

► **Digitizing health campaigns improves outcomes (even beyond the campaign):**  
HERE'S WHAT IT TAKES



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Mosquito nets are distributed as part of the nation's first digitized mosquito net distribution since the COVID-19 outbreak began in Cotonou, Benin on April 20, 2020. CRS supports community health workers to provide early diagnosis and treatment of malaria in remote communities while digitizing the distribution of mosquito nets to more quickly end malaria in these communities.

*Hugues Ahounou/CRS*

# Introduction

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A complement to routine services, health campaigns often achieve high coverage of high impact interventions like immunizations, insecticide treated bed nets (ITNs), and treatment for neglected tropical diseases. Health campaigns have been a key approach deployed in bringing Polio to the brink of elimination<sup>1</sup> and have also dramatically increased availability of ITNs,<sup>2</sup> helping to decrease malaria.<sup>3</sup> While health campaigns achieve relatively high cost-effectiveness,<sup>4</sup> they represent a substantial investment of time and other resources. Health actors invest hundreds of millions of dollars annually for health campaign activities and routine services can be disrupted as health workers concentrate on campaigns. Ensuring successful campaigns is critical to achieve sought-after health outcomes, supporting overall health system optimization and achieving universal health coverage.

Digital tools present a key opportunity to maximize the impact of health campaigns. Digital platforms, such as District Health Information System 2 (DHIS2), revolutionized routine care, offering health systems more complete and timely data and enabling improved analysis of health priorities, strengthened monitoring and response, and greater efficiency.<sup>5</sup> Digital approaches can improve the impact of the campaign, and if done

strategically, also boost the success of future campaigns and other health system aims.

Catholic Relief Services (CRS) is a leader in health campaign digitization in Africa and has supported successful digital campaigns in Benin, Burkina Faso, Guinea, Mali, Nigeria, and The Gambia. Based on our experience, CRS recognizes that technological solutions – such as phones, charging systems, cloud storage solutions, machine learning algorithms, etc. – often receive much of the focus in digitization projects. While the technological solutions are an important element of digitization, our experience shows that the right technology is not all that is needed.

Campaign digitization success comes when the digital solution enables the campaign to deliver services to more people and with greater quality. But the true success of a digitization effort emerges when the health system leverages the data and new processes for continued improvements in the campaign and beyond. A well-executed campaign digitization will be the springboard for more data-driven decision-making and more efficient health systems management. Here, we propose a set of multi-dimensional pillars for campaign digitization efforts to achieve improved health outcomes, even beyond the campaign's scope.

*"Now we have a way to know a bit what is happening everywhere. We know that coverage is real and we will have the impact on morbidity and mortality that we expect."*

– Benin decentralized health leader

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<sup>1</sup> [Losey et al.](#)

<sup>2</sup> [Masaninga et al.](#)

<sup>3</sup> [Kyu et al.](#)

<sup>4</sup> <https://campaigneffectiveness.org/why-campaigns/>

<sup>5</sup> [Manya et al, 2012, Jinabhai et al, 2021](#)



# Pillars

CRS proposes that digitization efforts need six core elements to generate optimal benefits to the health system. As shown in the figure to the right, these are 1) local ownership; 2) partnership; 3) alignment to health system; 4) adapted technology; 5) support for data use; and 6) change management. Each of these elements is described in more detail below.



## Local Ownership

A well-documented pitfall of digital efforts is a lack of sincere commitment from local government.<sup>6</sup> Without local ownership, the digitization effort will be reliant on an external partner (or donor) and likely will not continue beyond the life of the project nor ‘spillover’ to other aspects of health system. Ideally, the Ministry of Health (or another, high-level government entity) requests the digitization of the campaign and identifies other actors to help put it in place.

Where the drive for digitization is external (for example from a funding agency or another partner), the initial digitization team will need to advocate with the government secure their ownership of the digitization process. Ideally, the highest levels within the Ministry of Health will champion the digital solution so that the benefits of the digital investment have the greatest potential to benefit the health system. Securing commitment from high-level actors to own and drive the digitization process may take time and diplomacy but is essential to reaping the full benefits of the digital effort.

*"The solution has to be based on local knowledge and actors to help with acceptance. If everything was foreign, we would resist."*

– Benin decentralized health leader

Once the government has taken ownership, they should help to put in place a capable team comprising strong local expertise and technical assistance providers as needed. An external organization supporting digitization may support the government to create a transition plan outlining the transfer of digital competencies to government counterparts through training, coaching, and accompaniment. The transfer of competencies may also require structural or staffing changes within the government – such as the creation of new positions, teams, or relationships.

