



**Inclusive design to improve
products and services**



Hej!



Chris Bush
Head of Experience Design

@suthen



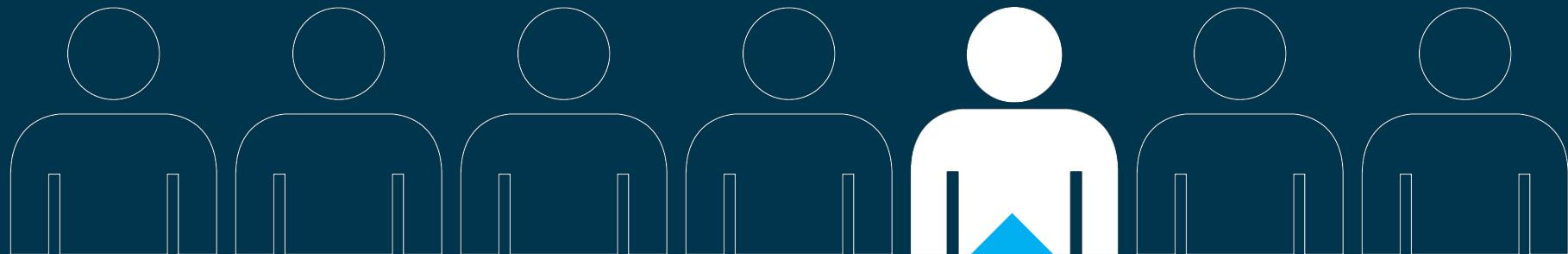
Molly Watt
Accessibility and Usability Consultant

