

Accessibility on the Web

August 15, 2018



Reingold, Inc.
433 E. Monroe Ave.
Alexandria, VA 22301
www.reingold.com

LSC | America's Partner
for Equal Justice
LEGAL SERVICES CORPORATION

 **REINGOLD**
We're on a Mission. Yours.

Reingold POC: Joseph LaMountain, Vice President
Email: jlamountain@reingold.com
Mobile: 202.288.5124
Telephone: 571.814.3372

A quick note

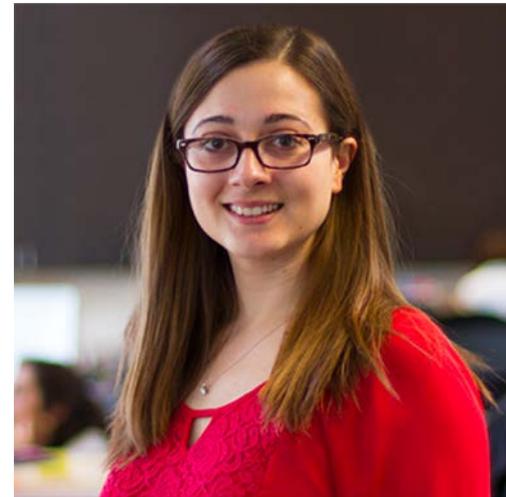
A transcript will be provided following this presentation.

Introductions



Faith Laminack

Senior User Experience Designer



Allison Carnwath

Director, Front-End Technologies

Agenda

- 01** What does accessibility mean?
- 02** How is accessibility measured?
- 03** Ripple effects of accessible practices

What does “accessibility”
mean?

Accessibility on the web

- “**Accessibility** means that people with disabilities can perceive, understand, navigate, and interact with websites and tools. It also means that they can contribute equally without barriers.”

Quotation from: <https://www.w3.org/WAI/fundamentals/accessibility-usability-inclusion/>

User experience design

- “**Usability** is about designing products to be effective, efficient, and satisfying.”

Quotation from: <https://www.w3.org/WAI/fundamentals/accessibility-usability-inclusion/>

Inclusive design

- “**Inclusion** is about diversity, and ensuring involvement of everyone to the greatest extent possible. In some regions this is also referred to as *universal design* and *design for all*. It addresses a broad range of issues including:
 - accessibility for people with disabilities;
 - access to and quality of hardware, software, and Internet connectivity
 - computer literacy and skills
 - economic situation
 - education
 - geographic location
 - culture
 - age, including older and younger people
 - and language.”

Quotation from: <https://www.w3.org/WAI/fundamentals/accessibility-usability-inclusion/>

Let's start in the physical space.

What do we need to do to allow people to participate?

Parking



Image from: <http://www.rochestermedia.com/wp-content/uploads/2013/07/Free-no-limit-Main-Street-parking-is-Full-photo-by-Michael-Dwyer.jpg>

Reserved parking



Image from: <http://nwadacenter.org/factsheet/accessible-parking-employment-accommodation-practical-guide-employers>

Visual, audio, and tactile cues



Image from: <https://blog.touringplans.com/2016/03/10/washington-d-c-how-to-the-metro-subway/>

Ramps for wheelchairs



Image from: <http://healthsys.net/home-medical-solutions/wheelchair-ramps/>

Tactile signs



Image from: <https://www.seton.com/room-number-braille-signs-24441.html>

Now let's look at the digital space.

Now let's look at the digital space.

A user might ask many of the same questions we talked about in the physical space:

- How do I navigate?
- Can I get where I want to go?
- Is the experience frustrating?
- How do I know where I am?
- How do I know what to expect?
- Do I understand the content being presented to me?

