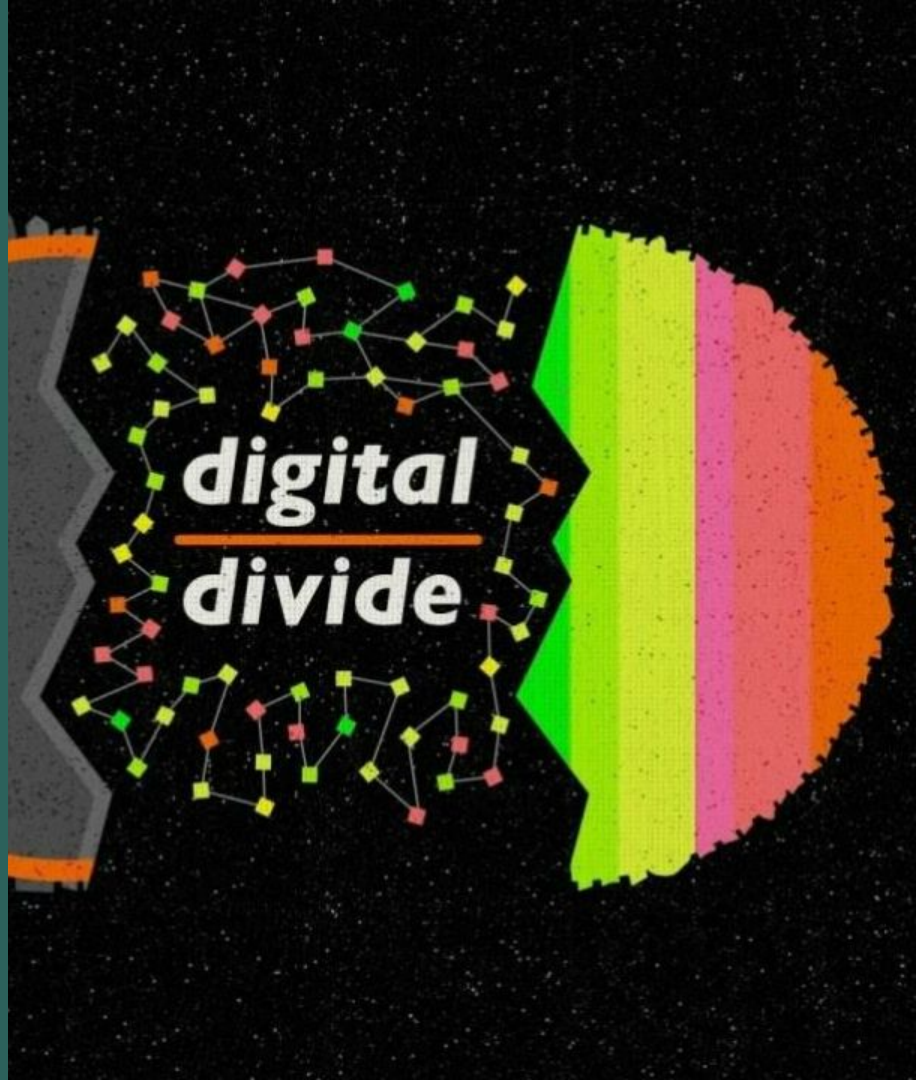
Memory-Friendly Neighbourhoods Phase 2 - project details and knowledge shared

Technology dominates the everyday from the connections we make to the services we use.



But are people living with dementia using the technology that has become pivotal to modern living?



The project

The purpose of Memory-Friendly Neighbourhoods phase 2 has been to ask people living with dementia how they use day-to-day internet-based technologies, how easy they find using the internet and what they would change about this.

As user experience is central to any technology becoming truly beneficial, later on in the session we will look at the role user-led design should have in improving accessibility.

What we already knew

Prior to this project, we saw that advocacy and awareness was a key area in which technology was being used by people living with dementia.

Scotland's national campaigning group, the **Scottish Dementia Working Group**, uses its website and social media to bolster the independent voice of people with dementia, while **DEEP - the Dementia Engagement and Empowerment Project** similarly uses digital media to publicise its work.

Members of **DEEP** are also involved in the **Dementia Diaries** project which "brings together people's diverse experiences of living with dementia as a series of audio diaries". The project uses 3D printed mobile handsets, allowing diary entries, thoughts and experiences to be captured on the go.

Away from advocacy, **An Lanntair** is using podcasts to support carers to learn basic Gaelic and help build a bi-lingual dementia-friendly community in the Western Isles.

Across the other side of northern Scotland, **Dementia Friendly Communities** operates the Helmsdale wellbeing hub in Sutherland, with technology being used to maintain connections with friends and family elsewhere.

And on an individual basis...

Dementia advocate **Agnes Houston** presented at the Digital Families Across the Lifecourse Knowledge Exchange Programme (#digifam1516) in Edinburgh on 13 April, 2016.

Discussing how she uses her “best pal”, the mini-iPad, Agnes highlighted the positive impact of technology for her.

@CRFRtweets

"My mini iPad is a window to the world for me" @agnes_houston #digifam1516

Though Agnes also discussed some of the issues that were to be highlighted to us during the project

@CatherinePemble

@agnes_houston "There's no point having apps for me if I don't know how to use them." #digifam1516

What we did...

Over 6 months we engaged with 19 groups

An Lanntair, AT Home Hub, Beacon Club, Ceartas Dementia Cafés (x3),
Centre for Assistive Technology and Connected Healthcare,
Connect Online, Dementia Friendly Communities,
Dementia Friendly East Lothian, House of Memories, MindMate,
Pilmeny Development Project Men's Health Group, Playlist for Life,
Queensferry Churches' Care in the Community,
Scottish Dementia Working Group, Tap-Into-IT, We engAGE,
WCAG Cognitive and Learning Disabilities Accessibility Task Force

23 survey responses

107 participants in the #AlzChat tech Twitter chat

7 follow up conversations with advocates who are living with dementia

Barbara Burford

Hertfordshire blogger on and advocate for people living with Mild Cognitive Impairment (MCI)

Ken Clasper

A former Alzheimer's Society Ambassador, and an active member of the North East Dementia Action Alliance

Tommy Dunne

Chair of the Service User Reference Forum, which represents the views of people living with dementia, carers and families in Liverpool

Richard Fairbairns

Based on the Isle of Mull, Richard works with Scottish Dementia Working Group and DEEP UK

Agnes Houston

Current vice Chair of the European Person With Dementia Working Group and a board member of Dementia Alliance International

Wendy Mitchell

An advisory board member for Improving Value in Dementia Care in Durham, and a member of the Young Dementia Network Steering Group.

