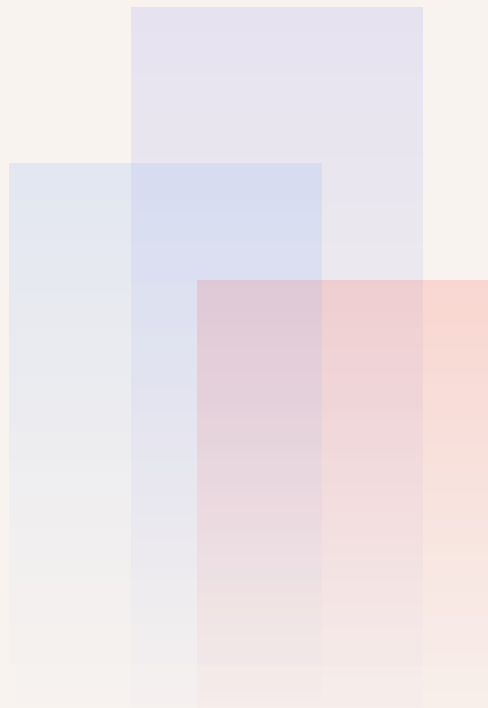






Web Accessibility Fundamentals

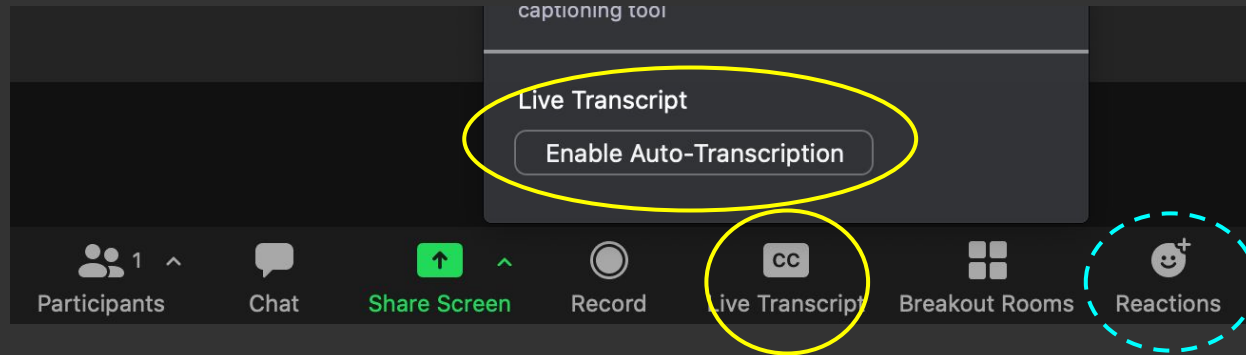
*The web is awesome and everyone
should be able to enjoy it.*



Workshop culture

-  Keep your camera on, if possible.
-  Keep your speaker muted when you aren't talking.
-  Feel free to ask questions at any time.
 - Unmute yourself or use the chat.
-  **Be kind and help each other**

Zoom quick tips



You can activate
auto captions!

And express
yourself on the fly!

Sandrina Pereira

I'm a Frontend Engineer who helps to turn ideas into accessible experiences



FARFETCH

[//sandrina-p.net](https://sandrina-p.net)



Who are you?



Name



Country



Biggest A11Y struggle in your project

Workshop Outline

#0 Web accessibility overview

A 15 minutes intro. Let's explore myths and WCAG principles.

#1 -

-

#2 -

-

#3 -

-

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#1 Accessible by default

Appearance, customizations, and semantics.

#2 -

-

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Interactive elements, hiding techniques, navigation shortcuts.

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#1 Accessible by default

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Interactive elements, hiding techniques, navigation shortcuts.

#3 Screen readers

Meaningful content, landmarks, forms, custom UI patterns.

Let's talk about Accessibility

Let's talk about A11Y

Why A11Y?

Why A11Y?

A C C E S S I B I L I T Y
A + 11 characters + Y

A **numeronym** is a number-based word.

Examples: W3C, I18N, 9/11, 007, CR7

What is A11Y?

A11Y myths

What is one of the biggest myths?

