



Health Information Technician using the DHIS2 system, Chorora Health Center, Oromia Region, Ethiopia

Photo: USAID Digital Health Activity (DHA)

OVERVIEW

For over 12 years, JSI has supported the design, development, and implementation of District Health Information Software (DHIS2) and tools built on the platform. JSI has supported more than 18 ministries of health through system design, technical assistance, and capacity building to use DHIS2 to collect, report, analyze, and disseminate program data.

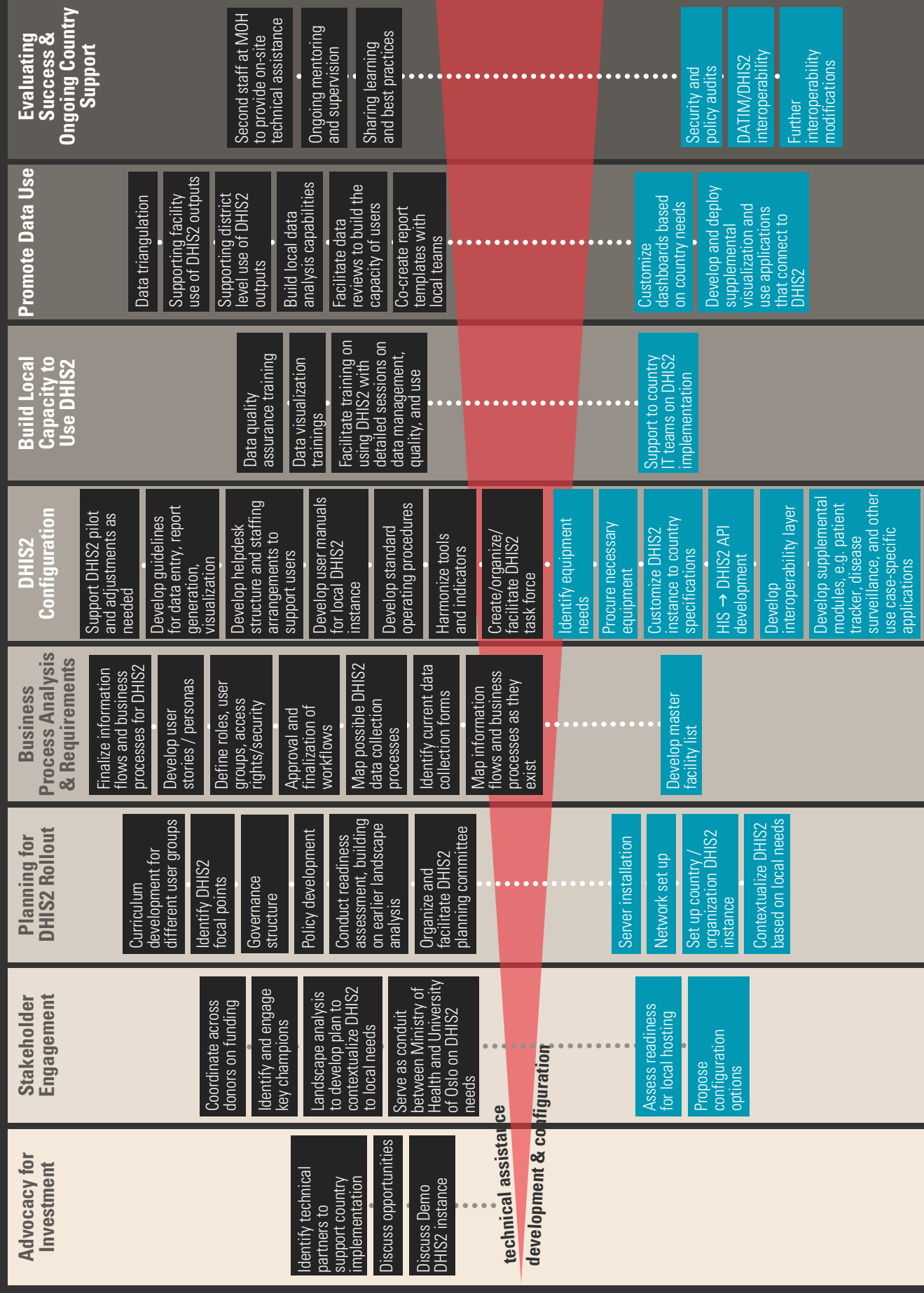
JSI'S DHIS2 APPROACH

JSI's approach to DHIS2 support is two-pronged, focusing equally on: 1) technical assistance to support the use of, resources for, and maintenance of DHIS2; and 2) country- or project-specific DHIS2 customization or configuration and the development of value-added DHIS2-based software solutions to public health problems. Both of these prongs have complimentary activities across the DHIS2 development and implementation continuum, from advocacy for investment and stakeholder engagement to building local DHIS2 capacity and promoting data use. We have conceptualized this continuum and the related activities in Figure 2.

