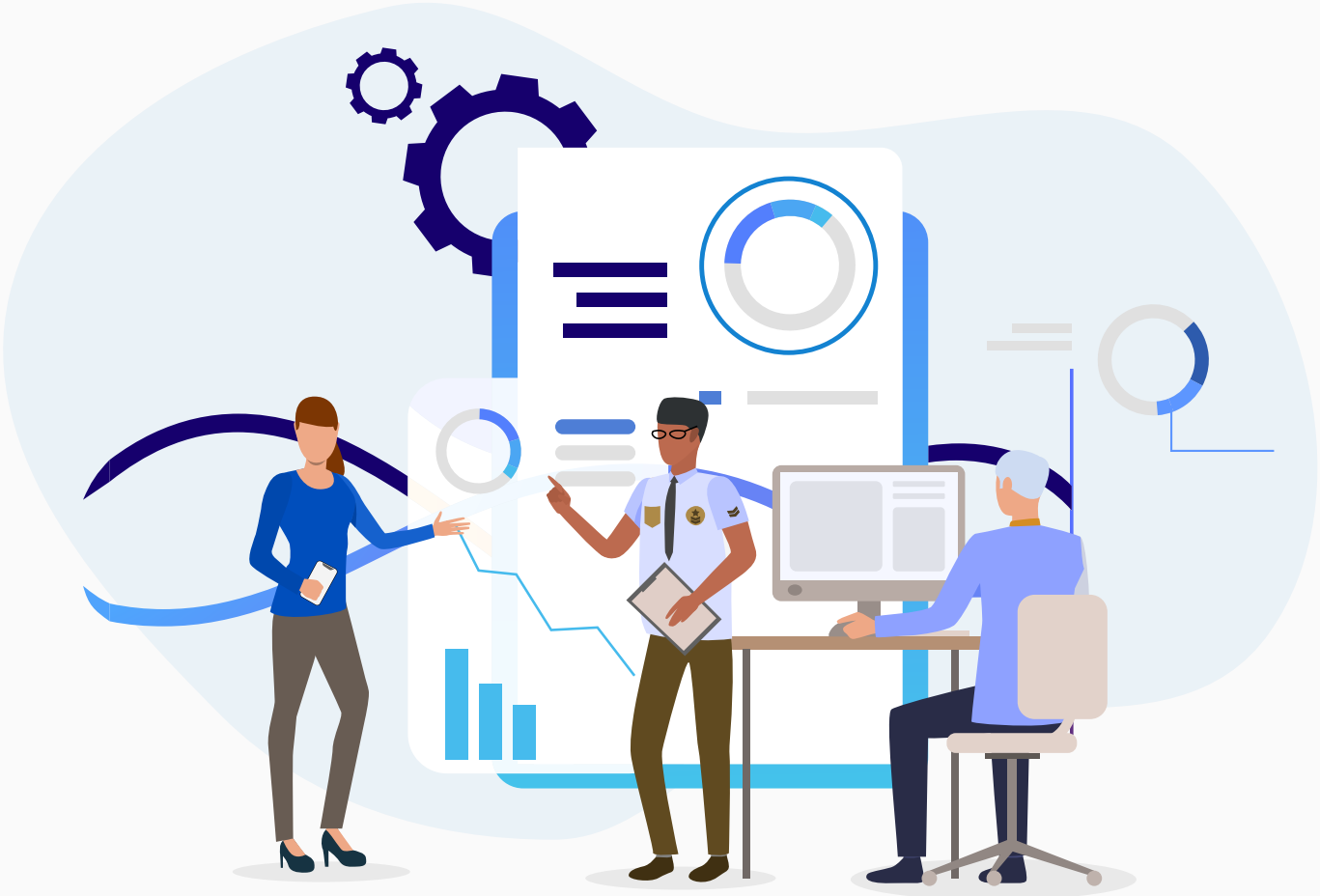
dimagi

Creating Sustainable Digital Health Systems with CommCare and DHIS2



Creating Sustainable Digital Health Systems with CommCare and DHIS2

Data is the fuel that powers your digital health system. It enables a Ministry of Health (MoH) to analyze and report on indicators. It allows donors to assess the impact of funding. And it empowers Information and Communication Technology (ICT) teams to deliver on stakeholder needs. But data is powerless if it is not accurate and up-to-date.

