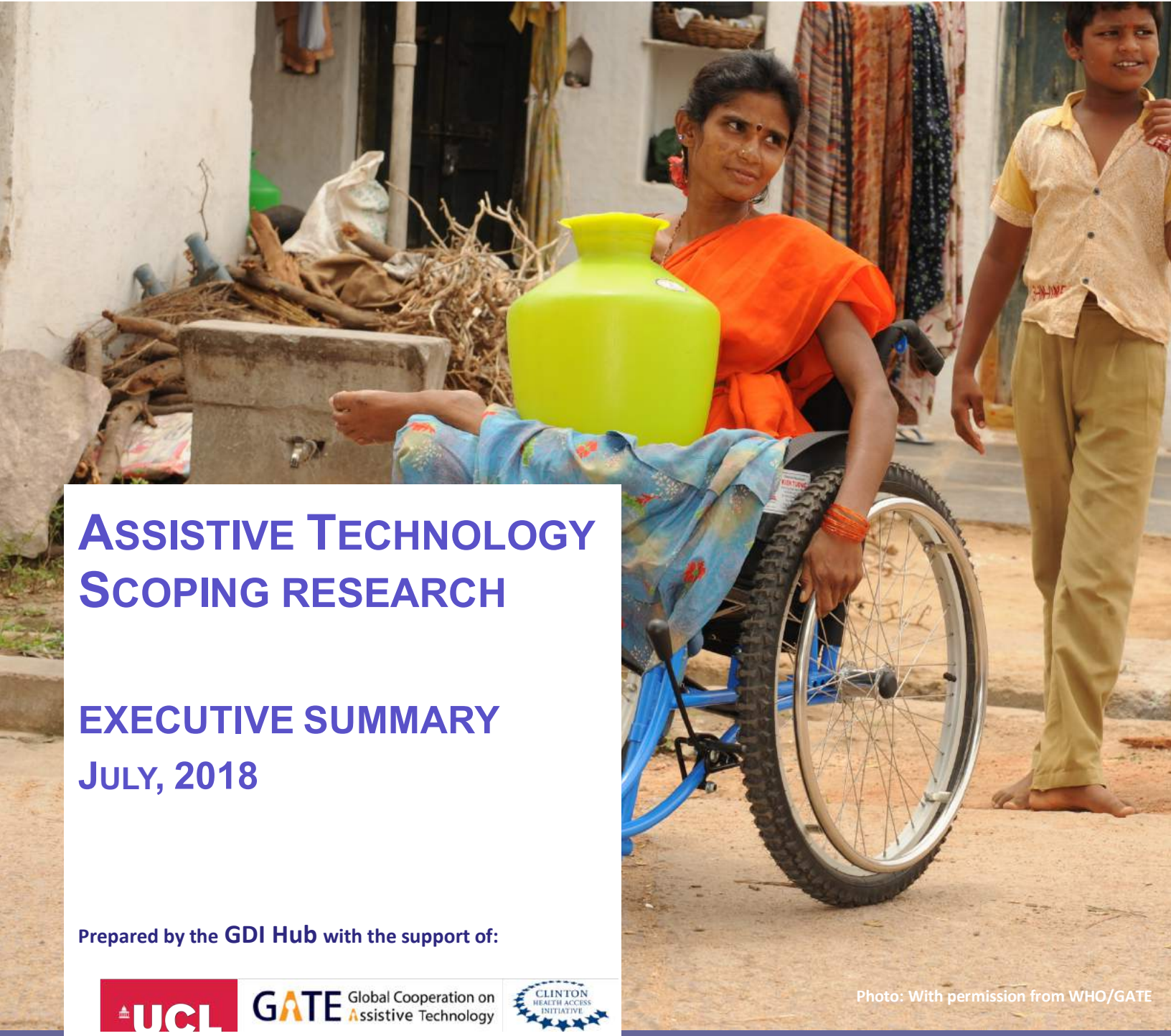

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ASSISTIVE TECHNOLOGY SCOPING RESEARCH

EXECUTIVE SUMMARY

JULY, 2018

Prepared by the GDI Hub with the support of:

UCL

GATE Global Cooperation on Assistive Technology

CLINTON HEALTH ACCESS INITIATIVE

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motivation FREEDOM THROUGH MOBILITY

A report commissioned by:

Department for International Development

Global Disability Innovation Hub

Foreword

By Lord Chris Holmes of Richmond, GDI Hub Chair

This report seeks to contribute to a better understanding of the issues around access to Assistive Technology in a global context. Utilising both primary and secondary research, various barriers to Assistive Technology have been identified and explored. Building on this work and developing opportunities and ways to overcome those barriers is a key part of this project. The ultimate goal must be ensuring that nobody is denied access to potentially life changing products and devices.

Assistive technology covers a vast range of tools and products including (but not limited to): walking sticks, wheelchairs, prostheses, hearing aids, eyeglasses, and increasingly mobile and digital applications - essentially anything that enables people to participate fully and lead more productive and enjoyable lives. I'm a proud user of several assistive technologies and am genuinely excited by the mainstreaming of accessibility features in modern technology that is doing so much to bring assistance to increasingly large numbers of people.