<sup>6</sup> Gavi and UNICEF, 2020





Mosquito nets are distributed as part of the nation's first digitized mosquito net distribution since the COVID-19 outbreak began in Cotonou, Benin on April 20, 2020.  
*Hugues Ahounou/CRS*



# Partnership

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Health campaigns include a range of stakeholders, including Ministry of Health decision makers, central campaign planners, decentralized health leadership, health facility personnel, community health workers or volunteers, actors throughout the supply chain, donors, technical assistance providers, evaluators, and many others. Mapping the stakeholders and understanding who they are, their work and their priorities is foundational to proposing a viable digital solution. The digital solution must offer benefits across a range of health system stakeholders – for example, it should ideally make the work of front-line personnel easier while providing requested data to decision makers and campaign planners. A detailed understanding of the myriad stakeholders, their priorities and challenges is essential to being able to design a successful digital solution. The digitization team should therefore include someone with solid understanding of health systems and campaign operations to support stakeholder mapping and engagement in an inclusive process to design the digital solution.

*"Our best approach would be to help to support them from behind."*

– CRS team member

In addition, often, the organization supporting digitization is playing just a small role on a much broader campaign team. Decisions on campaign timing, protocols, personnel qualifications and payment terms, data access protocols, and other critical aspects of the campaign are likely to be made by other campaign actors. However, these decisions have important implications on the design and ultimate success of the digital solution. Because the digitization team is just one member of the system, it should work to engage other key campaign stakeholders—especially the campaign coordination committee—as partners in the process so that the digital tools align to the campaign protocol and ultimate goals. The digitization team may need to engage with multiple committees, workstreams or technical working groups to understand their priorities. The seven elements below are essential parts of this partnership.

## 1 2 3 4 5 6 7

Creating a shared vision around improved coverage or another identified priority can be beneficial.

Embracing the idea of mutuality – that is recognizing that each partner brings skills, resources, knowledge, and capacities.

Respecting differences and committing to listen and learn from each other.

Spirit of continuous improvement, with partners proposing ideas and offering constructive feedback along the way.

Mutually defining rights and responsibilities.

Encouraging transparency regarding capacities, constraints, and resources.

Striving to make decisions at a level as close as possible to the people who will be affected by them.

A [partnership-based approach](#) requires a distinct skill set. The digitization team should include someone well versed in partnership approaches who can serve as the interface with key stakeholders, especially the Ministry of Health and the campaign organizers. CRS' experience has also shown that digitization efforts can bring new stakeholders to the table, which challenges existing processes, and may bring together stakeholders that may not be

experienced working together – such as a malaria team within the Ministry of Health with a statistical agency or technology unit outside the Ministry of Health. In these cases, partnership and stakeholder engagement skills are even more important; the digitization team may need to navigate challenging power dynamics and facilitate effective partnership to keep the digitization effort on track.

# Alignment to Health Systems

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Three of the key principles for digital development are to design from a needs perspective, to design with the user in mind, and to understand the existing ecosystem.<sup>7</sup> Successful digitization begins first and foremost with familiarity with the health system (and campaign) priorities, operations, and challenges. For sustainability and ownership, the digital solution should fit within existing processes and protocols as much as possible. A more streamlined approach will not only reduce burden on other actors to accommodate the digitization but will also increase the likelihood that the campaign digitization will have spillover effects to other aspects of the health system

(such as other campaigns or even routine services). Accordingly, it is important for the digitization team to have personnel who understand health campaigns and health systems and who can work closely with health systems and campaign management stakeholders throughout solution development. A digitization team that comes to the table with a strong understanding of health system and campaign operations and who engages the health system and campaign stakeholders actively throughout design will be more likely to create a solution that is fit-for-purpose and uncover additional opportunities for further improvements.

The Onchocerciasis mass drug administration campaign in Benin was implemented by a volunteer workforce that received a stipend that was a small fraction of what the ITN campaign distributors received. As a result, the campaign management had reservations about applying all of the workforce management tools used during the campaign to the volunteers. While the team ultimately piloted (and adopted) the full suite of tools, lots of discussions about workforce, protocol adherence, volunteer expectations, and accountability were necessary to reach the decision. This experience underscored the importance of taking the time to understand the specificities of different campaigns and customize solutions to meet unique needs. There can be important differences between how campaigns are executed—even within the same country—which can impact the features needed from a digital tool.