A11Y myth #1

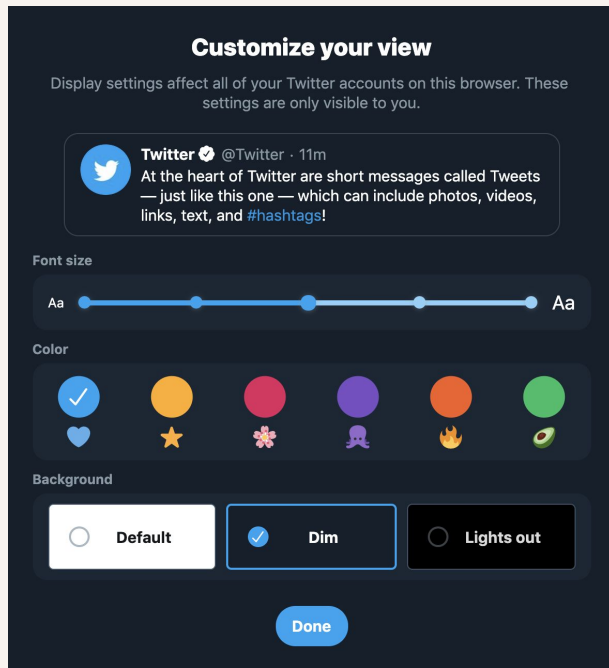
“Accessibility is for blind people”

Accessibility helps...

- ?
- ?
- ?
- ?

Accessibility helps...

- **Visual** - blindness, low-vision, color blind
- ?
- ?
- ?
- ?



Accessibility helps...

- **Visual** - blindness, low-vision, color blind
- **Hearing** - deaf or hard of hearing
- ?
- ?



Accessibility helps...

- **Visual** - blindness, low-vision, color blind
- **Hearing** - deaf or hard of hearing
- ?
- ?

80% of people who use captions don't have hearing impairments.



Accessibility helps...

- **Visual** - blindness, low-vision, color blind
- **Hearing** - deaf or hard of hearing
- **Motor** - loss of a limb or paralysis
- ?

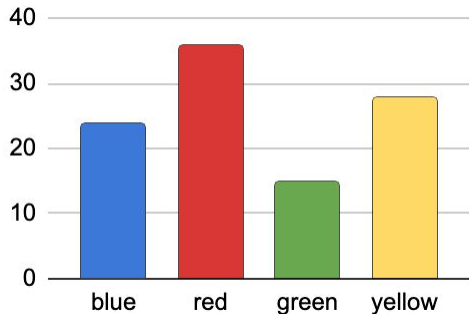


Accessibility helps...

- **Visual** - blindness, low-vision, color blind
- **Hearing** - deaf or hard of hearing
- **Motor** - loss of a limb or paralysis
- **Cognitive** - dyslexia, autism, ADHD

24% blue, 36% red, 15% green and 28% yellow.

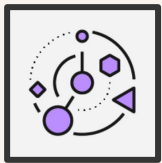
- 24% blue
- 36% red
- 15% green
- 28% yellow



A11Y myth #2

“They are a tiny minority”

Accessibility in numbers



1 billion people
worldwide have some
sort of disability

put in perspective...



Population of Europe
0.75 billion



Obese people
0.6 billion

- **1 in 4 US adults** has some sort of disability
- **30% chance** of having a disability by 65 yo.
- **15 in 100 developers** have a mental health condition

Source: [World Bank](#), [CDC Gov](#),
[Stackoverflow 2020 Survey](#), [StatCan](#)

A11Y myth #3

“Disability is a health problem”

The Persona Spectrum

Permanent



One arm

Temporary



Arm injury

Situational






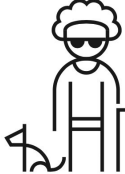








Baby in the arms

[Microsoft Inclusive Design](#)

Disability as context dependent

“[Disability] is a complex phenomenon, reflecting the **interaction between features** of a person’s body and features of the society in which he or she lives.”

— World Health Organization

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

Accessibility helps... everyone!

Solve for one,
extend to many!

How to make the web accessible?

How to make the web accessible?

WCAG

Web Content Accessibility Guidelines

[WCAG 2.1](#) and its [Quick Reference](#)

WCAG four principles

- P
- O
- U
- R

WCAG four principles

- Perceivable
- O
- U
- R

People can be aware
of the the content.

Ex: Video captions

WCAG four principles

- Perceivable
- Operable
- U
- R

People can navigate and find the content.

Ex: Reach buttons by keyboard

WCAG four principles

- **P**erceivable
- **O**perable
- **U**nderstandable
- **R**

Content is readable and appears in a predictable way.