The fact remains however that in the Global South - where it is estimated that 80% of disabled people live - being able to access appropriate, safe and affordable assistive technology can literally make the difference between life and death. Often simple and relatively cheap products are simply not available. This mismatch in demand and supply suggests that the markets for assistive technology are not operating effectively, which has resulted in these products being either too expensive or simply unavailable. Coordinated market-shaping activities have worked well for other areas of lifesaving healthcare commodities, for instance bed nets for malaria, vaccines and medicines e.g. HIV, and also contraception. Such activities have not yet been tested for Assistive Technology and this report seeks to set the context for such action.

GDI Hub has produced this report with support from leading market-shaping experts at the Clinton Health Access Initiative (CHAI), GATE at the World Health Organisation (WHO), as well as specialist input from Leonard Cheshire and 'deep-dive' support from Motivation in the UK and Kenya. We would like to thank all of our contributors. We would also like to thank the team at the Boston Consulting Group who led an aligned piece of work with a focus on wheelchairs and hearing aids over a similar timescale.

The figures are staggering: it is estimated that by 2050 two billion people will need Assistive Technology, yet 90% will not have access. Assistive technology has the potential to enable and empower and can be a key part of delivering on the 17 global goals. The challenge is huge but the prize, should we succeed, is far greater and we hope this report will provide a comprehensive starting point from which to progress universal access to Assistive Technology globally.

"For most people, technology makes things easier. For people with disabilities, technology makes things possible."

– Mary Pat Radabaugh

Introduction

Over one billion—largely disabled and older people are currently in need of Assistive Technology (AT). By 2050, this number is predicted to rise to two billion. AT makes the impossible possible for many people. However, only 10% of those who need AT have access to it.[i] Without access to AT, appropriate training and accessible environments in which to use the technology, disabled and older people are often marginalised from their communities[ii].

A lack of access to basic AT—like eyeglasses, hearing aids, wheelchairs or, increasingly, mobile applications—disables individuals and reduces their ability to live full, enjoyable and independent lives, often making serious health problems worse.

A lack of AT for those who need it also results in losses for society, as people who would otherwise be able to contribute economically and socially to their communities are excluded from doing so [iii].

Despite the proven advantages of AT for disabled and older people, their families, and society, there remains a stubborn gap between the need and supply.

AT, delivered with appropriate services and education, can make things easier or possible for older people and those with a wide range of impairments. Used appropriately, it is empowering, cost-effective, and vital to meet the growing needs of 21st century populations.

The Report

This report seeks to unpick and understand the multi-layered and multifaceted ways in which economic, social, and political factors interplay and interact to create barriers to AT for those who need it the most. Through primary and secondary research, we explore the current landscape, the limitations, and current initiatives, ultimately answering the question: how best should DFID target its intervention around AT to affect the most positive change for disabled and older people in Global South priority countries?

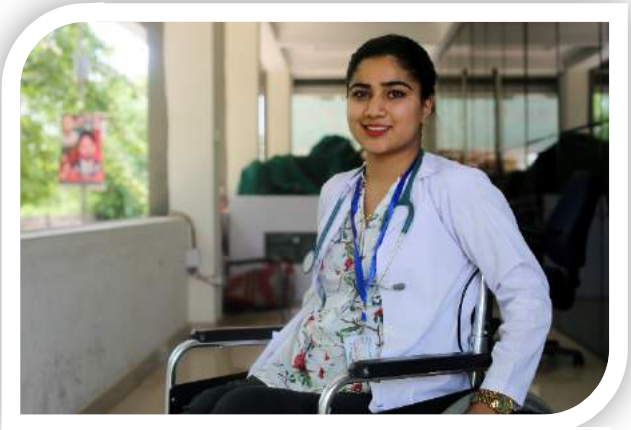

Figure 1: photo with permission of WHO/GATE

Scope

In March of 2018, GDI Hub Community Interest Company (CIC) was commissioned by IMC Worldwide, on behalf of the Department of International Development (DFID) to conduct a scoping review which analysed and synthesised the evidence on AT. The research was designed to investigate two questions:

1) What are the barriers which prevent access to AT for the people who need it, with a focus on those living in low resource settings within DFID priority Global South countries?

2) How should DFID, in partnership with others (including particularly other donors), best direct its interventions toward overcoming these barriers?

Methodology

The research methodology was flexible and iterative in nature, bringing expertise from within DFID, UCL, GATE at the WHO, CHAI, Motivation, and Leonard Cheshire, as well as expertise from hundreds of other stakeholders and organisations. Emerging ideas have been tested through stakeholder interviews and discussions, and refined though partner workshops and external events.

The research methodology was designed to enable interactions between stakeholders to ensure integration of explicit and tacit knowledge to guide policy development. It was characterised by a participatory and consultative process, having clear objectives, being inclusive and transparent. This provided an opportunity to reflect on the applicability of evidence in different contexts and promoted dialogue among different types of stakeholders.

Definitions[iv]

ASSISTIVE TECHNOLOGY refers to assistive products and related systems and services developed for people to maintain or improve functioning and thereby promote well-being. It enables people with difficulties in functioning to live healthy, productive, independent and dignified lives, participating in education, the labour market and social life. It can reduce the need for formal health and support services, long-term care and the burden on carers.

