MAKING THE DIGITAL ECO-SYSTEM DISABLED FRIENDLY

AN EVALUATION OF THE ACCESSIBILITY OF TEN WIDELY USED APPS IN INDIA

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Executive Summary

In India, while our principal disability rights law, the Rights of Persons with Disabilities Act, 2016, mandates that every service provider, whether government or private, must make their services disabled friendly in accordance with the rules on accessibility formulated by the Central Government, the reality is very different. While technology can be a great leveller for the disabled, if it is not designed with their needs in mind, it can reinforce the barriers they otherwise face.

There is no gainsaying the fact that the COVID pandemic accelerated the use of technology and made tech-based solutions, for meeting our everyday needs, a routine feature of our lives. The need for tech-based products and services to become more disabled friendly has, therefore, assumed even greater significance. From ordering food to groceries, from finding a partner to socializing, from consulting doctors to booking flight and train tickets – we use technology for a whole range of everyday activities.

This practical reality prompted us to wonder: how disabled friendly are the apps that we commonly use? We therefore decided to conduct an evidence-based evaluation of the accessibility of ten of the most widely used apps in India, from the standpoint of persons with disabilities.

To this end, this report begins by laying out the legal framework with respect to digital accessibility in India and internationally. It does so on the basis of the black letter law, subordinate legislation and case law developed by Indian courts.

Chapter 2 then delves into the details of the study. It delineates the research questions and explains the methodological framework for conducting the evaluation. It explains how this study is different from studies done so far and references the intellectual inspirations for the index. It sets out the manner in which the ten apps that form the subject matter of this study were chosen. It explains how these apps were evaluated and by whom. It sets out the deficiencies and limitations in our methodological approach. Finally, chapter 3 provides our collective vision for creating a more disabled friendly ecosystem, specifically with reference to apps. It particularly focuses on the legal reforms necessary to achieve this goal. It also sets out several practically focused recommendations for the relevant actors upon whom the responsibility to make technology more disabled friendly falls. In particular, it suggests some legislative and regulatory reforms that would help make the right to digital accessibility real for the disabled. We hope that this study will serve as the starting point for focused advocacy to make these apps, and India's wider digital ecosystem, more disabled friendly. For India's disabled citizenry deserves nothing less.

Chapter 1

THE LEGAL FRAMEWORK ON DIGITAL ACCESSIBILITY

This chapter sets out the context for the app evaluation exercise that we conducted. It begins by detailing the provisions in the Rights of Persons with Disabilities Act, 2016 [RPwDA] that relate to digital accessibility. This is followed by a discussion of the international legal framework on this subject, relevant subordinate legislation issued by different ministries in the Central Government and relevant case law developed by Indian courts. The aim of the chapter is to map the contours of the right to digital accessibility enjoyed by persons with disabilities [PwDs].

DIGITAL ACCESSIBILITY RIGHTS IN INDIA

India signed and ratified the UN Convention on the Rights of Persons with Disabilities ["UNCRPD"] in 2007. To ensure compliance with the UNCRPD, India enacted the RPWDA to replace the Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995. The RPWDA adopts the same definition of universal design as in the UNCRPD [discussed in the next section],[2] and places obligations on the appropriate government to ensure universal design for everyday electronic goods and equipment[3] and consumer goods.[4] The passage of this Act is attributable to the advocacy of the committed disability rights movement in India.[5]

Section 40 of the RPWDA obligates the Central government to formulate rules for PwDs in order to lay down standards of accessibility for, among others, information, and communications, including appropriate technologies and systems. Section 42 of the Act obligates the government to ensure that all content available in digital and print format is accessible, and PwDs have access to electronic media by providing audio description, sign language interpretation and close captioning. Section 46 of the RPWDA obligates all service providers to comply with rules framed under Section 40 in under two years after they are notified.

Accordingly, the Rights of Persons with Disabilities Rules, 2017 ("RPWD Rules 2017") were adopted.[6] Rule 15(1)(c) of the RPWD Rules 2017 states that all establishments must comply with:

"**(i)** website standard as specified in the guidelines for Indian Government websites, as adopted by Department of Administrative Reforms and Public Grievances, Government of India;

(ii) documents to be placed on websites shall be in Electronic Publication (ePUB) or Optical Character Reader (OCR) based pdf format:

Provided that the standard of accessibility in respect of other services and facilities shall be specified by the Central Government within a period of six months from the date of notification of these rules." This means that the window for compliance with this rule closed on June 14, 2019. As far back as in 2016, the Madras High Court expressed its concern over the fact that only 38 out of about 2,000 government websites were compliant with the Guidelines on Indian Government Websites. These guidelines were introduced in 2009 to improve accessibility of Indian government's websites and have been discussed in greater detail below, in the section titled 'Guidelines and standards for digital accessibility in India.'

The Madras High Court directed the then Union Ministry of Information Technology to show the status of compliance within a few months.[7] However, it is clear now that

these compliance standards were not met. This is the claim in the petition filed by Turab Chimthanwala and others in the Bombay High Court against the Ministry of Corporate Affairs and others, as the concerned websites of the respondents are yet to meet legally mandated standards of accessibility.[8]

In a 2021 order in the context of the Covid-19 pandemic, the Supreme Court of India not only implicitly re-affirmed the right to digital accessibility for PwDs but also fleshed out the metes and bounds of the right with respect to the CoWIN platform. Specifically, The Court directed the government to conduct a disability audit for the CoWIN website and the Aarogya Setu app. In what was perhaps a unique order by an Apex Court anywhere in the world, the Court pointed out in great detail how the CoWIN platform was inaccessible to persons with visual disabilities, and recommended remedies for the same[9]

For its part, the Indian judicial system has been taking efforts to make its digital output accessible. The e-Committee, which is a governing body set up by the Supreme Court to oversee the digitization of Indian courts, has been making changes to court websites to ensure that they are accessible to PwDs. For instance, it has ensured that all High Court websites have accessible captchas by including audio captchas in addition to visual captchas.[10] The e-Committee has also ensured that these websites are accessible in terms of text colour, contrast, text size, and mostly in terms of screen reader access as well. The e-Committee runs training programmes for lawyers to make filings accessible[11]

DIGITAL ACCESSIBILITY RIGHTS IN THE INTERNATIONAL CONTEXT

We begin our discussion in this section by explaining the principle of universal design which is central to understanding the approach to digital accessibility in the international legal order. Although the idea of barrier-free access has been around since the 1940s, 'universal design' as a term was introduced only in the 1980s by architect Ronald Mace. Subsequently, universal design was included in the UNCRPD. Article 2 of UNCRPD describes universal design as 'the design of products, environments, programmes and services to be usable by all people, to the greatest extent possible, without the need for adaptation or specialised design'. The inclusion of universal design signifies the shift in the approach to disability rights from a medical model-based social welfare perspective [viewing disability as a medical affliction, and PwDs as objects of charity and sympathy] to a human rights perspective.

Article 9 of the UNCRPD states that governments should ensure that persons with disabilities have equal access to information and communication services.[12] It also obligates governments to provide training to stakeholders on accessibility for persons with disabilities.

