

# Using digital tools at scale: the Integrated e-Diagnostic Approach in Burkina

Scaling digital interventions has been a problem in Africa with many promising small projects falling by the wayside once they move beyond the management of their instigators. Colleagues from the Ministry of Health in Burkina describe a project that is well on the way to being nationwide

Digital technologies represent the greatest opportunity to transform primary health care in Low- and Middle-Income Countries (LMICs). A recent study reported almost 150 projects in LMICs using mobile digital tools to support Frontline Health Workers (FHW).<sup>1</sup> The majority of projects focused on data collection, training and decision support, followed by other functions such as provider-to-provider communication, electronic medical records, behavior change communication, and supply chain management. However, despite the resources and energy spent on digital health in LMICs, only a fraction of the projects have achieved significant scale. Low scalability, fragmentation of donors and implementers, no interoperability between digital systems, and nonviable business models, are among the factors that undermine the potential of digital health in LMICs.<sup>2</sup> The study mentioned above identified only 11 projects with more than 1,000 users (out of the almost 150 active projects). Nowadays, many organisations entering the digital health space encounter huge challenges when trying to scale up their interventions beyond the pilot phase. This indicates the need to build digital health systems for scale from the start, complying with basic principles to maximise the chances of scaling up the intervention at national level.<sup>3</sup>

Terre des hommes (Tdh) started using ICT tools in Burkina Faso in 2010 to improve the delivery of primary health care (PHC) services. Over the last years the organisation has worked with the government and key stakeholders to build a scalable intervention that contributes to the digital health ecosystem in Burkina Faso. The journey from designing and piloting the tool, to scaling it up to almost one third of the country, has provided important lessons to Tdh, the MoH and other stakeholders. In this paper we provide a description of the intervention and reflect on some of the most important lessons we have learned along the way.

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## leDA background

Adherence to clinical guidelines contributes to quality of care, and decreased morbidity and mortality. In the case of the Integrated Management of Childhood Illnesses (IMCI),<sup>4</sup> developed by WHO and adopted by most developing countries,<sup>5</sup> only a low percentage of FHWs follow the clinical protocols.<sup>6</sup> The Integrated e-Diagnostic Approach (leDA)<sup>7</sup> was developed by Tdh, in partnership with the MoH, to overcome this problem by assisting FHWs during the consultation of children under five.

The digital tool is built on Dimagi's CommCare platform.<sup>8</sup> Using an existing digital platform allowed us to focus on the design of the digital tool rather than the platform itself, and comply with individual health data collection, transmission and storage regulations. In terms of mobile penetration, the situation in Burkina Faso is similar to other countries in the region. Mobile penetration was estimated at 78% in 2015, and network coverage was estimated at 85% in 2012.

leDA provides FHWs with a digital job aid for IMCI. Using a tablet device, FHWs fill in the information requested by the digital version of the clinical protocol, and obtain at the end of the process the recommended treatment and counseling according to the signs and symptoms of the child. The consultation data is synchronised with the server over the mobile network, and individualised reports are generated to support supervisory activities by district health teams. A set of indicators is sent automatically to the government's health information system (*Entrepôt National des Données Sanitaires*: ENDOS) for national-level monitoring. An eLearning platform to provide targeted training to FHWs was recently added to the suite of digital tools, and is now being tested in a few PHC facilities.

Today the intervention covers 620 rural PHC facilities, accounting for almost one third of the country. Over 3,600 FHWs have used the tool to date, to deliver 2.5 million consultations to children under five. FHWs use the tool in almost 8 of every 10 consultations they perform. The London School of Hygiene and Tropical



Medicine is performing an impact evaluation to understand the effect of the intervention on the performance of FHWs, the context and mechanisms that allow the intervention to have an impact, and its cost.<sup>9</sup>

### Working with the government from the start

Our hypothesis was that the tool would eventually be adopted by the government and scaled up nationally under the stewardship of the MoH. This influenced the way the intervention was designed and the engagement model with the MoH. From the initial concept and design phases, Tdh partnered with the MoH and, in particular, with the Chief Medical Officer (CMO) of the first district where the tool was piloted. The CMO provided critical input and leadership that shaped the design of the tool. A few years later, that CMO transitioned to the central level of the MoH, becoming one of the most important advisors and advocates for the scale up of leDA.

The transition of the innovation to the government is a complex process that requires time. Understanding how the innovation fits within the country's digital health strategy, the country capacities and financial resources (for data hosting, software management, future deployments, etc.), and planning to ensure a smooth transition to government stewardship and management is key.

### Use an iterative approach

Iterative approaches are especially important when developing digital tools. It is really hard to get it right before the launch, and thus, once deployed the product must be continuously adapted based on user feedback and other sources of performance data. The team worked with the software development partner, Dimagi, using a methodology based on intense testing, user feedback, and rapid development cycles. After the deployment of the first version, the development roadmap involved the release of five versions over the two years following the launch of leDA.

### Making the most out of data

Digital tools generate large amounts of data. We are going from a situation where data is scarce (in traditional projects), to a situation with digital tools in which organisations have to distill valuable information from big datasets. Information exploitation is often an afterthought in digital health projects, particularly in those focused on supporting FHWs. Organisations are initially laser-focused on getting the intervention to work, deploying it and scaling it up. They may later realise they are sitting on a trove of data that is underutilised.

In our case, each one of the 2.5 million consultations generates more than 250 elements of data. So, what should be done with that data? The impulse (often from all stakeholders) is to create busy dashboards showing the data in every possible way. Quickly one realises that in many cases data is not being used effectively by



health workers and managers, and that data visualisations do not respond to users' real needs.