@mollywatttalks

Thinking about inclusion

1 billion

People with long-term disability worldwide



1 in 7

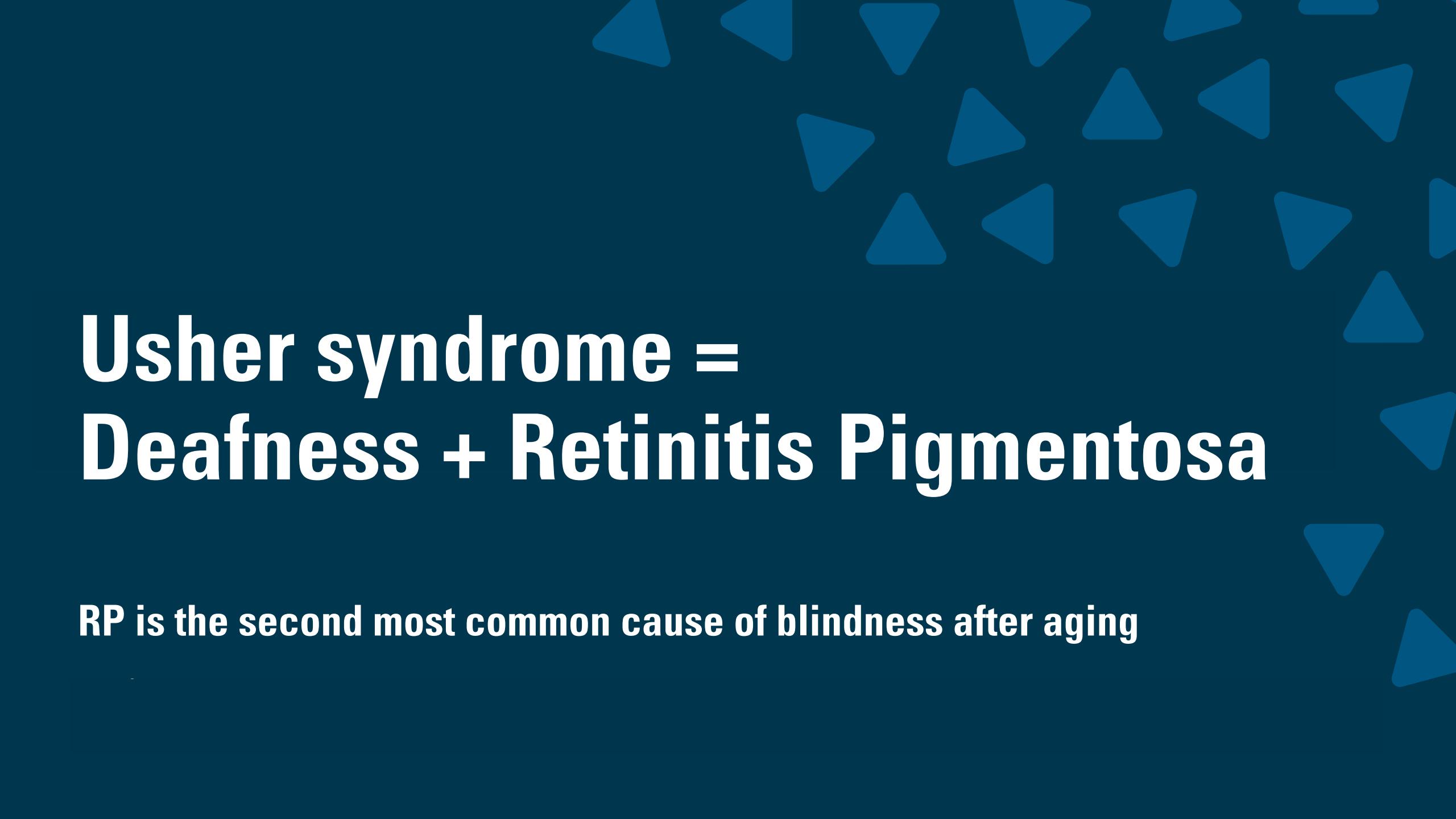
11.2 million

People in the UK have
some form of disability



Why inclusion matters

My story



**Usher syndrome =
Deafness + Retinitis Pigmentosa**

RP is the second most common cause of blindness after aging

**Acquiring a disability
≠ being born with a disability**



My life revolves around technology



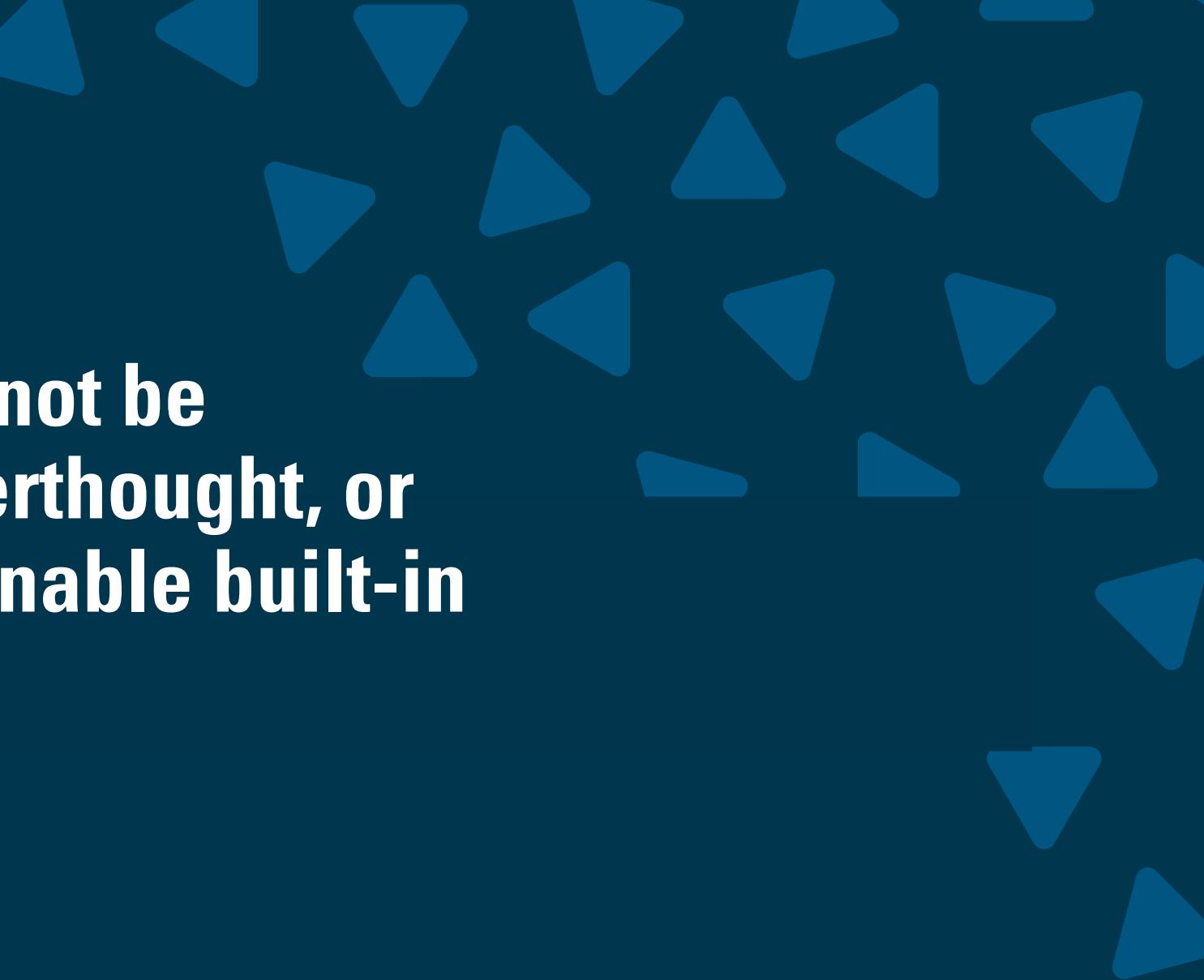
However, technology doesn't fully compensate

Anyone can have challenges

- Disability is more common than you may think
- We will all experience disability at some point
- By the age of 45 most of us will need glasses
- Yet many websites do not support dynamic text
- Many on iPhone use 'Large Text,' a lot of apps aren't compatible.



Who here has blue eyes?



**Accessibility should not be
considered as an afterthought, or
as 'help' but as reasonable built-in
adjustments for all...**



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**What is the best way to
design for inclusion?**



The best examples of inclusive design are formed from user needs, not just compliance

1.1 Text Alternatives

- 1.1.1 Non-text Content A

1.2 Time-based Media

- 1.2.1 Audio-only and Video-only (Prerecorded) A
- 1.2.2 Captions (Prerecorded) A
- 1.2.3 Audio Description or Media Alternative (Prerecorded) A

- 1.2.4 Captions (Live) AA

- 1.2.5 Audio Description (Prerecorded) AA

1.3 Adaptable

- 1.3.1 Info and Relationships A
- 1.3.2 Meaningful Sequence A
- 1.3.3 Sensory Characteristics A

1.4 Distinguishable

- 1.4.1 Use of Color A
- 1.4.2 Audio Control A
- 1.4.3 Contrast (Minimum) AA
- 1.4.4 Resize Text AA
- 1.4.5 Images of Text AA

2.1 Keyboard Accessible

- 2.1.1 Keyboard A
- 2.1.2 No Keyboard Trap A

2.2 Enough Time

- 2.2.1 Timing Adjustable A
- 2.2.2 Pause, Stop, Hide A

What's wrong with this picture?



Designing for extremes





Types of impairment



Vision

Ability to see, or process visual information



Hearing

Ability to hear, or process acoustic information



Motor

Ability to interact with a device accurately and quickly



Cognitive

Ability in mentally demanding areas; reading, memory, attention, complex concepts or language

Types of impairment – long term



Vision

Blindness,
low vision &
colour blindness



Hearing

Hearing loss



Motor

Dyspraxia,
RSI, arthritis
and
cerebral palsy



Cognitive

Down's syndrome,
Asperger's and
dyslexia, learning
difficulties

Types of impairment – temporary & situational



Vision

Forgot my glasses
Glare when using a device in bright sunlight



Hearing

Communication in a noisy environment



Motor

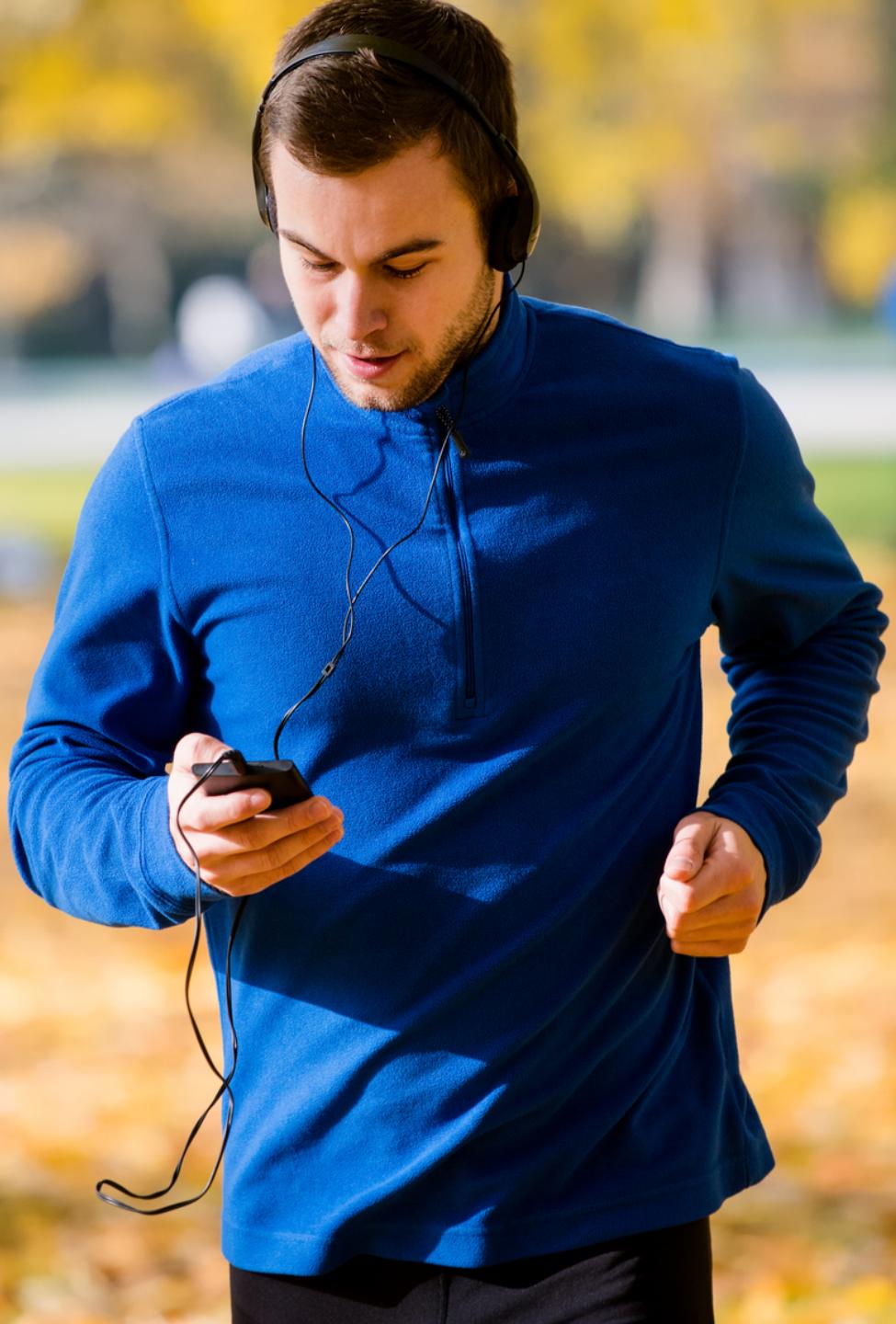
Temporary injury, such as a broken wrist