George Rook

Patient activist living with dementia, promoting patient involvement and co-design in Shropshire

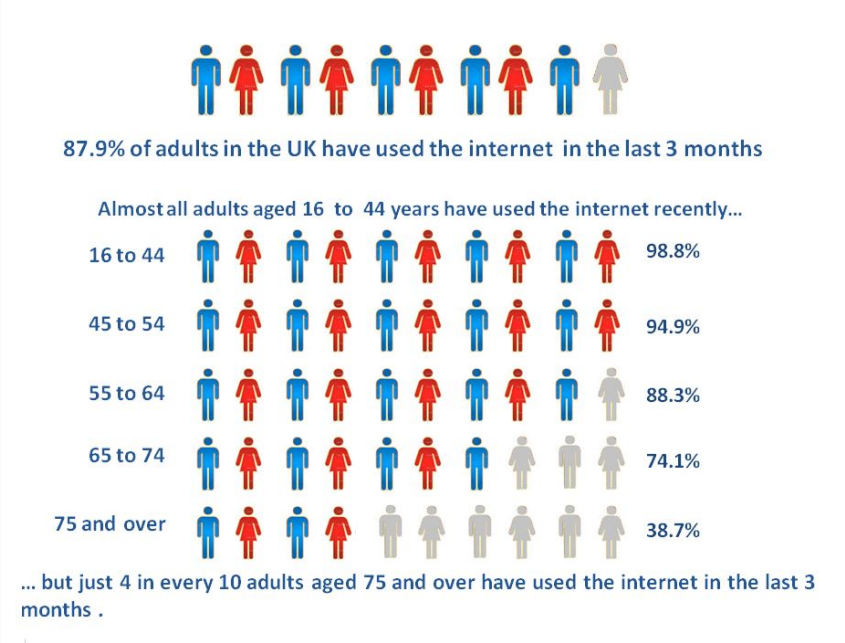
Conversations conducted in person, by phone, via Twitter and email

Knowledge shared - general

Usage overall, was lower amongst people living with dementia than the general population.

However, where internet-based technologies - such as tablets - were being used, there was a similar age-related pattern to the wider population.

For example, usage was lower amongst people in their late 70s and 80s who usually had little exposure to such technology prior to their diagnosis.

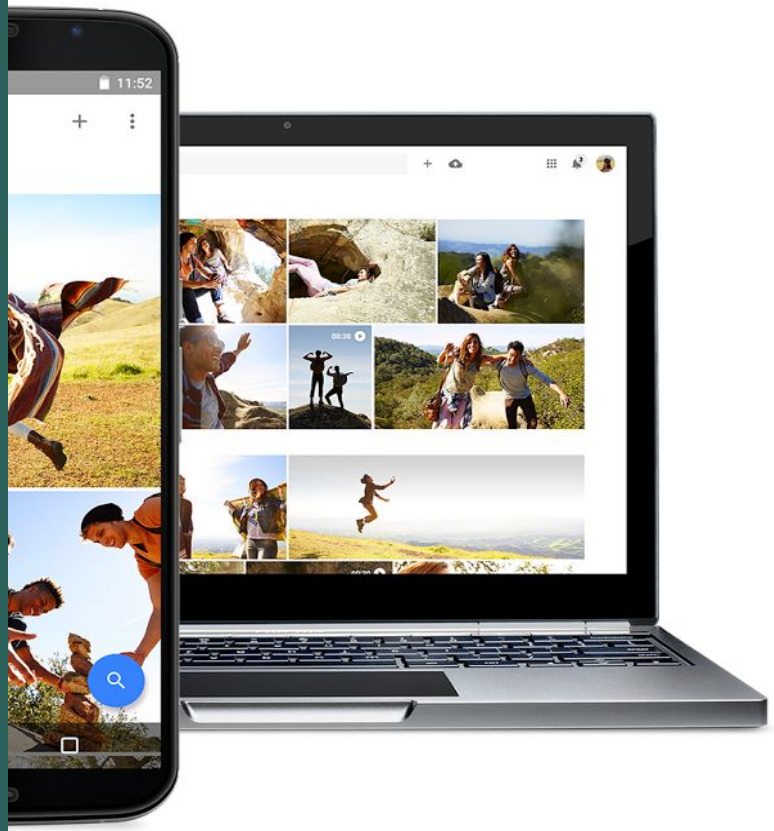


Graphic shows Office for National Statistics: Internet Users in the UK 2016

- Technology is being used to keep in contact with friends and family
- Social media lets people connect with ‘virtual friends’ and provides an informal support network
- Email is seen by some as more difficult to manage than the ‘here and now’ of social media conversations.
- Video calling can be a positive replacement for traditional phone calls

- Those with smartphones would use the camera functionality to access photos of family members and record important events (one survey respondent took a series of photos to show the progression of a painting they were doing over several weeks).

- Emergency contact details would be available on the phones of those we talked to but the devices were rarely used for their primary function



Knowledge shared - the web

For those regularly connecting to the internet - aside from social media - the common reason would be for information.

SDWG tech group members were regular users of **Google search**, including for reminiscence purposes. For example:

- Looking back at buildings from their youth
- Reminding themselves of recipes

Fewer people were found to be using online services such as banking, shopping or booking travel.

This is perhaps not surprising given using these services is not as consequence-free as a general search enquiry.

One of our respondents was using the internet to get information for their frequent train journeys, but did not have the confidence (both in their own skills and the booking websites/apps) to then buy tickets.

