

INCLUSION OF PEOPLE WITH DISABILITIES THROUGH INFORMATION AND COMMUNICATION TECHNOLOGY – A WHITE PAPER

Knowledge Partner



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Introduction

Information and Communication Technology (ICT) has revolutionized the world and is continuing to do so at a faster pace than ever before. It has become a part of our lives - be it daily news, appliances, phones, computers, etc. It is ubiquitous in cities and is increasingly being seen even in villages. It is changing the way we communicate, study, work, shop, pay bills, entertain ourselves, socialize, gather information, even access physical spaces and so on. The COVID 19 pandemic has further accelerated the use of information and communication technology in a major way.

Technology is a great enabler and equalizer for persons with disabilities. Due to technology, there is now greater flexibility for people to work/study, attend conferences and trainings, seek medical advice, etc. online, from the comfort of their homes without any need for travelling or worrying about other physical barriers. However, technology can also exclude and become a barrier if it is not accessible or unavailable. For example, an app for a doctor's consultation which cannot be read by a screen reader makes it inaccessible to users with visual disabilities; unavailability of a sign language interpreter during an online class makes it impossible for deaf people to attend; and if one does not have a smartphone/computer/assistive technology, one is totally cut off.

FICCI, an industry body, and DEOC, a social enterprise working in the area of disability inclusion, with the support of Microsoft, decided to develop a White Paper on the subject of accessibility of ICT. The paper focuses on the current scenario of technology accessibility, the work being done by the Government and private sector in the area and analyzes the progress and gaps present in order to come up with some recommendations for promoting accessibility of ICT for persons with disabilities.

Role of Technology in the lives of People with Disabilities

As per the Report of '5 years of Digital Bharat/Aatmanirbhar Bharat'¹

- India is the second largest market of smartphones in the world.
- Smartphone users have increased from 22 crores in 2014 to 50+ crores in January 2020.
- Mobile phone connections were 90 crores in 2014 and has increased to 117.4 crores in January 2020.
- The number of internet users was 24.3 crores in June 2014 and has almost tripled to 68.8 crores in January 2020.

¹ 5 years of Digital Bharat/Aatmanirbhar Bharat, Ministry of Electronics and Information Technology, 1st July 2020 accessed at https://digitalindia.gov.in/ebook/5_years_of_Digital_India_Book.pdf on 15th July 2020.

There is no data as to how many people with disabilities have access to ICT in our country. However, there are many informal studies that indicate that most people with disabilities do not have access to technologies.

In the context of people with disabilities, we could broadly classify ICT as mainstream or assistive. Mainstream ICT includes computer hardware and software, operating systems, web-based information and applications, audio-visual systems, information kiosks, etc. Assistive Technologies (AT)² bridges the gap for people with disabilities so that they can access mainstream technology. Examples of ATs are screen readers, Braille Displays, augmentative communication devices, adapted keyboards etc. There are also examples of mainstream technologies that are accessible to people with disabilities by construction and therefore bypassing the need to use mediating assistive technologies. For example, some accessibility features, such as voice recognition are now part of mainstream technologies and are being used by people with and without disabilities. The convergence between ATs and mainstream technologies that are inclusive (i.e., technologies developed keeping in mind universal design principles) has had a huge impact on the availability and affordability of technologies for people with disabilities.

ICTs are being used by people with different disabilities, including people with multiple disabilities such as Cerebral Palsy and Deaf-blindness, to live their life productively. The list of various technologies being used for education, employment and for independent living, which has been compiled from select NGOs and people with disabilities is given in Annexure 1. The list of technologies being used may seem impressive, but this is, however, the story of only a handful of people with disabilities in India who have managed to get access to these technologies. This list given in the Annexure should rather be seen as indicative of the potential that technology can offer for the larger community of people with disabilities who have been excluded so far.

Some of the barriers faced by people with disabilities in accessing assistive technologies, as mentioned by respondent NGOs, are as follows.

- 1) High Cost of ATs:** The cost of many of the ATs is exorbitant as they are mostly imported from western countries. For example, a Braille Display costs about Rs. 2,00,000/-. The most accessible mobile phone costs somewhere between Rs. 30,000/- to 50,000/-. The additional imposition of 5% tax (GST) further adds to the burden of cost. (It is an established fact that the cost of living is higher for persons with disabilities.)
- 2 Lack of awareness:** There is a widespread lack of awareness about technologies among people with disabilities. There is also a lack of availability of ATs and the training that may be required for using them effectively. It is also seen that most DPOs and NGOs, particularly those who are working at the grassroots level, are not aware of ICTs or ATs.
- 3) Lack of ICT in Indian Languages:** As most of the ATs have to be imported, it follows that they are not available in Indian languages. The information on the web (including many Indian websites) is mostly in English which is also a problem particularly for people living in rural areas.
- 4) Lack of an Eco-System for ATs:** There is also a lack of comprehensiveness in the provision of ATs to people with disabilities. These services are mostly non-existent, and even if available, they are scattered and piecemeal. The various gaps in the provision of ATs are listed below.

- a) Camps organized as part of the Assistance to Disabled Persons for Purchase/Fitting of Aids and

² Assistive Technology (AT) is an umbrella term that includes assistive, adaptive, and rehabilitative devices for people with disabilities and also includes the process used in selecting, locating, and using them. (Source: Wikipedia accessed at https://en.wikipedia.org/wiki/Assistive_technology on 25th June 2017). ATs could be wheelchairs, scooters, prosthetics, pill organisers, hearing aids, screen readers, etc. For this report, the ATs that we are focussing on are ICT based.

Appliances (ADIP) scheme are the most popular method to distribute assistive products. These camps distribute ATs in bulk where there is no possibility of assessment or training. They are not customised to individual needs. Many ATs received in camps are just not used and are usually abandoned as they are not found suitable to the individual and/or the environment they live in.

- b) There are some lists/directories available of various ATs on websites, but they do not have other, usually much more, useful information, such as how it works, the dealer's address, cost, user feedback, comparative analysis with other similar ATs, etc. Such information, even if present, is unfortunately not regularly updated.
- c) There are very few professionals in the country who can provide expert advice to persons with different disabilities on the most suitable technology to adopt by taking into account the individual's functioning, needs, preferences and context.
- d) There are problems related to the access to repair and maintenance which may be difficult to obtain as the concerned products are either not manufactured near the place of disbursement nor are there authorised repair and maintenance shops close by that can do what is necessary.
- e) There are not many initiatives focused on research and development in the area of ATs. There is also a chronic scarcity of funds to support research initiatives.

5) ATs are almost non-existent in rural areas: The NGOs working in rural areas, who were interviewed, said that they do not have any AT programs, particularly those which are ICT based.

Barriers for accessing technologies can be encountered at multiple levels. These exist in:

- 1) Accessing basic technologies such as computers, laptops, mobile phones, television, and so on.
- 2) Accessing Assistive Technologies (AT) such as screen readers, speech to text software and so on, that may be required to access the basic technologies mentioned above and the training required to use them effectively.
- 3) Accessing content. The software may have accessibility issues. For example, a CAPTCHA, when it is given only in visual text, is not readable by the screen reader and if a television programme does not have captions, it is rendered inaccessible to a person with hearing disability.



