BUS NO 11F IS RUNNING ON TIME. IT WILL REACH SHIVARKAR STOP AT 10:30 AM.

Influence of Digital Accessibility in Urban Mobility

OLA MOBILITY INSTITUTE

Abstract

Digitalisation plays an essential role in advancing the Avoid-Shift-Improve (ASI) framework for sustainable mobility. It helps in reducing or eliminating the need to travel (teleworking and e-commerce), facilitates a shift to shared mobility (mobility aggregators and passenger information systems), and improves efficiency through vehicle technology (electric, connected, and autonomous vehicles). Rising digitalisation improves access to social, economic, and basic infrastructure in today's context. However, digitalisation risks disenfranchising over 100 million Persons with Disabilities (PwDs) living in India, if these digital technologies are not made accessible (usable) for this community. This issue brief aims to unpack the barriers to digital accessibility encountered by PwDs in mobility systems and offers recommendations to make mobility systems more inclusive.

Introduction

The Avoid-Shift-Improve (ASI) framework has been central to sustainable, low-carbon mobility for more than a decade. The framework suggests meeting the future transport demand by avoiding/ reducing unnecessary motorised travel, shifting travel to more environmentally friendly transport modes, and improving the environmental performance of transport modes (United Nations, 2016). Digitalisation is enabling transformation in achieving sustainable mobility for all (Sehmi, 2020). It is changing both the demand for mobility and the tools to meet this demand. It seeks to influence our transport mode choices, travel behaviour, and travel experiences.

Digitalisation facilitates the 'Avoid' pillar by travel demand reduction through virtual mobility programmes (e.g. teleworking, teleconferencing) and logistics technology (e.g. through e-commerce). It contributes to the 'Shift' pillar by influencing the choice of travel mode and promoting the use of sustainable mobility such as public transport and shared mobility (trip planning tools, passenger information systems, mobility aggregators, etc.) (Snellen & Hollander, 2017; Hippe & Demailly, 2015; Shrivastava, 2012). It helps the 'Improve' pillar by enhancing the efficiency across transport modes, in personal and shared mobility, through innovations in vehicle design and technology, energy efficiency, and clean energy sources (electrification, automation, etc.)
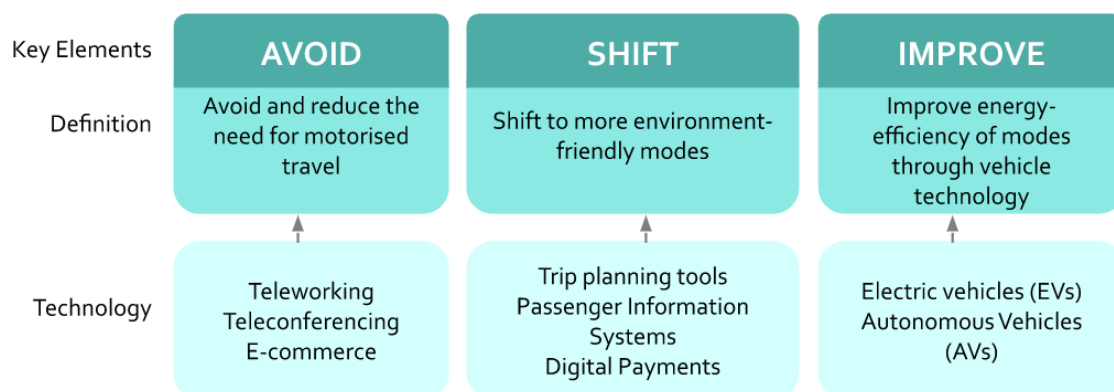
Key Elements	AVOID	SHIFT	IMPROVE
Definition	Avoid and reduce the need for motorised travel	Shift to more environment-friendly modes	Improve energy-efficiency of modes through vehicle technology
Technology	Teleworking Teleconferencing E-commerce	Trip planning tools Passenger Information Systems Digital Payments	Electric vehicles (EVs) Autonomous Vehicles (AVs)