ASSISTIVE PRODUCTS include any external product whose primary purpose is to maintain or improve an individual's functioning and independence and thereby promote his or her well-being. They include wheelchairs, hearing aids, walking frames, spectacles, pill organizers and prostheses, as well as assistive information and communication technology such as memory aids, specialized computer hardware and software, augmentative and alternative communication, and customized telephones.[v]

Background

The UN Convention on the Rights of Persons with Disabilities (UN CRPD), adopted in 2006, recognises the rights of disabled persons to have access to devices and assistive technologies to promote "full and effective participation and inclusion in society."[vi] Similarly, the 2030 Agenda and the Sustainable Development Goals, with their commitment to 'leave no one behind,' make specific references to support older and disabled people.

Existing global partnerships

GATE

The Global Cooperation on Assistive Technology (GATE), established in 2014 by the World Health Organization (WHO), has been successful in gathering considerable research and evidence; a priority list of assistive products; expertise and practice-based guidance on AT. On May 25th, 2018, the World Health Assembly (WHA) unanimously approved a Resolution calling on Member States to "develop, implement and strengthen policies and programmes, as appropriate, to improve access to assistive technology within health and/or social services coverage."[vii]

Figure 2: GATE framework for AT provision

The GATE global priority research agenda for improving access to high-quality, affordable AT has identified five priority AT topics: People, Products, Provision, Personnel, and Policy. This has defined the basis for the initial part of the scoping report (see Figure 2).

Literature review

Scarce and uneven research

A review of global research into AT, particularly in resource-limited environments (RLEs), paints a bleak and uneven picture of AT research. Most research focuses on mobility (prosthetics and wheelchairs) and vision (eyeglasses and contact lenses). Together, they account for 80% of all studies. Hearing (10.7%), communication (3.6%), and cognition (0.8%) devices are largely ignored by the research community[viii]. There is also a geographical focus on China and India, and a paucity of research in Middle East and North Africa.

Evolving concept of Assistive Technology

Literature shows that new and emerging Assistive Products (APs), like mobile apps, have begun to blur the boundaries of what is, and what is not, an AP. A prime example of this is SeeingAI, which is designed for the low vision community, is free, and narrates 'the world around you'[ix].This evolving concept is helping to remove some of the stigma associated with the use of Aps but this evolution makes it potentially more difficult to promote a global understanding of AT and Aps.

Usability and abandonment of APs

AP abandonment is likely to increase whenever there is a lack of user involvement during the selection process. Poorly matched APs, a result of lack of consultation and consideration of the user's needs, often results in high rates of abandonment. There is, therefore, a need for collaborative environments where a properly trained workforce and the prospective user and their families work together to ensure APs meet the user's needs and expectations.

Smaller NGOs, charities, maker communities and individuals all over the world are employing their creativity and skills towards the production of innovative design for open source AT. This in turn allows for more user-centric products, which are less likely to be abandoned. It is clear that programmes which include the maker movement alongside and integrated with the healthcare system are seen as having 'huge potential'.

Innovation: Disincentives and barriers

Despite the advent of digital fabrication, the ingenuity of AT solutions and a plethora of AT product pilots, there are lack of innovations in the global marketplace. One key problem is scalability of solutions. The challenges to scaleability start with fragmented markets and are compounded by insufficient evidence collected during pilots to provide the necessary platform for clinical trials. This is often due to a lack of understanding of the requirements by entrepreneurs who might be outside of the healthcare system. Furthermore, incentives for larger companies operating in the AT market do not encourage innovation or scalability of more affordable products, or new market entrants.

Primary scoping research

The initial objective was to gain a deeper understanding of the barriers affecting the provision of AT globally. This initial research was undertaken to understand what should be prioritised in terms of global investment opportunities.

"My first problem is that I cannot get out of the house easily as there is no ramp. My second problem is that I can only use the wheelchair until I reach the front of the house; I cannot go onto the main road. The traffic is a huge problem. I have to be accompanied by my brother otherwise I cannot go".

– Indu, a disabled woman in urban India

Methodology

The first stage involved identifying stakeholders within the AT system who might have an interest, or who would be impacted by a proposed AT

intervention. Over 40 people were interviewed, and four field visits were made. Individuals interviewed included impacted individuals, Disabled People's Organisations (DPOs), knowledgeable experts, implementers, government officials, international organisation personnel, and industry leaders, among others. Interview and field notes were collected and analysed using thematic analysis[x].

Results

PEOPLE

Need to measure impact

There is a recurring theme for the need for better evidence on the impact of AT to inform decision making. Evidence is a key tool to promote investment, as well as to prioritise interventions.

Stigma and discrimination

Stigma associated to disability is still strong in many places, despite progress made in the last decade. Although discrimination and stigma are worse for certain groups (e.g. people with cognitive impairments), they pervade all sectors of the disability community.

User-centred design

Direct engagement with users at every step of AT is considered to be extremely important by most stakeholders. Products which are designed with users are ultimately much better in meeting users' needs, are abandoned less and used more.

PRODUCTS

Affordability, availability, and quality

Affordability, both in terms of the full cost of the AP as well as service delivery, was mentioned by all stakeholders. Some APs, such as hearing aids, were singled out as needing innovation to drive costs down. It was noted, however, that affordability should never come at the expense of the quality of the product. Cheaper, lower-quality APs are likely to be more harmful than beneficial.