Knowledge shared - apps

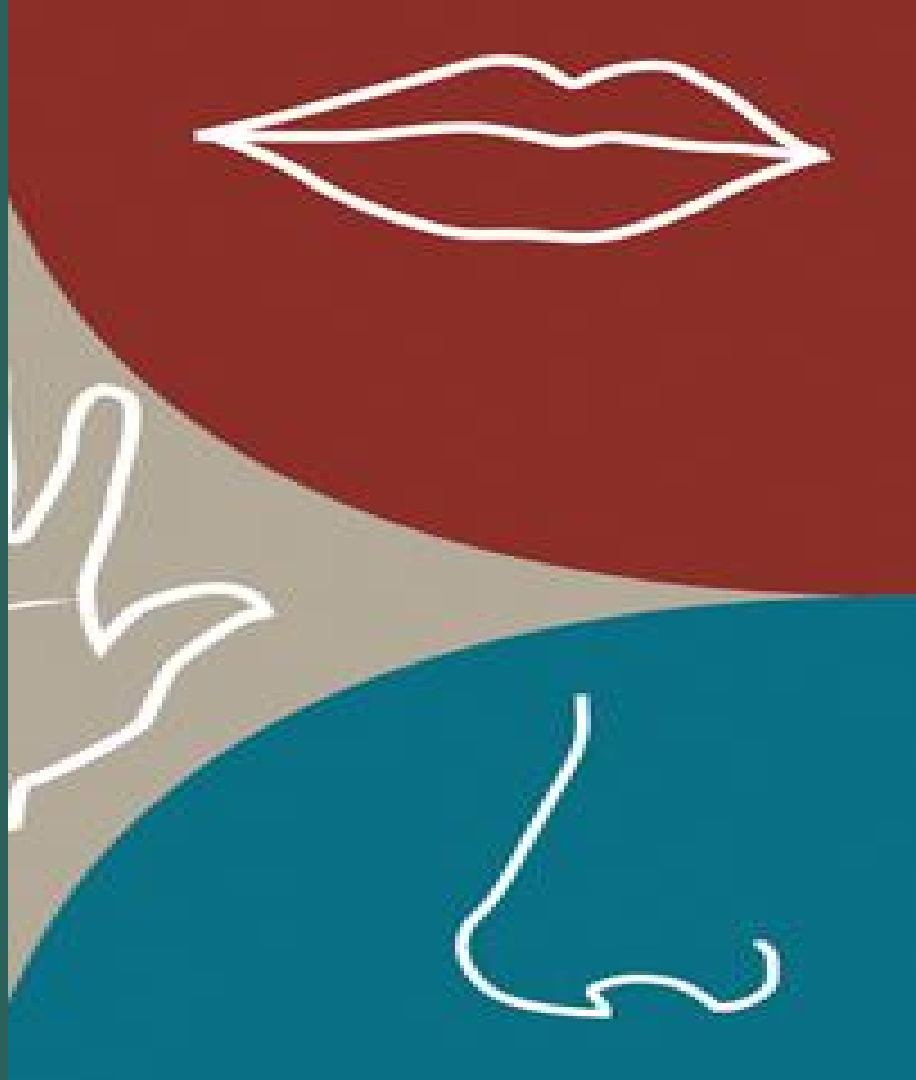
The importance of social media meant that **Twitter** and **Facebook** were commonly used apps, while **FaceTime** was the go-to for video calling.

Most **SDWG** tech group members use ‘brain training’ apps - often introduced during regular iPad classes.

We engAGE has found numerous arts and sensory-focused apps that are usable by people with relatively advanced dementia.

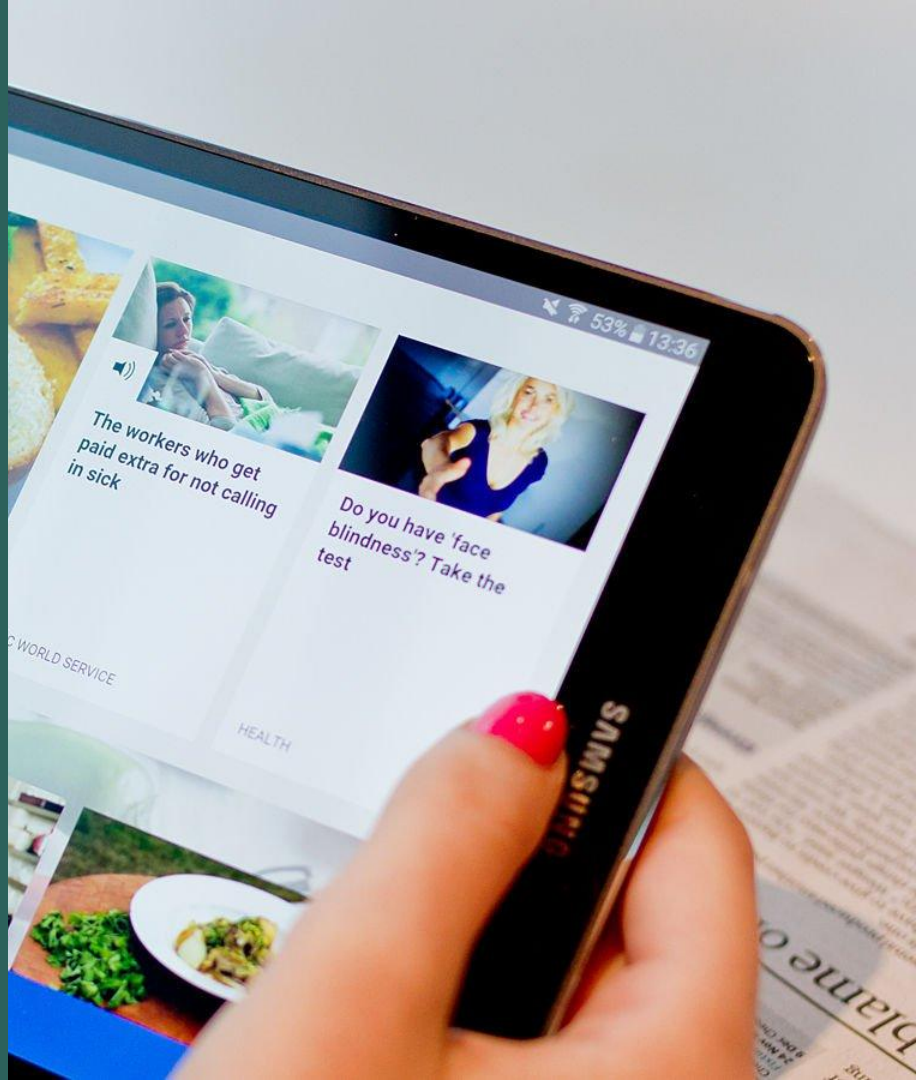
A caveat with regard to the apps being commonly used is that many of these are being introduced during group sessions. So initial usage may not be driven by active user choice.

However, the continued use of an app provides a measure as to what design patterns work and also indicates that training can enable people with dementia to successfully use technology in the longer term.



Knowledge shared - hardware

- People favour using tablets over laptops or PCs
- The iPad is far more commonly used that Android tablets
- Tablet portability seen as a positive
- Tablets associated with being useful for communicating with younger relatives
- Devices often gifted by or inherited from family



- Some users find tablets easier to use with a stylus
- This may be due to the threshold of touch sensitivity decreasing with age - a stylus provides a smaller point of contact with which to tap on links and buttons
- This is something to take into account when looking towards tablets as the most appropriate tech for accessing the web

Within this context, a concern would be how developments in 3D Touch (used in the iPhone 6s) might affect accessibility.

3D Touch senses how deeply users press the display in order to carry out various actions.