Image 1: Digital Technology in transport categorised in ASI Framework; Source: Author, compiled from multiple sources

Image 1 description: The image describes the categorisation of Digital Technology in transport under ASI framework. The key elements are Avoid, Shift and Improve. The definition of Avoid elements is 'Avoid and reduce the need for motorised travel'. Shift definition is 'Shift to more environment-friendly modes'. Improve definition is 'Improve energy-efficiency of modes through vehicle technology'. Few technologies that support Avoid are Teleworking, Teleconferencing, E-commerce; Few technologies that support Shift are: Trip planning tools, Passenger Information systems, Digital Payments; Few technologies that support Improve are: electric vehicles, and autonomous vehicles

The process of digitalisation has leapfrogged by seven years during the COVID-19 pandemic (McKinsey & Company, 2021). It has also advanced the use of disruptive technologies in urban mobility (Quiros, 2020). Availability of real-time information for travel planning via trip-planning apps, digital wayfinding tools, contactless payment systems, etc. are making mobility safer, more accessible, more reliable, and user-friendly.

The confluence of digitalisation and urban mobility is reshaping the paradigm of using technology to leave no one behind. When implemented well, digital technologies break traditional barriers to communication, interaction, and access to information for Persons with Disabilities (PwDs). However, growing digitalisation without attention to accessibility risks disenfranchising the disabled community. The lack of access to digital technologies would increase the digital divide (in this case, the accessibility divide), and perpetuate the exclusion of this community not only from mobility systems (Raja, 2016) but also from economic opportunities.

Mobility empowers an individual to live life fully and benefit from the myriad socio-economic opportunities. For the disabled community, restricted access to transportation leads to fewer possibilities and greater marginalisation. This further creates obstacles in accessing education, transitioning into the labour force, and becoming self-sufficient economically. For a country, the cost of such exclusion can be as high as 7% of its GDP (Buckup, 2009). Therefore, infrastructure that ensures the inclusion of PwDs in today's digital age is critical.

Government figures suggest that 26.8 million persons with disabilities live in India, of which 31% reside in urban areas (Census of India, 2011). However, non-government estimates peg this number to be over 100 million. This figure is still lower when benchmarked against the global disability rate estimate of 15% of the population (World Health Organisation & World Bank, 2011). Furthermore, this number is expected to rise due to the spread of chronic diseases, conflict and disaster situations, ageing population, and increased life span due to medical advances. For instance, in countries with a life expectancy over 70 years, individuals spend an estimated eight years (11.5% of life) living with disabilities (United Nations, n.d.). Thus, we cannot miss the opportunity to include 100 million PwDs to build an inclusive future. Moreover, as we are in the 'Decade of Action' to implement Sustainable Development Goals (SDGs) by 2030, digital accessibility should be seen as a critical element for achieving SDGs. Furthermore, digital accessibility assumes greater importance now that India has entered the 25-year Amrit Kal leading to India@100.

This Issue Brief seeks to answer a fundamental research question: how does digitalisation without attention to digital accessibility disenfranchise PwDs from adopting sustainable mobility practices?

Note: The Issue Brief focuses on the digital accessibility of technology products. It does not cover affordability, availability of technology products as well as digital literacy in its scope.

What is digital accessibility, and when does it break down?

What is Accessibility?

Accessibility means "ensuring persons with disabilities can access, on an equal basis with others, the physical environment, transportation, information, and communications, including information and communications technologies and systems, and to other facilities and services open or provided to the public, both in urban and in rural area(s)" (UN General Assembly, 2007).

What is Digital Accessibility?

'Digital Accessibility' refers to the ability of PwDs to access information and electronic resources such as the internet, software, mobile devices, hardware, etc. (Wagner, 2021; Kulkarni, 2019; Carnegie Mellon University, 2015).

