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# Change the World, Provide Digital Accessibility for All

## *How Can Product Companies Leverage Engineering Service Providers in Ensuring Digital Accessibility?*

January 2018 | Authors: **Pareekh Jain, Senior Vice President, Engineering Services, HfS Research; and Tanmoy Mondal, Senior Research Analyst, HfS Research**

Technology is changing life, but is it changing life for all? What about people who are left behind by digital technology because of accessibility challenges? Many of today's products and services were not designed with a disabled or aging population in mind. Digital accessibility can be defined as enabling all people (which includes individuals with disabilities and aging individuals) to use digital assets, including software and hardware on all kinds of devices.

Estimates by the World Bank suggest that disability affects more than 15 percent of the global population. This includes visual, auditory, cognitive, or mobility disabilities. This means more than one billion people worldwide do not have access to, among other things, technological products and services.

In addition, the aging population suffers from accessibility challenges. Estimates by the United Nations (UN) suggest that in 2017, there were about 962 million people aged 60 or older in the world, comprising 13 percent of the global population. The number of older persons in the world is projected to be 1.4 billion in 2030 and 2.1 billion in 2050, and could rise to 3.1 billion in 2100.

Providing digital accessibility for all is not only corporate social responsibility (CSR) but also good business. Persons with disabilities (PWDs) and an aging population could represent a huge market.

If the potentially enormous market for digital accessibility does not excite enterprises to act, the fear of compliance will. In the future, enterprises will need to be compliant for digital accessibility. Already, according to the UN Convention on the Rights of Persons with Disabilities, access to information and communication technologies is a basic human right.

It is better for enterprises to voluntarily provide digital accessibility than be left behind, either in profitability or compliance.

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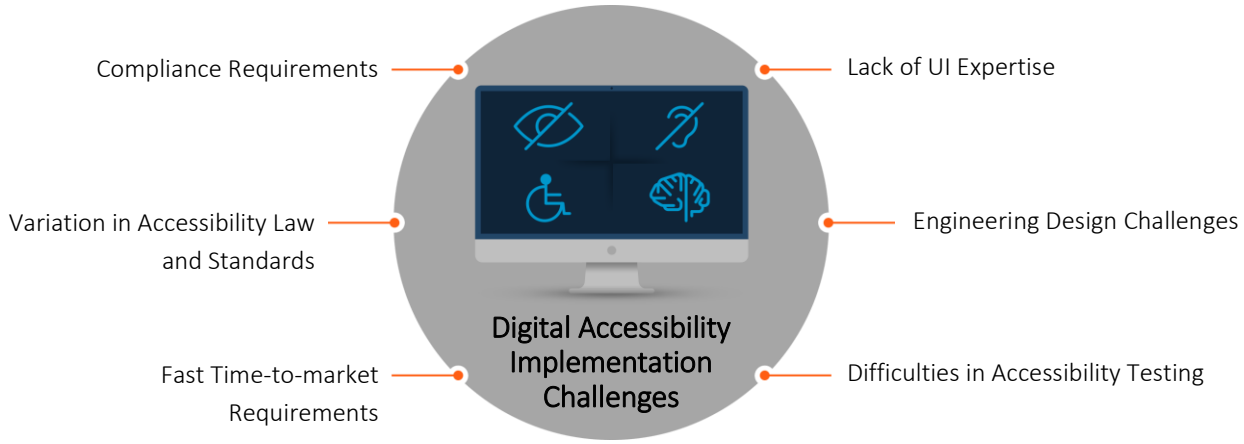
# Challenges in Digital Accessibility Implementation

Enterprises are facing several challenges in implementing digital accessibility.

Exhibit 1: Challenges Faced in Digital Accessibility Implementation




Source: HfS Research, 2018

- **Lack of UI Expertise:** Product companies are good at engineering but often lack user interface (UI) expertise. For disability, UI requirements are more demanding as companies need to balance need for branding and aesthetics with functionality and accessibility.