Touch targets

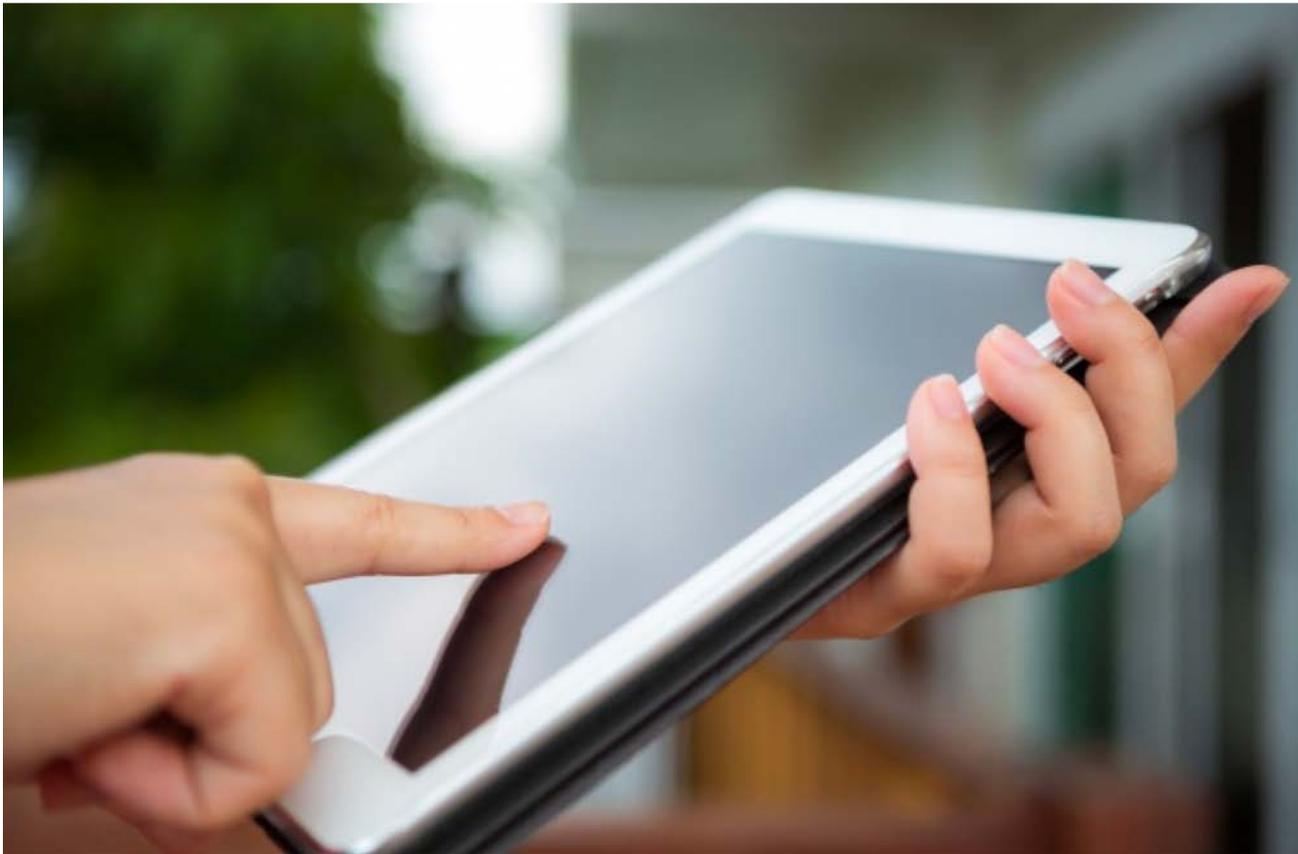


Image from: https://www.freepik.com/free-photo/person-touching-a-tablet_978441.htm

Keyboard navigation



Accessibility - W3C - World Wide Web Consortium
www.w3.org/standards/.../accessibility World Wide Web Consortium ▾
The mission of the Web Accessibility Initiative (WAI) is to lead the Web to its full potential to be **accessible**, enabling people with disabilities to participate equally ...
[Introduction to Web Accessibility](#) - [Web Content Accessibility ...](#)



Accessibility - W3C - World Wide Web Consortium
www.w3.org/standards/.../accessibility World Wide Web Consortium ▾
The mission of the Web Accessibility Initiative (WAI) is to lead the Web to its full potential to be **accessible**, enabling people with disabilities to participate equally ...
[Introduction to Web Accessibility](#) - [Web Content Accessibility ...](#)

Image from: <https://myblindspot.org/2017/01/7-things-every-designer-needs-to-know-about-accessibility/>