Simply put, digital accessibility means using inclusive (or universal) design principles to make the 'mainstream technologies' usable by PwDs with or without the use of assistive technology solutions. Mainstream technologies include computer hardware and software, operating systems, web-based information and applications, mobile apps, audio-visual systems, information kiosks, etc. Assistive technology solutions are used by PwDs to use mainstream technologies (FICCI & Microsoft, 2021).

Select examples of assistive technology solutions and digital accessibility interventions:

Table 1: Accessibility needs by disability type					
No.	Requirements	Vision	Hearing	Cognitive	Mobility/ Dexterity
ASSISTIVE TECHNOLOGIES					
1.	Screen reader to announce the content on the screen	✓			
2.	Screen magnifier	✓			
3.	Specialised input devices such as a mouse grid or head pointer				✓
4.	Voice command	✓			✓
5.	Closed captioning		✓		
6	Text input (as a substitute for voice)		✓		
7	Speech recognition			✓	

Source: (Li & Zhu, 2020; Abou_Zahra, 2017)

The benefits of digital accessibility go beyond the disabled community. It enhances the user experience for other groups too. For instance, digital accessibility also benefits older people with changing abilities due to ageing, people with 'temporary disabilities' such as an arm injury or ear infection, and challenging situations like bright, glaring sunlight, or noisy environments. For example, dark mode and closed captions enhance the experience of even non-disabled individuals.

What facilitates digital accessibility?

For a website, mobile app, or digital resource to be accessible, it has to be developed to work with a wide range of abilities, with or without assistive technology. Web Content Accessibility Guidelines (WCAG) issued by World Wide Web Consortium (W3C) are the most accepted guidelines globally for ensuring the accessibility of digital content. The latest version of this guideline was released in June 2018 and is called WCAG 2.2. These guidelines are based on the four core principles (Web Accessibility Initiative, 2008):

- **Perceivable:** This means that the content should be made available such that weak or impaired senses are not a barrier to consume it.
- **Operable:** This principle requires that the apps and websites along with their interactive elements (example: buttons and text fields) should be controllable using a wide variety of devices such as keyboard, head pointer, voice input, etc. It also means that these elements are fault-tolerant and do not have attributes that are known to trigger seizures or involuntary physical reactions.
- **Understandable:** This principle aims to have language and functionality that is easy to comprehend. There should be predictability and consistency across various elements of an app or a website.
- **Robust:** This means that the apps and websites should work well across platforms, devices, and technologies — including assistive technology.
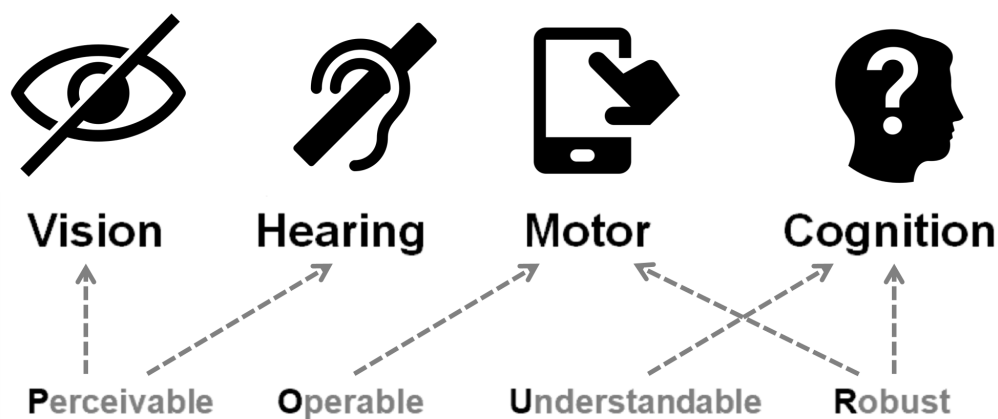

Image 2: POUR- Four main principles of accessibility. Source: Author. Icon source: 'Blind' icon by Arif Fajar Yulianto, 'Deaf' icon by Guntur Cahya, 'Mobile in hand' icon by Danil Polshin, 'Thinking' icon by Vectors Point. All icons are from The Noun Project.

