Consequences of the Differences in Regulations for Website Accessibility in the Public and Private Sectors

A Research Paper submitted to the Department of Engineering and Society

Presented to the Faculty of the School of Engineering and Applied Science

University of Virginia • Charlottesville, Virginia

In Partial Fulfillment of the Requirements for the Degree

Bachelor of Science, School of Engineering

Jacob Wald

Spring 2025

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

Advisor

Karina Rider, Department of Engineering and Society

Introduction

In the 70s and 80s, countless disability activists fought tirelessly for accessibility. Recognizing that the world as they knew it was not built for those with disabilities, they realized that change was needed and was something that had to be fought for. After countless protests, sit-ins, and conversations, President George H.W. Bush signed the Americans with Disabilities Act (ADA) in 1990, making discrimination based on disability illegal in employment, public transportation, public programs, telecommunications, and public accommodations. Today, we are amid a new accessibility crossroads. Just as physical barriers once kept people with disabilities out of schools, workplaces, and public life, digital barriers now threaten to do the same in an increasingly online world. The ADA, groundbreaking in 1990, was written before smartphones, online learning, and telehealth became everyday necessities. Yet, as the world has moved online, enforcement of digital accessibility has lagged — leaving many websites, apps, and platforms inaccessible, particularly in private businesses that serve the public (Mullin, Gould, Harris, 2020).

We are once again called to recognize that accessibility is not a static goal but an evolving commitment. Just as activists in the past demanded curb cuts and elevators, today's advocates are demanding accessible code, inclusive design, and stronger enforcement of digital rights. The promise of the ADA can only be fulfilled if it continues to adapt — and if we continue to push for a world, both physical and digital, that truly includes everyone.

This paper asks: How does the Americans with Disabilities Act regulate digital accessibility differently in the public versus private sectors, and what are the consequences of this divide? Policymakers say that the ADA, particularly through Titles II and III, offers broad

protection against discrimination – and that litigation is available as a remedy when violations occur. But I say that in today's digital-first world, this patchwork approach is no longer enough. Without proactive regulations or clear standards for the private sector, millions of disabled individuals are effectively excluded from online spaces that are central to modern life – from education and employment to shopping and social participation. To fulfill its original promise, the ADA must evolve to meet the demands of a digital society – and that evolution starts with confronting the growing inequities between public and private digital spaces. This means moving beyond reactive, case-by-case enforcement and toward proactive regulations that require private entities to meet specific digital accessibility standards, much like public institutions are already expected to do. Without a consistent and enforceable framework, the ADA risks falling short of its goal of full inclusion.

The first part of this paper will feature a synthesis of ADA developments over time, with a focus on the current challenges of adapting ADA to the needs of the digital world. This will be followed by a critical analysis of the consequences of the public—private regulatory divide, examining its impact on disabled individuals as well as on the businesses navigating compliance and accessibility-related lawsuits. Through this approach, I aim to assess the adequacy of current regulations and highlight the need for stronger, clearer standards in the private sector.

Background & Context

ADA is broken up into 5 titles: Title I – employment, Title II – state and local government services as well as public transit, Title III – businesses that are open to the public, Title IV – telecommunication companies, and finally Title V – other miscellaneous requirements (U.S. Department of Justice, n.d.). This paper focuses on Titles II and III and will thus not cover

the other titles. The main difference between Titles II and III is that Title II pertains to government entities and Title III pertains to businesses, private and public, that are open to the public.

In the 21st century, we moved towards the digital era and with it came a whole new slew of accessibility challenges. While the ADA act had done a good job ensuring accessibility in government facilities and businesses serving the public, countless problems still existed because it had not yet accounted for digital accessibility. Following this, in 2010 the U.S. Department of Justice (DOJ) issued an Advanced Notice of Proposed Rulemaking, indicating that the ADA's accessibility requirements apply to websites, though formal regulations were not established at that time (Hodges, Loizzi, Eisenhammer, Rodick & Kohn LLP, 2016). Then, in 2017 Section 508 of the Rehabilitation Act was updated to require federal agencies to make all information and communication technology WCAG 2.0 Level A and AA compliant (Blind Muse, n.d.). WCAG is The Web Content Accessibility Guidelines and is a global collaboration on technical standards to make digital assets accessible. 27 years after the signing of the ADA, tangible requirements for digital accessibility were finally put in place, setting a precedent for digital accessibility and bringing it into more conversations.

