The Forest and the Trees: Scaling for Enterprise-Level Digital Accessibility

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# Abstract

As technology increasingly infuses daily life, it has become necessary to develop standards for regulating its accessibility. In January 2018, the United States formally appended the Web Content Accessibility Guidelines, version 2.0 (WCAG 2.0) to Section 508 of the Rehabilitation Act of 1973 (Section 508). This addition, combined with Dear Colleague Letters (DCLs) and case precedent, has broached the question of how organizations adhere to this standard. An action plan and, in many cases, an IT accessibility coordinator to implement the strategies in the plan are effective steps towards compliance and adoption. To address information and communication technology (ICT) accessibility issues, organizations can issue internal guidance, determine compliance issues, and train developers and content stewards. This paper is intended to assist in developing action plans to position an organization for ICT accessibility.

# Introduction

As technology increasingly infuses daily life, it has become necessary to regulate its accessibility. The purpose of civil rights laws governing accessibility is to ensure that all people, regardless of race, sex, disability, or any other aspect of identity, have equal opportunities to participate in every facet of life. Specific laws, such as the Americans with Disabilities Act as Amended (ADA) and Section 504 of the Rehabilitation Act of 1973 (Section 504), make specific provisions for persons with disabilities. In January 2018, the United States formally adopted the Web Content Accessibility Guidelines, version 2.0 (WCAG 2.0) as its information and communication technology (ICT) accessibility standard and appended these guidelines to Section 508 of the Rehabilitation Act of 1973 (Section 508). This amendment, combined with Dear Colleague Letters (DCLs) and case precedent, has introduced the question of how organizations, whether federal, state, public, or private, can adhere to this standard. A developed action plan and, in many cases, an IT accessibility coordinator to implement the strategies in the plan are effective steps towards compliance and adoption.

 The new Section 508 standards apply to federal agencies and offices, not to other organizations. However, the DCLs issued by the Department of Justice (DOJ) and the Office for Civil Rights (OCR) in 2010 (U.S. Department of Justice Civil Rights Division, U.S. Department of Education Office for Civil Rights, 2010) and 2011 (U.S. Department of Education, Office for Civil Rights, 2011) make it abundantly clear that organizations such as higher education institutions are held to similarly rigorous standards. The DCLs’ guidance was borne out in cases against University of California at Berkeley (U.S. Department of Justice Civil Rights Division , 2016), Harvard and MIT ("National Association of the Deaf, et al., Plaintiffs, v. Massachusetts Institute of Technology, Defendants", 2016, and "National Association of the Deaf, et al., Plaintiffs, v. Harvard University, et al., Defendants", 2016), and Miami University of Ohio ("Aleeha Dudley, Plaintiff, and United States of America, Plaintiff-Intervenor, v. Miami University, et al., Defendants.", 2016). Numerous other institutions also received notice of complaints filed with OCR and entered into resolution agreements. Drawing on these precedents, an organization’s proactive plan involves steps for evaluating current accessibility levels, remediating issues, and positioning for future ICT accessibility. This paper will address these steps, referencing the Technology Accessibility Playbook published by the Federal CIO Council (2016).

# Strategic Action Plan: Policies and Procedures

## Play 2: Assess your Section 508 program maturity; Play 3: Develop a Section 508 Accessibility Roadmap; Play 4: Establish a Section 508 Policy

An initial step towards addressing ICT accessibility issues is often to issue internal guidance, typically in the form of a policy or policies. At the University of Connecticut (UConn), the Universal Website Accessibility Policy, along with the Providing Information in Alternative Formats Policy and the Policy Against Discrimination, Harassment, and Related Interpersonal Violence, lends weight to practical recommendations. Best practices, tutorials, and similar supports underpin the policy to guide content stewards on enacting it. This guidance is specific and draws on the WCAG 2.0 AA standards (World Wide Web Consortium (W3C), 2008). An excellent example of guidelines supporting a policy is the University of Missouri’s (Mizzou) IT accessibility guidelines (University of Missouri, 2016). UConn has also developed marketing best practices and adapted social media best practices for accessibility (Ward & Ashe, 2017), which work in tandem with UConn’s brand standards for accessibility, the non-discrimination policy, and the alternative formats policy.

