DIGITAL PRINCIPLES INTO PRACTICE

APRIL 2018
ACKNOWLEDGEMENTS

The Human Development Innovation Fund (HDIF) is a £40m United Kingdom Department for International Development (DFID) innovation programme in Tanzania managed by a Palladium-led consortium with IFAD, Newcastle University (NGO West Centre), Loughborough University (WEDC), and the Institute of Development Studies (IDS).

With a focus on innovations from non-state actors and the effective utilisation of information and communication technologies for development (ICT4D), HDIF seeks to accelerate the experimentation, commercialisation, and diffusion of innovations in health, education, and water, sanitation and hygiene (WASH) and help them be adopted at scale on a www.hdif-tz.org.

The Commission for Science and Technology (COSTECH) is the government partner to HDIF and a key strategic partner for the project. HDIF and COSTECH work together to realise a shared goal to accelerate innovation with effective use of ICT in health to improve and improve opportunities for health, education and WASH in Tanzania. Further details can be obtained at www.costech.go.tz.

UK Department for International Development (DFID) leads the UK’s global efforts to end extreme poverty. It is tackling development challenges in Tanzania through a portfolio of investments including HDIF. Through its Digital Strategy, DFID has articulated its commitment to accelerating innovation and effective use of ICT to facilitate access to private information, or community access that may offend basic development principles.

Children learning with Mwabu’s interactive tablet at Silverleaf Academy, Arusha.

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FOREWORD

I am a true believer in the power of digital technologies to drive social impact. Digital solutions can, in part, extend basic services to new users and communities, improve service provision, and develop new and more efficient markets. However, some of the most vital experiences I’ve had in international development have been seeing secondary school classrooms littered with a decade of dot-dot-dash hardware stacked side by side – the remnants of the grand visions of technology project after project dropping in a digital training with a sprinkle of equipment, low buy-in or sense of ownership from key stakeholders, and limited sustainability planning. I’ve seen hours of unapologetic or unwise actors looking to benefit from access to private information, or community access that may offend basic development principles.

Now, in part, I’m a funder of innovation and technology at a time when new technologies are coming on board every day and our international development community has years of learning opportunities from various information and communication technologies for development (ICT4D) projects.

At HDF we want to share learning from our own experience to assist players in ICT4D to ensure we are not creating more stacks of unused hardware and limited viability which combine to create a larger wasteland of well-intended development projects. A broad set of donors and partners have combined to develop the Principles for Digital Development, which from a simple set of values that have helped HDF understand our impact and establish whether we are setting partners on the best path for success.

This White Paper is HDF’s first formal publication sharing our initial insights and learning around the application of the Principles for Digital Development in Tanzania. We hope our learning will provide practice insights for the ICT4D community in Tanzania and abroad. By applying the principles to our work, we and our partners can assess their validity through ‘learning by doing’ and anticipate the challenges in scaling our innovations.

We welcome your comments and feedback to help us shape our learning and approach and continually incorporate lessons from grantees work and the ecosystem overall. Finally, I would like to personally thank the HDF staff, grantees, partners and technical advisors for their efforts to design and deliver these insights.

David B McGinty
Director, Social Innovation + Technology, Palladium Group
Principles for Digital Development

Recognising both the risk and the opportunity that digital technology presents for development, individuals, development organisations and donors began exploring how best to surface and spread best practice in the use of information and communication technology (ICT) tools. These discussions culminated in the Principles for Digital Development, a common set of ground rules that aim to institutionalise the many hard lessons learned in the use of information and communication technologies in ICT4D projects. The nine principles can be adopted by anyone using digital as a means of delivering development outcomes and are intended to serve as guidance rather than rigid rules. They are meant to be updated and refined over time. The nine principles are as follows:

- Design with the user
- Understand the existing ecosystem
- Design for scale
- Be data driven
- Use open standards, open data, open source
- Be data driven
- Be collaborative
- Address privacy and security
- Use technology as an enabler

These technologies are a major driving force for the realization of the Vision. They should be harnessed proficiently in all sectors of the economy.

The government of Tanzania approved the renewed National ICT policy in 2016, building on the Vision 2025. Simultaneously with the ICT policy, a national science, technology and innovation policy has been in preparation, although it has not yet been passed. A national ICT Commission, responsible for ICT in both the public and private sector at national level, was set up by Presidential Decree in 2017 but the ICT Commission has not yet been passed.

