Nortal

White Paper

Product and Experience

Unlocking the value of accessible products and services

May 2024

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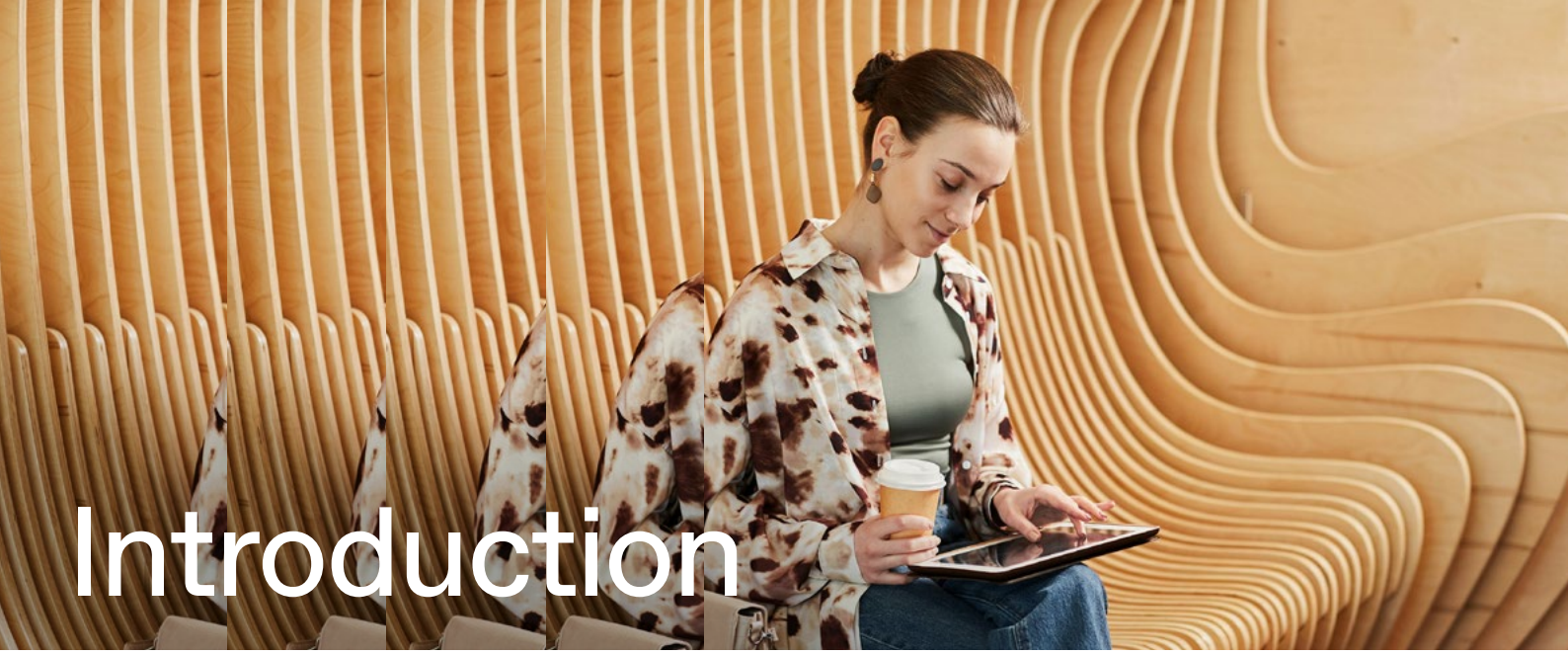


Introduction

Accessible products are not just inclusive and morally right, they also improve engagement, efficiency and revenue.

With around 1 billion people (13% of the global population) living with some form of disability, that's a lot of potential customers not being adequately served. This is even though internet access to digital products and services is defined as a basic human right in the United Nations Convention on the Rights of Persons with Disabilities (UN CRPD).

> According to research from 2023, only 4% of the top 1 million websites worldwide are fully accessible to all potential users.

Forrester suggests some reasons for this bias towards the able-bodied and able-minded: 40% of public organizations and 26% of private businesses identify lack of funding as the main barrier, followed by lack of know-how and also a lack of executive support.