But if an older user naturally presses down harder due to reduced touch sensitivity, will newer devices register this a being a 'deep' press and so carry out a different action than is expected?

Knowledge shared - design

A common issue noted in our discussions relates to **cognitive load** - the amount of information the brain can properly process at a any one time. This could be because of:

- Too many images
- Cluttered sidebar content
- Adverts
- Confusing navigation
- Too many different buttons/options

Given that many people living with dementia experience sensory symptoms - for example, visual impairments - other issues that were unsurprisingly flagged up included:

- Poor colour contrast between text and background
- Text being too small

In terms of user self-guidance

- **SDWG** members appreciated clear instructions on how to use a website or app

- Instructions needed to be in plain English rather than using jargon

- **We engAGE** found that - if an app has instructions - a visual representation of this guidance (eg a pencil icon rather than the word ‘pencil’) improves usability.

Knowledge shared - skills gap

September 2016 saw the release of 'Dementia and Digital', a report from the **Tinder Foundation** looking at using technology to improve wellbeing for people with dementia and their carers.

One of the report's main findings, in terms of barriers to technology use, concerned the existence of a gap when it comes to digital skills and support

"Access to technology and/or the internet … does not translate into using it if support is not available"

Tinder Foundation (2016)

Or to give voice to this from the user's perspective

@CRFRtweets

@agnes_houston "help us, enable us to use digital technology" to have fun, to reminisce, to live #digifam1516

During our outreach, **SDWG** tech group members told us they would never have learned to use an iPad if they hadn't been presented with the opportunity to take part in a class.

The supportive environment of the class was seen as important in empowering them to learn, as was having patient teachers

But beyond acquiring the basic skills, another thing noted was the need for ongoing support, with a big barrier to regular use of technology being a fear of breaking something.

Some of our respondents also told us they wanted support to troubleshoot problems themselves, rather than someone helping them fix an issue but without explaining what they should have done differently.

The potential impact of learning support in terms of giving access to technology is further borne out by the experiences of arts-therapy groups using tablets.

The feedback from We engAGE, alongside mounting research evidence, suggests support and training can enable even people with advanced dementia to use touchscreen technology.

The ongoing presence of support/training would therefore seem a vital part of the accessibility puzzle.

The accessibility maze

Putting the user front and centre

As a web developer and designer, one of my takeaways from MFN phase 2 is that in order to design websites that are truly usable by people living with dementia you will benefit from a more nuanced approach to person-centred design. That means getting more people with dementia involved in testing what design patterns work and improving existing accessibility standards based on this evidence.

But we are in a position to start making progress now.

Given that tablets are the most prevalent technology for accessing websites and apps by people living with dementia, make sure your website is **mobile friendly**

1

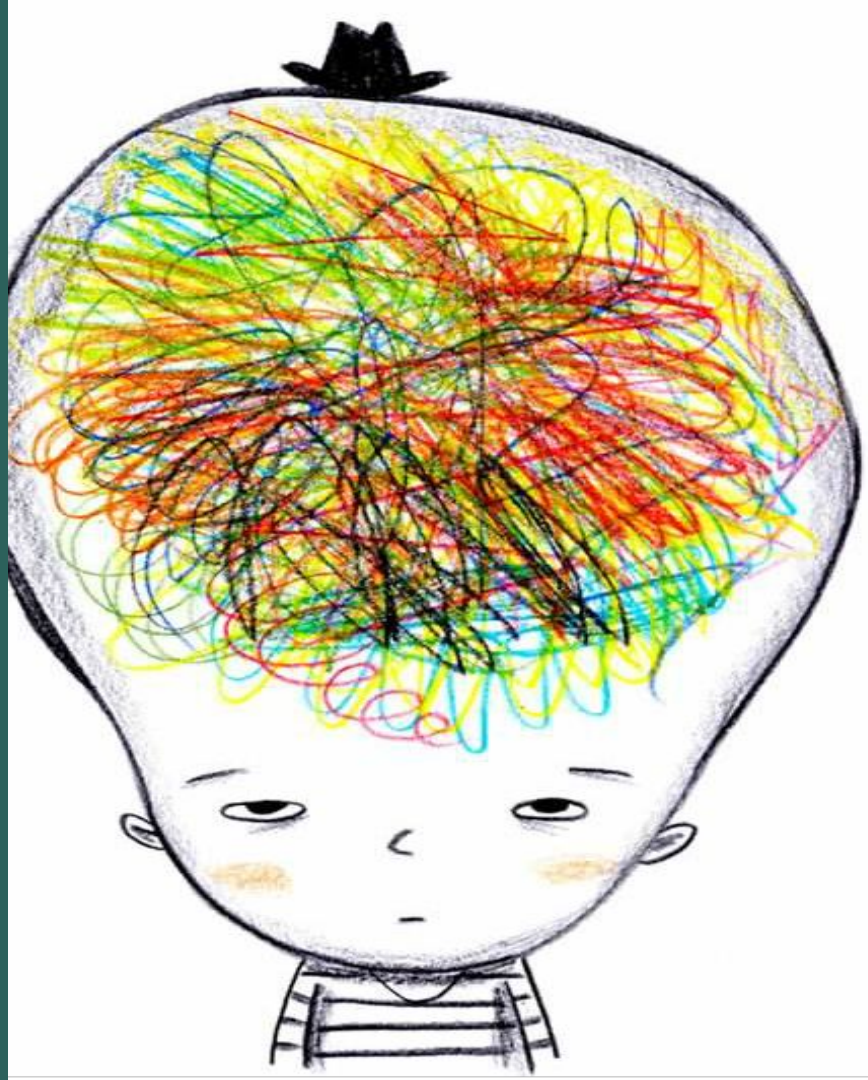
And what else?

The issue of **cognitive load** was something flagged by many people we talked to during the project.

Fortunately this is well recognised in web development and addressing it is part and parcel of good design, with the results being applicable to all your users.