Ex: Input error suggestions
(Username can only have letters)

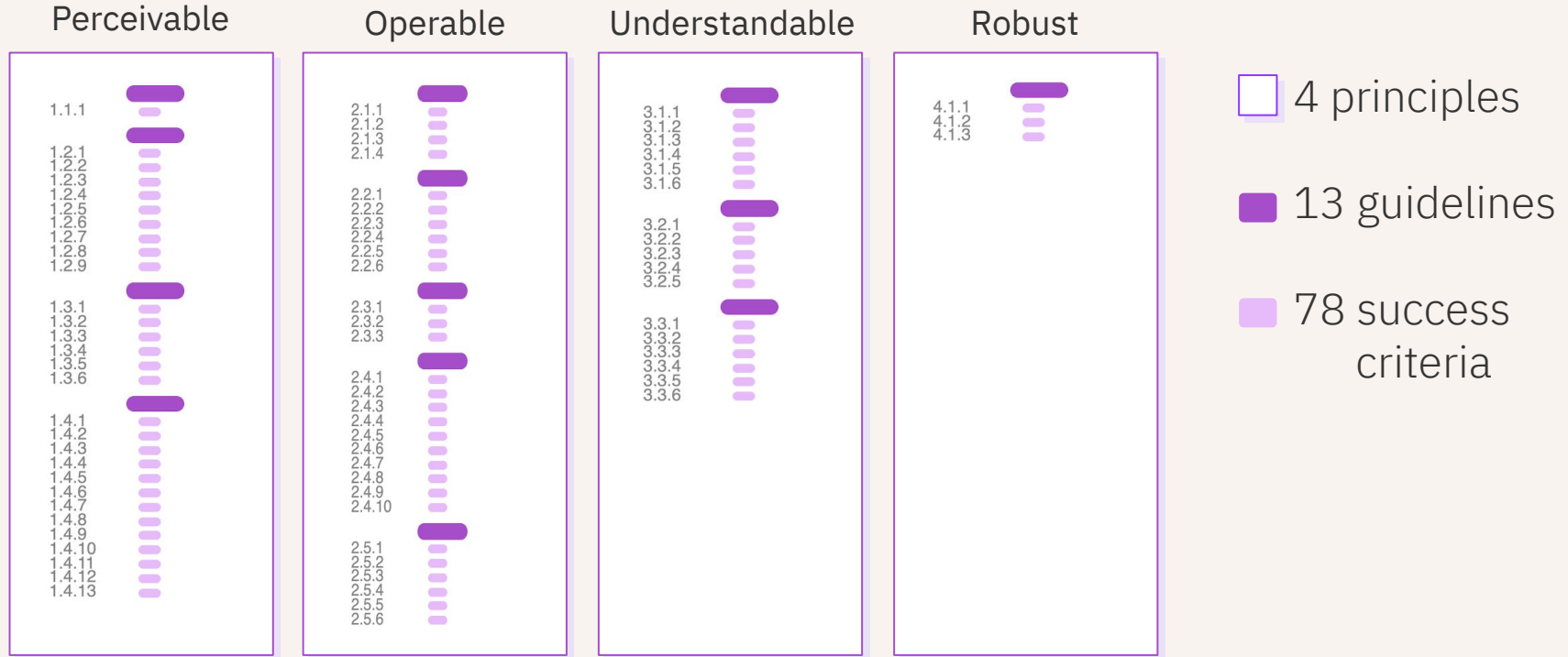
WCAG four principles

- **P**erceivable
- **O**perable
- **U**nderstandable
- **R**obust

Content can be interpreted by multiple user agents and assistive technologies (AT)

`<button>Get started</button>`

WCAG 2.1 Layers of Guidance



WCAG Conformance Levels

A

minimum

AA

acceptable

AAA

enhanced

WCAG Conformance Levels

A

minimum

Ex #1: Live video has description.

Ex #2: Color is not used alone to indicate an action or distinguish an element.

AA

acceptable

AAA

enhanced

WCAG Conformance Levels

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Ex #1: Live video has description.

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AA

acceptable

Ex #1: Live video has captions.

Ex #2: The text has a good color contrast (ratio at least 4.5:1)

AAA

enhanced

WCAG Conformance Levels

A

minimum

Ex #1: Live video has description.

Ex #2: Color is not used alone to indicate an action or distinguish an element.

AA

acceptable

Ex #1: Live video has captions.

Ex #2: The text has a good color contrast (ratio at least 4.5:1)

AAA

enhanced

Ex #1: Live video is transcribed.

Ex #2: The text has a strong color contrast (ratio at least 7:1)

What about the Law?

Similar but slightly different based on countries/zones

- [Accessibility Laws worldwide](#)
 - [USA — US Section 508](#)
 - [Europe — EN 301 549 - European Web Accessibility Directive](#)
 - [UK — Gov.uk - Understanding accessibility requirements](#)

WCAG vs Law

WCAG are guidelines set by W3C, not mandatory. They are an enforcement.
The law is an effort to end discrimination and to protect people with disabilities.