Text visibility

Lorem Ipsum Dolor

sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

Lorem Ipsum Dolor

sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

Lorem Ipsum Dolor

sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

Text visibility

Lorem Ipsum Dolor

sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

Lorem Ipsum Dolor

sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

Lorem Ipsum Dolor

sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi

Text visibility

Lorem Ipsum Dolor

sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

Lorem Ipsum Dolor

sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

Lorem Ipsum Dolor

sit amet, consectetur adipiscing elit, sed do

Communication with more than color

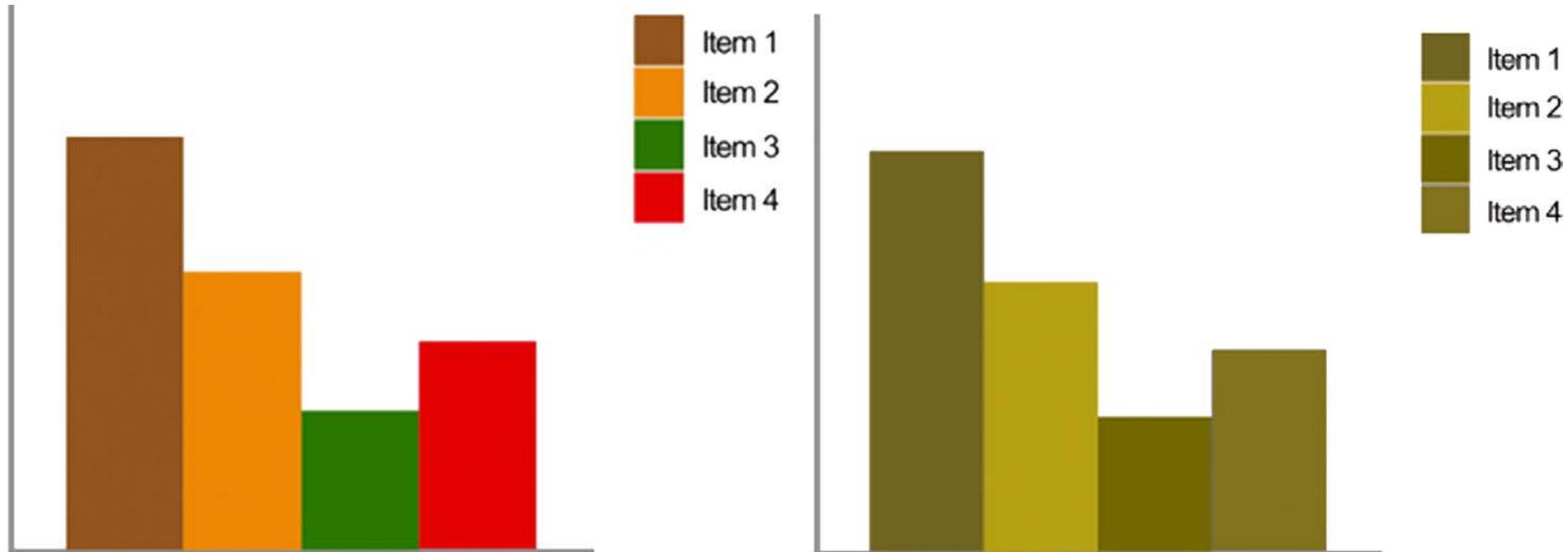


Image from: <https://www.smashingmagazine.com/2016/06/improving-color-accessibility-for-color-blind-users/>

Communication with more than color



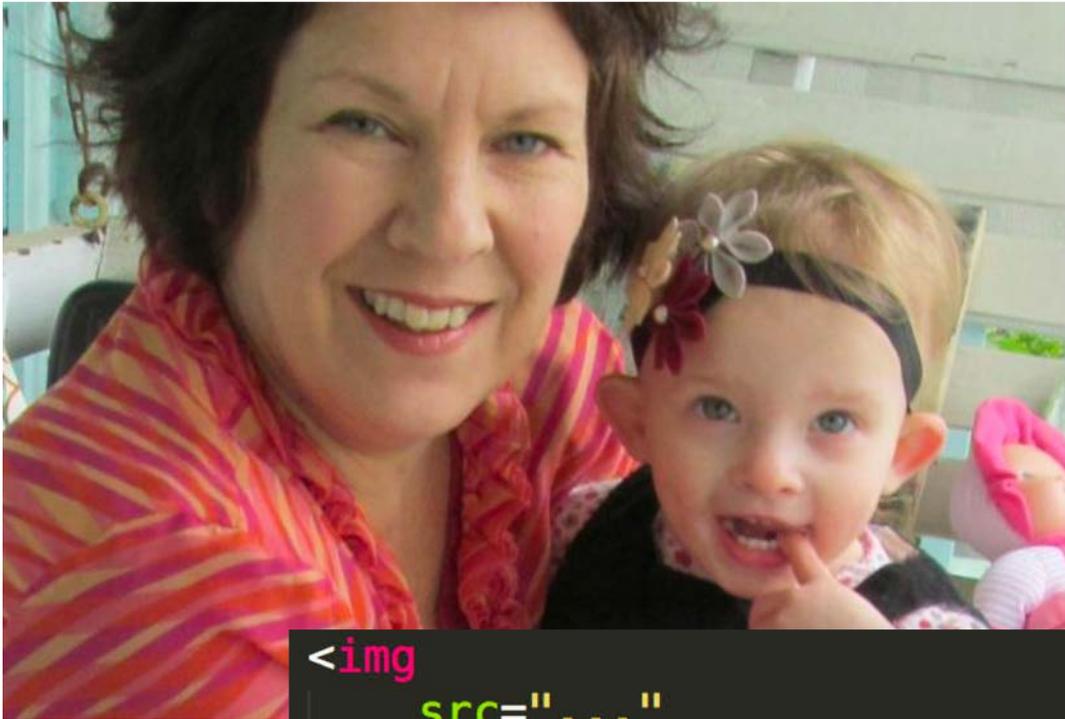
Image from: <https://www.smashingmagazine.com/2016/06/improving-color-accessibility-for-color-blind-users/>

