

**Leverage digitization to improve quality and accountability:**  
A focus on prioritizing high-impact and sustainable HIV programs and systems at a time of limited resources

**Dr. Hudson Balidawa**

**Public Health and M&E Specialist, Ministry of Health, Uganda**



# Outline

- What is Digital Health and Why Digitization Now
- Why Uganda is Expanding the Digitalization of HIS
- The Different Digital Health Platforms in Uganda
- Towards Integration-The Uganda Digital Health System-efya
- Stakeholder Engagement in the Digitalization of the HIS in Uganda
- Benefits, Challenges Encountered, and Solutions
- Next Steps

# Digital health: Meaning

**“The field of knowledge and practice associated with the development and use of digital technologies to improve health.”**

***WHO, 2019***

***It expands traditional eHealth.***

# Uganda's Digital Health System-A Policy Case

Government-led initiative to strengthen healthcare through technology, based on the **Uganda Health Information and Digital Health Strategic Plan** (2020/21–2024/25).

The digital health enterprise architecture, standards, and knowledge products (2025)

The aim is to improve access, efficiency, and quality of care by digitizing services, centralizing health data through an **integrated health information system**, and implementing a framework for digital health solutions.

Key aspects include standardized digital tools, patient-level data systems, and a focus on interoperability for better decision-making

# Why Uganda is Expanding the Digitalization of HIS-1

Digital Health has existed in Uganda since 2012, but has evolved over time

- From paper to electronic tools
- From a single system to interoperable systems
- From traditional dashboard to more complex data visualizations and decision support

## **Evaluation of Digital Health is informed by**

- The growing need for data for decision-making
- Improving efficiencies through time, HR, and Printing savings
- A need for MOH to own the data (shift away from parallel partner-owned data)
- A mature HIV program needs person-level data to make timely decisions
- COVID-19 evolution of multiple digital solutions

# Why Uganda is Expanding the Digitalization of HIS-2



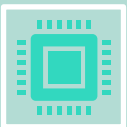
**Review, streamline, and integrate registers**→ Eliminate duplication across disease-specific tools by consolidating data elements into one integrated register.



**Align and improve data workflows to reduce workload**→ Harmonize reporting requirements across programs so health workers capture information once, reducing documentation time and errors.



**Digitize and strengthen data use**→ Transition from paper-based registers to UgandaEMR/DHIS2 to improve accuracy, timeliness, and availability of information for decision-making.



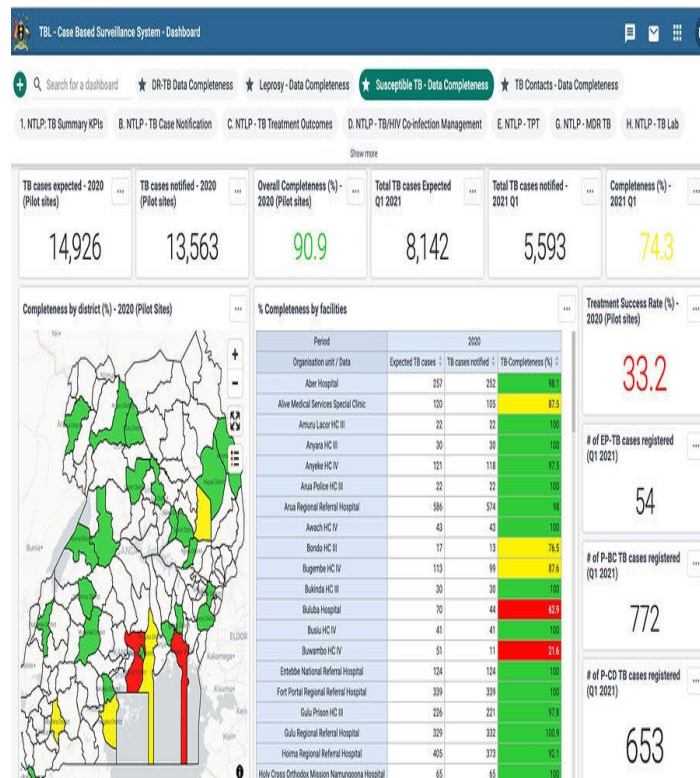
**Leverage digitization to improve quality and accountability**→ Use integrated digital systems to ensure data completeness and consistency, while enabling supervisors and managers at facility, district, and national levels to monitor performance, guide resource allocation, and improve accountability

