How can you Measure Accessibility **Impact** at Scale?

Ab11y

Gareth Ford Williams
Head of Accessibility at the
BBC for 17 years
ADHD & Dyslexic…

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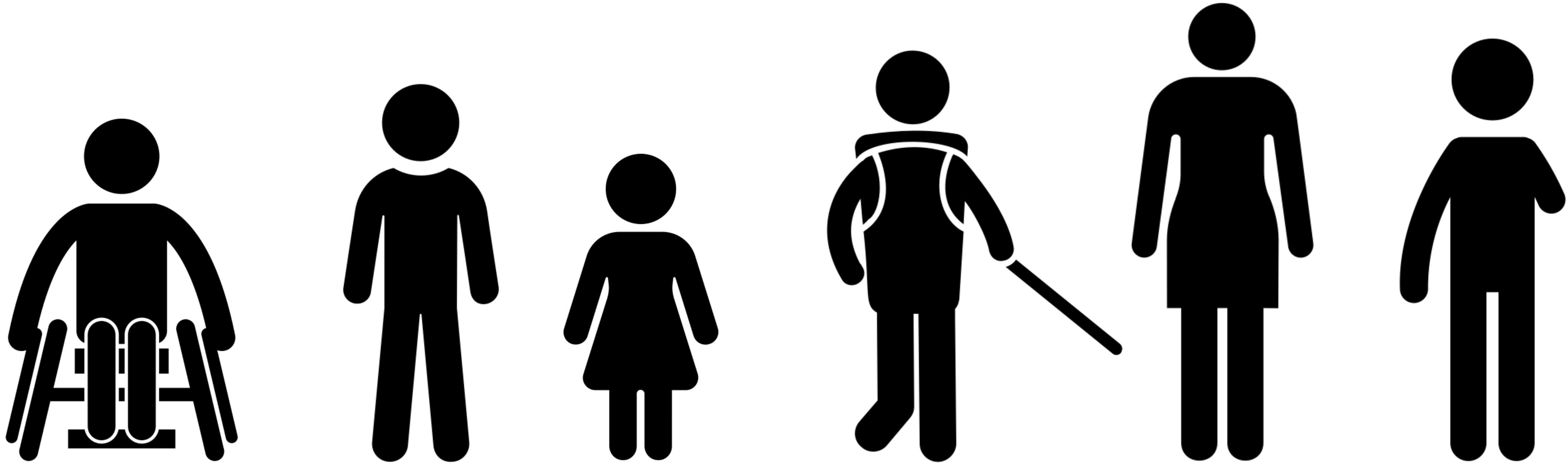
V1.1 of this talk

~~Legal~~ ~~Experience Design~~
Human Experience Design

"Accessibility benefits everyone"

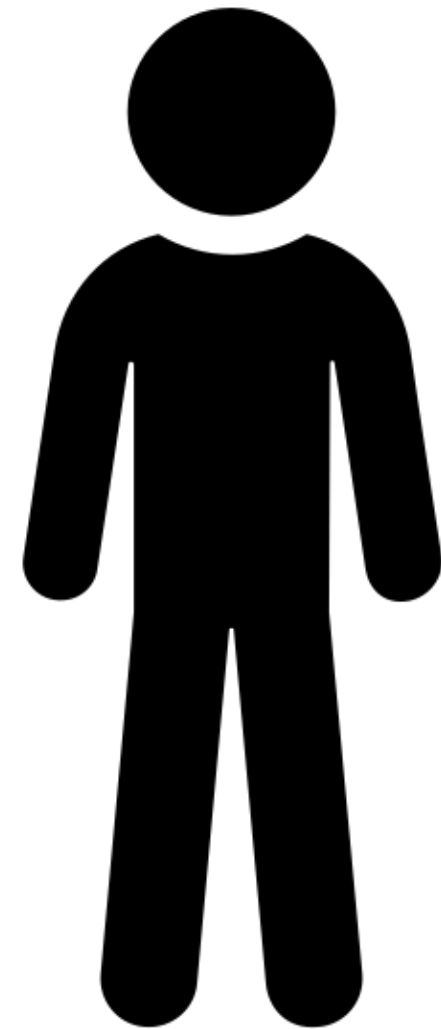# WCAG?

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WCAG compliance is <u>not</u> UX data.

