

# Mapping Assistive Technology Start-ups

Tigmanshu Bhatnagar, Dilisha Patel and Catherine Holloway

Global Disability Innovation Hub, UCL East, London, E20 2AF  
(t.bhatnagar.18, dilisha.patel, c.holloway)@ucl.ac.uk

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## 1 Introduction

Assistive technology (AT) is the application of organised knowledge and skills related to assistive products, systems and services designed to maintain or improve an individual's functioning and independence, thereby promoting their well-being [1]. We can enable life-changing differences in millions of lives worldwide using and enabling access to assistive technology. However, with all the incredible innovation, development and distribution of assistive products, there is still a significant gap between design and awareness to access and use of assistive products [2]. This was corroborated through our project to understand the met and unmet needs of AT through a country-capacity assessment [3]. As a part of this project, we carried out 5 focus group discussions with AT Users, policy stakeholders, AT developers, providers and those that work in AT distribution and support (n=31). We explored their experiences of providing and accessing AT, including procurement strategies, adoption of new technologies and provision pathways. Overall, we found that there is still a substantial knowledge gap in assistive products, how to access products and funding for needed products. These discussions also enlightened us that word-of-mouth and peer networks are the main avenues through which knowledge of assistive products is shared. Difficulties in keeping up with the expanding innovative landscape was raised as a key concern.

## 2 Related Work

Web platforms such as Tracxn.com [4] and Crunchbase.com [5] provide access to data and intelligence on start-ups, private companies and investors and are primarily used by venture capitalists, private equity firms and investors to discover and track start-ups and investment opportunities. However, these platforms provide a general overview thousands of companies from which, seeking a relevant about AT products can be difficult. Furthermore, only a sample of information on these systems is open and free while a majority lies behind an expensive subscription, making these platforms inaccessible for individuals and small DPOs. Lack of awareness about the available AT leads to ill-informed need matching of users to AT which eventually leads to high abandonment rates [6].

To address these challenges, several Disabled People's Organizations (DPOs) and international consortia have created information seeking systems. For instance, the

EASTIN website is an information seeking portal that provides information on several national databases, creating evidence for 60,000 assistive products [7,8]. The AT Info Map application identifies AT service providers and suppliers to improve accessibility and user's awareness of the AT that is available in the African region [9]. ATvisor.ai uses a recommender system to provide users with personalised results based on their self-reported needs and difficulty in functioning [10]. However, the quick update of information about the AT market on these information seeking systems is challenge. Furthermore, they offer products in a limited geographical.

Therefore, in this work we are working on bringing AT start-ups from around the world on a common website and designing meaningful information seeking interactions with the database.

### 3 AT Innovator's Map

#### Data Collection Methods

Master of Science students of the Disability, Design and Innovation MSc program at UCL as part of their group project in one of the core course called Future Global Technologies for Disability and Development, scouted and analysed start-ups from the six geographical regions of the world as classified by the WHO, the African Region (AFRO), the Eastern Mediterranean Region (EMRO), the South-East Asia Region (SEARO), the Region of the Americas (AMRO), the Western Pacific Region (WPRO), and the European Region (EURO) [11]. The brief was to gather regional data and evidence of the success of innovative products, businesses, service delivery models, policies and systems that enables and facilitates the growth of the assistive technology sector. They contacted innovators and start-ups to gather further insights if the information was not freely available. Each student group found between 50 - 80 start-ups creating a database of 400 start-ups. These start-ups have been classified based on categories describes in Table 1.

Table 1. Data collection categories

Start-up Name
Link to its Website
Founding Year
Type of Venture
Region
Country
Funder
Disability Type
Start-up Stage

In addition to the above categories, the start-up websites were qualitatively described according to the DIX framework [12]. As the data has been either scraped through the websites or wherever need, it has been manually extracted. Hence, a considerable effort

has gone into building the database and we have so far been able to clean nearly two-thirds of the data.

## Map Designs

Students were also briefed to develop website UI concepts to interact with the database. For this, each student group designed a region-specific website concept using Figma, that listed few of the identified start-ups as samples, their descriptions, images, and other relevant information. Six unique web interfaces were mocked up and evaluated, screenshots of which are shown in Figure 1. A compilation of the explainer videos of these websites ([link](#)). We are now currently working on cleaning up and extending the database and designing a beta version of the innovator's map.

