Doing the Right Thing – Why accessibility is a critical factor when developing mobile & web content

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In June 2018, the World Wide Web Consortium (W3C) published version 2.1 of its Web Content Accessibility Guidelines (WCAG), the international standard for making Web and mobile content more accessible to people with disabilities.

*In this report, Mark McCord and Mike O'Hara of The Realization Group discuss with **Tamoor Sajad** of KPMG, **Mark Hope** of Access and **Adrian Redden** of Planit, how best practice accessibility standards can be achieved by running a comprehensive testing strategy on software systems and applications. This report will show how putting accessibility and inclusivity at the centre of a digital strategy can boost goodwill, brand value and revenue.*

Introduction

Mobile devices are fast becoming the primary medium for online transactions and engagement. However, some applications lack the software adaptations that enable people with visual, auditory, cognitive, physical or speech disabilities to take full advantage of the online world. As more and more vital services migrate to mobile platforms, concern is growing that many of the estimated one billion disabled worldwide could be locked out of healthcare, banking and other critical provisions.

In recognition of this, lawmakers around the world have legislated for the incorporation of assistive technologies in web applications. Growing public awareness of issues surrounding inclusivity in all its forms is also convincing digital asset owners to make their products available to all users.

Staying on the right side of legislation and doing the right thing, however, isn't always easy. Assistive technologies can be difficult to build into a design and may not always work as planned. It is important, then, that applications are subjected to strenuous accessibility testing.

Roadmap to Compliance

Various jurisdictions have enforced digital accessibility by enshrining it into anti-discrimination and disability assistance laws. It is encoded into the UK's Equality Act of 2010 for instance, and in Australia's Disability Discrimination Act. Where it is legally recognised, accessibility legislation is built on the standards first established in 1999 by the World Wide Web Consortium (W3C), the de facto rules-setter of the internet. Its Web Content Accessibility Guidelines (WCAG) listed 14 measures that application owners should adopt to ensure full access to their assets.

Nine years later an update, WCAG 2.0, was issued enshrining four principles that remain at the heart of accessibility strategies: that an application must be perceivable, operable understandable and robust. Although WCAG 2.1 emerged last year to offer additional attainment targets for mobile software developers, WCAG 2.0 remains the most widely recognised standard worldwide.

"The onus is on developers, designers and content authors to make their products accessible and WCAG has very specific criteria that need to be met when testing platforms for accessibility conformance," explains **Adrian Redden**, Digital Accessibility Consultant at global testing specialist Planit Testing. "Whether driven by compliance or a desire to deliver a highly engaging user experience, many private and public sector organisations around the globe now follow these WCAG guidelines."

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Until recently, the focus of WCAG conformance had been on web accessibility from desktop computers. But the rapid growth of mobile and hand-held devices has shifted attention.

A survey last year by Deloitte found that in the UK, smartphone ownership had risen to 87%, from 52% in 2012. Even among the less tech-savvy over 55s, 77% owned a mobile phone in 2018, up from 40% five years earlier. A separate report from PwC indicates what that might mean for the future provision of vital digital services. Its survey of 4,000 online banking consumers found that the proportion of people who considered themselves mobile-dominant – preferring to do their business on smartphones and tablets rather than desktop or laptop computers – had risen to 15% last year from 10% in 2017. It concluded that services providers needed to "think mobile-first, or else".

"For many of our clients' audience, mobile has become the preferred way of consuming the web… a lot of the best practice design and development approaches to mobile web, is now convention," says **Mark Hope**, Digital Director of Access, a Manchester-based creative and digital agency.

Put to the Test

Application builders can be expected to include and test for dozens of assistive technologies. Some key examples laid out by WCAG 2.0 and 2.1 are:

- **Text and non-text alternatives:** providing equivalents to images, such as in braille, speech or large print.

- **Adaptability of content:** making pages easier to read by changing the layout.

- **Orientation:** ensuring as little content detail and accessibility is lost in different device orientations.

- **Distinguishability:** creating content that can be seen and heard, for instance, by use of optimal contrast ratios and reduction of background noise.

- **Keyboard accessibility:** making certain that all functions can be operated via a keyboard or other peripheral.

- **Navigability:** providing the means for users to find content.

- **Code validation:** identifying development issues, such as coding errors that prevent use of assistive technologies, interaction with platform components or correct language recognition by screen readers.