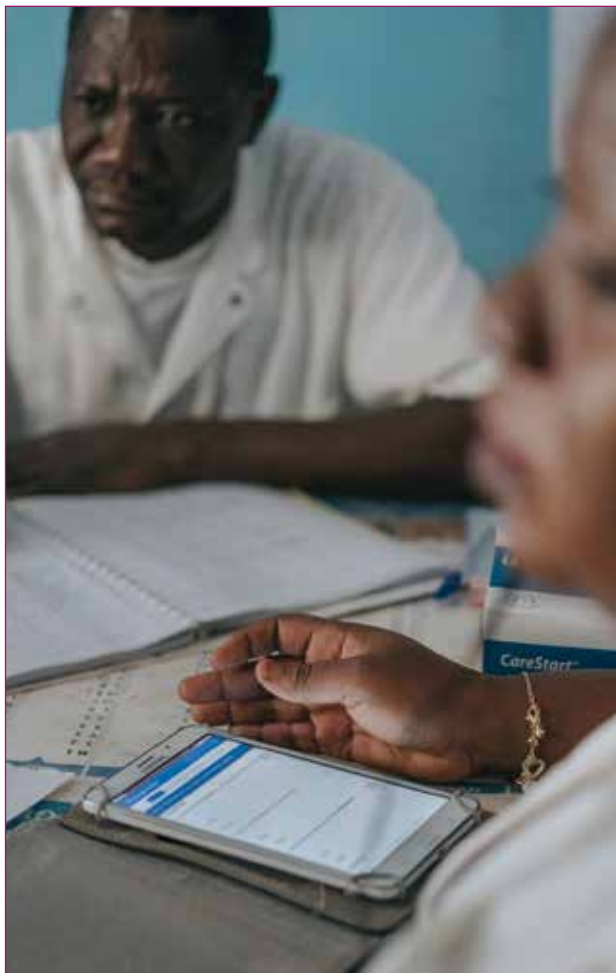
Understanding managers' incentives and responsibilities, and discussing with them what information could support their decision-making processes, is key to designing a strategy to improve the use of data. Once the initial tool is designed, iterative testing with feedback from the users, helps ensure data analysis supports decision-making. The process may reveal that less is more, and simple indicators linked to specific decision-making processes may be more effective than complex and busy dashboards. This is an area in which we can still do more.

Data ownership, privacy, hosting and interoperability with the country's health information platform are important issues that have to be defined from the start of the project. Using a software platform that complies with the highest standards in individual and aggregated health data collection, transmission, storage and use, is critical. In our case, the platform we chose was already compliant with those standards.

### Acceptability from users and caretakers

Digital health applications can generate a significant disruption on the way work is organised and the culture of the organisation. A new ICT tool may require the reorganisation of PHC services or patient flows, and will likely make the PHC facility and FHW performance easier to assess. This might generate some resistance to change by FHW and managers, even more so if they are unfamiliar with digital systems.

As an example, during the initial roll out of leDA three years ago, there was a wave of opinion against the intervention among FHWs, stating that it generated an increase in workload and no significant benefit (also seen in other digital health projects).<sup>10</sup> The absence of a financial incentive probably fueled this perception by FHWs. These opinions were addressed through quality improvement and coaching sessions, which were used to provide advice on how to best use the digital tool, discuss issues and obtain feedback from FHWs, and assess the performance of FHWs when using the digital job aid. The field officers conducting these sessions were former FHWs, which strengthened their relation-



ship with facility staff. These field officers also worked with CMOs to ensure institutional buy-in.

Other interventions helped foster adoption, such as providing performance data through the tablet device to FHWs, as well as key statistics on the consultations made at each PHC facility. Given the amount of time spent by FHWs on reporting,<sup>11</sup> availability of aggregated data also creates an incentive to have all consultations recorded in leDA.

Today the tool is widely accepted by FHWs, and used in almost 80% of all consultations. Some FHWs have started to express the need to expand leDA to other areas such as immunisation or malnutrition. AleDIA (Alliance for E ICMI Diagnostic) is born during a non-official side event at the World Health Assembly. Indeed, together with World Vision and Action Against Hunger, Tdh is currently working on an improved integrated E Diagnostic with the CMAM protocol included. In some other cases, FHWs (especially the youngest ones) express their unwillingness to go back to paper based IMCI. At the district level, there has been one case in which a CMO, from a district outside the intervention zone, asked to implement leDA using the district's resources.

Tdh also carried out awareness activities at the community level, involving elected officials and traditional leaders. Interviews and focus groups with caretakers in the context of the ongoing realistic evaluation found a

high acceptability by the population. Quotes from those conversations highlight the perception that leDA is improving the ability of FHWs to diagnose and treat their kids, and to find the information from previous consultations ('With the application, there is no lie or error in the diagnostic'). In some cases, caretakers even request FHWs use the digital tool, because of their perception of improved quality of care.

### Discussion and conclusion

When we started developing leDA one of our primary goals was to demonstrate an ICT intervention could improve FHW's adherence to clinical protocols when deployed and managed on a large scale in rural Burkina Faso. The high coverage we have achieved (one third of the country, and plans to reach half of the country in the next couple years mainly thanks to the support of the Global Fund), and the strong uptake of the intervention by FHWs (almost 80% of all consultations), show the potential of our approach.

During the past few year we have learned many lessons, as outlined above. Some of the things we did worked well, and some are still challenging. We are constantly trying to increase usability and effectiveness of the digital tool (including through point-of-care diagnostics or big data analysis approaches). Performance data, feedback from users and beneficiaries, scalability, and our engagement with the MoH, will continue to drive our development work.

We hope our experience in Burkina Faso will help understanding of how to scale up and sustain digital health interventions in LMICs.

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