

# Integrated HIS architecture of interoperable systems: Sierra Leone and West Africa

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# Overview

- Two levels of integration of HIS in Sierra Leone
  - All aggregate data into a data warehouse
  - An architecture of interoperable softwares
- Information use
- Scaling from Sierra Leone to West Africa

1) Integrating aggregate data sources  
in Sierra Leone:  
A central data warehouse  
(2007-)

# Old system: Fragmentation of information

## National:

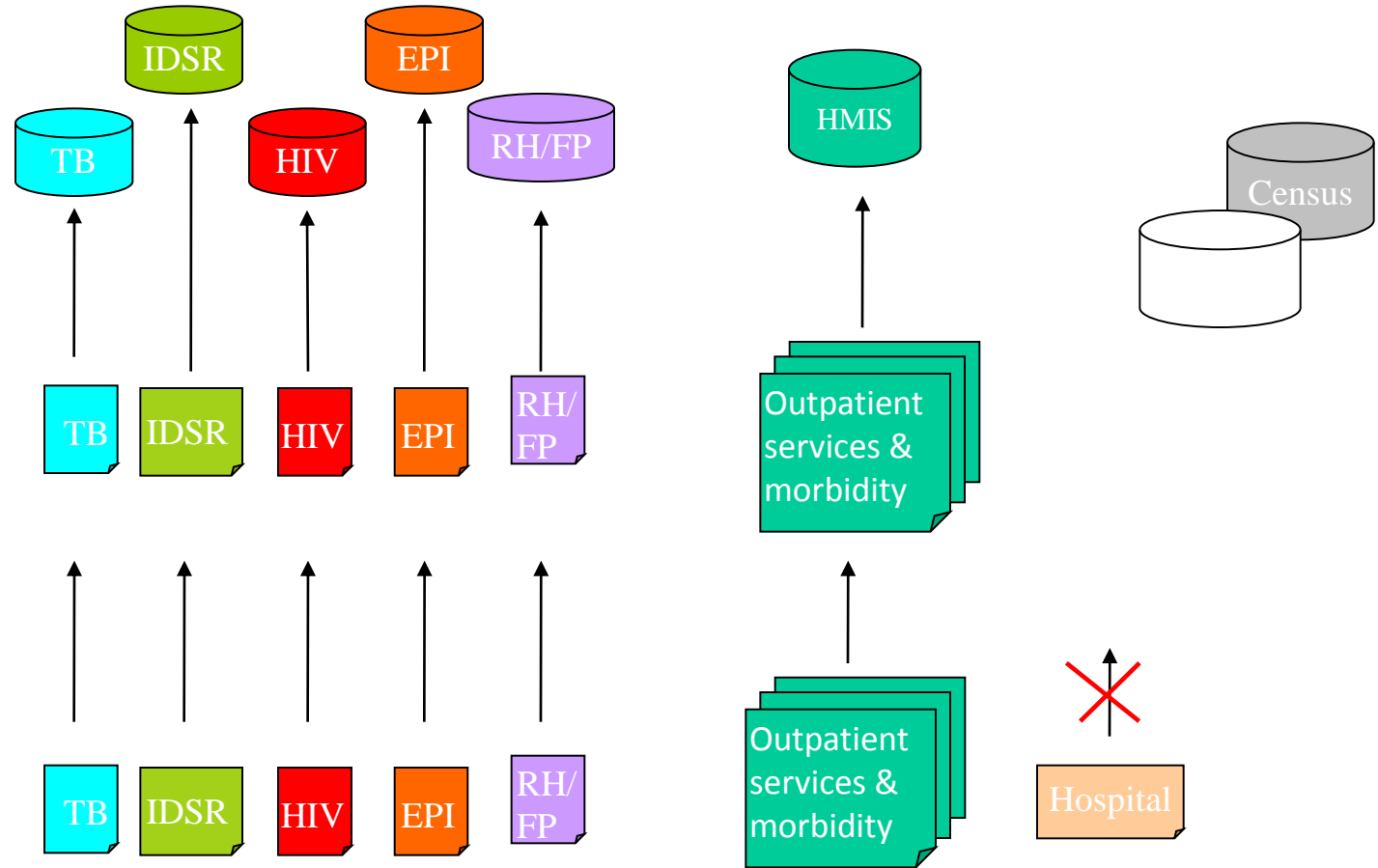
- Fragmented info
- Difficult access

## District:

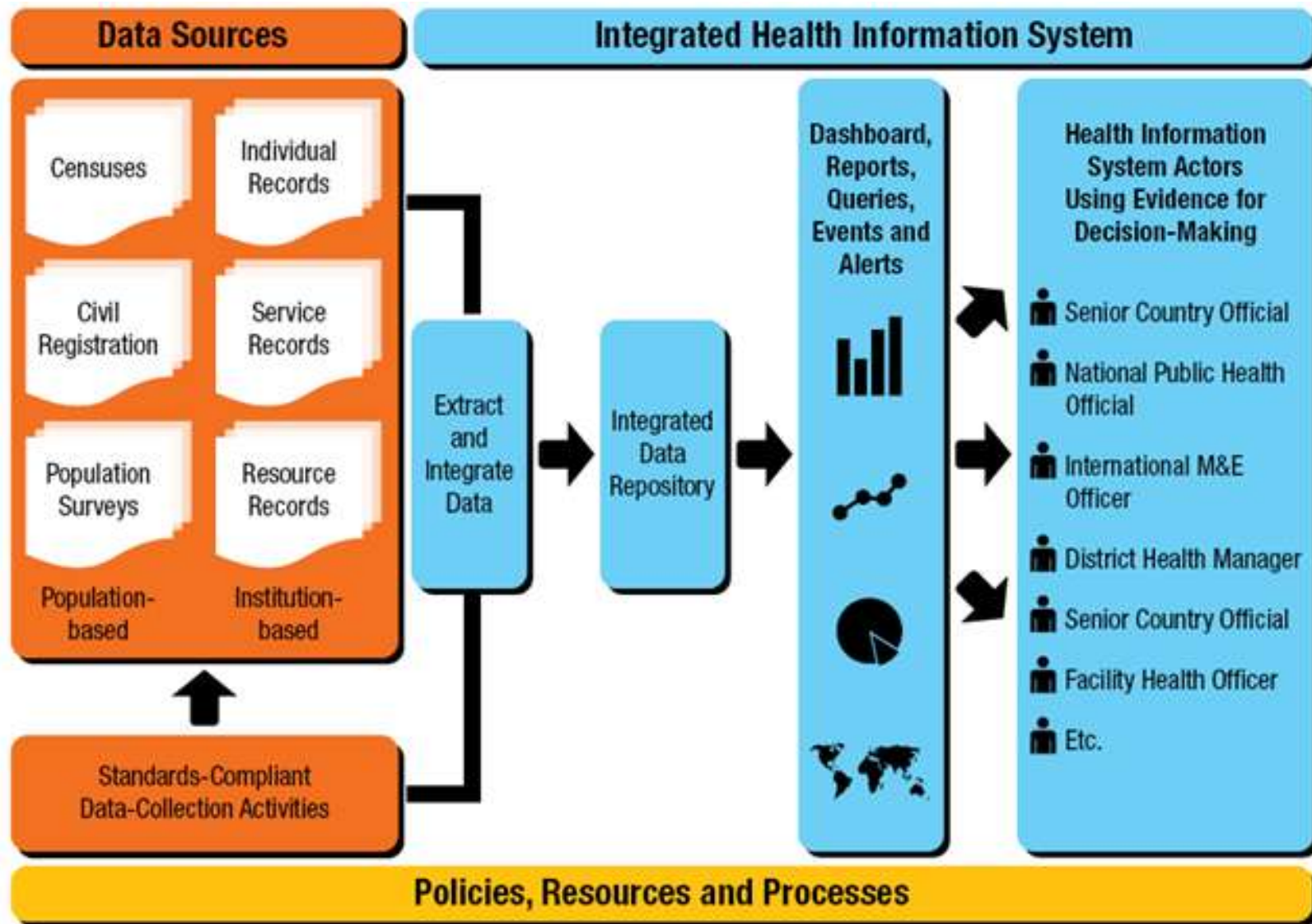
- Fragmented data management
- Paper-based transcription and transmission
- Not fully disaggregated