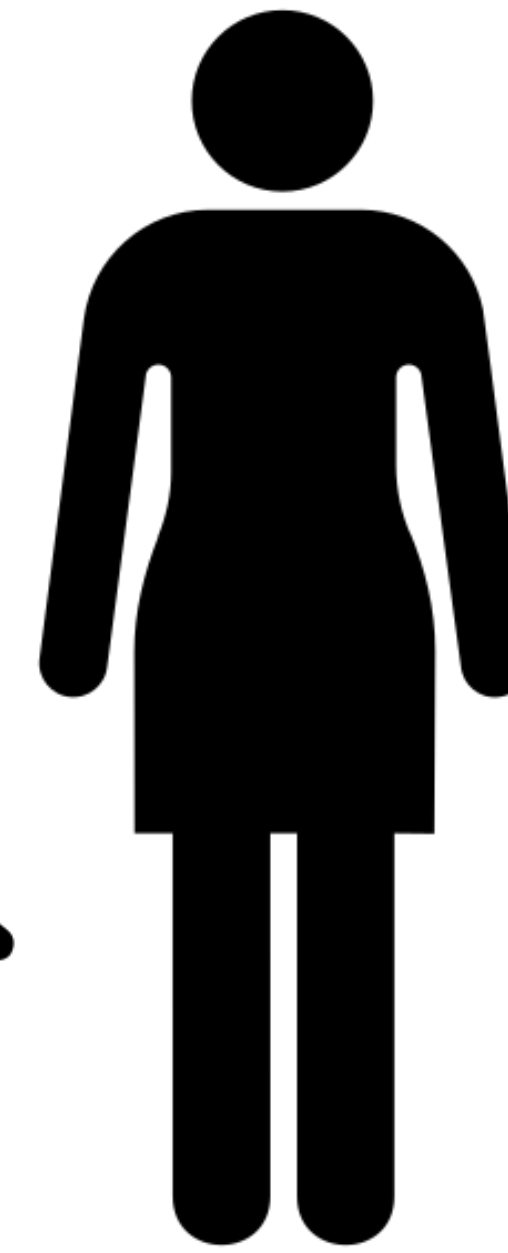Ab11y

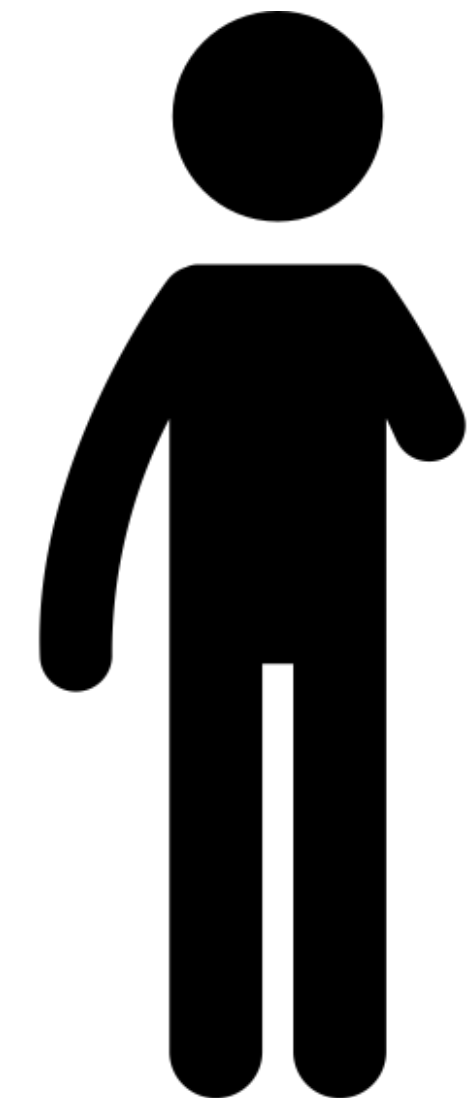# How long should it take to book a taxi?

5 mins

12 mins

4 mins

11 mins

9 mins

20 mins

And what about the other 20 systems they use every day?

Do they take shorter or fewer brakes?
Should they work longer hours?
Should they be less productive?

Who?

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There are **15%**, **20%** or **30%**+ "disabled" people…

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General Population

35 to 45%?
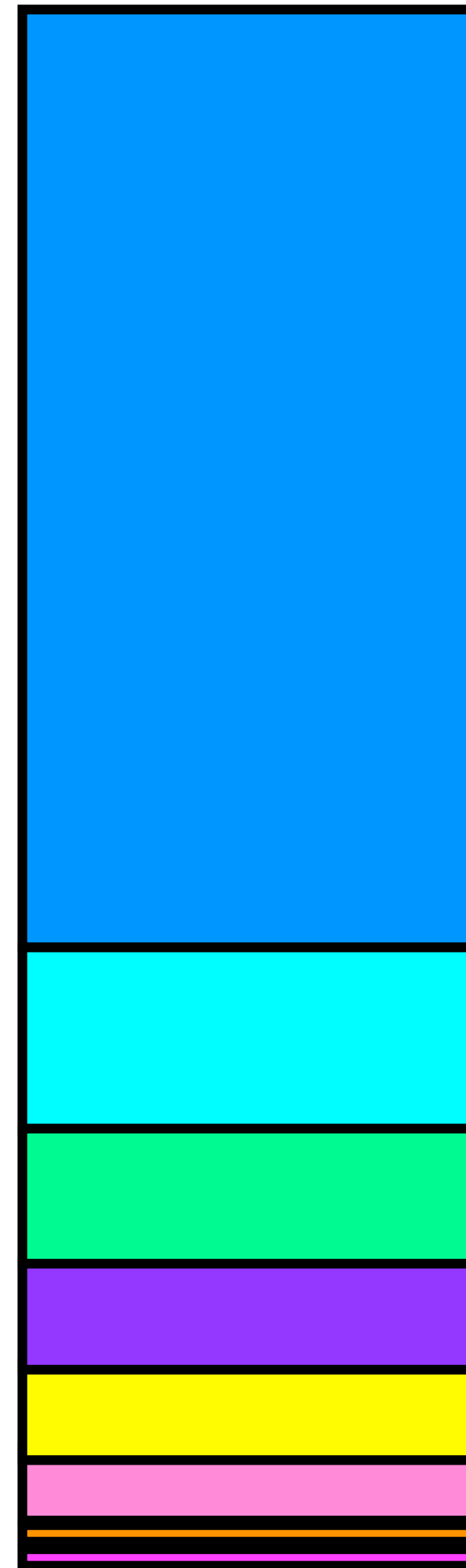
Other Cognitive & Learning 15+%