Standards needed

There are no globally accepted specification and standards for many APs. This represents a significant barrier to the availability of effective and appropriate AT. Global standards are essential and are thought to play a crucial role in simplifying procurement and facilitating the development and exportation of quality APs.

Need for a critical mass of innovation

Most mainstream ATs in high-resource settings are designed, developed, and sold by large, multinational companies. The diffusion of products via large companies in LMICs is extremely low. Therefore, many of the stakeholders highlighted the need for an appropriate sharing platform specific to AT, where these design ideas could be easily found, modified for the user and their context, and recirculated to further facilitate future applications.

PROVISION

Need for sustainable approach

AT development and provision is not a one-off activity. Providing a person with an AP is an end-to-end process that starts from screening activities and encompasses assessment, selection, fitting, user training, follow-up and maintenance. For this reason, all stakeholders expressed strongly that provision of AT should be primarily delivered within the health care system and the health insurance scheme, to ensure universal healthcare coverage. The enthusiasm for Universal Health Coverage (UHC) was in stark contrast to the contempt for practices such as one-off distribution camps.

"An absolute red flag would for example be a one-off action of distributing AT for free, no matter how well meant and strategically planned it is."

– AT Stakeholder

Fragmented services

AT users must travel significant distances, multiple times, to attend the multiple sessions that might be necessary for the provision of an appropriate AP. Fragmented, geographically distant service delivery may discourage users from accessing services.

Donor dependent supply

Donor-based supply chains is seen as an important barrier to the continuity of AT provision. Only a few ATs are provided through more stable chains of (local) manufacturing or commercial procurement of imported goods. The supply of most ATs is entirely dependent on donations made through charities and NGOs. Often, but not always, this is also the source of lower quality, unreliable products.

Low demand, high cost

The fragmentation of AT development and delivery systems in many LMICs poses a significant challenge to the implementation of cost-effective strategies for the procurement of manufactured and raw materials for AT development. Low demand combined with current practices of local procurement results in a much higher cost-per-unit. A hub-based approach where coordinated, regional stakeholders pool together resources and make collective orders may mitigate this problem.

PERSONNEL

Expanding current AT workforce

AT service delivery models are dependent on the availability of highly qualified professional staff. This means that in many LMICs, the number of trained professionals is simply not sufficient to cope with the incredibly high demand for AT design, development, and provision. In some cases, educational systems lack the resources to provide the qualifications required. On the other hand, many students who graduated from professional courses are unable to find a satisfactory occupation, suggesting that the solutions required for AT lie in developing systems approaches which are beyond the simple expansion of currently available courses. Task shifting, where tasks are delegated to less specialised personnel, is also a potential solution.

“Trained professionals are not being absorbed into services. Services are not growing at the rate expected. Services are low quality and graduates are not motivated to work in the services.”

- AT Professional, Tanzania

Harnessing the power of technology

Technology, in particular internet communication technology (e.g. mobile phone applications), could represent a powerful tool in improving the capacity of personnel involved in AT development and provision. It has the potential to provide global, responsive and up-to date training to non-specialised personnel and to facilitate the development of skills necessary to develop and provide AT. Mobile apps could be used to facilitate screening and AT assessment in primary healthcare settings. Technology could be also used to train and support caregivers, who were seen by many stakeholders as valuable but often overlooked, informal AT personnel.

Continued development of trained workforce

Clinical staff often lack of access to continued training. For example, personnel might receive specialist training over 1-2 days from experts who fly in from high resource settings such as the UK or USA. However, these were ‘one-time shots’ of information, and there was little recourse to follow-up or further expand knowledge.

POLICY

Lack of coordination

The provision of AT is a complex process that requires complex interventions at different levels. Currently, the lack of coordination of all the parties responsible for the development and delivery of AT results in decreased efficiency of many programs, with increased costs and an uneven distribution of the AT network across the territory. Due to the limited amount of available resources, coordination amongst the various parties involved is crucial.

Policies that facilitate a collaborative hub approach within countries, and even regions, would yield greater potential towards improving access to AT.

Policies without implementation

National policies tend to be incomplete or very general, and they often lack key elements to make their implementation successful. For example, many governments have ratified the UNCRPD[xi] but few are meeting their obligations. It is important that policies are implemented and reviewed periodically.

"Recognise that it will take a significant effort and level of resource to make a big difference, so a consortium approach is required"

– AT Stakeholder

Legislation to facilitate rather than to hinder

Legislation can play an important role in ensuring access to AT of appropriate quality, across different countries. However, excessive bureaucracy can become a significant barrier to the development and delivery of AT. For example, the often high-cost and long time required for government approval when new ATs are developed within a country can ultimately discourage development, particularly from smaller enterprises that might have reduced resources. Similarly, many countries have unclear regulations regarding the taxation to be applied to AT or materials needed to develop AT, which can create considerable problems when attempting to estimate the cost of new interventions.