Compliance with the UN CRPD is monitored by the Committee on the Rights of Persons

of independent experts. In 2014, the Committee released General Comment 2 on Accessibility.[13] The Committee has held that as long as goods and services are accessible to the general public, they should be equally accessible to persons with disabilities, regardless of whether these goods and services are provided by the public or private sector. It also links digital accessibility to the freedom of information and expression, because without such accessibility, there can be no freedom of information and expression on an equal footing for persons with disabilities. The Committee points out the lack of monitoring mechanisms and training for stakeholders to ensure compliance with universal design standards. It recommends, inter alia, that governments should:

a. Take into account the diversity of PwDs, including gender, age, and disability type, while defining accessibility standards;

b. Support the dissemination of existing reference tools for the development of standards in information and communication tools; and

c. Establish a legislative framework for the monitoring and assessment of compliance with accessibility standards by private parties. While an appraisal of the Committee's jurisprudence on the subject matter of this report is beyond the scope of this report, one example bears mention. The Committee has ruled that a failure to provide talking ATMs in Hungarian banks was in violation of the UNCRPD.[14]

While space precludes a consideration of the standards prevalent in different jurisdictions on digital accessibility, we provide below a snapshot of the key references in this regard:

a. Section 508 of the U.S. Rehabilitation Act of 1973 which deals with access to information for disabled employees and disabled members of the public.[15]

b. The 21st Century Telecommunications and Video Accessibility Act [CVAA] which deals with access to telecommunication services and video programming services in the US.[16]

c. The Equality Act, 2010, in the UK, embodying the overarching framework for disability rights which would cover the subject matter under discussion.

d. The EN 301549 standard on digital accessibility in Europe.[17]

GUIDELINES AND STANDARDS FOR DIGITAL ACCESSIBILITY IN INDIA

a. The Guidelines for Indian Government Websites ("GIGW"): The GIGW were first released in 2009 and subsequently revised in 2018. GIGW have been developed by the National Informatics Centre. They were developed in order to make Indian government websites usable, user-centric, and universally accessible.[18] The GIGW are based on the Web Content Accessibility

Guidelines 2.0, created by the World Wide Web Consortium. The GIGW includes mandatory guidelines for Indian government websites, such as file format accessibility, text accessibility for screen readers, the requirement for all actions to be able to be performed using keyboards, etc.[19]

b. The Guidelines for the Development of e-Governance Applications ("GuDApps"): These guidelines were released by the Department of Telecommunications, Ministry of Communications, Government of India. They provide similar directions for mobile applications.[20] Unfortunately, these Guidelines have themselves been made available in a format inaccessible to the visually challenged. However, the GIGW and GuDApps have not been made expressly and clearly mandatory for private websites and apps, except as provided for by a recent judgement, as we shall see in later paragraphs.[21]

c. Indian Standard 17802: The Bureau of Indian Standards ("BIS") released part one of Indian Standard 17802 in 2021 followed by Part two in 2022.[22][23] The standard consists of two parts: Part 1 covers the requirements for accessibility of all web and mobile applications, as well as other electronic media. It includes requirements such as audio, tactile or haptic interfaces that allow navigation without vision, the support of Indian Sign Language, operability with assistive technology, etc. It contains detailed requirements for text size, frame rate, screen resolution, and so on. Part 2 covers conformance, i.e., the test

procedures and evaluation methodology for Part 1 requirements. In essence, it provides a checklist for Information and Communication Technology ["ICT"] service providers to determine whether and to what extent their offerings are accessible.

d. Legislative mandates on digital accessibility: In July 2022, the Government of India proposed an amendment to Rule 15 (1)(c), to add the above BIS standards to the list of requirements that all establishments must comply with.[24] If this amendment is passed, it would mean that it would be mandatory for all government and private establishments to ensure that the accessibility of their products and services matches up to the BIS standards. The proposed Amendment also seeks to make these BIS Standards applicable to "ICT products and services", a phrase that has not been defined in the Act. The proposed amendment therefore must include definitions already present in the Act and not add new terms that can be the breeding ground for further confusion and thus provide any class of service providers an escape hatch.

The Parliamentary Standing Committee on Social Justice and Empowerment, in its 23rd report (2021), found that in the preceding three years, no funds had been released for improving the accessibility of websites under the Scheme for Implementation of The RPwDA. The Committee also noted that no guidelines were prepared for the accessibility of private websites.[25]

However, in Rahul Bajaj v. The Director, Practo Technologies Pvt. Ltd. & Ors. (PTPL)[26] ("Practo order"), the Court of Chief Commissioner for Persons with Disabilities ("CCPD") held that Sections 40 and 46 of the RPWD A as well as Rule 15 of the RPWD Rules 2017 applied to private establishments as well as government establishments. Practo Technologies Pvt. Ltd. ("Practo") additionally claimed that it lacked technical guidance to make its app accessible. The CCPD pointed out that Practo was obligated to follow the GIGW, as required by Rule 15(c)(i) of the RPWD Rules and could as well follow the BIS Standard 17802.

e. Accessible India campaign: Another important governmental intervention in the realm of digital accessibility is the 'Accessible India Campaign'. It bears mention that the Department of Empowerment of Persons with Disabilities ("DEPwD") launched the Accessible India campaign (Sugamya Bharat Abhiyan) on 3rd December 2015 as a nation-wide campaign for achieving universal accessibility for Persons with Disabilities. The Campaign seeks to enlist the support of all Central Government Departments/ Ministries and State Governments to realize its vision. The Campaign has 3 verticals, one of which is ICT ecosystem. The Department, on its website, explains the importance of information in decision-making. It notes that access to information is necessary for the followign activities: "to read price tags, to physically enter a hall, to participate in an event, to read a pamphlet with healthcare information, to understand a train timetable, or to view webpages." The Campaign sets out specific targets under the themes of websites, audio-visual media and sign language interpreters. The broad target is described as follows: "enhancing proportion of accessible and usable public documents and websites that meet internationally recognized accessibility standards." It includes the following sub-targets:

- Conducting accessibility audit of 50% of all government (both Central and State Governments) websites and converting them into fully accessible websites by June 2022.

- Ensuring that at least 50% of all public documents issued by the Central Government and the State Governments meet accessibility standards by June 2022.[27]

Footnotes

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[2] RPwD Act, s 2(ze).

[3] RPwD Act, s 42.

[4] RPwD Act, s 43.

[5] Martand Jha, 'The History of India's Disability Rights Movement' (The Diplomat, 21 December 2016) <https://thediplomat.com/2016/12/the-history-of-indias-disability-rights-movement/> accessed 30 December 2022.

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darpg.gov.in/sites/default/files/gigw-manual_Revised2018_0.pdf> accessed 30 December 2022.

