Philippines Architecture Experienc Sharing Workshop

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SOUTH AFRICA

Current Implementation Blog

SEP
18

Marco-Polo and Umbrellas

6 days until the RHEA meeting in Kigali. The countdown continues. That noted we've had quite an eventful weekend. The JHS team pushed hard on Saturday to get the Ruhunda site to a working solution (this continues today - Tuesday).

We had some fun and games this weekend with heavy rain and no power for some stages, having the team working on the UPS for the server to get as much time as possible on the systems. We spent a good bit of Saturday working on patching together a network infrastructure in the interim (the MoH will rollout the updated network later on). There was an atmosphere of adventure with the guys working in the dark / by monitor light / by phone-torches, taping cables in place, checking network points, installing temp switches, pushing to get the internet connected and available through the Health Centre, not to mention the continued testing and tweaking (finding and fixing bugs) that come up when you lay down code in a real world setting.

Carl Fourie, Jembi Health Systems, 18 September 2012, http://rwandahie.blogspot.sg/

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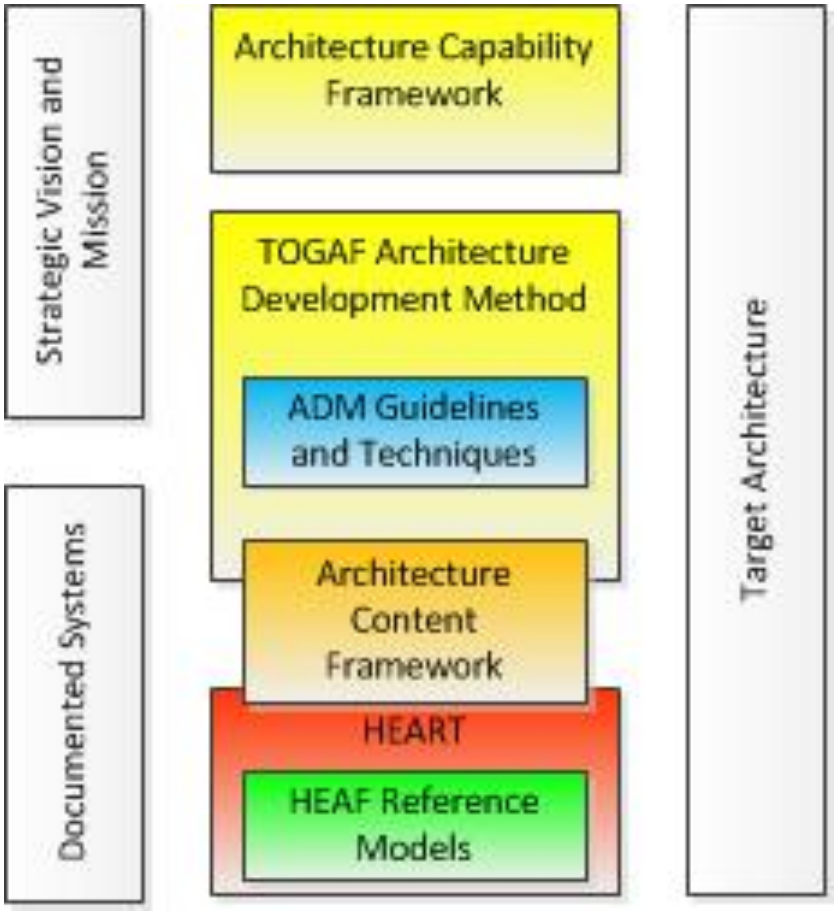
Rwamagana
Hospital

Health Enterprise Architecture Framework for National Health Information Systems Integration



- -> Capacity Building
- -> Methodology
- -> Methodological Tools
- -> Repository of Assets
- -> Registry Application
- -> Reference Models

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Slide courtesy of Bron Kisler, Elizabeth Keller, Don Newsham, Joint Initiative Council

Key Requirements (3)

STANDARDS OF INTEREST (first list of 33) (1-18)

- **Note: Need to further rationalize the 50 standards needed into 4-5 buckets / business requirements – using enterprise view (the house picture)** (use SKMT)

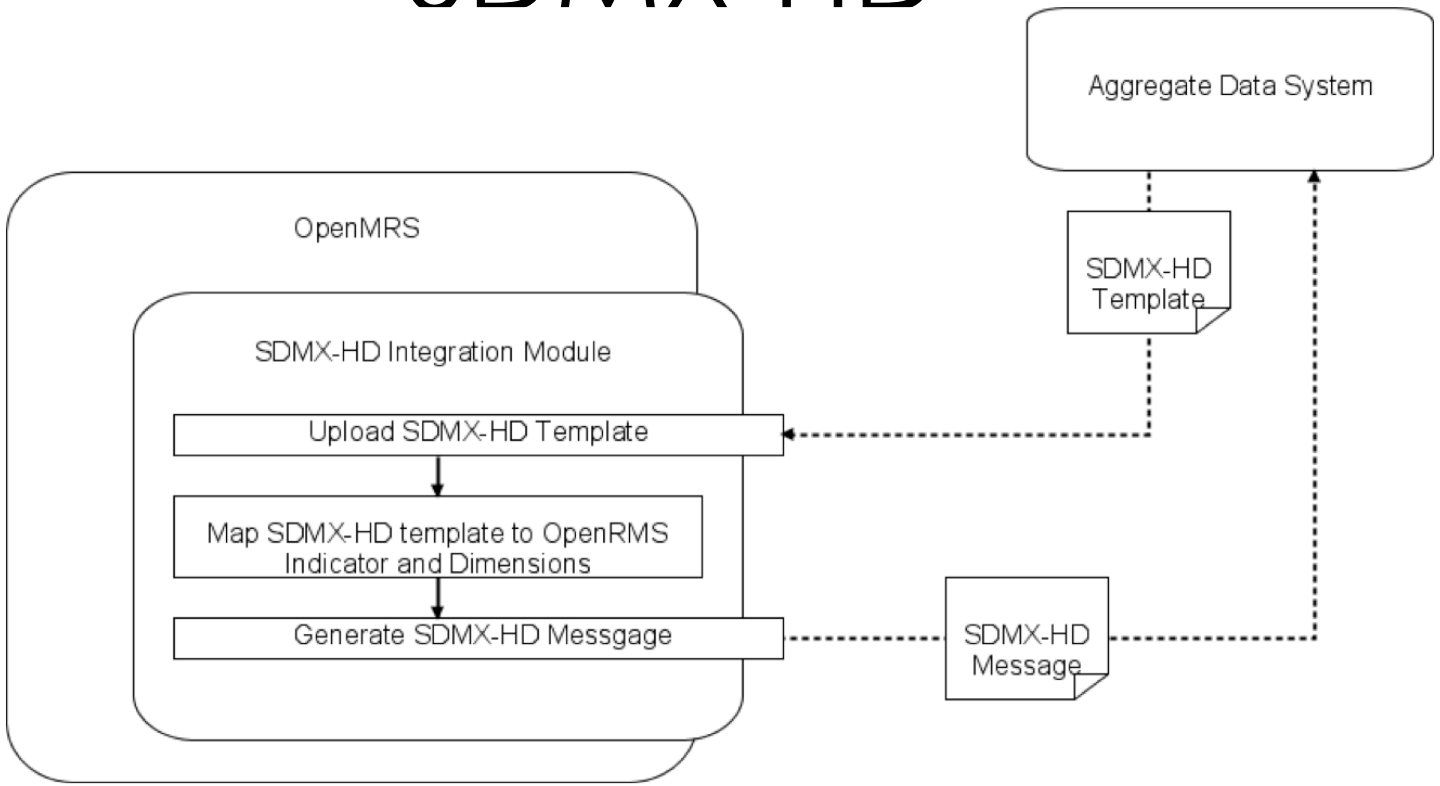
Deployment of a Clinical Data Warehouse	TS 29585
Provider Identification	TS 27527
Health Indicators for Conceptual Framework	IS 21667
Health Informatics -Service Architecture -Enterprise Viewpoint	IS 12967-1
Health Informatics -Service Architecture -Information Viewpoint	IS 12967-2
Health Informatics -Service Architecture -Computational Viewpoint	IS 12967-3
Identification of Subjects of Health Care	TS 22220
EHR Definition, Scope and Context	TR 20514
Good Principles and practices for a clinical data warehouse	TR 22221
Health Indicators for Conceptual Framework	TS 21667
Harmonized Data Types for Information Interchange (name change 2007)	IS 21090
Guidelines for terminology development organizations	TR 12309
Common Glossary for ISO/TC 215	TS 28379
Directory services for security, communications and identification of professio	TS 21091
Secure Archiving of electronic health records Part1 Principles and Requirement	TS 21547
Privilege Mgmt and AC-1 Overview & Policy Mgmt	TS 22600-1
HC Info Privilege Mgmt & Access Control P-2 Priv Mgmt	TS 22600-2
HC Info Privilege Mgmt & Access Control P-3 AC Mgmt	TS 22600-3

Key Requirements (3)