Government Initiatives – Progress and Concerns

Progress

India has a strong legislative framework for accessible ICT in The Rights of Persons with Disabilities Act (RPWD Act), 2016³. This Act has provided a wider definition of 'communication', and has mandated the Government to announce standards for accessibility of technologies and communications and provided a two-year timeline (which ended in June 2019) to make all services (including those provided by the private sector) accessible. It also promotes universal design in electronic goods.

Even before the enactment of the RPWD Act, the Ministry of Electronics and Information Technology (MeiTY) had formulated the Web Accessibility Policy in 2009 and the National Policy on Electronic Accessibility in 2013. The Government of India announced the standards of web accessibility - Guidelines for Indian Government Apps and Websites (GIGAW)⁴ – which is based on the internationally accepted Web Content Accessibility Guidelines (WCAG). In order to facilitate the implementation of accessibility policies, the Government of India launched the Accessible India Campaign (AIC) in 2015 which had specific goals for ICT accessibility.

In 2017, 'accessibility' was included in the 'Manual of Procurement of Goods' in the section 'Broader Obligation Principles' (to which all procuring authorities must abide by and be accountable for).

On 9th July 2018, the Telecom Regulatory Authority of India (TRAI) released a paper along with a set of recommendations for 'Making ICT Accessible for Persons with Disabilities'. The paper was based on the consultations organized by TRAI with stakeholders, to identify the barriers being faced by people with disabilities in accessing telecom and broadcasting services and to identify key areas where policy interventions are needed.⁵

In September 2019, the Ministry of Information and Broadcasting formulated Accessibility Standards for Persons with Disabilities in Television Programmes.⁶ It requires service providers to deliver subtitles/closed captioning/sign language across specified television programmes in order to ensure access to such television programmes.

The Government of India has a few schemes to provide assistive technologies to people with disabilities such as the Assistance to Disabled Persons for Purchase/Fitting of Aids and Appliances (ADIP) Scheme, Inclusive Education of the Disabled at Secondary Stage (IEDSS); Higher Education for Persons with Special Needs (HEPSN), which is a scheme of University Grants Commission (UGC) etc.

The National Education Policy 2020, which was announced recently, has referred to the Rights of People with Disabilities Act, 2016. Accessibility of technology for people with disabilities has been mentioned in the Policy in the following places: In the Introduction and under 'Principles of this Policy', the principles, 'respect for diversity' and 'full equity and inclusion', explain the need for diversity and inclusion in education and under the principle, 'extensive use of technology', there is a specific mention of technology being used to increase "access for Divyang students". Further, in section 23 'Technology Use and

³ RPWD Act, DEOC website, accessed at <http://www.deoc.in/the-rights-of-persons-with-disabilities-rpwd-act/> on 1st July 2020

⁴ GIGAW, Version 2.0, February 2019 accessed at <https://web.guidelines.gov.in/assets/gigw-manual.pdf> on 22nd July 2020

⁵ Information Note to the Press [Press Release No. 76/2018] <https://main.traigov.in/sites/default/files/PRNo7609072018.pdf>, TRAI

⁶ Information received from Rati Misra, NCPEDP in February 2019

⁷ Accessibility Standards for persons with disabilities in Television Programmes September 2019, accessed at <https://mib.gov.in/sites/default/files/Accessibility%20Standards%20for%20Persons%20with%20Disabilities%20in%20TV%20Programmes%20.pdf> on 22nd July 2020

Integration', it states that "a rich variety of educational software, for all the above purposes, will be developed and made available for students and teachers at all levels. All such software will be available in all major Indian languages and will be accessible to a wide range of users including students in remote areas and Divyang students."⁷

The relevant policies, standards and schemes as mentioned above have been detailed in Annexure 2 and 3.

Concerns

Though India has quite a few policies on IT accessibility however, the pace of implementation has been rather slow. A few of the **concerns** are listed below.

The targets of Accessible India Campaign (AIC) for ICT accessibility were:

- Conducting an accessibility audit of 50% of all Government, both Central and State, websites and converting them into fully accessible websites by March 2017.
- Ensuring that at least 50% of all public documents issued by the Central Government and the State Governments meet accessibility standards by March 2018.

The date was then extended to March 2020. However, even after 5 years of AIC, the targets remain unachieved. As of December 2019, only 36% of State Government websites - 336 out of a total of 917 identified websites — have been made accessible by 23 participating states, according to data presented by Department of Empowerment of People with Disabilities (DEPwD) in a meeting.⁸ Out of 36 States and UTs in India, 13 States and UTs seem to have not even been covered under the AIC. As per a very recent report (July 2020), only 13% of the 61 Government websites rate well on the accessibility scale.⁹

In the wake of COVID 19, the Finance Minister Nirmala Sitharaman announced several initiatives for online education. She said the top 100 universities of the country will start online education courses. As per a report,¹⁰ only 18% of the top 100 Universities fared well on accessibility parameters for both websites as well as the documents uploaded. Further, Swayam Prabha DTH channels were launched to support and reach those who do not have access to the internet. However, these do not have sign language and captions for deaf students. E Patshala has textbooks and videos which are, however, not accessible or user friendly. DIKSHA platform that offers teachers, students and parents learning material relevant to the prescribed school curriculum has several accessibility issues. These platforms have not been developed keeping the web accessibility standards in mind.

⁷ Page 4, 'Principles of this Policy', and page 56, '23. Technology Use and Integration' and point 23.6, in the National Education Policy accessed at https://www.mhrd.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf

⁸ Fresh deadline for accessible India drive set to March 2020, targets missed by 1 to 3 yrs The Economic Times, 28th December 2019 accessed at https://economictimes.indiatimes.com/news/politics-and-nation/fresh-deadline-for-accessible-india-drive-set-to-march-2020-targets-missed-by-1-to-3-yrs/articleshow/73003269.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst on 22nd July 2020

⁹ How accessible are we? A Report Evaluating Key Indian Websites against Web Content Accessibility Guidelines (WCAG) 2.1 (July 2020) , Sangeeta Robinson, Sustainability & Inclusion Specialist accessed at <https://my.visme.co/view/vdjjm3dp-how-accessible-are-we> on 20th July 2020

¹⁰ How accessible are we? A Report Evaluating Key Indian Websites against Web Content Accessibility Guidelines (WCAG) 2.1 (July 2020) , Sangeeta Robinson, Sustainability & Inclusion Specialist accessed at <https://my.visme.co/view/vdjjm3dp-how-accessible-are-we> on 20th July 2020

As per a survey conducted by Swabhiman, an NGO based in Odisha, to understand the issues being faced by people with disabilities in online education, they found that,¹¹

- Only 56.5% students with disabilities were attending online classes and they were struggling to cope, due to inaccessibility of IT infrastructure and other issues.
- 77% of the students said they would not be able to cope and would fall behind.
- 86% of the parents of children with disabilities said that they did not know how to use technology.
- 81% of the students said that they did not have accessible education materials.
- 64% did not have smartphones or computers at home.

