Sub-Saharan Africa Assistive Technology Data Mapping

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Abstract
We propose to build a web platform and feature-phone app to collect and map data about the assistive technology (AT) supply across Angola, Botswana, Zambia, Mozambique, Malawi, Zimbabwe, Lesotho, Swaziland, South Africa, and Namibia. Using the critical and timely information available on the platform, governments and advocates will be empowered to increase availability and improve service delivery of essential AT products and services; and individuals with disabilities will know where to access AT that is currently available.

Author Keywords
Assistive technology; resource limited environments; resource mapping.

ACM Classification Keywords
H.1.2 User/Machine Systems; K.4.2 Social Issues

Introduction
Assistive technologies (AT) are equipment or product systems that are "used to increase, maintain, or improve functional capabilities of individuals with disabilities" (IDEA, 20 USC 1400). AT covers a wide range of devices used by people with disabilities (PWD) including, for example, wheelchairs, screen reading

software, augmentative communications devices, and prosthetics and orthotics.

Estimating the size of the AT market is difficult. The rough estimate is that one billion people have a disability, that is, 15% of the world's population (World Bank, 2015). This number will likely grow as the global population ages. Obviously this estimate represents a wide variety of individuals with different disabilities and different AT needs. The WHO (2011) estimates that, of the portion of people with disabilities who need AT in low-middle income countries, only 5%-15% can access them. Recent studies on living condition among people with disabilities in southern African countries document that only 15- 25% of people with disabilities have assistive devices (Eide, 2009). The studies demonstrated a gender difference with females having less access to assistive devices than men. Furthermore individuals with a physical disability reported higher access than individuals with sensory impairments. A clear urban/rural difference was demonstrated and individuals with a disability living in urban settings reported to a larger degree than rural dwellers that they have assistive devices.

People in resource-limited environments face barriers to accessing AT for a variety of reasons including: (a) lack of awareness, (b) lack of governmental policies and public procurement, (c) lack of services, (d) lack of AT products, and (e) lack of human resources (Unicef, 2015). All of these barriers affect the supply of AT in different ways. When end users and AT providers lack awareness of AT availability and how to access it, they cannot exert the demand necessary to build a strong AT market. The growth and strength of an AT market is also affected when end users do not have resources to pay for devices and the public (governmental) or private (NGOs/charities) organizations do not have clear and cohesive policies for providing access. These challenges result in supply of AT that is spotty, often limited in choice/selection, and with long gaps between shipments, resulting in a clientele that may be willing to use inadequate or inappropriate AT simply because it is available.

In Sub-Saharan Africa, a critical issue for PWD is lack of information on what and where assistive technology (AT) products and services are available. This results in low acquisition rates of AT in Sub-Saharan Africa and other developing regions. There is a need to establish new user-friendly mechanisms to efficiently track and map AT supply chains and device availability and provide this information to consumers.

Solution

To address this challenge, the University of Washington, the Southern Africa Federation of the Disabled (SAFOD), and AfriNEAD in collaboration with technology partner Dimagi, will configure the CommCare feature-phone app to collect and map data about the assistive technology supply across the Southern Africa region (Angola, Botswana, Zambia, Mozambique, Malawi, Zimbabwe, Lesotho, Swaziland, South Africa, Namibia). This project will start in early 2016 and finish in late 2018. Specifically, we will:

- Establish a list of AT devices to track, and WHO-aligned standards for wraparound data (location; price; quantity available; etc.)
- Design and develop a data collection app using the CommCare tool and framework (Dimagi)

- Enroll AT providers (hospitals; health clinics; NGOs; rehabilitation therapists) in regional pilots and train AT/service providers on data collection.
- Integrate data and the CommCare tool into SAFOD's existing industry and governmental advocacy efforts.
- Provide data to AT consumers (people with disabilities, NGOs) to link existing supply with demand.

This project addresses the problem of awareness and in doing so attempts to create an infrastructure that will provide the baseline information needed to address the other access problems. Specifically, the proposed system will provide a variety of users with current information about AT availability at a local, regional, and eventually national level. With this information, different categories of users will be able to answer questions including:

- Individual in need of AT:
  - Who are the AT providers near me?
  - Where can I find the type of AT I need?
  - How do I contact them?
  - How much does AT cost?
- Advocacy organization/DPOs:
  - What are the gaps in supply and coverage - where should advocacy be targeted?
  - Where can I refer PWD to access needed AT?
- NGO / hospital that purchase and/or provide AT to individuals:
  - What is the existing supply of AT (e.g., wheelchairs) at the hospital; what needs to be ordered soon?
    - What AT is available from other AT providers in my area (potential referral)?
    - Who are the AT providers who can source AT for the hospital/NGO?
    - What are the AT needs in my catchment area (inform government tenders)?
- AT product companies:
  - What is the market for AT in a region or country?
  - Where is AT provided in a region or country?
- Donor / government purchaser and supplier of AT:
  - What AT is available in what amount? What AT is not available?
  - Where are the gaps between need and supply?
  - What changes need to be made to procurement policies?
  - What is the current structure of the supply chain?
  - Where does AT come from now? What efficiencies could be introduced (e.g., like CLASP)?
  - What is the current quality of AT in the country. What standards and specifications are met, what are not?

Armed with this critical and timely information, governments and advocates will be empowered to increase availability and improve service delivery of essential AT products/services; and individuals with disabilities will know where to access AT that is currently available.

References

1. Eide A H ØT. (2009). Disability and Assistive Technology in Low-income Countries. (Ed.) In Disability and International Development: Towards Inclusive Global Health. Springer: New York.

2. Individuals with Disabilities Education Improvement Act of 2004. 20 USC 1400

3. Unicef. (2015). Assistive Technology for Children with Disabilities: Creating Opportunities for Education, Inclusion and Participation: A discussion paper, http://www.unicef.org/disabilities/files/Assistive-Tech-Web.pdf

4. World Bank, Disability: Overview. (Last updated Sep 29, 2015), http://www.worldbank.org/en/topic/disability/overview.

5. World Health Organization. (2011). The World Report on Disability. Malta: Author.