Image 2 description: The image draw linkages of the four accessibility principles with the type of disabilities. Visual disability is represented through an eye with a strikethrough icon, hearing disability is represented through an ear with a strikethrough icon, motor disability is represented through a finger trying to access the mobile screen, and cognitive disability is represented through a side face of a person with question mark symbol inside it. All icons are in black and white. P stands for Perceivable and is linked with visual and hearing disabilities. O stands for Operable and is linked with motor disability. U stands for Understandable and is linked with cognitive disability. R stands for Robust and is linked with motor and cognitive disabilities

When websites, apps, and other digital content are not developed in accordance with the accessibility guidelines or standards, they are under-equipped to meet the needs of Persons with Disabilities, whether or not they rely on assistive technology. The assistive technology softwares and tools are developed with an expectation/ understanding that the digital resources will in turn be built in compliance with the relevant accessibility guidelines. Thus, an inaccessible digital resource renders the assistive technology tools useless.

The economic cost of inaccessible digital products

Businesses missing out on accessibility features lose the opportunity to cater to PwDs, a huge market segment. The cost to retrofit an existing digital product (an app or website) is assumed to be as much as ten times the cost to build accessibility from the beginning (Level Access, 2021). Therefore, the economic cost of accessibility features is marginal if factored in early, but can be much higher if incorporated later. Also, in countries where digital accessibility is a national law, non-compliance while developing digital products may lead to fines, legal costs, cost remediations, etc.

Reasons for digital inaccessibility

Digital inaccessibility can be attributed to one or more of the following factors:

- Poor understanding and awareness of digital accessibility guidelines
- PwDs not being considered a potential user group and their needs not being factored during product design, development, or testing
- An incorrect impression that the return on accessibility improvements don't justify the expense

What are the barriers to digital accessibility for PwDs in mobility systems?

As established earlier, digitalisation plays an essential role in advancing the ASI approach. The large-scale adoption, success, and uptake of the ASI framework are predicated on three factors:

- Availability of satisfactory alternatives
- Accessibility (usability) of these alternatives
- Reduction in friction for the adoption of the alternatives

A breakdown in either of the above three factors will inhibit the implementation of the ASI framework. With the convergence of digital technology into mobility technology, there is an unprecedented opportunity for the inclusion of PwDs. But the key question is how to ensure that digitalisation in mobility systems will facilitate greater accessibility for them? The answer to it is 'digital accessibility'- the missing piece in digitalisation.

Digital inaccessibility plays a role in all three above-mentioned areas. Following are the barriers encountered by PwDs in the use of ubiquitous technology in urban mobility.

Barriers to avoiding and reducing the need for motorised travel

Inaccessible or broken user experiences while accessing apps or websites of e-commerce, teleconference platforms, etc. compel PwDs to physically travel themselves or through carers. As an example, the barriers at various steps in accessing an e-commerce app or website are described below.

S.No	Areas	Examples of Barriers
		Table 2: Examples of Barriers faced by disabled people inhibiting them to avoid taking a trip
1	Log in/ Sign up process	• Inability to create a new account/ login due to inaccessible visual CAPTCHA • Difficulty in placing the pin on the map to specify location
2	Product Selection	• Inability to browse the options sequentially • Difficulty in selecting the desired product due to lack of accessible details such as colour/pattern, quantity, price, etc.
3	Checkout process	• Inability to order as finding/interacting with the 'add to cart' button is difficult • Difficulty in copying and pasting the coupon codes due to inaccessible input fields or CAPTCHA
4	Payment	• Difficulty in choosing the payment method • Difficult refund process in cases of failed payments or cancelled orders • Inaccessible CAPTCHA
5	Delivery & Packaging	• Inability to access preparation or delivery time and tracking of the order due to lack of auditory description or non-compatibility with screen reader • Inability to interact with couriers on phone in absence of a chat feature
6	Customer Service	• Difficulty in providing feedback/ filing a grievance

Source: Author and compiled from multiple sources

Barriers to shifting to more environment-friendly modes

Availability of detailed and up-to-date information regarding the accessibility of mobility systems plays a significant role in an individual's travel decisions as it reduces uncertainties in decision making (European Commission et al., 2020). Thus, a lack of availability of relevant information in accessible formats &/or channels for PwDs severely hinders their use of public transport and intermediate public transport.

