DESIGN FOR SCALE: THE CASE OF VSO

VSO’s health innovation in Tanzania has packaged a select set of low-tech, relatively low-cost interventions to improve maternal and newborn health outcomes at district level. Through two earlier pilot projects, VSO has rolled out simple checklist tools, introduced low-cost imaging technology, and set up Neonatal Intensive Care Units (NICUs) in three district hospitals. The steps that the project has taken to ensure the model is prepared for scale-up, demonstrate the value of the Design for Scale Digital Development Principle.

Through support from HDIF, VSO has added an SMS information and follow-up service and clinical mentorship for doctors and nurses from maternal and newborn specialists. This will provide a package of services that could improve referrals and the ability to identify and handle pregnancy complications.

Although Tanzania has made significant progress in reducing maternal/neonatal and child mortality, the number of deaths remains stubbornly high at 454 per 100,000 live births and 26 per 1,000 births respectively. Evidence indicates that the majority of these deaths are correlated with home births – nearly half of which take place without the assistance of a skilled birth attendant. For births in hospitals and other health facilities, inadequate equipment and clinical training often undermine quality of care. The limited availability of emergency obstetric and newborn care services, a chronic shortage of skilled healthcare workers and a weak referral system all contribute to maternal and neonatal deaths. If life-threatening complications develop for mothers and neonates at home or in ill-prepared primary health facilities, the decision to seek appropriate care often comes too late.

To address these problems, VSO designed pilots to test a range of clinical interventions for maternal and neonatal health. Through support from VSO, a
hospital in Lindi and one in Mtwara established low-cost Neonatal Intensive Care Units (NICUs) and introduced the Newborn Triage Checklist (NTC). NTC is a very simple checklist that can be used by low-level healthcare workers to identify at-risk infants. A second pilot introduced the use of portable, solar powered ultrasound devices (Vscans) in the Pwani Region, with support from GE Healthcare. This device screens pregnant women to identify those at risk. Both of these pilots recorded impressive results. The first reduced neonatal death rates at hospital level from 35 per 1,000 in 2011 to 22 per 1,000 in 2013, a reduction of approximately 30 per cent. The Vscan pilot project found the device led to ‘improved certainty of referrals from lower facilities to higher facilities and improved compliance of referred women based on the higher confidence from visual confirmation of a pregnancy that the ultrasound device provides’.

**DESIGNING TO SCALE: SUCCESSFUL PILOTS**

To scale these pilots, VSO followed key aspects of the Design for Scale Digital Development principle.

First, VSO identified partners that could help scale up the pilot. Key to this was engaging the Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDGEC) at national level, as well as the Regional Health Management Team, to ensure both departments supported their intervention plans, especially taking them to scale at district level. VSO also re-vitalised a partnership with Ifakara Health Institute for research and evaluation, and directly partnered with GE Healthcare, manufacturers of portable ultrasound machines, to provide technical assistance in training and deployment of the devices.

In addition to integrating use of the NTC, creating or refurbishing NICUs, and deploying portable ultrasound devices, VSO added other components to the package of interventions. For example, it strengthened referral systems between healthcare workers carrying out Vscans and those working at lower-level facilities and personnel at district and referral hospitals. The Vscan training included using a WhatsApp group for community-based workers and facilities to share images – thus linking important information about patients referred to the hospital. VSO also deployed an SMS system to send reminders to pregnant women of their antenatal care visits and postnatal screenings. This decision was intended to improve VSO’s ability to create stronger communication links between clients and facilities.

Finally, a key component of the VSO model was the placement of highly skilled volunteers in facilities to provide on-site supervision and on-the-job training. These volunteers were usually medical doctors with specialties in gynaecology/obstetrics and paediatrics. Many project colleagues emphasised the significant benefit of having on-site specialised medical support and training. The design of the component allowed for the volunteer specialists to leave behind a supportive supervision process through which teams could improve performance by undertaking reviews as a group.

**PRINCIPLES FOR DIGITAL DEVELOPMENT: DESIGN FOR SCALE**

- Plan and design for scale from the start.
- Develop a definition of scale for your initiative.
- Keep your design simple, flexible and modular to make it easy to change your content and adapt to other contexts.
- As you make technology choices, think about whether they will make it easier or harder to scale.
- Identify partners early who can help to scale your tool or approach.
- Consider your funding model, including revenue-generation options, social business models, the cost per user and financial paths to sustaining the initiative.
- Gather evidence and demonstrate impact before attempting to scale.
- Don’t attempt to scale without fully validating that your initiative is appropriate in a new context and addresses a priority need.
LESSONS AND RECOMMENDATIONS

While the scale-up of the pilots has seen significant progress, there are a few ways in which VSO continues to improve.

- **It is essential to test a new technological component before including it in scale-up.** Health facilities experienced inconsistent deployment of the SMS system. It was challenging for facility staff to adopt the new system while collecting phone numbers, as it added to the time spent interacting with clients.

- **Deploying new technology to remote facilities at scale requires careful planning.** Erratic battery performance and hard-to-find replacements limited the length of outreach trips in remote areas, while BlueTooth malfunctions prevented easy sharing of images between referring facilities. At the same time, a lack of experienced technicians who could undertake timely repairs led to general equipment breakdowns. Hardware rollouts need to include plans for systematic adoption, and consideration should be given to investing in partnerships to provide the required technical support.

**Funding is intrinsically linked to the success of scaling a model sustainably.** Expenses related to the renovation of the NICU and the purchase of a full range of neonatal equipment are investments that go beyond the original low-tech, low-cost concept of the innovation. These costs have been difficult for some facilities to absorb. Implementers could consider phasing-in these components to allow for cost planning or the identification of complementary funding.
ABOUT THE PRINCIPLES FOR DIGITAL DEVELOPMENT

The Principles for Digital Development are designed to institutionalise lessons learned in the use of information and communication technologies (ICTs) in development projects. They were written by and for international development donors and their implementing partners, but are freely available for use by all. The principles are ‘living’ guidelines, intended to serve as guidance rather than edict, and are meant to be updated and refined over time.

Further reading

- www.vsointernational.org/fighting-poverty/where-we-fight-poverty/tanzania
- http://digitalprinciples.org
- www.ge.com/reports/post/94554502465/why-less-is-more-for-the-health-of-africas/
(All links accessed 2 May 2018)

Credits

Report authors: Stephen Rahaim with contributions from Emma Davies and Clare Gorman.

Disclaimer: All opinions included here represent those of HDIF and not those of DFID.

HDIF'S APPROACH TO DIGITAL INNOVATION

HDIF’s Digital Approach sets out actionable steps for using the Principles for Digital Development to support cross-sector technology adoption and scaling-up for innovation-related practitioners (including HDIF and its partners) and policymakers in Tanzania. The prevalence of digital innovation in the HDIF portfolio presents an opportunity to generate learning from grantees who are putting the principles into practice in a Tanzanian context.

Further reading

- www.vsointernational.org/fighting-poverty/where-we-fight-poverty/tanzania
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The Human Development Innovation Fund (HDIF) aims to identify and support innovations that have the potential to create social impact in education, health, and water, sanitation and hygiene (WASH) across Tanzania. With a focus on market driven solutions, HDIF catalyses the development, testing and scaling of innovative models of service delivery, information and communication technologies for development (ICT4D), and product solutions in health, education and WASH.

HDIF aims to contribute to the global dialogue on the principles through the Digital Impact Alliance (DIAL), the stewards of the digital principles, who facilitate lesson-sharing around digital development and promote their adoption globally. The HDIF digital framework for learning borrows from DIAL’s materials and content. For more information see https://digitalimpactalliance.org/