Big Data for Health

Malawi Internet Governance Forum

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Agenda

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COMPELLING WORKS

- Who we are
- What we do
- Partners

2

BIG DATA FOR HEALTH

- What is Big Data
- Why Big Data for Healthcare?

3

Big Data Examples

- Estonia eGovernment
- Kenya m-Pesa
- Rwanda Center for Fourth Industrial Revolution (C4IR)

4

MALAWI OPPORTUNITY

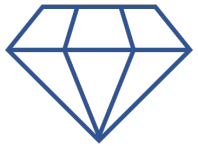
- MOH Interoperability Architecture
- PALMS Data Pipeline
- Data for Development Initiative (D4D)
- **The need for a transition**

1 Who we are

Overview

Mission

Promoting health, wellbeing, and development through practical digital solutions



Core Values

Integrity, **C**ompetence, **T**ransparency, **R**espect, **C**ontribution, Execllence (ICTRCE)

What we do

- Deploying practical digital solutions for development
- Powering the management of development projects
- Generating knowledge for development
- Bridging the gap between digital professionals and clients

Key projects

- Blantyre Prevention Strategy
- Viral Load Results Return
- E-Register Platform Strengthening
- AlSuite enhancement

The company at a glance

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Our Team

Dr Simon Ndira
Founder, CEO
Chief of TAS

Harold Mugeni
Co-Founder, CIO

Michael Ochieng
Finance
Controller

Angelica Kiwummulo
Senior Manager R&D

Patricia Khomani
Deputy TAS

Jacob Mziya
Senior Soutions
Developer

Chris Mwase
Deputy R&D
Manager

Chris Kulanga
Senior HIS
Advisor

Ipyana Mwambila
Senior Finance &
Admin Officer

Maganizo Monawe
Senior HIS Advisor

Chimwemwe Mputeni
Senior HIS Advisor

Pike Msonda
Senior Software
Engineer

Lughano Mwaisunga
Senior Infrastructure
Engineer

Vercy Mkandawire
Finance & Admin
Officer

Nicholas Ondowa
Finance & Admin
Officer

Jackie Umuganwa
Project Support Officer

Cynthia Nkosi
R&D Officer

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Our partners and donors include

COOPER/SMITH

m4h

jembi health systems NPC

maha Mapping & Analytics for Health Activities

BILL & MELINDA GATES foundation

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Key Partners

2 Big Data for Health

What is Big Data?

- NYSE generates 1TB / daily
- Facebook ingests 500+ TB daily
- 2.5 quintillion (10^{18}) bytes of data are created daily. That's 2.5 million terabytes, or 2.5 million computers with 1-terabyte hard drives.
- 90% of the data in the world today created in the last two-three years.
- 7,000 scientific papers are published each day, of which approximately 1,900 are medical papers.

"One doctor can read a medical journal maybe twice a month. Cortana can read every cancer study published in history before noon and by 3 p.m. is making patient-specific recommendations on care plans and improving outcomes."-- CEO John Damgaard, MatrixCare

Why big data for health care?