Apart from inaccessible information relevant for planning travel, inaccessible ticketing and digital payment workflows also create barriers. Varying degrees of inaccessibility of mobile wallets and other digital payment modes inhibit their adoption by PwDs (Kulkarni, 2021). Sometimes, when an update is pushed up, payment workflow is disrupted due to the presence of inaccessible elements.

S.No	Areas	Examples of Barriers
Table 3: Examples of Barriers faced by disabled people inhibiting them to shift to shared mobility		
1	Ticketing	• Inability to purchase a ticket due to ○ Lack of screen reader support or audio/tactile feedback at ticketing kiosks ○ Difficulty in filling out the online ticket form because of incompatibility with assistive technologies such as screen readers, assistive input devices, etc.
2	Itinerary and trip planning	• Inability to plan a trip using shared mobility modes due to ○ Lack of up-to-date and detailed information such as physical inaccessibility challenges, accessibility features of transport infrastructure such as bus stops, train stations, and vehicles ○ Inaccessibility of route options and fare ○ Lack of information on the availability of on-site assistance and the clarity of the procedure to request for it ○ Lack of information on passenger rights of disabled people • Inability to get safety information or rider tips due to lack of sign language support
3	Real-time information provided just before trip start	• Lack of readability, visibility, legibility of information on signs, schematic diagrams, or maps, bus stop signages • Inability to get the information about current status or unexpected disruptions due to lack of real-time information in an accessible format ors via multiple channels such as display boards,, audio announcements,, etc.
4	En-route information	• Unable to get the current status of their trip or unexpected disruptions due to lack of real-time information through accessible channels and format.
5	Payment	• Inaccessible payment gateways and digital payment workflows • Difficulty in making a payment due to inaccessible authentication modes such as visual CAPTCHA
6	Feedback/ customer service	• Inaccessible grievance redressal workflows (complain filing) • Poor understanding of transport operators about inaccessibility challenges experienced by PwDs and their solutions

Source: Author and compiled from multiple sources

Barriers to improving the energy efficiency of transport modes

The trends of Electric Vehicles (EVs) and Autonomous vehicles (AVs) are disrupting the world of mobility. As EVs find greater acceptance around the world, drivers with disabilities will also rely on public charging

infrastructure. Not just physical infrastructure, digital infrastructure related to specific information on the accessibility of public charging points would be a requirement for disabled users (Hekman & Weldon, 2020).

Similarly, AVs will introduce new challenges such as the mode of interaction to receive information, providing input, and feedback.

S.No	Areas	Examples of Barriers
Table 4: Examples of Potential Barriers faced by disabled people in accessing Electric and Autonomous vehicles	
1	Electric vehicles- public charging infrastructure	Inability to find a public charge point due to lack of information in an accessible form about ● Charge points near the current location or on-route ● Charge points of a particular type - company, slow/fast charging, etc. ● Current availability ● Functionality (faulty and should not be used, not working) ● Charging cost ● Physical accessibility of charging station

2	Autonomous vehicles	● Inability to access operating surfaces due to lack of audio/tactile cues. For example, lack of visual (adjustable size/contrast by user) and audio I/O Voice-controlled systems (e.g., change route, unlock doors, lower/raise windows, etc.); incompatibility of control identifiers with portable devices (phones, tablets, 'smart-glasses') with customised assistive technology, such as paperless Braille display for deaf/blind users
		● Lack of information both in visual and audio format about the environment surrounding the vehicle
		  ○ Location, route, certain landmarks (e.g. Toll Plaza), etc.
		  ○ Weather, route conditions
		  ○ Incidents (how will the vehicle communicate in an emergency?)
		  ○ Deviations from the route or why the ride may be stopping

Source: (Hekman & Weldon, 2020; Riggs & Pande, 2021)

Legislation, Policies, and Guidelines for Digital Accessibility

Digital accessibility laws, policies, and regulations or guidelines in India

India has a strong legislative framework on digital accessibility in the form of Rights of Persons with Disabilities Act (RPWD Act), 2016. The Act mandates the government to establish standards for accessibility of technologies and communications and also promotes universal design in electronic goods.