Severely Hearing Impaired 12+%

Upper Body Motor 8%

ASC & Severe Learning 5%

Severely Vision Impaired 4%

Blind   <1%

Deaf <0.5%

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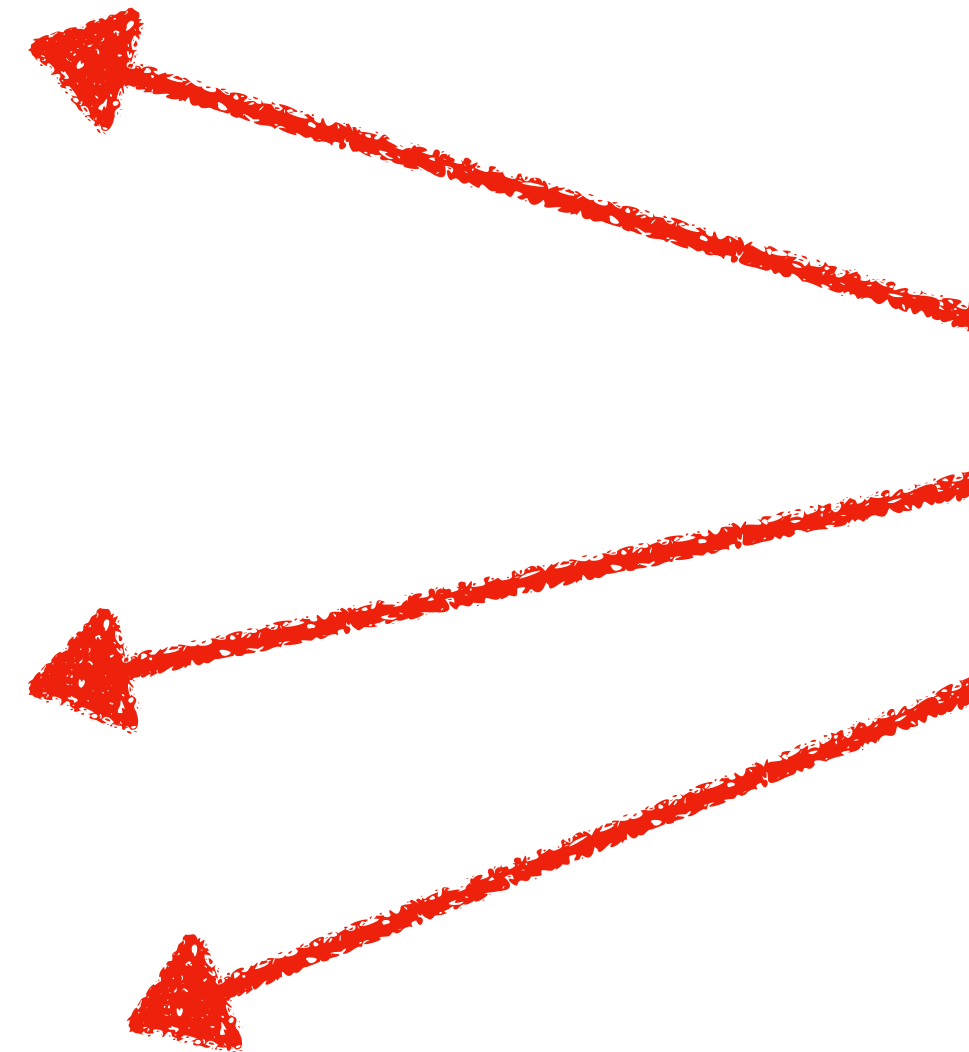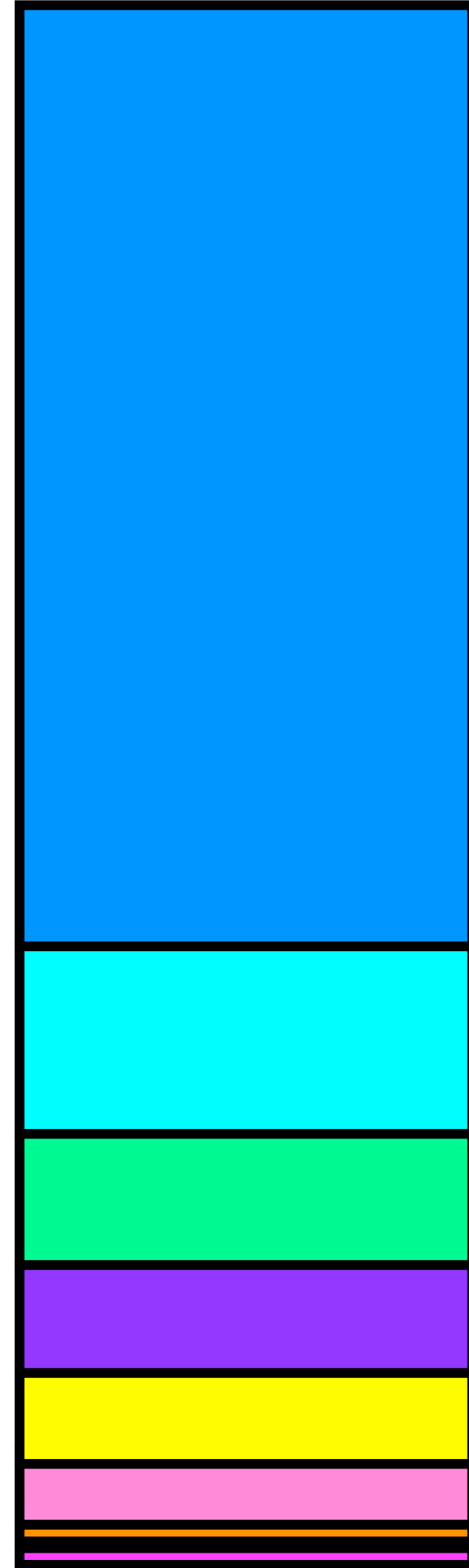
Not everyone identifies as disabled and some people do not recognise they have a disability or want to declare they have a disability

Demographics are <u>not</u> lived experiences

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"If you've met one autistic person, congratulations you've met one autistic person"