Many of the assistive technologies are freely available or for sale online. Others are already built into mobile devices. Apple's iOS, for instance, includes the VoiceOver app, a screen reader that can give a spoken equivalent of text and other elements of suitably designed applications.

The question of when to begin testing a new application is one that can have a profound impact on the timing of a product's release, and potentially, its success. One strategy is to assess applications once they are complete or even live. This allows for a fast product rollout but has the drawback of having to be repeated if any post-test changes are made to the final design.

A better approach is to embed testing technologies into the development lifecycle of the product, enabling continuous, automatic assessment. The benefit here is that faults can be identified and addressed before the application goes live.

"If you're building good accessibility and good engineering practices into the product from the start, you're providing greater flexibility and future-proofing for the way that people might access and consume site content," says Hope, whose agency has created web platforms for accessibility-observant clients including WaterAid, National Grid and the Welsh Government.

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Mark Hope, Access

"Commercially it's cheaper than trying to retrofit good accessibility because you'll be re-engineering what could potentially be quite a large platform."

A comprehensive testing strategy would include automated and manual assessments. Automated testing has the advantage of being easy and cheap to deploy. W3C lists scores of platforms that can quietly work away in the background of an application, making sure many of its accessibility features are firing on all cylinders.

Automated tools are a vital part of a testing professional's kit, but they have their limitations. Repetitive tests of high-level functions are suited to automation, as is the streamlining of code. But these alone can't determine full WCAG compliance. For organisations that fall back on automation alone, this poses a problem. Unless their IT teams have specialist accessibility testing expertise they will likely be deploying code containing issues.

They may also fall foul of false positives. Sometimes technology can be too good at its job. According to Planit's Redden, whose company uses automated web-based tools as a first line of attack in any assessment strategy, some testing packages can flag an issue that isn't, in practice, a problem.

"An automated tool may look at an image and say, 'Hey, you've got no alternative text here for screen readers – you're missing it'," he explains. "But if the image doesn't convey any important information to someone using a screen reader, then that would be an example of a false positive."

The human touch

Such red herrings can send inexperienced teams off on a mission to change code or functionality that doesn't need attention. It's potentially costly in time and resources.

That's why software should also undergo manual testing, say the experts. Accessibility studies stress the vital importance of bringing humans into the testing process, because no matter how effective technology is, it can't always be a surrogate for the human touch.

According to Redden, Planit employs specialist teams to test how a product will perform in the hands of the people for whom it's designed. They will also investigate how that software interacts with its target devices.

Among a long list of checks, they will:

• Examine native device gestures for ease of navigation

• Use screen readers to perceive non-text content

• Ensure buttons have meaningful names

• Explore whether form fields are clearly labelled

• Examine whether error messages are understandable for users to fix mistakes and proceed with processes.

"In my experience, every user's need is different," says **Tamoor Sajad**, Executive Advisor for Testing at KPMG in the UK. "With automated testing, you could potentially test all your code base and pick up a long list of errors, but when it comes to manual testing, each user who has got an assistive need will approach that website in a different way."

Redden agrees: "Accessibility as a field very much focuses on the human experience, on human interaction – making it useful to human beings. There is that very strong element of humanity in it."

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Despite its importance, some applications don't go through the manual testing phase because their hosts or authors lack the capabilities to carry out such a complex procedure. These assessments require specialist expertise and, as Planit's Redden explains, an understanding of the latest legislative requirements and technical aspects of product development.

For that reason, wise asset owners will engage third-party experts to carry out the manual checks, bringing high-quality expertise to a project and a fresh perspective to get applications across the line of WCAG compliance.

"By conducting independent testing you're removing the usage bias," says Hope. "A development team that's working on that product and an in-house test team will have built up familiarity with the platform. They'll inherently know how to use it, how to navigate it, and they'll probably subconsciously be introducing workarounds for things that might be an issue for someone less familiar."

KPMG's Sajad argues that there is another important advantage to hiring independent accessibility testers: it gives a product a marketing "edge". Advertising the fact that a platform has been assessed for accessibility by an independent tester adds credibility, trust and value, he says.

"That will get recognised, as some firms obviously put a tag on their webpage to show it's been independently tested," Sajad says. "It increases the confidence level in the product."