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<sup>7</sup> <https://digitalprinciples.org/>



# Adaptive Technology

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Once campaign and health system priorities are thoroughly understood, the digitization effort can propose a suite of digital solutions that respond to priorities identified by various stakeholders—from frontline personnel to decision makers to donors. The digitization package must consider hardware, software, and consumable needs as well as digital literacy. Hardware includes devices (like tablets or phones), chargers, charging stations, data servers, etc. Software needs include the data collection app, device security apps, secure data storage systems, user dashboards, geographic information systems and more. Standard platforms can be used for many software needs, but likely need to be customized to the campaign or country based on the stakeholder mapping. Consumables include airtime and data vouchers. In line with the principals for digital development, open approaches should be prioritized.<sup>8</sup> To complement the tools, actors at various levels will need the digital literacy skills necessary to use the resources.

As digital health solutions become increasingly common, harmonization considerations are critical to hardware and software decisions. It is inefficient, especially at decentralized levels, to juggle multiple, incompatible systems. Front line workers should not be burdened to learn several distinct applications and it is costly to purchase new hardware for every activity. As discussed

previously, higher level local ownership and a strong partnership-based approach are critical to drive decisions on technology solutions that are compatible with existing local systems and can be leveraged for multiple purposes. While some customization will always be needed, standardization of foundational hardware and software decisions at the highest possible level within the health system will bring efficiencies. In keeping with digital development principles, the system should be designed for both scale and sustainability.

It is critical that the system be as simple as possible and appropriate for the local context. For example, where access to power will be a challenge, then solar charging stations are likely needed. Likewise, if network connectivity cannot be assured then the system should offer the ability to work offline and sync later from designated sync spots. Ideally, the digital solution will also interface with the national health information system (such as DHIS2) to avoid creating parallel health information management tools.

Our experience suggests also that it is more effective to design a single integrated interoperable end-to-end system, with various interfacing components rather than digitize individual components (see Figure 2 on the following page).

*"We need to think about how to address low literacy and digital literacy, and also think about language because many [front line workers] cannot read and write in French."*

– CRS field staff

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<sup>8</sup> <https://digitalprinciples.org/>

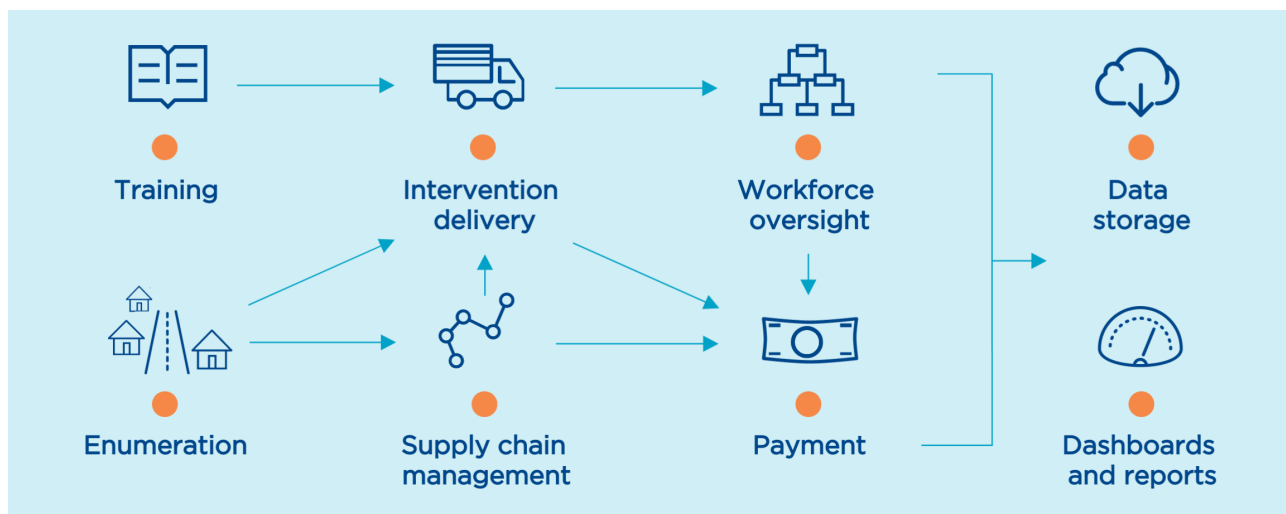


Figure 2: An end-to-end integrated system considers all aspects of a campaign that can benefit from digitization and designs them with interoperability. This is more effective than introducing standalone solutions, such as mobile money for worker payments alone, or an independent logistics management solution.