The Tanzanian ICT sector is strongly driven by private mobile phone penetration. According to the Grameenphone Mobile Association (GSMA), by the end of 2015, just over 70% of Tanzania’s population were connected to a mobile network, while the Tanzania Communications Regulatory Authority (TCRA) estimates that the mobile telephony penetration was at around 80% by 2016. Tanzania, and especially Dar es Salaam, has a relatively lively start-up scene, with many key players in the Tanzanian innovation ecosystem. The Digital Impact Alliance (DIAL), the stewards of the digital principles, who facilitate lesson-sharing among ICT4D grantees and partners, 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 among ICT4D grantees and partners. The HDIF digital framework is being used to work together on the principles through the Digital Impact Alliance (DIAL), the stewards of the digital principles, who facilitate lesson-sharing among ICT4D grantees and partners.

The digital and innovation landscape in Tanzania

Tanzania has risen from position 123 (in 2014) to position 96 in the 2017 Global Innovation Index (GII), putting the country among the other Sub-Saharan African countries, signaling the potential for the adoption of new technologies and associated growth opportunities. Tanzania’s Development Vision 2025 recognises the ICT is central to a competitive and economic transformation. It states that “these technologies are a major driving force for the realization of the Vision. They should be harnessed proficiently in all sectors of the economy.”
HDIF as a learning platform for innovation and scaling of digital technology

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 Principles for Digital Development were a natural context.

HDIF’s extensive network and partnerships presents an opportunity to leverage learning from grantees who are putting the principles into practice in a Tanzanian context. The Principles for Digital Development were a natural context.

Purpose and methods

These three principles focus on the people and partnerships that are the key components of any development project.

This paper focuses on the following three digital principles:

- Design with the user
- Understanding the existing ecosystem
- Be collaborative

The case studies presented in this paper have been written for the attention of key stakeholders in Tanzania – that is, government, donors, peer agencies and the wider development community, in particular those with an interest in implementing digital development projects.

In the digital landscape of Tanzania, it is important to emphasise the importance of not operating in silos, but instead identifying the partnerships needed to ensure success at all stages of implementation, from start-up through to close-out and at all levels of engagement.

The learning shared in this paper draws on experiences from Ubongo Kids, Camfed, Digital Opportunity Trust, Shule Direct, AMREF and CRS – grantees that are leveraging the Principles for Digital Development in their grant projects.

Current HDIF grantees were not asked to address all of the principles, and the scenarios presented here are examples of how HDIF has addressed the existing principles. From that learning, HDIF aims to develop a set of lessons and recommendations for the most effective use of, and methods for, scaling digital technology in Tanzania throughout the life of the project.

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Children learning through interactive digital content.

Case study Ubongo
Ubongo is a Tanzanian non-profit social enterprise with a mission to create interactive edutainment for children across Africa. In the design phase of their school readiness programme, Akili and Me, the producers discovered through user feedback that their original design appealed to adults but was confusing and complex for their actual users – that is, the children. Episodes were re-written and the animations adapted and then tested again. Following a more positive response from the children and parents, Ubongo launched the full production of a 26-episode season of the series. It is currently reaching over two million unique viewers every month in Tanzania through TV and radio. Since its launch, Ubongo staff have constantly been seeking feedback from viewers by communicating with users via phone interviews and focus groups. Facebook has also allowed parents to provide Ubongo with a continuous flow of feedback about how their children were responding and interacting with each new episode. An evaluation of the programme, conducted in partnership with the University of Maryland, has shown that the programme is highly effective for increasing children’s school readiness, and has a significant effect on school readiness for both girls and boys aged 3-6 years old; the impact on pre-literacy was not significant. In the second series of the show, the makers are acting on these results, and are turning their attention to improving literacy skills as well as teaching socio-emotional skills and ‘early mindset building’.

According to Nisha Ligon, Ubongo CEO, “While this process may seem intense, it has helped us quickly develop highly effective and engaging learning, by having our users guide us to what they need... not what we think they need.”

Recommendation 1
Design with the user should be viewed as a process of continuous improvement, where user feedback is contextualised and integrated into the process at every opportunity. Project managers should experiment with user-centred design and embrace user feedback at every stage of the project. Resources are available both online and offline: books, reports, videos, online courses, step-by-step guides and case studies of best practice. New projects do not need to reinvent the wheel; they simply need to change and adapt existing approaches to suit their particular circumstances.

