FOUR KITCHENS

Way more than websites.

Foundational Accessibility

Understanding the Benefits of Accessibility

The Benefits of Accessibility

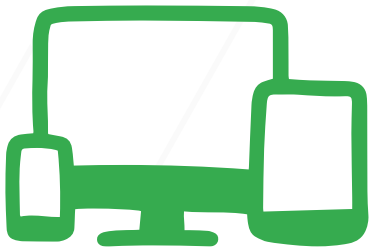
For the Disabled

The most obvious group of people who benefit from accessibility is **people with disabilities**.

When things are built with accessibility in mind... it just makes life easier. And sometimes, not just easier, but actually possible.

A person with mobility impairments who used to need help doing their banking and shopping or applying to jobs or colleges can be more independent. They can do things for themselves—that is, if things are built with accessibility in mind and barriers aren't introduced.

We're not just talking about the physical world, where you see accommodations in transportation and architecture, but also in the world of technology.



For Business

In general, accessibility can help level the people with disabilities. So how can businesses and also benefit from making their digital presence accessible?

To start, **being accessible can improve the public perception of a business.** If your organization doesn't care about people with disabilities, prepare to spend a lot of time cleaning up your reputation somewhere down the road.

Accessibility can give a business an edge over the competition. If a business's customer values accessibility, it could be that single point that determines a customer's choice of one business over another. A business could also become the choice among a community for a certain service just because it is accessible.

For instance, a person with spinal muscular atrophy (SMA) may belong to a local online group of people with SMA. SMA affects a person's motor abilities and can affect how much a person is able to use their hands, which means they might not be able to use a mouse. If the person with SMA is looking to have some remodeling done on their home, and someone in the group has already been through the process of finding and vetting a contractor and weeded out the ones with inaccessible websites that prevent them from being able to view examples of past projects, a certain contractor could emerge as the go-to business by people with SMA. All because of their accessible site and the recommendations from the local SMA community.

Another benefit for businesses is that designing for accessibility requires certain best practices. Following best practices generally makes websites more compatible with a wider range of platforms and browsers and devices.

Google is essentially a user who is blind and deaf with mobility impairments.

If a site is more accessible to people with disabilities, it is automatically more accessible to Google and thus better for SEO.

This means more users and potential customers will find your business's website more easily.

An accessible site can increase a business's customer base. Introducing barriers to people with disabilities can prevent a significant amount of traffic. People with disabilities have money to spend. If they can access your website, and if they like what you have to sell, they'll have the choice to buy it. If they can't access your website, it doesn't matter much if they like what you have to sell. They simply can't go through the steps of purchasing anything. Accessibility benefits a business's bottom line.

Being accessible can increase your eligibility for funding. Sometimes grant funding is only available to organizations that already have certain accessibility features in place—a TTY (TeleTYpe) line, an accessible website, etc. So by being accessible, it may increase an organization's ability to get funding.

If a business does any contract work with the government, **the government is usually required to put accessibility conditions in RFPs.** If a company knows how to make their deliverables accessible, and if they have a track record to prove that they have already done so in the past, they will be more likely to get the contract.

And lastly, if a business or organization is proactive and addresses accessibility, **the chances of bringing on a lawsuit is significantly lower.**

For Everyone

The last group that benefits from accessibility is—surprise—**everyone.**

Here's just one example: In the U.S., curb cuts are required. Curb cuts don't just benefit people in wheelchairs—they benefit people with strollers, dollies, and handtrucks; skateboarders; bikers; even dogs who are clumsy! An accessibility accommodation is an accommodation for everyone.

Digital Accessibility Guidelines

Web Content Accessibility Guidelines (WCAG)

If you've read this far, you've heard of WCAG. People pronounce the acronym in different ways—"wuhcag," "wihcag," "wycag." However you choose to say it, these are the guidelines that developers must follow for making digital platforms accessible.