Planning for the digital solution typically takes at least six to twelve months. This timeframe accounts for design of the system in consultation with local stakeholders, procurement and importing necessary inputs (hardware and software), device and software configuration, device logistic arrangements (device security, warehousing, dispatch, reverse logistics, and insurance) and development of training materials. In addition to technical skills, the digitization team will need project management experience to manage complex timeline dependencies.

*"We were doing attendance manually, so the digitization system made this more streamlined. Before, the time to validate payment data took forever. Mobile money helped, but then with the full digital solution, payment processing went from 21 days to just 10 days."*

– Benin campaign technical assistance provider

## Data Use

Digital solutions offer several benefits, but most stem from greater access to better data. The benefits of this improved access are only realized, however, if the data is used. Digital campaign designers typically consider the data needs of the campaign organizers, health decision makers, and donors. However, data from health campaigns also holds immense potential to benefit other health systems

stakeholders, including front line workers, decentralized decision makers and other campaign planners. More local use of data can help drive ownership and novel solutions to priority local health opportunities. Data available from digitized campaigns can also support evidence-generation and research and drive innovations (see box on page 12).

While stakeholders may want to capitalize on digital tools and dashboards to include a lot of data fields, it is important to manage complexity (which comes at a cost) and balance interests across stakeholders. Even though the system may be able to generate a lot of data, focusing on the most useful data will improve the overall system efficiency.

*"We have a tendency to collect too much information, to add and add. We need to make sure we're focusing on need-to-know not nice-to-know to the point where we are inundating the system with too much information. We need to confirm that the data collected will be used."*

– CRS manager

Data ownership and data security are also important elements to consider and stressed by the Digital development principles. Data needs to be secure and protected from interference. Health campaign data sets typically contain a lot of personally identifiable information and stakeholders are rightly concerned about who will have access to what information and for what purpose, and how personal information will be safeguarded. Data belongs to local health systems, who should have ownership and control over it. However, as data privacy is an emerging area, digital campaign teams may need to support local governments to think through risks and solutions to ensure data is housed appropriately and used as intended.

For data to be leveraged, the right people need the right skills to ask the right questions, analyze the data, and act on the findings. Digital development principles stress the importance of

quality information reaching the right people when they need it so that they can use it to take action. Digitization teams should include expertise in a variety of data use skills, including database management, data security, data analysis, creation of simple data tools like dashboards, and building capacity in data demand and information use. Digitization efforts should include substantial investments in transferring data capacities to stakeholders across the health system, because it is only through the application of digital data that the full benefits of digitization can be realized. Transferring data capacity effectively will require a range of approaches, including:

- Capacity building approaches like training and mentorship that will strengthen skills of individuals at various levels (including frontline workers) to access and use data.
- Institutional strengthening approaches which include working with the health system to determine what structures, personnel, policies, infrastructure, etc. are needed to maximize use of data (from digital campaigns and other sources). From these needs assessments, plans can be developed to strengthen the enabling environment for data use, and technical assistance offered to achieve goals.

*"When it comes to digitization, we need training, training, and more training, both on the use of the digital system and the analysis of the data. We need to increase our uptake of the data for decision making."*

– Department Director of Health, Benin



## Potential of Campaign Data

### Campaign management

- Increase coverage through real time ID of missed areas
- Improve quality with built-in checks to support campaign protocol adherence
- Improve workforce management with better understanding of work hours and time spent in transit and delivering services
- Facilitate supervision by prioritizing workers and areas experiencing challenges
- Increase fraud detection and prevention

### Local decision-making

- Improved understand of labor force, workload, activities, and results
- Improved access to high quality, robust and accessible population data that can be used to plan future campaigns and routine interventions
- Improved analysis of patterns of missed populations so local solutions can be found

### Research

- Improved access to high-quality robust data that can facilitate understanding of impact, cost-effectiveness, etc., and drive recommended strategies



# Change Management

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Introducing a new approach to a well-established and familiar activity is a real challenge that should not be underestimated. Even when there is buy-in for a new approach, inertia and resistance will exist. For many stakeholders, it will be easier to maintain the status quo; learning and adopting a new system takes a lot of investment of stakeholders' time and mental energy. Also, there may be legitimate hurdles to change, such as budget cycles needed to change staffing structures, or limited flexibility to adjust timelines to accommodate digitization pre-requisites. Some actors may also be profiting from a lack of efficiency or transparency.

