

# **Breaking Down Barriers: An Analysis on the Flaws of Digital Accessibility in America**

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On my honor as a University Student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments

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## **Introduction to Web Accessibility**

In today's society, the luxuries of the internet are immeasurable. Groceries can be delivered to your door, transportation services can be ordered in advance, entertainment can be enjoyed from your bed, and other once burdensome services are being digitalized on a daily basis. This rapid digitalization has become hugely valued in America both as a symbol of our country's technical innovation and a matter of convenience. However, with companies turning their services over to the virtual world so quickly, many developers fail to consider the full ethical implications of their product. Significant factors such as impact on marginalized communities and accessibility of services are frequently overlooked, and this has had a particularly drastic effect on people with disabilities.

As digitalization expanded, the disability community needed to find a way to adapt to the virtual transition in order to reap the same benefits from the internet that able-bodied individuals were enjoying. This sparked the emergence of adaptive technologies, including screen readers for those with visual impairments, "sip-and-puff" devices for those with physical impairments, and assistive listening devices for the hard of hearing (University of Missouri n.d.). However, these adaptive technologies can only operate with compatible software, meaning the developers must design their technology in a way in which the devices can appropriately detect and translate the input/output of the software to the user. The majority of developers have failed to do this, with a recent study indicating that over 90% of websites were out of compliance with accessibility guidelines (Cahalane 2018). This creates a barrier to access for the disability community, preventing them from equally enjoying the perks of a virtual world.

This leads me to my research question: how have the expectations for accessibility changed throughout history and how do legislation, the American court system, and social organizations currently address and define accessibility in the virtual world? With this analysis of the history of web accessibility, I will work to understand how each of these different categories impact the disability community's access to virtual resources and gain insight on measures our country can take to continue expanding equal access to all individuals regardless of their physical or mental abilities.

## **Methodology**

In order to analyze the history and state of web accessibility in America, I gathered digital documents based on each of the three areas I am examining. For legislation, I researched legal documents, looking at legislative history both through established laws and at others' analyses and interpretations of the law. This serves the purpose of showing how web accessibility has come to be defined in the US and allowing me to understand the legal expectations of software designers in the realm of accessibility. For the courts, I researched court briefs, case law, appeals, and case summaries for significant web accessibility cases to understand the logic behind both sides of the case as well as the reasoning behind the court's final decision. This helps to communicate how legislation is currently being interpreted and how the courts are currently defining digital accessibility. For social organizations, I researched the World Wide Web Consortium and their online resources, such as the Web Content Accessibility Guidelines. These are essential to understanding what is available for developers who are eager to be more

inclusive in their design, while providing a base understanding for what the “highest level” expectations are for digital accessibility in today’s society.

## **The History of Accessibility Legislation**

The first step to understanding the state of digital accessibility in America is to analyze the accessibility laws that have been passed over the past 30 years. This provides background and context for the legal landscape of America while laying the basis for the court cases and societal expectations denoted in the upcoming sections. Furthermore, it paints a picture for how America’s understanding of accessibility has evolved and how that understanding was affected by the emergence of modern technology.

Accessibility legislation in America begins with the Rehabilitation Act. The Rehabilitation Act of 1973 was the first significant legislation in the US that required equal opportunities for civilians with disabilities in federal organizations. In particular, this law required that any organization within or associated with the federal government has to provide equal employment opportunities, equal availability of financial assistance, and equal access to federal institutions and transportation systems, such as public schools and subways (AskEARN 2022). While this law predated the presence of modern technology in daily life, it is important to recognize it as the foundation of the accessibility movement in America. Individuals with disabilities first attempted to make their way into the equal rights movement with the Civil Rights Act of 1964, proposing a provision that would ban discrimination based on disability in federal entities, which was entirely overlooked (Williams 2016). When that was rejected, these individuals brought the Vocational Rehabilitation Bill, an early version of the Rehabilitation Act, to Congress, which was vetoed by

President Nixon in 1972 on the basis that keeping federal spending and taxes down was priority to him over the equal treatment of citizens with disabilities (Nixon 1973). Thus, the passing of the Rehabilitation Act in 1973 was a huge success for the disability community, providing the first major step to equal access.

However, the Rehabilitation Act only addressed federal organizations, meaning that private businesses had no obligation to provide equal opportunities to those with disabilities. That is, until the Americans with Disabilities Act (ADA) was adopted in 1990. The ADA was structured similarly to the Rehabilitation Act, but included protections for any area of public accommodation, regardless of their affiliation with the federal government. These protections include equal employment opportunities, equal telecommunications access, equal transportation access, equal treatment in lower-level governments, and equal public accommodations and services (ADA National Network 2023). The major takeaway from the ADA at the time was that restaurants, stadiums, theaters, and countless other industries were required to provide both physical access for individuals with disabilities and equal job opportunities. Separately, though, the ADA took the first steps in acknowledging accessibility beyond the physical world, introducing regulations for telephone companies that ensured those that are visually and/or hearing impaired could utilize communications devices just as easily as those without disabilities (FCC 2016). This was expanded on 6 years later by the Telecommunications Act, which stated that telecommunications equipment manufacturers must uphold this section of the ADA by making their products accessible to those with disabilities (FCC 2021).