Countries where JSI supports DHIS2



Figure 2: JSI's DHIS2 Support Continuum





Technical Assistance

Many factors lead to a system's uptake and use. Therefore, when supporting countries to implement DHIS2, JSI advocates for long-term system investments, strengthens governance mechanisms that will promote use of the system long term, and builds local capacity for system use and maintenance. JSI conducts digital infrastructure and assessments to inform health information systems integration roadmaps of requirements, needs, and gaps. JSI also supports countries to improve system use through data quality assessments and dashboard development and by integrating DHIS2 with other key systems.



Development and Configuration

JSI works with countries and organizations to outline the approach to set up the infrastructure needed to deploy DHIS2 and configure it to the local needs. Our team of DHIS2 experts can advise on the best configuration options and support development of more complex components such as application programming interfaces (API) integration and interoperability with other systems. We also have a strong relationship with DHIS2's global initiative lead, University of Oslo, with which we collaborate to enhance DHIS2 use in the countries where we work and globally.

USE CASES

We support countries to use DHIS2 for many different use cases, as shown in these examples.

National Health Management Information System Scale-up and Customization

Under the Ethiopia Data Use Partnership (DUP) and the Digital Health Activity (DHA), JSI is contributing to the national-scale use of DHIS2 for Ethiopia's health management information system (HMIS). In 2017, in collaboration with our partners, we customized the core functionalities of DHIS2 to the Ethiopian context and have since deployed the system to over 29,000 public health facilities across Ethiopia. We have also worked with Ethiopia to strengthen its use of DHIS2 to include a COVID-19 tracker, service quality-related key performance indicators, and a multi-sectoral nutrition system.

Through USAID-funded MEASURE Evaluation, JSI worked to implement national health management information systems and strengthen their governance in Mali, Sierra Leone, Guinea, Liberia, Côte d'Ivoire, and Burkina Faso. In Mali, JSI worked with the Ministry of Health (MOH) to establish three coordinating bodies—an Health Information Systems (HIS) technical working group, DHIS2 technical team, and HIS partners meetings—to plan, develop, and rollout DHIS2. Through JSI's support of the MOH to develop a costed roadmap, Mali was able to fully rollout DHIS2 to facilities nationwide as opposed to the originally planned limited pilot. After less than 16 months of implementation, 100% of regions and districts and 98% of community health facilities were reporting into DHIS2.

Master Facility Registry

Supported by USAID, the MEASURE/JSI DHIS2 team developed a digital master facility registry for the Guinea MOH using a DHIS2-based application, including visualizations on a custom dashboard and a Find Your Facility tool.

Data Visualizations with DHIS2

We have collaborated with the MOH in Burundi, Côte d'Ivoire, Liberia, Mali, and Tanzania to support adaptation and customization of DHIS2 dashboards, and developed dashboards specifically for logistics in Ethiopia, Pakistan, Rwanda, Tanzania, and Zambia. Under the DUP in Ethiopia, we supported the MOH to integrate its DHIS2 instance with other third-party tools (e.g., Power BI, Tableau) for further visualization of data.

Capacity Strengthening

JSI provides training and support to ensure sustainability of DHIS2-based systems within ministries. Through MEASURE Evaluation, JSI and other partners helped the government of Nigeria deploy DHIS2 through technical assistance and capacity strengthening at national and sub-national levels. We developed a DHIS2 training curriculum, with modules on data quality, analysis, and use at all levels of the health system. Now, all users new to DHIS2 can be seamlessly supported at every point of implementation (facility, local government authority, state, and country). In

Ethiopia, JSI has supported the MOH to train more than 15,000 health informatics professionals and health system managers at national, regional, district, and facility levels through local DHIS2 academies and mentorship programs run through local universities.

Integration of Data From Multiple Sources

In the aftermath of Ebola in West Africa, JSI, under the MEASURE Evaluation, developed a One Health Information System in Burkina Faso in collaboration with the MOH, the Ministry of Livestock and Fisheries, and the Ministry of the Environment. This system is comprised of data about each ministry's case-based surveillance diseases in addition to Burkina Faso's five priority zoonotic diseases (anthrax, rabies, brucellosis, highly pathogenic avian influenza, and dengue), totaling 52 human, 76 animal, and 3 environmental health diseases under surveillance, respectively. Data from the each ministry's surveillance system is populated into a fourth database through an interoperability layer and email and text message alerts are sent when an outbreak is detected. Figure 3 depicts the One Health Information System architecture. This work is being continued through the JSI-led Country Health Information Systems and Data Use program. In 2021, the One Health Information System was adopted by the Government of Burkina Faso as the national system to track COVID-19 cases, treatment, vaccination, and testing, including result delivery.