This brings us to 2024, the next time updates were made pertaining to digital accessibility. Here, the DOJ published a final rule updating Title II regulations. This rule focused on ensuring that web content and mobile applications provided by state and local governments are accessible to individuals with disabilities (Department of Justice, 2024). Key to this ruling was the adoption of WCAG 2.1 Level AA, requiring state and local governments to conform their web content and mobile apps to this level of compliance. Deadlines were also established for compliance with these new amendments. The significance of this cannot be overstated. While

ensuring that digital content is accessible for those with disabilities is important, what goes hand in hand with this is making it clear what exactly digital accessibility means. Adopting the WCAG standard gives entities real guidance as to what exactly needs to be done and sets a standard for what digital accessibility compliance looks like.

To put this problem into context, as of 2024, 95% of adults use the internet. That is not surprising (Gelles-Watnick, 2024); but what may surprise you is that more than 61 million people in the U.S., nearly 1 in 4, have a disability that affects their access to digital services (Krupa, Roark, Barrett, 2022). To further this point, a study in 2009 found that 80% of Fortune 500 companies were potentially inaccessible to those with vision impairments (Loiacono, Romano Jr., McCoy, 2009), and another study in 2016 reviewing the top 25 health information sites noted that only 2 sites passed automated accessibility checks with no errors. Notably, this same study also found that government sites were markedly more accessible in almost every area compared to non-government sites — and this was before the amendment to Title II (Youngblood, 2020).

Methods, Scope & Theoretical Framework

To investigate the regulatory divide in digital accessibility under the ADA, I employed a qualitative, document-based research methodology grounded in the lens of the key STS concept of Actor Network Theory.

Methods

My research drew from a variety of publicly available sources, including government websites and documents, academic and legal analyses of ADA regulations and digital accessibility compliance, as well as various blog posts, legal insights, and policy commentary on

the effects of recent regulatory changes. To deepen my understanding, I spent extensive time on the ADA gov website as well as the ADA National Network site, reviewing official guidance, timelines, enforcement examples, and research briefs. Additionally, I incorporated user narratives from sources like W3C to ground abstract policy discussions in real-world experiences.

While I initially aimed to focus on digital accessibility in the education sector, the recent Title II amendment shifted the research toward the broader public/private divide. Notably, I did not include interviews or survey data. Instead, I relied on published legal commentary and government reports to investigate compliance feasibility and enforcement mechanisms. My goal was to balance systemic critique with illustrative examples, without relying solely on emotional appeals.

Scope

This research is scoped around the U.S. legal and regulatory landscape, with particular emphasis on the contrast between Title II and III of the ADA. It is not a comprehensive examination of digital accessibility in the global context and does not cover accessibility as it relates to other the other Titles of the ADA. Additionally, due to the recency of the 2024 Title II amendment and the absence of updated Title III regulations, academic scholarship was limited. Accordingly, my analysis draws heavily from legal blogs, public policy briefs, compliance data, user story archives, and federal agency publications. This approach is intended to offer a well-rounded understanding of the current regulatory divide, its practical effects, and the enforcement/feasibility of regulatory compliance.

Framework

This project is grounded in Actor-Network Theory (ANT), an STS framework that views social and technological "actors" as part of a single, entangled network of relations in which they all influence each other. Rather than treating disability as an inherent trait or static identity, ANT allows us to understand it as something co-constructed through interactions between people, technologies, institutions, and environments (Latour, 1992).

From this perspective, someone who is considered disabled is not so when they are in a fully accessible environment; so rather than the individual being disabled, the environment elicits their disability. A website that cannot be navigated by keyboard or lacks screen reader capability, for example, is not just a technical inconvenience; it actively defines the boundaries of participation for a disabled user. The absence of accessibility becomes a way of scripting who counts as a legitimate user of a digital space.

