

An emerging Assistive Technology Centre in India : from baby steps, aiming at giant strides

Akila Surendran¹, K G Satheesh Kumar¹

¹*National University of Speech & Hearing (Kerala, India)*

INTRODUCTION

The Centre for Assistive Technology and Innovation (CATI) was established in 2015 at the National Institute of Speech & Hearing (NISH), Kerala, India. This was the first Assistive Technology Center (ATC) in India and hence did not have any previous models to benefit from. Hence the first step was to understand the situation in the country and identify possible strategies to be considered. To discuss the challenges in establishing an ATC in India, and to carve out a roadmap and strategy for CATI, NISH organized a brainstorming conclave in early 2016 at Trivandrum bringing together experts in this area. It was an actively participated meeting, with a meaningful conversation between Assistive Technology (AT) users, AT Research Institutes, AT manufacturers, and AT service providers. Based on the recommendations of the conclave, a strategic roadmap comprising four functional areas was drawn out for CATI.

STRATEGIC ROADMAP: FOUR FUNCTIONAL AREAS

Based on the recommendations from the conclave, CATI identified four functional areas as follows:

1. Operating an Assistive Technology Program (ATP)

The core function of CATI is to operate an AT program that caters to the accessibility and accommodation needs of students and clients of NISH. This comprises need assessment, device demo, lending, training, customization, financing, reutilisation of products, and service/maintenance of AT solutions for independent living by Persons with Disability (PwD). Such a full-fledged program is in its preliminary stages, including the creation of necessary systems and processes for operating various elements, evaluation of a wide range of AT solutions and exploring options for collaboration in various areas. A limited AT lending library as well as a DIY (Do-It-Yourself) lab to generate simple, cost-effective, and customized AT solutions for the clients are currently functional. The centre actively explores different funding schemes to provide financial assistance for users and catalyses the creation of an industry base for AT products so that affordable solutions are made available to them.

2. Awareness Creation and Training (ACT)

Lack of awareness about assistive technology is a major stumbling block in the diffusion and adaptation of AT in India. To address this issue, CATI will serve as a resource centre for AT solutions, spread awareness and provide training to users, family members and caregivers. Manuals and guidelines will be prepared for the same. CATI will develop a strong volunteer programme for AT training dissemination. Certification courses for AT professionals are also on the anvil.

3. AT Portal and Platform (PAP)

CATI will develop a common web portal and platform to connect with different groups of AT stakeholders; the portal will be accessible and regularly updated, to connect the different groups of AT stakeholders. It would act as a reference source of assistive technology for other AT centres. CATI helps persons with disability understand and compare the AT options available to them before deciding on and acquiring an optimum solution. CATI will also convene an informal network of experts and organize periodic events to stimulate intellectual discussions on AT.

4. Catalysing R&D and Manufacturing of AT products (CR&DM)

CATI collaborates with AT developers to encourage technology and product development, as well as manufacturing through linkages with R&D organisations, IITs (Indian Institutes of Technology), IIMs (Indian Institutes of Management), NITs (National Institutes of Technology), and leading engineering and management institutions/universities in India and abroad. CATI will reach out to students and startup communities in India to give impetus to an entrepreneurship ecosystem in AT through internships, collaborations and joint activities. Over a period of time, CATI will strive to create a standardisation and certification program for AT products by setting up an AT testing and quality certification lab and preparing necessary guidelines for the same.

SPECIFIC ACTIVITIES AND INITIATIVES

CATI operates through the other client-facing departments at NISH to reach its clients. These departments include early intervention, augmentative and alternative communications (AAC), audiology, speech, neurodevelopmental, and higher education for persons with disability. CATI regularly conducts training sessions and new AT product demonstrations and further assists the user departments in implementing the AT solutions. CATI and AAC departments jointly conducted tele-assessment for kids with disability from two other institutes in Kerala. CATI has a few clients who are quadriplegic and have benefited from the AT solutions for communication accessibility. Several AT devices and apps have been implemented at NISH departments by CATI. These include AAC and literacy apps, AAC devices, assistive switches, FM system to improve the classroom listening experience, apps to train on fine motor skills, 3D camera for gesture recognition to help in physiotherapy, 3D printing pen to develop tactile books and so on.

In the Indian situation, affordability is an important consideration and assistive technology solutions that use locally available materials are to be actively promoted. CATI jointly with IEEE Kerala Section-SIGHT, organized a one-day workshop on quick AT solutions, with Dr. Therese Willkomm as resource person. Dr. Willkomm, director of assistive technology at the University of New Hampshire, demonstrated quick solutions using everyday tools and material and took the participants through hands-on problem solving activities. CATI is also exploring 3D printing of AT solutions at a nearby Fab lab (Fabrication Laboratory), jointly set up by MIT (Boston) and Kerala government.

CATI guides students from engineering colleges on specific AT projects. The Centre for Disability Studies in Trivandrum have funded some of these projects undertaken by students and staff. CATI interacts with professionals at organisations of entrepreneurs and technology incubators to promote entrepreneurship in AT. CATI prepared a report explaining the gap in RPWD Act and why an AT policy is needed to stimulate the industry. These issues were also discussed by Director - CATI in his interactions at AISH (Mysore) and other places.

CATI has benefited from interaction with visiting experts in the field of disability, both from India and abroad. The CATI team has visited a few AT facilities in India and is planning more such visits in the future to learn about the best practices in this area and also to create a network in the field of assistive technology. We are also in touch with institutions abroad. Visits to US universities and AT centres are also planned, as well as participation in leading conferences on Assistive Technology. CATI has presented several papers at leading national conferences. A separate webpage has been created on the NISH portal to spread awareness on assistive technology. CATI staff has visited several educational institutes to promote students' interest in entrepreneurship in the field.

CHALLENGES AHEAD

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.

In the US, the Technology Act 1988 has considerably helped the creation of awareness of AT and its subsequent dissemination. We do not have a corresponding act or policy in India; this has impeded the development of a healthy value chain to reach AT to customers as well as sources of finance to create sustainable demand. Many a times, persons with disability and their families belong to low-income households and are unable to afford AT solutions. In order to create awareness in this direction, CATI plans to organise a national conference in 2018 bringing together all stakeholders in this field.

CONCLUSION

With lean staff strength, CATI has been able to understand the AT scenario in the country and set the pace in a short period of two years. We have brought attention to the need for more manpower and infusion of funds to keep the momentum going. There are several gaps to be filled in AT in India and the possibilities are endless. By focusing on creating replicable and scalable systems, we hope to present a model for best practices in AT.

Working in a low resources environment, innovation is not an option but a dire need and practicing these innovations could benefit other countries as well. Documenting and presenting the manuals and outcomes of the innovations is an ongoing process.