DIGITAL INNOVATION IN PANDEMIC CONTROL

TANZANIA

THE CHALLENGE AND OPPORTUNITY

The Government of Tanzania, including the Ministry of Health (MOH) and the President's Office Regional Administration and Local Government (PORALG), uses several different digital systems for health care service delivery. In the aftermath of COVID-19, the country experienced rapid growth in the planning and development of these mobile and web-based digital health systems.

However, many of these systems were not designed to work together. This lack of integration forced health workers to manage multiple platforms, leading to inefficiencies, errors, and difficulties in accessing critical data. These issues made it harder to use information effectively for patient care and decision-making.

Mr. Wilhard Msalie, a senior ICT Officer from PORALG, provides technical support for the immunization module. Photo: PATH/Isaac Sahera.

THE DIPC PROJECT APPROACH

Challenges with digital immunization systems are common in many countries, especially in the context of pandemics and other emergencies where systems are built in a hurry or with only one use in mind. To improve sustainability and strengthen the readiness of digital immunization systems for future pandemics, the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)'s Digital Innovation in Pandemic Control (DIPC) project works with ministries of health to select, adapt, and scale the use of robust digital tools.

As an implementing partner of the DIPC project, Digital Square at PATH uses its expertise to create models for improved and more sustainable pandemic-prepared health systems with a focus on immunization workflows. Digital Square is working with three partner countries: **Ghana**, **Malawi**, and **Tanzania**. Project activities are centered on three primary workstreams:

1. **Develop** common requirements for immunization to inform the development of appropriate digital systems using the World Health Organization (WHO)'s Standards-based, Machine-readable, Adaptive, Requirements-based, Testable (SMART) Guidelines approach.
2. **Accelerate** the implementation of digital tools to support sustainable immunization systems.
3. **Strengthen** the capacity of countries to support, manage, and sustain immunization systems.

TANZANIA'S APPROACH AND PRIORITIES

Priority 1: Localizing immunization systems requirements

The Ministry of Health (MOH), with support from Digital Square, adapted the World Health Organization (WHO)'s Standards-based, Machine-readable, Adaptive, Requirements-based, and Testable (SMART) Guidelines to fit Tanzania's needs by creating a localized immunization system and user requirements document (SURD). This immunization SURD includes local business processes, data elements, indicators, and user personas related to immunization workflows that will now be used to ensure that digital solutions align with clinical guidelines and improve the quality of care. During a workshop held in Arusha in 2023, stakeholders refined and validated content in the SURD, establishing it as a dynamic resource that will serve as the foundation for future updates as health guidelines and processes evolve.

TABLE 1. GOTHOMIS IMMUNIZATION MODULE USERS ACROSS HEALTH SYSTEM LEVELS IN TANZANIA.

Health system level	System users
National	Ministry of Health, donors, implementing partners
Regional & Council	Regional health management teams, Council health management teams
Facility	Health providers including reproductive child health nurses, immunization officers, ICT officers

Priority 2: Enhancing existing digital systems to support immunization

Digital Square partnered with PORALG and GIZ to enhance the Government of Tanzania Health Operation Management Information System (GOTHOMIS), a digital solution used in over 3,500 primary health facilities to facilitate day-to-day service delivery. These enhancements focused on improving the immunization module by incorporating user feedback and aligning its functionality with the localized SURD. The updated module now helps health workers streamline workflows, reduce errors, and access better immunization data. It has already been deployed in five health facilities (e.g., district hospitals) in Tanga and Mbeya regions, setting the stage for future scaling up and broader impact.

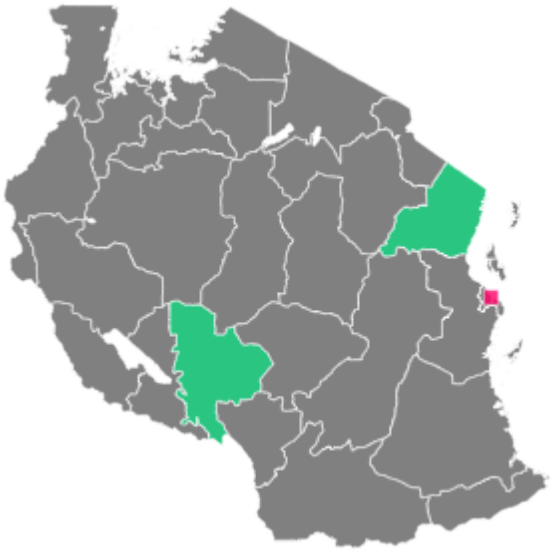

FIGURE 1. REGIONS WHERE DIPC PROJECT HAS IMPLEMENTED TRAININGS ON NEW GOTHOMIS IMMUNIZATION MODULE (AS OF 2025).

Having been designed and tested in an iterative, human-centered process, the new GOTHOMIS immunization module has received positive feedback from users, government agencies, and other stakeholders. Absalom Mwalima, a representative from PORALG, shared his enthusiasm for the new module's potential to cut costs on new vaccine introductions.