WCAG isn't just a U.S. thing. It is regarded internationally as the most authoritative source of web accessibility guidelines—ISO standard. At time of publication, the current version is 2.1, although most laws around the world still point to the 2.0 version.

The WCAG guidelines are technology-agnostic, which means they're applicable across all current and future web technologies: HTML, PDF, ePub, Flash, Silverlight, video players, and so on. But because the guidelines are intended to be agnostic, they can seem a bit cryptic or vague.

Guideline 1.3.1 says:
"Information, structure, and relationships conveyed through presentation can be programmatically determined or are available in text." Why can't they just say use HTML landmark elements and appropriate heading levels? Because they're meant to apply to technologies other than just those that use HTML.

The guidelines are divided into four main principles:

1. **Perceivable:** Information and UI components need to be presented to users in ways they can perceive (to ensure content is accessible to people who are blind and/or deaf).
2. **Operable:** UI components and navigation must be operable (to make sure all features are accessible by keyboard; not just by mouse).
3. **Understandable:** Information and the operation of the user interface must be understandable (to be consistent, to convey the language of the content, and to ensure filling out forms is clear).
4. **Robust:** Content must be robust enough that it can be interpreted reliably by a wide variety of user agents, including assistive technologies.

These four principles are further broken down into 13 guidelines/topics:

Perceivable

1. Provide text alternatives for any non-text content so it can be changed into other forms people need, such as large print, braille, speech, symbols, or simpler language.
2. Provide alternatives for time-based media.
3. Create content that can be presented in different ways (for example simpler layout) without losing information or structure.
4. Make it easier for users to see and hear content, including separating foreground from background.

Operable

1. Make all functionality available from a keyboard.
2. Provide users enough time to read and use content.
3. Do not design content in a way that is known to cause seizures.
4. Provide ways to help users navigate, find content, and determine where they are.
5. Make it easier for users to operate functionality through various inputs beyond keyboards.

Understandable

1. Make text content readable and understandable.
2. Make web pages appear and operate in predictable ways.
3. Help users avoid and correct mistakes.

Robust

1. Maximize compatibility with current and future user agents, including assistive technologies.

Guidelines

These guidelines/topics are then further split down into success criteria. It's these success criteria that are the specific things that Four Kitchens tests for when doing an accessibility audit. The ones that can be automated are checked using automated checkers. Others require human judgment to determine whether they pass.

Each success criterion is designated as either Level A, Level AA, or Level AAA, where Level A refers to the minimum level of conformance, and Level AAA refers to the highest level of conformance. Most organizations set Level AA as their internal standard because it is both achievable and meaningful without being too burdensome on developers. There are also requirements within level AAA that contradict each other because different disabilities might require contradictory accommodations. It's great if you can go above AA and hit some AAA items, but AAA in its entirety isn't designed to be fully achievable.

There are currently two versions of WCAG in effect: 2.0 and 2.1. The latter is basically 2.0 plus 17 additional guidelines to follow. Twelve of these 17 new guidelines are level A and AA. They primarily address items related to mobile (small screens and touchscreens) that accommodate users with motor and dexterity disabilities, users with low vision, and users with cognitive disabilities.

So if you're running an automated checker and need to be testing against a certain version of the guidelines, check if tests are running against 2.0 or 2.1.

Authoring Tool Accessibility Guidelines (ATAG)

The Authoring Tool Accessibility Guidelines specify principles that web authoring tools (Dreamweaver, Wordpress, Drupal, Magento, etc.) should follow in order to facilitate the creation of accessible web content.

So while WCAG is mostly about the frontend of a site that a user would see, ATAG is about the backend of a site that an editor uses to create the content.

The guidelines are built around two focus areas:

1. Make the authoring tool user interface accessible. For instance, making the backend admin UI accessible so a user with a disability can use it to create content.

2. Support the production of accessible content. This includes accommodations such as having a field for an editor to enter an image alt text.