Carrying a child



Cognitive

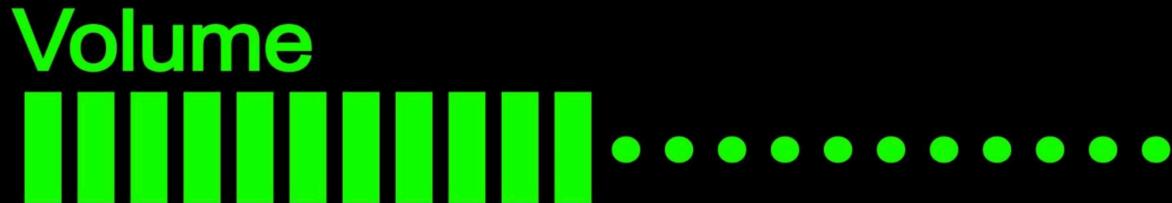
Medication,
tiredness, stress,
hangover :D

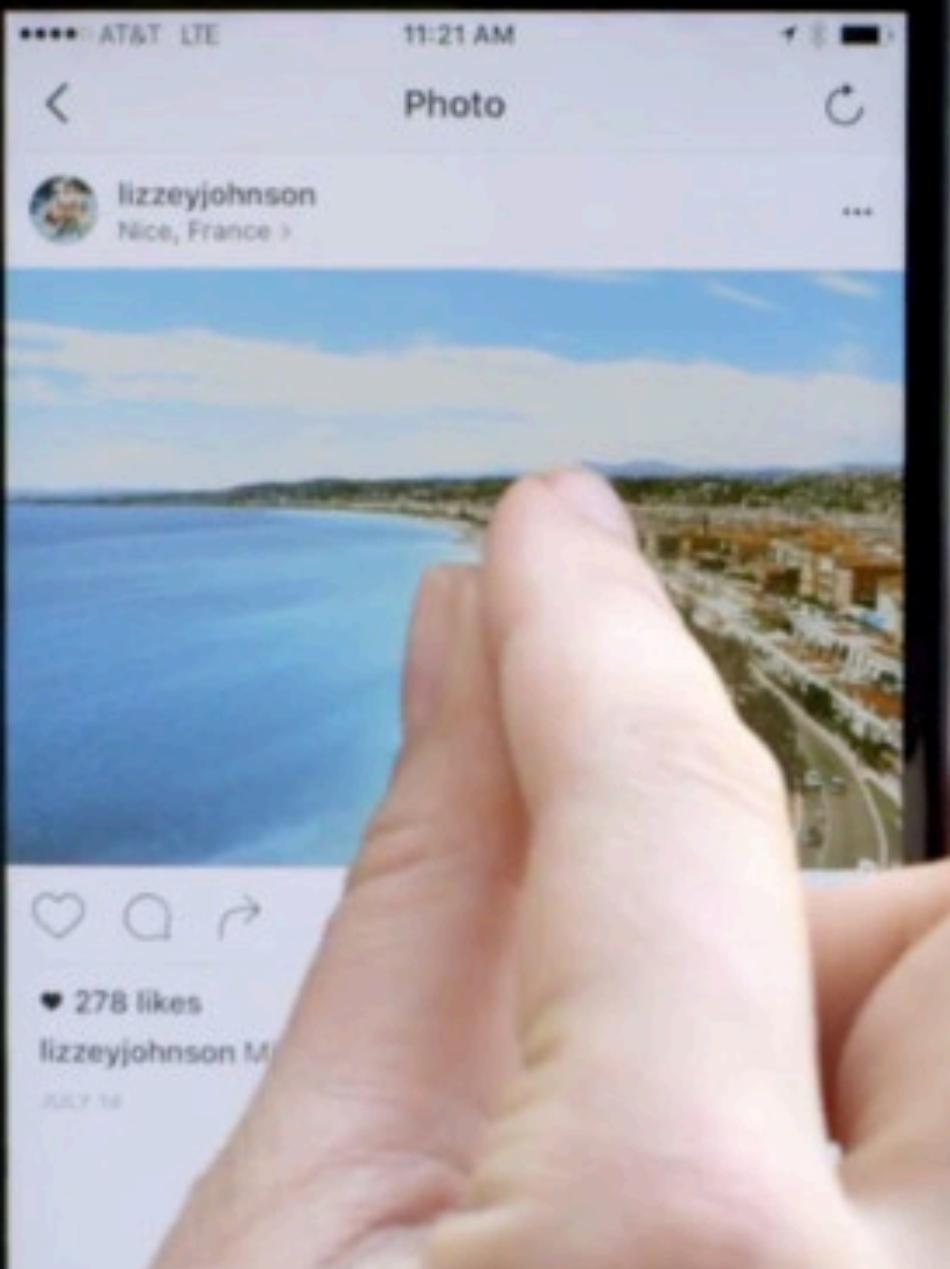




Let's normalise inclusive design

**Because, when we get it right,
it becomes invisible**

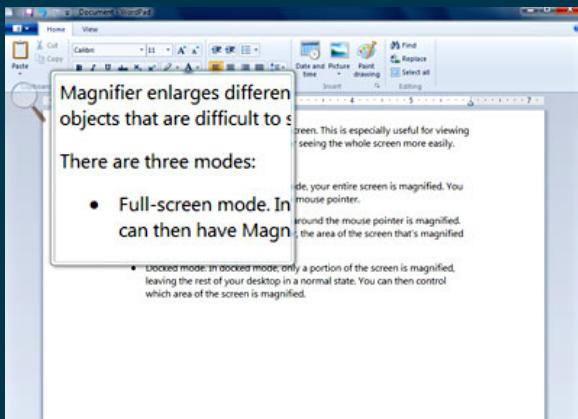
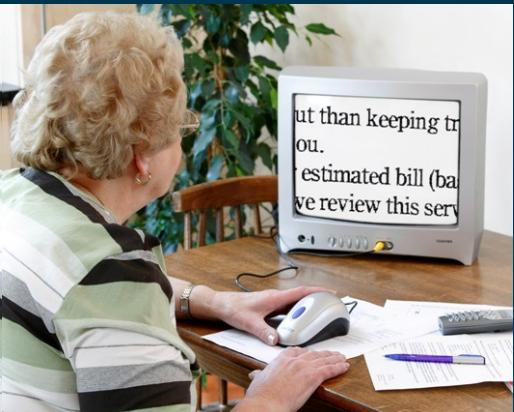




Video captions



The different types of assistive technologies



How Molly uses technology

Your turn

- How to enable your phone
- How to browse using voiceover (gestures and rotor)
- Browsing BBC Sport
 - What time is today's Arsenal game?
- Try one of your sites (or a personal favourite) and a typical task?
- What did you find?