Jamie Knight, BBC

qualitative

quantitative

Ab11y
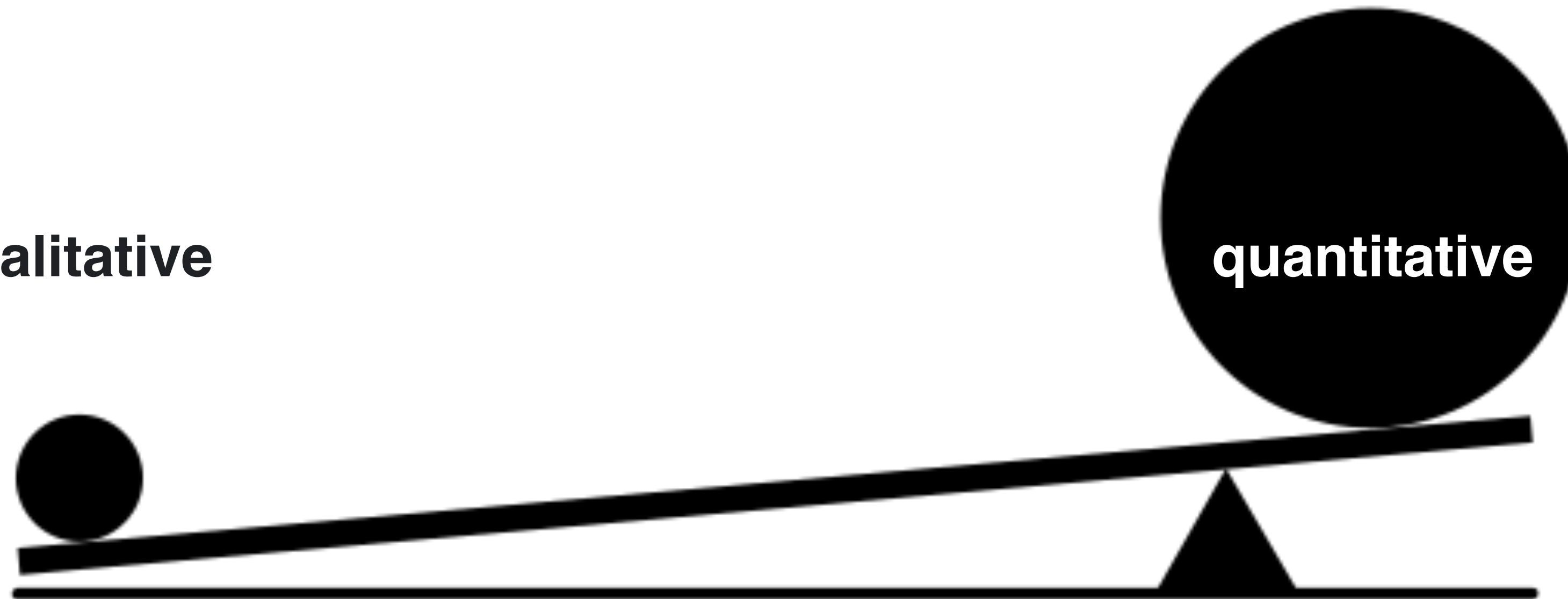
Qualitative research gives you the time to do due diligence, ask questions as part of the UX Design process, because the numbers of participants is relatively small

Qualitative research cannot help evaluate a design because you can never get a statistically significant sample for each disability group.

Quantitative research can and should be used for evaluation however…
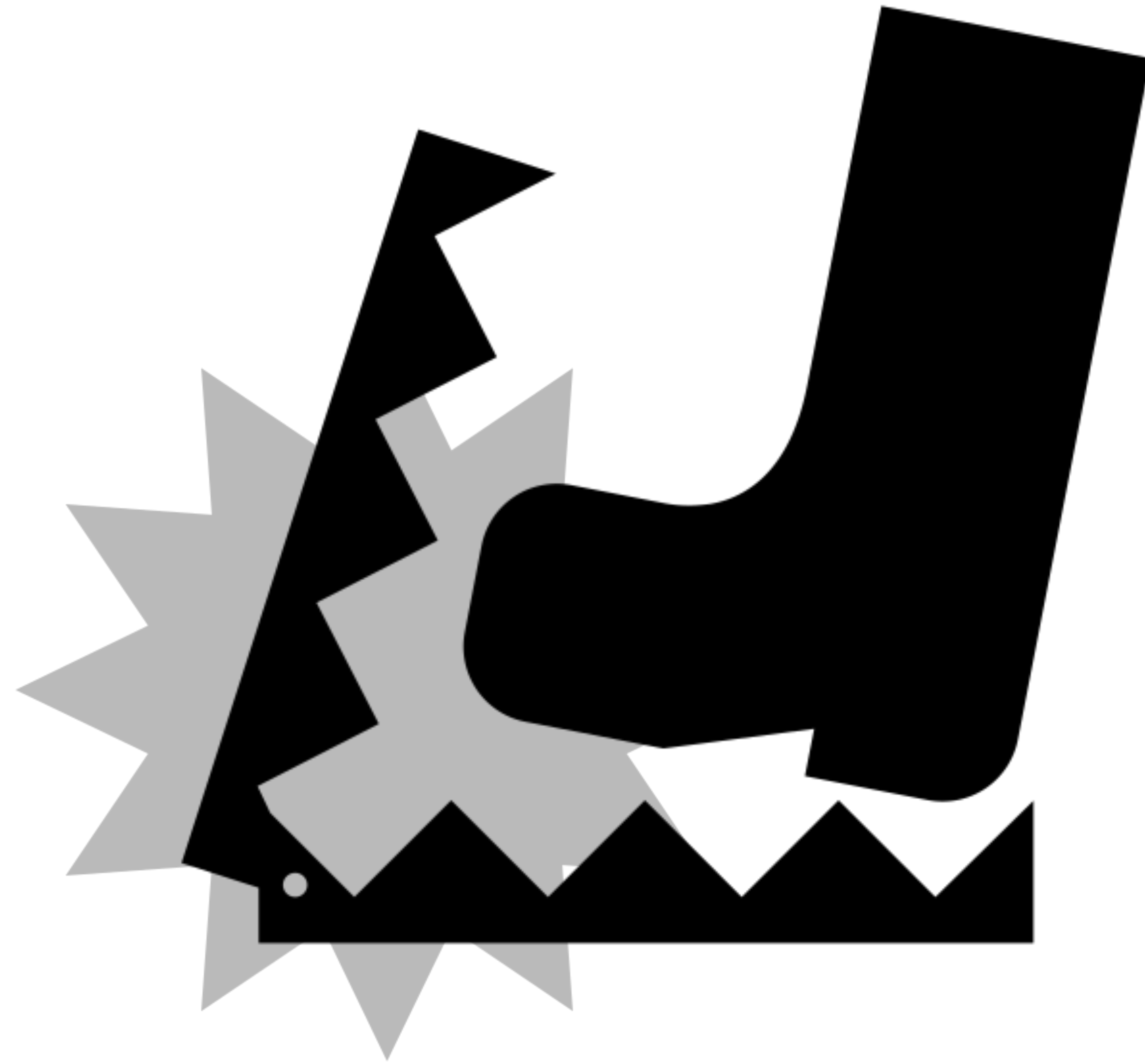
Demographics
Medical Data

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Social or Medical Model of Disability?