Keep your website pages free from **clutter**

2



Where possible, use **images** to augment content and not simply to fill up space

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Keep **adverts** or pop up **notifications** to a minimum

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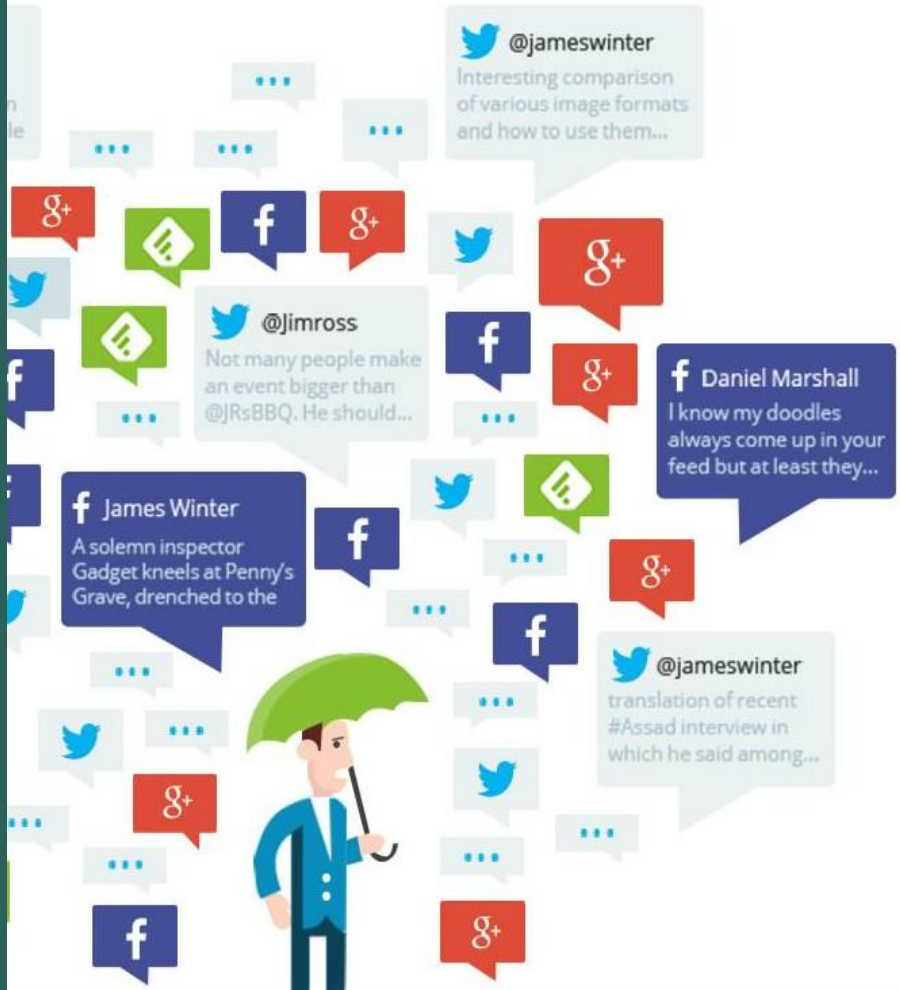

On pages with lots of content, avoid **infinite scrolling**

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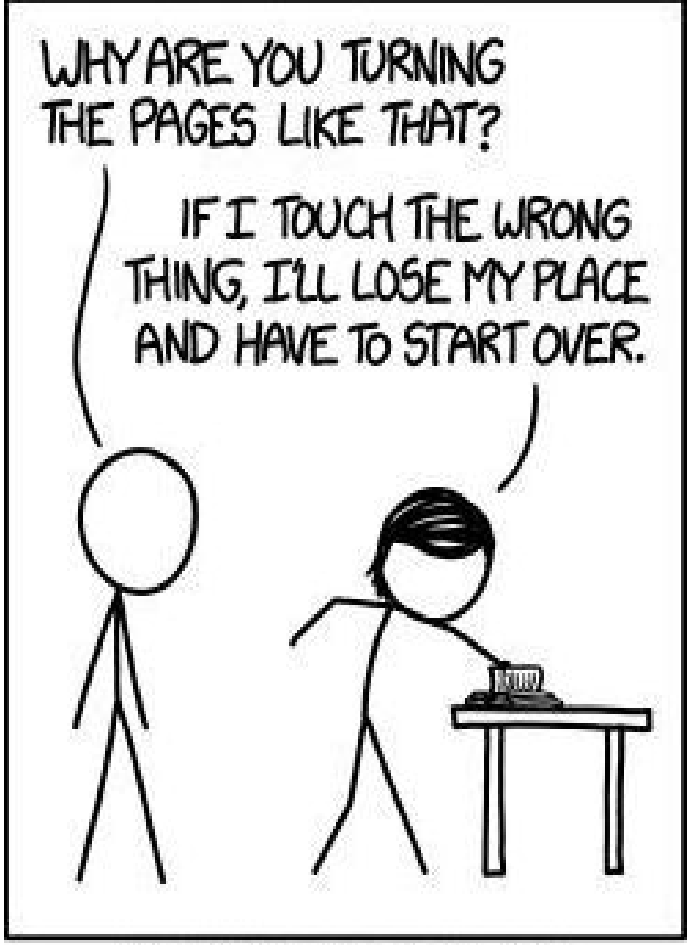


Ensure **text sizes** are readable and use relative values rather than fixed pixel sizes to enable users to change the size using the browser settings

In design jargon this would mean using em, rem, %, rather than px

6

Avoid poor **colour contrasts** between background and text

7

Links should make sense out of context. Phrases such as "click here," "more," "click for details," and so on are ambiguous when read out of context