# Strategic Action Plan: Testing ICT Accessibility

## Play 10: Conduct Section 508 testing

Another step towards ICT accessibility is identifying compliance issues. Often, this begins with assessment of websites and related materials. Assessing newly-created websites is perhaps the easier portion of the task, because safeguards can be added into the development process. For example, UConn has a request form that must be completed for a site to become live. The form asks specifically about accessibility, reminding developers to review the Universal Website Accessibility Policy and to measure the site against its standards. Websites based out of Aurora, UConn’s instance of WordPress, also have a feature in which images lacking alternative text are “greyed out,” appearing faded to an unusable point and clearly marking them as inaccessible. In addition, developers have the opportunity to use tools on the IT Accessibility website, a resource with guidance on creating accessible websites and associated content as well as tools for monitoring accessibility throughout development.

The task of testing existing websites can be much more daunting. Existing websites were developed under a variety of standards, and there was and is great freedom to modify templates; coupled with the sheer number of websites, this situation makes accessibility assessment overwhelming and necessitates prioritization. UConn uses four primary criteria for establishing a site’s priority for testing: the number of users, the audience direction, the transactional nature, and the frequency with which students with disabilities use the site. If a site has high traffic, such as UConn’s Athletics site, it is highly prioritized. A site that draws a high amount of traffic from outside the UConn community, such as UConn’s Jorgensen Center for the Performing Arts site, is also considered a top priority. Transactional sites also draw attention, such as UConn’s Connecticut Repertory Theatre site, because patrons contract business there. Finally, sites used regularly by students with disabilities, such as the My Access portal for the Center for Students with Disabilities (CSD), are of paramount importance. UConn’s starting point for testing existing websites is where these criteria intersect.

 Because new sites are always developing and old sites are being refreshed, the accessibility testing schedule refreshes frequently. A new site meeting multiple criteria might trump an older site that meets only one criterion. Also, if a site is scheduled for a major update, there is no sense in reviewing it prior to the update, even if the site is a high priority. An example is the CSD site, which, though high priority, recently underwent a major update. Accessibility was considered throughout its construction, and it was tested for accessibility during its development phase.

Non-website ICT, such as hardware and software, is tested on an ad hoc basis. As a program or product comes under review for purchase or contract renewal, the same criteria determine its priority. For example, a campus-wide product must have accessibility considered during the request for proposals (RFP) process, while a program used by one or two individuals in a single department should *consider* accessibility. This will be discussed further in the Procurement section.

## Accessibility Testing Tools

### Play 6: Collaborate with the federal accessibility community

There are multiple methods for assessing a website’s accessibility. Automated checkers, unearth general issues on a site. Some automated checkers are free, like WAVE by WebAIM, while others require a subscription. Automated checkers only touch the surface of compliance testing, though, and must be supplemented by manual testing. One manual method, the Trusted Tester method, is the culmination of the Department of Homeland Security’s Trusted Tester Program. Other methods, taught by programs like WebAIM’s accessibility training or the Disability Resources and Educational Services (DRES) IT Accessibility Badging Program out of the University of Illinois at Urbana-Champaign, follow similar procedures. This section will focus on the Trusted Tester method, as UConn’s IT Accessibility Coordinator (ITAC) is a Trusted Tester (certification number 301201).