- **STANDARDS OF INTEREST (first list of 33)** (19-33)

Functional and Structural Roles	TS 21298
Pseudonymisation	TS 25237
Information Security Mgmt in Health using ISO/IEC 27002 (name change 2007 M	IS 27799
Capacity-based eHealth architecture roadmap -Part 1 - International Initiatives	TR 14639-1
Capacity-based eHealth architecture roadmap - Part 2: Business Requirements	TR 14639-2
Personal Health Records: Definition, Scope and Context	TR 14292
Knowledge Management of Health Information Standards	TR 13054
Requirements for an electronic health record architecture	TS 18308
EHR System functional model	ISO/HL7 107
Business Requirements for Health Summary Records - Part 1: Requirements	TR 12773-1
Business Requirements for Health Summary Records - Part 2: Environmental Sc	TR 12773-2
WHO ICD-10	
Logical Observation Identifiers Names and Codes (LOINC)	
SNOMED-CT (for LIC)	
SDMX-HD	
Slide courtesy of Bron Kisler, Elizabeth Keller, Don Newsham, Joint Initiative Council	

SDMX-HD



The Statistical Data and Metadata Exchange – Health Domain (SDMX-HD), a data exchange format for the Monitoring and Evaluation community. See www.sdmx-hd.org

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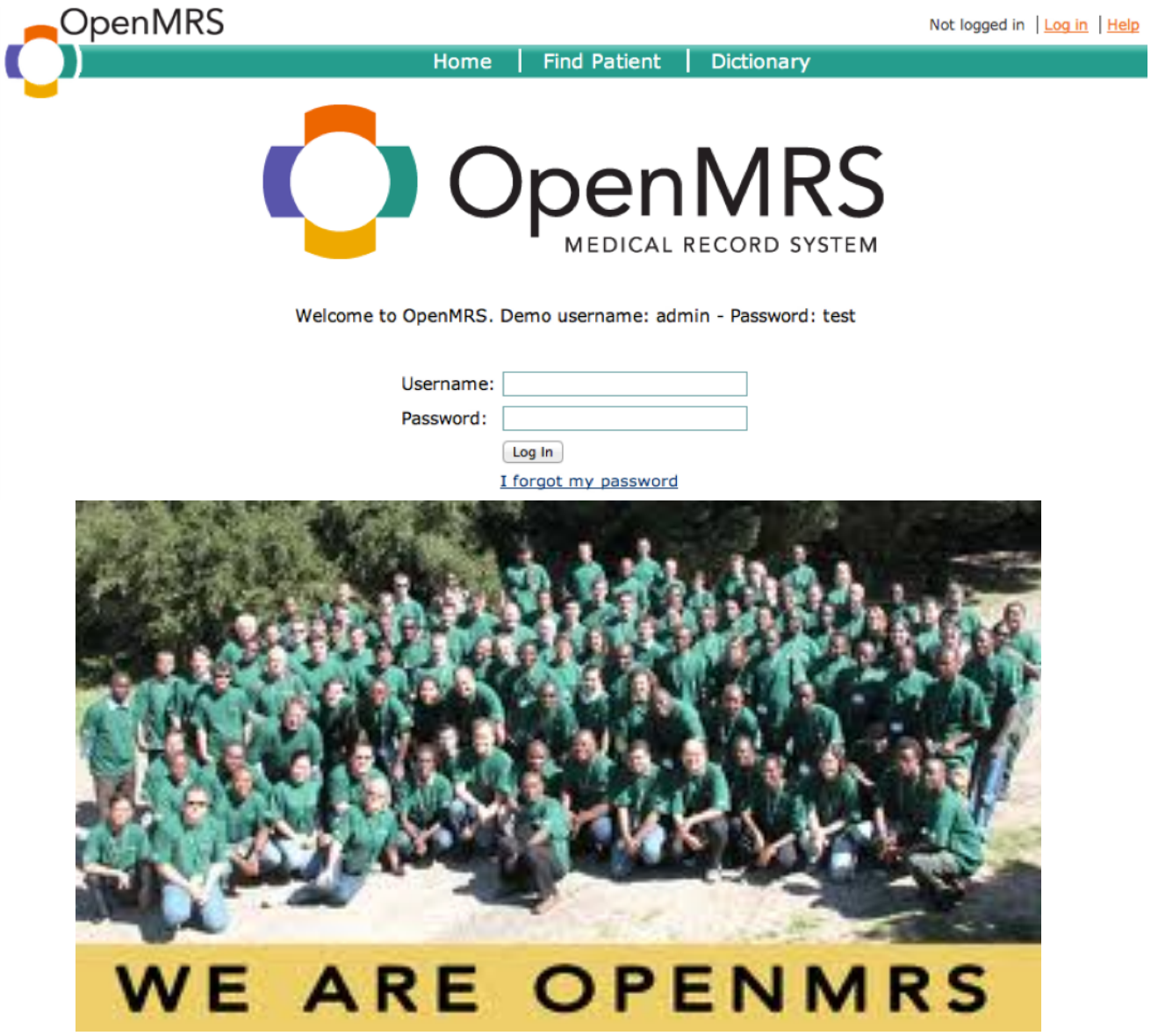

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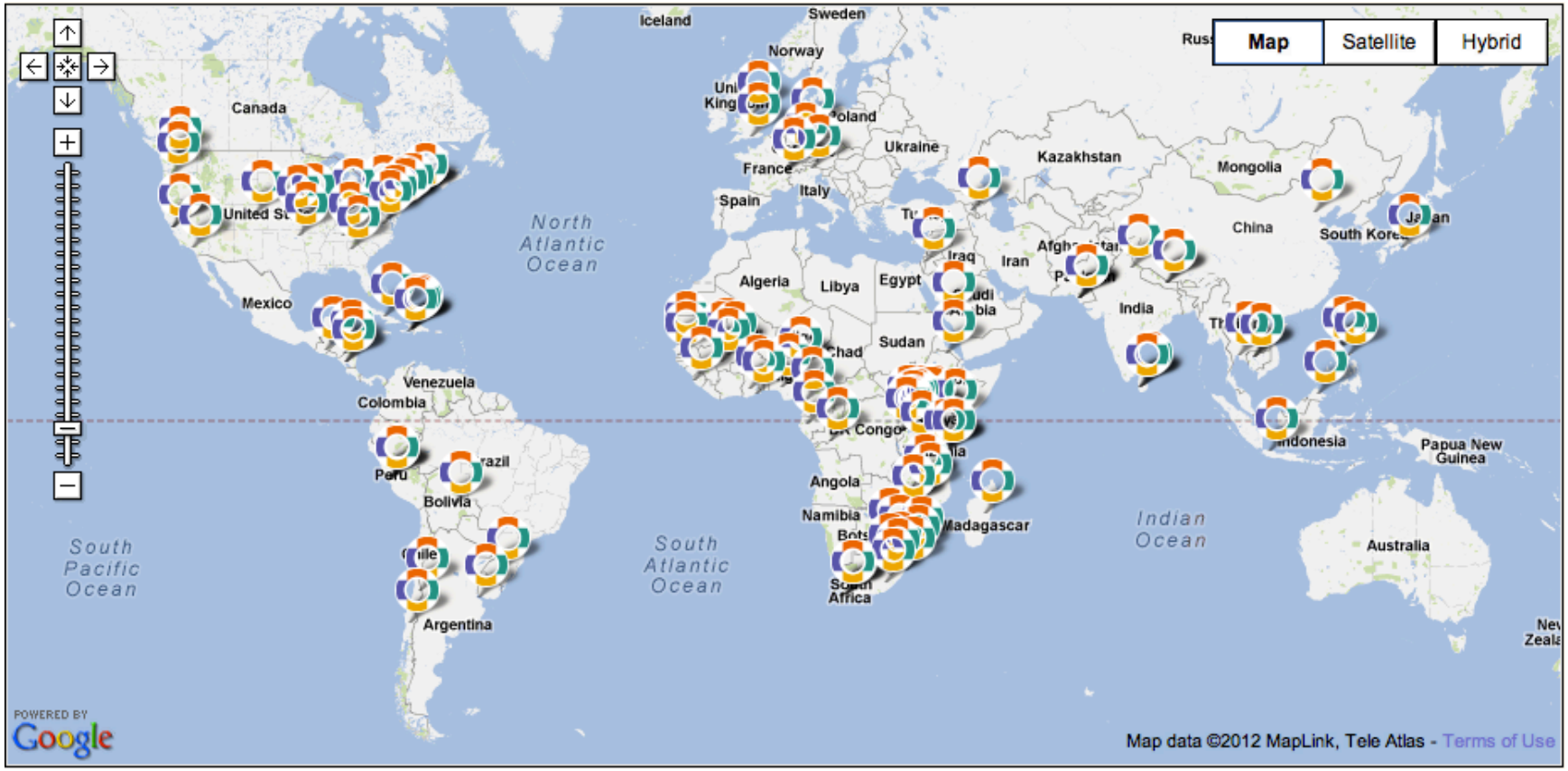
Atlas of known OpenMRS Implementations



