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*Digital Health - Fluch oder Segen für die globale Gesundheit?*

**Bottom-up approach for integrating eHealth**

**eHealth: Connecting communities for health, selected cases in Zimbabwe**

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*While internet penetration rate is still the lowest on the African continent, the growth rate is higher than anywhere else. eHealth is proclaimed as the new, innovative solution to reach Universal Health Coverage, however, scarce evidence exists on how eHealth is supposed to integrate within existing health systems to increase their efficacy and efficiency. In contrast to other common methods, SolidarMed piloted a bottom-up approach to the integration of eHealth within the Zimbabwean Health system. First experiences and key areas of attention for future eHealth ventures are concluded that start shedding light on how eHealth may best benefit local health systems in a transversal way.*



Community engagement means discussing at all levels and making voices heard. Photo: © Gertjan van Stam

## Background

The use of digital communications and technologies has taken the African continent by storm. In Africa – starting from a minimal means of communication in the last century – more than half a billion people use a mobile phone regularly today. Having skipped other technologies and with increasingly powerful devices in the hands of people, many aspects of mundane life transformed. Africa leapfrogged in the way people communicate, handle finance, and gain knowledge. (Nyamnjoh, 2009)

While internet penetration rate is still the lowest on the African Continent, the growth rate is higher than anywhere else. With a population composed predominantly of youth, Africa already has the third highest amount of internet users, after Asia and Europe. (Internet World Stats)

In low- and middle-income countries (LMIC), the opportunities – but also the risks – appear highest, and leapfrogging is possible. In such settings, coverage (especially for health care services and Human Resource for Health (HR4H)) increases slowly, but the demand for quality health services augments sharply.

Facing these challenges, new ways to ensure quality-health care and universal access to health services are urgently needed. (Kruk et al, 2018) eHealth is inevitably part of future health systems.

*The World Health Organisation defines eHealth as “the cost-effective and secure use of ICT (Information, Communication and technology) in support of health and health-related fields, including health-care services, health surveillance, health literature, and health education, knowledge and research.” (WHA58.28 eHealth)*

Redesigning health systems to integrate eHealth in LMIC now, has the potential to avoid inflating the costs of health care in the future, by providing quality care in line with good practices. Real-time information plays a crucial role as it serves timely responses; however, it also demands for regulated transparency on where, how and by whom data are kept, accessed and managed, and how boundaries for their availability are set.

*eHealth may well revolutionize the way health and its care is sought, delivered and received.*

SolidarMed is the Swiss Organization for Health in Africa. As a highly professional international NGO in strengthening health systems in underserved areas of Sub-Saharan Africa, it recognizes the tremendous potential of eHealth to accelerate universal health coverage and the aligned goals set by MoHs in the countries it operates in. However, SolidarMed’s approach contrasts to other published eHealth interventions. SolidarMed piloted a “bottom-up” approach to eHealth in Zimbabwe starting 2016. This put its beneficiaries in the centre of all its actions, which is fully in line with its overall strategy.

The overall long-term aim of the project is to support the Ministry of Health and Child Care (MoHCC) of Zimbabwe in the integration of eHealth ventures within its existing health system to increase efficiency and effectivity of the targeted services.

This article reports from the experiences of an ongoing process to integrate eHealth in rural Zimbabwe. It presents lessons learnt and discusses some key principles for future SolidarMed interventions in eHealth, which may also be of general value.



Participants of the Hackathon discussing the Program Code for a new, locally developed eHealth app. Photo: © Christian Heuss

### ***eHealth in practice: The “Hackathon”***

In Zimbabwe, eHealth is positioned as an amplifier of well-established and fruitful processes within the health system. Investigation showed there was little guidance as for how to ensure inclusivity across disciplines when introducing eHealth ventures, aligned with local culture and engineering. To fill this void in the method, SolidarMed started to host a monthly ‘Hackathon’ in the Province of Masvingo.

During the Hackathon, health experts and local experts in ICT meet to discuss eHealth needs, ideas, opportunities, potential solutions and decide on upcoming tests/pilots to be run. These meetings are open, inclusive and participation is on a voluntary basis. The Hackathons attract people across a wide range of ages and professions (specialists [private and government], students, project managers and scientists). Already after a few meetings, the Hackathons became the preferred venue to conceptualise eHealth developments in a transdisciplinary manner. Today, local and national ideas are exchanged and further developed within this remote setting; and IT developers from the capital drive the 300KM from Harare to Masvingo several times during their software development stages to receive the valuable local inputs.