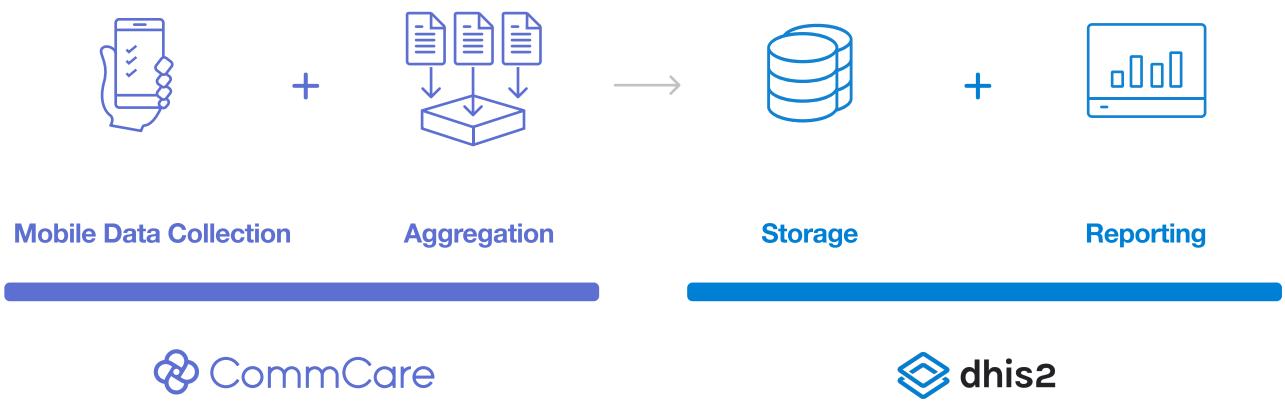
Digital Health Data Pipeline

Mobile Data Collection | Aggregation | Storage | Reporting

When creating a digital health system, data pipelines are your key to accurate and fresh data. A well built data pipeline enables you to capture trusted community-level information and aggregate it for both routine reporting and ad-hoc analysis.

Teams around the world leverage CommCare and DHIS2 together to create best-in-class digital health pipelines. Unlike any other solution, CommCare seamlessly integrates frontline decision support with routine data capture, resulting in both improved service delivery and more accurate data. The CommCare platform then integrates directly with DHIS2 to feed community-level health data into your MoH's reports.

1 How CommCare and DHIS2 work together



CommCare and DHIS2 are today used around the world to create end-to-end data pipelines, from remote data capture through district and national-scale reporting.

Each platform plays a critical—but different—role in your digital health system. CommCare provides a best-in-class solution for mobile data collection and aggregation, while DHIS2 acts as your database for storing aggregated data, as well as monitoring and reporting on key indicators.

Mobile Data Collection

Your solution to data collection must feed your pipeline with trusted information, and it must be reliable when used at any scale, be it a few distributed field teams or thousands of community health workers (CHWs) capturing data offline.

CommCare exceeds both these requirements in two fundamentally unique ways:

1. More trusted data

By integrating service delivery and data capture workflows, CommCare's mobile application enables CHWs to collect health information in real time, as frontline services are delivered. Doing so results in a step change in the quality of data entering your digital health system.

In contrast, collecting data with other tools can segregate data capture from service delivery efforts. Low-literacy CHWs are required to enter complex health information directly into a database, often retroactively via manual digitization of paper notes. This process results in exponentially more data errors and a less reliable flow of information into your digital health system.

2. Greater reliability at every scale

CommCare is the world's most widely adopted solution for offline mobile data collection. Every aspect of the platform, from the mobile application through integration with DHIS2, is rigorously tested and supported by Dimagi's team of developers and support engineers.

45 million	1 in 110	1 in 50
Forms are Collected in CommCare on a Monthly Basis	Births Globally Are Tracked in CommCare	Malnourished Children Globally are Tracked in CommCare.

The evidence is in CommCare's global adoption: as of 2019 more than 2,000 programs had deployed CommCare in 80+ countries to capture community-level data and deliver better last-mile services. What's more, 60 independent studies have confirmed CommCare's positive impact on digital health systems.

The CommCare mobile application is uniquely positioned to elevate the value of your program and help you achieve impactful results. Our mature mobile application has been designed from the beginning to enable frontline workers and their workflows, and it has evolved over time with sophisticated features that reinforce this value.

The following table outlines how CommCare reinforces data quality, mobile application administration, and the reliability for your program

CommCare Mobile	
Quality of data captured on the mobile app	CommCare's seamless integration of data capture and service delivery results in a step change in the quality of your data: • For digital health systems, the flexibility to support all frontline workflows with one application ensures data is captured accurately and in real time. • CommCare's mobile case management programmatically aggregates raw survey data with tracked entities and health indicators, all with no manual effort required.
Mobile app administration	CommCare streamlines the work of digital health system administrators by enabling them to easily build and maintain mobile data collection apps via a self-service web portal. CommCare also empowers teams to monitor CHW usage of mobile applications and inspect data captured in the field. Extensive documentation and a robust user community further contribute to the platform's overall supportability.
Mobile app reliability	In use for over 15 years, CommCare is a mature application trusted by more than 2,000 projects at every scale of digital health intervention, from single communities to nationwide health systems. Dimagi rigorously tests every release of CommCare for reliability, and the mobile application is fully supported by Dimagi's engineering team. Furthermore, CommCare's enterprise-grade data and user management features ensure end-to-end security of your system.