OpenMRS
MEDICAL RECORD SYSTEM

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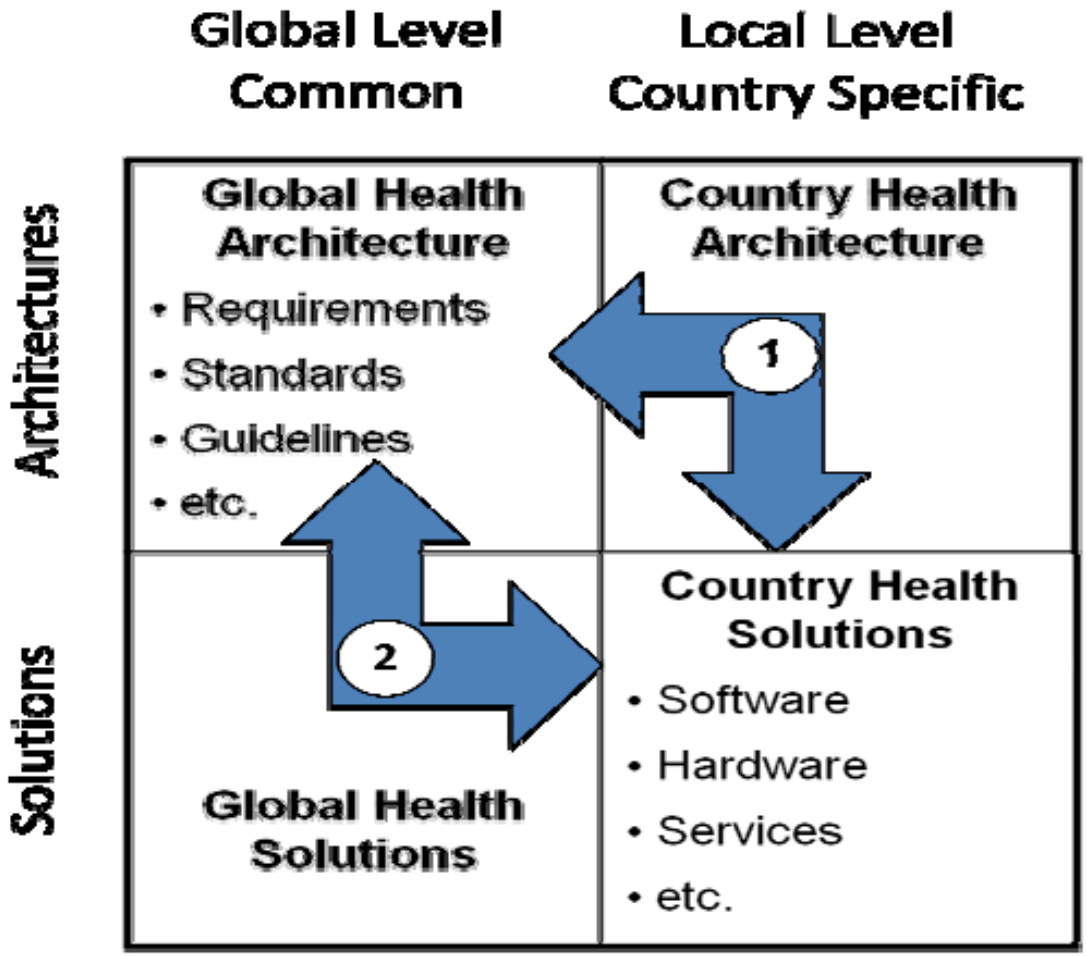
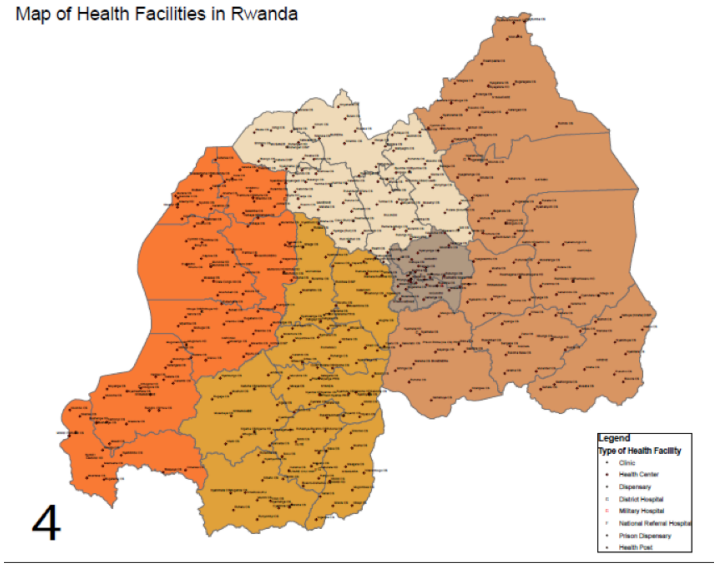
Architecture and Solutions

slide courtesy of David Lubinski, PATH



slide courtesy of Derek Ritz, ecGroup

Improving Interoperability for Maternal and Child Health in Rwanda



Rwanda

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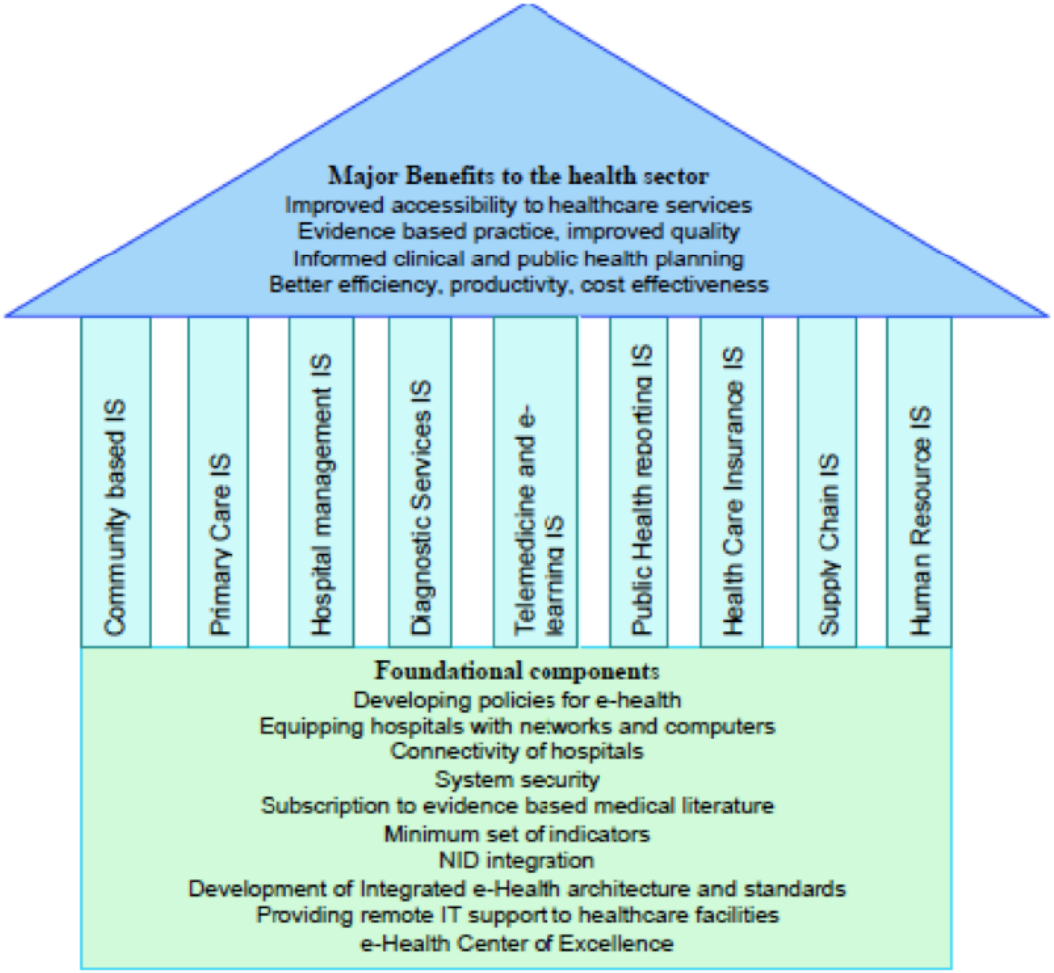
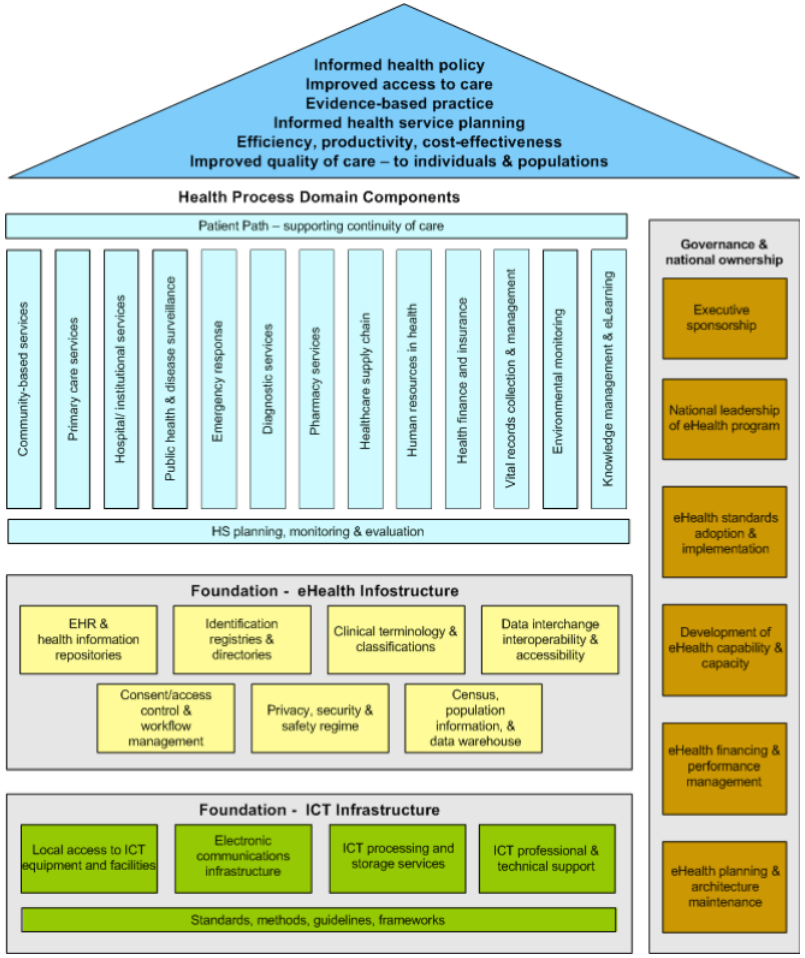
VISION - Rwanda eHealth Strategy