- **Engineering Design Challenges:** Sometimes, UI changes are not enough, and a retrofit of product architecture for accessibility considerations or a redesign of the complete product architecture might be required. Product companies need to include accessibility and usability requirements beginning in the design phase.

- **Difficulties in Accessibility Testing:** Testing must be done by users. For accessibility testing, enterprises need to find senior citizens, users with disabilities, or experts who understand disabilities.

- **Compliance Requirements:** Product companies do not have compliance experts. Web Content Accessibility Guidelines (WCAG) compliance is required for web accessibility. Customer adoption of Accessibility 2.0 is putting pressure on compliance requirements.

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- **Fast Time-to-market Requirements:** In product companies, time to market is a major revenue driver and is often the difference between success and failure. The additional accessibility requirements and compliance can delay the time to market.

- **Variation in Accessibility Laws and Standards:** There are no common laws or standards for accessibility across the world. Different countries and regions have different laws protecting individuals with disabilities, such as the Americans with Disabilities Act (ADA), Accessibility for Ontarians with Disabilities Act (AODA), Section 508, and so on. Enterprises need to develop expertise in different laws and standards and be cognizant of the time it will take to achieve compliance with multiple standards.

These challenges mean product companies need an engineering service provider to help them in digital accessibility.

## Solution and Roadmap to Digital Accessibility

Engineering service providers can help enterprises with their digital accessibility challenges. A comprehensive accessibility solution should have the following broad components:

- **Accessibility Consulting:** This phase should include an assessment of the as-is product accessibility and identify gaps in the desired to-be state. It can also encompass a study of internal systems and processes and recommend changes for digital accessibility enablement.

- **Accessibility Engineering:** This is front-end engineering to provide accessibility across devices. Depending on the products, this may include human-led inclusive design for user interface, platform engineering, accessibility-rich Internet application development, and customizable application development. This can offer multiple options for representation, action, expression, and engagement to users.

- **Accessibility Testing:** Testing or validation is a very important part of providing digital accessibility. It might be actual testing by target PWD users or software testing by tools and testing experts. It includes design for testing, testing for functionality, testing for usability, or testing for compliance.

In addition, three value drivers are essential to provide digital accessibility solutions:

- **Automation:** It can increase test coverage and reduce cost and time to market. Some service providers have developed end-to-end accessibility compliance test automation solutions. These automation solutions are highly reusable, easy to use, low maintenance, scalable, and extensible. In addition, a

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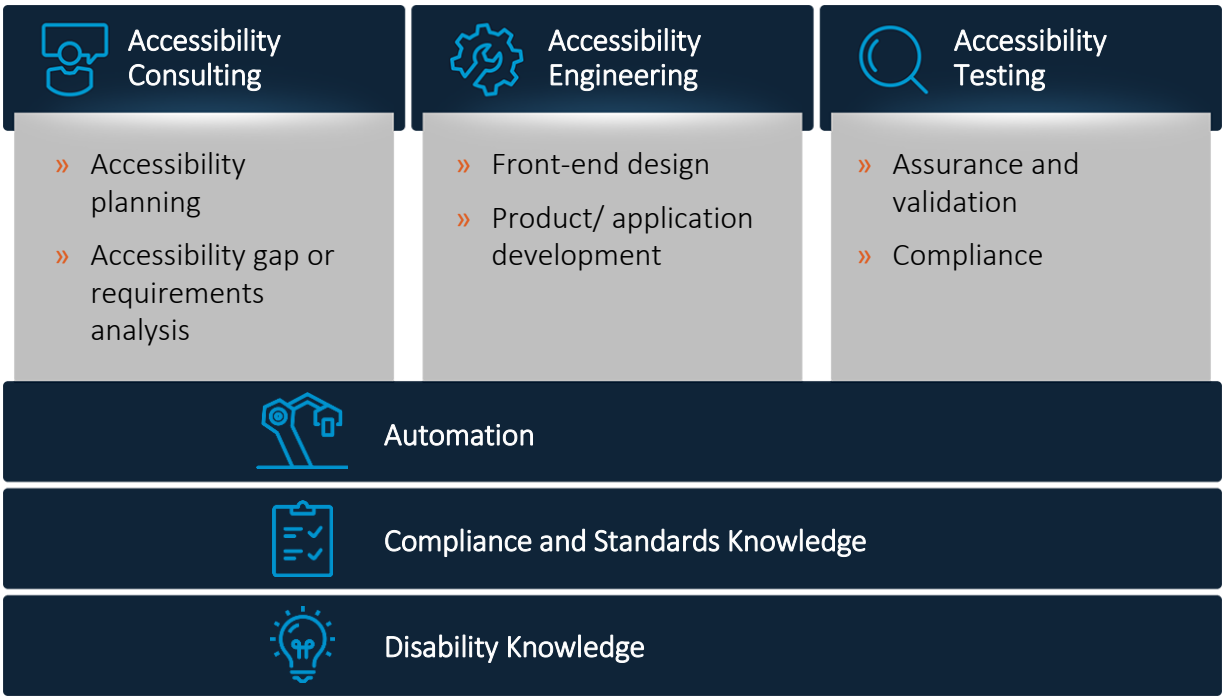
digital accessibility audit can be automated in the consulting phase. For example, an automated tool can identify web pages as ADA compliant or ADA non-compliant in the audit phase.