NVDA



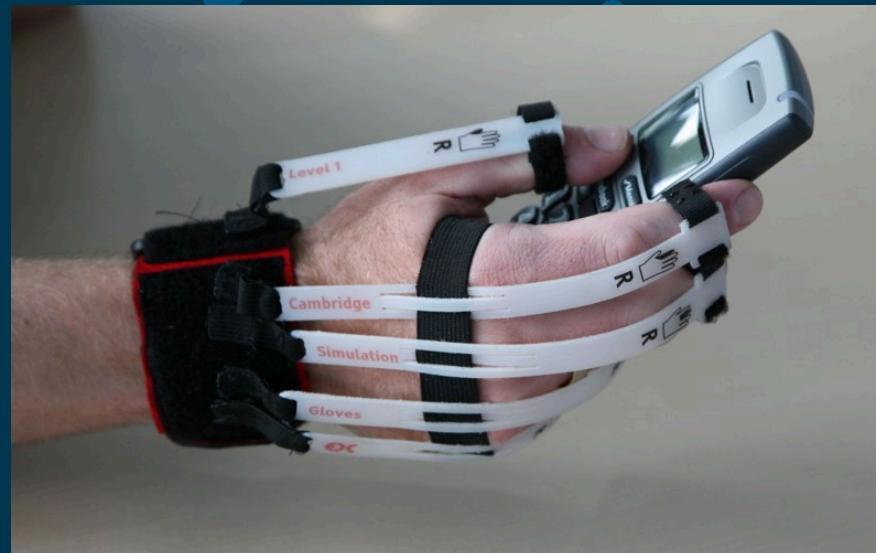
The image shows the homepage of the NV Access website. The header features the NV Access logo (a stylized sunburst icon) and the text "NV Access" with a subtitle "Empowering lives through non-visual access to technology". A "DONATE" button is visible in the top right. Below the header is a navigation menu with links: Home, About, Download, Get Help, Corporate / Government, News, Support Us, and Shop. The main content area has an orange background. It contains the text "WE BELIEVE THAT" followed by "every Blind + Vision Impaired person DESERVES THE RIGHT TO" and "freely & easily access a computer!". To the right of this text is a photograph of a man speaking at a podium. At the bottom of the page, a dark purple footer bar contains the text "WE CREATE THE SOFTWARE WHICH MAKES THAT POSSIBLE".

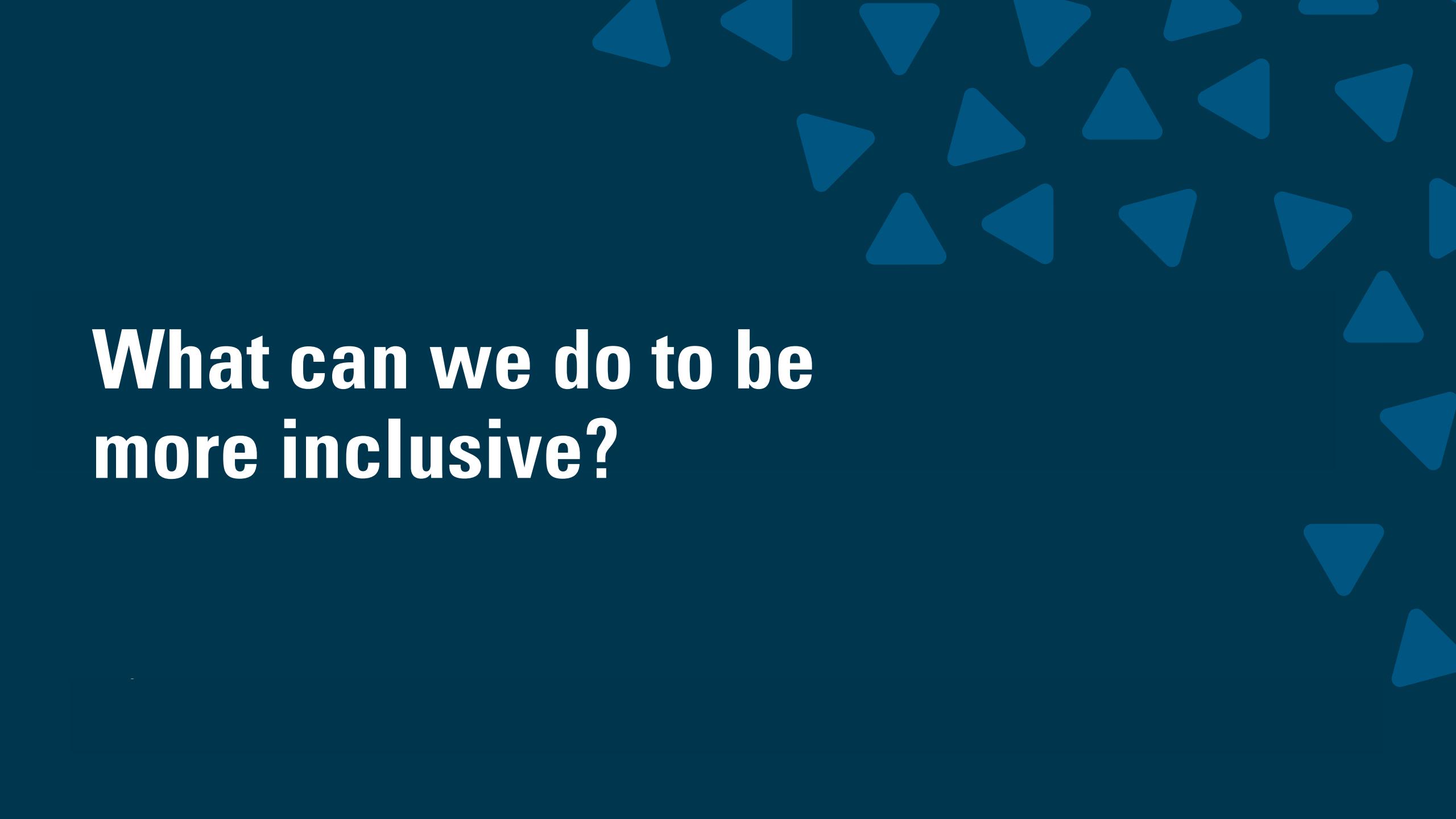
WE BELIEVE THAT
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WE CREATE THE SOFTWARE WHICH MAKES THAT POSSIBLE