(Dr Richard Gakuba, National eHealth Coordinator, Ministry of Health, Rwanda)



GENERALIZING THE VISION - ISO 14639

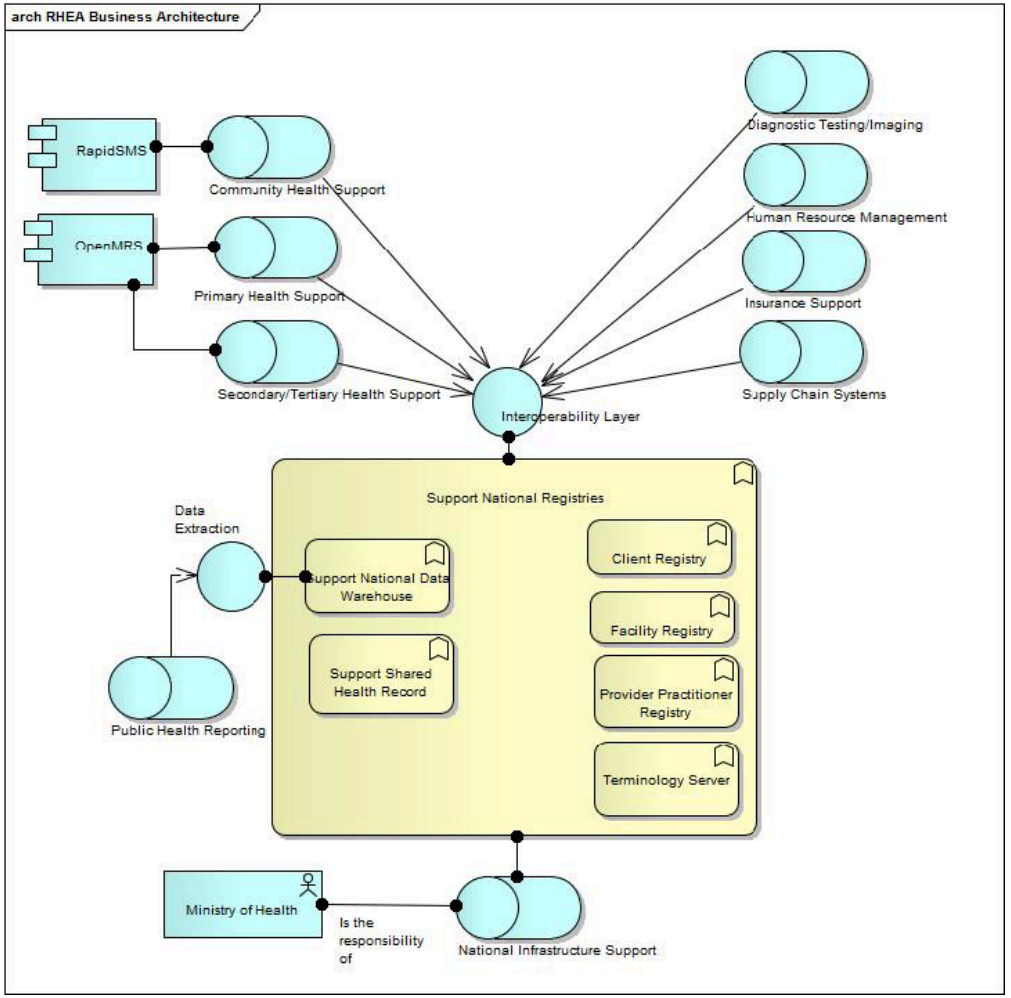


- -> Vision and goals
- -> Domains
- -> Governance
- -> Infostructure
- -> Infrastructure
- -> Standards

Goals

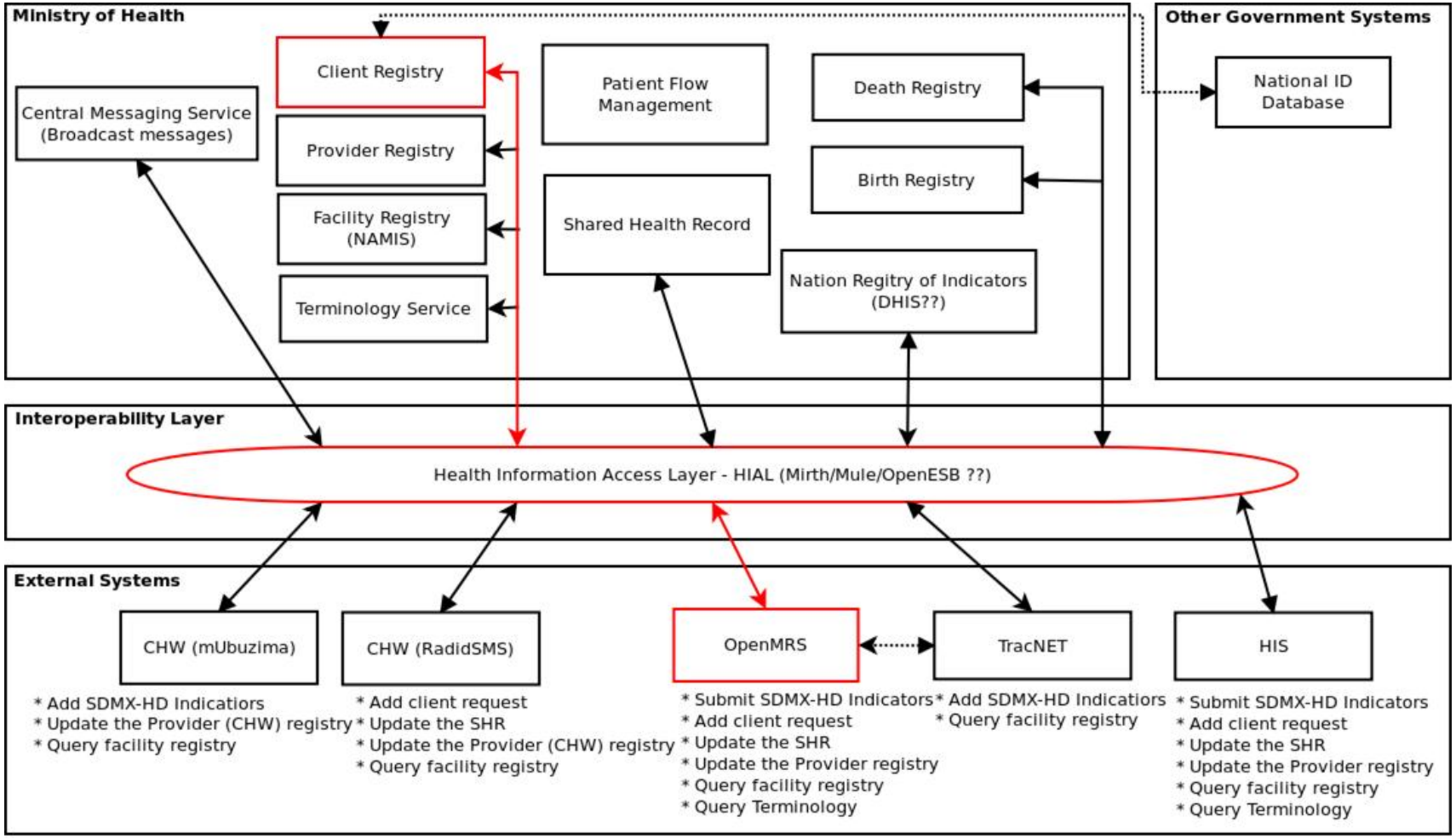
- **Increase the number of pregnant women accessing ante-natal care services**
- **Increase the number of HIV-positive pregnant women accessing PMTCT services**
- **Improve progress in implementing MDGs 4, 5 and 6 (lower incidences of maternal and child mortality and HIV/AIDS)**

