

# Aggregating Fragmented Health Data in Malawi - Kuunika increases health data access and use by stakeholders

## Challenge

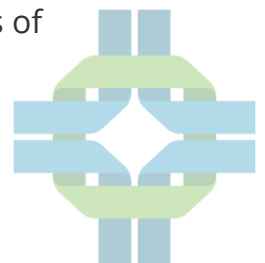
The Ministry of Health in Malawi had previously adopted an instance of DHIS2 as the country's HMIS. Malawi wanted to create an automated way to share aggregate metrics from systems like the facility registry and the logistics data that is captured in Logistics MIS (an [OpenLMIS](#) instance) which keeps records of all drug information for a large number of health facilities in the country.

For example, the core DHIS2 programmers were leveraging a CSV export file that was being shared by the OpenLMIS team monthly. They were supporting a script that required a few parameter changes over time. When the concept of an interoperability layer (an [OpenHIM](#) instance) was introduced during the [Kuunika](#) Project, this provided the opportunity to optimize the process that required human intervention and move toward a standards-based approach.

## Solution

The Kuunika Project team addressed the project in two phases. In phase one, the team used the interoperability layer and developed a custom mediator for the OpenLMIS implementation. This solution resolved some issues and included caching, "retries" for when migration into DHIS2 failed. This provided better communication on the exact status of the data transfer. The phase one solution required a database of both health facility and product mappings embedded in itself for lookup. This meant that mappings had to be maintained and a unique mediator was needed for each implementation.

The second iteration addressed this challenge. As the Master Health Facility Registry ([MHFR](#)) and the product catalogue were emerging - both of which were core deliverables for the Kuunika project, the team was able to move to the second phase of the project. This phase allowed the team to use the OpenHIE aggregate data exchange [workflow](#) pattern supported by IHE's ADX standard. The team then separated the sources of truth for both the facility mappings (to the facility registry) and product mappings (to the product catalogue) so that those concerns are as segregated as possible. This addressed the challenges of requiring unique mediators for



each implementation and eliminated the need for supporting mappings for facilities and products.

Through use of this OpenHIE ADX-based implementation pattern for aggregate data exchange, the team is now able to connect additional systems that provide aggregate data to DHIS2 in short periods of time. This makes data exchange of much-needed decision making information from systems like the MHFR and OpenLIMIS to DHIS2 easier to implement and support.

## ***Impact***

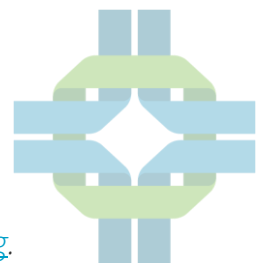
In 3 months (June 2019-October 2019), 600,000 records were aggregated between Core National Systems to allow for accurate analytics.

### **Key Project Partners**

- Kuunika Data for Action
- LIN, Digital Health Division
- Malawi Ministry of Health
- Chemonics
- Department of HIV & AIDS
- Angle Dimensions
- Baobab Health Trust and Good Citizens
- UNICEF
- Elizabeth Glaser Pediatric AIDS Foundation
- Clinton Health Access Initiative

### **Architecture Components in Practice**

- Facility Registry
- Terminology Service
- Health Management Information System
- Product Catalogue
- Interoperability Layer
- Logistics Management System



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