Screen readers



Image from: <http://www.webaxe.org/category/screenreader/>

Alternative text

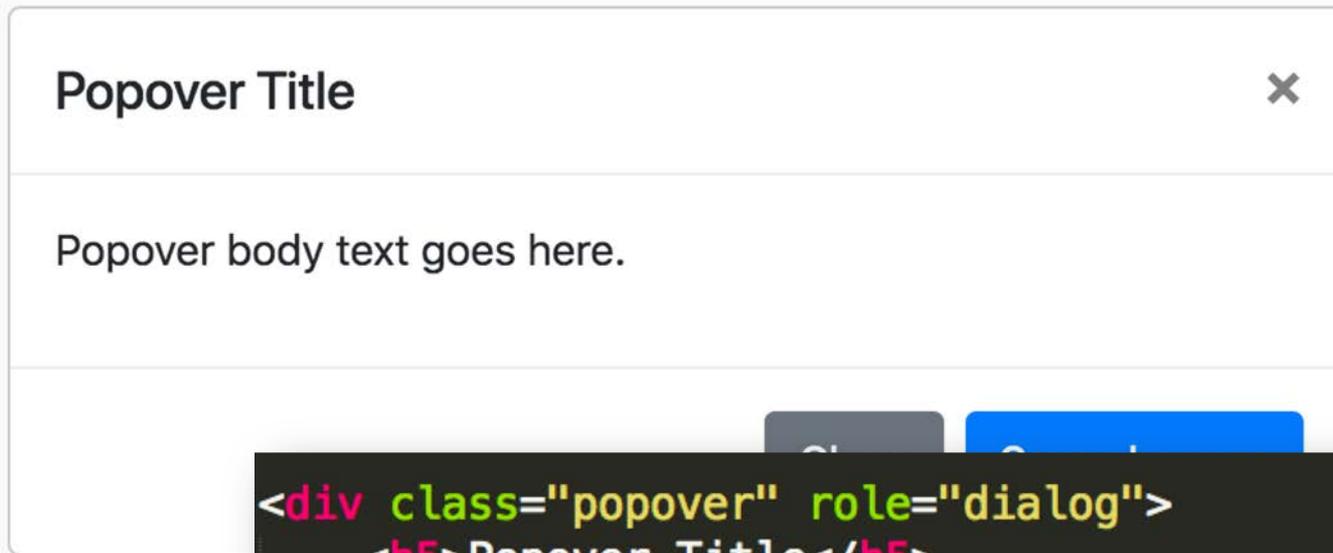


```

```

Image from: <https://www.lsc.gov/helping-adoptive-family-access-healthcare>

ARIA attributes



```
<div class="popover" role="dialog">  
  <h5>Popover Title</h5>  
  <button type="button" aria-label="Close"></button>
```

Image from: <https://getbootstrap.com/docs/4.1/components/modal/>

Descriptive calls to action

The screenshot shows the Samsung SmartThings website. At the top left is the Samsung SmartThings logo. To its right are navigation links: 'Uses', 'How It Works', 'Shop', 'Blog | Community | Support'. Below the logo is a paragraph: 'Adding connected things: By placing these smart bulbs, locks, cameras, and other "things" in your home, you'll be able to monitor and control them using the SmartThings app.' To the right of this text is a circular image showing a smart light bulb and a smart lock. Below this is a section titled 'Plays Well with Others'. It contains a grid of partner brand logos: SAMSUNG, Honeywell, SCHLAGE, CREE, First Alert, D-Link, OSRAM LIGHTIFY, and Yale. Below the grid is the text 'And many more ...'. To the right of the grid is a paragraph: 'In addition to SmartThings' own family of sensors, you can also control hundreds of connected devices from other brands through the SmartThings open platform.' Below this paragraph is a blue 'LEARN MORE' button with a right-pointing arrow, which is highlighted with a red rectangular box.

SAMSUNG **Honeywell**

SCHLAGE **CREE**

First Alert **D-Link**

OSRAM **Yale**
LIGHTIFY™

And many more ...

Plays Well with Others

In addition to SmartThings' own family of sensors, you can also control hundreds of connected devices from other brands through the SmartThings open platform.

[LEARN MORE](#)

Image from: <https://www.nngroup.com/articles/learn-more-links/>

Organized content

The screenshot shows the Veterans Crisis Line website. At the top, there is a navigation bar with links for 'Get Help', 'Materials', 'Get Involved', 'Crisis Centers', and 'About'. Below this is a header with the organization's logo and contact information: 'Dial 1-800-273-8255 PRESS 1', 'Text to 838255', and 'Confidential Veterans Chat'. A secondary navigation bar includes 'I am Veteran', 'I am Active Duty/Reserve and Guard', and 'I am Family/Friend'. The main content area is titled 'When To Call' and contains the following text:

When to contact the Veterans Crisis Line

For Veterans or active duty Servicemembers in crisis:

If you're thinking of hurting yourself, looking for ways to kill yourself, or becoming self-destructive, don't continue to face it alone. **Contact the Veterans Crisis Line immediately** and a responder will listen and help you through your immediate crisis. Your conversation will be completely anonymous and confidential. If you're unsure about getting in touch, take this [self-check quiz](#).