Accessibility is not yet widely seen as an obvious strategy to hit profitability targets. However, this is starting to change as executives become more aware of the commercial and reputational potential of accessibility. For example, a recent European Commission study analyzed public sector organizations implementing accessibility improvements. It states that the majority (59%) of the participants identified a significant increase in customer numbers, and therefore, the investments in accessibility had a positive return on investment. In the private sector, small changes in accessible design have been shown to have multi-million-dollar impacts on revenue, even for medium-sized businesses.

Just like a dropped curb helps wheelchair users as well as young parents with a stroller, digital accessibility improves the experience for a wide range of users. Enabling multiple ways to retrieve and use information is a cornerstone of inclusive design and it can transform products and services. However, creating accessible digital products and services requires going beyond thinking about screen readers and dictation tools. A range of stakeholders, and everyone in product teams, need to think about accessibility from the start of every project. Each decision's impact on accessibility should be considered in the strategy, design, build, launch, and optimization phases.

In this paper, Nortal's global design team dives deeper into the benefits of accessible product and service design, providing insights on how and where to start, and how good accessibility can become a competitive differentiator.

The commercial case for accessibility – 3 whys

Extend the product from many to all

While accessible design typically focuses on individuals with disabilities, the advantages of digital accessibility go far beyond. Disabilities come in many forms, affecting hearing, vision, motor, and cognitive skills, but disabilities can also be only temporary. For instance, a broken arm can hinder our ability to type text. And it's not always a disability that restricts us; situations like poor phone screen visibility under bright sunlight or carrying a grocery bag in one hand while holding a baby in the other and trying to answer a phone call. All these situations would benefit from features like voice control or text-to-speech, which are often considered to be used only by people with permanent disabilities.

> Forrester and Microsoft report that poor accessibility could mean €2.3 million in lost revenue for a midsized retail company with an average of 1 million site users, €50 average order value, and a 2.3 % conversion rate.

These examples highlight that the target audience for accessible products and services is much wider in real life – it's all of us. The borderline between basic usability and explicitly accessible features is blurry.

That's why the calculation of commercial impact from to accessibility implementation can be challenging. However, even when accounting for very conservative click-through rates, we get to sizable figures: Forrester and Microsoft report that poor accessibility could mean €2.3 million in lost revenue for a midsized retail company with an average of 1 million site users, €50 average order value, and a 2.3 % conversion rate.

Make your value proposition more visible

Websites built in compliance with accessibility standards feature higher quality code. Not only does this mean better performance (faster loading times) and improved user experience, it also directly contributes to the ability of search engines and AI tools to extract and repackage information.

Considering the speed at which machine learning technology advances, the importance of basic building blocks of accessibility, such as semantic markup, structured content, image captions, alternative text, and video transcripts, will only increase. By adhering to accessibility guidelines, we make content more usable by anyone or anything, including search engines and AI systems.

> Investing in accessibility can improve your search rankings, get your content referenced more frequently by publicly available AI tools (e.g. ChatGPT, Gemini) and boost visibility and engagement across the internet.

Avoid costly lawsuits, redesign and customer churn

With accessibility becoming a topic of public interest, there have already been high profile legal cases in which individuals have sued an organization for lack of accessibility compliance. Determining which ones have been most costly is difficult because settlements and damages are being kept confidential.

However, one such example concerns an American fast-food giant involved in the Robles vs Domino's Pizza case. In 2019, the Supreme Court declined to hear an appeal by Domino's Pizza in a case where a blind man sued the company over the lack of accessibility of its website and mobile app. Many of the issues cited in the original lawsuit were fairly common web accessibility barriers:

- Lack of alternative text (also known as "alt text") for graphics
- Empty hyperlinks with no text to identify the link's purpose
- Redundant links that stand next to each other and point to the same URL address

In 2020, the parties reached a settlement that required Domino's to make its digital properties accessible to people with disabilities. While the settlement amount was not disclosed, it's estimated that the legal fees for both parties exceeded $6 million.

> If services do not respect the new rules, then as of June 28, 2025, customers will be able to file complaints before national courts.