Before the enactment of the RPWD Act, the Guidelines for Indian Government Websites (GIGW) in 2009 and the National Policy on Universal Electronic Accessibility in 2013 were formulated by the Ministry of Electronics and Information Technology (MeiTY). In 2015, the Government of India launched the Accessible India Campaign

(AIC) to implement accessibility policies. The targets of AIC to achieve digital accessibility were (i) Conducting an accessibility audit of 50% of Central and State Government websites and converting them into fully accessible websites by March 2017, and (ii) Ensuring that at least 50% of all public documents issued by the Central and State Governments meet accessibility standards by March 2018. In 2017, the Manual of Procurement of Goods included 'accessibility' in the section of 'Broader Obligation Principles' mandating all procuring authorities to abide by and be accountable. The Government of India released the second edition of GIGW in 2018 which is a comprehensive document encompassing digital accessibility for websites and apps that aligns with WCAG standards. The guidelines apply to government agencies. The other accessibility standards are National Digital Communications Policy (NDCP) 2018, and Accessibility Standards for Television programmes 2019 (FICCI & Microsoft, 2021; Narasimhan & Balasubramanian, 2020).

Recently, the Bureau of Indian Standards has published new Indian standards ' Accessibility for the ICT Products and Services', 2021-22. It is developed to provide a set of accessibility requirements that specify how to make content accessible, primarily for PwDs and also for all end-users. This standard consolidates and harmonizes best practices from current global and Indian standards.
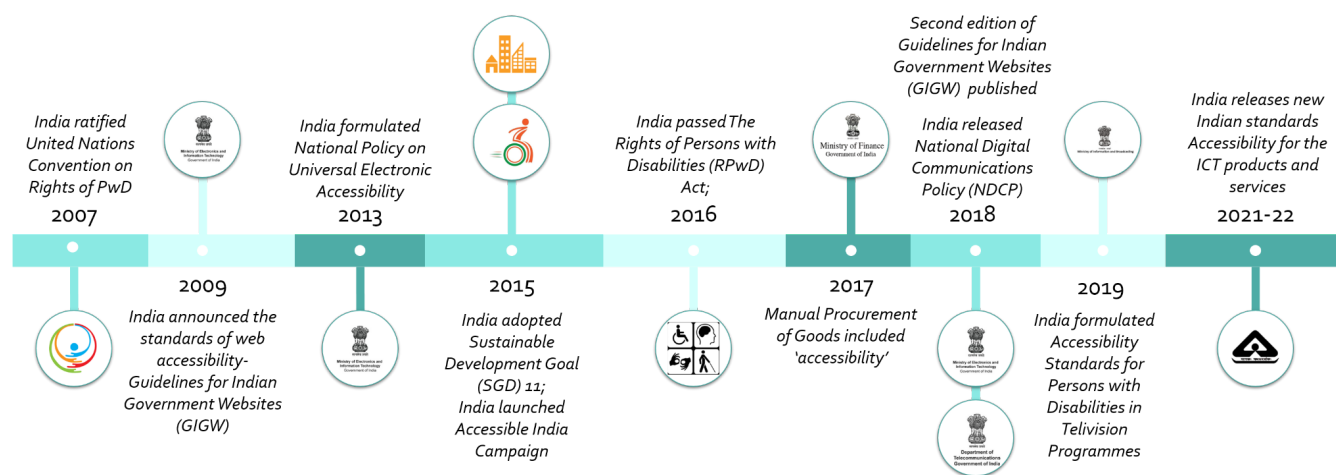