 The Trusted Tester method utilizes Internet Explorer because of its compatibility with the Web Accessibility Toolbar, a testing tool developed and maintained by the Paciello Group (The Paciello Group, 2015). It also uses Jim Thatcher’s favelets for web accessibility, available singly or as a toolbar for Firefox (Thatcher, 2013). To inspect Java, it recommends Java Ferret, an AccessBridge add-on; this was found to be unwieldy, and UConn recommends using Access Bridge Explorer for Java (GitHub, “Access Bridge Explorer”, 2016). To inspect ARIA attributes, the Trusted Tester Program uses AI Inspect, a Windows software developer’s kit (SDK) (Microsoft, 2018). Finally, it supplements contrast tools with Contrast Checker and Color Contrast Pal (Acart Communications, 2017 and GitHub, “Color Contrast Pal”, 2016).

 Additional testing tools include screen readers such as NVDA or JAWS. One cautionary note about utilizing screen readers as testing tools: Some screen readers, such as JAWS, are structured in a way that they rework code into its most accessible format. This means that they can frequently reconfigure digital content that is not accessible by design and read it as though it was accessible. Because of this feature, they are not accurate indicators of a site’s accessibility. UConn recommends first testing content according to the method of choice, and then using a simple, free screen reader like NVDA to check inferred reading order and semantics. UConn’s rule of thumb is to design sites in such a way that someone using a public computer and using the operating system’s screen reader for the first time can easily navigate the site.

## Reporting and Remediating Accessibility Issues

### Play 11: Track and resolve accessibility issues

UConn uses the following process to identify accessibility issues and communicate them to relevant staff. A website’s pages, applications, and content are tested for accessibility. For each page, a report is generated using a template provided by the Trusted Tester Program. This information is compiled into a summary report, with issues sorted based on who owns the content or object in question. UConn designed this report by adapting the Trusted Tester report template for greater readability. In the summary report, information is broken down into three categories: Template, site-specific, and content author.

At UConn, web development and design is typically handled by Information Technology Services (ITS), by designated staff in a given department, or by a third party vendor, while many individuals may contribute content to a site. By categorizing the report results, individuals and departments can determine what remediation can be effected in-house and what remediation must be addressed by web development and design staff. Many UConn sites are deployed using Aurora templates, which means that not all remediation can be done by individuals or departments but is instead referred to ITS. However, templates are often customized, either by the ITS web development and design team or by a department or individual. These site-specific theme issues may need to be directed to ITS, or they may be addressed within a department. Content issues are the responsibility of the content author, that is, anyone who is able to modify content on a given website.

In addition to dividing responsibility, UConn’s template also provides space for a potential solution and a rationale. Solutions are broad suggestions in line with WCAG 2.0 AA, and rationales share how the issue can impact users with disabilities. Both solutions and rationales are drawn from a UConn template.

Once the report is written, it is distributed to the relevant staff. ITS is usually involved for template and/or site-specific issues. The department that owns the site will naturally receive a copy of the report as well, as it will have to remediate content issues and potentially site-specific issues. If the site was developed by a vendor, the department will likely need to contact the vendor for template issues. Occasionally, depending on the department staff’s level of technical expertise, the report may be condensed to target "low-hanging fruit.” This decision is made based on considerations such as the staff’s level of coding experience and vendor involvement. Accompanying the report is an invitation to meet with the ITAC and tailor solutions to the individual department’s needs. Because websites have a variety of goals in addition to accessibility, it is necessary to customize the remediation plan to integrate with the website’s objectives. These meetings also help clarify areas of responsibility for the remediation process.

# Strategic Action Plan: Training Others

## Play 12: Educate the workforce

A key part of remediating accessibility issues is training developers and content authors. Accessibility training can build on preexisting training; for example, at UConn, training for Blackboard and Aurora has accessibility training included. It is also possible to adapt and customize existing third party training, with permission. WebAIM, W3C, the Section 508 playbook, and vendors like 3Play Media and Blackboard all offer accessibility training.