- [How to develop an accessibility statement](#)
 - Declaration of commitment
 - Guidelines achieved and exceptions (and why?)
 - Contact information to receive feedback
 - [Accessibility statement generator](#)

Famous ADA* compliance lawsuits

*American with Disabilities Act

The Netflix logo, consisting of the word "NETFLIX" in a bold, red, sans-serif font.

2013-present: Multiple lawsuits about lack of captions— [source](#)

The Parkwood Entertainment logo, featuring the word "PARKWOOD" in a large, black, serif font, with "ENTERTAINMENT" in a smaller, black, sans-serif font below it.

2018: Blind person couldn't buy a ticket to a concert of Beyonce. — [source](#)



2019: Blind person couldn't order a pizza online — [source](#)

Most targeted industries



	Images	Links	Form Fields	Keyboard Nav
Office Depot	✗	✗	✓	✗
Best Buy	✗	✓	✓	✓
Sears	✗	✗	✗	✗
Northern Tools	✗	✗	✗	✗
Kohls	✗	✗	✗	✗
Williams-Sonoma	✗	✗	✗	✗
Lowes	✗	✗	✗	✗
REI	✓	✓	✓	✓
Apple	✗	✓	✓	✓
ASOS	✓	✗	✓	✓
B&H Photo	✗	✗	✓	✓
Ikea	✗	✓	✓	✗

Source: [2019 ADA Website and app lawsuit recap report](#).

[94% of largest e-commerce are not accessible](#)

What is A11Y?

What is A11Y?

Accessibility is
caring about people.

Why A11Y matters?

Accessibility is our duty
as web creators

Enough talking.
Let's go practice!

Action Points - Accessible by default

- The headings structure is meaningful and sequential.
- Fonts size are set with relative units (rem).
- Animations have an alternative with reduced motion.
- Images have alt that are useful and not redundant.
- Create a “Colors Guide” of do’s and don’ts of color combinations.

Action Points - Keyboard navigation

- Main flows can be performed using only the keyboard.
- All interactive elements have a strong focus indicator.
- Toggleable elements, when hidden, can't be reached by keyboard.
- Links and buttons are used accordingly to their intent.
- Common navigation shortcuts are provided.

Action Points - Screen Readers

- Every element has the right **role** and **name**. (and **state** if interactive!)
 - ◆ Double check the buttons, links and form controls
- Dynamic content is announced when added to the page.
- Pages have meaningful landmarks
- Pages have the `lang` attribute.
- Test with a Screen Reader — at least the main user flows.



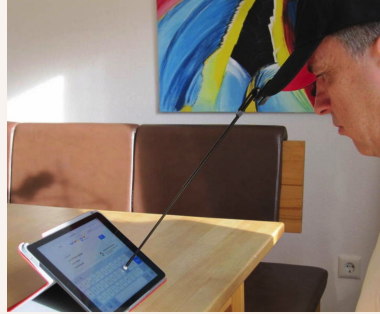
Assistive Technologies

How people use the web

Assistive Technologies



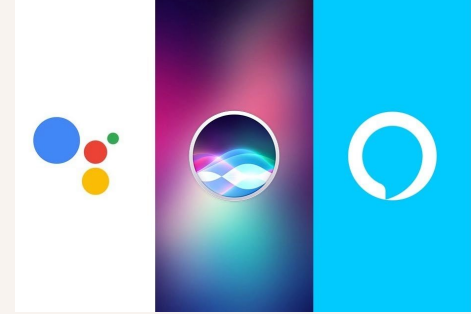
Keyboards
Screen Readers



Head pointers



Motion tracking



Speech input
(Google Assistant, Siri, Alexa)