In 1986, an amendment to the Rehabilitation Act, known as Section 508, was adopted in order to incorporate similar responsibilities for federal entities to maintain equal communication access for those with disabilities. However, 10 years later the internet and use of digital resources

became much more prevalent in America, revealing that digital accessibility had a much larger scope than in the original Section 508. This caused another amendment to the Rehabilitation Act, updating this section to require federal agencies to make any online resources, including training videos, virtual meetings, and other digital assets, accessible to those with disabilities (EPA n.d.). Section 508 is the first true legislation requiring accessibility of all digital resources, but because of its positioning in the Rehabilitation Act, these obligations are once again only required of federal agencies.

Since the most recent adoption of Section 508 in 1998, there has been no legislation to effectively clarify the place of accessibility within the internet. The 21<sup>st</sup> Century Communications and Video Accessibility Act of 2010 presented regulations on access to the internet on mobile devices, closed captioning on videos, and general accessibility of modern telecommunications, but this simply does not address the need for accessibility in web or mobile application design like Section 508 does for federal organizations (FCC 2021). Hence, while significant steps have been taken in the past 30 years, America's legislation is not up to date with the modern dependence on virtual resources.

To summarize, accessibility's legal presence in America began with the Rehabilitation Act, mandating that federal organizations' physical establishments had to be accessible to individuals with disabilities. This was the first law to suggest that those with disabilities should have the same level of access and opportunity as those without. Thus, the Rehabilitation Act suggested that accessibility was something to start considering, but that it was more of a personal choice for organizations rather than something that should be globally mandated. The ADA changed this by introducing these standards for areas of public accommodation, modifying the accepted accessibility definition to "all organizations should provide equal access and opportunity to those

with individuals in the physical world.” Section 508, as adapted in 1998, began challenging this definition again by introducing the idea that corporations’ responsibility extends beyond the physical world due to the emergence of modern technology. This brings us to today’s legal understanding of accessibility, that digital accessibility should be required but that the government cannot hold private corporations responsible for their virtual resources. This goes to show that there is nothing currently mandating the presence of accessibility in digital areas of public accommodation.

## **Web Accessibility Lawsuits and the American Court System**

Given the lack of explicit clarity in current accessibility legislation, the burden falls on the judicial system to interpret where protections for digital accessibility are covered and how, if anywhere at all. The primary focus has been on Title 3 of the ADA, which states that “discrimination based on disability is prohibited in all places of public accommodation” (Thomson Reuters 2022). In 2021 alone, over 10,000 individuals filed lawsuits under this title, attempting to sue major corporations over inaccessibility and discrimination in the virtual world (Gonzales 2022). However, the definition of public accommodation has been hotly contested for the past several years: does “public” include the virtual world, or is the internet a separate, undefined space? This remains a question that divides the federal circuit courts, and the varying interpretations can be seen in three of the most significant accessibility cases.

The first of these cases is the National Association of the Deaf (NAD) v. Netflix in 2012, which was heard in the Massachusetts district court. In this case, Lee Nettles, backed by the NAD, claims that Netflix is discriminating against the deaf community by failing to provide

closed captioning on a number of their shows and films. Netflix's defense claims that, because their company is fully digital, their services do not involve a place of public accommodation and therefore cannot be a violation of the ADA. The court rules in favor of the NAD. Their first clause states that the ADA was meant to adapt to changes in technology, meaning the simple fact that Netflix is web-based is not enough for them to be excluded from upholding the ADA. Their second clause states that Netflix fits under multiple categories listed under Title 3 (place of exhibition and entertainment, sales or rental establishment, and service establishment), meaning that even despite their being a digital company, Netflix's services fall under explicit areas of accommodation in the ADA and are therefore accountable in the discrimination against the disability community under the ADA. This ruling still stands as a significant win for the disability community in America, as this was one of the first cases claiming that exclusively online businesses could be held to the standards of the ADA.