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Impairment + Environment = **Disability**

No-one is disabled until someone designs something that does not consider their **needs**

"Indifference towards people and the reality in which they live is actually the one and only cardinal sin in design"

Dieter Rams

Human Experience Design

abcdefghijklmnop
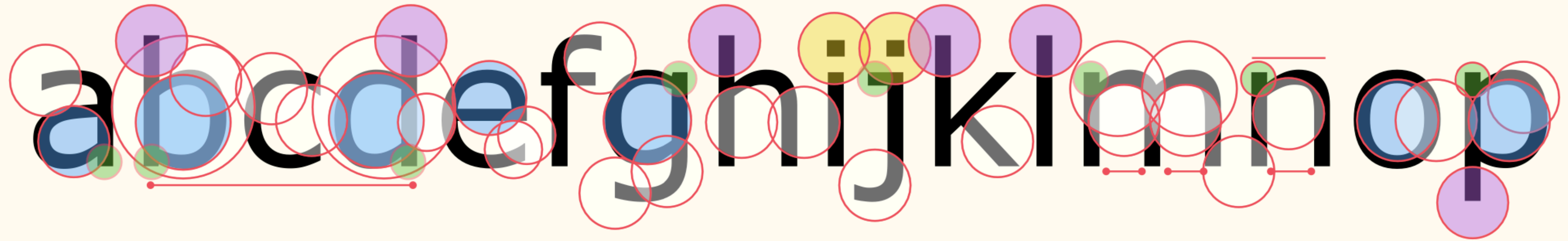
What is an acceptable degree of inaccuracy?

Readability Group **Algorithms**

Needs
Vision Impairment
Dyslexia (Phonology)
Mainstream Readers
Contrast Processing

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Poor near vision

strong
18.4%

moderate
11.7%

mild
16.1%

no
53.8%
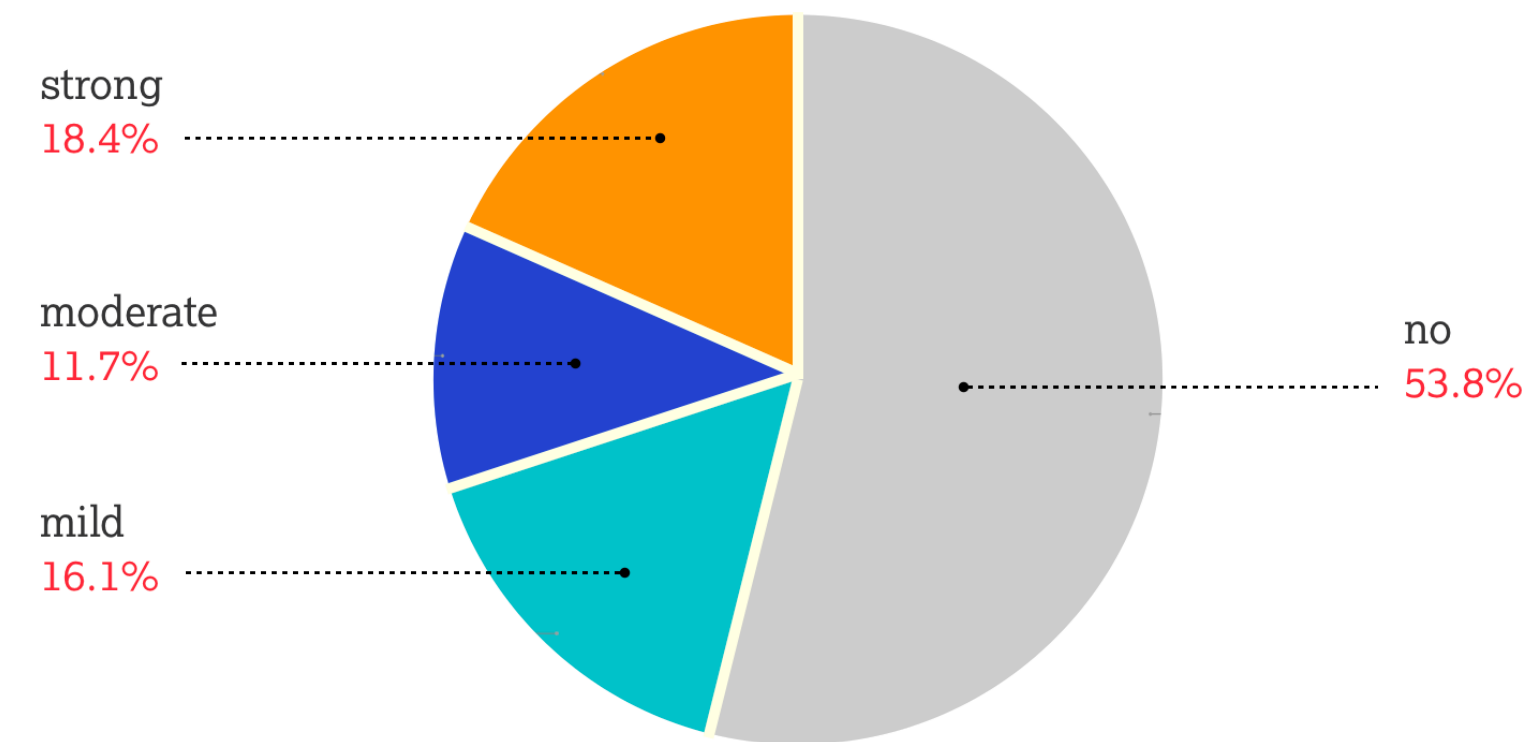
Key stats

2022 user sessions
Estimated at around 7,000 hours

Every font viewed an equal amount
16,800 times

337,350 data points collected
Platform
User characteristics
Font features
Letter combinations