 Essentially, three basic trainings must be developed, targeting different content stewards: the average content author, Procurement, and IT. Content author training is basic and non-technical, focusing on quick, easy fixes. Techniques from this training can be applied to learning management system (LMS) content or to web content. Procurement training is more in-depth, focusing on questions to ask vendors and contractors. One discussion with procurement is about the timing for introducing accessibility into conversations with the vendor. Finally, IT training is highly technical and needs to be updated regularly to reflect changes in standards and in coding. It is focused on code and template development. Discussions include checking third party widgets and plugins for accessibility and potentially includes a discussion around involving the vendor with remediation strategies, if a third party product is under consideration. For example, UConn has historically submitted tickets to vendors regarding compliance issues.

## The IT Accessibility Coordinator

### Play 1: Establish a Section 508 Program Manager to lead compliance efforts

It is primarily the ITAC’s responsibility to not only draft the plan but also to implement it. The ITAC sets priorities, determines areas of responsibility, and creates a system for monitoring accessibility. This means that the ITAC must be mindful of the sustainability and scalability of the action plan. Another piece of the ITAC’s role is to build relationships with stakeholders. The ITAC is responsible for allotting remediation tasks and creating a global sense of teamwork. An enterprise-level sense of supporting each other and working together is critical to develop an accessibility culture at an organization.

To manage this range of responsibilities, the ITAC has the following qualifications, with the caveat that much is learned on the job, as ICT accessibility is a constantly evolving field. The ITAC must be trained in accessibility testing, preferably through a recognized program like the Trusted Tester Program. He must have a thorough understanding of the ADA, Sections 504 and 508, state accessibility laws, and WCAG 2.0. Experience applying these laws and guidelines, in a disability services office or an office of institutional equity, is also necessary. Furthermore, familiarity with web development and design is helpful for proposing solutions and discussing accessibility standards with IT teams. Finally, the ITAC needs both a strong sense of collaboration and a high level of independence. The ITAC is likely to intersect with many departments but to primarily work on his own. This gives the ITAC the independence to strategically build relationships and form his own “team.”

There are many areas where the ITAC could be situated, like the disability services office, IT, or the office of institutional equity. At UConn, the ITAC is housed in ITS. There are several advantages to this. First, the ITAC has a universal role, and this is clearly demonstrated because UConn’s ITS serves the entire institution. Being housed in ITS also minimizes preconceived ideas about the ITAC’s role, which might not be the case if he was situated in the disability services office or the office of institutional equity. ITS also affords the ITAC many resources, departmentally and in the form of professional development opportunities. Finally, the ITAC can focus solely on ICT accessibility, without the responsibility of a caseload.

 There are some challenges. At UConn, the ITAC currently works on his own, as previously noted. There is also a steep learning curve, both for the ITAC about ITS and vice versa. Accessibility was obviously included throughout the design and development processes of all ITS products, including LMS design, but naturally web development and design teams do not spend months on in-depth research regarding web accessibility standards and changing regulations. Conversely, web development and design was part of the ITAC’s training but was certainly not a focus. Also, because the ITAC is a new position for the University, flexibility is required from University leadership and from the ITAC. At UConn, frequent input from ITS leadership and from stakeholders around campus has helped shape priorities, the accessibility timeline, and expectations. The ITAC, in return, incorporates priorities and adjusts timing as necessary.

# Stakeholders

## Play 5: Develop a Section 508 Program Team

 Regardless of where the ITAC is housed, there is much to learn as he and the organization work together. ICT accessibility is not solely the responsibility of the ITAC; it requires support from top-level leadership to make it a priority and to infuse it into the organization’s culture. Perhaps the best possible situation is when the organization has already identified accessibility as an issue and the ITAC can present possible solutions and training, as occurred at UConn.

 The many stakeholders in institutional accessibility can be considered in two groups, the visionaries and the realizers. The visionaries shape the organization’s direction and are responsible for top-down decisions. They also govern policies at the organization. Likely, the ITAC’s position came about as a result of the visionaries. The realizers are the hands-on problem-solvers. They enact the remediation changes and carry out the policies. They are likely to work on a daily basis with the ITAC and will often be a sounding board for concerns or proposed solutions.