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Chapter 2
METHODOLOGY AND RESULTS

The Web Content Accessibility Guidelines (WCAG) serve as the global benchmark for determining if, and to what extent, a website is disabled friendly. WCAG has been over a period of time revised to include certain parameters to measure app's accessibility. Given that WCAG is the most widely used benchmark internationally, we chose to evaluate the apps on the basis of WCAG. The GIGW are based on WCAG 2.0 level AA. Similarly, the BIS standards are also based on WCAG. We therefore thought that using the WCAG as the benchmark for evaluating the accessibility of apps would give us the most objective and accurate information. For more information about the key principles and guidelines pertaining to WCAG, please see Annexure 1.
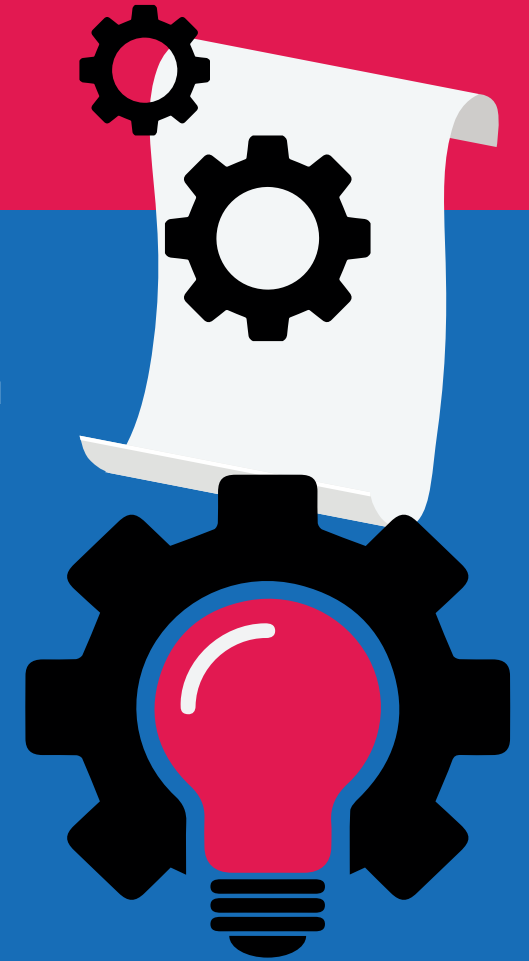
RESEARCH QUESTIONS

1. How disabled friendly are the most widely used apps in India?

2. What is the most objective basis on which to answer question 1?

3. Which stakeholders should be consulted in determining what the most widely used apps in India are?

4. By whom and how should the evaluation of the apps be conducted?

TESTING OF POPULAR APPS

Process

We conducted a thorough and comprehensive accessibility audit of ten apps across five sectors. We used the WCAG as the benchmark against which the audit was conducted. The details of our methodology and approach are set out below.

Methodology

When we began conceptualizing this project, we had to answer two methodological questions:

A. Which apps were going to form the subject matter of the index; and

B. How we were going to evaluate the accessibility of those apps and give them a rating.

We organized an in person consultation on 26th August, 2022 and a virtual consultation on 27th August, 2022 to answer these two questions. Participants in the consultation were persons with different disabilities and leaders of disabled persons' organizations. A list of participants, along with the names of the DPOs with which they are affiliated [where applicable] is in Annexure 2 to this report. The following points emerged from these consultations:

- The rating index should be simple and easy to understand.

- We should adopt a solution-oriented approach and inform service providers as to what they need to do to make their app more disabled friendly, as opposed to confining our work to conducting an academic exercise of doing this evaluation.

- We must use the index as an opportunity to sensitize the developers of apps about digital accessibility.

- We should prioritize apps run by Indian companies, as the legal position on the obligation of foreign service providers providing services through their apps in India to make their apps accessible is untested.

- We must focus on Android as well as iOS platforms.

- We must select 10 apps, in 5 sectors, for the index. The choice of these 10 apps should be based on inputs from PwDs, who can make this selection based on the sectors that they feel they have the most regular interface with on a daily basis.

- We must ensure that we account for all major disabilities in the index.

- We must clarify the date on which the app was evaluated, using which screen reader.

- If more than one app run by the same developer figures within the top 10 list, we must choose only one such app.

We then designed a survey, asking users with disabilities to choose the 5 sectors that we should select apps from, for the index. The survey questions are attached to this report as Annexure 3. The list of categories was based on the categories found in the iOS and Android app/play store, suitably modulated to ensure uniformity. The 5 top sectors [with number of votes] that were chosen were:

a. Finance: 16

b. Food and drinks: 13

c. Travel: 12

d. Shopping: 10.

e. Social networking: 10.

Within these 5 categories, we selected the top two apps based on the following website:

https://www.similarweb.com/apps/top/google/store-rank/in/finance/top-free/

We chose this website as it provided us data on the most widely used freely available apps on the Android and iOS platforms, in the 5 sectors that we had identified.

We searched for the top two apps on Android and iOS, and came up with the following list, consistent with the consensus in our consultations:

- Finance: PayTM and PhonePE.

- Food delivery: Zomato and Swiggy.

- Travel: Uber and Ola.

- Shopping: Flipkart Online Shopping App and Amazon India.

- Social networking: WhatsApp and Telegram.

This list was finalized on 7th September, 2022. While we initially wanted to only focus on apps run by Indian companies, on further internal consultations, we felt that choosing the top ten apps, irrespective of source of ownership, would be the most meaningful indicator of the state of digital accessibility in India, in the area of apps. We also felt that the mere fact that these apps are foreign-owned cannot be a valid basis for their accessibility not to be evaluated. It is common knowledge that apps that are foreign-owned are widely used by the disabled in India and it is critical that they be disabled friendly. In other words, we concluded that the source of ownership should be immaterial to the evaluation exercise.

I-Stem then evaluated how accessible these ten apps are, based on the Web Content Accessibility Guidelines 2.1, level AA. The key screens that a user typically interacts with were identified for each app, and the number of violations of the WCAG Success Criteria to complete the task were identified. For each app, the seven most widely used screens/pages were identified. The home screen was covered for each app. Thereafter, screens peculiar to that app were evaluated. Illustratively, for PayTM, this included screens such as 'send money', 'request money' and 'add bank account'. And for Zomato the screens covered included 'search restaurant', 'add food to cart' and 'payment screen'.

GAPS IN METHODOLOGY AND LITERATURE REVIEW

One methodological flaw was that the survey was gender-blind and did not specifically solicit information from women. The respondents were gender disaggregated. As per a recent Oxfam report, women constitute one-third of Internet users in India.[28] In the same vein, a report by the Internet and Mobile Association of India points to the high gender disparity that exists amongst Indian internet users.[29] Consequently, this survey does not adequately reflect the correct picture as to app use by Indian women, [or the lack thereof].

Second, while we made a concerted effort to cover people with different disabilities, our hypothesis is that most respondents were visually impaired. That is because the authors of this report had best outreach capability to

that class of India's disabled citizens. Despite these shortcomings, this report is the first of its kind in India and marks a bold attempt to help make the digital ecosystem more disabled friendly.

Below we summarize the existing literature on such an index. An informal non-exhaustive survey conducted by three blind lawyers found as many as 38 inaccessible apps for the visually challenged. Examples of inaccessible apps include Big Basket, Make my trip, Flipkart and Myntra which are either totally inaccessible or partially inaccessible.[30] In a 2016 study, the Centre for Internet and Society evaluated 22 apps from the standpoint of their accessibility for the disabled. The study found that many commonly used apps for food delivery, online payments, grocery shopping and transport were not disabled friendly. Notable examples of inaccessible public sector apps included My Gov, E Pathshala and Prime Minister Narendra Modi's official app.[31]

While several surveys have thus far been conducted in India to evaluate the accessibility of digital platforms for persons with disabilities, what is lacking is a quantitative evaluation of how accessible digital platforms are, relative to each other. The rating system index will help fill this gap.

