

ENHANCED DIGITAL REACH AND INCLUSION WITH ACCESSIBILITY BY DESIGN APPROACH

Abstract

Organizations have understood the power of 1 billion. Digital accessibility and inclusion are necessities in today's digital space considering the user needs and legal mandates. Early focus on accessibility drives usability and impact compared to the common reactive and traditional approach. Proactive accessibility can be achieved with the right awareness and adoption of best practices across the software life cycle. Infosys has understood the benefits of early accessibility and has embraced accessibility by design. This point of view outlines the need, approach, and benefits of accessibility by design.

Introduction

Digital accessibility stands on the power of inclusion. Inclusive designs create assets that are accessible and usable for all individuals irrespective of their abilities. As per the 2023 disability statistics published by the World Health Organization, there are 1.3 billion plus disabled people across the globe which translates to 16 percent of the world population (WHO, 2023). Creation of accessible digital applications is a vital as

well as a legal mandate for every brand. The benefits of inclusive designs are for everyone as it improves overall user experience and engagement resulting in enhanced brand equity and market reach.

But in reality, accessibility is considered more as a compliance need and an afterthought which limits its overall potential. Accessibility conformance issues identified toward the end of the

project life cycle result in poor quality, quick, and risky solutions. The cost to fix defects increases exponentially and is six times more in implementation than in design as per the studies done by IBM System Science Institute (Cser, 2023). The impact of accessibility can be amplified with an early focus and timely interventions starting from project initiation till final implementation.

Problem Statement – Need for Accessibility by Design

Organizations and individuals follow a reactive or remediation approach to maintain a minimal level of compliance for accessibility resulting in half-baked solutions. Accessibility compliance is

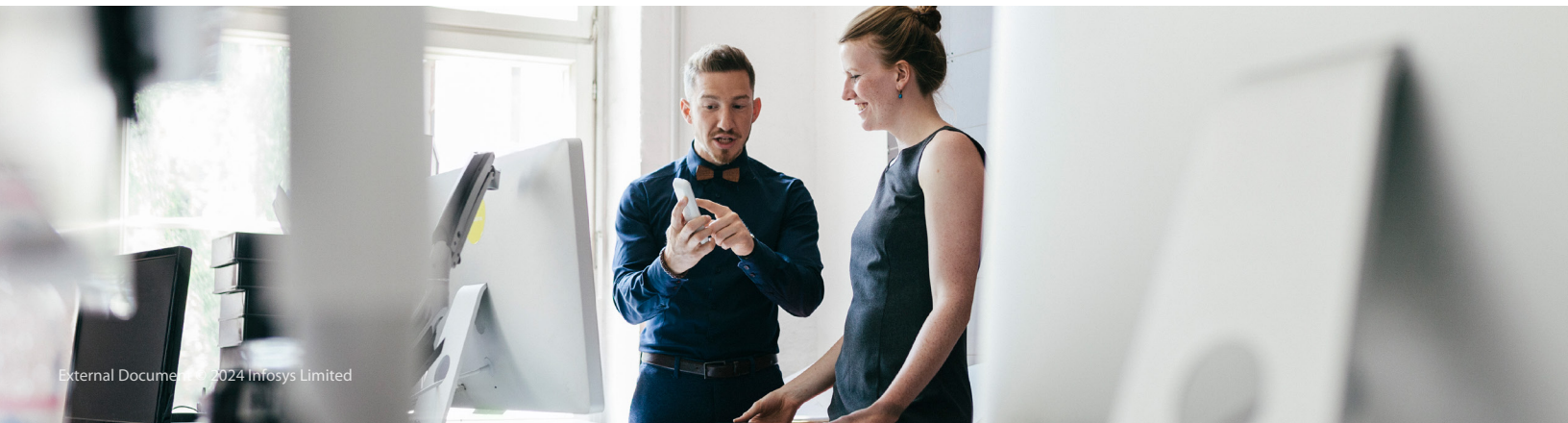
met only for the mandatory items towards the end of the project life cycle, which are costly and error-prone. This approach defeats the whole purpose with an inferior outcome not beneficial to real users.

The statistics provided below in Table 1 highlight the global need for accessibility and its impact and opportunities for organizations.

Table 1 – Global Disability Statistics and its Impact

Global Disability Statistics		
1.3 billion disabled -> 16% of the global population -> 1 out of every 6 people (WHO, 2023) Disability can be permanent, situational, or temporary, it increases with age		
United States of America More than 1 in 4 (28.7 %) adults (CDC, 2024)	European Union 101 million, 27 percent aged 16 years and above (Council, 2022)	Asia & Pacific 690 million, 1 in 6 people (UN-ESCAP, 2017)
Overall Impact		
Global disability and assistive technology market to reach \$82 billion by the year 2030 (ReportLinker, 2023) 4600+ ADA Accessibility lawsuits filed in 2023 , 82% from the e-commerce sector (UsableNet, 2023)		

Source: Author





Accessibility by Design – Proactive Approach for Inclusion

Designing for accessibility considers all types of users and all formats of digital channels from day one of the project inception phase. Accessibility implementation should be mandated in

every phase of the project starting from requirements gathering. This shift-left approach creates digital applications and content that are inherently accessible. By embedding accessibility early into design

and development, it creates outcomes that are inclusive for all users making it a fundamental part. Figure 1 provides the methodology and benefits of implementing accessibility early in the life cycle.