Business Architecture – MODELED (ArchiMate)



Slide courtesy of Mead Walker, Northrup Gruman

Rwanda Health Enterprise Architecture Framework



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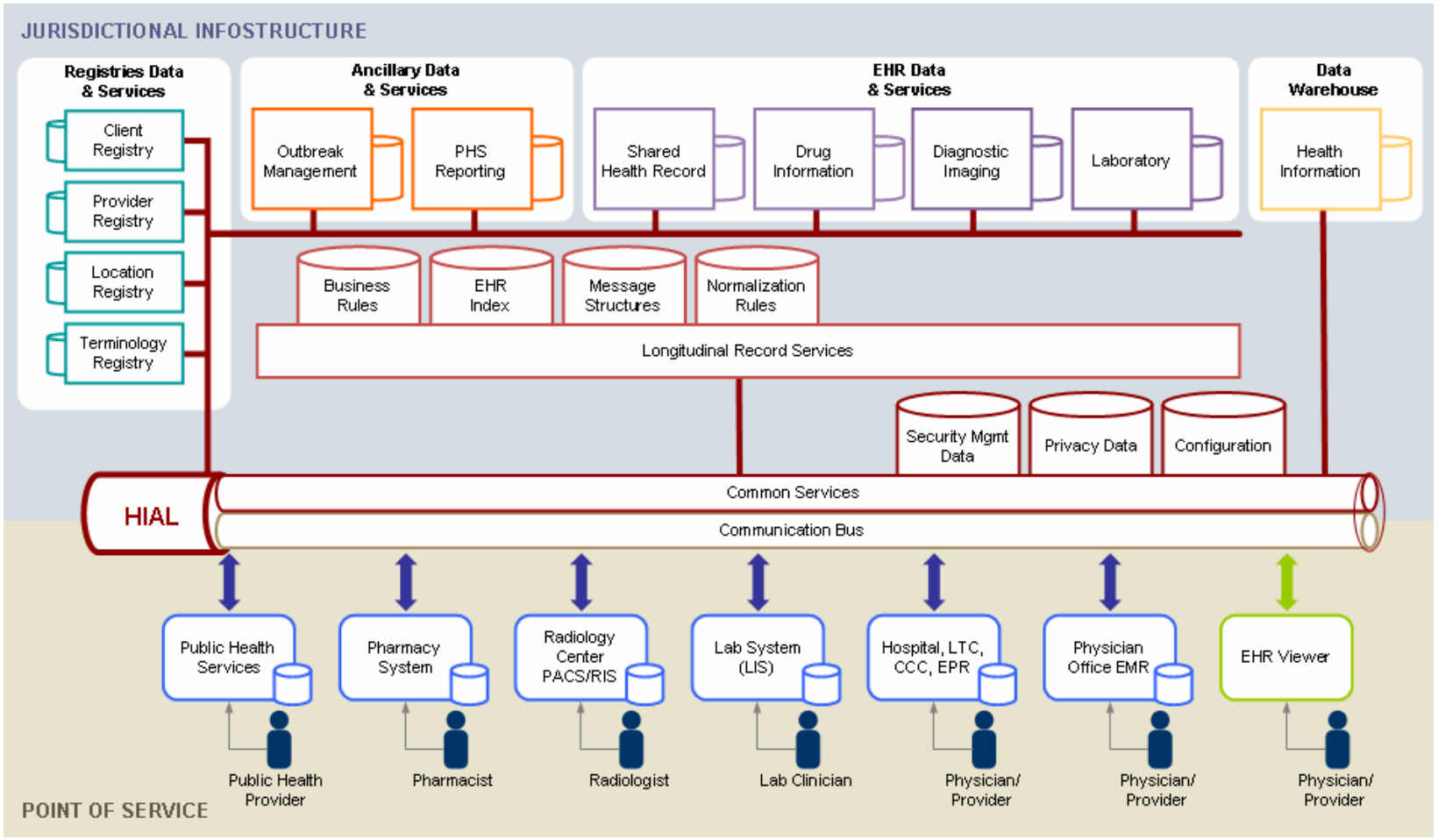
Canada Health InfoWay EHR Architecture



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Health Information Exchange Training in Canada

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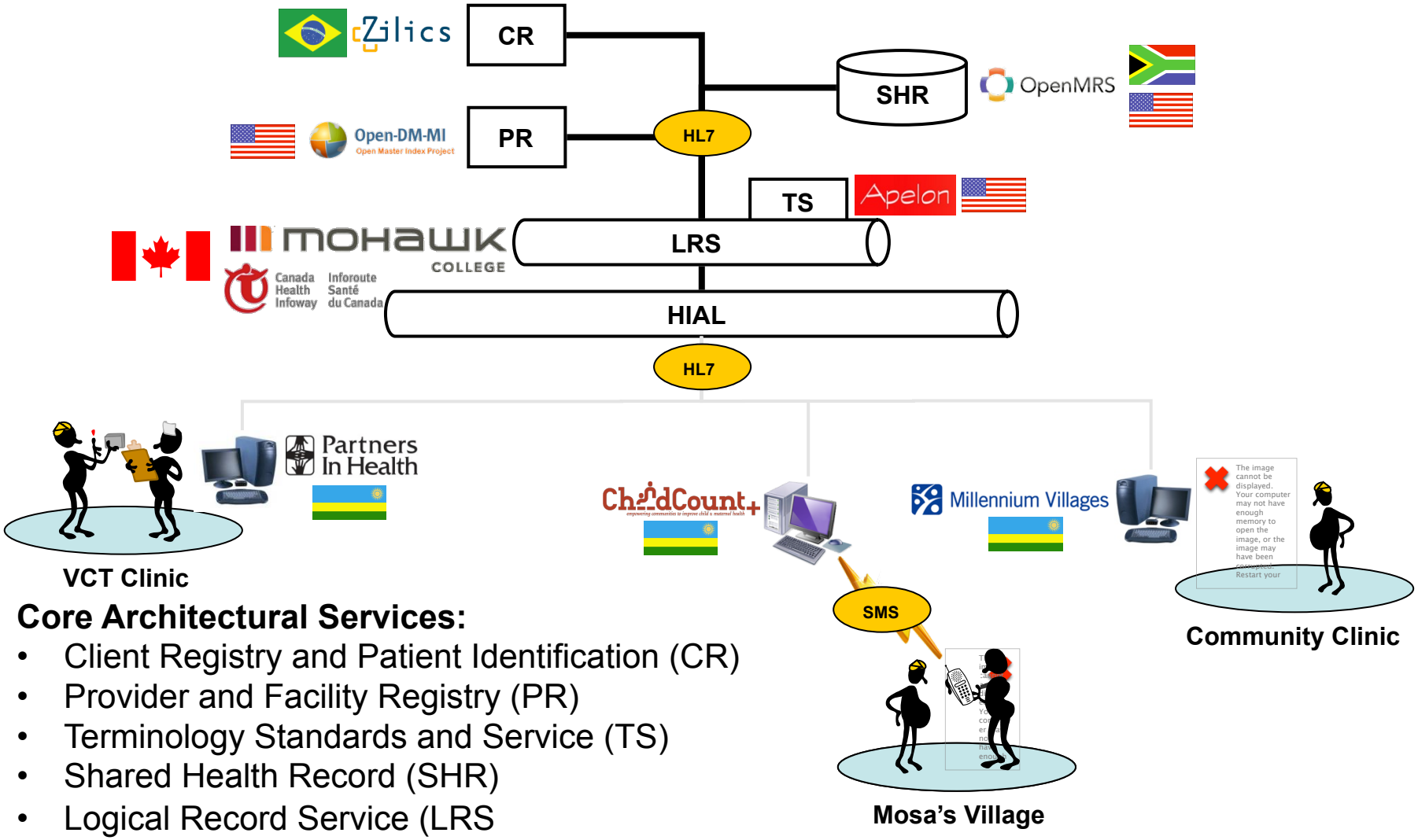
Technology components



Core Architectural Services:

- Client Registry and Patient Identification (CR)
- Provider and Facility Registry (PR)
- Terminology Standards and Service (TS)
- Shared Health Record (SHR)
- Logical Record Service (LRS
- Health Information Access Layer)

