

# Digital Accessibility: Better Experience for All

A Framework for Digital Inclusion of  
Persons with Disabilities





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Keeping business open to everyone – including disability acquired through straightforward aging – is therefore an essential business decision.

Estimates by the World Bank suggest that impairment affects over 15% of the world population<sup>i</sup>. This includes visual, auditory, cognitive or mobility disabilities. Translated, this means there are upwards of 1 billion people worldwide who do not have access to, among other things, technological products and services. Many of these products and services were not designed with the disabled in mind. However, today, increasing efforts to give Persons with Disabilities (PWDs) equal access and the increasing purchasing power of PWDs are changing that. Studies show that PWDs could control anything between US\$1 and 2 trillion in disposable income<sup>ii</sup>. Keeping business open to everyone – including disability acquired through straightforward aging – is therefore an essential business decision. Equally important, from a social inclusion perspective, is the fact that accessibility is no longer a choice. The world over, legislation has begun to emerge that makes it mandatory for organizations to ensure their products and services are accessible to the disabled. In several geographies, excluding anyone from being able to use a product or service may amount to a breach of legislation.

There are guidelines available such as the Web Content Accessibility Guidelines 2.0 (WCAG 2.0) that provide a useful minimum standard. These are minimum standards. They are good to achieve; going beyond them is highly recommended. While existing apps need to be reviewed, updated and tested for accessibility, the challenge is to build accessibility

into the design of apps and avoid potentially expensive retrofitting.

Take the simple case of the commonly used PDF file, originally designed for easy printing. Today, PDF files have become a common format for the exchange of secure data such as telecom, utility, card and bank statements that use a password to protect the file. The visually impaired cannot use speech synthesizer software to read a normal PDF file. However, it is possible to use XML markup and pass the file information to speech synthesizers. In addition, to make such documents completely accessible to PWDs, alternate text for images must be included, and tags used to indicate titles, tables and bullet points. Similarly, imagine a shopper with color blindness making a decision to buy clothes on an e-commerce site. These sites need a redesign with redundant information for color, visual markers for text fields and a variety of other customizations.

With the growth in mobile usage – and with the elderly who are more comfortable with mobiles than with desktops and laptops – the urgency to re-examine mobile app development is even more severe. This is true for applications across industries and institutions, from retail to utilities, healthcare to education and hospitality to government.

A healthy mix of business opportunity, compliance pressure, ethical considerations and the need for social approbation is driving organizations to use assistive technology to make their digital resources – sites and applications – available to everyone, equally.

<sup>i</sup><http://www.worldbank.org/en/topic/disability/overview>

<sup>ii</sup><http://returnondisability.com/disability-market/>

<http://www.rod-group.com/sites/default/files/2016%20Annual%20Report%20-%20The%20Global%20Economics%20of%20Disability.pdf>

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## A practical approach to accessibility

Each organization has unique accessibility concerns based on the technology and platform it adopts, its industry-specific needs and legal requirements (at times, specific to the locale). To enable accessibility, customizable solutions, accelerators and frameworks have to be created based on each organization's unique accessibility needs.

At Wipro, we began the journey to accessibility early, focusing on internal services most frequently used by employees. The effort quickly spread to applications for recruitment, training, awareness, policy dissemination and other digital infrastructure. This has given us a head start with a practical understanding of accessibility that goes beyond WCAG 2.0 and meets compliance requirements across nations.