Lesson 1
Designing with the user is an on-going process that begins with the initial design of a digital product or service, and continues through implementation, adaptation and scale-up. This partnership between innovator and user informs the evolution of the innovation including how user needs may change over time and in response to evolving contexts and settings.

Design with the user
- Develop context-appropriate solutions informed by user needs.
- Include all user groups in planning, development, implementation and assessment.
- Develop projects in an incremental and iterative manner.
- Design solutions that learn from and enhance existing workflows, and plan for organisational adaptation.
- Ensure solutions are sensitive to, and useful for, the most marginalised groups: that is, women, children, people with disabilities and those affected by conflict and disaster.

UBONGO Akili and Me is an edutainment cartoon and radio series that helps children aged 3-6 to develop pre-literacy and English language skills.
Case study Revolutionsising Remittance Recovery in Water (R3W)

In a country such as Tanzania, where up to 50 per cent of the population lacks access to clean water (WHO-UNICEF JMP 2014), innovations that can improve water infrastructure and provide communities with a reliable source of safe water that leads to better health outcomes, are much in demand.

In most communities, water systems need to generate revenue to sustainably maintain the equipment, and to ensure its continuous provision. The Human Development Innovation Fund (HDIF) supports ‘Revolutionising Remittance Recovery in Water’ (R3W), a project that has introduced a system for the pre-payment of water combined with an effective and accountable water management system. Implemented in Karatu District in Tanzania, the project is complemented by Catholic Relief Services (CRS) and its business partner, Grundfos LIFEPLAN Ltd, together with a local implementing partner, the Development Department (DMDD).

The system consists of water dispenser units, deep storage tanks and storage above the water kiosks. Users pre-pay for water by buying credit from the water kiosks through kiosk operators. The system sends out data to COWSOs about water use and payments, and reports any malfunctions in the system, such as low pressure or flow rates, which need maintenance. COWSOs, or Community Water System Operators, through kiosk operators. The system sends out data to COWSOs about water use and payments, and reports any malfunctions in the system, such as low pressure or flow rates, which need maintenance. COWSOs, or Community Water System Operators, through kiosk operators. The system sends out data to COWSOs about water use and payments, and reports any malfunctions in the system, such as low pressure or flow rates, which need maintenance. COWSOs, or Community Water System Operators, through kiosk operators. The system sends out data to COWSOs about water use and payments, and reports any malfunctions in the system, such as low pressure or flow rates, which need maintenance.

Community members can see exactly the amount of water they are collecting and how much they are being charged. Fabiano Qadwe, Endallah Village Water Supply (KAVIWASU) prepaid system, reported that prior to R3W, if a problem was too complex, it remained unaddressed. Since the introduction of R3W, however, any challenges that do arise are resolved.

Understanding and influencing the ecosystem, including existing and developing policies, regulations, stakeholder, funding mechanisms, culture, ways of working and value chains (certain processes or activities) around water infrastructure in Tanzania has been a key element to the project’s success. The role of the COWSOs lies at the heart of the local water ecosystem, who are accountable to the Village Water Committees who are responsible for ensuring community interests in the water supply are met by the COWSOs, and to the District Level Water Offices that are established by the Ministry of Water. The COWSOs also operate the system, people who are key to the project because of their strong presence in the communities and accountability to COWSOs. According to the Qaru Village chairperson Richard Dawite, the greatest benefit of the technology has been its transparency and the improved relationships between the COWSO, kiosk operators and community members, as there is now an environment of trust.

A major breakthrough since the adoption of the technology is that it has strengthened relationships among community members. With the previous system, people had to wait in long lines, and going to collect water was a burden, especially for women who are primarily responsible for water collection. Now, collecting water is something people enjoy. They meet their neighbours, share pleasant interactions, and even lend them their cards to those who do not have one. Women in particular have benefited from the certainty of a reliable and consistently priced water supply, which in turn has reduced water-related conflicts within their families.