For family members and friends:

Supporting a loved one through a crisis can feel overwhelming, but responders at the Veterans Crisis Line can help. Contact the Veterans Crisis Line immediately if the Veteran or Servicemember in your life is showing signs of crisis — such as talking about feeling hopeless; experiencing sleeplessness, anxiety, or agitation; or increasing risky behaviors or substance use. VA's responders understand what Veterans of all ages and circumstances have been through, and they are dedicated to providing family members and friends with immediate crisis support for helping your loved one.

Additional elements visible in the screenshot include a 'Resource Locator' section with a map of the United States and a 'Click Now for Confidential Live Veterans Chat' button.

The screenshot shows the Veterans Crisis Line website with a dark blue header. The main heading is 'When to Call'. Below the heading, there is a navigation bar with links for 'Get Help', 'About Veterans Crisis Line', 'Education and Advice', and 'Show Support'. The main content area is titled 'When to contact the Veterans Crisis Line' and contains the following text:

Home → When to Call

When to contact the Veterans Crisis Line

Veterans and Service members in crisis don't have to face it alone. If you're thinking about hurting yourself, having thoughts of suicide, or becoming self-destructive, there are responders ready to help. Contact the Veterans Crisis Line immediately for assistance.

Call 1-800-273-8255 and Press 1

Supporting a loved one through a crisis can feel overwhelming, but responders at the Veterans Crisis Line can help. Contact the Veterans Crisis Line immediately if the Veteran or Service member in your life is showing signs of crisis, such as:

- Talking about feeling hopeless
- Experiencing anxiety or agitation
- Increasing risky behaviors or substance use

Image from: <https://theskimm.com/archive/2018-07-03>

Simple language



Image from: <http://zevendesign.wpengine.com/wp-content/uploads/2016/09/repetition.jpg>

Alternative text for audio



Image from: https://www.youtube.com/watch?v=CUNq2_VjRn4

Visual cues for audio

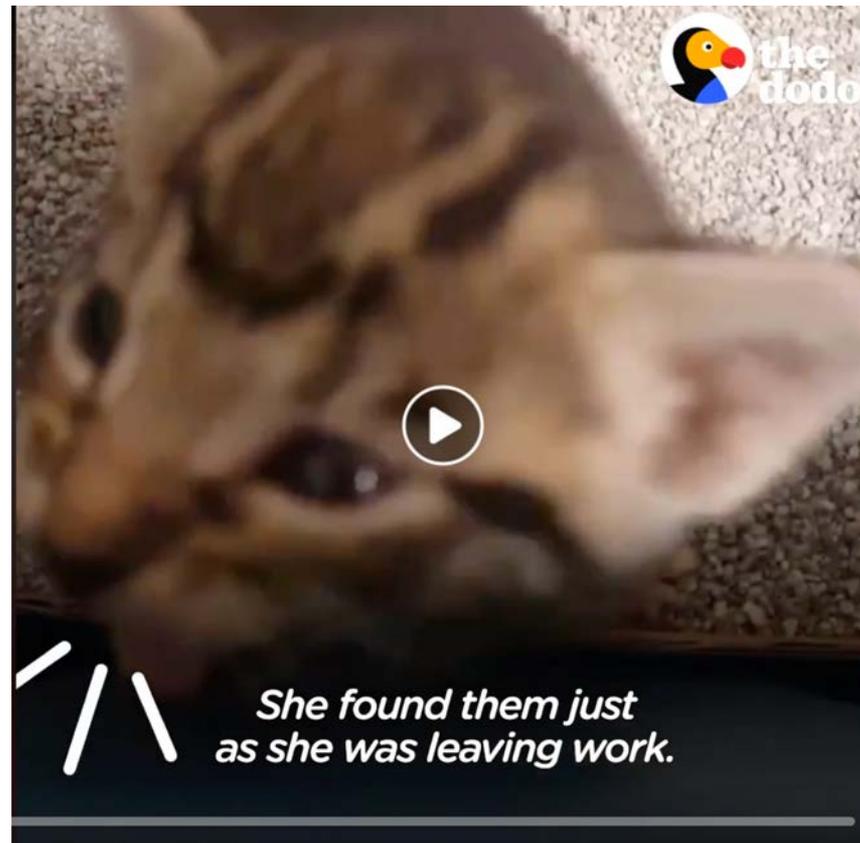


Image from: <https://www.facebook.com/littlebutfiercedodo/videos/2234750036541487/>

The digital space - recap

- Size of touch targets
- Keyboard navigation
- Text visibility
- Communication with more than color
- Screen readers
- Alternative text for visual
- Semantic HTML and ARIA attributes
- Descriptive calls to action
- Organized content
- Simple language
- Alternative text for audio
- Visual cues for audio

How is accessibility measured?