Applying ANT, I examine the ADA as an evolving regulator actor within the network. The amendment to Title II in 2024 reconfigures part of this network, strengthening state responsibility and leaving private sector obligations ambiguous. Through this lens, I attempt to reveal how legal and technical standards shape the lived realities of disability, determining whether disabled individuals are included or excluded from digital life. It is the regulations that limit their participation, *not* their disability.

Findings & Analysis

Uneven Regulations & Enforcement

Amidst increasingly concrete regulations for entities falling under Title II, regulations for Title III entities remain vague and unevenly enforced. With the recent amendment to Title II, all eyes are on Title III and the private sector that it applies to. Similar amendments have yet to be made to Title III, and as a result, not only are private companies lacking guidance for what it means to be accessible, but those with disabilities who have accessibility related problems with private entities' digital content can only find solutions via case-by-case litigation – an unreasonable and expensive solution.

Specifically, Title III "prohibits discrimination on the basis of disability in the full and equal enjoyment of places of public accommodation" (Department of Justice, 2024). As you may be wondering, what exactly is a "place of public accommodation"? Unfortunately, due to this outdated diction, the same question comes up in court. The word "place" is taken very seriously. In more liberal courts, you often find that they rule in favor of plaintiffs pursuing legal action against inaccessible websites; however, in more conservative courts, the word "place" is limited to a physical location (Nakata, 2022). Under Title III, there is a legal requirement known as the nexus test. This test exists to address this vague diction as, in most jurisdictions, discrimination not occurring in a physical location does not fall under the ADA unless there is some connection, or nexus, between that discrimination and a physical establishment. Room for interpretation that exists within Title III of the ADA has caused a split between the circuits as to how they handle these cases, and even worse, some circuits are split within, meaning that it depends on the judge you get (Nakata, 2022; Guta, 2022).

In addition to the ADA lacking an explicit declaration of websites and mobile apps as places of public accommodation under Title III, the ADA also does not explicitly define the standards for web accessibility. As a result, when a court rules in favor of the plaintiff, saying that a website is indeed inaccessible and thus violates the ADA, there are no explicit and enforceable guidelines for this company to follow. Businesses are advised to follow WCAG guidelines, but these guidelines can not be mandated by the ADA (Hollingsworth, 2024). All of this furthers the narrative that while regulatory clarity and accountability are improving in the public sector, significant gaps remain in the private sector which currently exists in a legal gray zone. This directly supports my main argument: that the ADA's evolving clarity under Title II only underscores the absence of similar progress under Title III, leaving the private sector mired in ambiguity.

Real-World Consequences

In user stories compiled by the W3C Web Accessibility Initiative, individuals with disabilities describe consistent barriers they face in both public and private digital spaces. One blind user, Lakshmi, shares that at work she and her team must search for the most accessible software, and even then, there are problems (W3C Web Accessibility Initiative, n.d.). For example, the screen reader for the video conferencing app her company used did not announce chat messages. Lexie, a colorblind person, does most of her shopping online as online stores often provide labels for their clothing's color (W3C Web Accessibility Initiative, n.d.). She often struggles during the checkout process however, due to red error fields not being visible to her. These stories make one thing clear: it is not the disability itself, but the inaccessible environment that disables. These firsthand accounts emphasize how vague private-sector obligations result in exclusion by default — a core issue of the regulatory divide this paper aims to illuminate.

Statistics support this pattern. WebAIM does a yearly report on the accessibility of the top 1,000,000 home pages (WebAIM, 2025). While these most certainly expand beyond the U.S., more than half were in English, averaging 39.8 errors per home page. In 2025, across the one million home pages, nearly 51 million distinct accessibility errors were detected. That is nearly 51 errors for each home page. It is also apparent that government websites perform the best when tested, seeing the greatest improvement and lowest number of errors as shown in figure 1. This is a stark contrast with the privately dominated shopping sector with nearly twice as many errors while at the same time regressing since 2024. These disparities between government and business sites show the practical impact of unequal regulation — highlighting just how much the legal gray zone of the private sector translates into persistent digital barriers.

Figure 1.