Based on these studies, one can conclude that most students with disabilities are facing serious issues in accessing online education and there is an urgent need to address this issue.

- The Government of India's flagship program, 'Smart City Mission', has not mentioned accessibility explicitly in the plan/guidelines.¹² However, there have been a few consultations with disability groups and an advisory was issued in January 2019 to ensure that the technology is made accessible for persons with disabilities.¹³ However, it is just an advisory and not a mandate. There are also no concrete measures being taken to ensure accessibility in Smart Cities.
- Although accessibility was included in the 'Manual of Procurement of Goods' in the section 'Broader Obligation Principles', no procedures and standards have been developed to ensure fulfilment of the Obliging Principles. As a result, accessibility is continuing to be missed out while procuring products/technology and services.
- Despite the Ministry of Information and Broadcasting announcing Accessibility Standards in Television Programmes for persons with hearing impairment in September 2019, most programs do not have any sign language interpretation or captions. DPOs have demanded that 'audio descriptions' should be added in the standards. However, there has hardly been much progress in this regard.
- The impact of schemes for assistive technology has been minimal with respect to providing access to ICT for persons with disabilities. Despite a revision in 2013-14 in the ADIP scheme, the understanding regarding ICT for people with disabilities within the Government seems to be limited. The scheme has included technologies for people with visual disabilities but not for people with developmental and multiple disabilities. It has failed to keep pace with technological developments and current trends for people with disabilities. Moreover, the cost limit for the assistive devices and the income limit makes the scheme restrictive in terms of its benefit and reach.

¹¹ Digital Education in India: Will Students with Disabilities miss the bus? Swabhiman (July 2020)

¹² Smart City Mission and Guidelines access at [http://smartcities.gov.in/upload/uploadfiles/files/SmartCityGuidelines\(1\).pdf](http://smartcities.gov.in/upload/uploadfiles/files/SmartCityGuidelines(1).pdf)

¹³ Strategy for ensuring Universal Access IT systems to empower citizens with disability to access these systems with ease, Advisory No. 11 dated 15th January 2018, accessed at <http://smartcities.gov.in/upload/advisory/5a5c920211918Advisory%20-%20Disabled%20Friendly%20Features.pdf> on 24th January 2019.

Business and ICT Inclusivity

Accessibility offers a triple fold business imperative. Businesses with accessible digital infrastructure can reach out to a wider customer base and tap a larger talent pool of persons with disabilities. Businesses could also profitably invest in the growing market for inclusive and assistive technologies and devices.

Accessible Products and Services Market

Accessible ICT products and services are considered niche markets in India. However, globally, recognition of changing demographics and also due to public procurement policies mandating accessibility, the demand for accessible products and services are increasing. There are several studies that indicate that making websites and mobile apps accessible results in a better user experience for all, not just for users with disabilities. As per the information given on the website of Deque University, "The population of people who use assistive technology to navigate the web is a market that is over \$350 billion in size, according to U.S. Census data, and that number is growing" ¹⁴. The concept of inclusive design is yet to pick up in Indian industry. However, there are a few international companies that have imbibed inclusion as part of their core values and are consciously changing their design thinking to making their products inclusive. Some examples of accessible ICT products and services are given below.

Inclusive Design at Microsoft

Office 365 applications have several features which makes them quite inclusive. It works seamlessly with screen readers and keyboards. It has auto generated subtitles on a presentation. There are learning tools settings such as Immersive Reader that let users have words read aloud with simultaneous highlighting. One can adjust page colours, increase spacing between lines, letters, and words, break words into syllables and identify parts of a speech etc. Accessibility checker built into all Office 365 applications analyzes the material and provides recommendations alongside the document, helping users understand how to fix errors and create more accessible content. With Automatic Alt Text in the Checker, PowerPoint and Microsoft Word use AI to automatically provide image descriptions.

Skype's translation tool is also a great example of the use of Inclusive Design in ICT. It enables communication between cultures separated by distance and disability. It provides real time transcription and translation, thus enabling easy communication and connection for deaf and hard of hearing people and for those speaking different languages.

Microsoft Teams is an accessible video conferencing platform, which is compatible with various assistive technologies, has auto captioning, built in immersive reader and translate capabilities, one can blur the background, zoom in and out, etc. based on user preferences.

A few of the other inclusive products are:

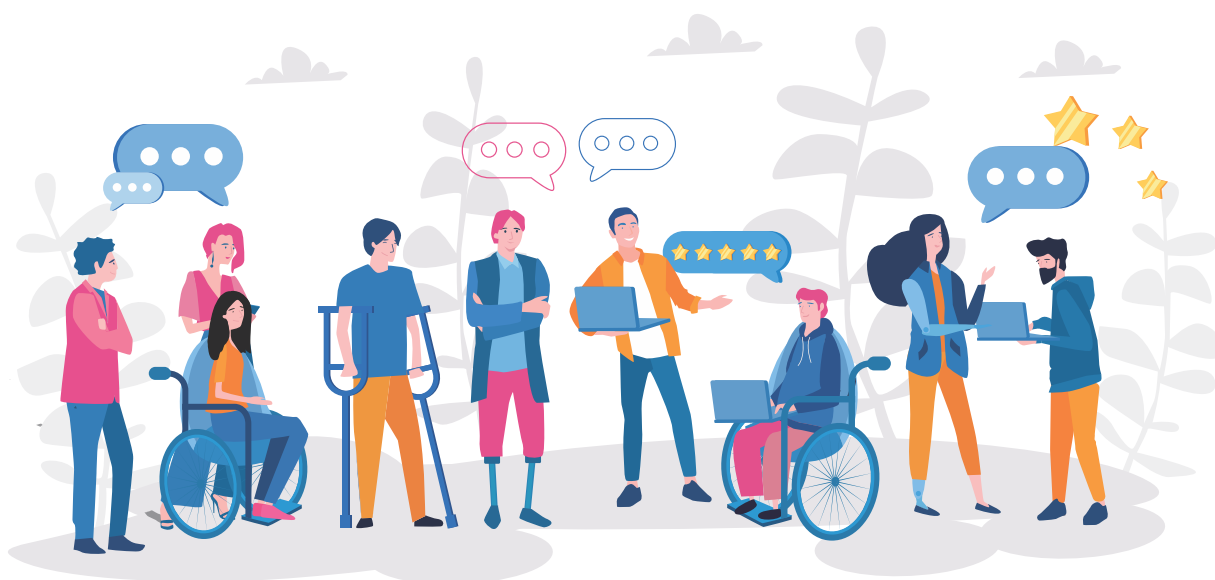
- Xbox Adaptive Controller that lets gamers with a wide range of physical abilities play the games they love.
- Seeing AI reads menus and documents, identifies currency and recognizes people for users with and without disabilities.

¹⁴ Website of Deque University accessed at <https://cdn2.hubspot.net/hub/153358/file-268675364-pdf> on 30th June 2017

Uber - Accessible App and Cabs

Uber App is compatible with VoiceOver iOS and Android TalkBack technology and wireless Braille Display.