Image 3: Timeline of regulatory interventions in digital accessibility in India. Image source: Author
Image 3 description: The image shows the timeline of different laws and policies related to digital accessibility that came into effect in India. The timeline is represented with a horizontal thick line with each year as a tile of a colour. The text is written on one side while the other side has a circle with a logo of the concerned authority or of the programme itself. The timeline starts from 2007 when India ratified United Nations Convention on Rights of PwDs, 2009 when India announced the standards of web accessibility- Guidelines for Indian Government Websites (GIGW), 2013 when India formulated National Policy on Universal Electronic Accessibility, 2015 when India adopted Sustainable Development Goal (SDG 11) and launched Accessible India Campaign, 2016 when India passed the Rights of Persons with Disabilities (RPwD) Act, in 2017 when the Manual on Procurement of Goods was updated to include 'accessibility', in 2018, Second edition of Guidelines for Indian Government Websites (GIGW) was published and India released National Digital Communications Policy (NDCP), in 2019 India formulated Accessibility standards for Persons with Disabilities in Television Programmes and continues till current year 2022 when India releases new standards- Accessibility for the ICT products and services

Though India has policies in place for digital accessibility, their implementation of them is rather slow. The targets under the Accessible India Campaign have been missed by 4 years; the new deadline was initially set as

March 2020 which is further extended to June 2022. As per the report released in July 2020, only 13% of the 61 government websites rate well on the accessibility scale, specifically meeting the needs of persons living with blindness, low vision, and those with limited use of arms and hands (Robinson, 2020).

There are several challenges that prevent the effective implementation of an existing digital accessibility policy framework which are:

- Lack of effective enforcement mechanisms
- Lack of coordination and siloed agencies within government across different sectors and at different levels
- Lack of awareness, understanding, and skills among all stakeholders

Learning accessible lessons from the rest of the world

Similar to India, many countries around the world have digital accessibility legal and policy framework. Implementing legislation is only one means of tackling the barriers created by inaccessible digital products or services. For proactive enforcement, countries adopted a carrot and stick approach. The 'carrot' of providing incentives or highlighting the benefits and the 'stick' of heavily policed legal fines have been used to boost implementation on the ground.

The government of the United States of America has taken this approach effectively. Firstly, the government has incorporated accessibility criteria in its public procurement policy through Section 508 of the Rehabilitation Act. It mandates all federal agencies to make their electronic and information technology (EIT) accessible to PwDs. By doing so, Section 508 stimulates EIT manufacturers and designers to supply accessible products to its agencies (United States Department of Commerce, n.d.). Furthermore, small businesses that undertake barrier removal and alterations to improve accessibility are given an incentive in form of a tax credit, using a 'carrot' to promote digital accessibility (Userway, n.d.; ADA IRS Tax Credit Information, n.d.). Secondly, companies can face multiple lawsuits for discrimination under American Disabilities Act (ADA) if websites, mobile apps, and content are not accessible. Being involved in such legal cases that are being conducted in the public domain, brings financial risk and potential brand damage to the company (UsableNet, 2021). Domino's had one of the most famous ADA compliance lawsuits where a blind person was unable to order a pizza online after trying both the desktop site and the mobile app despite using screen-reading software (Higgins, 2019).

A 'stick' based approach to compliance by the Norwegian Digitalisation Agency has successfully helped in implementing digital accessibility. The Agency evaluates websites, applications (apps), and self-service machines in public and private sectors for compliance. If there are any deficiencies, it issues a deadline and subsequent fines. For instance, in 2017, their national airline, SAS, was given a year to comply with the accessibility guidelines. Upon a failure to adhere to the deadline, they were given an additional ten days to fix issues on their website along with an order to impose a fine of €15,000 every day thereafter till the time compliance was not achieved. This legal threat made them fix the issues on their website to everyone's satisfaction (Aalen, 2018).