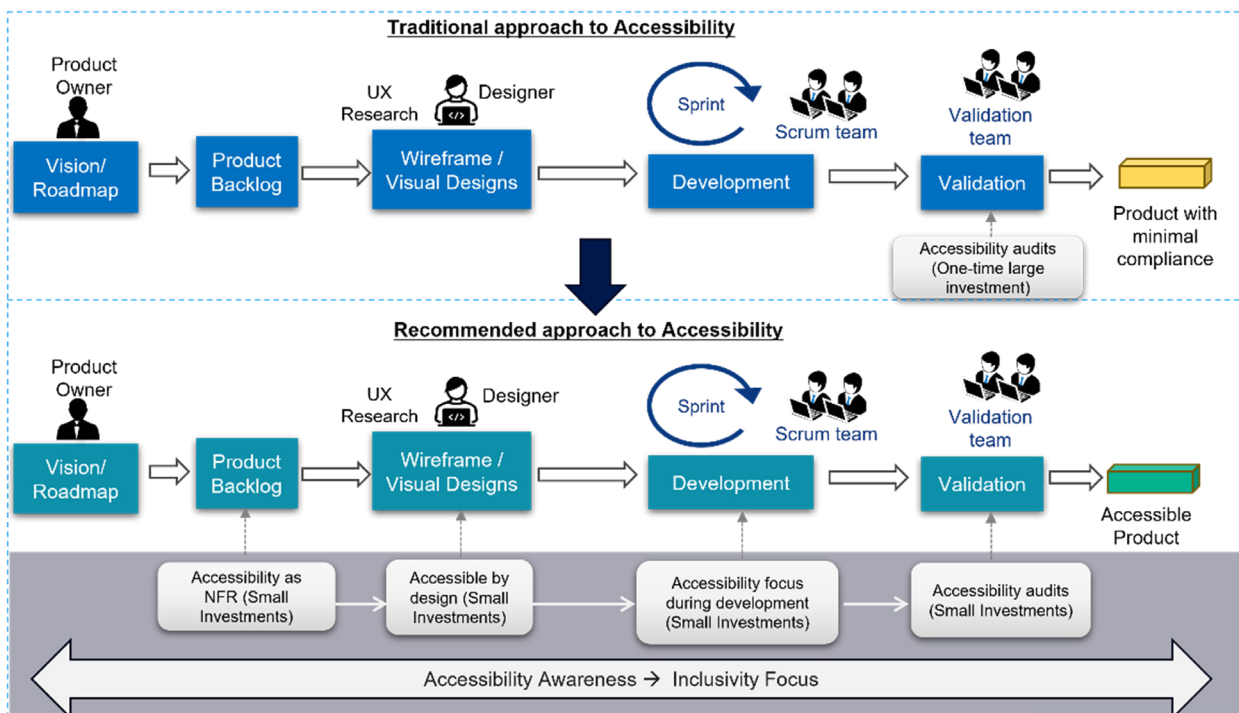


Figure 1 – Reactive to Proactive Accessibility Approach, Source: Author

Step by Step Approach

As shown above in Figure 1, accessibility must be an incremental approach spread across the project life cycle. The following sections provide the step-by-step approach to achieving accessibility by design.

Step 1 – Building Awareness

Organizations and individuals need to embrace accessibility as a mindset rather

than as a compliance need. Building awareness is the key to this cultural change. Infosys has been proactively promoting accessibility and inclusion through regular campaigns and webinars to improve employee awareness. Infosys has also created a robust knowledge base and certifications to equip its employees. [Infosys Accessibility Living Labs](#) was

launched to provide an experiential learning space. To enable its employees and clients to experience the day-to-day challenges of disabled users. It showcases assistive technologies like screen readers, adaptive switches, and [Infosys Accessibility Platform](#) to aid users in gaining a better understanding of technology and solutions.



Figure 2 – Infosys Accessibility Living Labs, Source: Author

Step 2 – Accessibility in Requirements and Design

Accessibility by design is crucial for early detection and prevention of accessibility issues. The overall usability of the solution gets enhanced with an early accessibility focus. For programs and projects, adding accessibility as a non-functional requirement (NFR) is the starting point. Accessibility experts should define the overall strategy for accessibility implementation. During the design of user personas and journeys, due

consideration should be given to the accessibility point of view. Collecting early feedback on designs from real users with a disability can increase relevance and adoption. Important design considerations for accessibility include color contrasts, hierarchy, layout, navigation, and typography. W3C has detailed documentation for designing for web accessibility (W3C, Designing for Web Accessibility, 2024).