Phonological Dyslexia characteristics

strong
12.5%

moderate
8.7%

mild
13.7%

no
65.0%
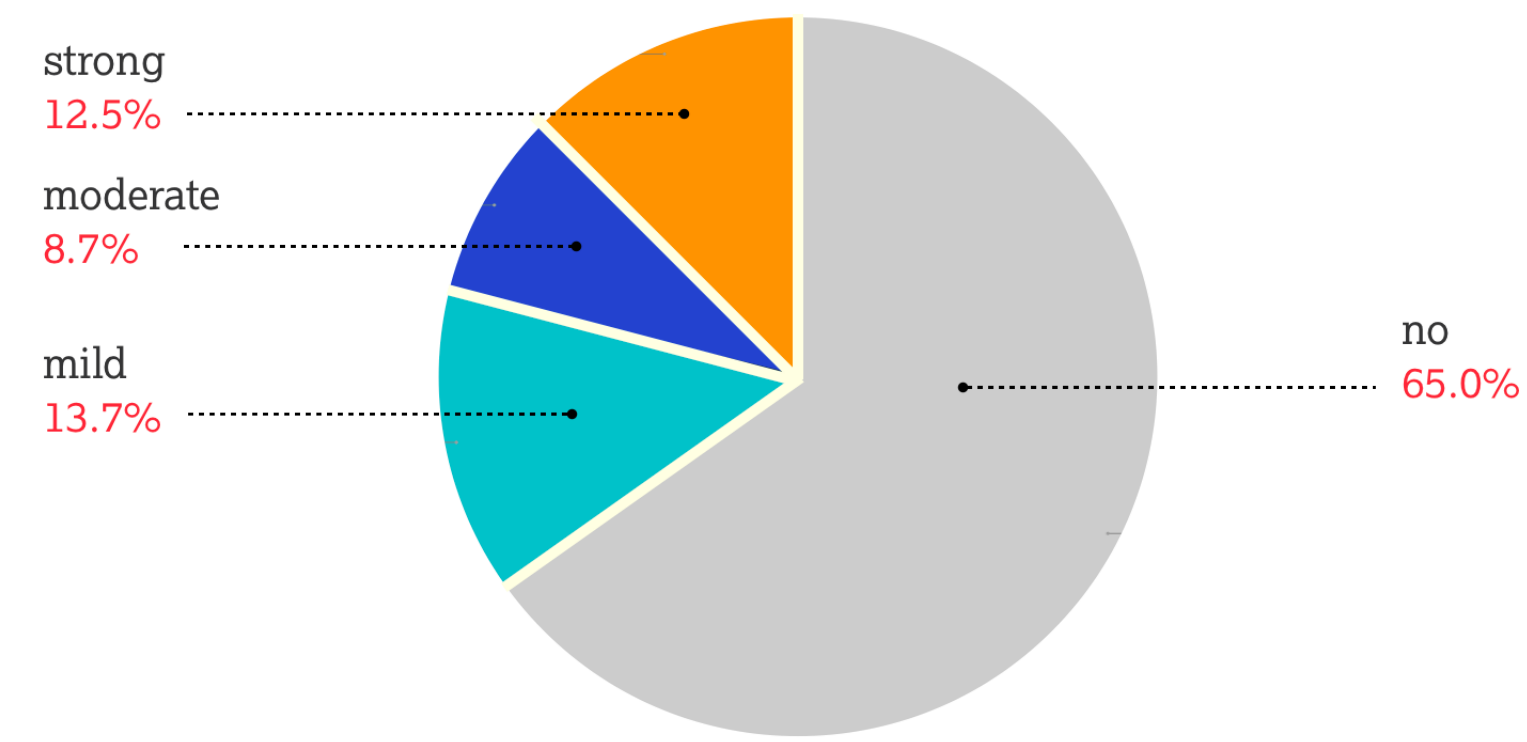
Font selection rate: **Dyslexic traits – No/Strong**

No dyslexic
Strong dyslexic

Font	No dyslexic	Strong dyslexic
Open Dyslexic	0.09	0.18
Dyslexie	0.19	0.3
Comic Sans MS	0.20	0.28
Sylexiad Sans	0.33	0.37
Lexie Readable	0.44	0.36
Times New Roman	0.46	
Roboto Slab	0.50	0.47
Ubuntu	0.50	0.54
Lexend Deca	0.52	0.62
BBC Reith Serif	0.56	0.64
Helvetica	0.47	0.57
Calibri	0.58	0.55
FS ME	0.59	0.56
Red Hat Text	0.62	0.6
Atkinson Hyperlegible	0.63	0.6
BBC Reith Sans	0.64	0.65
Roboto	0.57	0.64
Verdana	0.64	
Segoe UI	0.62	0.67
SF Pro	0.65	0.70

0.00   0.25   0.50   0.75   1.00

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Demographics > Needs and Preferences

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Language A11y

Dyslexia
Learning Disability
Low Literacy
Age Related Cognition
Second Language

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≈33%

Intersectional Need - Language A11y

Second Language 1.6%

Lower Literacy 16.5%

Dyslexia 10%

Cognitive & Learning 5%

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Need - Closed Captions

26%?

Second Language (UK) 1.6%

Other Cognitive & Learning 15%

Hearing Impaired 4%

Cognitive & Learning 5%

Deaf or deaf <0.5%
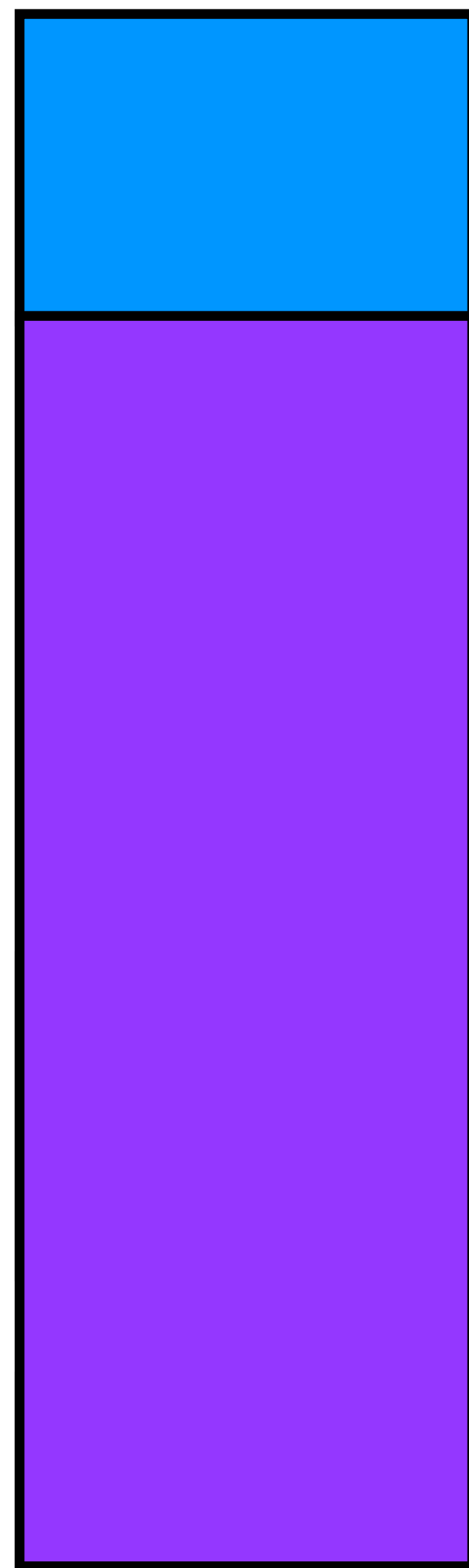
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Data Collection