- **Compliance and Standard Knowledge:** Knowledge of regulations, compliance, and industry standards is essential for providing digital accessibility services across consulting, engineering, and testing. Knowledge of standards such as WCAG 2.0 level AA, Section 508, ADA, and EN 301 is required. Accessibility 2.0 knowledge and experience, in particular, are critical.

- **Disability Knowledge:** Real PWD knowledge and user insights are essential for providing effective digital accessibility services across consulting, engineering, and testing. This knowledge can be developed by accessibility training, employment of PWD specialists, and partnerships with niche companies focusing on PWD segments.

These solution components and value drivers are shown in Exhibit 2.

Exhibit 2: Digital Accessibility Solution Approach




Source: HfS Research, 2018

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The solution above can solve all digital accessibility challenges of enterprises as shown in Exhibit 3.

Exhibit 3: How Digital Accessibility Solutions Can Help Enterprises Navigate Digital Accessibility Challenges

| Challenges | Consulting | Engineering | Testing | Automation | Compliance Knowledge | Disability Requirements Knowledge |
|---|---|---|---|---|---|---|
| **Lack of UI Expertise** | Yes | Yes | | | | |
| **Engineering Design Challenges** | Yes | Yes | | | | |
| **Difficulties in Accessibility Testing** | | | Yes | | | Yes |
| **Compliance Requirements** | Yes | Yes | Yes | | Yes | |
| **Fast Time-to-Market Requirements** | | | | Yes | | |
| **Variation in Accessibility Law and Standards** | Yes | | | | Yes | |

Source: HfS Research, 2018

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## Examples of Digital Accessibility

Digital accessibility via partnership is no longer just a theory. Implementation is already taking place in the industry. Exhibit 4 shows examples of digital accessibility partnerships described to us by enterprises we interviewed.