Analogues with similar projects in other contexts can be drawn. Illustratively, an organization called Fairwork measures adherence to fair working norms in the platform economy. They have formulated a set of principles that are translated into measurable thresholds, based on which

platforms are given a fairness score.[32] imilarly, Disability: IN and the American Association of People with Disabilities have developed a Disability Equality Index. This index is a benchmarking tool that scores companies on a scale of 0 to 100 based on quantifiable parameters. Companies with a score of 80 and above are classed as "Best Places to Work for Disability Inclusion.[33]

CONTOURS OF OUR APPROACH

Since the number of screens and the nature of controls and flow vary across the apps, we don't use absolute number of violations. Instead, we categorize the apps as apps with "high accessibility", "moderate accessibility" and "low accessibility". The thresholds for these categories are determined based on the No. of WCAG success criteria at level A compliance level, and are set at <=30, 30-60 and >60.

A word on the precise manner in which the evaluation was conducted. Our accessibility testers prepared an excel sheet with the following 5 heads: WCAG level, success criterion, status, screen and issue description. They used the success criterion for each WCAG principle as the benchmark to evaluate the accessibility of each screen on the app. Annexure 1 contains a tabular representation of the success criteria used. The raw data with respect to each app is housed at the following link: https://drive.google.com/file/d/1yaW1a2IkninPw_9iJxQUhl0Y-A6XIX0e/view?usp=sharing The raw data is not being annexed to this report due to its volume.

AUDIT RESULTS

Some common violations were observed across all the apps tested on both Android and IOS platforms. The number of violations varied across the apps.

- Elements do not meet minimum colour contrast ratio of 4.5:1 between foreground and background

- None of the applications can be used in landscape mode

- Tab order of elements is not logical

- Elements are not operable using gesture navigation

- Elements do not have accessible names

The following table summarizes the total No. of accessibility violations identified for each of the ten apps across the two platforms.

App	No. of violations (Android)	No. of violations (IOS)	Average No. of violations	Accessibility rating
PhonePe	45	44	45	Medium
PayTM	64	87	75	Low
Swiggy	67	59	63	Low
Zomato	75	62	69	Low
Amazoni	54	52	53	Medium
Flipkart	94	94	94	Low
WhatsApp	24	21	23	High
Telegram	33	41	37	Medium
Uber	35	30	33	Medium
Ola	41	51	46	Medium

There were a few striking findings from the above data.

- Communication/social network and travel apps performed the best.

- PhonePe and Amazon were particularly better than their alternatives within the sector, while Swiggy, WhatsApp and Uber, while better than their alternatives, had only a fewer number of additional violations.

- PayTM and Flipkart in particular had blocking issues that need to be resolved for people with disabilities to use these apps.

A textual summary of violations for each app is attached to this report as Annexure 4.

Footnotes

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[31] 'Most Popular Apps Inaccessible to Millions of Disabled, Says Study | Bengaluru News - Times of India' <https://timesofindia.indiatimes.com/city/bengaluru/most-popular-apps-inaccessible-to-millions-of-disabled-says-study/articleshow/55532892.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cpps+t> accessed 2 January 2023.

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[33] 'Alex Clem, 'Disability Equality Index' (Disability:IN) <https://disabilityin.org/what-we-do/disability-equality-index/> accessed 2 January 2023. Alex Clem, 'Disability Equality Index' (Disability:IN) <https://disabilityin.org/what-we-do/disability-equality-index/> accessed 2 January 2023.

Chapter 3
THE WAY FORWARD

The core premise driving our work in creating this rating index is that digital accessibility is a right, not a matter of charity. To operationalize this vision, in this chapter we provide guidance on how different relevant stakeholders can do their bit to help make the right to digital accessibility real for Indians with disabilities. Before elaborating on specific next steps for each stakeholder, we provide an overview of the big picture in terms of what such assessment should be driven by, and what it intends to achieve.
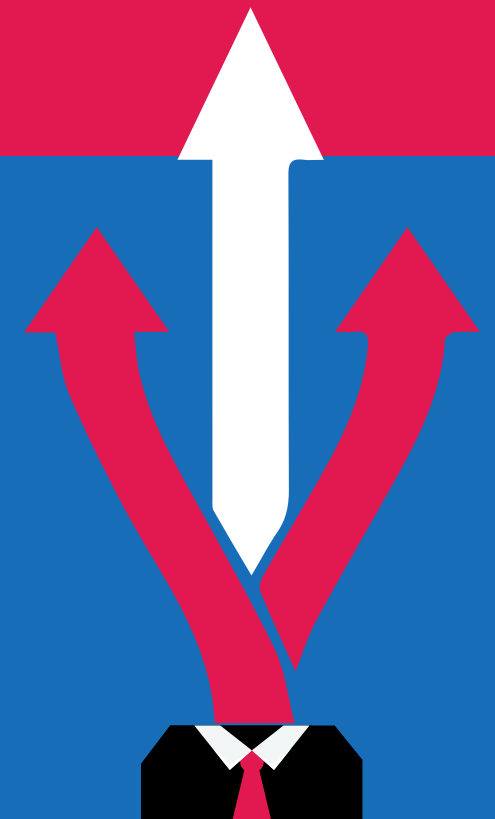
BIG PICTURE OVERVIEW

The first thing to note is that the issue of digital inaccessibility is a multi-pronged challenge that has to be resolved with appropriate contributions from a range of actors. Illustratively:

- Engineers and product developers have to be cognizant about the need for making their digital offerings disabled friendly and the practical pathways that can be adopted to make this happen. This knowhow must ideally translate into making the offering accessible right from the inception stage, so as not to have to retrofit the offering later [more on this below]. Further, they must strive to make their digital offering 'best in class' when it comes to ensuring that it is disabled friendly. The obligation must in fact also be shouldered by the organizations that these individuals work for. Such organizations are likely to have the financial wherewithal to pursue this cause.

- The Government of India must put in place an effective implementation and enforcement mechanism to operationalize the right to digital accessibility.

- The courts must contribute by assisting in the development of precedents that underscore the importance of making any digital offering disabled friendly.

- PwDs and disabled persons' organizations must raise grievances about inaccessible digital offerings and ensure that they are pursued to their logical conclusion.

- Since those in positions of influence are typically not aware of the needs of the disabled, they must be regularly sensitized about the impact of their work on persons with disabilities.

Second, the ultimate goal of those working on digital accessibility has to be to ensure that every disabled Indian citizen is able to access any digital offering on their platform of choice on equal terms as their able-bodied counterparts. Until this goal is achieved in significant measure, none of us can afford to rest easy.

Third, this report must be the first step in the direction of exacting accountability from service providers as to whether their offerings are disabled-friendly. Feedback is an important part of such accountability. A report of this nature must be released each year. In addition, a feedback mechanism whereby users with disabilities can provide inputs to service providers on how they can make their platform accessible must also be developed. In parallel, to reward the best-performing apps and websites in a given sector, and to help users with disabilities, a disabled persons' organization should develop a list of the most accessible apps in that sector. This accountability driven by

feedback can help disabled persons find go-to accessible apps for their needs. Finally, since the issue of digital inaccessibility is of a universal character, there is significant scope for cross-border collaboration. Organizations working on the issue in India must learn from their foreign counterparts, while of course accounting for India's contextual peculiarities. This will ensure that we do not reinvent the wheel and can build on the great work that colleagues in other countries have already done. Having an online grouping of such organizations to share ideas and best practices might be a step in the right direction.