Funding clarity

Despite the presence of policies related to the development and provision of AT, many countries don't seem to have specific budgets allocated to it. In some cases, some ATs are issued under insurance schemes, but, more often the system relies most heavily on donations from international agencies, NGOs and charities. In some countries, a few ATs are provided under government budgets, but the rules around the selection of AT and the allocation of the budget amongst different centres are unclear. Stakeholders advocated for a more effectively managed funding system, which is clear and transparent for all parties involved.

OTHER

Creating networks of disabled people for support, advocacy, and to promote awareness

Facilitating the creation of responsive and coordinated communities of disabled people could lead to important benefits for the people involved and also for society generally. Interacting with peers has helped facilitate knowledge exchange on AT, education and employment services, as well as building confidence and resilience.

Peer training for AT use should be encouraged as it not only gives employment opportunities but is also known to be better received by disabled people and reduces the need for user training from healthcare personnel.

Networks of disabled people can simply help people to feel connected and reduce the chances of social isolation. These strongly knitted communities of disabled people can advocate more effectively for their rights, including the right to access appropriate AT.

Need for an accessible environment

Access to appropriate AT is of crucial importance for the independence of many disabled people. However, access to AT is not a sufficient condition for independence. An inaccessible environment can prevent or limit the use of AT. For example, the physical inaccessibility of roads and public transport around a person's house can make a wheelchair practically useless as the person might still be unable to leave their home.

The power of mobile and internet connectivity

Mobile phones and Internet connectivity were mentioned as opportunities to enable disabled people to gain access to information through the

sharing of best practices. Connected mobile phone technology could be harnessed to help disabled people form collectives to campaign for their rights.

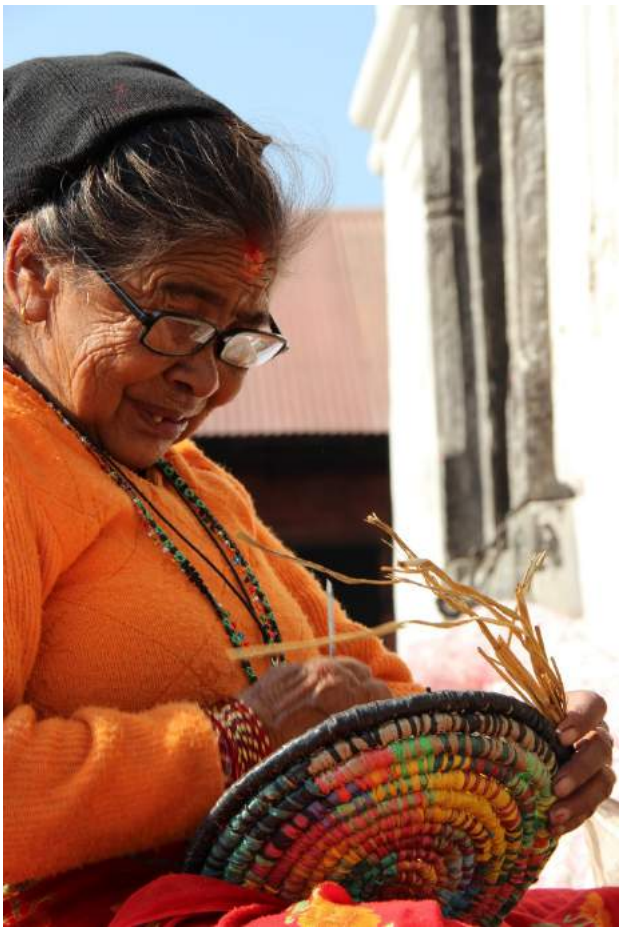

Figure 3: Vismita Gupta-Smith (used with permission from WHO/SEARO)

Emerging themes

The following 13 themes emerged as a direct result of the interviews. These were iterated with stakeholders before being grouped for further investigation:

- Innovation in Products
- AT for Humanitarian Response
- Inclusive Innovation Spaces
- Maximising the potential of Mobile
- Digital Skills for All
- Innovation Challenge Fund
- Measuring Impact
- 'Vision for Nation' as a model
- Integrated Mobility Aids Services
- Building Global Capacity
- Finance and Policy Structures
- Regional Distribution Hubs
- Future-casting

The iterated themes were grouped into five areas which it was felt warranted further research. A methodology for further investigation was then developed for each of the themes. The themes and the decisions on how to further develop them to be able to suggest possible strategies for future investment to unlock the AT market place conclude the first section of the research report.

Final themes

Accelerating innovation

This theme incorporates: Innovation in products, AT for humanitarian response, innovation challenge fund, inclusive innovation spaces, elements of digital skills for all and maximising mobile potential. Initially, maximising mobile potential had been its own theme, however on reflection it was thought to make more sense to fold this into 'accelerating innovation', and to highlight more explicitly the need to build capacity of disabled people.

Build community capacity and participation

Cutting across each of the initial 13 themes were two key requirements. The need to ensure AT users are involved and leading at every level of the project, and the need to build community capacity to enable more engagement with AT users; these will enhance outcomes and reduce stigma. As a result of stakeholder workshops and discussions, and the research findings, we conclude that there is a need to explicitly draw out the issues around participation and community capacity directly.

Building blocks for AT provision

This theme defines the infrastructure needed for AT provision to be possible, including: personnel training, product specifications and service provision guidelines. It also includes elements of harnessing mobile and ICT with regards to tools

development for measuring the need and development of new training methods.