- Non audio features such as visible and vibrating alerts help riders who are deaf or hard of hearing. App features, such as the ability to enter a destination, messaging the driver instead of calling, help people with difficulty in hearing, speech and communication to easily use the app.
- Uber app allows users to order rides for others. If a user requests a ride away from their current location, the app will ask if the ride is being ordered for someone else. One can select a contact, and Uber will send a text to the number with the driver's information. This feature is useful for senior citizens and those with difficulty using apps.
- Uber Assist and Access are accessible cabs for people who need assistance and those who use wheelchairs. The driver partners are trained in disability etiquette.
- There are several features for deaf and hard of hearing driver partners - flashing trip request notifications, notifying riders when a driver is deaf or hard of hearing, the calling feature is turned off for a rider if the driver partner is deaf or hard of hearing - instead, riders are directed to text their driver if they need to communicate with her/him.



Representation of People with disabilities in the workforce

There are several studies that indicate that diversity leads to innovation. When people with different disabilities are part of the design team, accessibility of the product/service will be taken care of to a great extent. As per a research study, Disability Inclusion Champion companies were, on average, two times more likely to outperform their peers in terms of total shareholder returns compared with the rest. Whether or not a company qualifies as a Champion, strengthening its commitment to persons with disabilities does make a difference.¹⁵

A few companies, particularly in the IT and hospitality sectors, are proactively investing in increasing representation of people with disabilities in their workforce. They realise that having a diverse team helps them to serve their customers better. Moreover, the RPWD Act requires all establishments, including private ones, to frame an Equal Opportunity Policy, keep a record of employees with disabilities, appoint a Liaison Officer, ensure accessibility etc. Due to this mandate, some companies are taking inclusion in a more holistic manner than just hiring a few people with disabilities who "fit in".

ICT Accessibility at Wipro Ltd. - Holistic Policy Framework¹⁶

ICT accessibility is part of Wipro's policy framework - CREATE (Career, Recruitment, Enablement, Accessibility, Training and Engagement)

- Detailed Reasonable Accommodation Policy and Process is in place for ensuring that any assistive technology or any other support required is provided as per individual need.
- Wipro has appointed a Global Disability Inclusion Lead and an accessibility team for ensuring accessibility and inclusion.
- Procedures such as having all applications/updates to be signed off by the Accessibility team ensures compliance with accessibility standards.
- Wipro is also providing accessibility services to their clients.

Assistive Technology Market

The global assistive devices market was valued at \$15 billion in 2016 and is expected to surpass \$26 billion by 2024.¹⁷ The market is valued at Rupees 4,500 crores in India.¹⁸ There are hardly any large manufacturers of assistive technologies in the country but some academic institutions are playing an important role in developing assistive technology. However, very few prototypes unfortunately reach the production

¹⁵ Getting to Equal: The Disability Inclusion Advantage, jointly prepared by AAPD and Disability :IN and Accenture, 2018 accessed at https://www.accenture.com/_acnmedia/pdf-89/accenture-disability-inclusion-research-report.pdf on 15th July 2020.

¹⁶ E-mail from Vidya Rao, Global Lead for Persons with Disabilities, Wipro Ltd. in March 2019.

¹⁷ Elderly and Disabled Assistive Technology Market To Surpass \$26 Billion By 2024, 21st March 2017, TJ McCue accessed at <https://www.forbes.com/sites/tjmccue/2017/03/21/elderly-and-disabled-assistive-technology-market-to-surpass-26-billion-by-2024/#42f2a59f69ea> on 20th June 2020.

¹⁸ Market size of assistive technology for persons with disability is Rs 4500 crores, The Times of India, 20th February 2016 accessed at <https://timesofindia.indiatimes.com/business/india-business/Market-size-of-assistive-technology-for-persons-with-disability-is-Rs-4500-crore/articleshow/51062327.cms> on 18th July 2020

stage. A few non-government initiatives have been launched in recent years to support start-ups that are developing assistive technologies. Some of these are given below.

- ARTILAB Foundation¹⁹ set up in 2017 is dedicated towards fostering accessible innovation in the disability sector. Their incubation programme aims to support social enterprise startups in the assistive tech and rehab space.
- BIRAC, Social Alpha and Mphasis launched a Quest to support innovations focussed on enabling and empowering solutions for persons-with-disabilities in 2019. Out of 100 applications received, they selected the top 14 start ups who were awarded grant prizes up to INR 50 lakh each, for completion of clinical trials, improvements in design-for-manufacturability and fulfilment of work orders.²⁰
- Samarthanam, a disability-focused NGO, has launched Assistive Technology Accelerator (ATA) in 2019 to develop solutions that not just impact lives locally, but also around the world.²¹
- AccelerateAbility²² is a disability innovations pre-accelerator lab for enabling early-stage startups to design contextual, usable, and affordable interventions for people with disabilities. They offer early to mid-stage innovators the opportunity to receive top-line insights from multisectoral experts from the domains of disability, technology, design, and policy.

Innovation at ASSISTECH at IIT Delhi²³

IC There is a full-fledged research group ASSISTECH at IIT Delhi that is committed to developing affordable technology-based solutions for mobility and education of visually disabled persons. Two of the products that they have developed, which are already in the market, are given below.

- **Smart Cane** is an electronic travel aid which fits on the top fold of the white cane. It serves as an enhancement to the white cane and overcomes its limitations by detecting above-knee and hanging obstacles.
- **Dotbook**, the Refreshable Braille Display, which was launched in February 2019, comes packed with custom developed applications and features that one would need to independently carry out her/his/their day to day tasks, be it educational assignments or office work, with ease. DotBook brings the cost down to 25% of the cost of the existing displays, thus making this solution accessible to millions of people who were previously not catered to.

¹⁹ ARTILAB Website accessed at <https://artilab.org/> on 1st July 2020

²⁰ BIRAC, Social Alpha and Mphasis select top 14 Indian Assistive Technology Start-ups catering to Persons-with-Disabilities (PwDs), 23rd January 2020 accessed at <https://www.socialalpha.org/announcement/birac-social-alpha-and-mphasis-select-top-14-indian-assistive-technology-start-ups-catering-to-persons-with-disabilities-pwds/> on 11th July 2020

²¹ APN News, July 2020, accessed at <https://www.apnnews.com/samarthanams-ata-launches-indias-first-assistive-technology-conclave-2019-focused-on-tech-start-ups-for-disability/> on 22nd July 2020.

²² AccelerateAbility Website <https://www.accelerateability.com/>

²³ Brochure of NCPEDP Mphasis Universal Design award 2015 accessed at <http://www.ncpedp.org/sites/all/themes/marinelli/documents/NCPEDP-UD-Awards-2015-Web-Brochure.pdf>

Concerns

Accessible Products and Services Market

Websites, apps and products developed by Indian companies remain a big challenge for people with disabilities. Most apps, websites and products are exceedingly difficult to use or require significant fixes.

Based on a study conducted by the Centre for Internet and Society (CIS) in 2016, none of the privately owned 22 marketplace apps that they assessed were fully compliant with universal design standards.²⁴ The marketplace apps – Flipkart, educational apps - Byjus, Unacademy, health apps - parcto, healthify, food delivery apps - swiggy, zomato all have accessibility issues. Most of the webinars and online education classes being organised during the COVID lockdown period do not have sign language or captions.