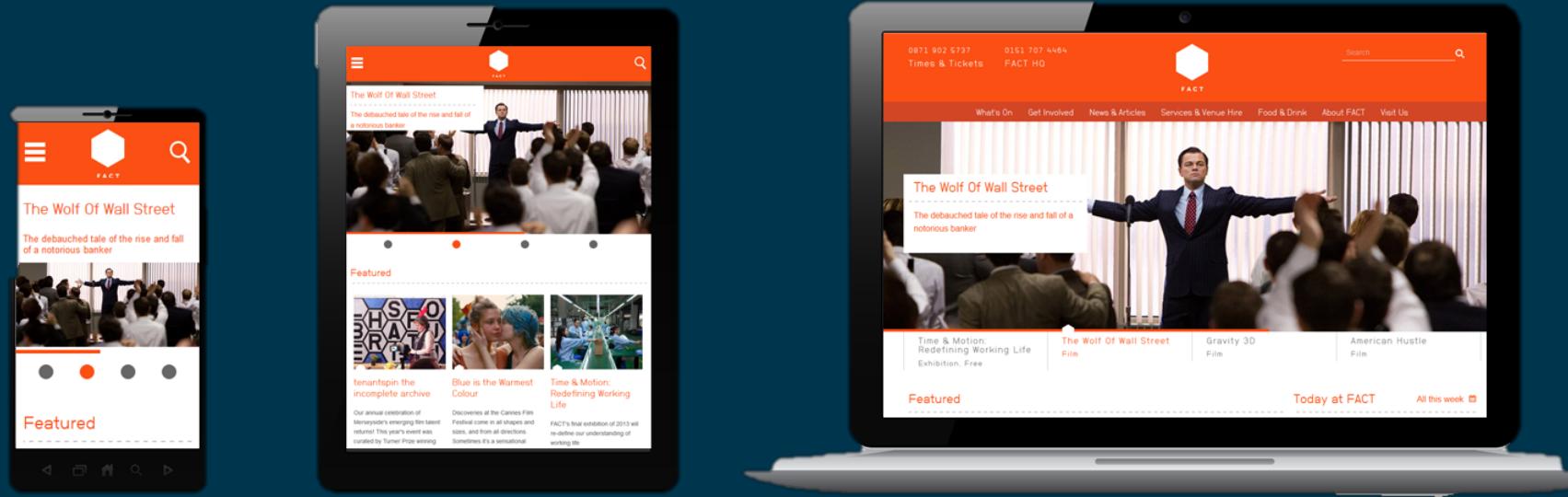
Your turn

- How to browse using NVDA
- Browsing BBC Sport
 - What time is today's Arsenal game?
- Try one of your sites (or a personal favourite) and a typical task?
- What did you find?

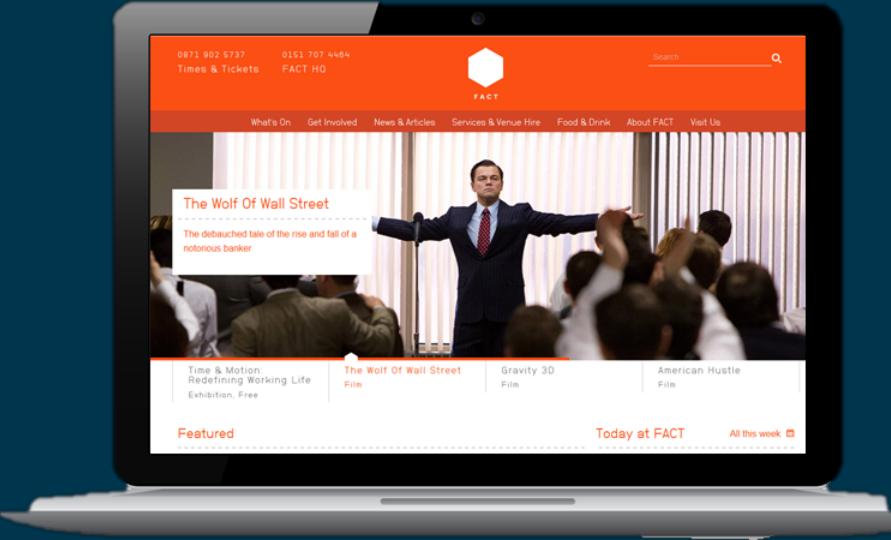
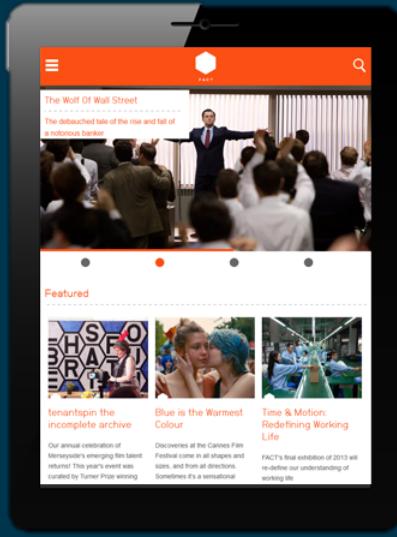
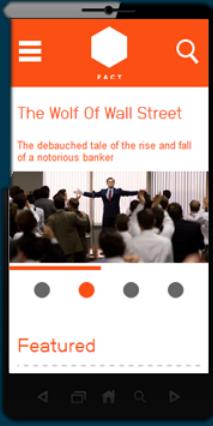




**What can we do to be
more inclusive?**



Often when we think about different devices, we think about the screen-size first



