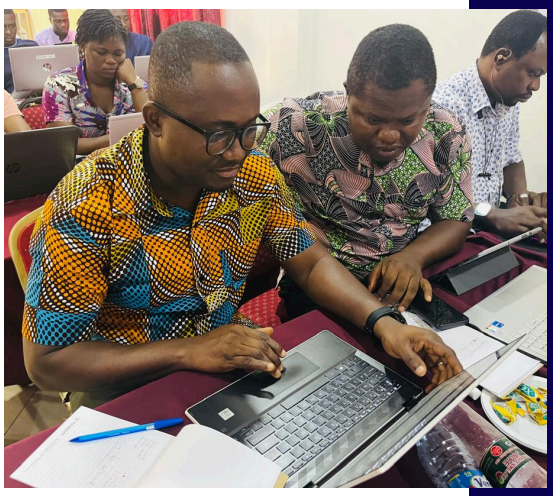
DIGITAL INNOVATION IN PANDEMIC CONTROL

SCALING THE USE OF DIGITAL TOOLS FOR VACCINATION PLANNING, DEPLOYMENT, AND MONITORING

THE CHALLENGE

Building resilient digital immunization systems remains a major challenge—especially in times of crisis. During pandemics, countries often struggle with fragmented platforms that hinder secure, interoperable data exchange. Limited technical and financial resources further constrain local stakeholders, making it difficult to maintain and adapt systems to meet evolving health needs.

To address these gaps, the Digital Innovation in Pandemic Control (DIPC) project—funded by the German Federal Ministry for Economic Cooperation and Development (BMZ) and implemented through a partnership between Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Digital Square at PATH, and local technology vendors—collaborated from 2022-2025 to strengthen digital health systems. Partnering with ministries of health in Ghana, Malawi, and Tanzania, the project designed and deployed nationally scalable, interoperable tools that lay the foundation for more responsive and sustainable immunization systems.



Health workers take part in a Training-of-Trainers (TOT) session on the enhanced Child Health Module in the E-Tracker — the country's electronic immunization system — August 2024. Photo credit: PATH

COUNTRY ACHIEVEMENTS

Ghana: The DIPC project partnered with the Ghana Health Service (GHS) to strengthen Ghana's digital immunization ecosystem and reduce system fragmentation. The project upgraded the DHIS2 E-Tracker Child Health Module, transforming it into Ghana's national electronic immunization registry with integrated child health and vaccine stock management. To ensure sustainability, more than 1,400 health workers have been trained, and the system is now prepare for national rollout. The DIPC project also developed interoperability requirements to enable seamless data exchange across digital health systems, advancing Ghana's national digital health strategy.

Malawi: In collaboration with the Ministry of Health (MOH), the DIPC project built and deployed a new Electronic Immunization System (EIS) within the Malawi Health Information System (MaHIS). This innovation improves record-keeping, stock management, and reporting. The system is live in 47 facilities across three districts, serving over 70,000 clients and recording more than 215,000 vaccinations. Through extensive capacity building and close partnership with local stakeholders, DIPC is helping Malawi establish a resilient, interoperable foundation for digital immunization and pandemic preparedness.

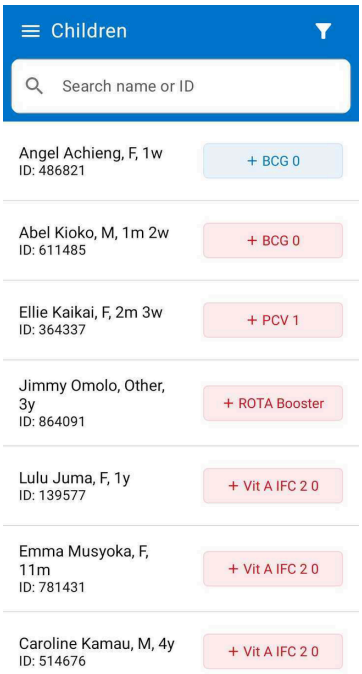
Tanzania: The DIPC project worked with the MOH, the President's Office – Regional Administration and Local Government (PORALG), and partners to strengthen Tanzania's digital immunization ecosystem and address fragmentation. The project enhanced the Government of Tanzania Health Operations Management Information System (GoTHOMIS) Immunization Module, improving efficiency, data accuracy, and accessibility. To promote interoperability and local ownership, the DIPC project delivered Fast Healthcare Interoperability Resources (FHIR) training for national developers, building capacity for seamless data exchange across systems. These efforts support Tanzania's national digital health strategy and lay the groundwork for sustainable, locally driven digital health solutions.

INNOVATING GLOBALLY, GUIDING LOCALLY

World Health Organization (WHO) SMART Guidelines approach: In all three countries, the DIPC project localized WHO's Digital Adaptation Kit (DAK) for Immunizations, using its standardized workflows and data elements to guide the development of digital immunization systems tailored to local needs. WHO DAKs provide a structured, evidence-based foundation that promotes interoperability, reduces duplication, and enables countries to adapt digital health systems while following global best practices.

Global Goods immunization product suite: To complement this approach, the Global Goods immunization product suite, developed in partnership with Ona, combines OpenSRP2, RapidPro, and DHIS2 into an implementation-ready, FHIR-native solution for countries seeking to deploy an EIS aligned with WHO SMART Guidelines. This suite translates DAK requirements into FHIR specifications and executable software—showcasing how standards-based innovation can strengthen and streamline digital immunization systems worldwide.

Advancing Ghana's technical readiness for the WHO Global Digital Health Certification Network (GDHCN): In 2025, the DIPC project launched a proof of concept in Ghana to demonstrate secure, standards-based sharing of tuberculosis (TB) data. The innovation enables health workers to scan a QR code—on a referral slip or within a digital health wallet—to access a patient's verified TB information across facilities, ensuring continuity of care. Built on the International Patient Summary (IPS) standard and digitally signed for authenticity, the solution illustrates how Ghana can establish trusted, interoperable data exchange as it moves toward participation in the WHO GDHCN.



The global immunization product suite is designed with a clear user interface so that health workers can quickly identify children who are overdue for immunization in the register view.

EIS district-level user testing participants in Ntcheu, Malawi in June 2024. Photo: MOH DHD.

EMPOWERING FUTURE WOMEN LEADERS

In September 2024, the DIPC project hosted a Women in Digital Health event in Accra, Ghana, to inspire and equip ~100 women for careers in digital health. Aligned with Ghana's 2023–2027 Digital Health Policy, the event offered practical skills, exposure to digital tools, and networking opportunities, helping to address the gender gap and build a skilled workforce.

In Tanzania, the DIPC project partnered with the MOH to deliver specialized FHIR training, equipping women software developers with advanced technical skills and confidence to lead digital health initiatives. By fostering collaboration and networking among women professionals, the project actively supported emerging women leaders to shape inclusive digital health systems and inspire others to pursue careers in this vital sector.

Women in Digital Health event participants engaging in a fun introductory physical ice breaker to encourage openness, community, and light heartedness. PATH.

Find out more at:
https://www.bmz-digital.global/en/overview-of-initiatives/dipc/
https://www.path.org/our-impact/resources/digital-innovation-in-pandemic-control/

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