Exhibit 4: Digital Accessibility Case Studies

| **Case 1:** Global Professional Services Company | **Case 2:** Multinational Tech Company ISV | **Case 3:** Leading Consumer Devices Company |
|---|---|---|
| **Accessibility Challenges** | **Accessibility Challenges** | **Accessibility Challenges** |
| The customer had the following challenges:<br><br>» **Compliance:** WCAG 2.0 compliance for entire enterprise applications<br>» **Testing:** Usability testing by PWD groups | The customer had the following challenges:<br><br>» **Design:** Accessibility design<br>» **Testing:** Assurance for enterprise apps for blind users | The customer had the following challenges:<br><br>» **Design:** Accessibility design for platforms and mobility groups within firms<br>» **Testing:** Usability testing by PWD groups<br>» **Compliance:** WCAG 2.0 compliance<br>» **UI Expertise:** Building UI for platforms and mobility groups within firms |
| **Accessibility Solutions Offered by the Service Provider (Wipro)** | **Accessibility Solutions Offered by the Service Provider (Wipro)** | **Accessibility Solutions Offered by the Service Provider (Wipro)** |
| » Accessibility thinking in the design process to meet the WCAG 2.0 guidelines (visual and motor disabilities)<br>» Software field tested by PWD user groups<br>» Prioritized deviations/ modification requests reported; re-deployed the application ensuring rapid adherence to WCAG 2.0 | » Accessibility compliance testing<br>» Usability testing for applications to obtain disability user feedback, rating, and bugs logging for non-usability scenarios<br>» Testing across multiple OS platforms, multi-platform devices, and browsers as applicable for target apps | » Partnering with them to bring in-depth knowledge of web technologies and excellent knowledge and understanding of WCAG 2.0 guidelines<br>» Bringing in-depth knowledge and understanding of WAI-ARIA and first-hand experience in testing with assistive technologies |

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| | | |
|---|---|---|
| | | » Supporting familiarity with accessibility features on mobile devices to promote and support accessibility across consumer devices and offering consultancy services to project teams to enable accessibility<br>» Partnering with leading accessibility firm Barrier Break to scale up on accessibility teams |

*"We enable our customers to navigate digital accessibility challenges."*

**– Anita Ganti, Head PES, Wipro**

| Outcomes Achieved | Outcomes Achieved | Outcomes Achieved |
|---|---|---|
| » Enabled accessibility of more than 100 software applications, including 30+ hybrid and native mobile enterprise apps used by more than 160,000 employees daily | » Usability validated by a blind team, which evaluated user experience for PWDs | » Enabled accessibility for mobile devices and platform workstations |

Source: HfS Research, Wipro, 2018

These Wipro examples highlight the role that an engineering service provider can play in delivering accessibility services to enterprises.

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## Advice for Product Companies as They Implement Digital Accessibility

1. **Develop an accessibility strategy:** Digital accessibility should not be an afterthought. Enterprises should develop a comprehensive digital accessibility strategy to ensure that their products are accessible to all potential users. Often, enterprises think that they need point solutions for testing or compliance, but in fact, they need a comprehensive accessibility strategy.
2. **Seek help from external partners:** It is difficult to have all the expertise, experience, and knowledge in-house to implement digital accessibility. Enterprises should seek help from experts who have implemented digital accessibility in multiple products.
3. **Select your accessibility outsourcing partner diligently:** It is a good idea to select service providers that have:

    - A disability-sensitive culture inside their organization, which is evident from a disability-friendly campus, infrastructure, and digitally accessible internal applications.
    - Full digital accessibility solutions across consulting, engineering, and testing. This will eliminate the need for additional service providers later.
    - A dedicated accessibility practice and should continuously invest in developing and updating their capabilities.
    - Partnerships with disability firms for understanding user requirements and testing.
    - Knowledge of digital accessibility compliance standards across different domains and regions.
    - Expertise in automation, which can be leveraged for accessibility testing and compliance to reduce cost and time-to-market.
    - A global footprint and can provide accessibility services for different countries and regions.
    - Scale and independent software vendor (ISV) relationships, which gives them diverse experience in working with different types of accessibility challenges.
    - A structured training program designed for developing digital accessibility expertise.

4. **Monitor accessibility process and results proactively:** Selecting a service provider is a big challenge, but the bigger challenge is to ensure that the outsourcing partner operates in the enterprise's long-term interest of providing digital accessibility. In products, value is generated after products are launched, and some mistakes in the design and testing phase can become very costly in product operations.

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Constant monitoring of digital accessibility to ensure outliers and exceptions are captured and proactively solved is essential for providing digital accessibility to all. Even if the enterprise decides not to outsource, proactive monitoring of product accessibility is the key to long-term value generation.