> Previously, when we wanted to introduce a new vaccine into all the data collection tools, we would have to reprint all the tools again and again, costing billions of shillings. Once the new GOTHOMIS module is rolled out to all facilities, the introduction of a new vaccine will have fewer cost implications because we will no longer need to reprint the tools. This is one of the reasons we wish the GOTHOMIS immunization module to be rolled out across the country.
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> *- Absalom Mwalima, PORALG*

Priority 3: Strengthening local expertise in FHIR

The MOH, through the Information Communications Technology (ICT) unit, in collaboration with Digital Square and GIZ, facilitated a Health Level Seven (HL7) Fast Healthcare Interoperability Resources (FHIR) training in June 2024 to educate local developers on the HL7 FHIR standard and how it can be implemented effectively in digital health systems. This global framework enables smoother data exchange between health systems, promoting interoperability and better decision-making. Participants gained practical skills that will help sustain and grow Tanzania's digital health capabilities.

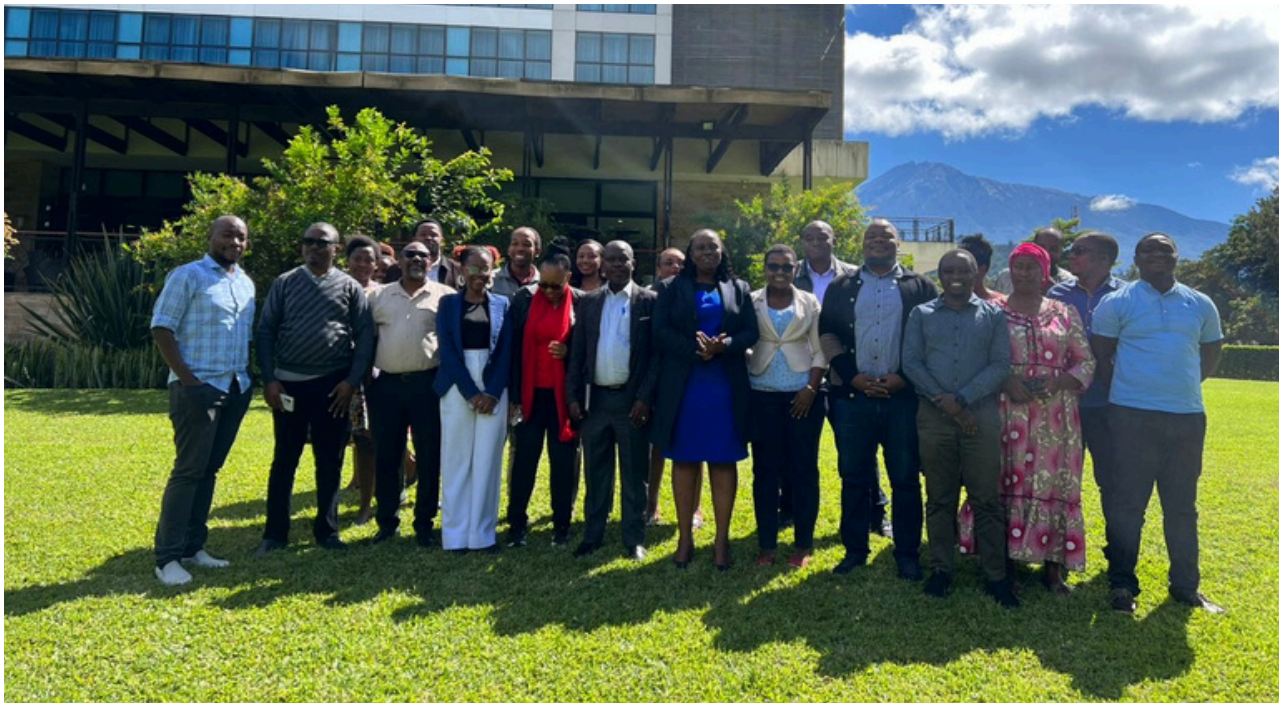
Capacity-strengthening efforts in Tanzania have also focused on empowering women in digital health. Wahida Salumu Omary, a developer at Tanzania's Medical Stores Department, shared how the FHIR training equipped her to manage data more effectively, ensuring better supply chain decisions. Her story highlights the importance of building inclusive technical expertise.

Wahida Salumu Omary (top left) poses with other female developers in Tanzania attending the FHIR training in June 2024. Photo: PATH/Irene Kemilembe.

BUILDING A SUSTAINABLE FUTURE

The DIPC project has laid a strong foundation for improving Tanzania's digital immunization systems. Through ecosystem mapping, stakeholder engagement, and targeted interventions, the project has addressed immediate challenges while also preparing the country to better handle future pandemics.

Tanzania's experience offers valuable lessons for other countries working to enhance their digital health systems. Lessons include using a human-centered design approach, leveraging existing global guidelines (e.g., SMART Guidelines) to localize software systems, and providing robust capacity strengthening opportunities to the health workforce with gender as a key consideration.



Attendees at the DIPC-sponsored requirements validation workshop held in June 2023 in Arusha, Tanzania. Photo: PATH/Auson Kisanga.

ABOUT DIPC

Through the Digital Innovation in Pandemic Control (DIPC) project, the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and Digital Square at PATH are addressing challenges in building digital immunization systems by partnering with ministries of health in Ghana, Malawi, and Tanzania to select, adapt, and scale the use of robust digital tools for vaccination planning, deployment, and monitoring. The DIPC project partners with ministries of health by aligning its activities with countries' national digital health strategies to create sustainable digital immunization systems. By emphasizing aligned, sustainable digital systems, the project aims to better equip countries to respond to future pandemics and strengthen their overall health systems.

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