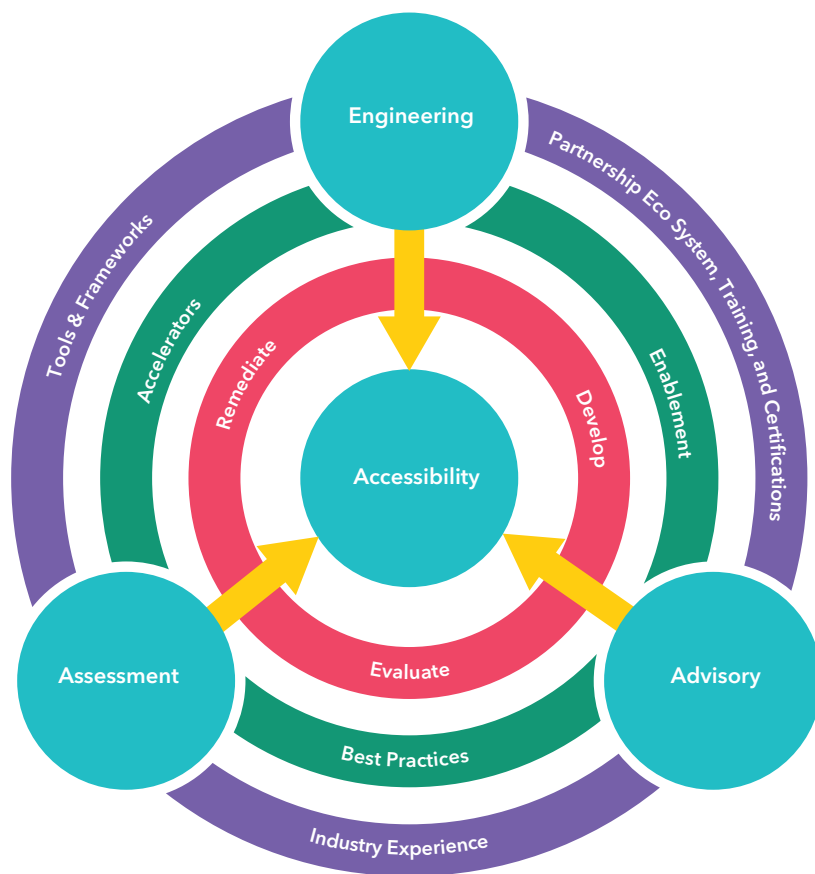
We support technology companies in validating their core products and applications. To enable this we have strong partnerships with vendors who provide assistive technology products and usability testing with disabled users. This means PWDs - the end users - are the ones who validate

usability experience of these products and applications.

In addition to common standards such as WCAG 2.0, major technology organizations like Google, Microsoft and Apple pursue their own internal standards that are contextualized to their product-specific needs. We have worked with these technology majors and understand their frameworks. In addition, we have experience executing accessibility engagements with clients in banking, insurance, retail and high-tech industries.

Based on industry experience, we have built a framework that includes an estimation model, test strategy, checklists, etc. to support accessibility at various stages of product cycle (see Figure 1: Accessibility Services Framework). We customize solutions and frameworks that leverage open source accessibility validation libraries and automation frameworks for web application. For native applications we use platform-specific (Windows, Mac, iOS, Android, etc.) APIs and frameworks for accessibility assessment. This applies to content accessibility as well.





**Figure 1:** Accessibility Services Framework

Customization includes building automated scenarios to improve the regression effort and orchestrating various open source tools/library that can improve overall coverage, accuracy, and framework to map industry rules versus organization-specific rules, etc.

Our frameworks, solutions and accelerators have been critical in the reduc-

tion of testing effort. In several instances, the effort savings has been as much as 20%. In many cases, it could deliver up to an estimated 30% saving in terms of time and money. Apart from savings, these help improve product accessibility coverage and overall quality of experience for the PWDs.

## A future where no one is left behind

Tech giants like Microsoft, Apple and Google are bringing unrelenting focus to accessibility. Many Microsoft products are undergoing accessibility enhancements. Similarly, Apple has added accessibility features to many of their products like the Apple Watch, Mac, iPad, iPhone and Apple TV. More recently, Google introduced accessibility enhancements to its products like editing Google docs

with voice, voice commands for Android devices and an improved screen reader for Chromebook. The stakes are getting bigger and enhancing applications with increased accessibility features is the future. Digital inclusion has acquired a broader meaning. It is improving lives, creating a fairer society and better businesses, with nobody left behind.

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## About the author

**Sathyanarayanan S is a Principal Architect with Wipro's Product Engineering Services.** He has been with Wipro since 1997 and is an expert in Azure and other Cloud-related solutions. In his current role, Sathya leads strategy and implementation for accessibility solutions, providing a better technology experience for everyone. For more information, write to Sathya at [sathyanarayanan.subramaniam@wipro.com](mailto:sathyanarayanan.subramaniam@wipro.com)

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WIPRO TECHNOLOGIES, DODDAKANNELLI, SARJAPUR ROAD, BANGALORE - 560 035, INDIA. TEL : +91 (80) 2844 0011, FAX : +91 (80) 2844 0256

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IND/B&T/JAN-JUN2017

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