# The Different Digital Health Platforms in Uganda-1

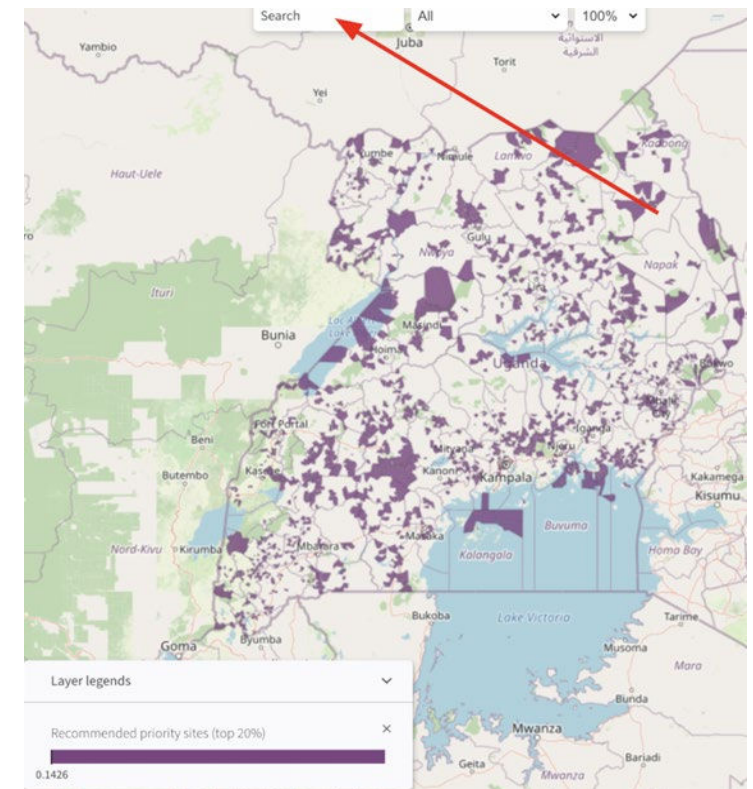
## DIGITAL CHEST X-RAY WITH COMPUTER-AIDED DETECTION



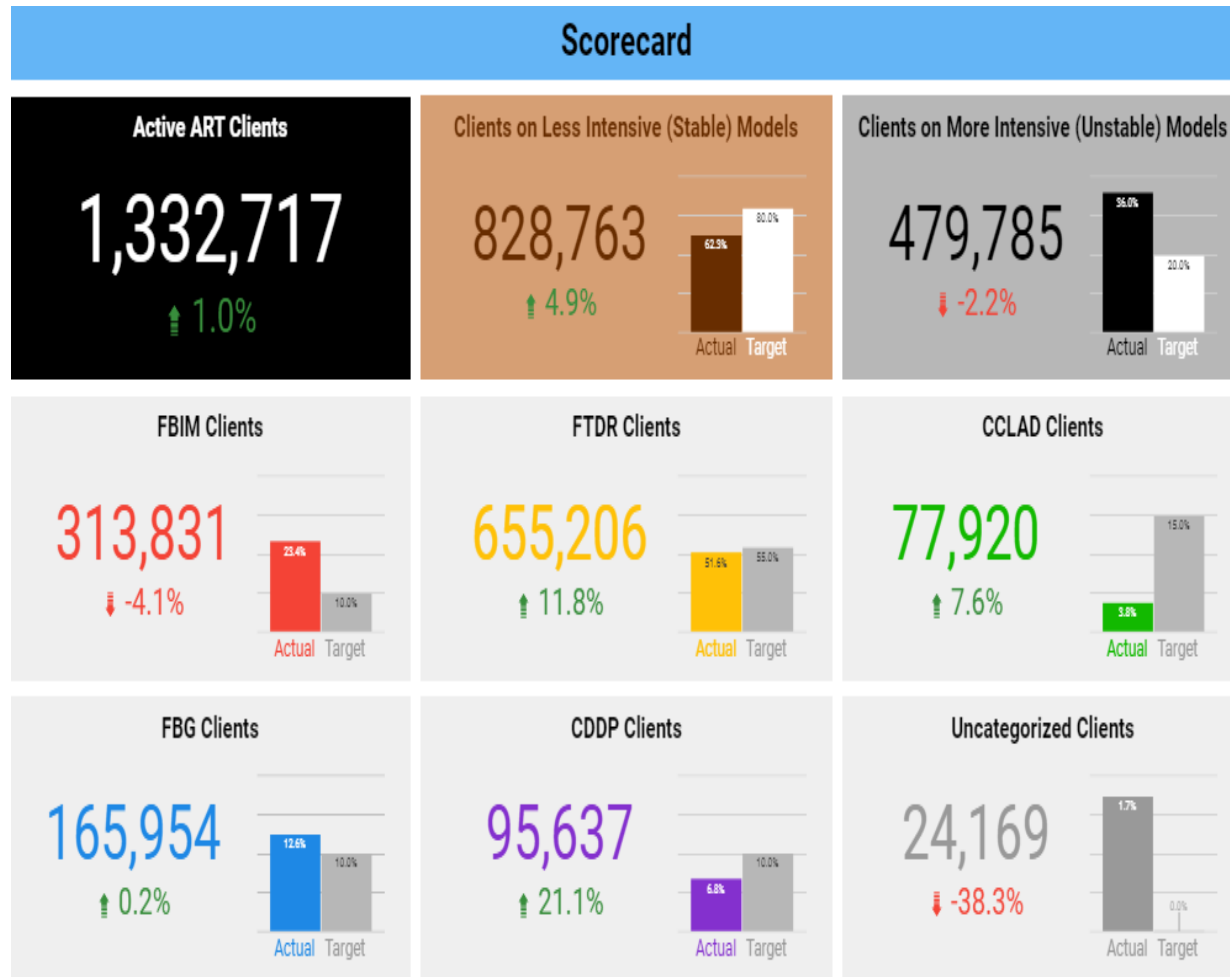
## ELECTRONIC CASE-BASED SURVEILLANCE SYSTEM (eCBSS)