Voice



Touch
& gestures



Input
devices



Pointing
devices

**But the ways in which we interact can be
very different**

Design for comfort



iPhone 4

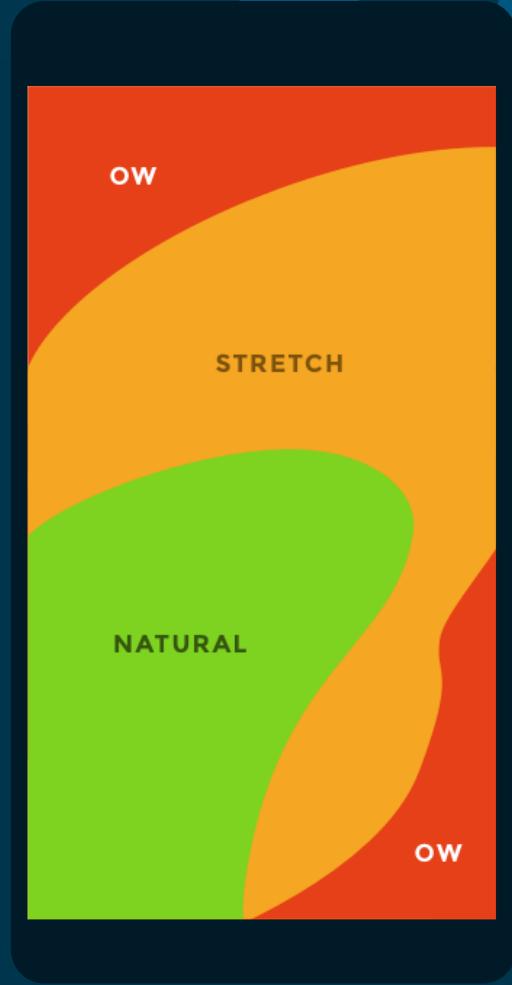
Design for comfort



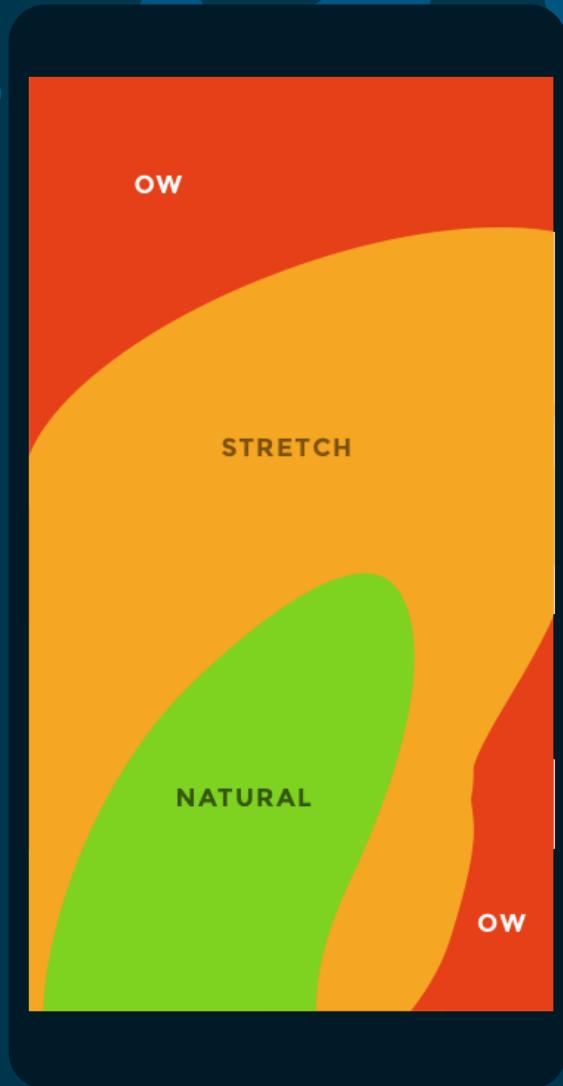
iPhone 4



iPhone 5

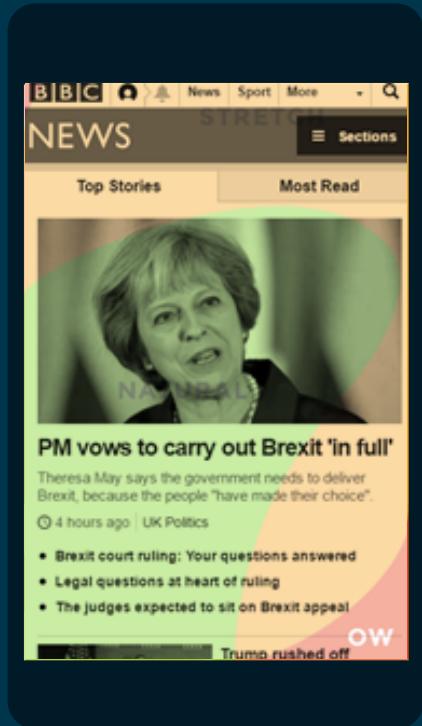


iPhone 6



iPhone 6+

Design for comfort



iPhone 4



iPhone 5



iPhone 6

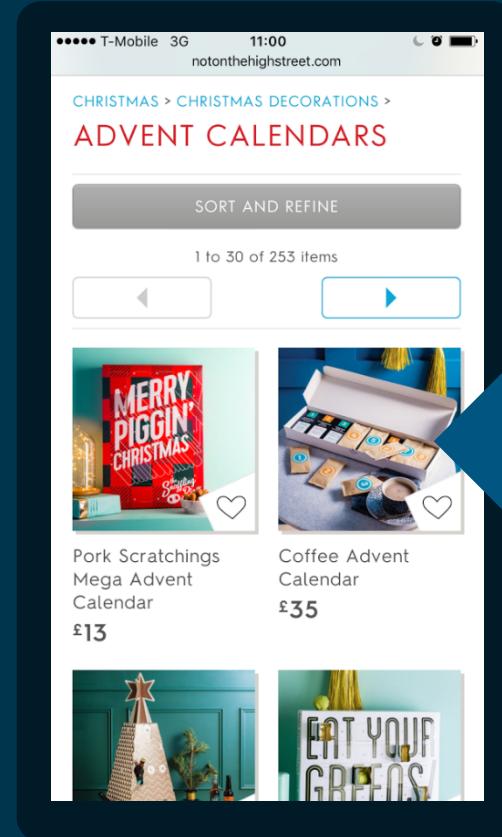
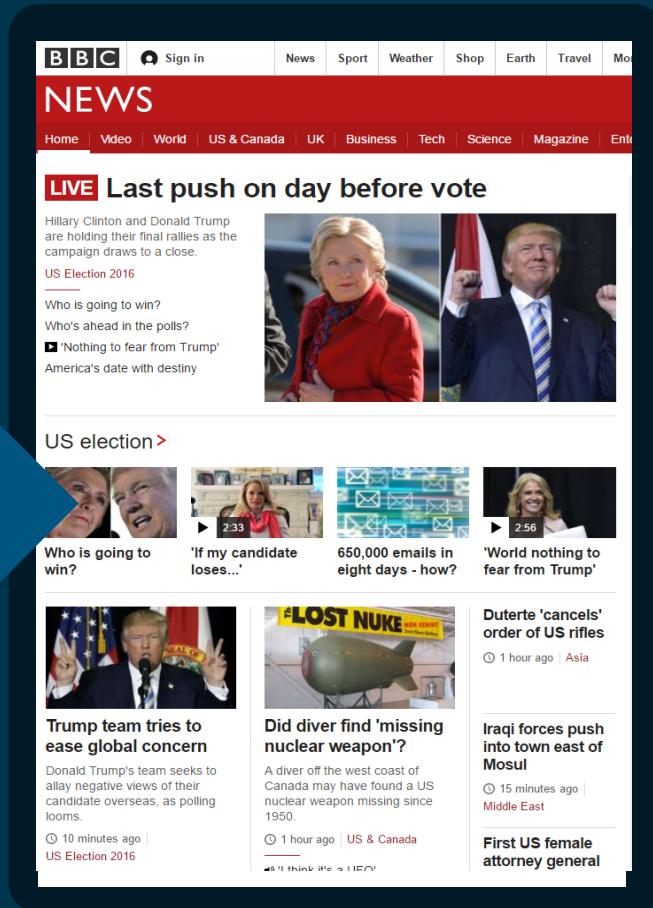