Some of the common issues which make the Apps difficult for people with disabilities to use are given below.

A lack of properly labelled buttons and form fields makes it difficult for screen-readers to interact.

- The absence of support for dark mode and dynamic fonts, makes it difficult for low vision and senior citizens with vision difficulties.
- Videos do not have captions/subtitles and audio descriptions, which are useful for those with hearing disabilities.
- For the deaf and hard of hearing users, it is a challenge to contact the delivery persons as most apps don't have an option to contact them via messages.

As per a study conducted in July 2020, 70% of the websites of the Top 100 listed Companies as per Market Cap are inaccessible²⁵. In spite of the RPWD Act requiring all services be made accessible as per standards by June 2019, majority of the services are inaccessible for people with disabilities. There seems to be a lack of awareness and expertise regarding this issue in the industry.

Representation of People with disabilities in the workforce

Regarding the representation of people with disabilities in the workforce, Business Standard conducted a study of 68 companies that are part of S&P BSE 100 index (top firms), to analyse the representation of people with disabilities over three years (FY 17, FY 18 and FY 19). It was found that employees with disabilities constituted only 0.46 percent of the employee base. This is another area for businesses to focus on.

²⁴ Popular apps are inaccessible to millions of disabled: Study, ET Brand Equity, 21st November 2016 accessed at <http://brandequity.economictimes.indiatimes.com/news/digital/popular-apps-are-inaccessible-to-millions-of-disabled-study/55534138> on 30th June 2017.

²⁵ How accessible are we? A Report Evaluating Key Indian Websites against Web Content Accessibility Guidelines (WCAG) 2.1 (July 2020), Sangeeta Robinson, Sustainability & Inclusion Specialist accessed at <https://my.visme.co/view/vdjjm3dp-how-accessible-are-we> on 20th July 2020

Assistive Technology Market

In a paper presented by Akila Surendran and K G Satheesh Kumar at RESNA Annual Conference (2018)²⁶ sums up the challenges in the Assistive Technology market quite well. It states, "A major problem faced in the development of Assistive Technology is the absence of a policy that will aid the development of an AT market in India. Presently the demand for assistive technology in India is highly fragmented and a formal market is yet to evolve. The domestic AT industry is nearly non-existent, and the industry value chain is broken in most parts. Research and development in AT has been happening in leading IITs, NITs, and other R&D institutions, but there's no serious effort at productization. Technology is only a small part of a good product, other parts being engineering, user friendliness, quality, reliability, ergonomics, customer service, after sales support etc. This is particularly important for an AT product because of the high dependence of the users. The other parts of the industry value chain, like, manufacturing, distribution, sales, service etc., are also not in place. Educating the users to create awareness is another issue. AT products are rarely advertised".

²⁶ An Emerging Assistive Technology Centre In India : From Baby Steps, Aiming At Giant Strides, Akila Surendran, K G Satheesh Kumar, 1National University of Speech & Hearing (Kerala, India) accessed at <https://www.resna.org/sites/default/files/conference/2018/international/Surendran.html#:~:text=Presently%20the%20demand%20for%20assistive,is%20broken%20in%20most%20parts>. On 20th July 2020.

Recommendations

Given below are some recommendations for the Government and private sector for promoting accessibility of ICT for persons with disabilities in the country.

1) Standards for Public Procurement

One of the international best practices for ensuring accessible ICT is to include accessibility in the public procurement policies and processes (A beginning has been made in India with the Manual for Procurement of Goods 2017 including accessibility as part of the Broad Principles for Procurement). The two international best practices that could be referred to for amending our public procurement policies and processes are:

- a) Information and Communication Technology (ICT) Standards and Guidelines for Section 508 of the Rehabilitation Act and Section 255 of the Telecommunications Act of 1996.
- b) European Standard EN 301 549. "Accessibility requirements for public procurement of ICT products and services in Europe".

The EU Standard has been updated more recently. The most significant change in this version is the adoption of the W3C "Web Content Accessibility Guidelines (WCAG) 2.1" for web content, electronic documents, and non-web software, such as native mobile applications. Hence it is recommended that the EU Procurement Standard be adopted and notified by the Government of India at the earliest. This will ensure that RFPs of the various Government Departments start including the requirement of accessible goods and services (including technologies). The European Union has also developed tool kits for procurers, manufacturers and developers which inform them on how to include accessibility requirements in their ICT design, development and quality control procedures. These should also be adopted.²⁷

2) Accessibility Commission/Board

A body/organisation which could enforce accessibility standards in the country in the areas of built environment, technology, equipment, services etc. should be set up in India to ensure the mandates of the RPWD Act are appropriately met. The body should develop standards, conduct audits, provide the needed approvals, etc. It could be a separate Commission or part of the Office of Chief/State Commissioner for Persons with Disabilities.

3) Accessibility of Products and Services

In the wake of COVID 19, several initiatives are being taken to promote online services by Government and Private establishments. A concerted and timely effort is required to address the issue of accessibility. Some suggestions for the Government/ private establishments and industry bodies to implement are given below.

- a) The Government should create a system to get websites and apps tested for accessibility before their deployment.

²⁷ European ICT Accessibility Procurement tool kit: <http://mandate376.standards.eu/>
European ICT Accessibility Procurement Standard: <http://mandate376.standards.eu/standard>

- b) The Office of the Commissioners for Persons with Disabilities could send letters to all the organisations (private and Government) about the requirements with regard to accessibility of services as per the RPWD Act (deadline for which has already lapsed in June 2019) and seek a report from them (as it is being done for compliance of the CSR Act).
- c) FICCI could review and update the Accessibility Index through its Diversity and Inclusion Task Force and administer it periodically for establishments. The Government could offer certain incentives for companies that report/score higher in the Index.
- d) A campaign could be launched to get voluntary commitments from companies for making their products and services inclusive.
- e) Promote and implement the Voluntary Product Accessibility Template (VPAT™), which is a document that explains how information and communication technology (ICT) products such as software, hardware, electronic content meet accessibility standards.
- f) Organize training, capacity building and awareness programs for product developers/testers on inclusive design.
- g) Conduct Research to develop/update standards for various services such as banking, health, education, etc.

4) Accessibility of Online Education and Digital Literacy

The Ministry of Human Resource Development with the support of Department of Empowerment of Persons with Disabilities should:

- a) Test all their e-learning modules, online learning/teaching platforms for compliance with accessibility standards; the TV channels and videos for education should have accessibility features - captioning, audio description and sign language interpretation.
- b) Guidelines could be issued to all educational institutions to ensure accessible online education.
- c) There is an urgent need to ensure that students with disabilities have access to laptop/tablets, internet and the required ATs. The ADIP scheme should be revised accordingly and should be expanded to provide the required ICT solutions for people with developmental disabilities as well.
- d) Letters could be sent by the Office of the Disability Commissioner to all Edtech companies to ensure accessibility of their apps and programs as per the RPWD Act.
- e) Conduct training/skill development of persons with disabilities, teachers, parents, content and product/software developers, in the use of technology and accessibility standards.