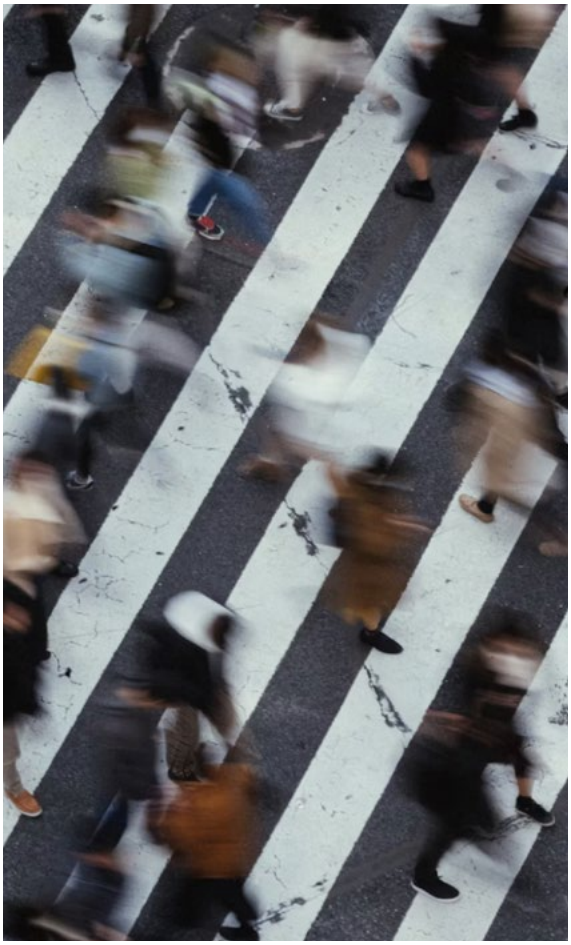
The number of web accessibility lawsuits has been breaking records worldwide since 2020. For example, in the U.S., the total number of website accessibility lawsuits filed in federal court in 2022 was 3,255 – 12% more than in 2021. The numbers are expected to rise even more in Europe as the European Union (EU) establishes the European Accessibility Act (EAA).

The directive mandates that all EU member states are required to pass necessary accessibility laws by June 28th 2025. This affects every organization operating in Europe with more than 10 people and €20m or more in revenue. They must now ensure adherence to the EAA's requirements, including meeting the web accessibility standards. For some organizations, avoiding legal implications will become the main objective for accessibility implementation.

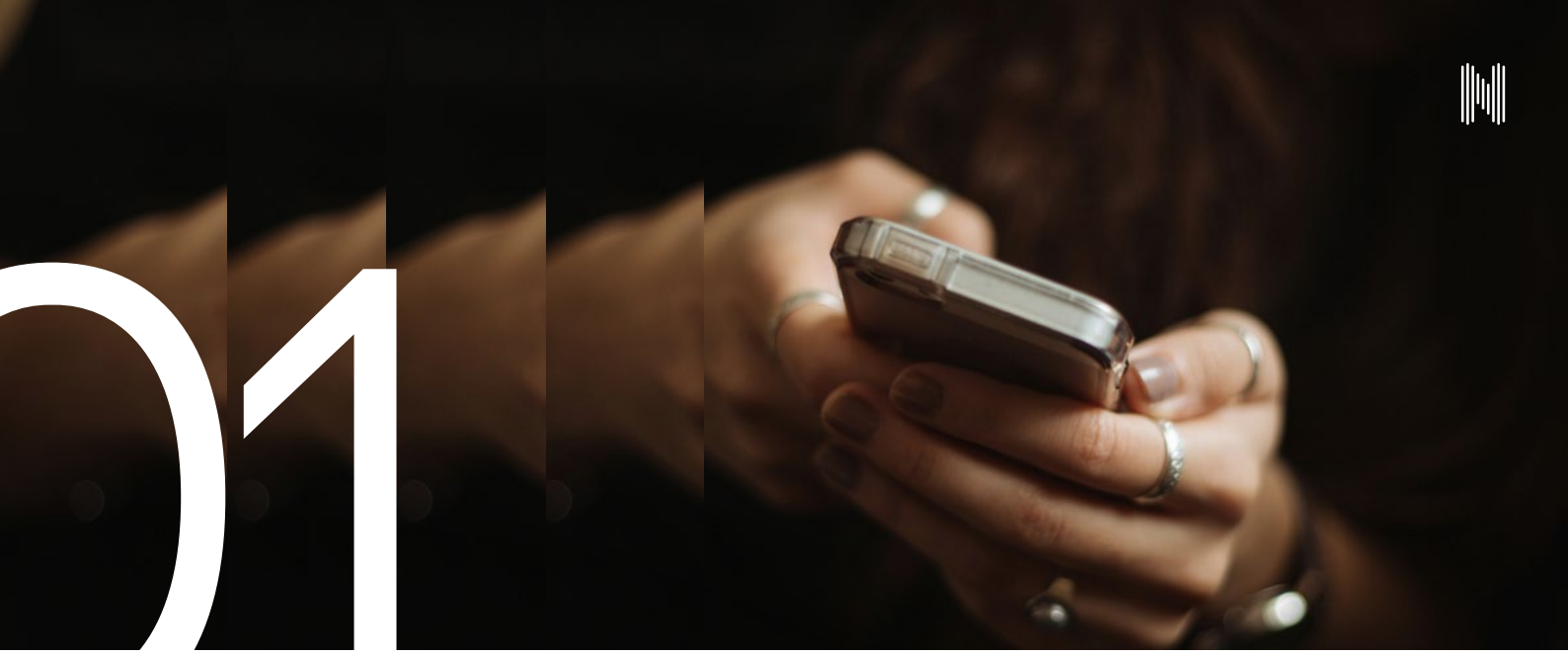
W3C, the World Wide Web Consortium, which develops global standards for the internet also stresses the non-legal benefits of accessibility:

- Expanding potential market share
- Improving web findability
- Expanding use cases
- Enhanced usability
- Greater positive brand perception

And according to recent research, consumers are becoming increasingly sensitive about corporate actions on social issues. When customers are majorly disappointed with an organizations actions, 17% said they would change to a competitor.



Where to start with accessibility – 3 hows



Build accessibility into your design system

One of the ways to ensure that your product follows accessibility guidelines is to employ an open-source design system. The most popular ones comply with accessibility guidelines out of the box and usually have gone through thorough testing.

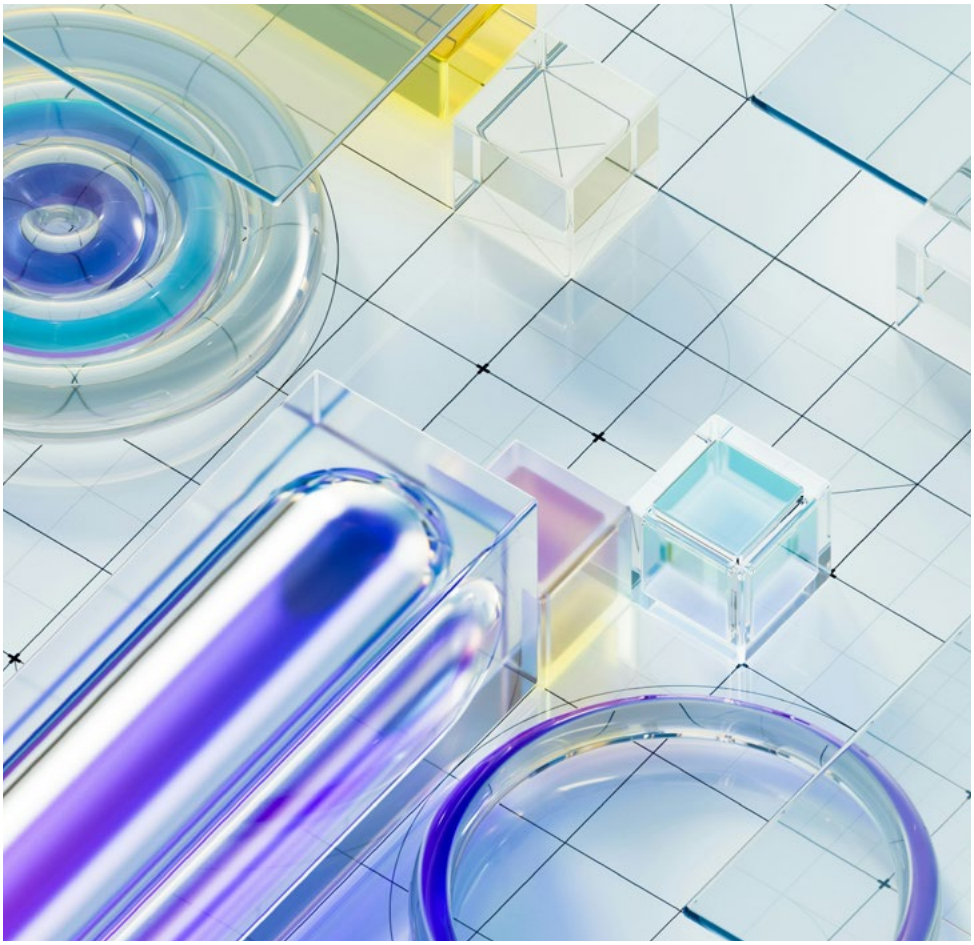
> However, your team must be aware of possible pitfalls when choosing to build a product with an off-the-shelf design system.