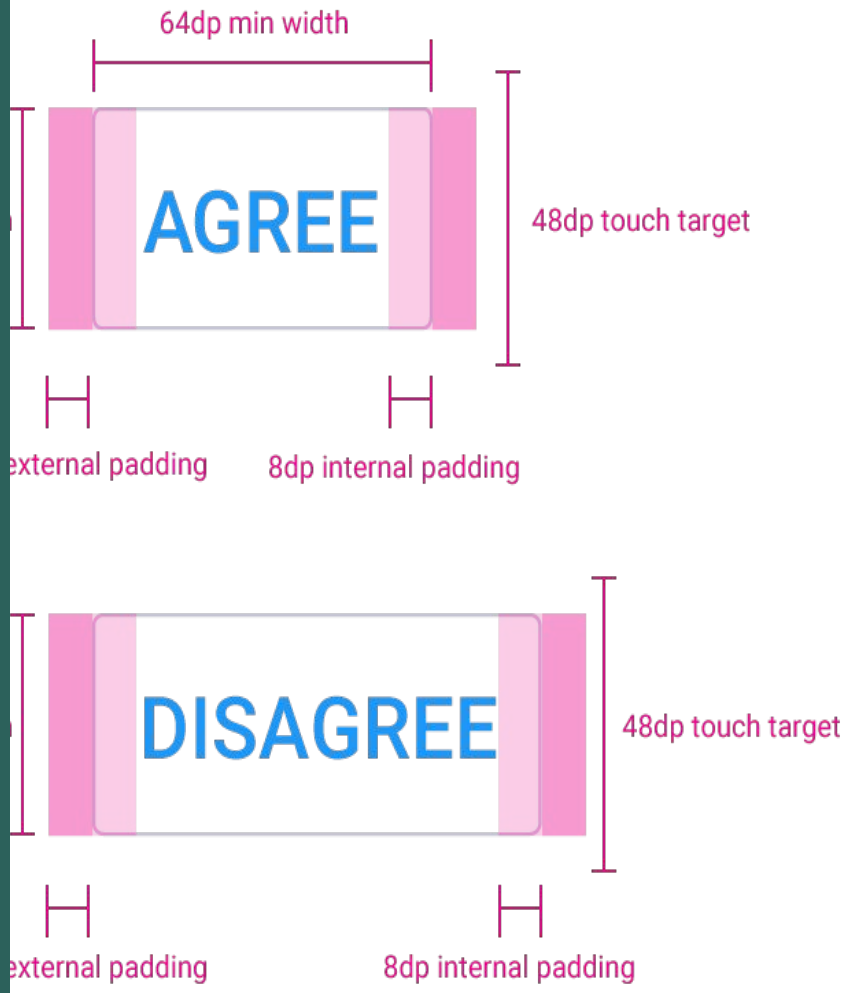
8

Want to learn more? Click here

Learn more about accessibility

Older users can benefit from design that does not require precise movements to carry out actions, whether using a mouse or a touchscreen

Providing a suitably large **clickable area** for links and buttons therefore gives a greater margin of error



Consider your **line-height** to improve the vertical rhythm of text to help with readability

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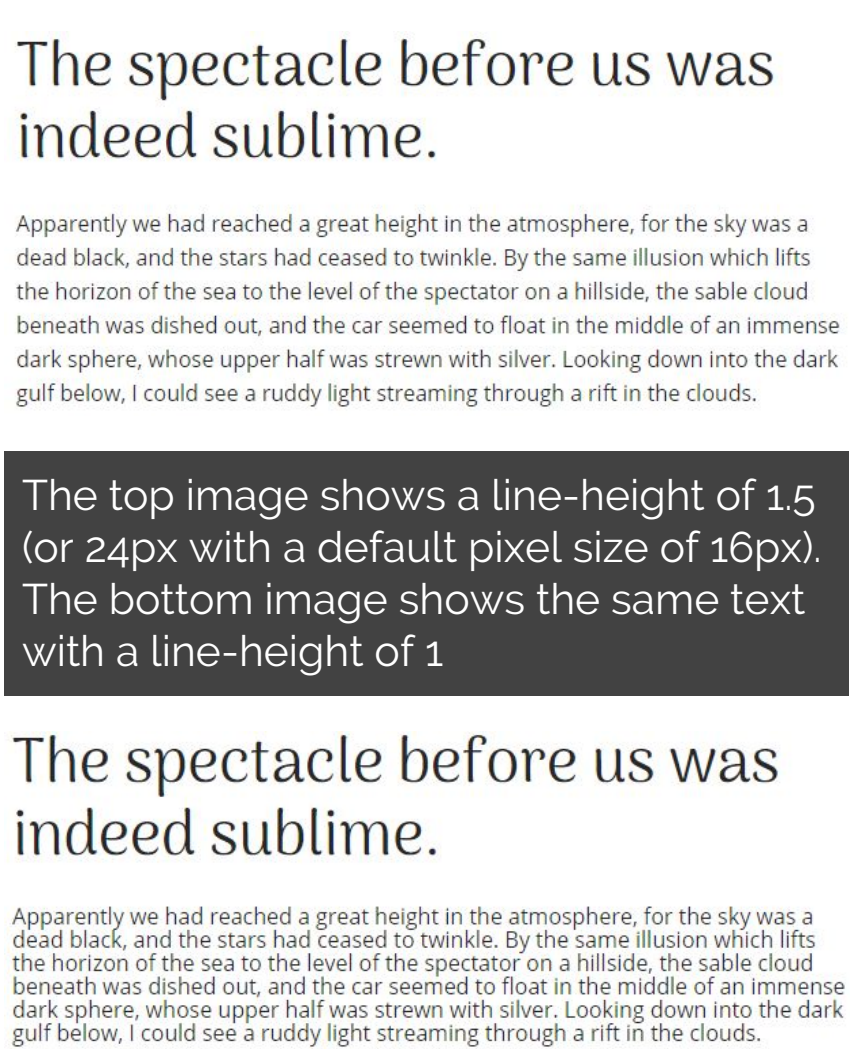

And last, but most definitely not least, please **structure your site content logically** so users can actually navigate it

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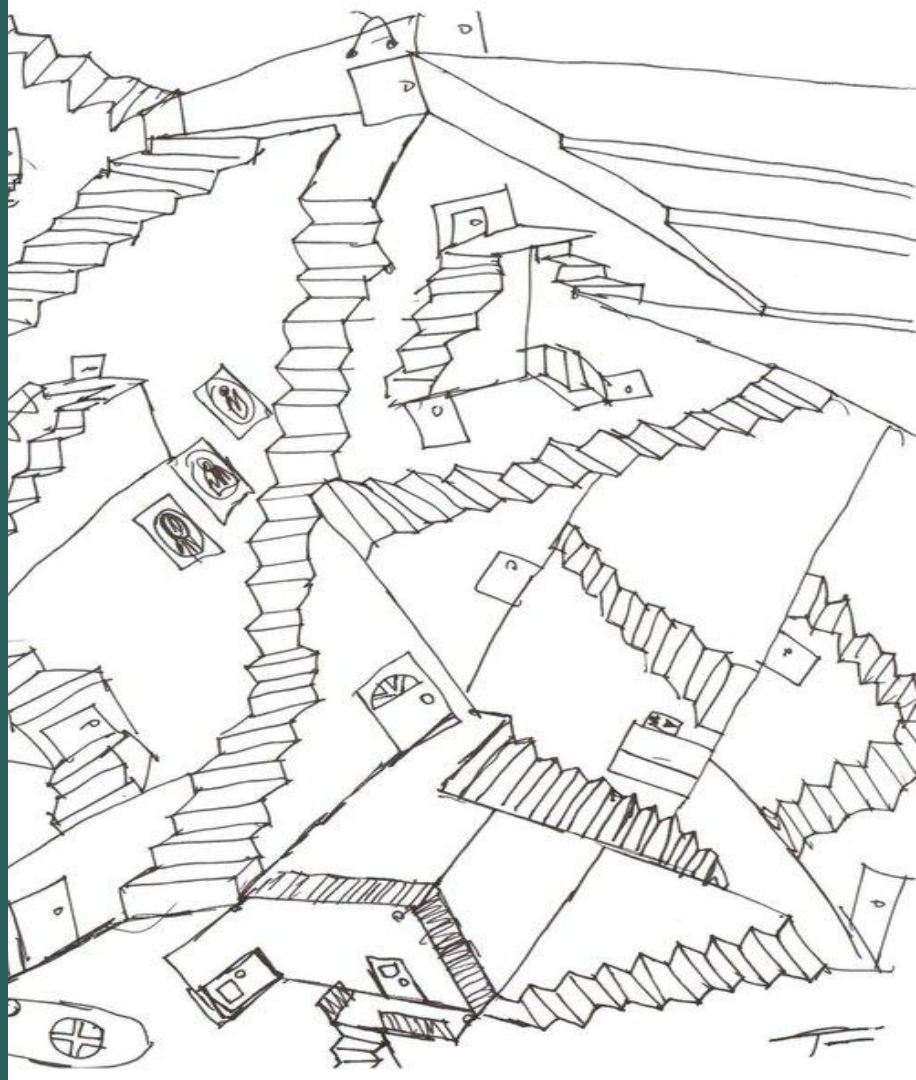