Design systems that are accessible prove beneficial for developers.

Storybook is a popular open-source-based reusable UI component library with rich documentation and inbuilt capabilities to check accessibility at the component level (Storybook, 2022). Project teams should make it a practice to conduct design reviews of wireframes and visual designs from an accessibility perspective. It is easier and more important to fix early in the life cycle. Including accessibility annotations in designs is an efficient way to transfer contextual instructions to developers. Design engineers should be trained to design for inclusion.

Step 3 – Developing Accessible Experiences

Developers play a vital role in ensuring the accessibility of digital applications. Usage

of Semantic HTML with correct elements and attributes like <button> for buttons enables the best possible experience for users with keyboard access, screen readers, and other assistive technologies.

Progressive enhancement aids in the creation of accessible experiences across browsers and devices where the foundation layer is built with basic HTML and enhanced with CSS and JavaScript.



Figure 3 – Progressive Enhancement, Source: Author

There are several accessibility best practices that the development team should be aware of and can follow based on WCAG guidelines recommended by W3C. The table 2 below lists a few important ones for reference. Preparing and following the WCAG guidelines-based developer checklist and usage of IDE plugins during development can lead to the creation of accessible native code.

Table 2 – Accessibility best practices during development

Best Practice	WCAG Reference	Outcome
Use of Semantic HTML	G115: Using semantic elements to markup structure	Provides context to screen readers used by visually impaired users
Usage of Correct Headings	G141: Organizing a page using headings H42: Using h1-h6 to identify headings	Proper flow of headings improves screen reader navigation and overall flow benefiting blind and low-vision users.
Meaningful Alt Text for Images	H37: Using alt attributes on img elements	Alt text makes the images accessible for users who cannot view
Sufficient Color Contrast Ratio	G18: Ensuring that a contrast ratio of at least 4.5:1 exists between text (and images of text) and background behind the text	Important for low-vision users
Lang Attribute	H57: Using the language attribute on the HTML element	Aids screen readers which are multi-lingual choose the primary language to use

Source: Author

Step 4 – Role of Content Authors

Content authoring is the next important step that follows product design and development. It is very important to have user-friendly, contextual, and inclusive content. Content authors should provide page titles, use clear language, good link text, meaningful alternate text, captions, and transcripts. While planning the content for digital applications using AI-generated content, the human element can be missing which needs attention. Also, people with cognitive issues need

easily understandable content and simple presentation for easy assimilation.

Step 5 – Accessibility Audits

Accessibility audits by trusted testers are performed for adherence to compliance and standards. A combination of automation and manual audits with assistive technology increases the efficiency and effectiveness of the overall process. Having real users perform audits and embedding accessibility in sprint cycles are all mechanisms to strengthen the audit process.

[Infosys Accessibility Platform](#) is an AI-powered end-to-end accessibility and inclusivity platform with a patented audit tool (Patent id - [US8572549B2](#)), advanced scans, insightful reports, and remediation suggestions that empower audit teams to save effort and improve efficiency. The platform is W3C approved and is available for Infosys clients. Success stories of the platform include the [accessibility of ITD Portal](#) which is one of the largest citizen service portals with a user base of 118 million.

Benefits of Accessibility by Design

Early focus on accessibility offers superior advantages and numerous benefits compared to the common reactive and traditional approach. The majority of accessibility issues can be solved at the design stage itself improving the overall quality and usability of the product.

- Provide early focus and attention to accessibility right from requirements.

- Incorporating accessibility in design and development is an easier and less expensive model than making quick fixes towards the end of the project which is costly and error-prone.
- Digital accessibility is a legal mandate based on national laws like ADA, EAA, AODA, and Section 508 where

companies can be penalized for non-adherence.

- Accessibility by design improves overall user experience, navigation, and SEO.
- Inclusion inspires innovation resulting in enhanced usability.

Conclusion

Organizations should bring a shift in their culture to embrace accessibility by inclusion. Accessibility should not be an afterthought but a compulsory initiative to be taken at every phase of the creation of digital applications. Lack of accessibility focus results in inferior outcomes leading to customer disconnect and legal implications. On the other hand, human-centered inclusive designs drive innovations and usability. Inclusivity can be achieved with the right awareness, team alignment, and adoption of best practices. Myriads of user groups benefit from this approach with a direct reflection on enhanced reach, improved customer engagement, and overall brand equity.



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Ganga Susan Kurian currently plays the role of product owner of Infosys Accessibility Platform, an end-to-end accessibility offering from Infosys. Being part of the Infosys family for two decades, her expertise includes agile program and project management and digital marketing technologies across retail, insurance, and manufacturing sectors.

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