5) Representation of People with Disabilities in Workforce

Accessibility and employment go hand in hand. One enhances the other and vice versa. There are specific requirements under the RPWD Act - registering the EO Policy, maintaining records of employees with disabilities, appointing Liaison Officer, etc.

- a) The Government could enforce the provisions of the RPWD Act by sending letters to companies that have not adhered to the mandates.
- b) The Government should revise the Incentives Scheme for employers and make it attractive. These

should be developed in consultation with people with disabilities and experts. There could be tax exemptions for accessibility related costs. The Government could create a scheme to fund assistive technology, transport, job coach, and other accommodation costs for smaller and mid-sized companies that employ people with disabilities.

- c) Train Diversity & Inclusion professionals and HR recruiters on inclusion of people with disabilities.
- d) Organize awareness campaigns to promote disability inclusion in the workspace.

6) Eco-system for Assistive Technology

An Eco-system should be created for Assistive Technologies in the country to address various issues related to access to ATs/ICTs, ranging from lack of awareness, availability of a service provision to match technology with persons (i.e. customising to suit individual needs/context), training and affordability, research and development of affordable and indigenous solutions.

The eco-system should include:

- a) setting up of an appropriate infrastructure and information system and
- b) developing the capacity to provide the service. It should cater to people with different disabilities and address their different needs (early intervention, rehabilitation, employment, and independent living). It should cater to urban and rural areas. This could be done as a Public Private Partnership initiative, but the management should be with the organisation or a group of people with experience in rehabilitation of people with different disabilities and assistive technologies.

Need Assessments which assess an individual's level of functioning, their purpose, work/home/social environment, personal preferences, etc, are crucial for suggesting appropriate assistive technologies. There are several international programmes which can be studied, such as independent living centres and the Matching Persons and Technology Institute (<http://matchingpersonandtechnology.com/>) which has developed assessments. WHO has prepared a Priority Assistive Products List (APL) and is also preparing tools for countries for setting up their Assistive Technology Programmes. These could be referred to while developing the programme but should not be restricted to the Priority Assistive Products List.²⁸

7) Universal Design Institute

Establishing the Universal Design Institute has been in the pipeline for quite some time now. It should be established as soon as possible. The biggest gap in the area of accessibility is that of knowledge and capacity. The institute should focus on building capacity, developing standards and undertaking research in the area. It could serve as an advisory to the proposed Accessibility Commission/Board for monitoring and ensuring compliance with the standards. It is important that the Universal Design Institute develops and reviews standards for buildings, transportation, electronics, websites, applications and all other products and services consumed by the public at large, on a regular basis. The institute can also undertake periodic studies to examine accessibility needs for the evolving technology landscape which now includes IOT (internet of things) devices, blockchain etc.

²⁸ Priority Assistive Products List (APL), accessed from http://www.who.int/phi/implementation/assistive_technology/global_survey-apl/en/ on 21st July, 2017

8) Tax exemption, Incentives and Subsidies on Assistive Technologies

There should be no tax levied on assistive technologies or their components (customs or GST). Furthermore, there could be a suitable scheme created to provide subsidies to make assistive technologies affordable for people with disabilities. Often, technology products which are developed with accessibility or universal design principles in mind are mostly developed by international companies and are imported. As a result, these products including mobile phones, television etc. are very expensive. There should also be suitable incentives for manufacturers to develop indigenous products and products that comply with universal design principles. In order to reduce the economic burden on people with disabilities, the Government can consider providing tax rebates for the assistive products procured by people with disabilities for themselves or for their family members with disabilities.

9) Data

Data is the currency of the modern digital economy and is often required to power initiatives powered by artificial intelligence and machine learning. It is important to consolidate efforts on data collection for people with disabilities across NGOs and Government. There is a need to fast track enrolment for the Unique Disability ID (UDID) cards. Furthermore, data should be collected and disaggregated for all major schemes and policies for people with disabilities across Government Ministries and Departments.

10) Sub Task Force on Accessibility of ICT

In order to keep the momentum alive, we propose that FICCI under its task force on D&I, promote accessibility in the country. The task force should meet periodically to review the progress and plan measures to work with the Government for promoting accessibility and create awareness in the private sector regarding the legal mandates on accessibility.

Annexure 1:

Compiled List of ICTs being used by People with Disabilities in India²⁹

ICT is being used by people with disabilities for education and employment and to live independently. The points below indicate what is used and who uses them.

Education and Employment

- Magnifiers, OCR scanners, talking calculators, screen readers are being used by people with visual disability.
- Auto captions, live transcriptions apps are being used by hard of hearing and deaf people to access lectures / webinars/ videos etc.
- Watch and learn video tutorials with captions are being used by deaf people, people with autism, learning disabilities and other disabilities to gain knowledge and skills.
- Key Guards, eye-movement tracking software, speech recognition software, on-screen keyboards and alternative mouse options are being used by people with difficulty using hands to access computers and mobile phones.
- Braille displays and Braille writers are being used by people with deaf blindness to work and to communicate with others.
- Speech recognition, screen reading software, spell check and word prediction software are of tremendous use to people with dyslexia.
- iPad applications are helping people with Autism in organizing, scheduling and social interactions which has led to increased independence and successful employment outcomes.
- Augmentative and Alternative Communication devices such as switches, communication boards, module interfaces and software applications such as AVAZ are helping persons with multiple disabilities, who chiefly have communication difficulties, to participate in classrooms and other places to express their viewpoints.
- Video magnifiers are enabling persons with low vision to see the whiteboard in classrooms. Talking notice boards are helping students to access information written on notice boards. Posters with QR codes are being used to provide access to people with visual and hearing disabilities.
- FM systems are enabling students using hearing aids to hear only the trainer's voice in a training session by completely cutting out environmental noise.
- Low Vision Writing Pads are being used by students with vision disability to take notes in the classroom.

²⁹ This list has been compiled by DEOC based on information received from select people with disabilities and NGOs working in the area of disability in January 2018.

ICT is also being used to teach students with disabilities. Some of these solutions are given below.

- Multisensory solutions for reading, writing, and spelling instruction, such as Sonday programme, Handwriting without tears (for writing) and Happy Phonics (for teaching phonics) are being used to teach students with learning disabilities.
- Tactile Educational materials made using 3D Printers are being used to teach students with visual disabilities.
- Digital blackboards are also useful for people with visual disabilities and those with difficulty taking notes.
- Softboard technologies are being used to enable visual learning for people with hearing disability, people with autism and other disabilities where the visual medium is found to be more effective.
- Adapted Measuring Devices (with large text or a voice synthesizer), Electronic Math Worksheets (which gives real time feedback and tips), Babakus (a calculator that combines the qualities of the western slide ruler with those of the eastern Abacus to teach mathematical operations), TouchMath (which establishes a tactile connection to number symbols by tracing, touching, or outlining them and so creating a physical understanding of quantity and size relationships) are being used to teach students with learning disability.