100 Offered and Gathered User Data Points
(20 Needs Group Algorithms)
Platform Data
+UX Study

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Needs and Preferences

1. Preferred Modalities (x2)
2. UX Needs Groups (x5)
3. Preferences (x6)
4. Neurodivergent Intersections (6)
5. Standard Behaviour

strong
18.4%

moderate
11.7%

mild
16.1%

no
53.8%

Percentage Responses by A11y Profile Grouping

Profile	Value
visual_modality	0.84
caption_user	0.72
cognitive_language	0.70
cognitiveload_a11y	0.70
language_a11y	0.63
cognitive_customiseviz	0.60
customised_visuals	0.58
highviz_a11y	0.58
standard_issue	0.53
visual_colour	0.49
cognitive_colour	0.47
language_colour	0.47
colour_a11y	0.40
larger_font	0.40
impairedvision_a11y	0.37
cognitive_audio	0.14
language_audio	0.12
control_a11y	0.09
spoken_text	0.07
software_control	0.05
audio_modality	0.02

UX Preferences and Needs of Participants

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UX Feedback

Platform

Needs and Preferences

Contextual

	layout_easy	content_accessi	function_unexp	use_una ble	time_lo nger	tech_co mpatibl	os	type	browser	audio_ modalit	caption _user	cognitiv e_audio	cognitiv e_colou	cognitiv e_custo	cognitiv e_langu	cognitiv eload_a	colour_ a11y	control _a11y	customi sed_vis	highviz_ a11y	impaire dvision	languag e_a11y	languag e_audio	languag e_colou	larger_f ont	softwar e_contr	spoken _text
submit_date																											
2/25/22	1	1	0	0	0	1	Mac	desktop	Chrome	0	1	0	1	1	1	1	1	1	1	0	1	1	0	1	1	1	0
2/7/22	1	1	0	1	0	1	Windows	desktop	Microsoft Edge	0	1	0	0	1	1	0	0	0	1	1	0	1	0	0	0	0	0
2/7/22	1	1	1	0	0	1	Mac	desktop	Chrome	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
2/9/22	1	1	0	0	1	1	Mac	desktop	Chrome	0	1	0	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1
2/10/22	1	1	0	1	0	1	Mac	desktop	Chrome	0	0	0	1	1	1	1	0	1	1	1	0	1	0	1	0	0	0
2/10/22	1	1	1	0	0	1	Windows	desktop	Microsoft Edge	0	1	0	1	1	1	1	0	1	1	1	0	1	0	0	0	0	0
	1	1	0	0	0	1	Windows	desktop	Chrome	0	1	0	0	1	1	1	1	1	1	1	0	1	0	0	0	0	0
	1	1	0	0	0	1	Mac	desktop	Chrome	0	1	0	0	1	1	1	0	1	1	1	0	1	0	0	0	0	0
	1	1	0	0	0	1	Windows	desktop	Chrome	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
						1	Android	smartphone	Chrome Mobile	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2/11/22	1	1	0	0	0	1	Mac	desktop	Safari	0	0	0	1	1	1	1	1	0	1	1	0	1	0	0	0	0	0
2/11/22	1	1	0	0	0	1	Mac	desktop	Chrome	0	1	0	0	0	1	1	0	1	0	1	0	0	0	0	0	0	0
2/11/22	1	1	1	0	0	1	M			0	1	0	1	1	1	1	0	1	1	1	0	1	0	0	0	0	0
2/11/22	1	1	0	0	0	1	A			0	1	0	1	1	1	1	0	1	0	1	0	1	0	0	0	0	0
2/11/22	1	1	1	1	1	0	A			0	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	0
2/11/22	1	1	0	1	0	1	M			0	1	0	1	1	1	1	0	1	1	1	0	1	0	1	0	0	1
2/11/22	1	1	0	0	0	1	Mac	desktop	Firefox	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
2/12/22	0	1	1	0	0	1	Mac	desktop	Chrome	0	1	0	0	1	1	0	0	0	1	1	0	1	0	0	0	0	0
2/12/22	1	1	1	0	0	1	Android	smartphone	Chrome Mobile	0	0	0	0	1	1	1	0	1	1	1	0	1	0	0	0	0	0
2/13/22	1	1	1	1	1	1	Windows	desktop	Chrome	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
2/13/22	0	1	1	0	1	0	Windows	desktop	Chrome	0	1	0							1	1	1	1	0	1	1	1	1
2/14/22	1	1	0	0	0	1	Mac	desktop	Chrome	0	1								0	0	0	0	0	0	0	0	0
							Mac	desktop	Chrome	0	1								0	0	0	0	0	1	0	0	0
							Mac	desktop	Chrome	0	1								0	1	0	0	0	0	0	0	0
							Windows	desktop	Chrome	0	1								0	0	0	0	0	0	0	0	0
							Windows	desktop	Chrome	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0
							Mac	desktop	Firefox	0	0	0	1	1	1	1	0	1	0	1	0	1	0	1	0	0	0
							Mac	desktop	Chrome	0	1	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0
							iOS	smartphone	Mobile Safari	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
							Mac	desktop	Safari	0	1	0	1	1	1	1	0	1	1	1	1	1	0	1	1	1	0
							iOS	smartphone	Google Search	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0
							iOS	smartphone	Google Search	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0
							iOS	smartphone	Google Search	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
							Windows	desktop	Firefox	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
							Mac	desktop	Chrome	0	1	0	1	1	1	1	0	1	1	1	0	0	0	0	0	0	0
							Windows	desktop	Chrome	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
							Windows	desktop	Microsoft Edge	0	1	0	1	1	1	1	1	1	1	1	0	1	0	1	0	0	0
							Windows	desktop	Chrome	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0
							Windows	desktop	Chrome	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
							Windows	desktop	Chrome	0	1	1	1	1	1	1	0	1	1	1	0	1	1	1	0	0	0
							Windows	desktop	Chrome	0	1	1	1	1	1	1	0	1	1	1	0	1	1	1	0	0	0