Aggregating your data

Raw data collected by CHW teams must be aggregated before it can be used by reporting tools like DHIS2. The CommCare platform automates this process with built-in workflows that transform raw data into aggregated fields.

Today, Ministry of Health teams in countries from Mozambique to Madagascar, Malawi, and Burkina Faso rely on CommCare's aggregation workflows to transform their community-level health data for use in DHIS2. These data pipelines benefit from a three-part workflow:

CHWs capture health data while delivering frontline service with CommCare's mobile application.

Automated workflows in CommCare's backend transform raw CHW-collected data into aggregated fields that align with top-level health indicators.

CHWs capture health data while delivering frontline service with CommCare's mobile application.

Integrating your data collection and reporting platforms

Mobile Data Collection | Aggregation | Storage | Reporting

CommCare | dhis2

You need to be incredibly confident in the integrations that underpin your data pipeline. Dimagi's Solutions team ensures you have this confidence via 1:1 integration support for the digital tools in your system.

What is Dimagi's Solutions team?

Dimagi's Solutions team is an in-house ICT consultancy that works with you to design and build technology solutions for your digital intervention. Engaging the team gives you access to:

INTEGRATION ENGINEERS

Integration engineers who have delivered dozens of successful digital health system integrations. Dimagi's engineers will build and optimize your CommCare—DHIS2 integration to meet your system's specific requirements.

PROGRAM MANAGERS

Program managers with decades of project management experience. This team works closely with both technical and non-technical stakeholders to ensure your integration is delivered on time and to your exact standards.

With over 15 years of experience in digital health systems, Dimagi understands that each ICT team has different internal capacity and requirements. With this in mind, the Solutions team offers two engagement models to support your CommCare—DHIS2 integration:

- ✓ **As an end-to-end service**

  This engagement includes scoping, execution, and QA. CommCare—DHIS2 integrations built as part of an end-to-end engagement are typically delivered in three months or less.

- ✓ **As a technical advisory service**

  If your internal capacity enables you to develop technical integrations in-house, Dimagi's team acts as an advisor to ensure your integration is successful. Advisory service engagements are tailored to your program's specific timeline.

A best-in-class data pipeline

Building your digital health system with CommCare and DHIS2 gives you and your stakeholders a reliable end-to-end solution, from mobile data collection through reporting.

Once deployed, these CommCare—DHIS2 pipelines deliver a wide variety of benefits:

- ✓ **Trusted and actionable data**

  CHWs use CommCare's mobile application to simultaneously capture community-level data and deliver frontline services. CommCare then programmatically aggregates this raw data for use in DHIS2.

- ✓ **Reliable integrations**

  Dimagi's Solutions team ensures the integration between CommCare and DHIS2 meets your system's exact requirements.

- ✓ **Scalable operations**

  Both CommCare and DHIS2 are proven to deliver impact in digital health systems at every scale, from single districts through national-scale systems.

CommCare dhis2

2 Evaluating the sustainability of CommCare — DHIS2 digital health systems

When delivering digital health solutions for government stakeholders, it is critically important that you have an accurate understanding of the costs and benefits of your solution. Building out your data pipeline with mobile data collection is no different. Your evaluation of data collection platforms needs to include a holistic cost-benefit analysis of the available tools.

When conducting this cost-benefit analysis, it's important to consider two separate factors:

Hard Costs

The "sticker price" of your data collection software. For freely available open source platforms like CommCare and DHIS2, hard costs account for only a small portion of your overall IT budget. These costs are driven by hardware requirements when hosting locally, or subscription fees for cloud-hosted deployments.

Soft Costs

The indirect costs associated with deploying data collection software, which will account for the majority of your ICT budget. Soft costs are largely driven by the staffing required to set up, maintain, and support your mobile data collection solution. Other soft costs include CHW training, as well as data cleaning and auditing efforts.