Living independently

- Vibrating watches, Braille watches, talking watches, audio labellers, talking colour recognizers, talking blood pressure machines, talking weighing machines, etc. are being used by people with visual disability.
- Vibrators for wake-up calls and light bulbs which blink when the doorbell is rung are being used by people with hearing disability.
- Baby Monitor, a hand-worn application, which vibrates and flashes warning lights whenever the baby moves or makes a sound. This is being used by a parent with hearing disability.
- Social networking sites and dating sites are being used to make friends and to socialise.
- Accessible ATMs and internet Banking are being used to independently manage finances.
- Online shopping, food delivery apps, cab booking apps, apps for various services such as booking a beautician, an electrician, a plumber and so on, help people with various disabilities to live independently.
- Home medical services, Telehealth are being used by people with disabilities to access doctors and other health professionals online and for availing home-based services.
- Smart canes, taxi apps, apps meant for navigation and object identification apps such as Taptapsee and Eye-D are being used by people with visual disabilities to identify, explore and navigate to nearby places of interest.
- Online video channels provide the option of English captions. A few films also have appropriate audio descriptions.
- Accessible controls for computers are being used by people with difficulty using the regular mouse to play games on the computer.

- Video relay services are being used at a rehabilitation centre for providing sign language interpretation support for a doctor's consultation.
- Visual strobes and SMS alerts are being used by companies to alert people with hearing disability in emergency. Sounders are being used to alert people with visual disability by pointing to emergency exits.
- E-groups/Whatsapp groups (for example, spinal injury group, stroke survivors group, mental health support group, access India, etc.) are being used by people with different disabilities to discuss and learn from their peers on effective management of their issues, particularly related to activities of daily living, secondary health conditions and its prevention, access to health professionals and advice on assistive technologies.
- Social media and videos on Whatsapp are being used to create awareness and to disseminate information about various subjects. Some deaf groups are using videos extensively to share news and updates in sign language with other deaf people.

Annexure 2:

Policies related to Access to ICT

The Rights of Persons with Disabilities Act, 2016

Access to ICT has been recognized and provided for in the recently enacted The RPWD Act, 2016. Following are some of the relevant provisions:

- The definition of 'communication' is quite comprehensive in the Act. It includes the means and formats of communication, languages, display of text, Braille, tactile communication, signs, large print, accessible multimedia, written, audio, video, visual displays, sign language, plain-language, human-reader, augmentative and alternative modes and accessible information and communication technology.
- It prohibits discrimination on the grounds of disability.
- It provides for setting standards for accessibility, including for technologies and systems and information and communications.
- It mandates that all contents be available in audio, print and electronic media in accessible formats.
- It mandates that electronic goods and equipment be made available using the concept of universal design³⁰.
- It provides a two year time line to service providers to make their services accessible.
- It provides for developing schemes /programmes (including incentives and concessions) to promote the personal mobility of persons with disabilities at an affordable cost.

ICT accessibility is fundamental to enabling many of the rights mentioned in the Act - i.e. right to education, equal employment opportunity, access to health care, access to voting, access to justice, access to community services, accessibility requirement as part of disaster management, access to information regarding reproductive health, access to recreation and sports, etc.

Web Accessibility Policies and Standards

Guidelines for Indian Government Websites (GIGW)

The Ministry of Electronics and Information Technology, in February 2009, framed a policy and also prepared the Guidelines for Indian Government Websites (GIGW)³¹ to ensure that all the Government websites are made accessible. The most pertinent guidelines have been placed in the mandatory category while others have been made advisory or voluntary. Following these mandatory guidelines will ensure compliance to W3C Web Content Accessibility Guidelines (Level A). GIGW was revised in 2018 to include guidelines for mobile applications and updated WCAG criteria and is reincarnated as Guidelines of Indian Government Apps and Websites (GIGAW).

³⁰ 2 (ze) universal design" means 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 and shall apply to assistive devices including advanced technologies for particular group of persons with disabilities (RPWD Act, 2016).

³¹ Guidelines for Indian Government Websites- <http://web.guidelines.gov.in/>

National Policy on Universal Electronic Accessibility

The Government of India formulated the National Policy on Universal Electronic Accessibility which was approved by the Cabinet in 2013. It aims to facilitate equal and unhindered access to Electronics and ICT products and services by people with disabilities and to facilitate local language support for the same. It mentions creating awareness, capacity building, and setting up model ICT centres, conducting research and development and developing procurement guidelines for ensuring accessibility of technologies, as strategies for implementing the policy.

Manual for Procurement of Goods 2017

A very recent development is the inclusion of 'accessibility' in the Manual of Procurement of Goods 2017. Under the Principle, 'Broader obligation Principles' (to which all procuring authorities must abide by and be accountable for), the following two points have been added with regard to accessibility, "(d) Facilitating administrative goals of other Departments of Government (for example, ensuring tax or environmental compliance by participants, Energy Conservation, accessibility for People With Disabilities etc. to the extent specifically included in the 'Procurement Guidelines') and (e) Procurement policies and procedures must comply with accessibility criteria which may be mandated by the Government from time to time."³²

International ICT Policy & Accessibility standards³³

Given below are the links to some of the international standards on ICT accessibility.

European Policy and Standards

- http://ec.europa.eu/ipg/standards/accessibility/eu_policy/index_en.htm
- <https://www.cencenelec.eu/standards/Sectors/Accessibility/Pages/default.aspx>
- <https://www.etsi.org/technologies-clusters/technologies/human-factors-accessibility>
- European ICT Accessibility Procurement tool kit: <http://mandate376.standards.eu/>
- European ICT Accessibility Procurement Standard: <http://mandate376.standards.eu/standard>

US Policy and Standards

- US Section 508 Information and Communication Technology (ICT) Standards and Guidelines: <https://www.access-board.gov/guidelines-and-standards/communications-and-it/about-the-ict-refresh/final-rule>

W3C (Web Accessibility Initiative)

- Web Content Accessibility Guidelines (WCAG 2.1) <http://www.w3.org/WAI/intro/wcag>
- Authoring Tool Accessibility Guidelines (ATAG) explains how to make authoring tools accessible: <http://www.w3.org/WAI/intro/atag.php>
- The User Agent Accessibility Guidelines (UAAG) documents explain how to make user agents accessible: <http://www.w3.org/WAI/intro/uaag.php>

³² Manual for Procurement of Goods 2017 Ministry of Finance Department of Expenditure 5 Chapter – 1, Page 7, 1.7 (iii) (d), (e) accessed at http://doe.gov.in/sites/default/files/Manual%20for%20Procurement%20of%20Goods%202017_0_0.pdf on 8th July 2017.