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Tell the world

The "tag" that Sajad refers to is a visual badge that an independent tester can issue once a product has passed all tests. The badge can be displayed on the website or application to show it conforms with WCAG or locally mandated standards of accessibility. With no internationally recognised certification available, the validity and credibility of badges and similar notifications will depend on the professionalism and credibility of the independent testing firm.

Planit, for instance, issues a signed accessibility statement. This outlines a client's accessibility status and highlights what users with disabilities may experience when interacting with all the functionality of the website or application.

"If they're looking for an accessibility audit of their platform, our evaluation report provides all the details for them to show other clients what they're working with," says Redden. "They can show this report and say, 'Yes, we have done accessibility testing, we've engaged Planit as a third-party vendor and they have provided this report to us'."

Experts vs. Novices

Third-party assessment companies are hired because application owners recognise that experience and expertise will always trump expedience. Accessibility testing is not an easy task. Even knowing which automated processes to put in place requires industry knowledge. The skills that independent testers such as Planit bring to the table enable them to identify issues that aren't immediately apparent to inexperienced in-house IT teams.

Common traps among novice testers include:

- Failing to test on suitable hardware: applications that require a physical action, such as shaking, need to have alternative ways to access those functions for users with dexterity or motor disabilities. If the software isn't tested on a device without movement detection sensors, developers may not know if their adaptations perform properly.

- Failing to test on a physical device: sophisticated software can simulate a product's performance on a variety of devices, but experts agree there's no substitute for testing on the real thing.

- Failing to test on multiple browsers: each browser works differently, and unless assistive technologies work sufficiently on all of them, the application won't pass WCAG conformation.

- Failing to incorporate peripheral interfaces: many disabled users will need to attach specialised input devices or braille displays to properly access digital content. WCAG requires all to be catered for, and interfaces should therefore be tested.

- Mistaking usability for accessibility: though closely linked, WCAG differentiates between the two. Usability testing will only ensure those who can access a site are able to use it easily; it doesn't ensure all users are able to access all of its functions.

- Adding new features after testing: in the same way that retrofitting a product for WCAG conformance can alter the entire product, so can adding new features. In that case, the only way to ensure WCAG conformance is to retest the entire product.

"It's important to test with a broad range of users across a number of devices," Access' Hope says. "If your designers haven't got any appreciation of visual impairment – or don't have a visual impairment – they need to strip out the visual aspect of the site and come back to the context and structure of the information. It's about looking at a website in a non-visual way."

Accessibility pays

A combination of regulatory and societal pressure is ensuring that more disabled people have equal access to online content and W3C has provided comprehensive guidance of what that should entail. While application owners may be constrained in fully implementing that by a lack of expertise and resources, they can still achieve WCAG conformance by the engagement of skilled and experienced accessibility testing professionals. Properly trained accessibility engineers know how to assess and they also know what complications may lurk in their findings.

But an increasingly potent incentive may ultimately prove the best driver to doing the right thing: Accessibility is good for business.

That a product is fully accessible attracts goodwill in itself, but the mechanics of building in assistive technologies offers returns on investing in WCAG conformance. Making a site more accessible means it is usable for a broader audience. For retail sites, the benefits of that are obvious – more potential users equals more potential buyers. A W3C survey showed that as long ago as 2001, UK supermarket giant Tesco saw a rise in online sales after a modification made it easier for visually impaired customers to buy goods online.

The same benefits were found in other parts of the economy. National Public Radio in the US, for instance, said its user engagements rose 7.2 per cent after it began publishing accessible transcripts of one of its most popular shows, according to the W3C survey.

Good accessibility can improve an asset's search engine optimisation, too. Search engines don't usually recognise images, audio, video or elements like JavaScript, but they can pick up the text alternatives for them. This improves an application's visibility and, again, widens its potential audience or customer base.

Additionally, accessibility features often improve usability. Everybody gains from WCAG's recommendation that plain English be used to aid readers with poor comprehension, for instance. Similarly, millions of able-bodied owners of large modern phones are thankful to WCAG's insistence that navigational tools be placed at the bottom of mobile screens for users with physical disabilities. Better usability means better user experience and the greater likelihood of repeat visits to revenue-generating digital assets.

"More and more companies are realising that by doing a good job in the area of corporate social responsibility – building in good accessibility – they're getting a range of commercial benefits as well," says Hope. "It's win-win for everybody involved."

For more information on the companies mentioned in this article, visit:

www.planittesting.com
home.kpmg
www.weareaccess.co.uk

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