 Both groups must work together to achieve the broad goal of an accessibility culture across the entire organization. Without the buy-in of leadership, there is no official sanction for accessibility changes. Without support from realizers, there are no concrete solutions. Working together, they can promote an institutional mindset where accessibility is a standard initial consideration for any ICT that is created or purchased.

## Procurement

### Play 8: Integrate accessibility needs into market research and acquisition processes; Play 7: Integrate accessibility needs into requirements and design processes

 There are several stakeholders besides Procurement included in the question of procuring accessible ICT. First is ITS, where the ITAC is situated. The compliance office and disability services office may be pertinent, depending on the intended use of the product or service requested. Finally, the department requesting or purchasing the ICT is involved. Working with Procurement guides all requests for ICT to consider accessibility and to consider accessibility in institution-wide purchases.

 The ITAC prioritizes requested products and services based on the following criteria. First is a “heat map,” considering the product’s cost and the number of the product’s users. As both cost and number of users increase, the priority increases. By these criteria, enterprise-level products will always be top priority. A product to be used by one individual or department will be lower priority. A second criterion is that student or public use will always be prioritized. If a product is necessary for a student or a member of the broader community to engage with UConn, then it must be an accessible product. Third, products essential for class or work are prioritized over non-essentials, for similar reasons. Finally, transactional products are prioritized over non-transactional products. For example, ticketing systems like those used by IT, Jorgensen Center for the Performing Arts, and Athletics are prioritized over non-transactional sites. This process is very similar to how websites are prioritized for testing.

 Discussions with Procurement raise accessibility questions for the requesting department to consider. Incorporating accessibility questions into these initial discussions potentially alleviates the stress of having to remediate products, websites, and other ICT for accessibility. In this regard, it is financially responsible, because it costs time and money to remediate, which can be detrimental to end users. For example, a vendor may not make changes quickly enough to actually help a student, or it may not remediate changes without additional cost. Proactivity also furthers the campus culture of accessibility, where ICT accessibility is not an afterthought but is built in from the beginning of UConn’s relationship with a product or vendor.

In order to accomplish this, others besides the ITAC must be able to evaluate a product’s accessibility, at least on a high level. Training on how to read documents like a VPAT is available through W3C and WebAIM, as well as through vendors like SiteImprove Academy. In-house training can also be developed, directing departments to ask questions about a VPAT. Training and discussions cause departments to think critically about accessibility and to recognize the needs of users with disabilities.

 There are limitations to this process. One limitation is the amount of time required to thoroughly test a product. To test a single product can take several days, if one is able to focus on testing. With other responsibilities, it can take over a week or longer. If an organization cannot provide additional resources, such as student workers, to shoulder some of the testing load, the ITAC will likely become a bottleneck for the procurement process. A potential solution is to test products following purchase. The drawback here is that a product may be found to be inaccessible, despite the good-faith efforts of departments and Procurement to ascertain its accessibility. Without the ITAC’s expertise and work focus, it is possible an inaccessible product may still be purchased.

# Conclusion

How does this affect an organization’s day-to-day operations? Web development and design and LMS development now all consider accessibility. Content authors and stewards have begun to ask themselves about a page’s accessibility or about captioning videos. Procurement has begun to involve the ITAC in enterprise-level product discussions. Departments have begun earmarking funds for accessibility-related tools and features. As an institution, UConn is shifting towards a culture where accessibility is not only embraced but worked into the fabric of its operations. Reflecting on the significant changes the ITAC has seen, in only six months, it is noted that the majority of the time, people only lacked tools to engineer accessibility. The mindset was there, the conversations were already happening, but no one knew how to standardize the testing process or establish a repository of solutions. Given these tools, the organization is moving swiftly to a place where all users can experience UConn.

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