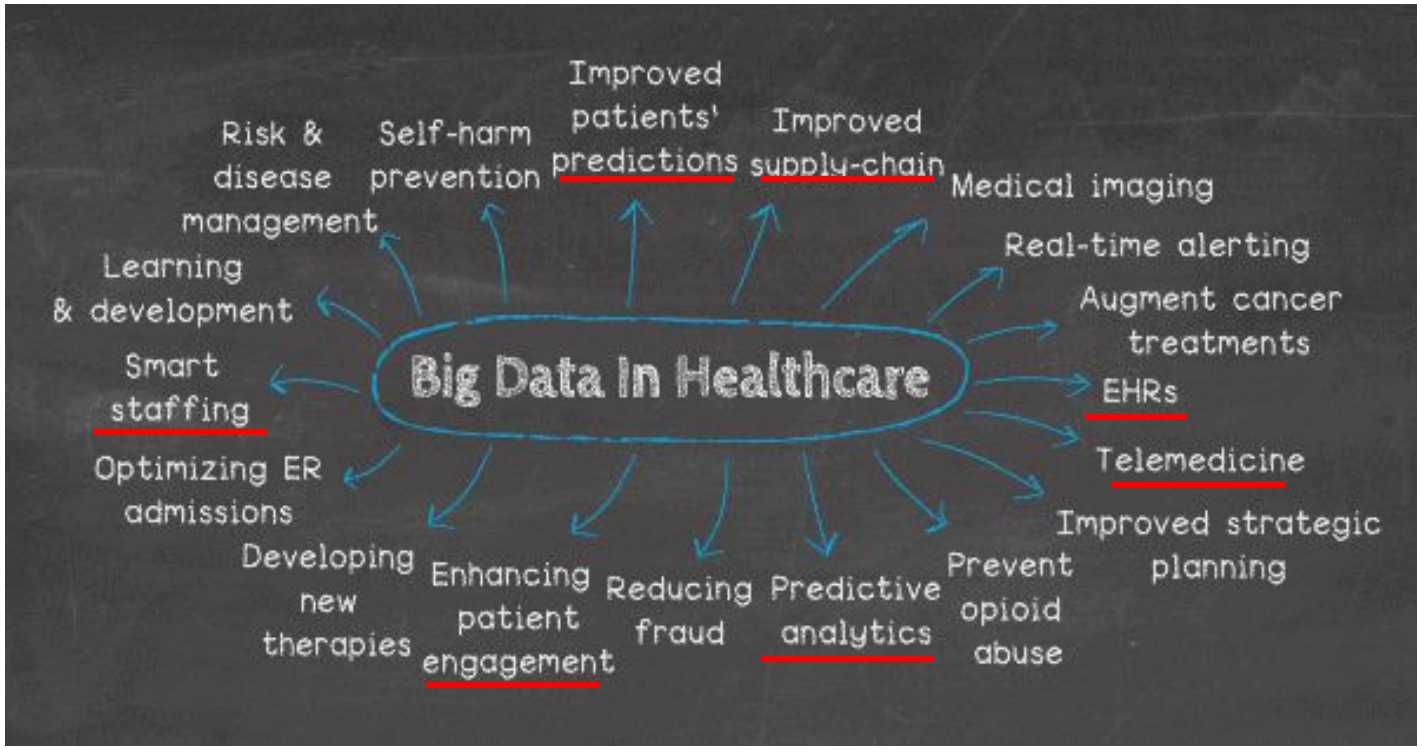
Big Data Types

- Diagnostic
- Descriptive
- Prescriptive
- Predictive

Save lives, improve the quality of life in general

Reduce cost of treatment, avoid medical errors

Predict outbreaks of epidemics; avoid preventable diseases

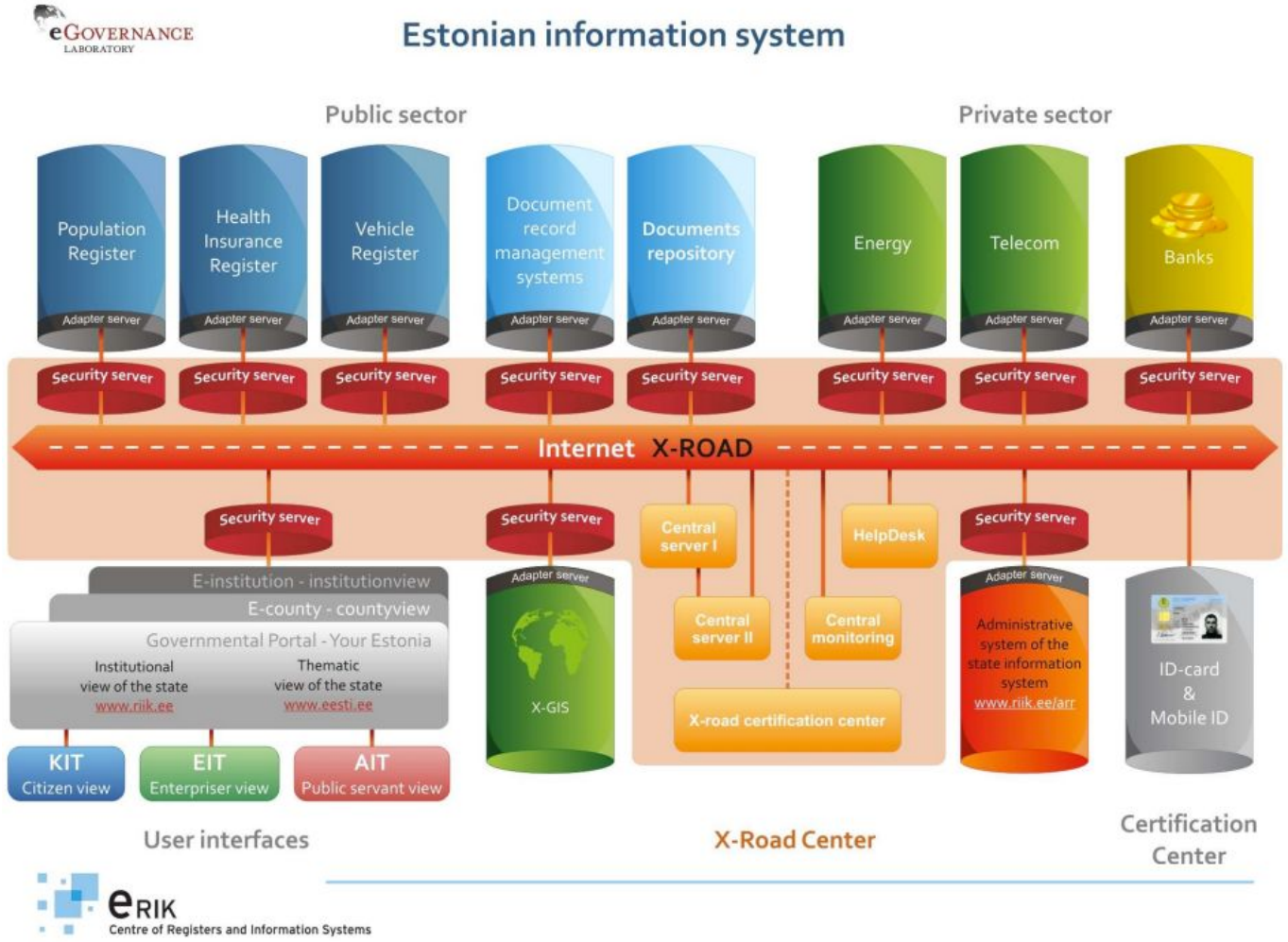


Examples of big data applications in healthcare by DataPine

3 Big Data Examples

Example: Estonia eGovernment

- A well-functioning eGovernment
- Sparked off by the banking system and the need for personal identification for e-payment – 98% of transfers are electronic