The digital innovation around the payment system has simplified the transactions, contributing to higher revenues, which has increased by 250 per cent, and improvements in the overall governance. It has also helped reduce conflicts in Karatu between COWSOs and customers who now view the COWSOs more positively and with respect. News of R3W has been shared with neighbouring villages who are now requesting their own pre-payment system.
Learning from challenges
In contrast, another grantee, working independently, failed to gauge or understand the ecosystem when implementing their educational concept. They therefore had insufficient understanding of the local innovation ecosystem and consequently were excluded from online learning. Collaborating with Eneza Education, a Kenyan non-governmental organisation (NGO), Shule Direct adopted the Eneza Education platform and worked with local developers and teachers to design Makini SMS, a mobile-based learning platform contextualised for the Tanzania secondary education service.

This interface allows access via basic mobile phones with limited multimedia and internet capabilities. Students learn ICT skills at a VETA centre, Dar es Salaam.

Students learn ICT skills at a VETA centre, Dar es Salaam.

Digital innovation projects should prioritise both the implementation phase.

Because digital innovations in education hold this potential for change, it is particularly important to consider existing policies, regulations and ways of working in order to assess the suitability of a proposed new technology or innovation. In Tanzania, these opportunities need to be looked through collaborations across schools, communities, and local, regional and national governments.

Recommendations
• Explore the dynamics between different user groups, how they interact with technology and how that might influence the design of a programme.
• Understand that equal access to technology is not the same as equal opportunity, as cultural aspects and attitudes may impact the progress of some groups.
• Be aware of the potential harm that technology can pose for girls and women. Help address this by exploring, for example, vulnerability posed by having an online presence, and how girls and women’s access to and use of technology may be perceived by their families, husbands and other community members.
The Tanzanian government has no information and 200 teachers in Dar es Salaam and Morogoro.

DOT has developed a gender strategy that ensures equal access to resources and influence. In playing their part, both men and women in the focus groups commented that all members of the group are willing to help each other. Both men and women in the focus groups commented that young women begin the programmes speculated that young women lack self-confidence and that all members of the group are willing to help each other. The training has also led to positive repercussions within the homes of some students as experienced by one young woman studying at VETA Morogoro. ‘Our families see us as heroes, having learned new skills. My family is very receptive and encouraging me to apply the skills I have acquired.’

Their findings bring to the surface some underlying attitudes related to gender. For example, some male respondents believed that girls lack self-confidence because of their ‘nature’ and don’t engage with ICT, while women were encouraged to work in mixed groups during classes.

Technology has engendered positive changes in behaviour and attitudes between female and male students who are encouraged to work in mixed groups during classes. Both men and women in the focus groups commented that women’s ICT skills are sometimes better than men’s, and that all members of the group are willing to help each other. The training has also led to positive repercussions within the homes of some students as experienced by one young woman studying at VETA Morogoro. ‘Our families see us as heroes, having learned new skills. My family is very receptive and encouraging me to apply the skills I have acquired.’

The study also found that once women overcome their initial fear and started to engage with the technology and programmes, they are more likely to participate in trainings. In addition, female students are more likely to connect to the internet. DOT also offers ICT coaching sessions to individual teachers who are often reluctant to integrate ICT into their classrooms and to understand which ICT resources are appropriate for their settings.

Women’s full participation in the innovation ecosystem accelerates the possibility for innovations to result in work as Learner Guides to support the students. The impact of sharing the success story is transferred and reinforced by default, with strong rationale if another licensing arrangement is taken. Publish materials under a Creative Commons licence and share them widely. Document work, results, processes and best practice, and bring expertise and experience to the innovation ecosystem at all stages. Develop partnerships that bring expertise and experience to the innovation ecosystem at all stages.
Learning from challenges

Looking across the HDIF portfolio, the projects making the most progress have those that operate in silos and fail to develop the necessary partnerships with local stakeholders and other partners. There are instances of different agencies implementing projects with very similar objectives, and failing to realise that they are planning to work in the same institutions. If allowed to implement, there would have been duplication in IT resources, teacher training and teaching programmes. Lack of collaboration and communication can reduce impact and also waste resources.

Collaboration should be seen as an issue that is more than simply finding the right project partners. Collaboration should be seen as an issue that is bigger than simply finding the right project partners. It is a matter of life and death.

The Human Development Innovation Fund (HDIF) supports digital products that can bring services and information closer to women and girls, and make maternal and child health information systems possible, thereby improving access to quality basic services for women and their families. With access to mobile phones rapidly increasing in sub-Saharan Africa, many opportunities exist for mobile technology to help health care providers to save children’s lives through adherence to vaccination schedules.