## AI-DRIVEN HOT SPOT MAPPING




# The Different Digital Health Platforms in Uganda-2





**DSD Dashboard**

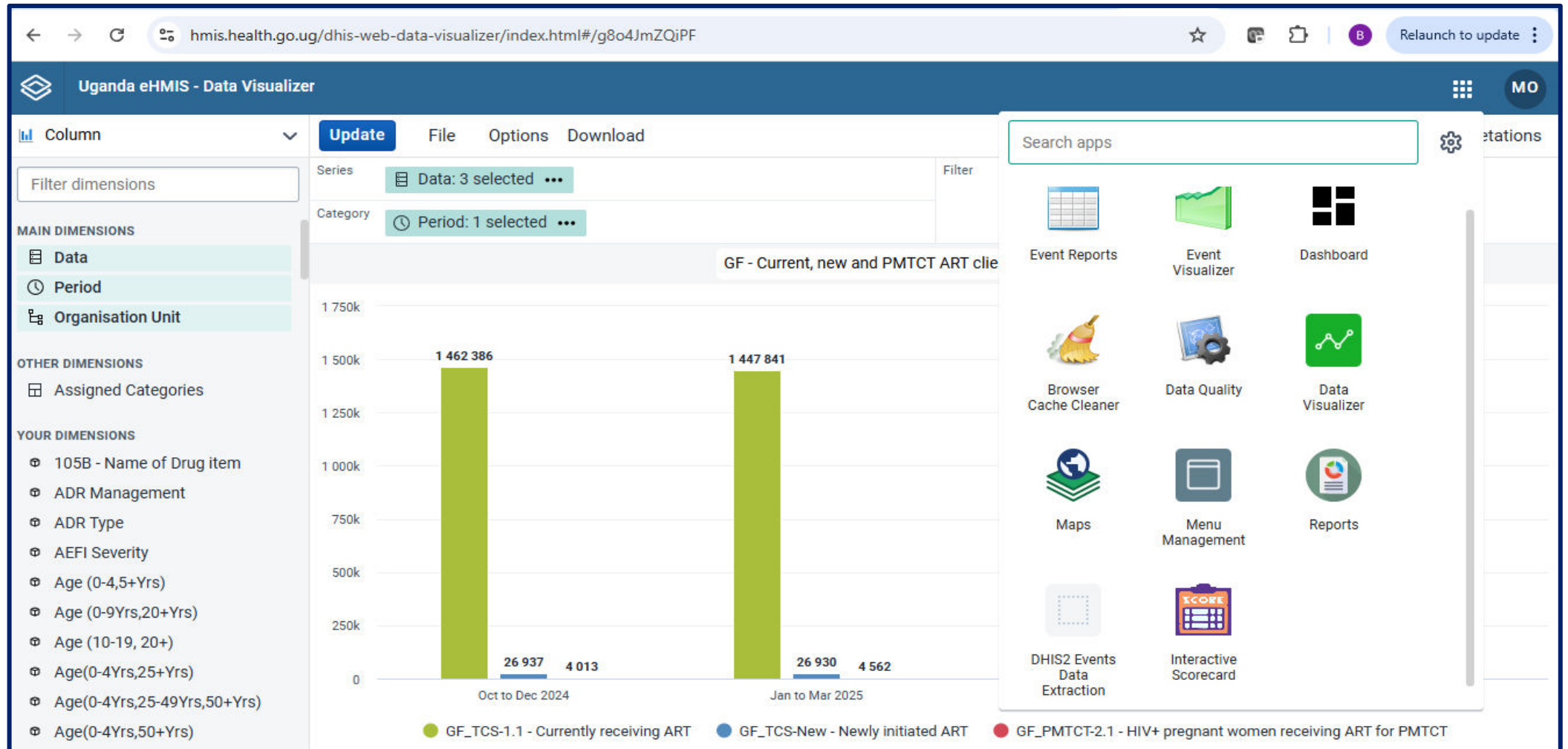
Visit the [Differentiated Service Delivery Dashboard](#) to track the progress of Uganda in providing client-centred care.