Below we share some ideas on what each stakeholder can specifically do to help realize the right to digital accessibility for the disabled.

ROLES AND RESPONSIBILITIES OF DIFFERENT STAKEHOLDERS

The march towards digital accessibility and inclusion for persons with disabilities cannot be the prerogative of a few individuals or groups, but requires concerted efforts by all stakeholders. At the risk of repetition, it must be a collaborative process, involving active participation by the disabled, the government, the judicial system, civil society and service providers, themselves. Hereunder we elucidate the roles different stakeholders ought to play to realize this objective.

Persons with Disabilities

If PwDs dream of operating in a fully accessible digital ecosystem, they ought to play a pivotal role in achieving this dream. Each disabled individual can and should contribute. They cannot merely depend on the government, law courts and NGOs to pick up the mantle.

Whenever a PwD experiences an accessibility barrier in any digital product or service, they should promptly take it up with the concerned service provider. And once the concern is raised, the PwD must not relent until they achieve tangible results. Further, there needs to be collaboration and team work amongst the entire disabled community, encompassing open and transparent communication channels, widespread dissemination of relevant information, and free and fair sharing of resources as also legal and technical knowhow. The following 5-step process could be an effective way to reach out and work with service providers and businesses to get their offerings accessible to the PWD:

1. Sending a letter to a service provider, informing them about accessibility barriers existing on their platform and urging them to take remedial action;

2. A reminder after 7-10 days of the first letter, in case there is no response to the first letter;

3. A focused social media campaign to generate greater public consciousness about the issue and to urge the concerned

service provider to take their demands seriously;

4. A legal notice, giving the service provider a final opportunity to address the barriers on their platform within a reasonable time, typically no more than ten days; and

5. The PwD exercising their rights in the competent forum, if the legal notice is also not paid heed to.

We would like to expand on the 5th point. There is no gainsaying the fact that litigation is an extremely unpleasant and expensive prospect for all parties involved. That said, we believe that it does have an important place within any grievance redressal strategy for the violation of disability rights. It should be a measure of last resort, to be invoked only if the first 4 measures which aim at settling the issue out of court do not yield any results. For service providers that are recalcitraint and unwilling to respond to the first 4 steps, in the appropriate fact situation, litigation may be the only, albeit profoundly difficult option, open to a disabled persons whose rights have been violated due to continued inaccessibility.

The PWDs should also strive towards creating societal awareness about their rights, through social and mass media, talks, conferences, seminars, campaigns and the like.

Government

India houses the world's largest disabled population (about 26.8 million as per the 2011 Census of India[34]). This is widely believed

to be a gross underestimation, given that roughly 16% of the global population is disabled.[35] And yet empowerment and inclusion of PwDs continues to be an afterthought for the government.

PwDs enjoy very little in terms of concrete benefits or welfare. The government, by making digital infrastructure accessible to the disabled, would not only discharge its mandate under disability rights law, but would also equip a significant population to contribute to India's economic growth. The following aspects warrant consideration:

1. Given that BIS standards are more modern and in tune with global standards, the government should clarify that BIS standards apply to both government and private establishments, and for aspects not covered by BIS standards, the GIGW shall apply. This should be effectuated by amending the RPwD Rules.

2. The Department of Empowerment of Persons with Disability (DEPWD) should be equipped with requisite financial, technical and human resources. The posts of the Chief Commissioner of Persons with Disability, State Commissioners of Persons with Disability and other statutory posts should be filled in accordance with the provisions of the RPWDA. This is an overarching issue that afffects all sectors of governmental intervention impacting PwDs, and digital accessibility is no exception.

3. State governments should notify rules under the RPWDA and monitor their timely implementation;

4. Rule 15(2) of the RPWD Rules should be amended to regulate accessibility standards of entities that are currently unregulated, including apps and similar services;

5. To ensure enforcement of Rule 15(2) of the RPWD Rules, the government should be empowered to issue a certificate of compliance for accessibility standards for all establishments on a periodic basis;

6. An accessibility audit should be conducted of all government websites and such websites and apps subsequently made accessible in compliance with the applicable accessibility standards;

7. Any contract with a private entity towards designing and/or operating government infrastructure should include a specific deliverable on accessibility';

8. All Ministries and government regulators should issue circulars to all entities within their jurisdiction, directing them to comply with the applicable provisions of the RPWD Act. For carrying this function out effectively, coordination between the DEPwD and other departments and Ministries is crucial so that accessibility standards are developed for different kinds of service providers;

9. The DEPWD should educate and train service providers and businesses on making their digital offerings accessible to the disabled by conducting seminars, workshops and issuing Guidance Notes and circulars from time to time;

10. The government must publish aggregated data of the disabled population in the country, in terms of persons identifying with different disabilities. This will provide a powerful datapoint to advocates of digital accessibility for PwDs.

11. All procurement contracts, tenders and other bidding documents amongst others should clearly mention accessibility as one of the compliance items and should clearly articulate that wherever the choice exists between accessible and inaccessible products, preference will be given to accessible products. Put differently, accessibility should be one of the tie-breakers for making procurement and other commercial decisions with vendors;

12. Various innovation regulatory sandboxes should be used to create innovative accessible solutions;

13. Corporate social responsibility related provisions within the Indian Companies Act, 2013 should be amended so as to allow spending upon accessibility through the corporate social responsibility route to foster greater participation; and

14. All internal digital infrastructure of Ministries, regulators, government departments and Public Sector Undertakings viz. employee portal, collaboration tools etc. should be designed in conformity with accessibility standards, so as to be accessible to disabled government employees.

This may be very ambitious, but even making meaningful progress on a handful of these items would be a very welcome step.

Law courts

In order to realize the intent of the RPwDA and to enable the persons with disabilities to operate in a fully accessible digital ecosystem, following are some recommendations for the judiciary:

1. In the roster formulated by each court for allocation of cases, a separate category of disability rights can be created, to ensure that cases on digital accessibility receive the judicial time and attention that they deserve;

2. Courts should liberally interpret welfare legislations and expound rights of the disabled, even where the said statute does not contain explicit provisions to that effect. For instance, interpreting inaccessibility of an application for the disabled as a deficiency of service under the Consumer Protection Act 2019, on part of the concerned service provider;

3. Sensitisation workshops should be conducted at all courts and tribunals to sensitise Judges, lawyers and court staff about the needs and challenges of the disabled;

4. An accessibility audit should be conducted of websites and other digital infrastructure of all courts and tribunals and they should be subsequently designed to conform to accessibility standards. This will help courts acquire the learning and knowhow on this subject which they can then impart to parties litigating before them and resisting efforts to make them comply with digital accessibility norms.