User Agent Accessibility Guidelines (UAAG)

User Agent Accessibility Guidelines (UAAG) are similar to ATAG, but they are about making user agents accessible. What's a user agent? It's anything that makes a request for content on the internet—browsers, web scrapers (Screaming Frog), video players, audio players, etc. So if you were building a custom media player, you'd follow UAAG guidelines to make the media player controls accessible.

Accessible Rich Internet Applications (WAI-ARIA)

Accessible Rich Internet Applications are sometimes called WAI-ARIA. WAI is short for "Web Accessibility Initiative," a group within the W3C (World Wide Web Consortium).

ARIA isn't a set of guidelines like WCAG, ATAG, and UAAG, but we've included it here as one of the many four-letter acronyms of accessibility because ARIA works in tandem with the guidelines.

ARIA is actually an API used to communicate with screen readers. It's a set of attributes a developer uses in their HTML that gets passed onto screen readers. So where HTML falls short, ARIA is used to fill in the gap and convey details that HTML cannot.

For example, when content is loaded on a page dynamically with JavaScript, a person who is blind and uses a screen reader has no way of knowing that new content has been added to the page. If ARIA is used properly, the ARIA will notify the user of the new content.

Accessibility in Technology

What technologies are we talking about when we're talking about web accessibility? There are several different areas of accessibility in technology.

First, no surprise, we're talking about **websites in a browser**—both on a desktop and on a mobile device. We could also be talking about native apps if they're built in a cross-platform manner like React Native. True native apps, however, are a different animal.

We're also talking about **accessibility in multimedia** (both the accessibility of the video and audio players themselves) and the content itself. The content generally requires knowledge of captioning and transcribing.

A note on automated captioning and transcribing:

Please don't blindly rely on automated captioning and transcribing for your content!

The automated services are an excellent start, but they're just that. They'll only get you 85% of the way there—at best.

Any documents that live on a website should also be accessible: PDFs, Word docs, MOBI files, ePubs, PowerPoint presentations, etc. Many of the underlying principles for making websites accessible carry over to these documents (like providing alt text for images and structuring the document using headings), although they're done in a different way.

Most of the time, PDF documents are exported or created from another type of document, and on the rare occasion that someone takes accessibility into consideration in the PDF, they may add a bunch of markup into the PDF and call it "accessible." The problem with this is that anytime the PDF needs to be updated, all the work in making the original PDF goes out the window and you have to add in the accessibility piece from scratch all over again. This is often incredibly involved and time consuming.
The entire process of making a PDF accessible is a rather complex beast. Seriously, entire weeklong workshops are devoted to nothing but accessibility in PDFs! If done right, the content is created in a Word doc that is marked up correctly, and that then gets imported into InDesign in such a way that the markup carries over. It is then formatted and styled and exported to a PDF so that much of the structure is carried over. The PDF then must be "cleaned up" to add things that haven't been carried over or to remove artifacts that are created during the conversion process.

If a PDF is generated on the fly, it needs to be done by a library or generator that allows PDF tagging. PDF tagging is essentially a PDF format that allows the HTML structure to be available to screen readers. Most libraries that allow you to generate PDFs on the fly do not have this capability. So it requires knowing that it's necessary and then researching which libraries have it.

Then there are Google documents—docs, spreadsheets, slideshows, etc. These are somewhat accessible for people with disabilities if the creator of the doc uses the tool properly and follows best practices. Data tables are still an issue, though, because Google uses a grid mechanism that screen readers don't support rather than an actual table markup. However, exporting a Google doc to a PDF is a trainwreck for accessibility. There is no way to export the accessibility elements—like the image alt texts and the document structure—into the PDF. You're forced into doctoring the PDF itself, which means you lose all this work if you have to update the Google doc and re-export it to a PDF, as mentioned earlier. Google docs' add-ons that export some of this to PDF are available, but they're extremely pricey.

So what's the TL;DR version on creating accessible PDF documents?
They require a minimum of using either a Word -> Adobe Acrobat workflow or Word -> InDesign -> Adobe Acrobat workflow. It's an involved process that requires a lot of time and effort. PDF accessibility work should always be its own unique project aside from other accessibility steps you can take on your site.