Hard Costs

HOSTING YOUR MOBILE DATA COLLECTION PLATFORM

"BOTH COMMCARE AND DHIS2 OFFER FREE, OPEN SOURCE SOLUTIONS TO MOBILE DATA COLLECTION THAT CAN BE LOCALLY HOSTED"

However, one-size-fits-all solutions rarely lead to true sustainability. It's important to have deployment options for situations in which your stakeholder's IT capacity, operational budget, and data governance needs do not align with full local hosting of software platforms.

CommCare is available in a wide range of deployments—from full local ownership to cloud hosting to software-as-a-service—giving you the flexibility to deploy a solution that meets your stakeholder's needs.

CommCare's Hosting Options

	Local Hosting	Hybrid (local DB, cloud hosting)	Virtual private cloud	Public cloud	Fully-hosted SaaS
Where is it hosted	Your Local Server	Data available locally, rest of infrastructure in secure cloud	Your choice of VPC provider	Your choice of public cloud provider	Dimagi's secure cloud infrastructure
What are the costs?	You pay for hardware procurement	Monthly subscription fees	You pay cloud server fees	You pay cloud server fees	Monthly subscription fees
Who configures it?	Your choice. Dimagi or your ICT team can configure	Data access locally, Dimagi manages cloud services	Your choice. Dimagi or your ICT team can configure	Your choice. Dimagi or your ICT team can configure	Dimagi fully manages the service

Soft Costs

THE TRUE IMPACT OF MOBILE DATA COLLECTION

Whether locally hosting your software or leveraging cloud services, deployment is just one part of the cost-of-ownership equation. In practice, the soft costs of your data collection solution have an outsized impact on long term sustainability.

To understand soft costs, weigh the investment required to set up and operate your mobile data collection platform against the returns your stakeholders will see.

During System Startup

$ Investment required

ICT effort required to set up your data collection platform, from mobile application design, build, and deployment through training costs for frontline CHWs.

✓ Return delivered

Immediate impact on data quality and freshness, including the effect on CHW adherence to data capture protocols and overall reliability of your data collection efforts.

During System Operation and Scale

$ Investment required

ICT effort required to maintain and update mobile applications, as well as ongoing support for CHW data collectors and data auditing.

✓ Return delivered

Impact on the time and cost of cleaning raw data, effects on the support burden of CHW data collectors, and impact on an MoH's ability to utilize community-level data for district and national-scale reporting.

While there are many options for collecting community-level data, each product results in very different startup costs and downstream impacts to your digital health system. Use the table below to understand the soft costs—and returns—of deploying mobile data collection with CommCare

CommCare Mobile	
App setup + maintenance	CommCare's self-service web portal is designed for efficient application building, and minimizes the time—and therefore cost—ICT teams must invest to design and test their mobile data collection apps. The web portal also enables system admins to quickly make changes to data collection apps and deploy updates to field teams, which vastly reduces ongoing system maintenance costs. Additionally, Dimagi's support team can work with you to build and deploy your app, while extensive online documentation provides another level of self-service support, thereby reducing overall setup costs.
CHW training + support	CommCare's mobile application is purpose-built for low literacy users and CHW teams need very little training to begin collecting accurate data with CommCare (a recent study demonstrated a 75% reduction in CHW training time with CommCare). This ease-of-use enables teams to minimize the cost of deploying their mobile data collection solution to frontline teams.
Data quality	CommCare's mobile application deeply integrates both case management and decision support functionality into data capture workflows. This seamless integration enables CHW teams to capture data during service delivery, ensuring your data pipeline is populated in real time with incredibly accurate data. **Read more** about CommCare's impact on data capture.
Platform reliability	CommCare's proven technical reliability delivers dividends: the platform's rigorously tested backend infrastructure and frontend interface give you confidence that your stakeholders will not have to invest time and burn budget troubleshooting software issues. Importantly, this also means your stakeholders won't need to re-engage Dimagi or other 3rd parties to support ongoing operations or scale-up efforts.

Putting it all together

SUSTAINABLE DIGITAL HEALTH SYSTEMS WITH COMMCARE AND DHIS2

For teams looking to augment their DHIS2-based digital health system with community-level data, CommCare is the most proven, cost-effective solution to meet the needs of diverse stakeholders—from ICT administrators to Ministry of Health teams and donors.

Furthermore, the evidence base is growing: today, CommCare and DHIS2 together support many of the world's most ambitious digital health systems, from Madagascar—where 550 CHW data collectors fuel a CommCare-DHIS2 data pipeline, to Burkina Faso—where 1,800 health centers, 6,000 CHW users, and 2.5 million beneficiaries are integrated into a national-scale health system run atop CommCare and DHIS2.

For more information on how to enable your team with a sustainable CommCare - DHIS2 solution to data capture, analysis, and reporting, reach out to your Dimagi contact or **contact our team.**