Civil society

Despite PwDs achieving considerable progress in all walks of life, society still mostly considers them as objects of charity and sympathy, incapable of any independent action. There is very little awakening of the disabled's needs and challenges or their rights. The society has a lot to gain by ensuring that digital infrastructure is accessible to the disabled. Accessible infrastructure benefits all, whether they are disabled or not.[36] Following are some suggestions for the civil society to ensure a fully accessible digital ecosystem:

1. Gain a sneak peak into the lives of the disabled: by interacting with disabled persons, volunteering for disabled person's organisations or simply by reading up relevant material online;

2. On learning of any accessibility barriers on any digital platform, taking it up with the relevant service provider and continuously striving till it is resolved;

3. Supporting campaigns by disabled persons and disabled people's organizations, through finance, intellect or outreach;

4. Making accessibility and rights of the disabled part of societal discourse. For instance, law colleges organizing moot courts on disability law, engineering colleges organizing hackathons on accessibility of applications and websites, or business management students undertaking projects to assess the market for accessible products and services. For effective sensitisation, such programs need to begin at the school level;

5. Incorporating accessibility and inclusion into their daily lives. For instance, adding alternate text to their pictures posted on social media or adding audio description and close captioning to their videos. Universal design as practice can be realised in this manner.

ORGANIZATIONS LEADING THE WAY TOWARDS ACCESSIBILITY

HT Parekh Foundation

The H.T. Parekh Foundation ("Foundation") supports multiple interventions that focus on improving the quality of life for PwDs. This includes projects in the domain of healthcare, education and skilling and livelihoods targeted at PwDs. Additionally, the Foundation aims to create inclusive communities through supporting ecosystem interventions that enable PwDs to reach their full potential, including their financial independence.

I-Stem

I-Stem is a digital accessibility company that leverages technology to enhance access to content and websites for people with disabilities. Its offerings include:

- Document accessibility services: AI-powered services that convert inaccessible content into accessible and usable formats including STEM content, content with complex layout etc. The service is available as a mobile app and a web service.

- Web accessibility testing and remediation services: AI-powered web accessibility tools and remediation services to help companies continuously monitor the accessibility of their websites and other digital collateral, as well as get hands-on remediation support.

Mission Accessibility

Mission Accessibility is a novel initiative launched by three blind lawyers, aimed at making the digital infrastructure accessible to Persons with Disability. They constructively engage with the developers of platforms that are inaccessible to disabled users and empower such users to voice their concerns in a productive and practically useful fashion. Mission Accessibility's work has 3 components –Sensitization – Shaping the public narrative on the need to realize the right to digital accessibility as a right for the disabled: through workshops, panel discussions, opinion pieces and awareness-raising campaigns.

Capacity building— Offering guidance and advice to service providers on concrete pathways that they can adopt to make their platform more disabled-friendly. Grievance redressal— Taking legal action in the appropriate legal forum against service providers who refuse to make their offerings accessible to the disabled, despite repeated requests.

Vidhi Centre for Legal Policy

The Vidhi Centre for Legal Policy has a team of Senior Research Fellows and Research Fellows who work on several disability rights issues on an ongoing basis. Through a combination of policy reforms and strategic litigation, Vidhi seeks to create an amicable environment for realizing the rights of PwDs. Some focus areas include:

- Making entertainment and news content disabled friendly.

- Making the legal profession more disabled friendly.

- Making assistive devices more affordable.

- Pursuing policy reforms on digital accessibility.

- Making representations to governments and regulators on different disability rights issues.

- Making urban governance disabled friendly.

Service Providers

Courtesy technological advancements, disabled persons independently operate smart phones and computers. Despite this, most service providers do not consider it vital to make their offerings accessible to the disabled. In most cases, the disabled are compelled to take the legal route.

1. Service providers must not prioritise accessibility only to meet legal mandates or as an act of charity, but because it is the right thing to do. Apart from significantly expanding their market base, it would portray them as diversity and inclusion leaders, thus boosting their global image and reputation. The following suggestions could be considered:

2. Conducting an accessibility audit of their applications and websites and designing them in conformity with accessibility standards, in accordance with the recommendations made above for the government to amend Rule 15(2) of the RPWD Rules;

3. Ensure that each release of the application is built keeping accessibility in mind before it hits the 'go-live' stage, in accordance with the recommendations made above for the government to amend Rule 15(2) of the RPWD Rules;

4. Focus on accessibility with a 360 degree lens, where not merely the application and websites but all business verticals of the service provider such as customer service, human resources, media and branding, amongst others conform to accessibility standards;

5. Obtain regular user feedback by setting up focused groups comprising of persons with different disabilities.

MAKING THE SELECTED APPS [AND OTHERS] MORE DISABLED FRIENDLY: A BLUEPRINT

We would like to recommend the following specific measures that the app developers for these ten apps can take to make their apps more accessible. They can do so by following the below step-chart:

- Integrating accessibility into the design stage: app developers must ensure that any new app or feature within an existing app is made disabled friendly right from the start. To this end, an accessibility audit of the beta version of the app or its update must be conducted by a certified accessibility professional, before it hits the 'go-live' stage. In this fashion, accessibility concerns can more easily be accommodated. Further, accessibility for the disabled must form part of the quality assurance checklist that app developers prepare, for any update to the app, big or small.

- An accessibility audit for the app must be conducted at regular intervals and the remediation steps set forth in the audit report must be promptly acted on.

- An accessibility officer should be designated, to receive complaints from PwDs about inaccessible facets of the app. This feedback most be 'actioned' on a priority basis. This officer should be sensitized to the challenges and lived realities of PwDs.

In phase 2 of this project, we aim to engage in one-on-one consultations with the ten apps. Vidhi, I-Stem and Mission Accessibility would like to work together to provide them the individualized support at the policy, technical and sensitization level, that each of them needs to become more disabled friendly.

CONCLUDING REMARKS

While the letter of the law seemingly provides for a more easily accessible environment for PwDs, there are numerous deficiencies in implementation. Particularly for digital accessibility, it becomes abundantly clear that the status quo needs to be significantly improved in order to create easier accessibility and truly achieve universal design. One key step is to ensure websites and apps are designed in compliance with guidelines like WCAG and the BIS standards. It is imperative to recognise the importance of accessibility by design, and to incorporate it into any technological output intended for public use. It is our hope that this rating index serves as a positive impetus for developers to acknowledge these considerations and adopt adequate measures to improve accessibility in their digital products and services.

Footnotes _____

[34] 'Women Constitute One-Third of Internet Users in India: Study | India News,The Indian Express' (n 28).

[35] Clem (n 33).

[36] Christopher B Brown, 'Incorporating Third-Party Benefits into the Cost-Benefit Calculus of Reasonable Accommodation' (2010) 18 Va. J. Soc. Pol'y & L. 319.