- 2007 – launch of mobile ID, digital signature on par with regular
- Central infrastructure
- Freedom to develop own system, but compatibility endorsed by permit from Min. Of Econ. Affairs and Communications (MEAC)
- eServices brought to people e.g., purchase of car insurance from gas stations, road traffic systems linked to health facilities emergency units



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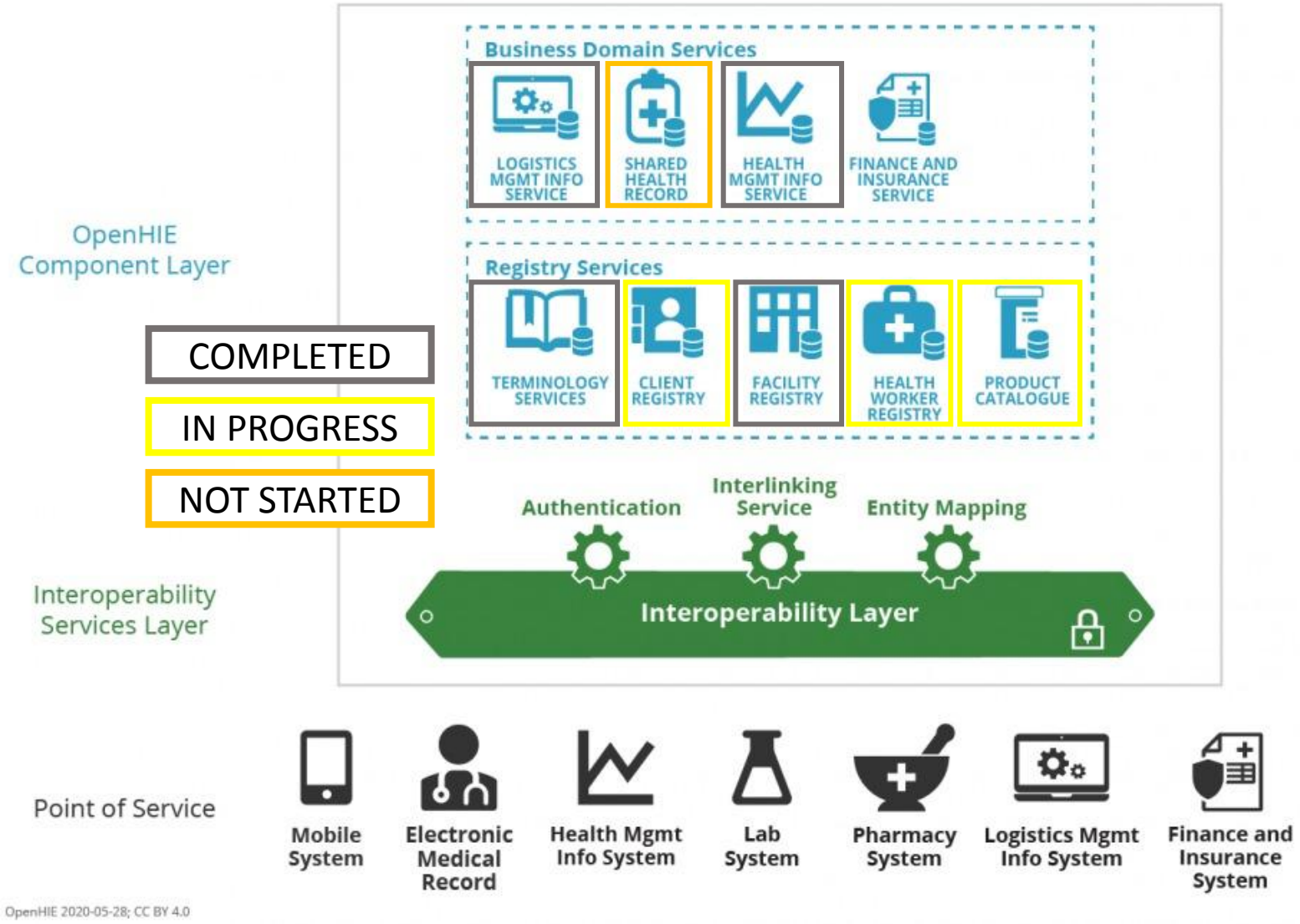
Examples in Kenya, Rwanda