Moving on from the basics - Microinteractions...

Microinteractions can be described as moments of communication on your website that help users move through the design. As explained by **Dan Saffer**, a leading expert in user-experience design, these typically involve:

- Communicating feedback or the result of an action
- Accomplishing an isolated, individual task (e.g. liking a friend's post)
- Manipulating a setting
- Preventing user error

Microinteractions can enhance complex but everyday web activity such as filling in a credit card form.

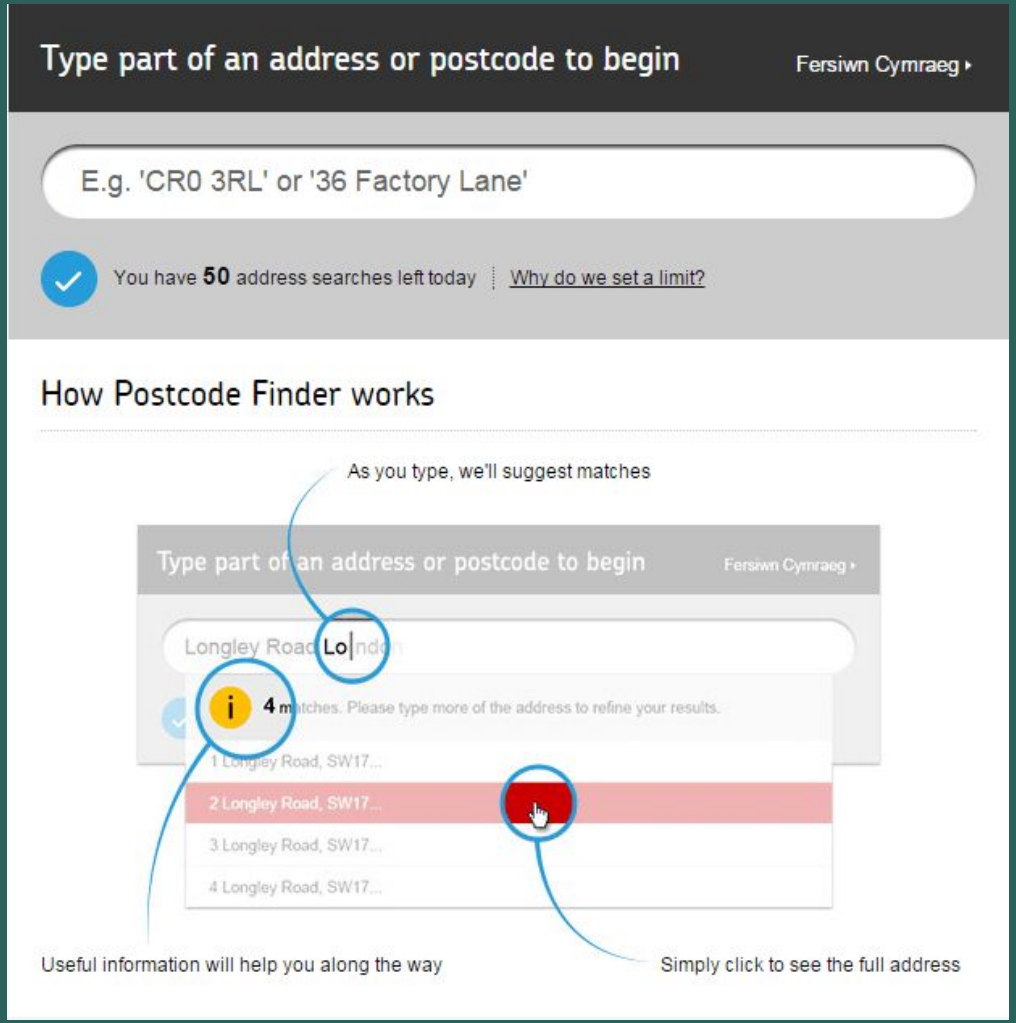
Here the user is given visual feedback on how to complete each aspect of the form.

A microinteraction can also be applied to less complicated tasks.

Here we can see non-intrusive updates as to the progress of the task at hand using icons that should be familiar to most users.

But it is not all about sophisticated animations.

Appropriate textual guidance and an annotated image can also provide invaluable assistance. This example is from **Royal Mail's** postcode finder tool.



The true benefit of such microinteractions to a person living with dementia has not been researched, but the feedback we had from SDWG members - with regard to appreciating clear instructions when using a website or app - suggests that microinteractions may have a place in improving accessibility.