5. **Continuously evolve the process:** Digital accessibility is a moving target as new types of accessibility challenges will emerge because of technology development, such as mobility, wearables, and so on. In addition, new forms of situational accessibility challenges (such as communication in noisy areas) will emerge, as will compliance and regulatory requirements. Enterprises need to continuously scan for new accessibility challenges and keep developing and evolving the process.

## The Bottom Line: Digital Accessibility for All Is Desirable and Achievable with Diligent Partnerships

Digital accessibility is desirable for business and society. To ensure digital accessibility, partnerships with engineering service providers that are sensitive to accessibility and have expertise in all parts of the accessibility value chain are a good option. Enterprises should select service providers that can bring the whole notion of accessibility alive by applying automation, compliance, and disability knowledge to their products. At present, digital accessibility looks optional; therefore, it is not a strategic priority for many. Enterprises should not wait for regulations to force them and should start working now with partners to provide accessibility. The more products that are digitally accessible, the more happy customers there are. What better metric can there be for product companies than an increased number of happy customers?

*HfS would like to extend a special thank you to Wipro for its support of this study.*

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# About the Authors

## Pareekh Jain

Pareekh Jain is a Senior Vice President at HfS Research. He established the global engineering services practice at HfS Research which covers mechanical engineering services, embedded engineering services, software product engineering services, PLM services, and Industry 4.0. He also tracks telecom and manufacturing vertical along with outsourcing deals and runs India operations for HfS Research. He authored various industry leading engineering services research reports including HfS engineering services blueprints, HfS engineering services top 20, HfS engineering services quarterly trends, etc. He is regularly quoted in media on engineering services and outsourcing trends.

A seasoned outsourcing consultant, Pareekh has seen the engineering services outsourcing industry from three perspectives: service provider, advisor and buyer. He started his career as a software engineer with Geometric, which gave him the service provider perspective. He was then with neoIT, an outsourcing advisory firm. At neoIT, he was a key contributor on a number of engagements with leading US and European clients, which spanned across the outsourcing lifecycle. He also produced neoIT's seminal report on city competitiveness for outsourcing. In his last assignment he gained the perspective of an outsourcing buyer as he led strategic planning, sales planning, product planning and R&D initiatives for the APAC region of Emerson Network Power—a Fortune 100 manufacturing multinational whose APAC operations are based in Kuala Lumpur, Malaysia.

Pareekh is a thought leader, having authored a variety of publications on topics related to outsourcing, engineering services, technology and regional competitiveness in outsourcing. He loves business fiction writing in his free time and his first novel "*Who is that lady?*" was published recently.

Pareekh received his MBA from the Indian Institute of Management (IIM), Bangalore and a Bachelor of Technology from the Indian Institute of Technology (IIT) Delhi.

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## Tanmoy Mondal

Tanmoy Mondal is a Senior Research Analyst at HfS Research, identifying global trends in engineering services from both industry & technology perspectives, tracking global outsourcing deals & investments including partnership agreements & R&D announcements in the sector and supporting the domain leads in secondary research, data analysis, PoV's and research writing. His coverage areas include mechanical engineering services, embedded engineering services, software product engineering services, PLM services, and Industry 4.0.

Tanmoy has over 4 years of research, pre-sales and market intelligence experience in TCS, HCL and Tracxn. At his TCS & HCL role, he has worked on preparing RFP responses including solution construct and commercial proposition. He was responsible for analyzing the business scenario for ERP implementation for different industry verticals and participated in several Enterprise Transformation projects across domains to optimize the IT landscape, increasing IT integration among client business verticals, improving productivity & reducing business incidents. In Tracxn, he was part of the emerging technology team that helps finding companies (Start-ups) specializing in upcoming technologies (virtual/augmented reality, drone etc.) for acquisition & portfolio investments for PE and VC firms.

Tanmoy holds Master's in Business Administration from IIFT (Indian Institute of Foreign Trade), and Bachelor of Engineering from Jadavpur University, Kolkata.

Tanmoy is passionate about football and loves to read economics related books & articles.

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Wipro is a diverse and inclusive organization with extensive partner ecosystem across PWD segments.