Even with a high-performing design system, designers will probably need to craft additional custom components. Each custom component should be tested with end-users for accessibility. As the custom components tend to represent an important part of the product, it mustn't become a weak link in the chain, disrupting consistency and hurting the overall accessibility.

Choosing a design system with significant investment behind it is often a safer bet for accessibility. Nortal's design teams have recently been using Cloudscape by Amazon or Carbon Design by IBM and have found them incredibly efficient in supporting the development of inclusive digital products. Established design systems usually provide guidelines and tools for building accessible interfaces. They go far beyond high contrast and large fonts.

A great example is keyboard navigation. It is important for people using assistive technology (AT) such as a screen reader, power (high frequency) users, or people who customize the settings of their browsers to make reading more comfortable. In practice, this usually involves using JavaScript to provide conventional paths for navigation, such as enabling arrow keys to navigate between tabs in a tab list. ARIA attributes are another good example – their purpose is to label content for screen reader users or indicate the interactivity of an interface widget aurally. Both contribute to rendering a product or a website compliant with a wide variety of user agents, including assistive technologies, making it more convenient to use, or bringing meaning and features to those who otherwise would miss it.

Robust design systems don't just provide components to speed up product development but have accessible features like keyboard navigation already baked-in. Their value lies in operating with a degree of default accessibility aligned with stakeholder communities such as the Web Accessibility Initiative (WAI), World Wide Web Consortium (W3C), and best practices from the ARIA Authoring Practices Guide (APG).



Set-up accessibility tools and automate with AI

In addition to design systems, many tools help designers and developers ensure that their work follows accessibility rules and guidelines. For example, color contrast checkers, screen reader testers, web accessibility evaluation tools, keyboard navigation testing, readability testing, responsive design and zoom testing, semantic structure and headings testing. These tools are readily available online and, in many cases, represent plug-ins to design software such as Figma, browsers, and integrated development environments (IDEs).

Large language models and generative AI also present a huge opportunity to use human-like analysis capabilities. They can provide better, faster, more intuitive, and more accurate tools for people with disabilities to navigate around the digital world. The technology that handles rendering an image based on human input is able to reverse the logic and identify an image on a website, hence providing accurate interpretation in the preferred language for a blind person. The same approach can be applied to generating subtitles, captions, or translation of sound-based input to a suitable format for individuals with no or low hearing. Although today is a bit too early to assess how fast this will affect the accessibility domain and how trustworthy the output will be, by looking into the near past, we can see a significant advancement of tools and automation techniques to assist designers and developers with addressing inclusiveness.

Building for accessibility has never been easier. Thanks to Figma and its extensive community, designers can operate with multiple plug-ins to ensure visual accessibility. The same applies to developers who can leverage various add-ons and stand-alone tools when addressing code from an accessibility standpoint. Although manual testing is still required for the best results, a large portion of the work can now be handled by error-checking tools that are built-in to developer tools or browsers.