Responding to the challenge, Amref Health Africa has adapted and deployed a mobile health application (app) called mVacciNation – Boresha Chanzo, a Swahili phrase that roughly translates to ‘to improve vaccination coverage’. The app enables health-care practitioners equipped with tablets or smartphones, to view and record patient vaccination histories, schedule upcoming appointments, and report on follow-up visits. Using the same app, health facilities are prompted to submit reminders with past and future vaccination dates.

Early in the mVacciNation roll-out, it was discovered that Vodafone’s data coverage in several rural communities was insufficient to transmit patient and stock data from the clinic site into the mVacciNation database. Despite the usual competitive challenges to mobile provider collaboration, the partnership was soon expanded to include Habitat, completing the necessary service area data coverage, and effectively completing the project’s proposed reach.

Collaboration from the beginning has been critical to achieving impact. PATH-BID’s Better Immunization Data (BID) health initiative is implementing an Electronic Immunization Registry (EIR) that contains childhood immunization and stock data at the service-delivery level in Tanzania. By sharing patient engagement methods and lessons learned, mVacciNation-Boresha Chanzo and PATH-BID have been working together in ways that benefit the communities they serve. For example, by adopting mVacciNation-Boresha Chanzo’s SMS reminder system, PATH-BID is helping to scale up immunization efforts and save the number of children being vaccinated throughout Tanzania.

Case study Amref Health Africa’s mVacciNation project

Although child mortality rates in Tanzania have vastly improved over the past thirty years, health innovations that seek to reduce stock-outs in childhood vaccines and improve timely, accurate and complete patient information for mothers and their infants remain a simple matter of life and death.

The Amref Health Africa (Amref) case study is the result of a partnership between Amref and the Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDGEC). Early in the mVacciNation roll-out, it was discovered that Vodafone’s data coverage in several rural communities was insufficient to transmit patient and stock data from the clinic site into the mVacciNation database. Despite the usual competitive challenges to mobile provider collaboration, the partnership was soon expanded to include Habitat, completing the necessary service area data coverage, and effectively completing the project’s proposed reach.

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As well as defining how the mVacciNation platform can contribute locally, Amref Health Africa is collaborating with others to understand how their work fits within Tanzania’s wider health landscape. For example, the project has strongly advocated for the integration of the mVacciNation platform into VIMS’s fence-toline sustainability and replication across all other districts in Tanzania in alignment with the government’s National e-Health Strategy (2013–18). In turn, the MoHCDGEC recognises the important role that the mVacciNation app can play in improving the accuracy of health information in Tanzania, allowing for timely assessments of nationwide disease prevalence without the need to conduct time-consuming and expensive site visits. Amref has been encouraged by the MoHCDGEC to scale-up the application to all health facilities in Geita and Shinyanga.

Amref’s mVacciNation app sends SMS vaccination date reminders to new mothers.

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NEXT STEPS FOR HDIF

HDIF will continue to gather learning around the other principles and across the health and WASH sectors. The results will be disseminated to stakeholders in Tanzania and globally, through platforms such as DIAL and through HDIF events, its website and social media.

HDIF has identified another priority issue for further exploration through the digital learning agenda. Insights gathered so far suggest that ‘inclusion’ as a wider concept has been largely missing from the Principles but is increasingly starting to appear in discussions related to the Principles for Digital Development. The impact of digital innovations on women, girls and other marginalised groups is also being explored through HDIF’s second learning agenda, which aims to better understand whether innovations are bringing positive impact to women and girls. The first HDIF White Paper on gender (linking innovation work for girls and women in Tanzania) can be found at www.hdif.org/gender. HDIF will continue pursuing learning on this topic.

In May 2018, HDIF will award a third cohort of education and WASH innovations. It is HDIF’s intention to develop a monitoring and evaluation framework based around the nine Principles that will track and measure how HDIF grantees use and work with the Principles over the project lifecycle. HDIF will share this learning with practitioners, policymakers and funders of innovation to deepen our collective understanding of how best to improve the use, scaling and adoption of digital technology in development in Tanzania.

ENDNOTES

10. Tanzania Communications Regulatory Authority https://www.tcra.go.tz/
11. www.innovate.co.tz
12. For more details on HDIF’s portfolio, see www.hdif-tz.org/portfolio

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The office at Shule Direct, a social enterprise that provides digital study tools for Tanzanian secondary school students.