Compliance guidelines

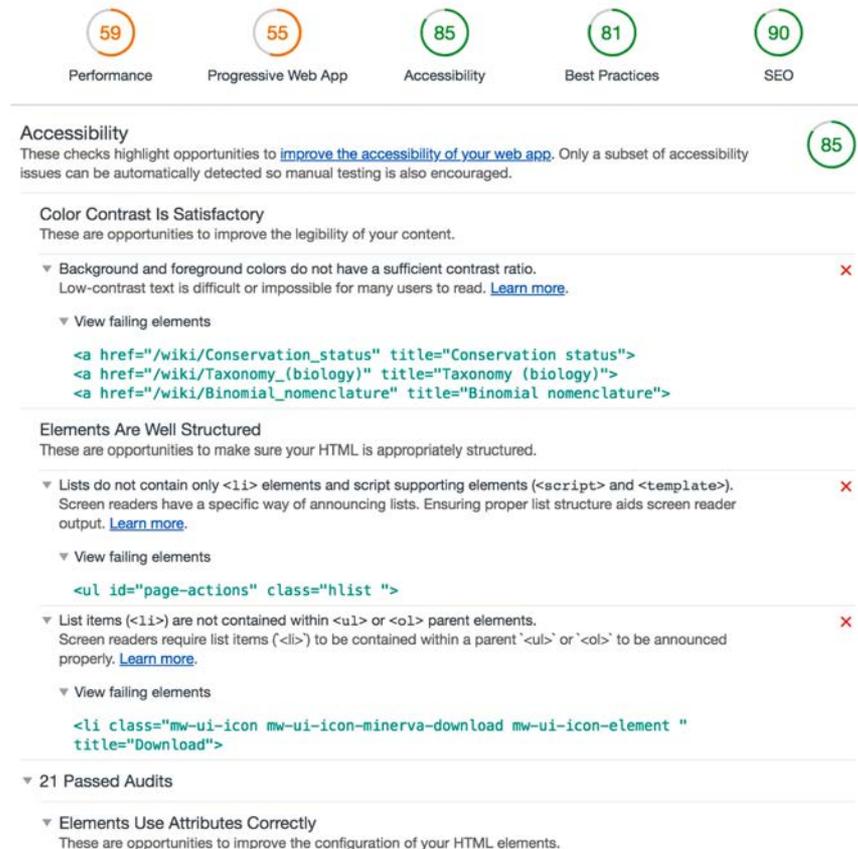
There are official guidelines that we can consult to measure a site's compliance:

- **Section 508 Amendment to the Rehabilitation Act of 1973**
 - Applies to all federal agencies
- **Web Content Accessibility Guidelines (WCAG)**
 - Level A (least stringent)
 - Level AA
 - Level AAA (most stringent)

Quantitative testing

There are many different tools that will crawl over a webpage and provide a report.

Google Lighthouse



Lighthouse Extension: <https://chrome.google.com/webstore/detail/lighthouse/blipmdconlkpinefehmjammfjpmbjk?hl=en>

Axe

The screenshot displays the Axe Chrome Extension interface. On the left, a sidebar shows a list of issues: 'All issues found 96', 'Elements must have sufficient color contrast 91', 'Links must have discernible text 2', ' and must only directly contain , <script> or <template> elements 1', 'Content should be contained in a landmark region 1', and 'Elements should not have tabindex greater than zero 1'. The main panel is titled 'Elements must have sufficient color contrast' and shows the issue description: 'Ensures the contrast between foreground and background colors meets WCAG 2 AA contrast ratio thresholds'. The impact is 'serious'. The element location is shown as `abbr[title="Edit\ this\ template"]`. The element source is `<abbr title="Edit this template" style="";background:none transparent;border:none;-moz-box-shadow:none;-webkit-box-shadow:none;box-shadow:none;">e</abbr>`. To solve this violation, the user needs to fix the following: 'Element has insufficient color contrast of 3.63 (foreground color: #3366bb, background color: #ccccff, font size: 9.2pt, font weight: normal). Expected contrast ratio of 4.5:1'. The related node is `.navbox-title`.