## Facility:

- Many reports
- Little feedback
- Little use at facility
- No hospital reports

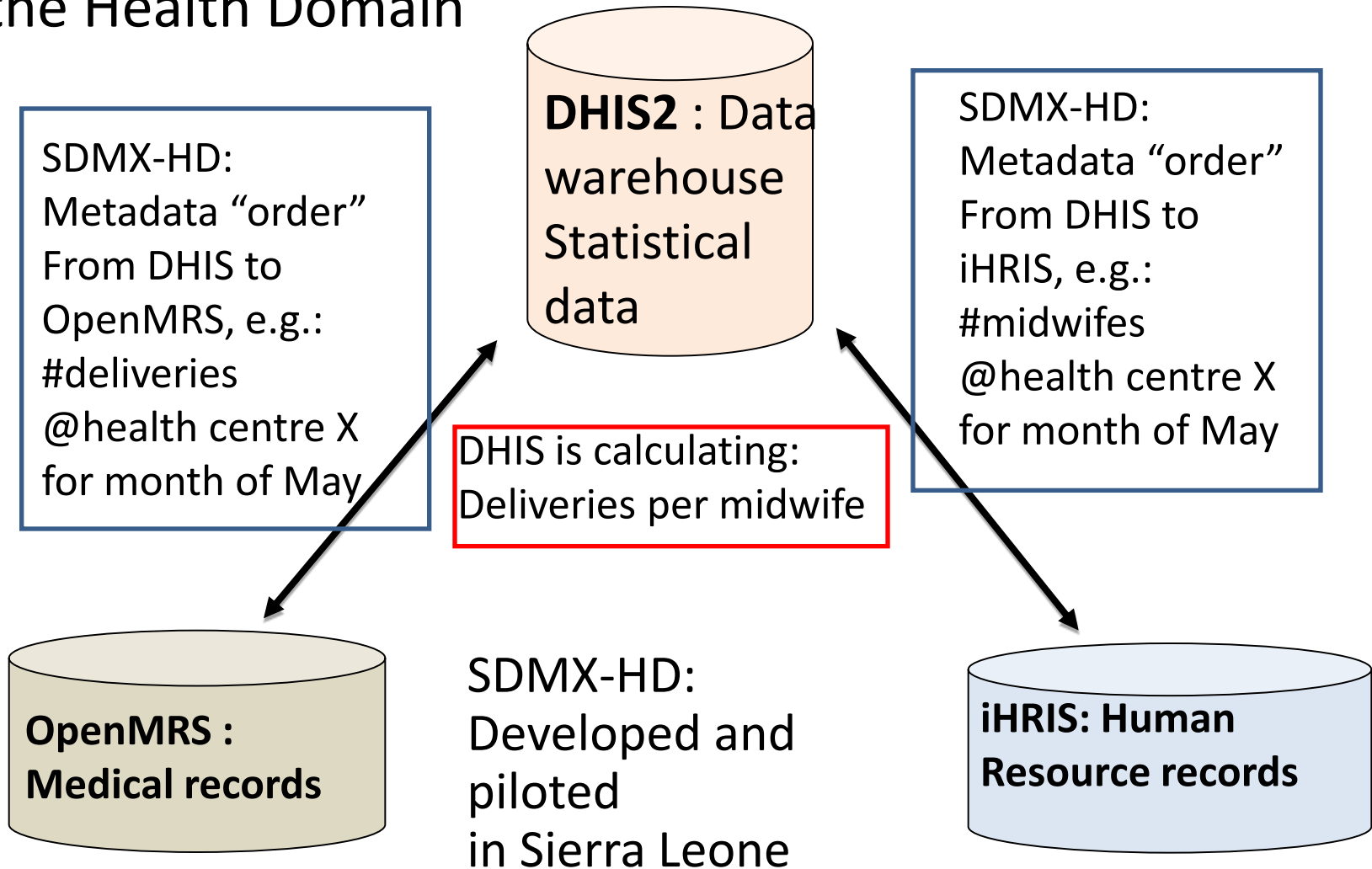


# Following HMN Framework for HIS



2) Integration of different data domains in Sierra Leon: An interoperable architecture (2010-)