DHIS2 for COVID-19

As countries mobilize rapid response teams to identify, test, isolate, and track cases of COVID-19, they generate vast amounts of data that must be made available to stakeholders in near-real time.

JSI is helping partners in Ethiopia and Burkina Faso to adapt, configure, and deploy digital surveillance systems to protect populations from outbreaks. Both countries use the DHIS2 reference application for COVID-19 and customize it to their contexts. JSI's project teams developed tools to facilitate surveillance workflows and analyses for active monitoring that align with national protocols. Additionally, laboratory staff in both countries enter results directly into the DHIS2-based surveillance system, availing information to colleagues and clinical providers immediately. In Ethiopia, DHIS2 generates certificates for people whose test results are negative.

DHIS2 for Monitoring and Evaluation

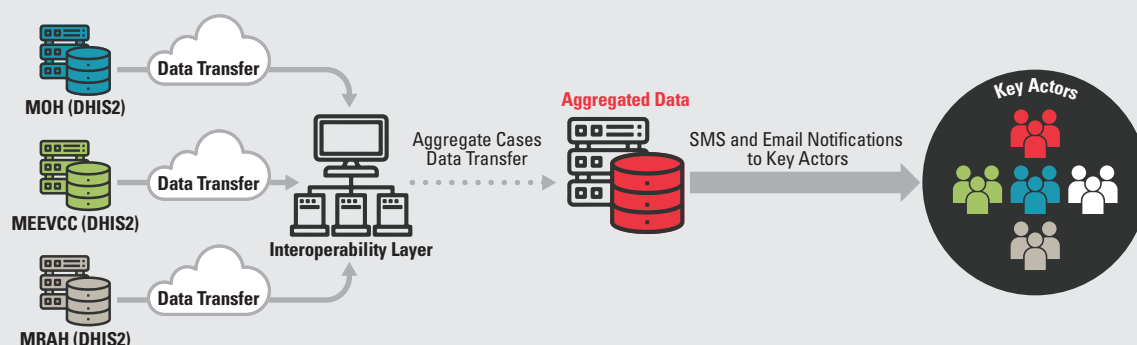
JSI leads the MOMENTUM data platform development and implementation under the USAID MOMENTUM Knowledge Accelerator project. The data platform collects information from the projects in the MOMENTUM suite for further analysis and synthesis of information for program monitoring and adaptive learning.

From 2015 to 2020, JSI worked under the MEASURE Evaluation project and supported functions for Data for Accountability, Transparency, and Impact Monitoring, the primary reporting system for PEPFAR which is built on DHIS2. JSI staff provided technical support for implementing organizational hierarchy changes and bug fixes; working with countries on data import and exchange; developing additional applications as needed; and aligning MOH and PEPFAR systems for reporting, data entry, and analysis.

DHIS2 for Logistics

JSI is contributing to the development of DHIS2 mobile Android apps and unstructured supplementary

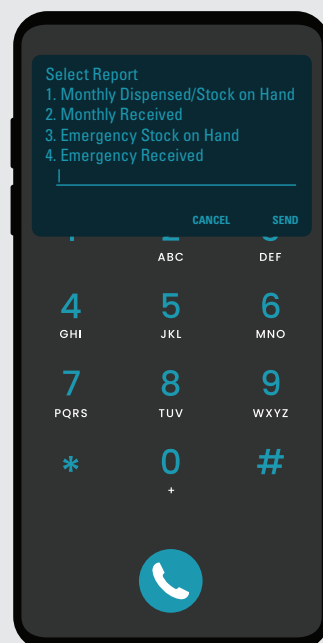
Figure 3: One Health System Using DHIS2 in Burkina Faso



service data-based (USSD) applications for managing stocks for community health workers and volunteers in Kenya. Figure 4 shows an example USSD menu from the application, cStock, which is used for managing supply stock in Kenya. Ethiopia's DUP, on the other hand, is supporting the development of the logistics tracking system using DHIS2 to monitor functionality of facility-level devices (e.g., tabs, computers) and VPN connectivity.