Connectathon at Medinfo 2010

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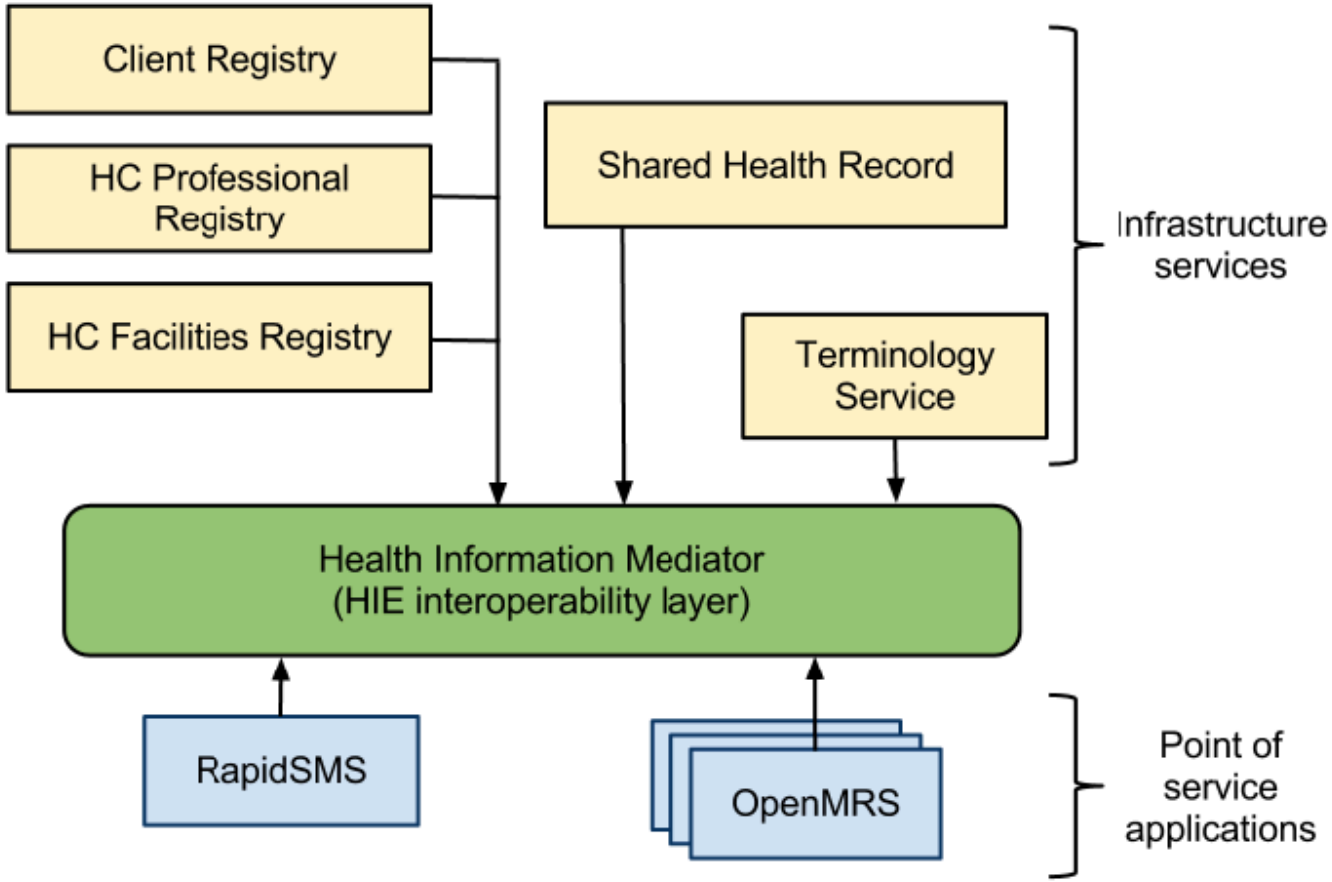
Architecture of the Rwandan Open Health Information Exchange

1. Crichton R, Moodley D, Pillay A, Gakuba R, Seebregts CJ. *An Interoperability Architecture for the Health Information Exchange in Rwanda*. In: International Symposium on Foundations of Health Information Engineering and Systems. 2012.



HeAL
HEALTH ARCHITECTURE LABORATORY
UNIVERSITY OF KWAZULU-NATAL

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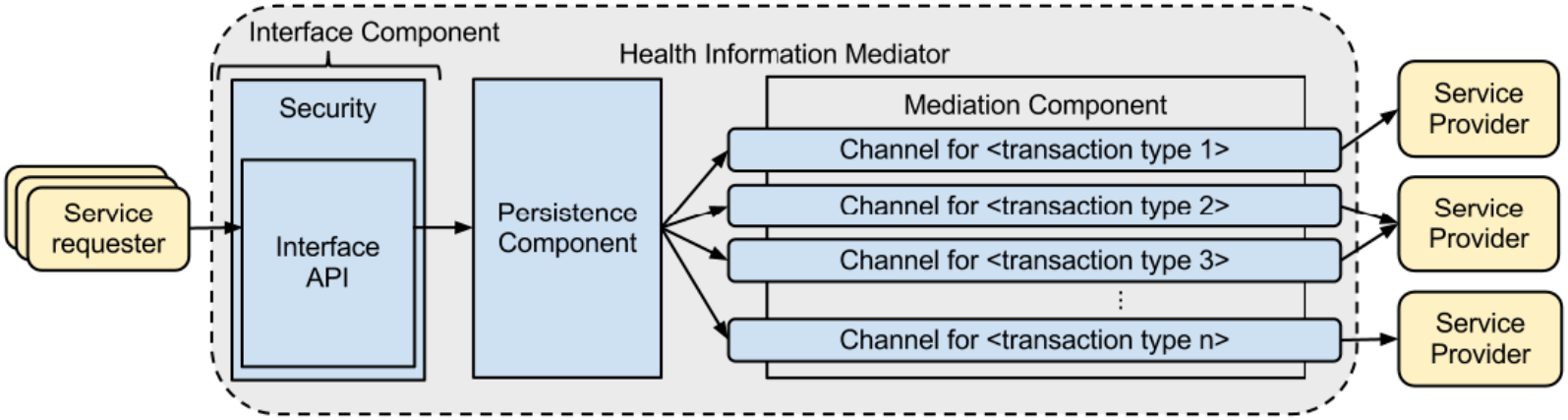
OpenHIM Interoperability Layer Design

(developed by Ryan Crichton, Jembi Health Systems)



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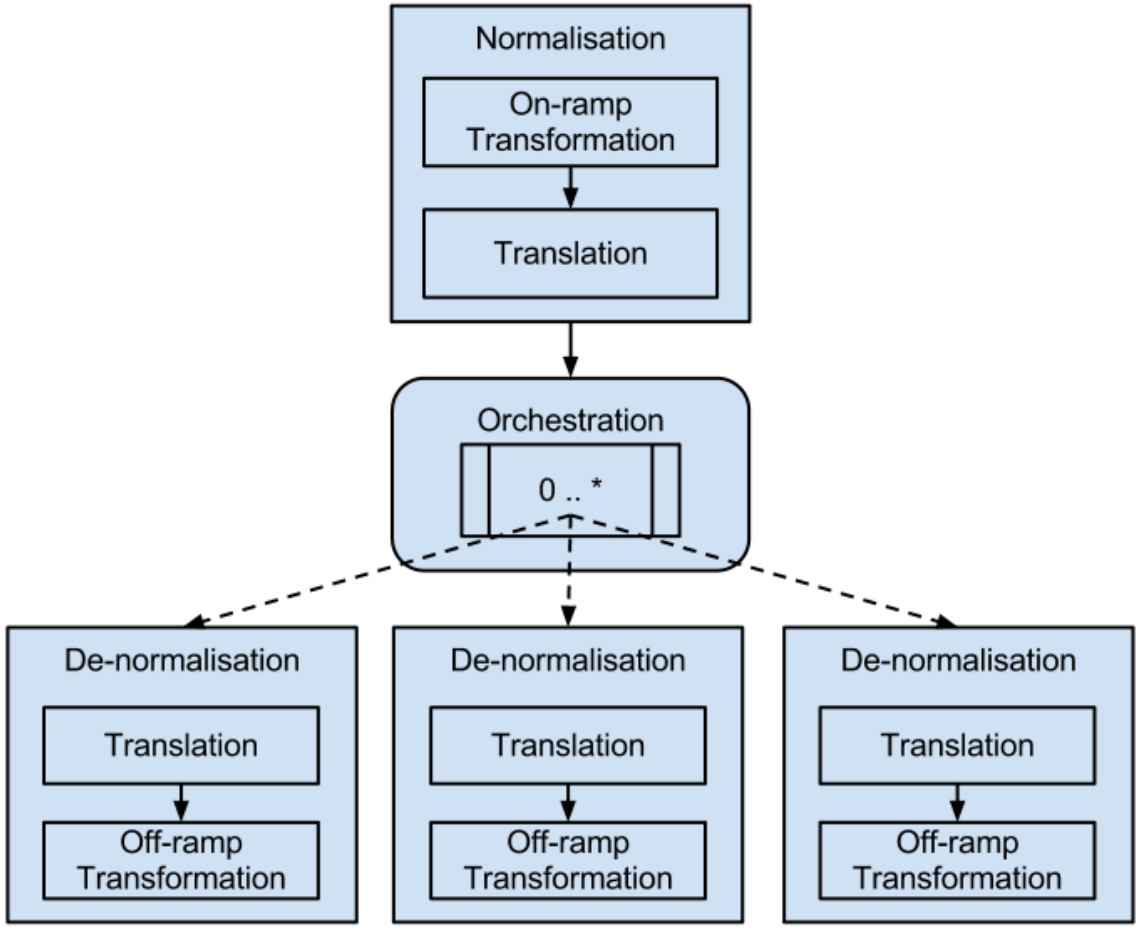
OpenHIM Mediation and Orchestration Design