# SDMX-HD – Statistical Data and Metadata Exchange for the Health Domain



# 3) Information use: Transparency and accountability

| Chiefdoms    | % Full Immunized 2nd Quarter | % PHU Delivery 2nd Quarter | % 3rd ANC Visit | % 2nd Dose of IPT | % MMRC Submitted | % Exclusive Breastfeeding at Penta3 | Average Score | Ranking   |
|--------------|------------------------------|----------------------------|-----------------|-------------------|------------------|-------------------------------------|---------------|-----------|
| Kongbora     | 98.2                         | 45                         | 170.9           | 96.6              | 86.6             | 93.3                                | 5.3           | <b>1</b>  |
| Fakunya      | 124.3                        | 62                         | 154.3           | 86.2              | 100.0            | 48.1                                | 5.0           | <b>2</b>  |
| Dasse        | 134.9                        | 57                         | 90.5            | 86.3              | 100.0            | 45.9                                | 4.8           | <b>3</b>  |
| Kaiyamba     | 90.3                         | 55                         | 162.7           | 93.4              | 75.0             | 71.3                                | 4.8           | <b>3</b>  |
| Timidale     | 140.3                        | 46                         | 106.8           | 91.7              | 91.7             | 33.0                                | 4.8           | <b>3</b>  |
| Kowa         | 118.4                        | 52                         | 96.5            | 46.7              | 100.0            | 78.2                                | 4.7           | <b>6</b>  |
| Lower Banta  | 88.3                         | 48                         | 201.6           | 120.8             | 100.0            | 35.6                                | 4.7           | <b>6</b>  |
| Bagruwa      | 61.4                         | 37                         | 110.3           | 92.4              | 93.0             | 32.1                                | 4.3           | <b>8</b>  |
| Kamaje       | 55.6                         | 35                         | 69.7            | 140.7             | 100.0            | 86.5                                | 4.3           | <b>8</b>  |
| Kargboro     | 80.4                         | 45                         | 93.2            | 77.6              | 100.0            | 36.5                                | 4.3           | <b>8</b>  |
| Kori         | 49.8                         | 40                         | 92.6            | 89.4              | 86.6             | 64.0                                | 4.3           | <b>8</b>  |
| Ribbi        | 71.8                         | 26                         | 53.7            | 57.4              | 100.0            | 60.5                                | 3.7           | <b>12</b> |
| Upper Banta  | 61.1                         | 29                         | 68.0            | 101.2             | 77.8             | 38.6                                | 3.7           | <b>12</b> |
| Bumpeh       | 54.9                         | 29                         | 73.8            | 38.2              | 100.0            | 28.3                                | 3.2           | <b>14</b> |
| <b>Total</b> | <b>91.4</b>                  | <b>43</b>                  | <b>114.3</b>    | <b>32.4</b>       | <b>93.6</b>      | <b>20.8</b>                         |               |           |



# Anecdotal evidence...

Women giving birth in health facilities,  
Western District, Sierra Leone, 2009<sup>7</sup>



## 4) Scaling from Sierra Leone to West Africa

- West African Health Organization/ Organisation Oest Africaine de Sante (WAHO/OOAS)
- 15 member countries
- Centre of Excellence in Health Informatics, a Champion for HIS strengthening
- Support countries
  - Policies
  - Standards
  - Project-based
- Part of global network

Integrated Health Information Systems  
- Collaborating Network of Countries and Institutions