Accessibility Laws

So we've covered document accessibility. Let's move on to accessibility laws. Different countries have different accessibility laws. In this eBook, we're going to cover those applicable in the U.S.

Americans with Disabilities Act (ADA)

The ADA is a broad civil rights law that prohibits discrimination against people with disabilities in:

- Employment
- Architectural design
- Transportation
- Examinations and courses
- Other services offering "public accommodation"

ADA doesn't actually mention anything about web accessibility explicitly since it was signed into law in 1990. But many of the web accessibility lawsuits in the U.S. invoke the ADA as the basis for the legal complaint, specifically because of the language about "public accommodation." The argument makes sense: Since the public can access websites, the websites should be included in the ADA under public accommodation.

The ADA applies to:

- Private entities that own, operate, or lease to places of public accommodation. This means businesses and other organizations open to the public with the exception of religious entities and private clubs.
- Federal and state government entities.

The ADA is enforced by:

- Consumers (people with disabilities) filing formal complaints via lawsuit. The onus is on the user with disabilities to complain about a site not being accessible for any change to be made.

The Rehabilitation Act of 1973

The Rehabilitation Act was passed in 1973. It includes several pieces that prevent discrimination against people with disabilities, including:

- Sections 501 and 505: Prohibit federal employers from discriminating against qualified individuals with disabilities.
- Section 503: Prohibits employment discrimination based on disability by federal contractors or subcontractors.
- Section 504: Prohibits discrimination against qualified individuals with disabilities by any program or activity receiving federal funding. This is the piece that requires nonprofits and other organizations that receive federal funding to have accessible websites.

In 1998, Section 508 was added to the Rehabilitation Act. Section 508 requires the U.S. Federal Government to take accessibility into account when procuring information technologies: websites, telephones, copiers, computers, and other technologies, including both hardware and software.

Section 508 is broken down into a number of pieces. The ones most relevant to web accessibility are:

- 1194.21, Software applications and operating systems
- 1194.22, Web-based intranet and internet information and applications

In January 2017, during the last days of his administration, President Obama finally signed into law the Section 508 refresh that was many years in the making. A significant change is that the Web Content Accessibility Guidelines (WCAG) level A and AA guidelines are now incorporated by reference and required by Section 508. Prior to the refresh, Section 508 included its own list of requirements, which were a modified subset of WCAG 1.0 (not the current version of WCAG).

Section 508 applies to:

U.S. Federal Government entities only. But the effects of Section 508 have permeated the IT landscape because in order to sell to the federal government, private entities have to offer accessible products and services.

Section 508 is enforced by:

Again, consumers (people with disabilities) filing formal complaints via lawsuit

Voluntary Product Accessibility Template (VPAT)

One of the ways that Section 508 accessibility is assessed is through a Voluntary Product Accessibility Template (VPAT™). A VPAT is a document that explains how technology products, such as software, hardware, and electronic content, conform to the Section 508 standards.

VPATs help federal agency contracting officials and government buyers assess technology for accessibility when doing market research and evaluating proposals. So a VPAT is used for a finished product. The customer may ask to see the VPAT on the product to determine the level of accessibility support the product has so they can compare with other products they're considering.

21st Century Communications and Video Accessibility Act (CVAA)

The CVAA is the 21st Century Communications and Video Accessibility Act. It was signed into law in 2010. How it applies to us as web developers and to our clients is basically that all video programs presented with captions on television must be presented with closed-captions on the internet.

In the U.S., we have the Federal Communications Commission (FCC), which regulates the radio, television, and phone industries plus interstate communications, such as wire, satellite, and cable.

The CVAA applies to:

All entities already covered by the FCC regulations (namely, telecommunication hardware and software providers and television broadcasters and television hardware/software providers).