(developed by Ryan Crichton, Jembi Health Systems)



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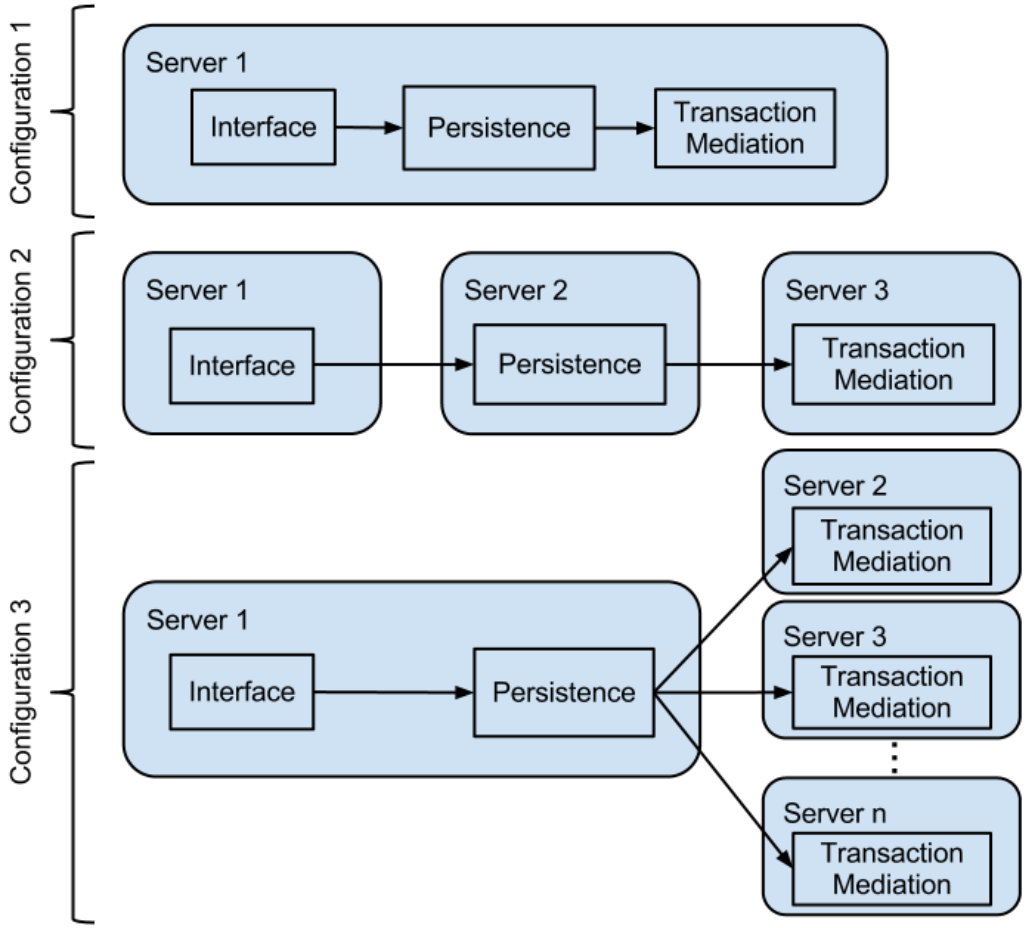
OpenHIM Component Scalability Design

(developed by Ryan Crichton, Jembi Health Systems)



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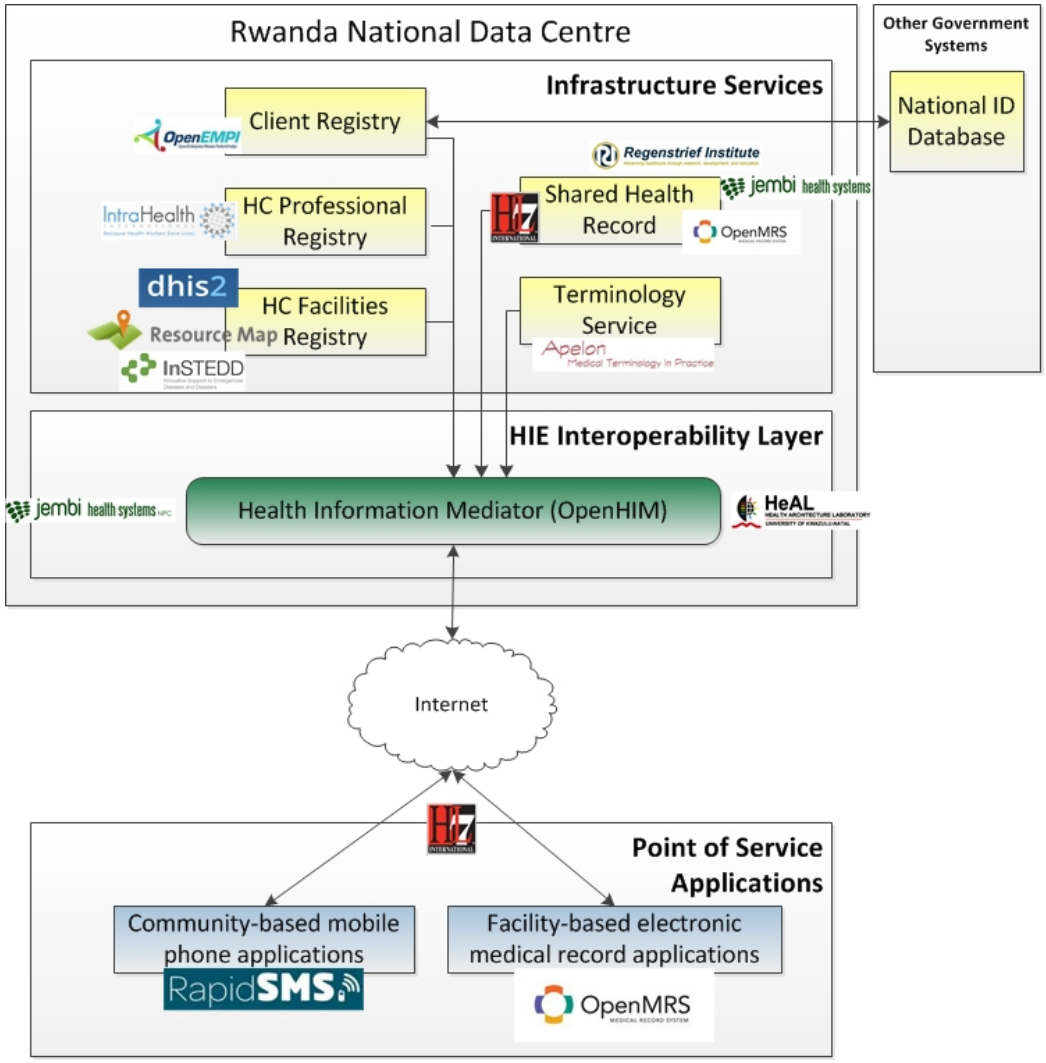
Rwanda Open Health Information Exchange Technology Architecture