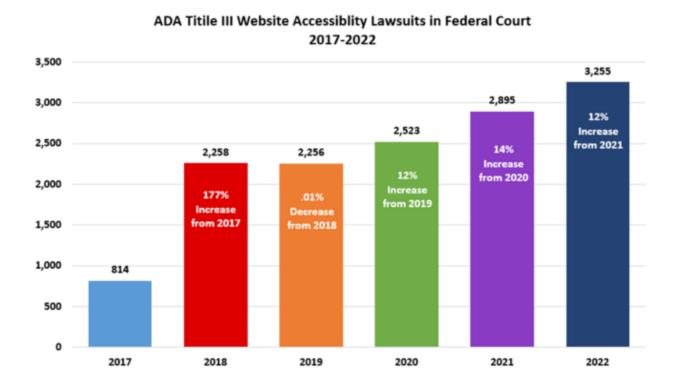
Industries average accessibility errors per home page

Category	Avg. # of errors	% difference from 2024
Government	37.2	-27.0%
Non-Profit/Charity	40.0	-21.6%
Social Media	41.7	-18.1%
Technology & Computing	41.8	-18.0%
Careers	44.4	-12.8%
Business	44.8	-12.1%
Society	46.2	-9.3%
Education	47	-7.8%
Health and Fitness	47.7	-6.4%
Arts and Entertainment	54.1	+6.1%
News/Weather/Information	59.8	+17.4%
Sports	66.3	+30.1%
Shopping	71.2	+39.8%

For businesses, the lack of clear federal guidance also creates challenges. Inaccessible websites have increasingly become the target of lawsuits under Title II, but without uniform

enforcement or technical standards, litigation becomes unpredictable. Figure 2 shows a steady increase in lawsuits filed under Title III across the years. This trend will continue if legislation is not changed, legislation that is clearly affecting not only disabled individuals, but the businesses themselves that must deal with constant lawsuits and inconsistent rulings. What makes this worse is that smaller companies with fewer resources to fight these cases and address accessibility concerns without government guidance are hit the hardest by these lawsuits with 77% of ADA-related lawsuits being filed against organizations with less than \$25 million in revenue (Szczesny, 2024). This again reinforces the central point: in the absence of clear, enforceable standards under Title III, the private sector bears the costs of uncertainty — a system that fails both users and businesses alike.

Figure 2 (Launey, Vu, 2023)



From an STS perspective, these outcomes are not random. Actor-Network Theory (ANT) tells us that technologies, laws, and users are all actors in a network that constructs what participation looks like. In the case of Title III, the lack of formal standards shapes a sociotechnical environment that defines certain users — disabled users — as outsiders by default. Accessibility is not a feature that is "missing"; it is a social decision, reinforced by design, legal ambiguity, and policy. As a result, disabled individuals must work harder to access basic digital services, and the burden of proof remains on them to demand inclusion — one lawsuit at a time. On the opposing side, companies must fight these suits even though the government does not provide them with proper guidelines and explicit regulations they can abide by which would then in turn protect them from suits.

Feasibility

After conducting a deep dive into the various regulations put in place by the ADA under Title II & III as well as Section 508 of The Rehabilitation Act, I wanted to investigate whether the digital accessibility demanded by the Title II amendments and often implicated by Title III litigation rulings was feasible. After all, Section 508 of The Rehabilitation Act was put in place in 1998, requiring federal agencies to make their websites accessible, and it was updated in 2017 to adopt WCAG 2.0 as a requirement, yet in 2023 an assessment on federal websites found that "overall compliance to Section 508 is well below expectations given the federal government has had over 20 years to implement programs capable of achieving and maintaining modern ICT Standards." (Heilweil, 2023).

The problem is that WCAG 2.1 Level A & AA is a hard standard to meet, particularly for large websites. Governments face even more challenges than private entities because governments employ countless web applications to provide the myriads of services offered to

residents. Think about the countless services that governments provide, from dog licensing to park reservations. Each one of these requires its own website, and each one has a compliance date two years from now when accessibility was not achieved to an acceptable standard in 25 years. Legal experts specializing in disability law also emphasize the fact that if federal agencies and the private sector struggle to manage WCAG compliance, it will be even more difficult for state and local governments meant to do it in two years with less money and fewer resources (Nakata, 2024).