From machine to humans

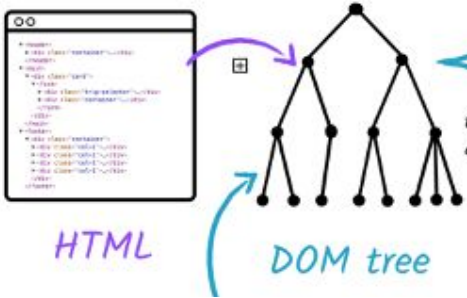


HTML

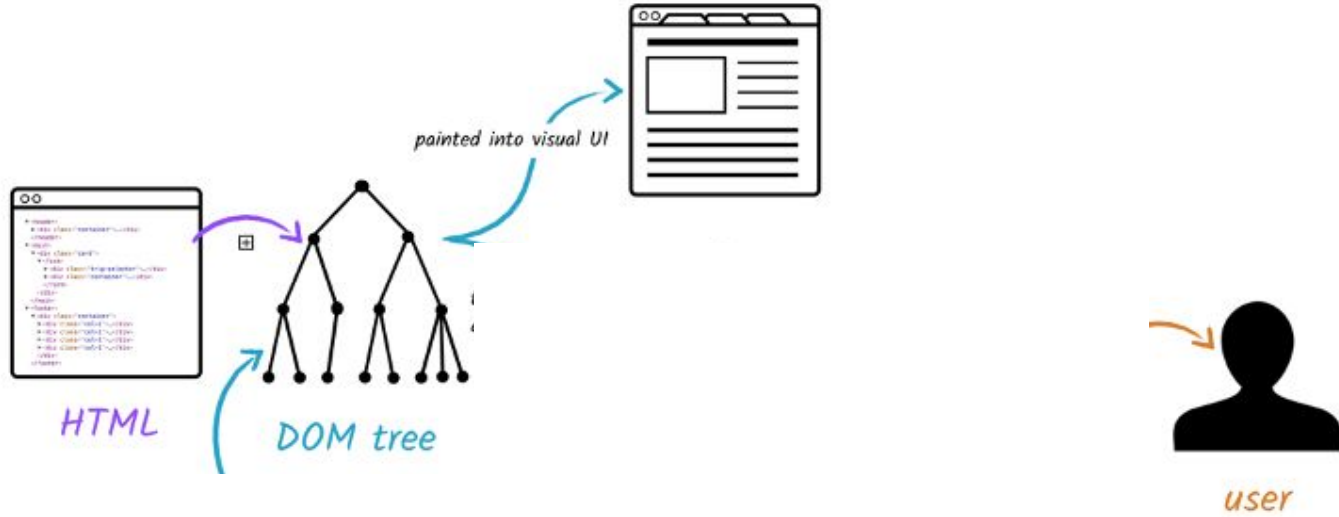


user

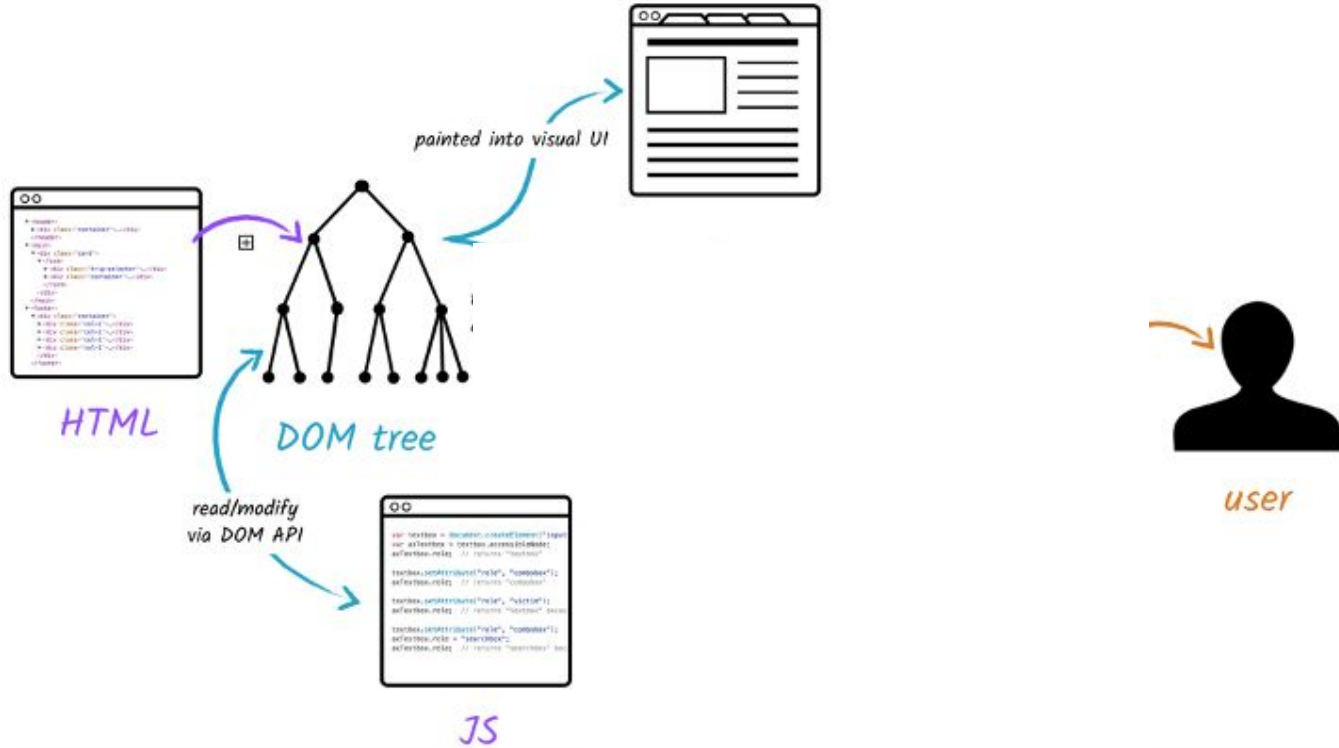
From machine to humans



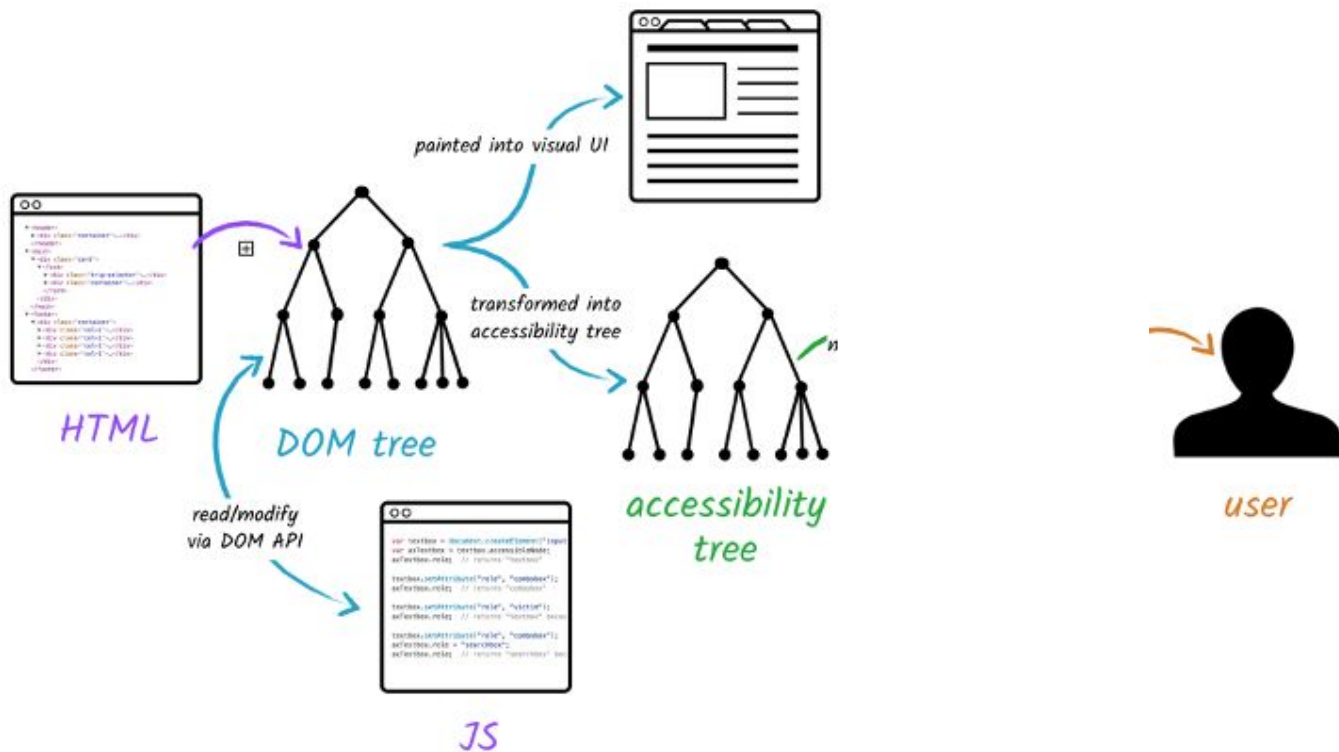
From machine to humans



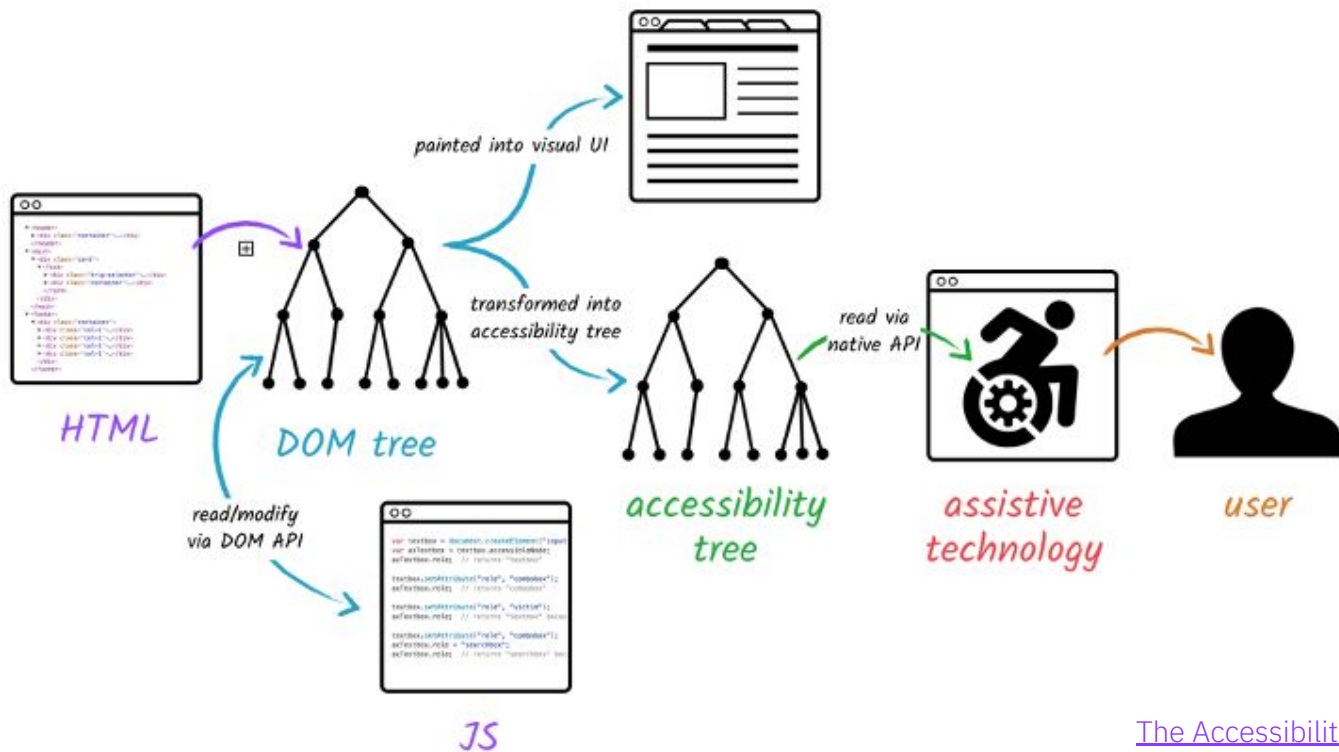
From machine to humans



From machine to humans



From machine to humans



[The Accessibility Tree](#)

Next steps into A11Y



Manuel Matuzović