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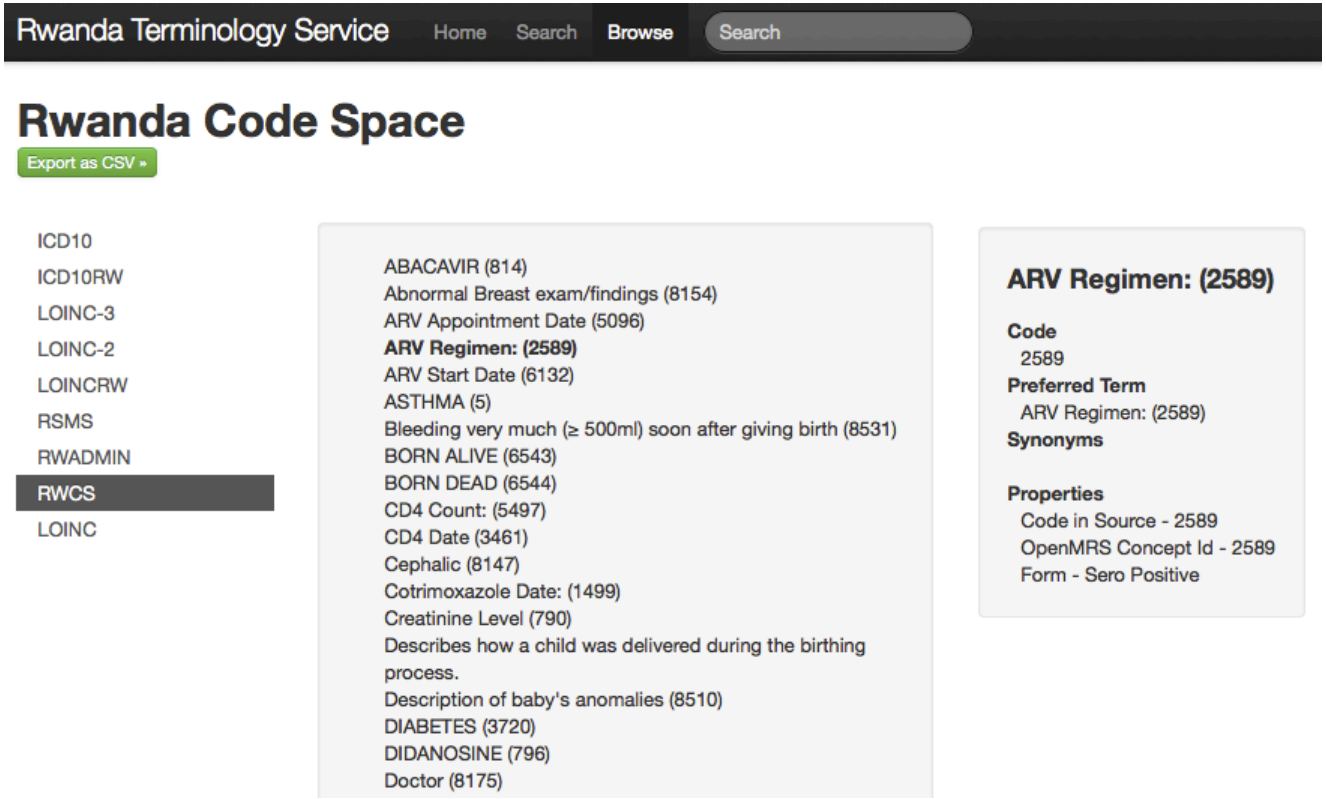
Rwanda Terminology Service

developed by Hannes Venter, Jembi Health Systems - http://ts/jembi.org



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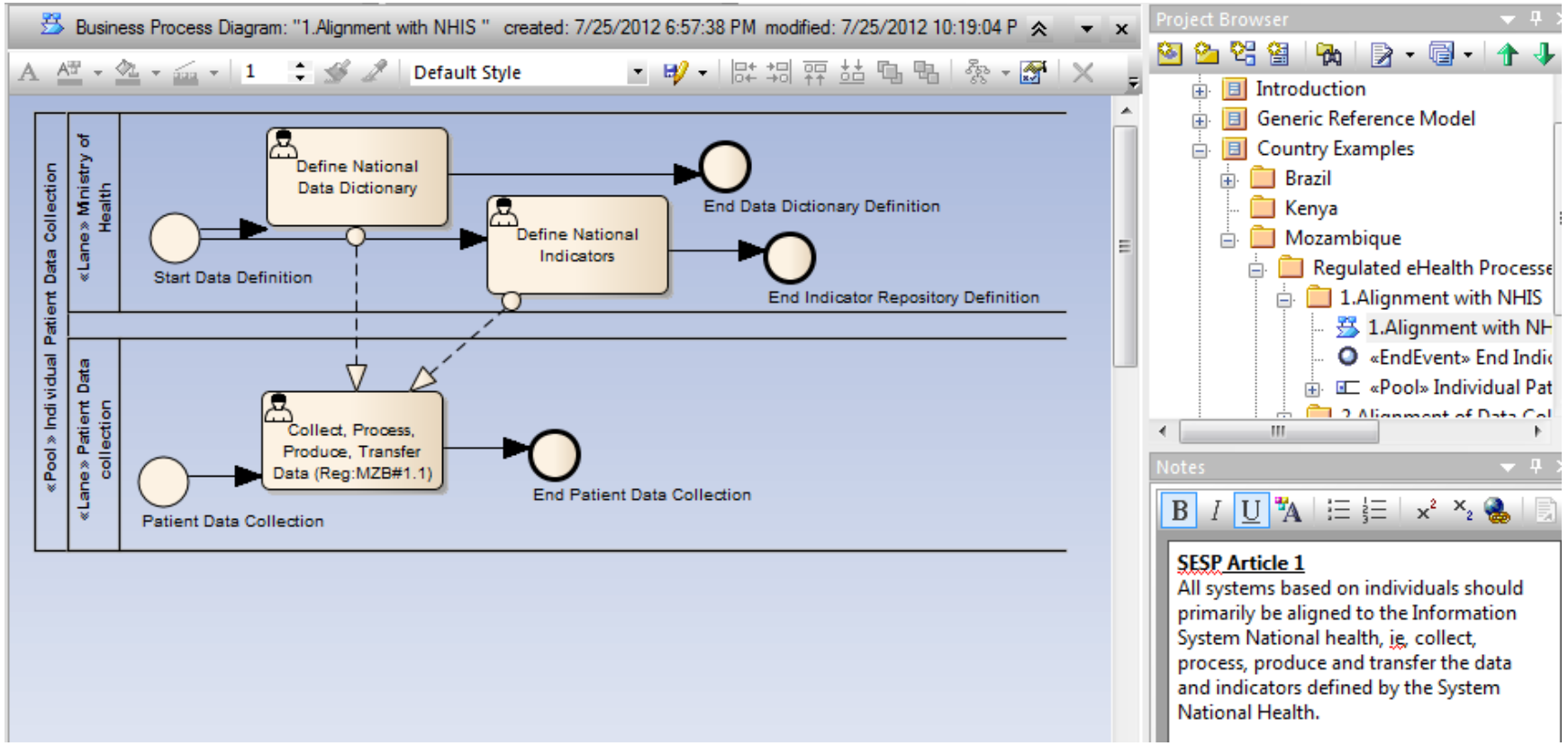
Health Architecture Registry and Repository

www.HingX.org

developed by Open Health Tools (www.openhealthtools.org)

Modeling eHealth Policies and Regulations



GREENFIELD
Management Solutions

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Partners and Funders

PARTNERS

- Ministry of Health of Rwanda
- Jembi Health Systems
- Regenstrief Institute
- InSTEDD
- Sysnet
- Intrahealth
- Apelon
- Partners in Health
- OpenMRS Foundation
- RapidSMS (UNICEF)
- University of KwaZulu-Natal
- Pivot Access

FUNDERS

- Canadian International Development Research Centre (IDRC)
- Rockefeller Foundation (RockFound)
- United States President's Emergency Plan for AIDS Relief (PEPFAR)
- United States Centres for Disease Control and Prevention (CDC)

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Thank you

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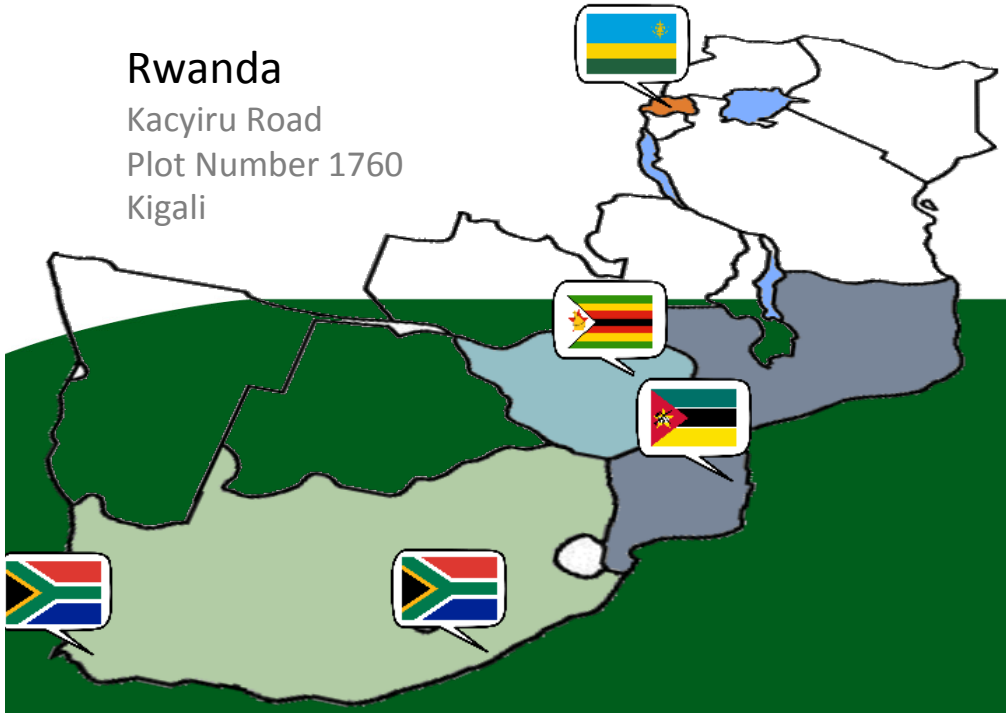

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