Market shaping foundations

This theme incorporates finance and policy structures, vision for a nation as a model, and AT distribution hubs. It was felt that while market shaping had potential to significantly change the AT marketplace, more fundamental research was needed to understand which products, geographies and mechanisms would best work for the AT market. This was primarily conducted by CHAI with support from GDI Hub. This work also brings in contributions from BCG who had been commissioned by USAID to do a market shaping analysis of two AT markets.

Research, impact and coordination

This theme incorporated measuring impact and evolved to include the idea of harnessing the global momentum in AT provision into a more formalised coalition. It was seen as central to ensure research is embedded both within and across themes, hence being a theme in its own right.

Figure 4:WHO/GATE

Secondary research and deep dive analyses

After the initial round of stakeholder consultations, the following activities were conducted: several international visits, deep dives and workshops. These took place to answer the following research question:

What would a potential intervention in AT, which would have global impact look like?

This chapter recounts these secondary research and deep dive analyses.

BCG market shaping analysis

Summary

BCG conducted an AT Market Shaping research exercise focused on understanding current market shortcomings and barriers to uptake for two prioritised APL products: wheelchairs and hearing aids. The exercise also sought to develop systemic recommendations to drive uptake of wheelchairs and hearing aids, as well as to apply lessons learnt from wheelchairs and hearing aids to inform recommendations for the broader AT sector.

Finally, the exercise was aimed at facilitating coalition building among key stakeholders, to enable continued momentum and coordination beyond this initial research.

Methodology

BCG used a multidisciplinary methodology that included a literature review, around 60 primary interviews—among which there were 10 bilateral, 10 multilateral, 35 technical experts, NGOs, and academic, as well as 5 private sector interviews— a quantitative and qualitative data assessment to prioritise APL products, and a two-day workshop with more than 30 key stakeholders to align barriers and prioritise potential interventions.

Findings

The market shaping exercise found that while there were varying levels of AT market development across countries—ranging from low AT market

development (Malawi) to medium (Kenya and Philippines) to a high level of development (Chile), key barriers were common across all countries and could be classified into five main categories related to both demand (*Awareness*) and supply factors: (*R&D and Manufacturing*, *Procurement*, *Human Resources* and *Service Delivery.*

"While there are varying levels of AT market development across countries, key barriers are common across all countries."

Moving forward

Despite initial progress in developing interventions for the wheelchair and hearing aids sectors, the need for AT access and uptake remains significant. To effectively address the significant global needs for AT, concerted efforts beyond the individual product-specific recommendations developed for the wheelchair and hearing aid sectors are needed to coordinate and scale available resources. As such, the following specific recommendation is made: to create a coordinating platform, that can bring together a diverse group of partners to enable catalytic interventions that increase the availability and affordability of AT.

CHAI market shaping deep dive

Summary

CHAI undertook initial scoping of three specific priority assistive technologies: spectacles, prosthetics and orthoses (P&O), and personal digital assistants (PDA). CHAI also worked with data gathered and analysed by BCG on hearing aids to assess market shaping potential. The purpose of these assessments was to outline the factors inhibiting the uptake of several types of AT in low-resource settings, the implications of these factors when designing initiatives to increase access and suggest initial directions for market shaping.

Methodology

CHAI used publicly available data and reports from UN and NGO sources, academic journals, news media, and market reports. This data was used to collate known key issues in the market, as well as to generate market size estimates. These findings were then supplemented with expert interviews to better understand key market dynamics that were not immediately evident from the literature, and to understand service delivery in greater depth. Two of the expert interviews were conducted in Malawi to provide real-world context. GDI Hub accompanied CHAI on some of these interviews.

Findings

In this section, the findings are grouped by AT to draw out specific findings for that AT.

SPECTACLES

The scoping for spectacles identified a market that is shaped by the following characteristics:

- High level of need
- Market is led by two suppliers, while majority of affordable provision in less resource settings is done through NGOs
- Technologies exist to simplify diagnosis and to provide vision correction, but reach is limited

The following key barriers restrict access to spectacles in low-resource settings:

- Low awareness
- Low acceptance
- Limited number of trained professionals
- Low accessibility
- High service delivery costs
- High out-of-pocket costs

PROSTHESES & ORTHOSES (P&O)

The following points summarize the findings related to P&O:

- Providing quality services is an end-to-end process that cannot be 'simplified'
- Work has begun on quality standards and innovation in service delivery and products
- Trained personnel are key to delivery

- Prosthetics market is concentrated around a handful of manufacturers, with modern products prohibitively expensive for LMICs
- ICRC leads P&O supply in LICs with a low-cost, single axis knee prosthetic, but its subsidised distribution system may distort the market for innovations
- Innovative financing models exist that enable P&O care provision to poorer populations

Conclusions and directions

Potential directions for market shaping are summarised below:

SPECTACLES

- Build landscape of handheld refractive diagnostic technologies
- Work with governments to implement cost-effective service delivery models
- Work with vision NGOs to define and disseminate best practices
- Determine feasibility of school health delivery platforms

PROSTHESES & ORTHOSES

- Build landscape of available prosthetics to identify suitable candidates for low resource settings
- Build landscape of existing low-cost service delivery models
- Build landscape of financing mechanisms
- Cost component analysis to identify opportunities for cost-savings in manufacturing process
- Identify target countries for potential intensive engagement on strategy development and service delivery and provision

HEARING AIDS

- Build landscape of available hearing aid products to identify candidates for LMICs
- Build landscape of existing evidence-based innovations in hearing assessment and fitting on technology and delivery models
- Cost component analysis to identify opportunities for cost-saving in manufacturing process
- Cost build up for provision of hearing aids in low income settings

The wheelchair sector

Summary

This section narrates the story of the wheelchair revolution and the lessons learnt along the way. It takes a deep-dive into the journey of the creation of global consensus within the wheelchair sector.