@mmatuzo



Devs: HTML is easy, don't bother learning it properly.

Also devs:

An annual accessibility analysis of the top 1,000,000 home pages
Most common types of WCAG 2 failures

WCAG Failure Type	% of home pages in February 2020	% of home pages in February 2019
Low contrast text	86.3%	85.3%
Missing alternative text for images	66.0%	68.0%
Empty links	59.9%	58.1%
Missing form input labels	53.8%	52.8%
Empty buttons	28.7%	25.0%
Missing document language	28.0%	33.1%

Remember the A11Y myths?

“... for blind people.”

“... is tiny minority.”

“... is a health problem.”

Why do these ~~myths~~ assumptions exist?

Let's talk about ableism

Let's talk about ableism

Treating able people as the norm,
therefore excluding the disabled people.

[Ableism 101](#)

Medical model

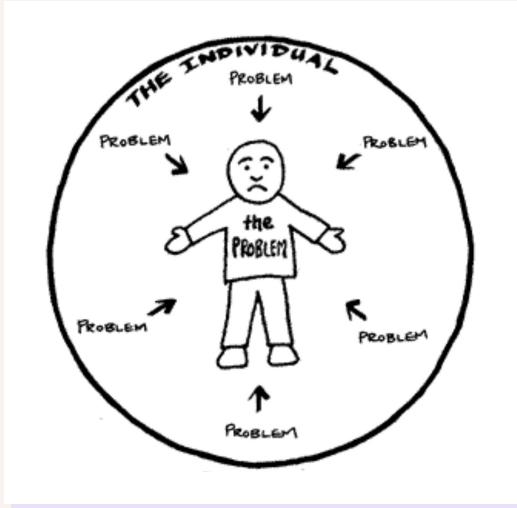


Society model



Medical model

The individual is the problem.