³³ This list was sent to DEOC by Srinivasu Chakravarthula, Accessibility Evangelist, <http://serveominclusion.com> on 11th July 2017

- Accessible Rich Internet Applications (ARIA) Suite, explains how to make Web content and Web applications accessible: <http://www.w3.org/WAI/intro/aria.php>
- Independent User Interface (IndieUI) guidelines for web applications to work in a wide range of contexts — different devices, different assistive technologies (AT), different user needs: <https://www.w3.org/WAI/intro/indieui>
- ePub 3 Guidelines for publishers to understand accessible markup practices: <https://idpf.github.io/a11y-guidelines/>
- Standards for Web Applications on Mobile: <https://www.w3.org/Mobile/mobile-web-app-state/>

ISO on WCAG 2.0

- ISO/IEC 40500:2012: http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=58625

Annexure 3:

Government of India's Schemes for Assistive Technologies

Assistance to Disabled Persons for Purchase/Fitting of Aids and Appliances (ADIP Scheme)³⁴

ADIP provides financial assistance to persons with disabilities to procure aids and appliances upto Rs. 10,000/- per device (Rs. 12,000/- for students with disabilities for devices costing upto Rs. 20,000/-). Further, for all expensive items costing above Rs. 20,000, except cochlear implants, which are eligible for assistance under the scheme, subject to income ceiling, Government of India will bear 50% of cost and the remainder shall be contributed by either the State Government or an NGO or any other agency or by the beneficiary concerned, subject to the prior approval of the Ministry on case to case basis. For Cochlear implants, a ceiling of Rs. 6 lakhs per unit to be borne by the Government. The amount of assistance given under the Scheme is 100% of the cost of the device in case the income of the person or parents (of dependent persons with disabilities) is Rs. 15,000/- per month or less and 50% of the cost in case the income is between Rs. 15000/- and Rs. 20,000/- per month.

Sarva Shiksha Abhiyan (SSA)

SSA is the Government of India's flagship programme for the achievement of Universalization of Elementary Education (UEE) in a time bound manner. SSA has been operational since 2000-2001. Clause 3.12 of the SSA Framework for Implementation³⁵ states, "All children requiring assistive devices should be provided with aids and appliances, obtained as far as possible through convergence with the Ministry of Social Justice and Empowerment, State Welfare Departments, National Institutions, Artificial Limbs Manufacturing Corporation of India (ALIMCO), voluntary organisations or NGOs. If aids and appliances cannot be obtained through convergence, then SSA funds could be used for this purpose too."

Scheme of Inclusive Education of the Disabled at Secondary Stage (IEDSS)

IEDSS, launched in the year 2009-10, provides assistance to State /UT Governments for the inclusive education of disabled children in classes IX-XII. One of the components of the scheme is the construction and equipping of resource rooms. It is mentioned in the scheme that, "Screen Reading Software, such as JAWS and SAFA etc. for the visually impaired and speech recognition software for the hearing impaired to develop computer vocabulary and modified hardware like adapted keyboards"³⁶ would be provided. In Appendix II of the guidelines, there is a list, 'Disability wise inventory of Equipment and Material required for Resource Room'. The inventory list is quite archaic and does not include any modern technologies.³⁷

³⁴ ADIP Scheme: <http://disabilityaffairs.gov.in/content/page/adip-scheme.php> accessed on 15th June 2017.

³⁵ SSA Framework for implementation, SSA Portal, accessed at http://mhrd.gov.in/sites/upload_files/mhrd/files/upload_document/SSA-Frame-work.pdf on 24th June 2017

³⁶ 5.21 (vi) The Use of ICT, Page 4, Centrally Sponsored Scheme of Inclusive Education of the Disabled at Secondary Stage (IEDSS) accessed at http://mhrd.gov.in/sites/upload_files/mhrd/files/upload_document/EDU.pdf on 24th June 2017.

³⁷ Appendix II, Disability wise inventory of Equipment and Material required for Resource Room, Centrally Sponsored Scheme of Inclusive Education of the Disabled at Secondary Stage (IEDSS) accessed at http://mhrd.gov.in/sites/upload_files/mhrd/files/upload_document/EDU.pdf on 24th June 2017.

Schemes of University Grants Commission (UGC)

In 1998, the University Grants Commission (UGC) started the scheme, 'Higher Education for Persons with Special Needs (HEPSN)'. The HEPSN scheme has three components: 1) Establishment of Enabling Units for differently-abled persons, 2) Providing Access to Differently-abled persons and 3) Providing Special Equipment to augment Educational Services for Differently-abled Persons. It is mentioned in the Guidelines for this scheme that, for the purchase of assistive aids, the UGC will provide an ad hoc one-time grant of up to Rs.8.0 lakhs per university. At present, 128 Equal Opportunity Cells (EOCs) are functioning in various universities.³⁸

Guidelines for providing certain facilities in respect of persons with disabilities who are already employed in Government for efficient performance of their duties³⁹

In 2014, the Government Department of Personnel and Training issued an Office Memorandum for providing certain facilities for people with disability employed in Government and Public Sector companies. It provides for aids and assistive devices, including software, in accordance with their individual requirement.

Impact of the Schemes vis-a-vis access to ICT

The impact of these schemes has been minimal with respect to providing access to ICT for persons with disabilities. For example,

- The Government of India's scheme (ADIP), which provides assistive devices to people with disabilities, has very few ICT products on their list. 80% of the funds from the ADIP scheme is spent on ALIMCO products which does not manufacture ICT products.
- There is also lack of integration of disability in the schemes of the Ministries. Disability continues to be seen as a separate or a special issue. For example, the Rashtriya Madhyamik Shiksha Abhiyan (RMSA) programme, run by the Ministry of Human Resource Development, has an ICT component for which the Guidelines have been notified. These 'Guidelines for ICT in Schools'⁴⁰ provides for the establishment of smart schools with 10 PCs, printers, keyboards customised to regional languages, etc. However, they do not have any mention of Assistive Technology or access to ICT for people with disabilities. There is another scheme of 'IEDSS' which provides for resource rooms in schools for promoting inclusive education but the inventory list given for the Scheme seems archaic. There seems no convergence between the two schemes.
- The Higher Education for Persons with Special Needs (HEPSN) Scheme of UGC provides grants to set up Enabling Units in universities, for improving accessibility and procuring assistive technologies. There is also another scheme of UGC for setting up Equal Opportunities Cells in universities - to oversee the implementation of policies and programmes of SCs, STs, women, OBC, minorities and physically challenged persons. There are 128 EOCs functioning in various universities.⁴¹ However, there is no mention regarding the number of Enabling Units set up in Universities in the annual reports of UGC.
- Moreover, the understanding of ICT for people with disabilities seems to be limited to providing screen reading software to people with visual disabilities or hearing aid and cochlear implants to people with hearing disability. The Schemes do not have ICTs/ATs for people with developmental and multiple disabilities.

³⁸ Annual Report 2015-16, Ministry of HRD, accessed at http://mhrd.gov.in/sites/upload_files/mhrd/files/document-reports/AR_2015-16%20ENGLISH.pdf on 7th June 2017

³⁹ Ministry of Personnel, Public Grievances and Pensions Department of Personnel and Training 31st March 2014 accessed at <https://drive.google.com/file/d/0B1XryFntfUAAVGY1eGpnSmVHQjg/edit>

⁴⁰ Revised Scheme ICT in Schools, 2011
http://mhrd.gov.in/sites/upload_files/mhrd/files/upload_document/Revised%20Guidelines%20of%20ICT%20Scheme.pdf accessed on 7th July 2017.

⁴¹ Page 264, Establishment of Equal Opportunity Cells (EOC) in Universities, Annual Report, 2015-16, Department of School Education & Literacy Department of Higher Education, accessed from <http://mhrd>