Lessons learnt

PEOPLE

- Wheelchair users need to be at the centre
- No wheelchair will fit all, individual needs are important
- Need for high-quality, low-cost wheelchair is massive and global
- Getting the wheelchair is just the start of the journey

PRODUCTS

- Products need to be designed with true insight and in conjunction with the user
- Local production is possible, but it must be accompanied with design experience
- Products need to be user-tested. Feedback and follow-up are essential
- Industrialised manufacturing approaches need to ensure they do not lose touch with the challenges of local maintenance and repairs, as well as the availability of spare parts

PROVISION

- Partnerships are key and they need local expertise
- Comprehensive wheelchair service needs are not widely understood
- Opportunities exist to integrate service delivery with other APs
- Local assembly and fitting, as opposed to local production, creates a more bespoke

service model and can create more financially sustainable employment

PERSONNEL

- Training efforts need to consider a task shifting approach, training of grass-roots practitioners, training of trainers and service managers

POLICY

- Service delivery, financial sustainability, and specifications standards need to be created
- Donor agencies can support the long-term sector development through the focused and intelligent use of seed funding
- A global consensus is hard to put together, but the results can be very influential and can stop much of the intra-sector disagreements

"Local assembly and fitting, as opposed to local production, can create a more bespoke service model which can, in turn, create more financially sustainable local employment opportunities"

- Wheelchair System expert

East Africa deep dive

Summary

An overview of AT provision in East Africa was conducted to attempt to capture the diversity of policy and practice currently in place in the East African Region. The Region was chosen as it is one of the possible sites for a global intervention, through the creation of a regional distribution hub.

Methodology

Both primary and secondary methods of qualitative data collection were used. Secondary data collection involved a search of key databases for the most recent articles addressing the availability of assistive devices and policy context in the key countries. Primary data collection involved interviews (via Skype) with key people working in the sector in the key countries. Referral sampling (snowballing) was used to identify key informants.

Focus countries

The East African Deep Dives included the following countries:

- Ethiopia
- Kenya
- Malawi
- Rwanda
- Tanzania
- Uganda

Products, services, training, finance, and an enabling environment were assessed for six priority-listed AP: manual wheelchairs, walking aids, lower limb prosthetics, spectacles, white canes, and behind-the-ear hearing aids.

Findings

Despite the differences between the selected countries, the overall AT picture is the same: there is great need for APs, and yet supply does not meet demand.

For example, in Tanzania, whilst training of personnel in P&O and wheelchair technology is well funded and highly developed (to BSc level), services are not supported, and devices are neither well-funded nor readily available in the quantities required.

In Uganda, whilst the National Minimum Health Care Package provides funding for the rehabilitation of disabled people, it does not provide for the production or sourcing of devices, or for training in service provision.

In Ethiopia, Malawi and Rwanda, there are simply not resources available for products, or services, and in Malawi, training is limited to physiotherapy.

The findings, are grouped by barrier to draw out specific findings.

PRODUCTS

- In most of the East Africa countries there is (some) local production of ATs, however it is mostly limited to mobility devices. Supply is mainly supported by importation.
- Generally hearing aids, spectacles, and white canes are imported. Hearing aids are less available across all countries.
- Personal digital assistants are almost non-existent, being limited to those with significant financial capacity. However mobile phone use is increasing.

SERVICES

- Systems of service provision are not coordinated across East Africa countries; government services are limited, and the private sector dominates the areas of spectacles and hearing aids.

TRAINING

- Available, in-country training is limited to physiotherapy, occupational therapy and P&O. Tanzania has the most advanced available training. In the other countries, it is not widely available.

FINANCE

- Government funding is generally lacking, and support of ATs and service providers seems to be predominately done by NGOs and INGOs who rely mostly on donor funding.

ENABLING ENVIRONMENT

- Across all East Africa countries policies exist, which is to be commended, however, implementation of policies and the infrastructure to enable this (finance and resources) is the limiting factor. This is most notable in Rwanda.

Innovation scoping in Kenya

Summary

Conversations were held with a mixture of stakeholders including disabled people, NGOs, DPOs, manufacturers, Ministry of Labour and Social Protection, British Council, private sector companies and academics, where the idea of an innovation hub emerged. The idea has since received support from within the Government of Kenya, the University of Nairobi, and Safricom.