Here is a breakdown of the most popular tools used in both design and development processes:

A11y

Check the contrast ratio of text and other components against the background color. This popular Figma plugin ensures text is readable for users by adhering to Web Content Accessibility Guidelines (WCAG).

A11y – Focus Order

Quickly annotate your designs' focus/tab order flow. It's crucial for input types that aren't cursor-based, including swipe-to-focus capabilities on Android and iOS and keyboard navigation on a computer.

Color Blind

Preview color schemes for people with varying degrees of color blindness. By viewing designs in the 8 different types of color vision deficiency, designers can see how each design would suit a person with that type of color blindness.

Axe DevTools

Automatically check web pages against accessibility standards (such as WCAG) and create detailed reports highlighting areas that don't meet these standards. Axe DevTools is a browser-based testing tool.

Lighthouse by Google

Perform audits covering many WCAG requirements, including missing alt text, inconsistent header structures, and low color-contrasting ratios. After each audit, Lighthouse scores a web page's accessibility and suggests possible improvements.

WAVE

Automate testing across multiple internal or external URLs with this easy to use browser-based tool. Organizations can license the WAVE API and testing engine for stand-alone usage on their server and analyze any web pages, including intranet, private, and secure pages.

Gather insights from impaired users and iterate

It is never possible to say that a solution is now perfectly accessible, covering all possible use cases. Designers, developers, product managers, and related roles should constantly look for better ways to serve users, with or without disabilities.

Although many accessibility guidelines tend to be practical and following them is a big step toward better products for all, some things can still be easily missed. For example, a Nortal design team was recently conducting retail accessibility research. During a conversation with a visually impaired lady about her latest purchasing experience at one of the popular e-stores. She managed to reach the checkout page to select the parcel location for the shipment. The content structure made sense, the markup on the dropdown was correct, but then an issue emerged. The screen reader could not read out different dropdown values, in her case locations, from the component. As she was not able to input the information about the delivery address, the whole order was cancelled.

We can take action to avoid similar scenarios. Test products with impaired users frequently before release. Accessible product and service enhancements become apparent because of these small context-related details, which only real users know. These details can’t be discovered just by reading web accessibility guidelines.

Preparing for the future – WCAG 3.0

WCAG 3.0

Technological advancement is evident in every corner of our daily life. We spend more and more time interacting with devices (phones, paying terminals, ATMs, grocery readers, etc.) and this trend will continue. As the market introduces new types of devices, lots of challenges emerge. Different controlling mechanisms call for unique approaches for people with disabilities. For example, scaling down the size of a display requires reviewing content hierarchy and appropriate element sizing.

To make new technologies available to everyone, accessibility standards called Web Content Accessibility Guidelines (WCAG) should be followed. Its primary purpose is to provide a clear set of rules, based on years of research and testing. As of this writing, WCAG 2.2 is the current version of the Web Content Accessibility Guidelines and has been in effect since October 2023.

However, a new version, WCAG 3, is in development. It will be even more relevant for emerging technologies. A new structure and updated language will make standards easier to understand and implement. Rather than success criteria, WCAG 3 will present requirements as outcomes and provide methods and how-to documentation to achieve those outcomes. This approach will create a more user-friendly framework for making digital content accessible to people with disabilities. And though the new standards are not yet 'live', understanding the future direction of the standards can help reduce rework required later and make sure that products and services across every device type are accessible to as many users as possible today.

> WCAG 3 will address the latest challenges by setting standards for newer content types and devices, including static and dynamic content, extended reality (XR), assistive devices, wearables, and more.