The CVAA requires "advanced communications services and products" to be accessible to people with disabilities. So we're talking about video communications on phones, text messaging, web browsers on mobile devices, and other similar technologies, like captioning on TV, etc.

So if we're working on a public media website that features its TV programs on its website, those TV programs, under the CVAA, are required to have captions on their website if they were presented on TV with captions. If they were presented on TV without captions, then under CVAA they're not required to have captions on their website. Yet this is moot in the end as WCAG requires captions.

So even videos that were aired on TV without captions still need to have captions on their website under WCAG. More on WCAG to come. Back to the CVAA.

The CVAA is enforced by:

Once again, consumers (people with disabilities) filing formal complaints via lawsuit

Air Carrier Accessibility Act (ACAA)

The ACAA of 1986 prohibits discrimination on the basis of disability in air travel and requires air carriers to accommodate the needs of passengers with disabilities. This is a great example of how far-reaching accessibility laws are—you probably never imagined an air carrier detail would apply to work in website development!

U.S. and foreign air carriers operating flights within or to the U.S. are required to ensure that their entire public-facing website content conforms to the WCAG Level AA. This extends to air carriers selling tickets to the U.S. public!

The ACAA is enforced by:
Consumers (people with disabilities) filing formal complaints

Overview

Web Content Accessibility Guidelines (WCAG)

- International standard
- Technology agnostic
- 4 main principles
- 13 guidelines
- 77 success criteria

Authoring Tool Accessibility Guidelines (ATAG)

- Current is 2.0
- Making the authoring tool itself accessible (Drupal admin)
- Making the content the authoring tool produces accessible (allowing admin to enter alt text, etc.)

User Agent Accessibility Guidelines (UAAG)

- Current is 2.0
- User agents like browsers, media players

Website Accessibility

- Websites in a browser
- Desktop
- Mobile devices

Mobile Accessibility

- Native apps with cross platform development

Multimedia

- Captioning
- Transcribing
- Media players

Documents

- PDF, Word, Mobi, ePub
- Accessible PDFs are a BEAST!
- PDF creation on-the-fly
- Inaccessible Google docs (Grackle?)
- TL;DR: PDF accessibility work should be its own separate project

Americans with Disabilities Act (ADA)

- Prohibits discrimination against people with disabilities
- Doesn't mention websites
- Applies to private entities
- Enforced by complaint