Findings

There is a clear movement towards grassroots innovation which can be harnessed for AT design, manufacture and repair. This movement could also enable disabled people to learn skills which can in turn enable them to secure high-quality employment. Kenya is enthusiastic and engaged in the opportunity for the creation of an AT Innovation Hub within the University of Nairobi. This has the support of the Government of Kenya, NGOs, DPOs, private companies and academia. There is no reason to believe Kenya is alone in this ambition, given the experience in Latin America where such centres have grown in number and reputation. A key consideration for the global community as it moves forward is how best to harness the power of the making community, and how this integrates with market shaping activities.

“Kenya is enthusiastic and engaged in the opportunity for the creation of an AT Innovation Hub within the university of Nairobi. This has the support of the Government of Kenya, NGOs, DPOs, private companies and academia.”

Innovation expert, Nairobi

Recommendations for intervention

Given the global context, broad consensus, the commitment of the current Secretary of State for International Development, (Rt. Hon. Penny Mordaunt MP) to disability issues including the hosting of the Global Disability Summit, there is a real opportunity to show leadership on the AT agenda by DFID, but a global approach is needed to deliver genuinely revolutionary change.

But how we do this also matters. The approach to AT provision requires an explicit normative framework. We suggest this be 'framed' around the following principles:

A Social Development approach and political leadership –

The priorities for intervention should lead to better outcomes for AT users and this should be a measurable outcome of investment.

A global, mission-led partnership –

This partnership should be more than a donor led approach, with measurable outcomes and clarity of how to return on investment. Any global target should be well understood by all stakeholders and delivered in many ways to enable it to be delivered. This must be backed up with research and better data.

Testing and piloting market-shaping as a methodology –

There is a way to go before market-shaping actions can be backed at scale. Piloting programmes with global leaders in market-shaping can spearhead this work, beyond the disability sector.

Backing systemic interventions –

Working with national governments is a necessary factor for success, building on the work of GATE.

Harnessing innovation –

With a focus on leapfrog technology looking beyond the traditional understanding of products or services, bringing in new players to this area is key.

Community participation and capacity building –

The exclusion of AT users from program design, policy and decision-making leads to less good outcomes, continued power imbalance and political exclusion – these things are all part of the problem. Any solution must be designed to counter this, through building on community-led solutions with AT users involved at every level of the process. More knowledge of what community-led solutions support inclusion in the poorest settings is needed.

A global partnership – how can stakeholders contribute and engage?

To achieve a global AT mission everyone needs to play their part:

- **Donors (and the innovators within them)** need the capacity, political backing and creativity to align their agendas, take a leadership role, and take the risk of making this happen;
- **DFID specifically** can consider how its investments – both within and beyond inclusive development – help to meet the needs of AT users, especially through the data and evidence that is generated;
- **Multi-lateral agencies** need to be willing to turn their programmes of work to support the Global Mission for AT;
- **Academics and researchers** must work together to share their knowledge and shape our thinking in very practical and applied ways;
- **Global agencies** need time to trial and test methodologies and pilot interventions – they need to be able to fail as well as succeed;
- **The market(s) for AT** and market actors need to function with fewer information failures (thereby impacting innovation, availability and price), fewer barriers to entry, and a reduction in the principle/agent split;

- **Governments** need information and support to generate a better cost/benefit models for intervention in AT, connected to Social Development outcomes and improve systems;
- **NGOs and DPOs** need the opportunity to test and scale what works; and
- **Users of AT** need to have their voices heard throughout the process.

Innovators must and do sit in these different agencies – not just within the traditional product design market. To succeed, we believe there must be a mechanism to encourage and support innovations across sectors, geographies and demographics.

Conclusions

Our research has found the challenge of AT provision represents a complex web of market and systematic market failure, compounded by a lack of participation from the communities that have the best knowledge of the issues (users themselves). This results in a supply/demand mismatch affecting almost a billion people, making AT access one of the most pressing problems facing the global health sector, development agencies, governments, communities and families. Because of poor data on use, need and impact, this 'wicked problem' is largely hidden from view to all but those facing the daily and life-threatening struggles its absence creates.

At an individual, family and community level though, there is no doubt at all about the implications of lack of access to useable, appropriate AT; isolation, economic exclusion, mental distress, exclusion from community life and relationships, physically poor health and even death.

In addition to the social and societal impact, the failure of AT markets to function optimally is also a huge economic disadvantage. As has been shown in the markets for drugs and vaccines (led by GAVI), when interventions of a market shaping nature are successful, the wellbeing of communities can be improved through greater access, global development goals can be met, and markets can be more buoyant, leading to economic benefits to companies who are able commit to price reduction in return for guaranteed supply.

Our recommendations, then, reflect the nature and scale of the issues; the complex web of issues that cause the barriers to access, and our understanding of how we overcome those barriers.

The expertise required lies between the traditional boundaries of innovation, development, disability and market interventions. Therefore, creative partnerships of new and established actors beyond 'the usual suspects' will be critical for success.

"This must be out global mission to enable a lifetime of human potential."

David Constantine, Motivation

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We hope to work with many of you again in the future to revolutionise access to AT for those that need it the most.

The GDI Hub and Partners

London, July 2018

Global Disability Innovation Hub

& partners

UCL GATE Global Cooperation on Assistive Technology CLINTON HEALTH ACCESS INITIATIVE motivation FREEDOM THROUGH MOBILITY Leonard Cheshire

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