Figure 4: Kenya cStock Supply Chain Application Built in DHIS2

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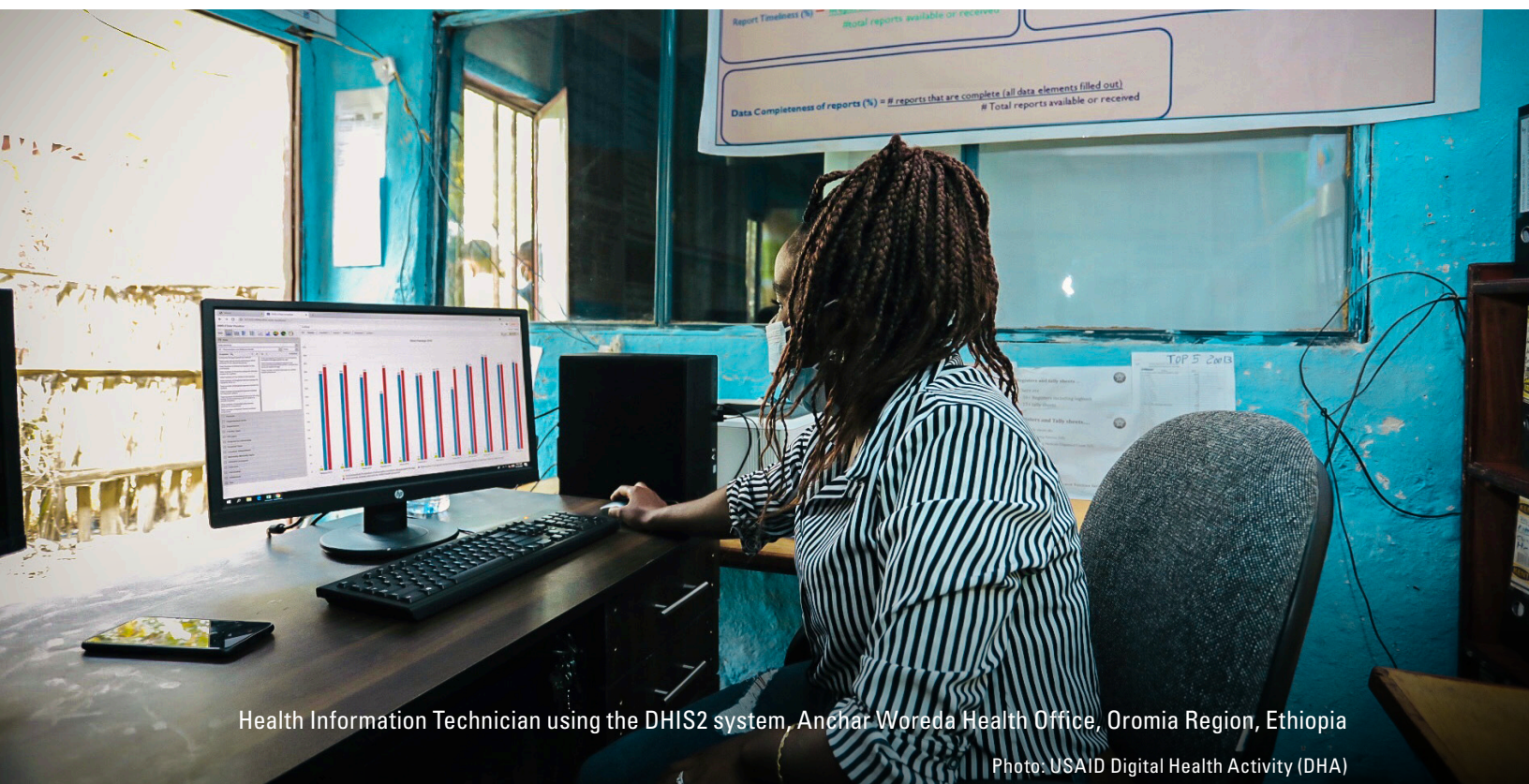


DHIS2 for Longitudinal Tracking

JSI supported development of DHIS2 tracker-based solutions to provide services to HIV patients at facility and community levels. This included projects in Ghana and Liberia that implemented an eTracker for HIV contact tracing and care and treatment.

DHIS2 Mobile Application Development

JSI has developed several DHIS-2 based applications....scorecard and dashboard mobile application were selected as finalists. These applications allow data from the web-based version of DHIS2 to be visualized in standardized scorecards and dashboards to facilitate use of data in supervision visits and at the facility level.



Health Information Technician using the DHIS2 system, Anchar Woreda Health Office, Oromia Region, Ethiopia

Photo: USAID Digital Health Activity (DHA)