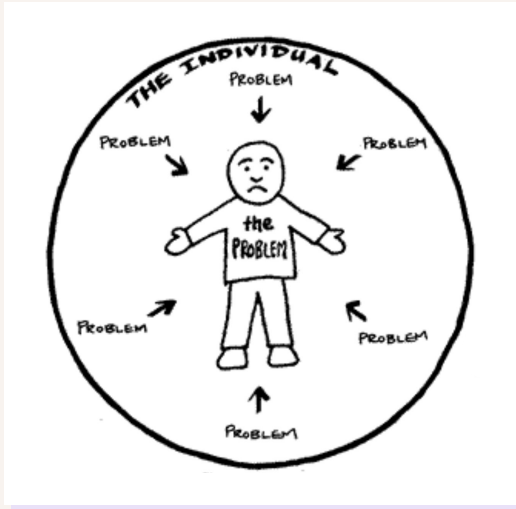
Source [NCCJ: Ableism](#)

Society model



Medical model

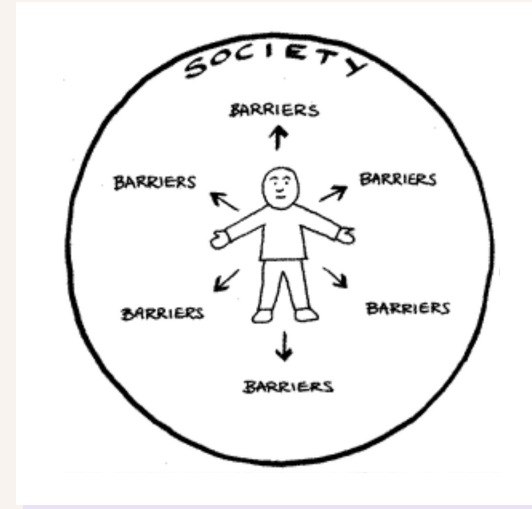
The individual is the problem.



Source [NCCJ: Ableism](#)

Society model

The society has barriers.



[Learn to avoid ableist behaviors](#)

Accessibility in team

- Designers:
- Developers:
- QA experts:
- Product Managers:

Accessibility in team

- **Designers:** Accessibility will improve your skills, not limit them.
- **Developers:**
- **QA experts:**
- **Product Managers:**

Accessibility in team

- **Designers:** Accessibility will improve your skills, not limit them.
- **Developers:** HTML & CSS are real languages too. Don't fight me. :p
- **QA experts:**
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- **Designers:** Accessibility will improve your skills, not limit them.
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- **QA experts:** Automated tools can catch only [~30-40% of A11Y issues](#).
- **Product Managers:**

Accessibility in team

- **Designers:** Accessibility will improve your skills, not limit them.
- **Developers:** HTML & CSS are real languages too. Don't fight me. :p
- **QA experts:** Automated tools can catch only [~30-40% of A11Y issues](#).
- **Product Managers:** A11Y is a requirement, not a nice to have!

Accessibility in process flow

-
-
-

Accessibility in process flow

- Include accessibility in the [Acceptance Criteria](#) of a feature task.
-
-

Accessibility in process flow

- Include accessibility in the Acceptance Criteria of a feature task.
- Treat tasks related to A11Y fixes as **bugs**, not as **improvements**.
-

Accessibility in **process flow**

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- Create a **#web-accessibility** chat group in your company.
 - This [A11Y poster](#) can be the first sharing!

Accessibility in **process flow**

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You can go further with [planning and managing accessibility](#).

How to know if it's accessible?

- Try to accomplish the task with just a keyboard;
- Use a Screen Reader, even if just once in a while;
- Ask someone different from you to try your website;

(Even more) resources

Articles

- [I used the web for a day with just a keyboard](#)
- [Testing Accessibility with real people](#)
- [**Video: How screen reader users surf the web**](#)
- [Design with a11y in mind is not that hard](#)
- [Stark: Public library](#)

Audit checklists

- [**A11Y Project Checklist**](#) - Friendly A11Y checklist
- [How to Meet WCAG](#) - Quick reference to guidelines
- [IBM Able](#) - Requirements of WCAG and legal standards
- [A11Y support](#) - Audits with SR done to ARIA attributes

Blogs

- [Léonie Watson](#)
- [Scott O'Hara](#)
- [Adrian Roselli](#)
- [A11YProject](#)
- [Inclusive Components](#)

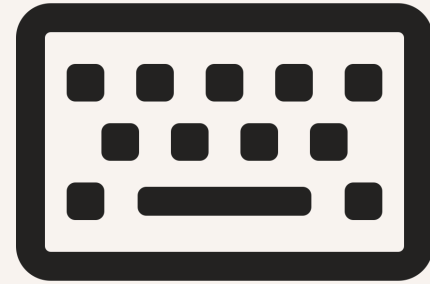
NPM Packages

- [Pally](#)
- [React AXE](#)

Drop the mouse



Use the keyboard



Thank you!

*The web is awesome and now
you can make it even better!*