iPhone 6+

Navigation
systems on
larger screens
can be
uncomfortable
to use

Design hit areas to be easy to click or tap

Provide
3-5mm
inactive space
around
elements



Standard
touch size of
7-10mm

Help users fix errors

Show

What the error is
Where the error is
How to fix it

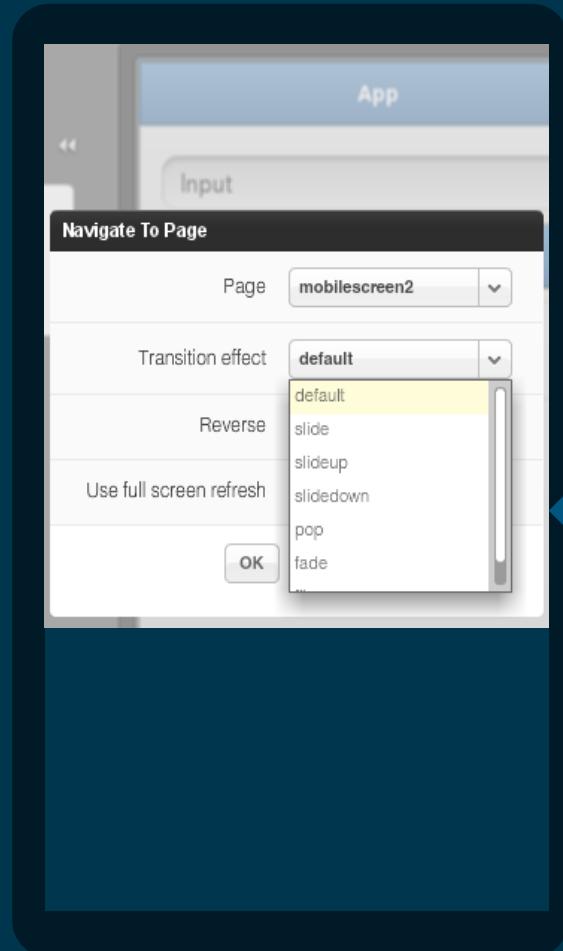
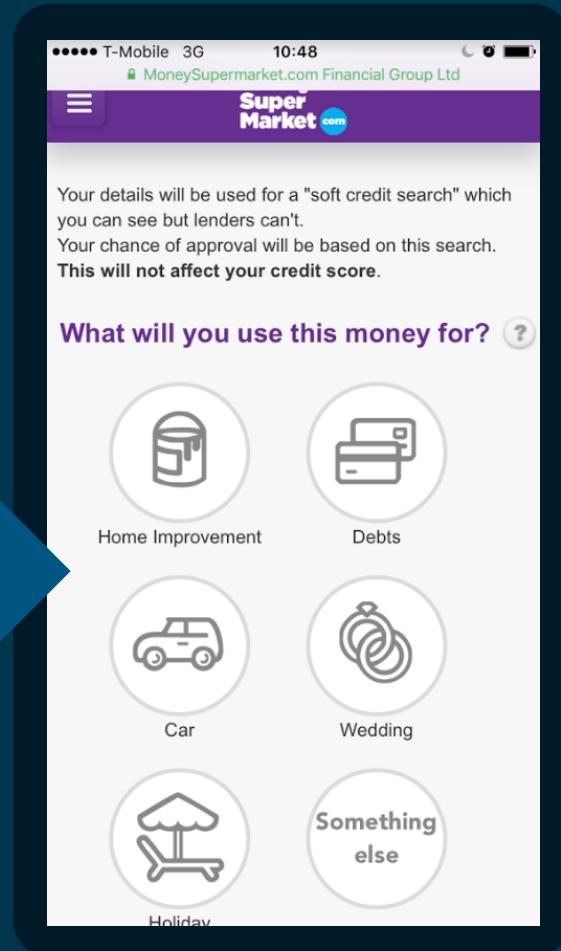
The screenshot displays three main sections of the Ryanair website:

- Top Left:** "Already have myRyanair account?" with a "Log in" button. Below it, three yellow checkmarks indicate benefits: "Check out quickly", "Access your saved passengers", and "Save time".
- Middle Left:** "Passenger details" section for "Adult 1". It includes fields for "Title" (dropdown menu), "First name" (e.g. John), and "First surname" (e.g. Smith). Error messages are shown below each field: "Please choose a title", "Please enter a first name", and "Please enter a last name".
- Right:** "Price breakdown" section showing flight details and costs:

Flights	
London Stansted to Bologna	
Sat 10th Dec 08:10 - 11:15 FR 194	
1 x Adult fare	\$ 140.85
1 x 1st checked bag	\$ 0.00
1 x Free Priority Boarding	\$ 0.00
Fare discount	-\$ 7.99
<hr/>	
Bologna to London Stansted	
Sat 17th Dec 06:20 - 07:40 FR 195	
1 x Adult fare	\$ 71.04
1 x 1st checked bag	\$ 0.00
1 x Free Priority Boarding	\$ 0.00
<hr/>	
Seats	
2 x Reserved seats	\$ 0.00
<hr/>	
+ Redeem a voucher / reward	
Total to pay	\$ 203.90

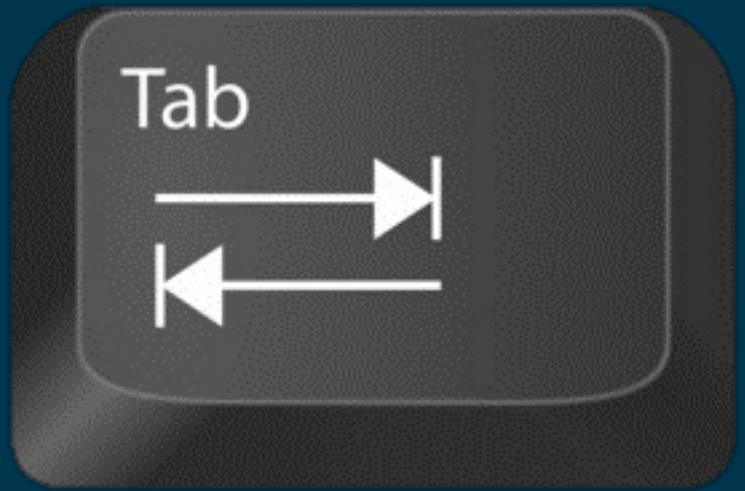
Think carefully before using custom controls

Custom
controls can
be very
empowering



or very
prohibitive

Design for the full spectrum of your users



Can you find any black holes?

Frequently Asked Questions

What do I need to hire a car?
To book your car, all you need is a credit or debit card. When you pick the car up, you'll need:

- Your voucher / eVoucher, to show that you've paid for the car.
- The main driver's credit / debit card, with enough available funds for the car's deposit.
- Each driver's full, valid driving licence, which they've held for at least 12 months (often 24).
- Your passport and any other ID the car hire company needs to see.

Different car hire companies have different requirements, so please make sure you check the car's terms and conditions as well.

How old do I have to be to rent a car?
For most car hire companies, the age requirement is between 21 and 70 years old. If you're under 25 or over...
+

Can I book a hire car for someone else?
Yes, as long as they meet these requirements. Just fill in their details while you're making the reservation.
+

How do I find the cheapest car hire deal?
We work with all the major international car hire brands (and lots of smaller local companies) to bring you a h...
+

What should I look for when I'm choosing a car?
Space: You'll enjoy your rental far more if you choose a car with plenty of room for your passengers and lugg...
+

Are all fees included in the rental price?
The vast majority of our rentals include Theft Protection, Collision Damage Waiver (CDW), local taxes, airpor...
+

Any questions? Just visit our [Help page](#) or [Contact Us](#)

Content can
be hidden if
you do not
use A tags for
actions

Search for Car Hire

Where to go?

When?

Where can I return the vehicle?

Drop-off Date:

Driver aged between 21 - 60?

Deposit of metal (optional): Business Leisure
 No credit card fee No minimum fare All drivers
 Petrol Diesel Electric

You can book by phone

We are rated 8.0 out of 10 on [TRUSTPilot](#) based on 53,086 reviews.
Booker review: "Driver with good service" 
by M. Humphreys

Manage your booking online

Cancel or amend your car or dates online quickly and easily.

Rated by more than 2.7 million people

Ask each of our customers to rate the company that provided their car. Once the scores are in, we reveal the right choice.

Our most popular destinations

LONDON  "Great service experience!"

MALAGA  "Great place to stay"

DUBLIN  "Great experience"

MANCHESTER  "Great service and a nice price"

EDINBURGH  "Great service experience!"