Dropdown list:
- ✓ Web: Business or Marketing
- Web: Blog or Articles
- Web: E-Commerce
- Web: Enter...
- Web: Finan...
- Web: Gover...
- Web: Healthcare
- Web: Information
- Web: Jobs and Careers
- Web: Messaging and Communication
- Web: News, Sport or Magazine
- Web: Online Collaborative Space
- Web: Online Event or Conferencing
- Web: Online Gaming
- Web: Social Media or Community
- Web: Ticket Booking or Reservations
- Web: Training or Education
- Web: Video Streaming
- Web: Portal or Search
- Web: Other

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Data Security

Needs are not conditions and are intersectional.

Gathered data is anonymised.

Reports are aggregated.

+

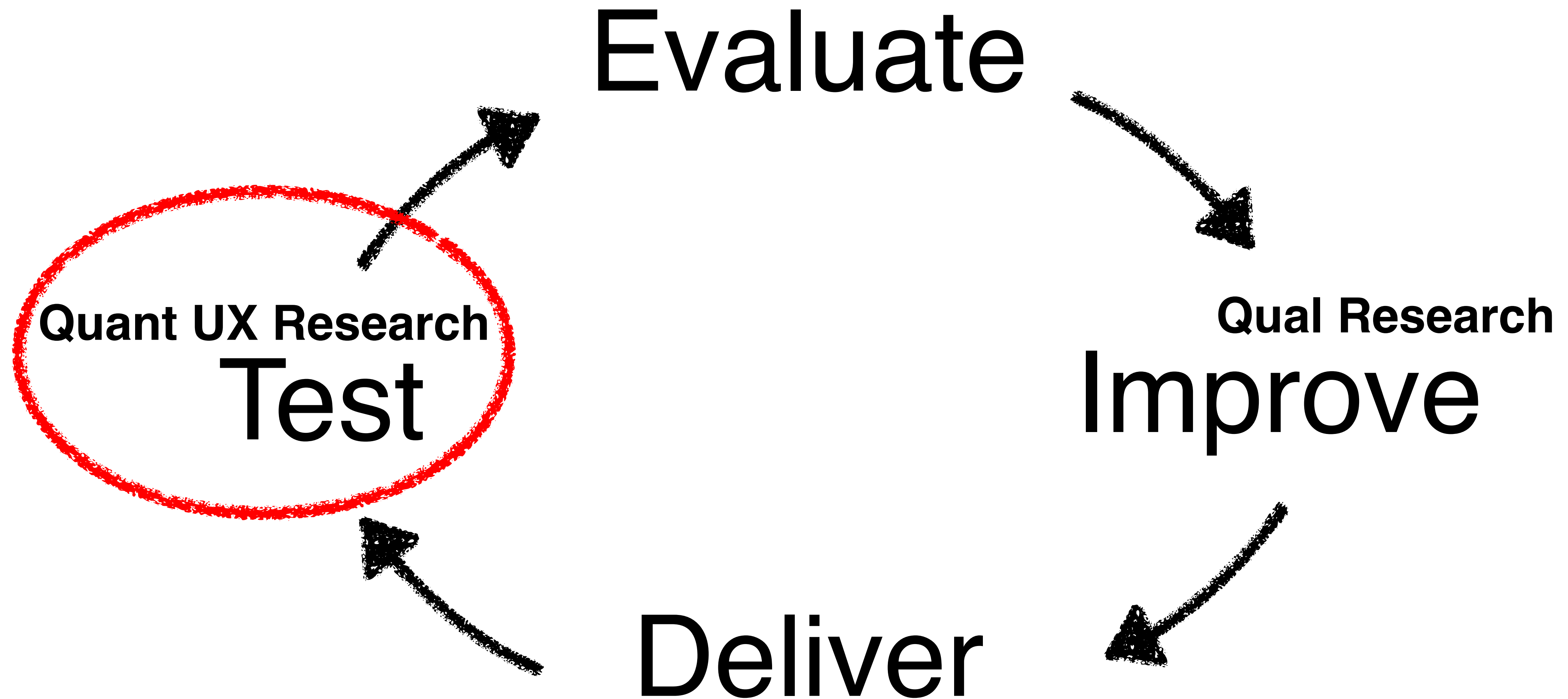*The site does not collect the data.*

The site identity is unknown to the data collector.

Small data samples are not reported…

What are the opportunities afforded by **inclusive design data?**

UX

Evaluate

Improve

Qual Research

Deliver

Quant UX Research
Test

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Multivariate Tests

Show the impact of different design decisions on different needs groups.

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Targeting Resources

By continuous monitoring as part of the release cycle the data can show if an issue has arisen, on what product, for which group of users and even what the nature of the barrier is in terms of user experience.

This means usability and accessibility testing can be focused on where they are needed most.

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Change Management

Running studies as part of the release cycle on individual products, it is possible to provide evidence to identify which teams are most in need of support and training.

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Inclusive Employment

Using this type of study on internal systems you can quickly identify which systems undermine your efforts to be an inclusive employer.

This can help increase productivity in an ethical way.

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Accessibility Impact

When tracked over time, the impact of an accessibility or inclusive design programme can be measured on an ongoing basis, based on customer or employee outcomes.

Accessibility Benefits Everyone!

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What's next?

Websites
Enterprise Systems
Mobile Applications
Games…

Ab1ly

What's next?

Talk to us!

Ab1ly

Ab11y

Thank you
@garethfw

Illustrations by
The Noun Project and Hasbro