The Hackathon provides unique access to local knowledge and expertise in the country and aligns well with observations of Nora Lindström (Lindström 2018), who argued that:

*“the future is digital, and if the majority of humankind is not engaged in creating that digital future, we're in real trouble.*

### ***eHealth products***

In Zimbabwe, the Hackathon differentiated the projects into two categories with its specific eHealth pilot projects:

- **INYASHA** (*Iyi Ndiyo Yedu Aid and Support Health App*) – meaning “I produce apps” in the Shona language – addresses the communications between clients and health care providers (client messaging through SMS, various apps)

development, and smart pillboxes. blended learning approaches, clinical mentoring, remote continuous professional education)

- *Kutendeka* – meaning “Responsible use” – focusses on enhancing operational processes within the healthcare providers value chain (Internet access management, thin client computing, diabetic database, network availability monitoring, community support networks, set up of research databases, and infrastructure facilities (Future Centres)

The Hackathon demonstrated to be of utmost value to the MoHCC who is interested to align the Hackathon with eHealth projects and activities at the national level.



The Hackathon participant. Photo: © Gertjan van Stam

### ***eHealth – a bottom-up approach***

Importantly, the Hackathon represents the tangible result of a long process to find a suitable approach to integrate eHealth within local health systems. As a very first step, the contextual factors regarding eHealth in Zimbabwe were assessed, to frame the intervention. The Zimbabwe ICT Policy Framework for the MoHCC, states that

*“ICT has the potential to impact upon almost every aspect of the health sector. In public health, health information management and communication processes are pivotal and are facilitated or limited by the available information and communication technology” (MoHCC, ICT 2018 p. 4).*

Furthermore, the National Health Strategy (NHS, 2016-2020) foresees that “hospital information systems need to be harmonised and fully computerised with all departments, equipment and patient flow properly linked electronically”. (MoHCC, 2016) Wisely, the strategy also states that

*“Innovative programmes such as e-health are implemented to enhance and not to disrupt what has been working so far”. (MoHCC, 2016)*

During regular meetings with its partners in the rural districts – as well as at national level with the MoHCC – SolidarMed solicited inputs on how stakeholders in the communities and the government envisage putting into practice the ICT Policy framework and the eHealth aspects of the NHS strategy.

All the ideas and suggestions presented during such discussions were matched with the inputs of communities-of-practices in (rural) health and information technology, and published scientific knowledge from Africa and abroad. Priority was given to academic evidence drawn from long-term and ongoing ethnographic research situated in the nexus of society and technology as to the importance of culture when considering the integration of ICT in an African setting.

The following three main action lines were then defined:

1. Continuous guidance by governing authorities as to the 'state-of-affairs' in the development of eHealth approaches in Zimbabwe;
2. Confirmation of pilots and processes aligned with a growing, local evidence base by the MoHCC;
3. The start of practical pilot projects set in an 'eHealth lab' and 'future centre' at SolidarMed premises in Masvingo Province to be used by 'communities-of-practice'.

Following this process, the MoHCC of Zimbabwe set the scene for SolidarMed to embark on focused activities in eHealth in 2016, requesting SolidarMed's support in the community engagement, workforce development and thought leadership for eHealth in the province of Masvingo, where SolidarMed was active.

The three main components identified in the current context that needed to be tackled were: *Community engagement*, *Workforce development* and *Thought leadership*, which – studies showed – are crucial components for access to Information and Communications Technologies in rural Africa. (van Stam, A Strategy to Make ICT Accessible in Rural Zambia, 2013)



Discussion on possible e-Solutions for previously briefed health service delivery problem.  
Photo: © Christian Heuss

## Community engagement

Local community engagement, research, and development are crucial when recognising the highly diverse and complex social and technical contexts in Southern Africa. The rubber hits the road where eHealth integrates with the day-to-day complexities of personal and institutional relationships, embedded and emerging care practices, and well-established healthcare systems.

Community Engagement is part of a practice of social innovation. (Bishi et al, 2017) This involves sequences and steps of engagement according to local, cultural patterns. When using such methodologies, eHealth is viewed from the perspectives of shared values, common purpose, and cross-cultural sensitivities.