ORLANDO  "Great service and a nice price"

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Any questions? Just visit our [Help page](#) or [Contact Us](#)

Related Searches

Car hire | [F 8.8 Esther Car Hire](#) | Popular Destinations

Car hire | [Popular Destinations](#) | Car Companies

2.7 million reviews - and counting

A big thank you to everyone who's sent us their feedback! With so many reviews on our site, it's easy for you to choose the right car from the right car hire company. We know that the best reviews come from our customers - so we invite you to leave us a review to help other renters make better choices - we can make our service better!

I want to pick my car up quickly.
Under normal circumstances, you can pick up a car earlier than the time you booked it. Just let us know when you're planning to collect the car and we'll do our best to accommodate you. It's known pick-up speed matters. That's why it's important to let us know when you're planning to collect the car. Just click on the number to see where all you can expect at the counter.

I want friendly staff at the counter!
Friendly, helpful, professional - most of our customers would agree that our staff are some of the friendliest and most helpful in the industry. Just let us know what you're looking for and we'll do our best to make sure you get it.

I want to know exactly what I'm getting.
We know how important it is to tell you exactly what you're getting when you book with us. That's why we provide clear and detailed information about the car you've chosen - so you can make an informed decision.

Rentalcars.com

Arranging car hire in 103 countries and 40 languages. Rentalcars.com is the world's biggest online car rental service. We're leading the way with great prices, great cars, great service and great people. We offer great prices on car groups, including our cars, people carriers, minivans and automatic cars. With a multilingual call center, we're here to help you get the best car hire prices whenever you want - whenever you go.

World's biggest online car rental service

Where will your car take you?
45,000 locations
1.6 million bookings a year
2.7 million customer ratings

Don't force users to remember things they don't need to

The screenshot shows the flybe website interface. At the top, there is a navigation bar with links for 'Plan my trip', 'Travel information', 'Check-in', 'Manage my booking' (which is highlighted in orange), and 'My account'. On the far right of the top bar are 'LOG OUT' and 'Logged in as: Mr Christopher Bush. (log out)' buttons. Below the navigation bar is a sidebar with a 'Menu' section containing links to 'Account home', 'My unflown bookings', 'My account details', 'My payment cards', 'View a confirmation/receipt', 'Avios', 'About Avios', 'Claim Avios', 'Avios FAQs', 'Avios Terms & Conditions', and 'Log out'. The main content area is titled 'My live flights'. It contains a message stating: 'Below is a summary of your Flybe bookings that are currently unflown. To amend your booking or select additional services, simply click on one of the links below. Please note that only the most recent live flights associated with this account may be shown below.' Below this message is a table with the following data:

Booking date	Reference	Route	Flight date	Seats	Baggage	Itinerary	Check in
26/02/19	B2QL0F	Manchester to Edinburgh	06/03/19	Book seats	Book bags	Change	Options

Retrieve Booking Confirmation

Enter Search Details

Please enter your Booking Reference and search details to retrieve your booking confirmation.

Please note, this service is only available to bookings made through this web site.

Booking Reference
Booker's surname
Booker's forename

CONTINUE

Flybe asks you to enter details the system already knows about you (when logged in)

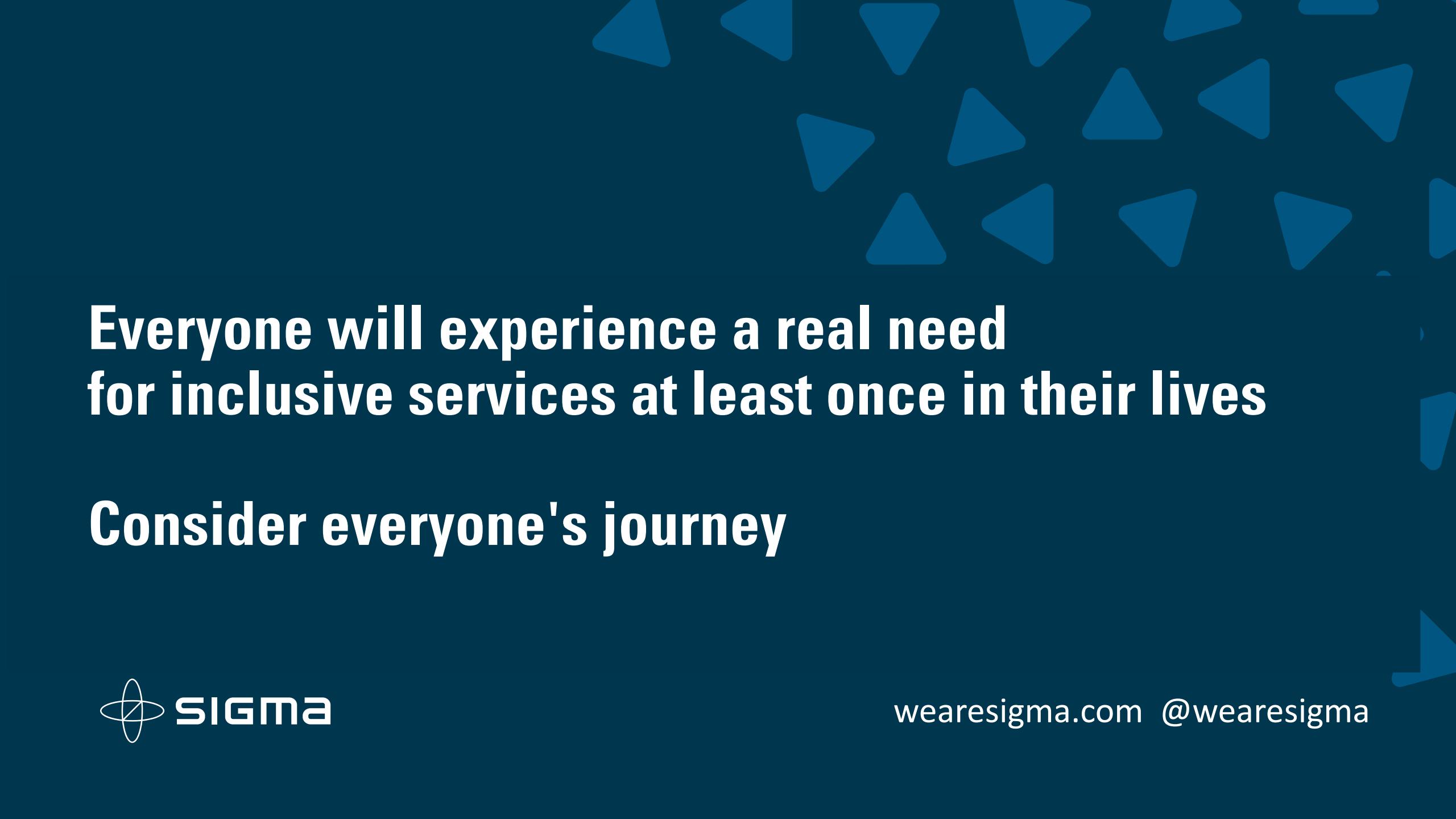
Sometimes people want or need a human

Being a digital service doesn't mean you should make it harder for people to engage with a real person. When we run inclusive usability sessions we frequently hear requests for systems to include chat interfaces along with other contact methods (email, phone, etc).

Chat interfaces often provide a valuable way for users who can't use, or dislike using a phone to get essential support



**Run mixed ability usability sessions
for greater depth and alignment of insights**



**Everyone will experience a real need
for inclusive services at least once in their lives**

Consider everyone's journey



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Thank you. Questions?

For copies of the slides, handouts, and a set of useful resources
(or if you want help or have more questions)

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