**Health Information Architecture**

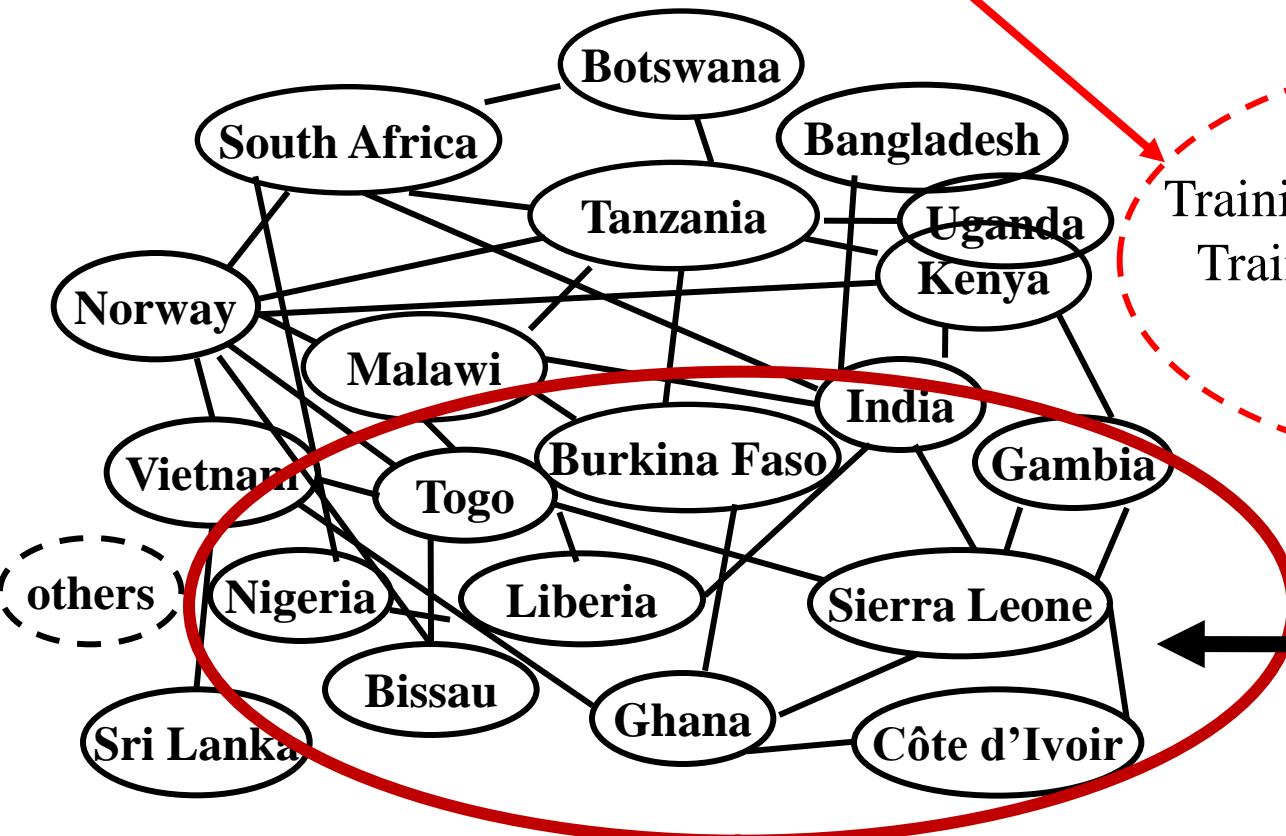
Integration, standards, interoperability  
Use of information for action  
HIS /HMIS /M&E, management

**Free & Open Source Software**

Sharing across the world  
Distributed development  
knowledge & support

**Capacity Building**

Training, Education, Research  
Training of health workers  
Graduate courses,  
Masters, PhD



*Network of Action in  
West Africa:  
HIS Centre of excellence  
WAHO*

# Concluding remarks

- A proof of concept exists of sharing data between DHIS2, OpenMRS, and iHRIS
  - An interoperable architecture of open source HIS applications
- This architecture is at the core of the work by WAHO to support member countries to strengthen HIS.
- WAHO is in for the long run