Finland is one of the countries that has taken steps to establish coordination mechanisms within government at different levels. It has established Municipal Disability Councils (MDC) which are collaboration forums for associations of persons with disabilities, the authorities, and decision-makers. The role of MDCs is to influence municipal planning, decision-making, and monitoring in all areas of local government. Similarly, Sweden has an

Agency for Digital Government (DIGG) as a designated government entity to perform the monitoring and reporting functions under the Web Accessibility Directive (International Telecommunication Union, 2021).

Another interesting example of providing incentives, awareness, and support to boost the low enforcement and implementation of digital accessibility is Vietnam. It offers tax exemption and reduction, concessional loans, and other support for the research, manufacture, and production of products and services that enable persons with disabilities to access digital technologies. Vietnam also does not impose import taxes on assistive devices for persons with disabilities (Internet Society, 2017)

Recommendations and Conclusion

To encourage better enforcement and implementation of the existing policy framework, learnings from the best practices can be contextualised to the Indian context. A comprehensive approach toward facilitating the adoption and application of digital accessibility in mobility systems requires specific measures that India can take to make digital accessibility a reality. They may be as follows:

- A National Accessibility Committee consisting of representative members from relevant ministries such as the Ministry of Road Transport and Highways, Ministry of Railways, Ministry of Civil Aviation, Ministry of Electronics and Information Technology, etc. should be formed under the Department of Persons with Disabilities, Ministry of Social Justice and Empowerment. The Committee would be responsible to oversee the implementation and governance of the various policies, plans, and guidelines. They would also monitor and evaluate various disability initiatives and provide the needed approvals.
- Compliance with digital accessibility standards should be mandated for the digital resources across the trip chain in the mobility infrastructure. The existing digital resources should be retrofitted in a time-bound manner.
- The government could offer incentives in form of tax credits and deductions to the transport operators and mobility businesses that invest in making their products and services accessible. The government can also provide concessional loans, grants, or funding for the research, development, and production of digital products and services.
- Inclusive and accessible Design should be integrated in the curriculum of technical education and certification programmes for students. Periodic training and technical assistance programmes should be conducted for educators, employers, product developers, designers, testers, service providers, and transport operators to facilitate a barrier-free digital environment in the mobility ecosystem.
- A clear reference to accessibility standards should be incorporated in the Request for Proposals, purchase contracts, procurement policies, and processes for digital products and services to be used in the mobility ecosystem. The government should make 'accessibility' a mandatory award criterion while procuring digital products and services across the mobility infrastructure.
- Digital products or services should be mandatorily tested by Quality Assurance professionals trained in digital accessibility and universal design before their deployment in the mobility ecosystem. Similarly, testing with users with disabilities should be incorporated into the 'user acceptance testing' protocols.
- Institute participatory approaches to bring in PwDs as collaborators, partners, and advisors on the design and delivery of digital services in the mobility systems. Their insights from the feedback should be incorporated into the product development and maintenance cycle.

Digitalisation is an essential enabler for the transformation to safer, more efficient, accessible, and sustainable mobility. It plays an important role in achieving the objectives of the ASI framework by enabling a significant section of the population to be part of the changing mobility paradigm. It can level the playing field for PwDs across life domains through participation in education, economic and social spheres by enabling them to access sustainable mobility.

As India embarks on the 25-year of Amrit Kal leading up to India@ 100 years by 2047, there is an urgent need to empower all its citizens, including Persons with Disabilities, to become net value creators. For this, it is essential to prioritise accessibility in general and digital accessibility in particular. Given the catalytic role of mobility systems, such prioritisation becomes all the more critical in this domain. An inclusive mobility infrastructure will put us on the fast track to become a model inclusive, sustainable and resilient economy. Thus, the opportunity today is to leverage technology to fully utilise our demographic dividend and realise India's vision to become a top 3 economy globally and a developed nation by the 100th year of independence.

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Author:

Aishwarya Agarwal

Aishwarya is a Research Associate at the Accessibility and Inclusion track of Ola Mobility Institute (OMI). A Master in Architecture from IIT Roorkee, she is an urban designer, researcher, and architect.