When you investigate how this is enforced, even more questions are raised. While the DOJ published compliance dates (Department of Justice, 2024), no enforcement for non-compliance by these dates is noted. This begs the question as to whether any consequences will even be faced if these standards are not met, watering down what seemed to be a victory for disability advocates. Experts also question whether a Title III amendment like the Title II one will be seen any time soon. Legal analysts point to several major obstacles standing in the way of a formal Title III web accessibility regulation (Nakata, 2024). For one, any new federal rule must be accompanied by a detailed economic impact analysis – a process that becomes exponentially more complex when applied to every private business in the country. Estimating compliance costs across such a diverse and sprawling sector leaves the DOJ vulnerable to scrutiny and legal challenges.

More could be said about the issue of feasibility and enforcement of government noncompliance, but that is unfortunately outside of the scope of this paper.

Conclusion

The ADA was a landmark piece of legislation that fundamentally reshaped the physical landscape of accessibility in the United States. Yet, as this paper has shown, it has struggled to keep pace with the digital world. Through a comparison of Titles II and III, it becomes clear that while the public sector is finally receiving concrete standards for digital accessibility, the private sector continues to operate in a legal gray zone – one defined by vague obligations, case-by-case enforcement, and mounting litigation. The current regulatory divide places an undue burden on disabled individuals who must navigate inconsistent access and pursue legal action to claim their rights, while also harming private businesses that lack guidance on how to comply.

ANT helps us understand that disability is not simply a condition of the body, but one that emerges through design choices, legal infrastructures, and social decisions. As long as digital spaces remain inaccessible, they act as gatekeepers – shaping who gets to participate and who remains excluded. In this way, the failure to regulate digital accessibility is not a passive oversight, but an active contributor to digital inequality.

So what should be done? The first and most urgent step is for the DOJ to issue formal, enforceable Title III regulations that mirror those now in place under Title II. These should include clear adoption of WCAG standards and a realistic timeline for compliance, along with funding support and technical assistance – particularly for small businesses. These small businesses must be carefully attended to as such compliance is difficult, often costly, and an undue burden for small businesses. At the same time, Congress must consider clarifying the language of the ADA to explicitly include digital spaces as places of public accommodation, ending the legal ambiguity around the word "place" and uneven interpretations it invites. The

world is only going to move more and more online. Eventually we need to accept the fact that websites are no different from curb cutouts and accessible entrances.

Future research should continue to document the lived experiences of disabled individuals navigating inaccessible digital environments, particularly in underrepresented sectors like small businesses and private education. More empirical work is also needed to evaluate real-world impact of WCAG compliance – from both usability and an implementation standpoint – so that future policy can be grounded in data and principle. Questions still remain as it pertains to the feasibility and enforcement of compliance, but these are questions that must be addressed after legislation requiring compliance is normalized.

Ultimately, accessibility must be understood not as a static requirement, but as an evolving, collective responsibility. Studies note that accessibility enhances experience even for those who do not need it, lending itself to good practice in general (Szczesny, 2024). As our world becomes increasingly digital, the promise of the ADA will only be fulfilled if we are willing to extend its protections into every corner of modern life—websites included.

References

- Gelles-Watnick, R. (2024, January 31). *Americans' use of Mobile Technology and Home Broadband*.

 Pew Research Center. https://www.pewresearch.org/internet/2024/01/31/americans-use-of-mobile-technology-and-home-broadband/
- Guta, E. (2022). Clicks, bricks, and politics: Website accessibility under Title II and Title III of the Americans with Disabilities Act. *Mercer Law Review*, 73(2), Article 11.

 https://digitalcommons.law.mercer.edu/jour_mlr/vol73/iss2/11/
- Heilweil, R. (2023, December 28). Government not meeting minimum accessibility standards on federal websites, GSA report finds. FedScoop. https://fedscoop.com/government-accessibility-standards-websites-gsa-report/
- Hodges, Looizzi, Eisenhammer, Rodick, & Kohn. (2016, August 8). *DOJ releases Advanced notice of proposed rulemaking for accessing public entities websites*. HLERK. https://hlerk.com/doj-releases-advanced-notice-of-proposed-rulemaking-for-accessing-public-entities-websites/
- Hollingsworth. (2024, May 20). What Websites Are Exempt From ADA?. Oyova. https://www.oyova.com/blog/what-websites-exempt-ada/
- Krupa, Roark, & Barrett. (2022, September 22). *Issue Brief* | *The Critical Role of Web Accessibility in Health Information Access, Understanding, and Use*. The Critical Role of Web Accessibility in Health Information Access, Understanding, and Use.

https://ahimafoundation.ahima.org/research/the-critical-role-of-web-accessibility-in-health-information-access-understanding-and-

use/#:~:text=Web%20accessibility%2C%20or%20digital%20accessibility,people%20ages%2060 %20and%20older.