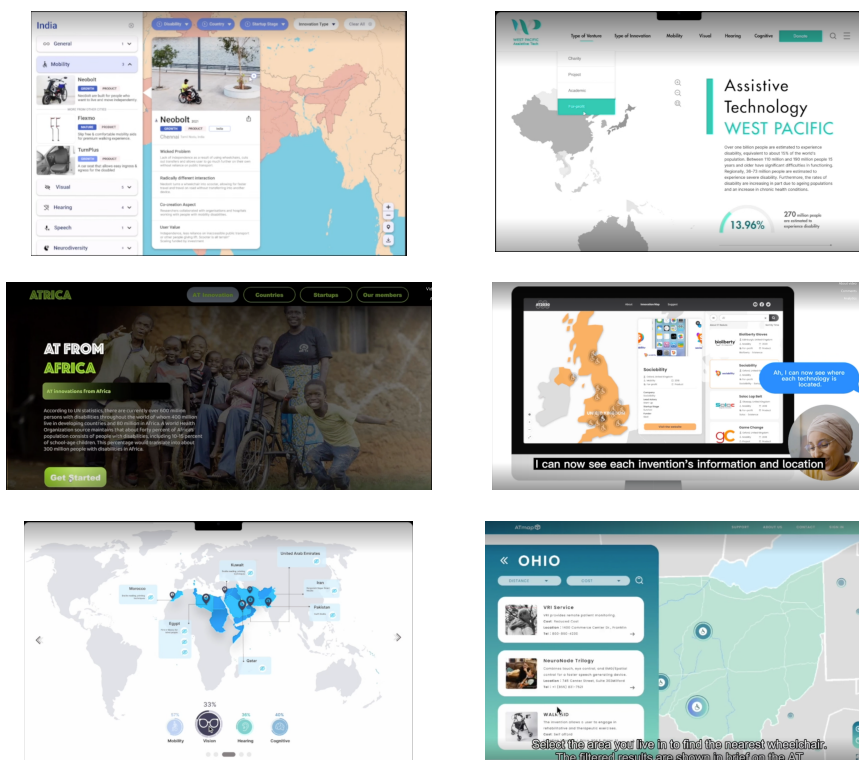


Figure 1. Screenshots of the map's interfaces from the explainer videos

## 4 The Potential Value of the Map

Many AT start-ups operate at a small scale in a limited geographical region, making it challenging to gain visibility and credibility. We envision that an interactive map can promote the visibility of AT start-ups to other key stakeholders of the ecosystem, such

as users, governments, disabled people's organisations and investors. Start-ups can use the map to showcase their work, achievements, and impact – increasing attraction from government stakeholders, investors, users, and potential industrial partners. The map can also be useful for clinicians, users, and care partners as it provides information on existing AT solutions.

The map has the potential to evolve as a directory of relevant resources for start-ups, such as funding opportunities, grants, and contacts of research institutions and industries that focus on assistive technologies and innovations. The time and effort to access this information will be massively reduced by bringing the information to one place, creating time and positivity to scale up projects. It can also foster collaboration within the ecosystem, acting as a centralised platform that brings assistive technology innovators and facilitate a sense of community that shares knowledge, experiences, and resources and collectively solves the wicked problems of disability innovation.

The database can also be used as a resource for knowledge creation, research, and learning. Scoping reviews of the data on the portal, as well as data analysis of the information on the map, can provide an improved understanding of this domain that will inform the existing gaps in the innovation sector around which challenges can be created, leading to new meaningful ventures that compliment and supports the existing AT ecosystem.

## **5 Challenges for the Workshop**

We know that having an entirely digital platform could invariably exclude key participants and populations we aim to target who may not have stable internet access or digital infrastructure. In areas with limited technology resources and connectivity, the map may not be accessible or practical for use. It may also not include a comprehensive representation of the entire assistive technology ecosystem, as maintenance and accuracy of the information can be challenging. Innovators and start-ups are dynamic entities with key information changing with time. This would require constant maintenance and verification efforts over time with regular updates. Furthermore, while the map provides a host of information, the level of engagement with the map will vary in terms of its accessibility for users with visual and motor impairments and within the community. Therefore, regular community engagement events that facilitate discussions and improve the product's usefulness would be required. Addressing these limitations requires consistent efforts, but by including members of the community through this workshop in this effort, we look forward to discussing such challenges and exploring potential solutions. Beyond these practical challenges, we propose three speculative questions we would like to explore in this workshop to improve the awareness of assistive technology.

- (a) We encourage the workshop participants to think through probable interactions with the map or the database.
- (b) Critically reflect on the scope of the map as a tool to facilitate awareness and
- (c) Think about the scope of the map to change perceptions about the AT ecosystem and how that scope might influence the design of the interface.

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