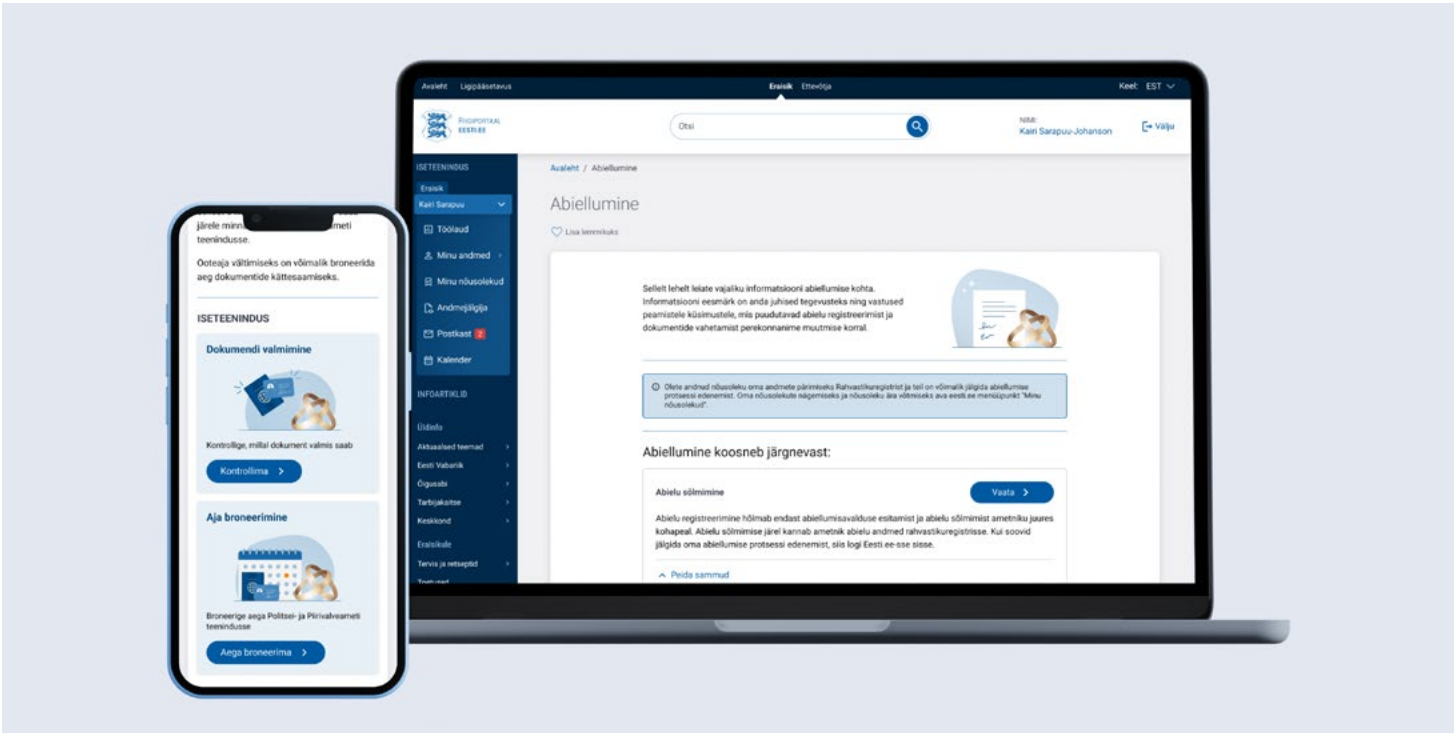
Nortal Case Study: Implementing an automated accessibility check for Estonian digital public services

Nortal has been working with RIA (a governmental information systems agency) for several years, helping to shape and develop the Estonian e-services portal Eesti.ee. As a part of our latest project, we have built an entire component library called CVI that implements a design system used at Eesti.ee.

Since CVI is used in government-level projects, the requirements for usability and accessibility are high. The library must conform to the AA level of the WCAG 2.2 standard.

Keyboard navigation, equal access to the UI for screen readers and other assistive devices, and the ability to present content for people with visual disabilities are all requirements when a new component for CVI is developed. The accessibility design starts from the component ideation, but it does not finish with the release, with user feedback and continuous testing informing improvements. And with the library code open-sourced, everybody is allowed to participate.