*"There is a learning curve, but you will get over and you will learn to like it."*

– Benin frontline campaign worker

Even when stakeholders were consulted and their needs were considered in designing the digital solution, the energy needed to change may seem like too large a hurdle for the expected benefits. In addition, there are often tradeoffs among stakeholders and the digitization may not benefit everyone equally (see page 14). From our experience, another challenge is that digitization may offer substantial benefits, but to challenges which stakeholders were not aware existed (or existed at such a scale) or did not consider their top priority. Ultimately, the benefits of digitization accrue at the system level and build over time, so individual stakeholders often initially undervalue the benefit to investment ratio. For example, it is only after the campaign that the

power of the data becomes fully evident and campaign planners see additional value in using data for future campaign planning. In addition, greater digital literacy at all levels from frontline workers to decision makers can lead to spillover benefits.

*"Digitization showed us that there was fraud and malpractices that we weren't aware of. Before, we did not have such good means of verifying what happened on the ground and had to trust the paper version."*

– Benin central campaign manager

It is important not to underestimate the time and diplomacy needed to generate buy-in for (or at least acceptance of) the process changes associated with adopting a digital approach. This is a unique skillset, and project teams should include personnel with change management expertise and responsibilities to complement partnership and project management skills.

*"I was at first skeptical, but with time I came around. I followed it directly through personal experience and to do an analysis to understand that these were real data even if they weren't pretty. Otherwise I wouldn't be convinced."*

– Benin decentralized health leader



## Tradeoffs create change management challenges

In Benin, CRS supported the digitization of the ITN campaign in 2020 and the Seasonal Malaria Chemoprevention campaign in 2020 and 2021. The 2020 ITN campaign had generated an extensive dataset with information about household composition nationwide. For the 2021 SMC campaign, CRS supported a health campaign management software that would update the existing dataset rather than repeat the enumeration process by recollecting and re-entering information. This partial integration allowed the SMC campaign to shorten the enumeration step, saving time and money. However, some SMC stakeholders were concerned that relying on existing data could undermine the quality of "their" data or negatively impact intervention coverage. Also, front line workers rued the loss of paid workdays. A few challenges during the initial deployment of this new system undermined some stakeholders' confidence that the digital solution was in their best interest.

This example underscores the importance of managing tradeoffs and generating buy-in for new systems. In

this case, cost and time savings were gained (which are important for donors and some campaign managers), but at the expense of complete control over a dataset built from scratch for the SMC campaign (which is important for decision makers and some donors) and income for front-line workers (which is important to the front-line workers).

Unfortunately, despite the existence of the digital database, some subsequent community health activities in Benin have undertaken their own enumeration, a further testament to the challenges of the long path to create widespread buy-in for digital data. This example underscores the importance of managing tradeoffs and generating buy-in for new systems. In this case, cost and time savings were gained (which are important for donors and some campaign managers), but at the expense of complete control over a dataset built from scratch for the SMC campaign (which is important for decision makers and some donors) and income for front-line workers (which is important to the front-line workers).

# Conclusion

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Successful digitization takes a multi-faceted team! The process of digitizing health campaigns is complex, and requires a variety of skills and ample engagement and time. However, the potential for digital approaches is enormous. Digital campaigns can lead to higher coverage through improved adherence to campaign protocols, prompt data use and real-time adaptive management to identify and remediate teams experiencing challenges, to reach missed areas, and also provide operational benefits like improved payment systems. Data from digital campaigns on population figures and location can also be used for other purposes like forecasting medication needs, making human resource decisions, and more, all of which can further benefit the health system and the population it serves. However, achieving these benefits depend on the digital solution being

*"I would definitely recommend digitization to other planners. With the digital economy and technological modernization, it is the future."*

– Benin Central Campaign Planner

accepted and deployed effectively, and local actors capitalizing on the data. This takes more than just technological know-how. Strong local ownership, a partnership-based approach, alignment with the health system, adapted technology, support for data use and attention to change management are essential for maximum impact and can take time and energy. Campaign actors should consider all six of these pillars in their budgets and plans.



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