Axe Extension: <https://chrome.google.com/webstore/detail/axe/lhdoppojpmngadmndnejfpokejbdd>

WebAIM Contrast Checker

Foreground Color
#0000FF 
Lightness 

Background Color
#FFFFFF 
Lightness 

Contrast Ratio
8.59:1
[permalink](#)

Normal Text

WCAG AA: **Pass**

WCAG AAA: **Pass**

The five boxing wizards jump quickly.

Large Text

WCAG AA: **Pass**

WCAG AAA: **Pass**

The five boxing wizards jump quickly.

WebAIM Contrast Checker: <https://webaim.org/resources/contrastchecker/?fcolor=0000FF&bcolor=FFFFFF>

Qualitative testing

While the quantitative testing tools are great to get a start on improving the accessibility of a site, it is important to also test from a qualitative perspective.

Qualitative testing



Images from:

<http://www.smash.com/articles/worst-wheelchair-ramps-ever-made-1>

<https://cheezburger.com/8272794368/what-kind-of-cruel-joke-is-this>

User testing

User testing is one of the best ways to check that your site is effectively engaging your users.



Unofficial tests

Outside of official audits, there are many ways to unofficially test your site.

Get fresh eyes on it



Image From: <https://imgflip.com/memetemplate/60724286/grandma-computer>

The “squint” test



Image From: <https://vision-and-hearing.wonderhowto.com/how-to/vision-hack-see-clearly-without-your-glasses-contacts-0154635/>

One step at a time



Image From: <http://www.dogrampforsuv.com/dog-stairs/>

Ripple effects of accessible practices

Overlap between accessibility, usability, and inclusive design

- Accessible practices can create more usable experiences for everyone, including people facing:
 - situational limitations
 - temporary disabilities
 - moments of crisis
- Accessible practices can support inclusion for many people, including:
 - people in rural areas
 - people with low literacy

Many people benefit.



Image From: <http://www.electionaccess.org/en/media/gallery/11/39/?page=4>

“I can’t use my speakers.”



Image From: https://www.huffingtonpost.com/matt-tenney/two-ideas-to-help-you-nail-your-next-meeting_b_5730052.html

"The internet is so slow."



Image From: <https://www.pinterest.com/pin/37928821840959405/?lp=true>

Organized content

The screenshot shows the Veterans Crisis Line website. At the top, there is a navigation bar with links for 'Get Help', 'Materials', 'Get Involved', 'Crisis Centers', and 'About'. Below this is a header with the organization's logo and contact information: 'Dial 1-800-273-8255 PRESS 1', 'Text to 838255', and 'Confidential Veterans Chat'. A secondary navigation bar includes 'Support for Deaf and Hard of Hearing' and tabs for 'I am Veteran', 'I am Active Duty/Reserve and Guard', and 'I am Family/Friend'. The main content area is titled 'When To Call' and contains the following text:

When to contact the Veterans Crisis Line

For Veterans or active duty Servicemembers in crisis:

If you're thinking of hurting yourself, looking for ways to kill yourself, or becoming self-destructive, don't continue to face it alone. **Contact the Veterans Crisis Line immediately** and a responder will listen and help you through your immediate crisis. Your conversation will be completely anonymous and confidential. If you're unsure about getting in touch, take this [self-check quiz](#).

For family members and friends:

Supporting a loved one through a crisis can feel overwhelming, but responders at the Veterans Crisis Line can help. Contact the Veterans Crisis Line immediately if the Veteran or Servicemember in your life is showing signs of crisis — such as talking about feeling hopeless; experiencing sleeplessness, anxiety, or agitation; or increasing risky behaviors or substance use. VA's responders understand what Veterans of all ages and circumstances have been through, and they are dedicated to providing family members and friends with immediate crisis support for helping your loved one.

Additional elements in the screenshot include a 'Resource Locator' section with a map of the United States and a 'Click Now for Confidential Live Veterans Chat' button.

The screenshot shows the Veterans Crisis Line website with a large blue header that reads 'When to Call'. Below the header, there is a navigation bar with links for 'Get Help', 'About Veterans Crisis Line', 'Education and Advice', and 'Show Support'. The main content area is titled 'When to contact the Veterans Crisis Line' and contains the following text:

Home → When to Call

When to contact the Veterans Crisis Line

Veterans and Service members in crisis don't have to face it alone. If you're thinking about hurting yourself, having thoughts of suicide, or becoming self-destructive, there are responders ready to help. Contact the Veterans Crisis Line immediately for assistance.

Call 1-800-273-8255 and Press 1

Supporting a loved one through a crisis can feel overwhelming, but responders at the Veterans Crisis Line can help. Contact the Veterans Crisis Line immediately if the Veteran or Service member in your life is showing signs of crisis, such as:

- Talking about feeling hopeless
- Experiencing anxiety or agitation
- Increasing risky behaviors or substance use

Image from: <https://theskimm.com/archive/2018-07-03>

Simple language



Image from: <http://zevendesign.wpengine.com/wp-content/uploads/2016/09/repetition.jpg>

"I need answers, NOW!"