Section 508 of the Rehabilitation Act

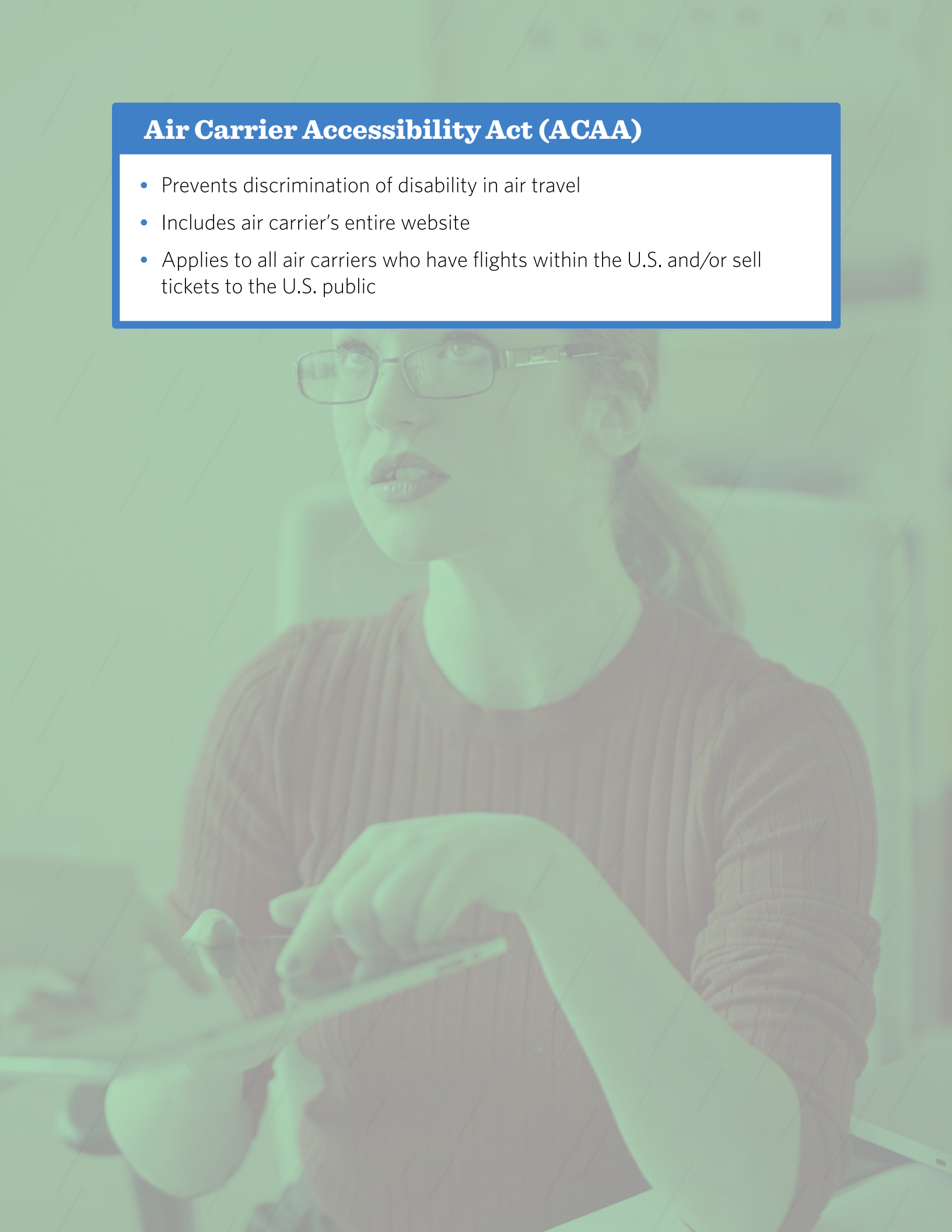
- Section 508 added in 1998
- For procurement, development, maintenance, and use of accessible IT
- Updated in 2017
- References WCAG 2.0 AA Guidelines
- Applies to federal government entities
- Enforced by consumer complaints

21st Century Communications and Video Accessibility Act (CVAA)

- Advanced communications services and products must be accessible
- Applies to all entities covered by the FCC
- If video is presented with captions on TV, then the captions are required to be included if video is put on the internet
- Enforced by consumer complaints

Air Carrier Accessibility Act (ACAA)

- Prevents discrimination of disability in air travel
- Includes air carrier's entire website
- Applies to all air carriers who have flights within the U.S. and/or sell tickets to the U.S. public



Compliance

Finally, now that you hopefully have a better understanding of ADA, Section 508 of the Rehabilitation Act, and WCAG, let's clear up a point of misunderstanding that often arises:

What's the difference between ADA compliance, Section 508 compliance, and WCAG compliance?

In a nutshell, everything points back to WCAG. WCAG is the underlying standard for both ADA and Section 508. Section 508 is the law that government and federally funded entities adhere to for accessibility, and ADA is the law that's used to enforce accessibility in the private sector.

There are some minor differences between Section 508's requirements and WCAG. Some of the guidelines are more specific for Section 508, while others are more relaxed in comparison to WCAG.

ADA doesn't actually reference WCAG standards, but in every lawsuit with an outcome that required the company to become accessible, the full WCAG Level AA guidelines are used as the standard that needs to be met.

These are, of course, some simple guidelines for accessibility compliance. But they are the first step your organization must understand in order to be compliant—both digitally and IRL.

Curious to see how you can level up your site's compliance and take the next step in catering to a broader audience?

FOUR KITCHENS
Way more than websites.

Four Kitchens can help.
Send us a note if you'd like to learn more.