Annexure 1:

WCAG

KEY PRINCIPLES

Since the Web Content Accessibility Guidelines (WCAG) serve as the core framework on which other guidelines and standards are built, we discuss the key principles and structure of WCAG especially as it relates to technical implementation and end-user impact. As per the WCAG, there are four key principles that are crucial to someone being able to use the web effectively .
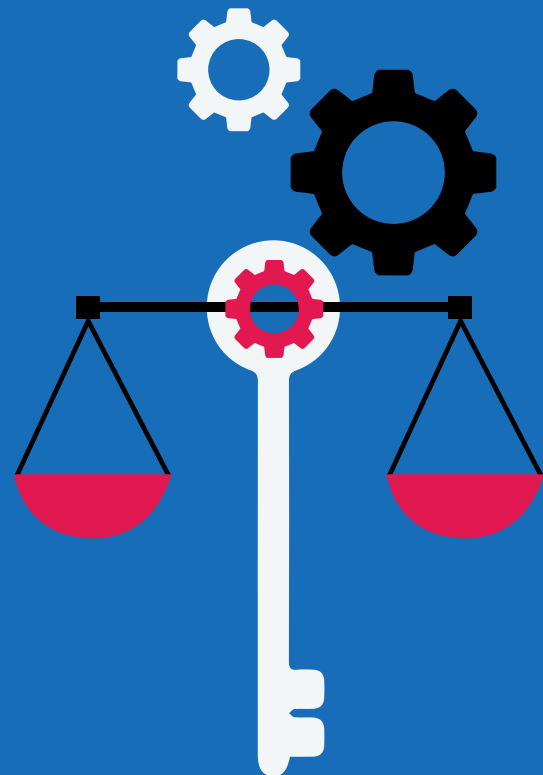
1. Perceivable: Information and user interface components must be presentable to users in ways they can perceive. This means that users must be able to perceive the information being presented and it can't be invisible to all of their senses.

2. Operable: This means that users must be able to operate the interface and the interface cannot require interaction that a user cannot perform.

3. Understandable: Information and the operation of user interface must be understandable.

4. Robust: Content must be robust enough that it can be interpreted reliably by a wide variety of user agents, including assistive technologies. In other words, users must be able to access the content as technologies advance (as technologies and user agents evolve, the content should remain accessible)

GUIDELINES

Under each of the principles are guidelines and Success Criteria that help to address these principles for people with disabilities. These guidelines can broadly be summarized as follows:

Principle	Guidelines
Perceivable	Text alternatives for non-text content, alternatives for time-based media, adaptable content that can be presented in different ways without losing information or structure, distinguishable content by making it easier for users to see and hear content including separating foreground from background
Operable	Keyboard support for all actions, enough time to read and use content, design to avoid seizures or physical reactions, easy navigability to help users find content and keep track of their position
Understandable	Readable and understandable text, predictability in appearance and operation of webpages, assisting users find and correct mistakes and errors
Robust	Compatibility with a wide range of agents including assistive technologies

SUCCESS CRITERIA, TESTING AND REMEDIATION

Under each guideline, as stated above, there are Success Criteria that describe specifically what must be achieved in order to conform to this standard. All success criteria when tested against content can objectively return a "true" or "false". While some of the testing can be automated using software evaluation programs, others require human testers for part or all of the test. It is key that people with disabilities be involved in the testing process to ensure thorough and comprehensive evaluation.

To help developers understand the success criteria better and identify techniques that are sufficient or recommended to conform to a particular success criteria, the World Wide Web Consortium ["W3C"] publishes "how to meet" documents. These documents provide techniques that are sufficient to conform to a success criterion as well as recommendations.

ACCESSIBILITY TESTING, REMEDIATION AND AI

Current testing tools only automate around 50% of the WCAG requirements/checkpoints because they are limited to the

information available in the code, while a lot of the checkpoints rely on visual layout/appearance. Thus, the only way to get a holistic view of the accessibility of a webpage is through a combination of automated and manual testing.

Further, in terms of remediation ("fixing accessibility"), there have been several ways to expose missing information to the user when not correctly implemented by developers. For instance, there are tools and techniques that allow missing information to be added by end-users by manually labeling UI elements (such as buttons, checkboxes and other controls on a webpage) and forming a shared repository of such information so that this information can be exposed to the user with a disability even when it is not otherwise exposed by the developers. However, this approach requires active volunteers to update and maintain annotations and customizations for a large number of websites which are frequently updated. The largest prior attempt to "crowdsource" accessibility, Social Accessibility for the Web, showed early promise but ultimately was unable to make a big dent in the problem of Web accessibility. Accessibility overlays also try to fix accessibility by dynamically identifying inaccessible controls and trying to make them accessible, but often do more harm than good. It is evident that the only way to provide delightful and accessible experiences to people with disabilities is to incorporate accessibility from the design stage itself.

Computer vision has a lot of promise in both increasing the test coverage of automated accessibility testing and providing missing information such as labels when requested. Several researchers and companies including Google and Apple have published work in this space, and this continues to be an interesting research area in accessibility. I-Stem also provides digital accessibility services that seek to enhance automated test coverage to help developers with a wide range of violations.

ACCESSIBILITY AND USABILITY

While standards and guidelines provide robust guidance on making digital platforms accessible, they do not necessarily constitute the most ideal or usable experiences for people with disabilities. For instance, a webpage might be completely accessible (i.e. it may conform to all guidelines), but may not be the easiest to navigate. The best way to ensure a great experience for people with disabilities is to include them in the development process, right from the design phase. Specifically, persons with disabilities can give feedback, based on their lived experiences, as to how accessible or inaccessible a particular feature of an app or website is. There is no automated substitute for this kind of human input. Therefore, it would be fallacious to merely rely on technical standards to determine if a platform is disabled friendly.

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Opinion Poll

Thank you for undertaking this opinion survey. We at Vidhi and I-Stem, are creating a rating index to evaluate the accessibility of the most widely used apps for persons with disabilitied across India. For the creation of such an index, we require your assistance. We would like to choose two apps from 5 sectors. To help us determine which 5 sectors should be chosen for this project, please fill up this survey to give us further clarity.

Kindly select the top five sectors you would like to us to choose for this exercise.

Top 5 category of apps in iOS/ Android used by you*

- ☐ Books
- ☐ Business
- ☐ Education
- ☐ Entertainment
- ☐ Finance
- ☐ Food and Drink
- ☐ Graphics and Design
- ☐ Health and Fitness
- ☐ Kids
- ☐ Lifestyle

- ☐ Magazines and Newspapers
- ☐ Medical
- ☐ Music
- ☐ Navigation
- ☐ News
- ☐ Photo and Videos
- ☐ Productivity
- ☐ Shopping
- ☐ Social Networking
- ☐ Sports and Drink
- ☐ Travel
- ☐ Weather
- ☐ Art and Design
- ☐ Auto and Vehicles
- ☐ Comics
- ☐ Beauty
- ☐ Communication
- ☐ Dating

Submit   Clear form

Accessibility Assessment Report for Mobile Applications - Text based Summary iOS

Overview

Following issues are observed in all applications though number of issues vary.