- Latour, B. (1992). Where are the missing masses? The sociology of a few mundane artifacts. In W. E. Bijker & J. Law (ed.), *Shaping Technology / Building Society: Studies in Sociotechnical Change* (pp. 225-258). The MIT Press.
- Loiacono, E. T., Romano, N. C., & McCoy, S. (2009). The State of Corporate Website Accessibility.

 *Communications of the ACM, 52(9), 128–132. https://doi.org/10.1145/1562164.1562197
- Mullin, C., Gould, R., & Parker Harris, S. (2020). *ADA research brief: Digital access and Title III of the ADA*. ADA National Network Knowledge Translation Center.

 https://adata.org/research_brief/digital-access-and-title-iii-ada
- Nakata, K. (2022, July 18). *A better approach to the nexus test*. Converge Accessibility. https://convergeaccessibility.com/2022/07/18/better-approach-to-the-nexus-test/
- Nakata, K. (2024, November 25). How to Comply with DOJ's Seemingly Impossible Web Accessibility

 Regulation. Converge Accessibility.

 https://convergeaccessibility.com/2024/11/25/how-to-comply-with-dojs-seemingly-impossble-web-accessibility-regulation/
- Nakata, K. (2024, May 6). Web Accessibility Regulation for the Private Sector?. Converge Accessibility. https://convergeaccessibility.com/2024/05/06/web_accessibility_regulation_private_sector/
- Shaw, S. (2023, January 24). *Plaintiffs set a new record for website accessibility lawsuit filings in 2022*.

 https://www.adatitleiii.com/2023/01/plaintiffs-set-a-new-record-for-website-accessibility-lawsuit-filings-in-
 - 2022/#:~:text=Seyfarth%20Synopsis%3A%20Plaintiffs%20filed%203%2C225,lawsuits%20filed%20in%20federal%20court

- Szczesny, J. (2024, August 5). *Understanding digital accessibility requirements in the private sector*.

 Launch by NTT Data. https://launch.nttdata.com/insights/understanding-digital-accessibility-requirements-in-the-private-sector
- The Blind Muse Foundation. (n.d.). Everything you need to know about section 508. Blind Muse Foundation. <a href="https://blindmuse.org/blog/everything-you-need-to-know-about-section-508/?gad_source=1&gclid=Cj0KCQjwna6_BhCbARIsALId2Z1zdstLs8NAAYN90zGN3vZJXVMkzyTt6FWhLyYh4xXY1xdoiuC_CFEaAnacEALw_wcB
- U.S. Department of Justice. (n.d.). *Introduction to the Americans with Disabilities Act*. ADA.gov. https://www.ada.gov/topics/intro-to-ada/
- U.S. Department of Justice. (2024). Nondiscrimination on the basis of disability; Accessibility of web information and services of state and local government entities.
 https://www.ada.gov/assets/pdfs/web-rule.pdf
- W3C WAI. (n.d.). *Lakshmi, senior accountant who is blind*. W3C Web Accessibility Initiative. https://www.w3.org/WAI/people-use-web/user-stories/story-three/
- W3C WAI. (n.d.). Lexie, online shopper who cannot distinguish between certain colors (color blindness).

 W3C Web Accessibility Initiative. https://www.w3.org/WAI/people-use-web/user-stories/story-four/
- WebAIM. (n.d.). *The 2025 report on the accessibility of the top 1,000,000 home pages*. https://webaim.org/projects/million/
- Youngblood, N. E. (2018). Digital inclusiveness of health information websites. *Universal Access in the Information Society*, *19*(1), 69–80. https://doi.org/10.1007/s10209-018-0629-1