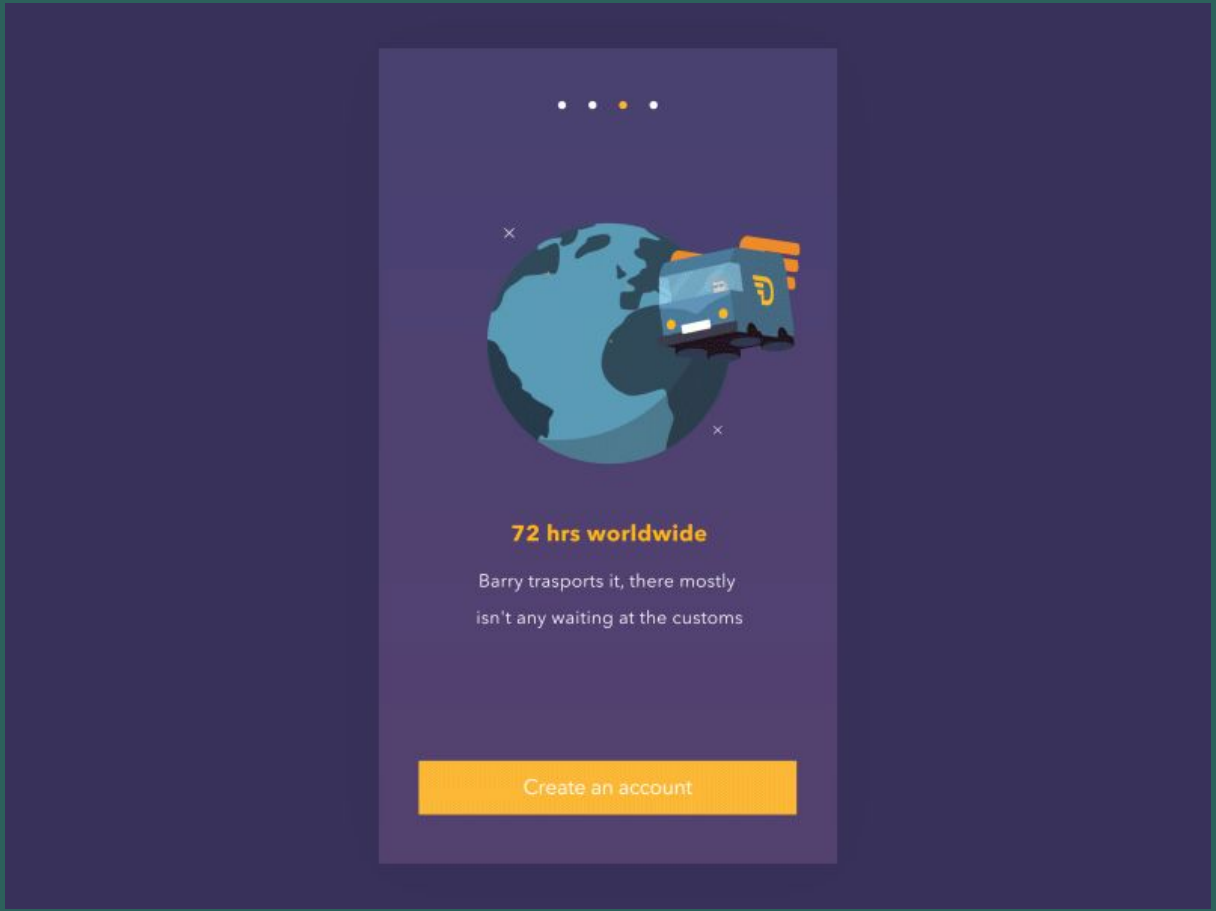
Moreover, this granular feedback to users is intended to minimise the chance of user error. And this was another obstacle to using technology that people spoke to us about.

Moving on from the basics - Onboarding...

These design enhancements can also be applied to more general guidance on how to use a website or app.

Many of you will be familiar with opening a new app for the first time and being taken through a handful of screens with tips on how to best to use the service. Known as **onboarding**, the example below is from a hypothetical courier company app.

The onboarding here combines both an introduction to using the app and an overview of the physical process of sending an item by courier

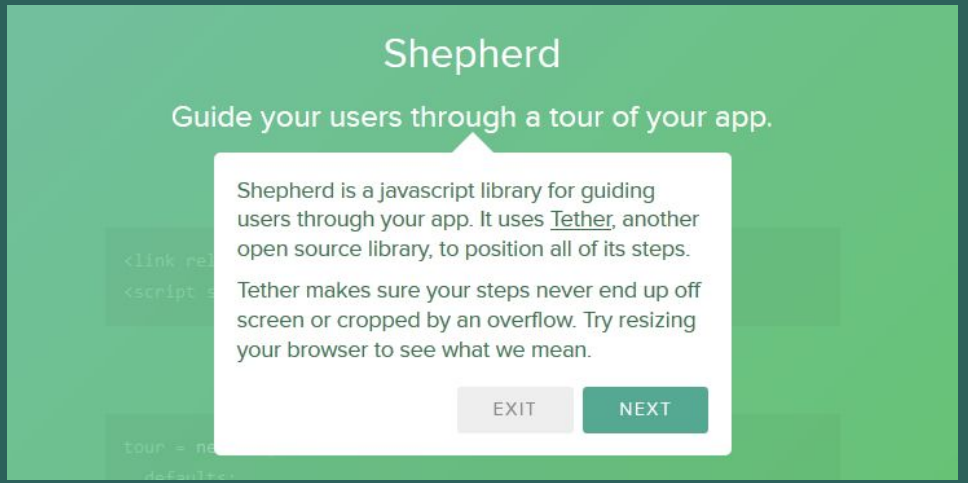


The purpose of this onboarding is to minimise errors and frustration, so retaining the user. But it doesn't necessarily need to be limited to a first-time app user.

You could implement a persistent user guide on a website using this approach. At the click of a button, the user would be given a refresher on how to use the main elements of the website, hopefully allowing for successful navigation of your site.

There are a number of open-source frameworks for implementing this type of feature on your own website.

[Chardin.js]
[Hopscotch]
[Intro.js]
[Joyride]
[Shepherd]



More resources...

So, nice and simple. Right?

Well, not quite. To do accessibility correctly is not a trivial matter but the process becomes simpler when factoring it into development from the outset.

There are countless resources you can turn to in order to better your understanding of web accessibility. Here are some of the ones I have found to be most useful.

For those with some understanding of accessibility already, a good starting point is the **Mozilla Developer Network**. It is thorough and up-to-date, whilst being more digestible than diving into the Web Content Accessibility Guidelines documentation itself

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

For a more gentle introduction, try **Sitepoint's** resources starting with the following article

https://www.sitepoint.com/web-foundations/web-accessibility/

And then move on to their other accessibility-specific content

https://www.sitepoint.com/design-ux/accessibility/

WebAIM (Web Accessibility in Mind), which is part of the Center for Persons with Disabilities at Utah State University, similarly eases the user into accessibility

http://webaim.org/resources/

WebAIM has both written guides and developer tools to aid in website production. In particular, the WAVE chrome extension audits web pages for accessibility errors and is extremely useful during the development process.

And for those interested in rolling their own accessible website elements, **Heydon Pickering** has some great examples of using Accessible Rich Internet Applications (ARIA) in practice

http://heydonworks.com/practical_aria_examples/

Want to check the contrast ratio of two colours? Try these tools.

http://contrastchecker.com/

http://leaverou.github.io/contrast-ratio/

And, if you're looking to redesign your website, you can give yourself a headstart by considering one of the many front-end frameworks out there, such as:

Bootstrap
Foundation
Materialize
Semantic-UI