- Elements do not meet minimum colour contrast ratio of 4.5:1 between foreground and background
- None of the applications can be used in landscape mode
- Tab order of elements is not logical
- Elements are not operable using gesture navigation
- Elements do not have accessible names

PhonePe

- ☐ Animated images does not have text alternative
- ☐ App does not allow use in landscape mode
- ☐ Colour contrast ratio for "Month", "Categories", "Filters" buttons does not meet minimum color contrast ratio of 4.5:1 between foreground and background.
- ☐ Screen cannot be resized; there are no feature provided by the app
- ☐ Navigation order at a few places is not logical
- ☐ Certain text appears as section headings but not marked up using <heading> attributes

- ☐ A few elements are not operable using gesture navigation while using the app with talkback
- ☐ Several elements of the app have not labelled. Screen reader read them as UnlabelledShopping

PayTM

- ☐ Several images do not have text alternative
- ☐ App does not allow use in landscape mode
- ☐ Several elements of the app do not meet minimum colour contrast ratio of 4.5:1 between foreground and background
- ☐ The navigation order in a few pages is not logical.
- ☐ Section headings are not marked up using <heading> ttributes
- ☐ A few elements are not operable using gesture navigation
- ☐ A few elements do not have visible focus indicator
- ☐ Several elements do not have accessible names

Swiggy

- ☐ A few images do not have text alternative
- ☐ App does not allow use in landscape mode

Clear form

- ☐ Several elements of the app do not meet minimum colour contrast ratio of 4.5:1 between foreground and background
- ☐ The navigation order in "profile page" is not logical.
  Section headings are not marked up using <heading> attributes
- ☐ Several elements are not operable using gesture navigation
- ☐ Several elements do not have accessible names

Zomato

- ☐ A few images do not have text alternative
- ☐ App does not allow use in landscape mode
- ☐ A few elements of the app do not meet minimum colour contrast ratio of 4.5:1 between foreground and background
- ☐ Focus order of a few elements is not logical
- ☐ Section headings are not marked up using <heading> attribute
- ☐ Several elements do not have accessible names

Amazon

- ☐ A few of images do not have text alternatives
- ☐ App does not allow use in landscape mode

Clear form

- ☐ The colour contrast ratio for a few elements does not meet minimum color contrast ratio of 4.5:1 between foreground and background.
- ☐ Several Section headings are not marked up using <heading> attribute
- ☐ A few elements do not have accessible names
- ☐ A few elements are not operable using gesture navigation

Flipkart

- ☐ A few images do not have text alternatives
- ☐ App does not allow use in landscape mode
- ☐ The colour contrast for several elements does not meet minimum colour contrast ratio of 4.5:1 between foreground and background
- ☐ Several elements appear to be section headings but not marked up using <heading> markup
- ☐ Several elements are not operable using gesture navigation
- ☐ A few elements do not have accessible names

Clear form

WhatsApp

- ☐ A few elements do not meet minimum colour contrast ratio of 4.5:1 between foreground and background

- ☐ In settings page, certain text appears like section heading but ot marked up using <heading> attributes

Telegram

- ☐ Several elements do not meet minimum colour contrast ratio of 4.5:1 between foreground and background

- ☐ A few elements appear like section headings but not marked up using <heading> attributes

- ☐ A few elements are not operable using gesture navigation

- ☐ A few elements do not have accessible names

Uber

- ☐ "Uber Cash" image does not have text alternative

- ☐ "Uber" is not supported in Landscape mode

- ☐ A few elements do not meet minimum colour contrast ratio of 4.5:1 between foreground and background

Clear form

- ☐ A few elements appear like section headings but not marked up using <heading> attributes

- ☐ A few elements are not operable using gesture navigation

Ola

- ☐ A few elements do not have text alternative.

- ☐ Ola is not supported in Landscape mode

- ☐ A few elements do not meet minimum colour contrast ratio of 4.5:1 between foreground and background

- ☐ A few elements appear like section headings but not marked up using <heading> attributes

- ☐ A few elements are not operable using gesture navigation

- ☐ A few elements do not have accessible names

- ☐ Tab order of a few elements is not logical

Clear form

Accessibility Assessment Report for Mobile Applications - Text based Summary Android

Overview

Following issues are observed in all applications though number of issues vary.

- Elements do not meet minimum colour contrast ratio of 4.5:1 between foreground and background
- None of the applications can be used in landscape mode
- Tab order of elements is not logical
- Elements are not operable using gesture navigation
- Elements do not have accessible names

PhonePe

- ☐ Several images do not have text alternative
- ☐ App does not allow use in landscape mode
- ☐ Color contrast ratio for Paid to/Received "Date" text does not meet minimum color contrast ratio of 4.5:1 between foreground and background.
- ☐ Navigation order at a few places is not logical
- ☐ Certain text appears as section headings but not marked up
- ☐ using <heading> attributes
- ☐ A few elements are not operable using gesture navigation while using the app with talkback

- ☐ State of tabs do not get exposed to screen reader
- ☐ A few elements of the app have not labelled. Screen reader read them as Unlabelled`

PayTM

- ☐ Several images do not have text alternative
- ☐ App does not allow use in landscape mode
- ☐ Several elements of the app do not meet minimum colour contrast ratio of 4.5:1 between foreground and background
- ☐ The navigation order in home page is not logical.
- ☐ Default focus doesn't reach "UPI Money Transfer" title
- ☐ Section headings are not marked up using <heading> attributes
- ☐ A few elements are not operable using gesture navigation
- Several elements do not have accessible names

Swiggy

- ☐ Several images do not have text alternative
- ☐ App does not allow use in landscape mode

Clear form

40

41

- [ ] Several elements of the app do not meet minimum colour contrast ratio of 4.5:1 between foreground and background
- [ ] Focus indicator is not visible for several elements
- [ ] The navigation order in "profile page" is not logical.
- [ ] Section headings are not marked up using <heading> attributes
- [ ] Several elements are not operable using gesture navigation
- [ ] Several elements do not have accessible names

Zomato

- [ ] Several images do not have text alternative
- [ ] App does not allow use in landscape mode
- [ ] Several elements of the app do not meet minimum colour contrast ratio of 4.5:1 between foreground and background
- [ ] Focus order of a few elements is not logical
- [ ] Section headings are not marked up using <heading> attribute
- [ ] Several elements do not have accessible names

Amazon

- [ ] A couple of images do not have text alternatives
- App does not allow use in landscape mode

Clear form

- [ ] The colour contrast ratio for "Price and other details may vary based on product size and colour" does not meet minimum color contrast ratio of 4.5:1 between foreground and background.
- [ ] A few Section headings are not marked up using <heading> attribute
- [ ] A few elements do not have accessible names
- [ ] A few elements are not operable using gesture navigation

Flipkart

- [ ] A couple of images do not have text alternatives
- [ ] App does not allow use in landscape mode
- [ ] Several elements are not operable using gesture navigation
- [ ] A few elements do not have accessible names

WhatsApp

- [ ] A few elements do not meet minimum colour contrast ratio of 4.5:1 between foreground and background
- [ ] In settings page, certain text appears like section heading but ot marked up using <heading> attributes

Clear form

Telegram

- [ ] "Photo image" does not have text alternative
- [ ] Several elements do not meet minimum colour contrast ratio of 4.5:1 between foreground and background
- [ ] A few elements appear like section headings but not marked up using <heading> attributes
- [ ] A few elements are not operable using gesture navigation
- [ ] A few elements do not have accessible names

Uber

- [ ] "Uber" is not supported in Landscape mode
- [ ] A few elements do not meet minimum colour contrast ratio of 4.5:1 between foreground and background
- [ ] A few elements appear like section headings but not marked up using <heading> attributes
- [ ] A few elements are not operable using gesture navigation
- [ ] A few elements do not have accessible names

Clear form

Ola

- [ ] Ola is not supported in Landscape mode
- [ ] A few elements do not meet minimum colour contrast ratio of 4.5:1 between foreground and background
- [ ] A few elements appear like section headings but not marked up using <heading> attributes
- [ ] A few elements are not operable using gesture navigation
- [ ] A few elements do not have accessible names
- [ ] Tab order of a few elements is not logical

Clear form

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