Image From: <http://v2.worldlifestyle.com/relationships/online-dating-a-bit-too-much-dont-worry-its-just-lunch>

Search engine results

- Improved rankings
- Better understanding of the content
- Video captions/transcripts
- Image alt tags

Ripple effects caveat

- Optimizing a site for search engines, addressing usability, and designing for inclusivity will not address all accessibility issues.
- A focus on specific accessibility needs is still important.

What do we need to do
to allow people with
disabilities to
engage equally
with an experience?

Questions?



Faith Laminack

Senior User Experience Designer

flaminack@reingold.com



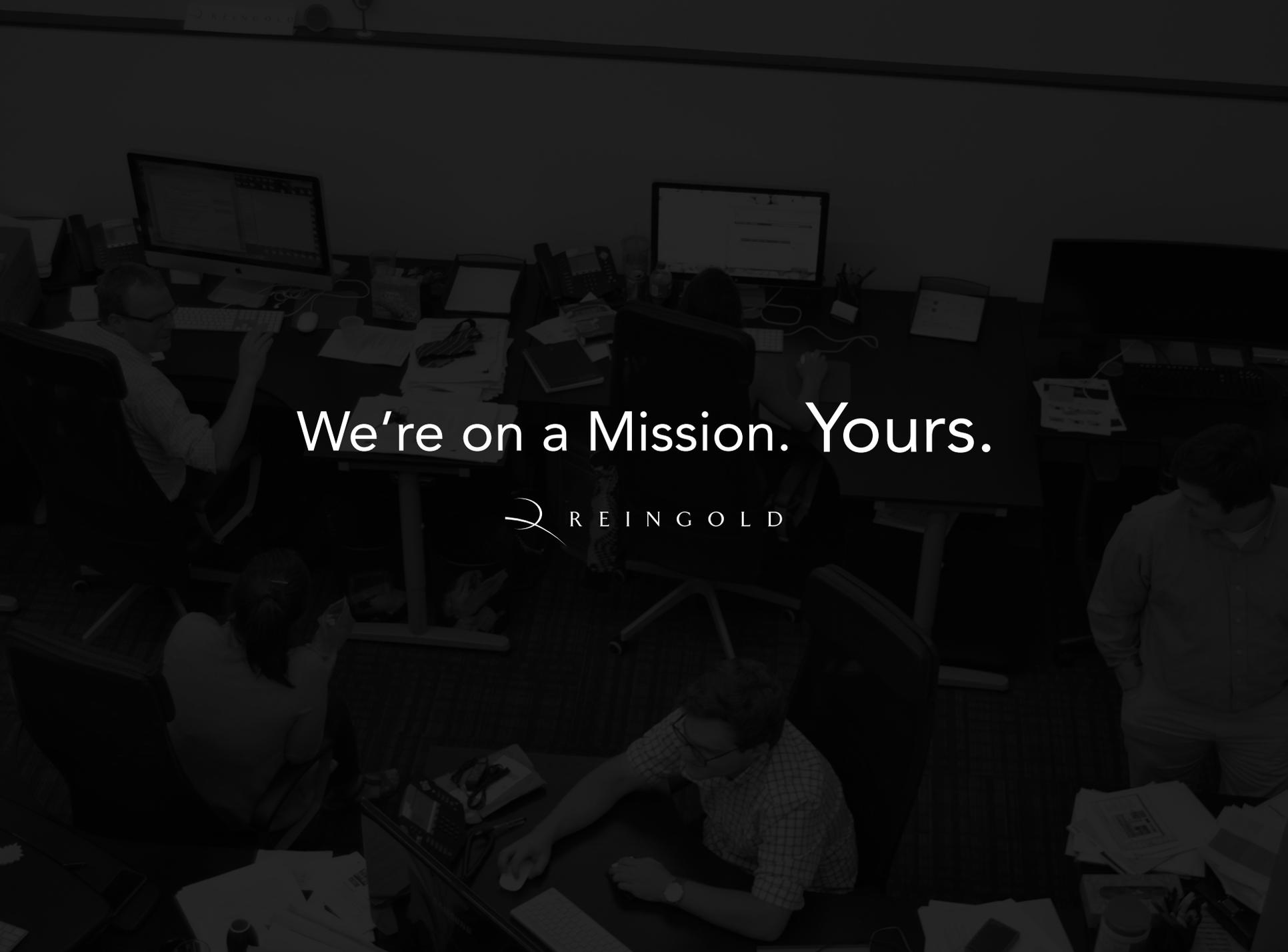
Allison Carnwath

Director, Front-End Technologies

acarnwath@reingold.com

reingold.com

(202) 333-0400



We're on a Mission. Yours.

 REINGOLD