**CRPDDP Tracker**

Visit the [Community Retail Pharmacy Drug Distribution Point \(CRPDDP\) Pharmacy Onboarding Tracker Dashboard](#) to track Uganda's progress in getting public health facilities and private pharmacies ready to dispense antiretroviral medication at convenient pharmacy locations.

# The Different Digital Health Platforms in Uganda-3



- The Uganda e-health portal is used nationwide and provides real time visualizations

# Status of Uganda's Digital Health System

- Uganda is developing a national data warehouse for aggregated data and case-based data, which will house all personal health data
- The system is conceptualized with a spirit of integration, and M&E indicators are being revised to align with the Health Systems Building Blocks
- E-Afya, meaning digital health, and Clinic Master will replace all parallel EMR data systems with POC and will improve efficiencies.

POC EMRs are in large volume hospitals, and the setting up of infrastructure for lower facilities is in progress

Digital platform for laboratory services, pharmaceuticals, and the community is linked to EMR

- **Digital warehouse has had the following completed:**
  - Customization
  - Migration of data
  - Pilot

# Stakeholder engagement in digitalization of HIS in Uganda

## The success so far has been due to collaborative efforts with different stakeholders

- Senior MOH management
- Health Policy Advisory Committee (HPAC)
- Recipient of care representatives
- Ministry of Internal Affairs
- Ministry of Finance
- National Bureau of Statistics
- Development and implementing partners
- Regional and District implementation teams

## Modes of Engagement

- Consultations
- Meetings
- Expert opinion
- Pilot

# Expected Benefits, Challenges Encountered and Solutions-1

## Expected Benefits



**Reduced workload for health workers:** Integrated and digitized registers minimize duplication and save time for patient care.



**Improved data quality:** More accurate, complete, and timely reporting across service areas.



**Cost savings:** Lower costs of register printing, distribution, and parallel system maintenance. Strengthened accountability → Clearer performance monitoring and supervision at facility, district, and national levels

# Expected Benefits, Challenges Encountered and Solutions-2

- **Resource needs:** Significant funding is required for printing, ICT infrastructure, training, and supervision.
- **Funding for the rollout of digital solutions has been reduced, and a number of them are being transferred to the MOH**
- **Digital infrastructure gaps:** Limited digital devices and unreliable power supply in some facilities may delay full digital adoption.
- Multiplying digital initiatives, fragmented and misaligned with national priorities.
- **Coordination across stakeholders:** Alignment among multiple MoH departments, districts, and partners is essential but often challenging.
- Wide digital divide between urban and rural areas, and between well-resourced and underserved health facilities
- Internet coverage is poor, especially in the rural areas- ART case-based HIV surveillance.
- Human resources in terms of skills and numbers for digital implementation are still minimal
- Harmonization of the multiple digital applications takes a long time
- Some partners want to hold on to the digital solutions

# Expected Benefits, Challenges Encountered and Solutions-2

## Solutions

- Sustain government leadership and management support
- Workflow Integration should be clear
- Strengthen stakeholder engagement and partnerships for skills and resources
- Develop human capacity: Digital Literacy, confidence, and change attitudes and perceptions
- Integrate as part of health program priorities
- Tailor digital systems and infrastructure to geographical locations

# Next Steps

**Step 1: Finalize the register design and digitization.** Incorporate feedback from consultations and technical working groups, ensuring both paper and digital versions are harmonized.

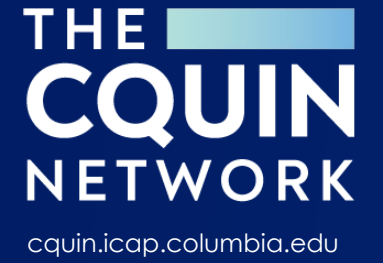
**Step 2: Review and validation of digital registers:** Test digital registers within Uganda EMR/DHIS2 to confirm functionality, completeness, and alignment with reporting requirements.

**Step 3: MoH management review and approval:** Secure endorsement from the Ministry of Health senior management team before moving to pilot implementation.

**Step 4: Pilot and document lessons:** Use selected pilot sites to refine the integrated register, digital workflows, and training materials before scaling up.

**Step 5: Gradual rollout:** Begin with HCIVs and hospitals, then extend to all HCIIIs/IIIs, ensuring continuous training and supportive supervision.

**Step 6: Institutionalize through guidelines:** Update HMIS manuals, supervision tools, and policies to enforce consistent use of the integrated and digitized registers.



# Thank You