The second of these cases is Guillermo Robles v. Domino's Pizza, which was originally heard in a California district court in 2018 before the decision was appealed and brought to the Ninth Court of Appeals the following year. In this case, Guillermo Robles claims that Domino's does not provide accessibility to the blind and visually impaired due to their website's incompatible design with screen readers and other adaptive technologies. Part of Domino's defense was that their website did not categorize under a public place of accommodation, which was proved by the district court to be inaccurate under the "auxiliary aids and services" category, similar to the Netflix case. However, Domino's presented a unique second component to their defense, arguing that their right to due process was violated because the Department of Justice (DoJ) claimed eight years prior that they would issue guidance on how the ADA should be implemented in terms of digital accessibility, which had yet to be done. The district court saw



this as a valid reasoning, dismissing the case on the basis that the DoJ's lack of guidance meant Domino's could not effectively interpret the expectations of the ADA. However, after Robles appealed this decision, the Ninth Court found that this was not a violation of Dominos' due process, as the ADA clearly informs that "any covered entities must provide full and equal enjoyment of the[ir] goods, services, facilities, privileges, advantages, or accommodations to people with disabilities." The final decision was then in favor of Robles, but this surfaced the looming issue that came with the lack of explicitness in the ADA. The DoJ needed to make a statement on the expectations of the ADA in terms of digital accessibility, or these corporations could continue arguing that they do not know how to create adequately inclusive software.

The last of these cases is Juan Carlos Gil vs. Winn-Dixie, which was originally heard in a Florida district court in 2017 before the decision was appealed and brought to the Eleventh Court of Appeals in 2021. In this case, almost identically to Robles' case, Juan Carlos Gil claims that Winn-Dixie's website is incompatible with screen reader technologies and therefore is inaccessible to the blind and visually impaired. As with the other corporations, Winn-Dixie argued that its website could not be considered a place of public accommodation, to which the district court found the connection between the virtual and physical resources was strong enough to rule that the website's incompatibility with screen readers denied Gil equal access to Winn-Dixie's services. This ruling in Gil's favor was appealed by Winn-Dixie, though, and at the Court of Appeals, the judge reached a different conclusion. The Eleventh Court claimed that because the list of entities covered in Title 3 does not mention websites, that Winn-Dixie cannot be held accountable, stating that "pursuant to the plain language of Title III of the ADA, public accommodations are limited to actual, physical places." This case goes to show that the question of the internet's presence in Title 3 of the ADA is still long from being answered by the courts,

as one's opinion entirely depends on whether they believe the ADA should be interpreted within the context of time or whether it should be interpreted exactly as written.

Last year, the DoJ published the guidance for web accessibility and the ADA that they promised back in 2010 (DoJ 2022). While this resource clearly states that “the Department has consistently taken the position that the ADA’s requirements apply to all the goods, services, privileges, or activities offered by public accommodations, including those offered on the web,” they also claim they have supported this decision since 1996. The ruling of the Winn-Dixie case seems to clearly contradict this claim by the Department of Justice, meaning that this interpretation of the ADA was either not communicated to the courts or that there are still remaining loopholes to exclude virtual resources from the protections of the ADA.

## **The Web Accessibility Initiative and Web Accessibility Guidelines**

Outside the realm of the federal government, accessibility has deep roots within the software engineering community, which is primarily thanks to the World Wide Web Consortium (W3C). The W3C was established in 1994 as an international organization of highly skilled software engineers to manage and oversee the continued expansion of the internet (Dardailler 2009). Two years after the foundation of the Consortium, the group started recognizing the effects of the rise of the internet on those with disabilities, stating in a 1996 newsletter that the emergence of the web “presents new challenges and new hopes to people with disabilities.” Combining the momentum from this newsletter with a pre-existing passion project on digital accessibility by employee Mike Paciello, W3C eventually became the host of a new project: the Web Accessibility Initiative (WAI).

Though WAI began 23 years ago, their presence and resources have only expanded, with WAI now standing as one of the most credible resources for software engineers aspiring to be inclusive in their design. The current WAI website walks users through five steps to promote digital accessibility. The first, accessibility fundamentals, provides users with a definition for and introduction to web accessibility. This introduction is all-encompassing: walking users through various use cases of individuals that could require accessibility features, explaining detailed design principles with explicit examples, and even outsourcing to other organizations' resources in case the user requires further context or explanation, which provides users with a holistic base understanding of the requirements and potential benefits of accessible design. The second step, planning and policies, suggests strategies to the user for changing the mindset of the organization they work for. This explains that in order to have accessible design, your organization needs to constantly be mindful of their users and set clear standards in place to uphold the belief that design should be inclusive. Following this section on systemic change, WAI moves into design and develop, which delves into the design principles from the introduction. This section explains to users how they can use color, labeling, feedback messages, and other principles and coding techniques to combat current issues with web accessibility. The next section, test and evaluate, gives users a means of testing their design themselves but also provides automated tools testing, giving the disclaimer that those tools may not be able to catch every instance of inaccessibility in a system. The final section, teach and advocate, provides users with steps for sharing their knowledge with others, including resources for making their own course, establishing training programs, and contacting companies with inaccessibility issues. However, in my opinion, the most eye-catching component of teach and advocate is the business case. The business case proves to the user that while providing benefit to users with disabilities, accessible design can in

turn provide benefit to the business, citing innovation/competitiveness, brand enhancement, market reach, and minimization of legal risk as the explicit advantages (W3C 2023).