- Over 48 million subscribers as of 31st Mar 2021
- Leveraging big data to understand consumer behaviours
- Fuliza – complete your M-Pesa transactions when you have insufficient funds (mobile overdraft); $3.1bn credit portfolio - **$12m credit daily**; Standard Bank MW advanced ca. $202.6m in 2021 translates to **$564,000 daily** (Audit Dec 2021)
- M-TIBA – put funds aside for healthcare; managed by UAP Insurance; **4.7 million** subscribers as of Jan 2021; MASM membership **145,450** (MASM, June 2021)

- Passed law protecting personal data on 21st October 2021
- C4IR Rwanda – brings together key actors to (gov, industry, CSO, academica) to co-design, test, and refine policy and governance frameworks for 4IR
- Leveraging Chatbots RESET, a framework for governing responsible use of conversational AI in healthcare, deployed the Babylon platform handles more than **4,000 consultations** daily using an AI triage system (WEF, Mar 2022)
- Universal health coverage reaching 90+% of the population linked to Babylon.

4 Malawi opportunity

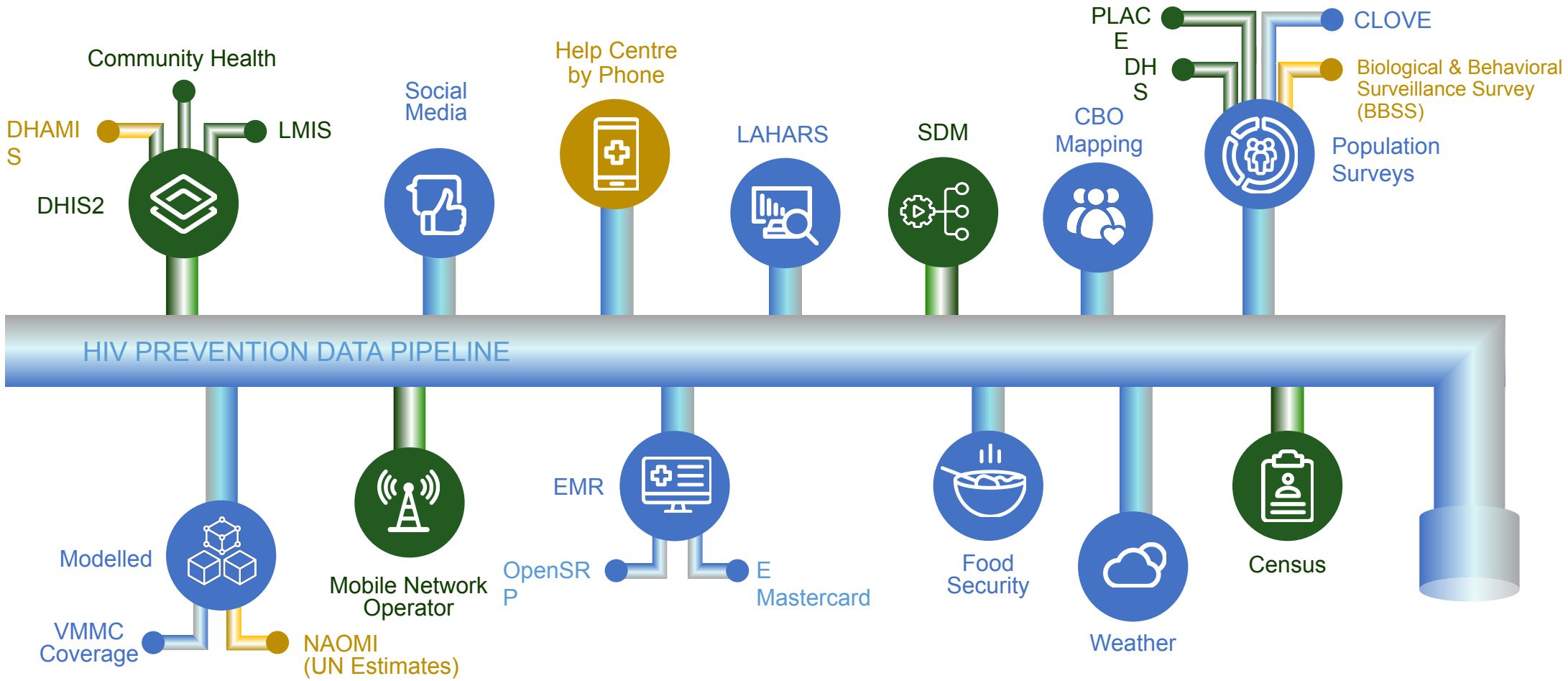
OPENHIE ARCHITECTURE:



A roadmap to full interoperability consistent with international standards using locally developed open-source software:

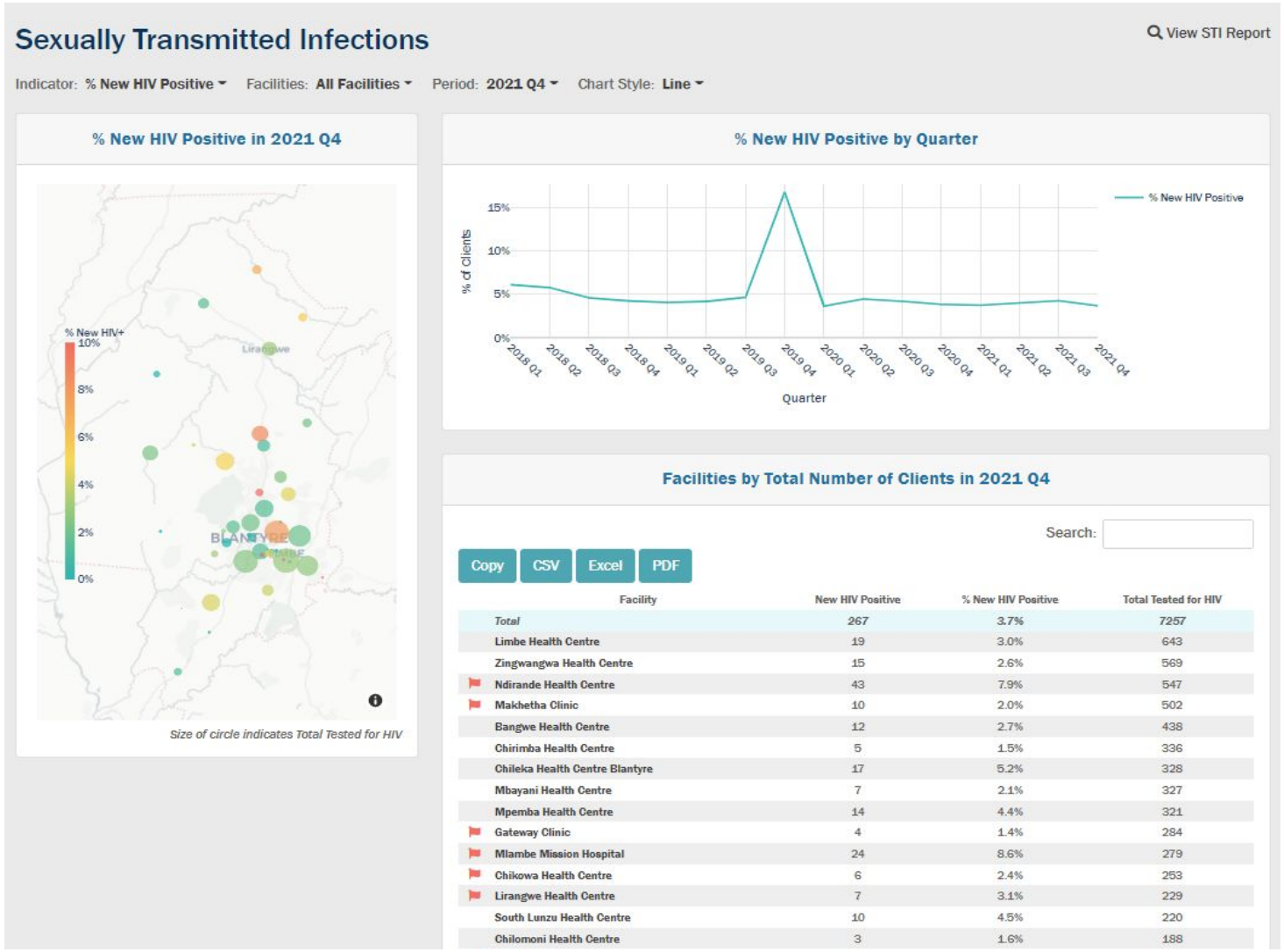
- Sustainability and value depend on this structure
- Functioning data exchange between systems = data are related and used in new, meaningful ways for HIV programming