The primary stakeholder was (and is) the MoHCC. ICT being a transversal theme, it was equally important to interact with e.g. the Ministry of ICT, the National Scientific and Industrial Research Development Centre, the Computer Society of Zimbabwe, and the various international NGOs located in the capital. Further, SolidarMed engaged in scientific exchanges and interactions with Universities throughout the country.

During the process of community engagement, common knowledge was generated that enabled adapting the endeavour to local context and culture including the exchange of knowledge and skills, recognizing that

*any intervention is valued differently by different people and different stakeholders.*

## Workforce development

From its eHealth lab in Masvingo, the SolidarMed team works together with local, provincial, and national experts. Working together in practical activities to establish ICT systems in rural areas came with an exchange of ideas, transfer of and focus on the acquisition of the necessary skills needed for introducing eHealth in rural areas. The day-to-day activities in piloting a growing range of activities provide unique perspectives. Training on sensitisation, installation, operations and maintenance of eHealth in rural Africa is not standardised. Therefore, a continuously growing group of local and provincial specialists met on a regular basis (on the basis of the Hackathon), updating each other with impromptu training sessions (nationally and regionally), or by attending tailor-made training, but mostly, by 'going-at-it-inclusively'.

## Thought leadership

SolidarMed facilitated the dissemination of the eHealth activities by, from and within the communities benefitting from eHealth. In its effort to strengthen local capacity and amplify local intent, SolidarMed prioritized having local voices being expressed and heard.

Several of its staff presented the eHealth developments at local, regional and national stakeholder meetings. For the process to actually allow the local Zimbabwean expression of eHealth to be heard, the team adhered to the following guidelines (van Stam, Thought Leadership in eGovernance, 2013):

- Careful positioning, in harmony with local cultures and relationships;
- Communal expressions, where eHealth is expressed from a 'communal knowledge base';
- Featuring tangible results, reporting on activities that are practical, sustained ethically, and are recommended by the local community;
- Valorising local capacity, which is often embodied in local talents and well-established, long-term organisations;
- Honourable representation, with the presentation of African expressions of eHealth that are respectful to local authorities, local communities, and governing bodies and stakeholders.



Briefing of Hackathon participants on specific health problem by local health care specialist.  
Photo: © Gertjan van Stam

### ***Lessons learnt and key enablers***

Our experience clearly shows that eHealth must be well enshrined within social, cultural, health, and information systems. The following areas of attention appear instrumental for the development of a locally well-embedded eHealth venture:

1. *Enable Connectivity and Access*: Network constraints and access barriers suppress the local voices, knowledge and inclusion. The route via Community Networks opens perspectives for alleviation;
2. *Involve Trans-disciplinarity*: where multiple, complementary approaches towards society and technologies reconcile an international discourse with the local and national, African experience;
3. *Value Local*: In eHealth, many avenues are reported, but most appear not to consider local context, vocabulary, access realities, sensitivities and taboos, or cater for local leadership and inclusion considering 'Ubuntu';
4. *Think Local*: Activating local meaning, content, relevance and production of systems is critical for enmeshed end-users and stakeholders; and gaining a shared, embodied knowledge base;
5. *Put the lead local*: Iterative programs led by and involving actual end-users, guided by 'local talents', produce locally embedded solutions and applications;
6. *Scaling is hard*: Depends on socialites, geopolitics, usability, affordability and shared understanding and needed diversity. We found that inclusion of relevant stakeholders from the start and respectful representation of the local voice in national fora, e.g. in Technical Working Groups at the MoHCC, are effective ways for reaching scale;
7. *Embed development in ambient culture*: Holistic and efficient development involves sharing of resources and opportunities as well as giving equal opportunities to both women and men. We found employing locally embedded and committed leadership to be instrumental in the process of program and project development, management, and evaluation.

## Conclusions

The bottom-up approach, embedded in theory and models developed from within African research, appears to provide a promising avenue for the inevitable sensitisation and integration of eHealth in health management and care.

SolidarMed's bottom-up approach resonates with local strategies, empowers people and fosters national networking while using national capacities. The chosen approach which resulted in the local, regular Hackathon, strengthens local capacities, collaborative learning, and ensures contextual reality checks and joint solving of related problems.

It is worth mentioning, that such bottom-up approach requires considerable investments in time and resources to align stakeholders from the local, remote locations to the national levels. However, this investment – if implemented through a truly integral approach – may well enhance the chances of success, sustainability and resilience.

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