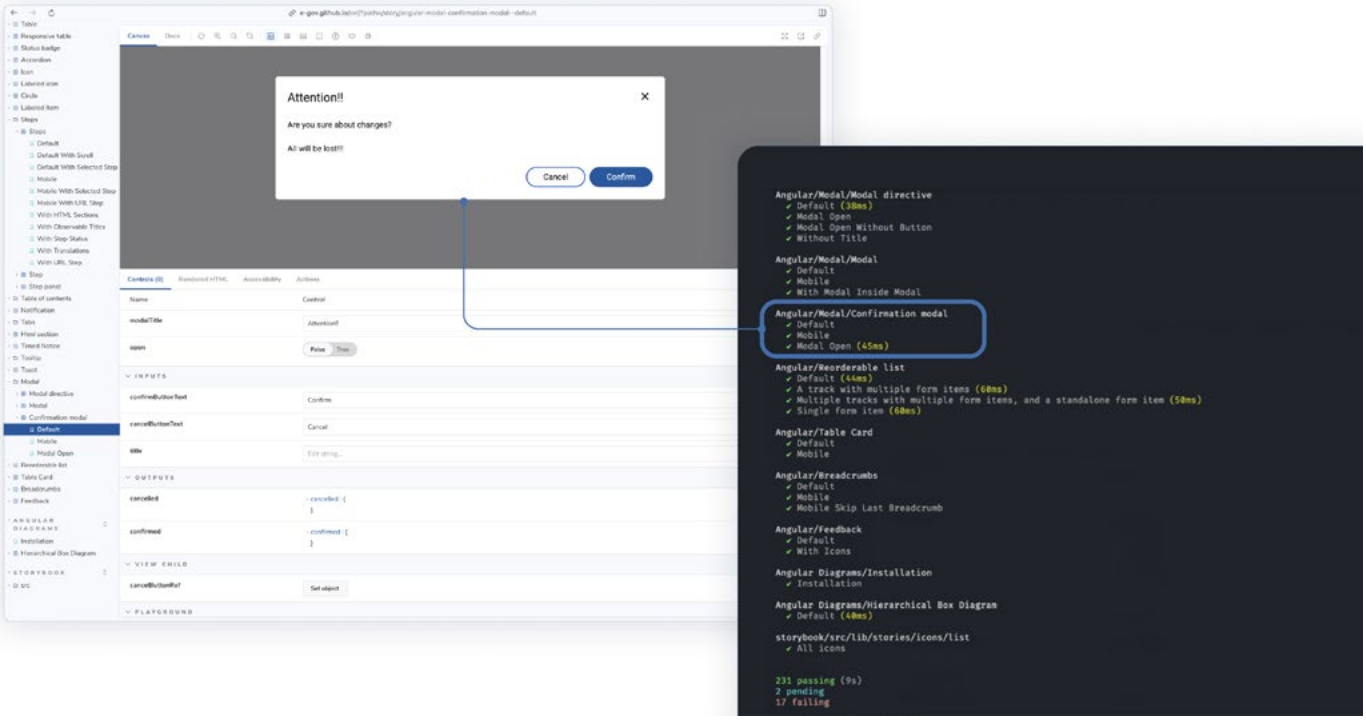
Similar to state-level UI libraries in other countries like the UK or Netherlands, CVI is designed for growth. Given the library's scale and fast iteration rate, it would be highly inefficient to manually test each component and update for their accessibility performance. This is why we created an automated testing process.



> Upon every component update, the engine tests the code automatically, applying more than 100 rules.

CVI employs an open-source accessibility testing engine called Axe. As the check is mandatory, code can only be submitted to the library if it has been tested. An error discovered during automatic testing will be immediately communicated to the developer, allowing the issue to be fixed. The check can also be initiated manually before changes are committed. However, a positive result doesn't mean components are fully accessible – as mentioned above, no automation will replace all human effort and testing with a variety of assistive devices and real users is still conducted.

Since the testing had been deployed, we have tested and published more than 200 library updates. The testing has already saved a lot of time, allowing us to focus on the most complicated components and scenarios. The same engine has since been employed in other design systems and component libraries that Nortal works on.



Get in touch with Nortal's accessible design experts

Nortal has 150+ Product, Customer Experience, and Design consultants globally. We have a global center of excellence for accessibility and product design in our headquarters in Tallinn, Estonia. Our teams prioritize accessibility certification, and we regularly run our own trainings, events, and research involving impaired users and accessible user experience experts.

We are passionate about making an increasingly complex digital world accessible and inclusive. We've seen how doing this leads to higher-quality code, improved performance, more engagement, and enhanced commercial value.

If you share this passion or would like to learn how accessible design can improve your products and services, get in touch with our accessible design experts.

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