Access to Data Sources



Access Acquired | Partial/Most Recent Data | To Acquire

Prevention Adaptive Learning and Management System (PALMS):



Facility	New HIV Positive	% New HIV Positive	Total Tested for HIV
Total	*267*	*3.7%*	*7257*
Limbe Health Centre	19	3.0%	643
Zingwangwa Health Centre	15	2.6%	569
Ndirande Health Centre	43	7.9%	547
Makhetha Clinic	10	2.0%	502
Bangwe Health Centre	12	2.7%	438
Chirimba Health Centre	5	1.5%	336
Chileka Health Centre Blantyre	17	5.2%	328
Mbayani Health Centre	7	2.1%	327
Mpemba Health Centre	14	4.4%	321
Gateway Clinic	4	1.4%	284
Mlambe Mission Hospital	24	8.6%	279
Chikowa Health Centre	6	2.4%	253
Lirangwe Health Centre	7	3.1%	229
South Lunzu Health Centre	10	4.5%	220
Chilomoni Health Centre	3	1.6%	188

The Blantye Prevention Strategy is combating new HIV infections in Blantyre district.

PALMS integrates and analyses data from all relevant sources to support decision making along the HIV prevention cascade of prevention targeting, demand creation, service delivery, and sustained use.

Data 4 Development (D4D): LEVERAGING DATA FOR DEVELOPMENT THROUGH A MULTI-SECTORAL APPROACH

September 16, 2021

OVERVIEW – THE NEED FOR A DATA FOR DEV´T TWG

Global trend in tackling world issues towards peace and prosperity for all

MDGs -> Program-specific, silos e.g., goals 4, 5

MDGs -> Multi-sectoral approach e.g., 3, 6, 7, 2

Trend in data use for decision support

- Routine data collected regularly e.g., monthly
- Denominator estimates decennial (Census)
- Sector specific data analysis
- Sector-specific custodianship

- Real time data e.g., daily updates on Covid-19
- Estimates with MNO data complements Census
- Multi-sectoral approach to data use
- National custodianship (NSO)

Implications on program design

- Sector-specific, siloed programs, BPS HIV
- Sector-specific actors and stakeholders
- Limited use of MNO data

- Consideration of the multi-sector
- Institutionalization of data use at the national level
- Increased role of regulatory bodies and TELCOs

The need for a transition

eGovernance is the foundation for success

Where we are today ...

- Non-existent or unenforced digital policies and regulations
- Fragments / siloed systems
- Sector-specific approach - eHealth
- High Internet / data costs
- Health insurance gaps
- Lack of cross-boarder data flow

Where we need to be ...

- Functional and practical digital policies and regulations
- Interconnected systems
- Multisectoral approach – eGovernment
- Zero-rated Internet for key services
- Universal health insurance
- Crossboard data flow