The sixth page of WAI elaborates on codified accessibility standards that extend beyond WAI's own website, with the most significant being the Web Content Accessibility Guidelines (WCAG). The first issue of the guidelines came out in 1999, focusing the guidelines on HTML, with the second version out in 2008 to expand the guidelines to all coding languages (Birney 2020). WCAG is based on four primary principles of accessible design: perceivability, operability, understandability, and robustness, which each have subcategories detailing how specifically websites should maintain accessible design (W3C 2023). Out of WAI's tools for testing digital accessibility, 62% test based on WCAG, showing the sheer significance of WCAG in comparison to other accessibility standards (Eggert et al. 2016). Section 508 of the Rehabilitation Act also utilizes WCAG to test for accessibility compliance in federal entities, and even courts have begun using WCAG as a way to ensure compliance with the ADA (accessiBe n.d.). However, studies have proven that, despite the high credibility of it, WCAG still falls short in testing essential areas of accessible design, including properly concealing information, grouping related content, using custom components, creating high visibility buttons and text, and intuitive information layout (Calvo et al. 2016). This proves that America is still not meeting all of the needs of the disability community when it comes to web design. If independent researchers can pinpoint and define the failures in WCAG, it seems that W3C should be able to correct these equally as fast to ensure the highest level of support for inclusive design.

## **Accessibility Analysis and Future Steps**

From my research, it is clear that accessibility has become more prevalent in America over the past 50 years. Prior to the Rehabilitation Act, most Americans were more concerned with money and taxes than ensuring equal access for those with disabilities. Now, companies are expected, both by the DoJ and renowned social organizations such as W3C, to ensure that Americans with disabilities can benefit from the virtual world just as much as anyone else. However, it is equally clear that America has not taken all measures necessary to define what true equality looks like for users of the internet with disabilities. The ADA remains the only legislation to address public organizations' responsibility to uphold accessibility, but the unclear language has allowed for years of misinterpretation by the courts. At the very least, this has caused financial damage to individuals with disabilities, but I presume that many have experienced emotional damage as well. Major corporations frequently avoid a guilty verdict on a slight technicality of the law, causing dismissals of individuals that are simply seeking equal access to virtual resources. Additionally, WCAG has only been updated once since its initial release in 1999, and it took 19 years for that second release to be formalized. If the W3C cannot codify new accessibility standards rapidly, I would imagine the discovered flaws of WCAG would be acknowledged in another manner, but this is seemingly not the case. Ignoring these discoveries leaves users that are encountering these issues behind, furthering the lack of digital equality.

In order to move forward, the first step that is necessary is a re-evaluation of WCAG. If the Web Content Accessibility Guidelines are to remain the internationally recognized standard for web accessibility, they should be all-encompassing. There is currently a working draft of the third version of WCAG, which is working to provide more user-friendly language, meaning that WCAG will be more understandable to designers. However, the draft seemingly fails to add any

new design principles or coding standards, so there is no actual improvement in the content of the guidelines. Perhaps restructuring WCAG entirely may provide more benefit, as a divide between accessible design and accessible development may be necessary to clarify the steps of software engineering for inclusivity. Additionally, new legislation or means of enforcement needs to be established. While the courts can mostly uphold the ADA in terms of the web, the vague language of the ADA will consistently present new issues with new innovations. The US needs legislation that is written to adapt with the emergence of these new technologies.

Thankfully, a bill for a new accessibility law, the Websites and Software Applications Accessibility Act (WSAAA), was proposed to the Senate in late 2022. This potential new law would provide a clear definition for web accessibility and the expectations of companies' software, but even more significantly, this law would give the DoJ and Equal Employment Opportunity Commission the power to update the law as necessary ([source](#)). This would theoretically correct the issues that are currently faced with the ADA, making the WSAAA a living document. With the combination of new legislation and updated guidelines, the courts would also have a more concrete precedent to rule on, which would consequently increase the accessibility of the web and equal treatment of the disability community in America.

## **Conclusion**

Through my research, I can conclude that all three of the analyzed groups exhibit failures of some sort in ensuring that individuals with disabilities have full, unobstructed access to the internet. The legislation presents vague language, failing to directly address the need for digital accessibility. The courts do not have a solidified standing on how the ADA interprets digital

accessibility. And social organizations provide guidelines that do not fully encompass the needs of those with disabilities. In order to acknowledge and account for these failures, our country must reconstruct our digital accessibility legislation and guidelines. This can be done by continuously pushing for legislation that is up-to-date with modern technologies and ensuring frequent reviews of recognized accessibility guidelines. Doing this will help our country work to overcome these issues and ensure we continue to move towards a fully equal and accessible digital world.

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