

# eCHIS and DHIS2 health data exchange: the use cases, development, and lesson learnt

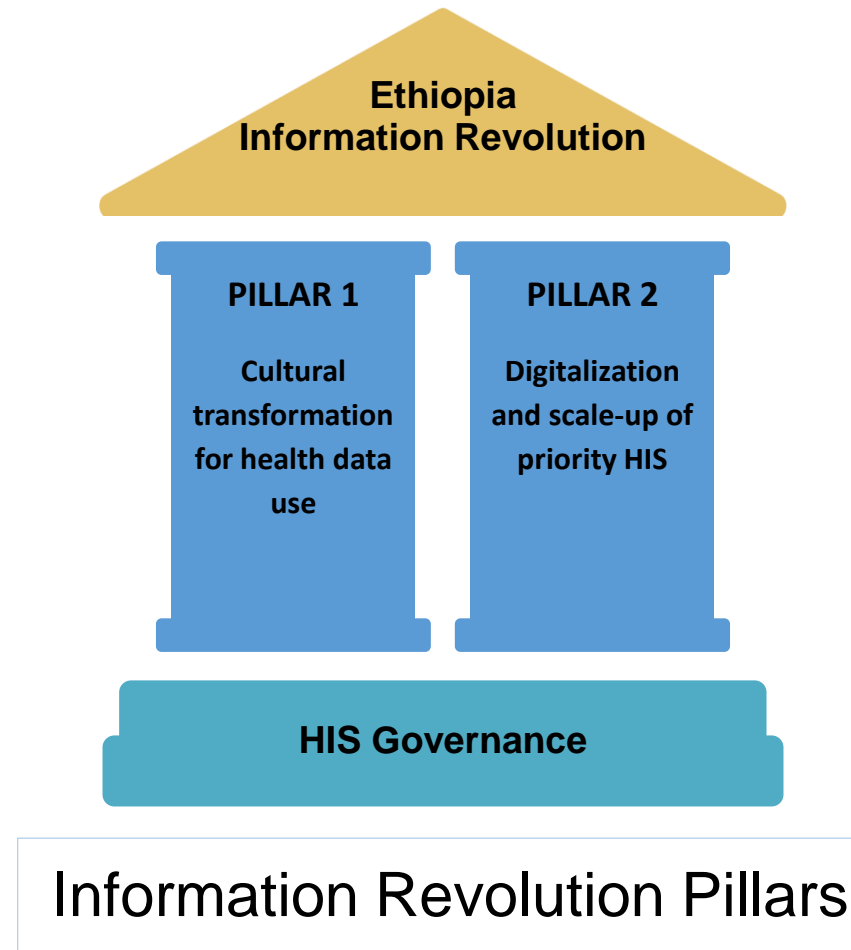
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# Information Revolution Roadmap

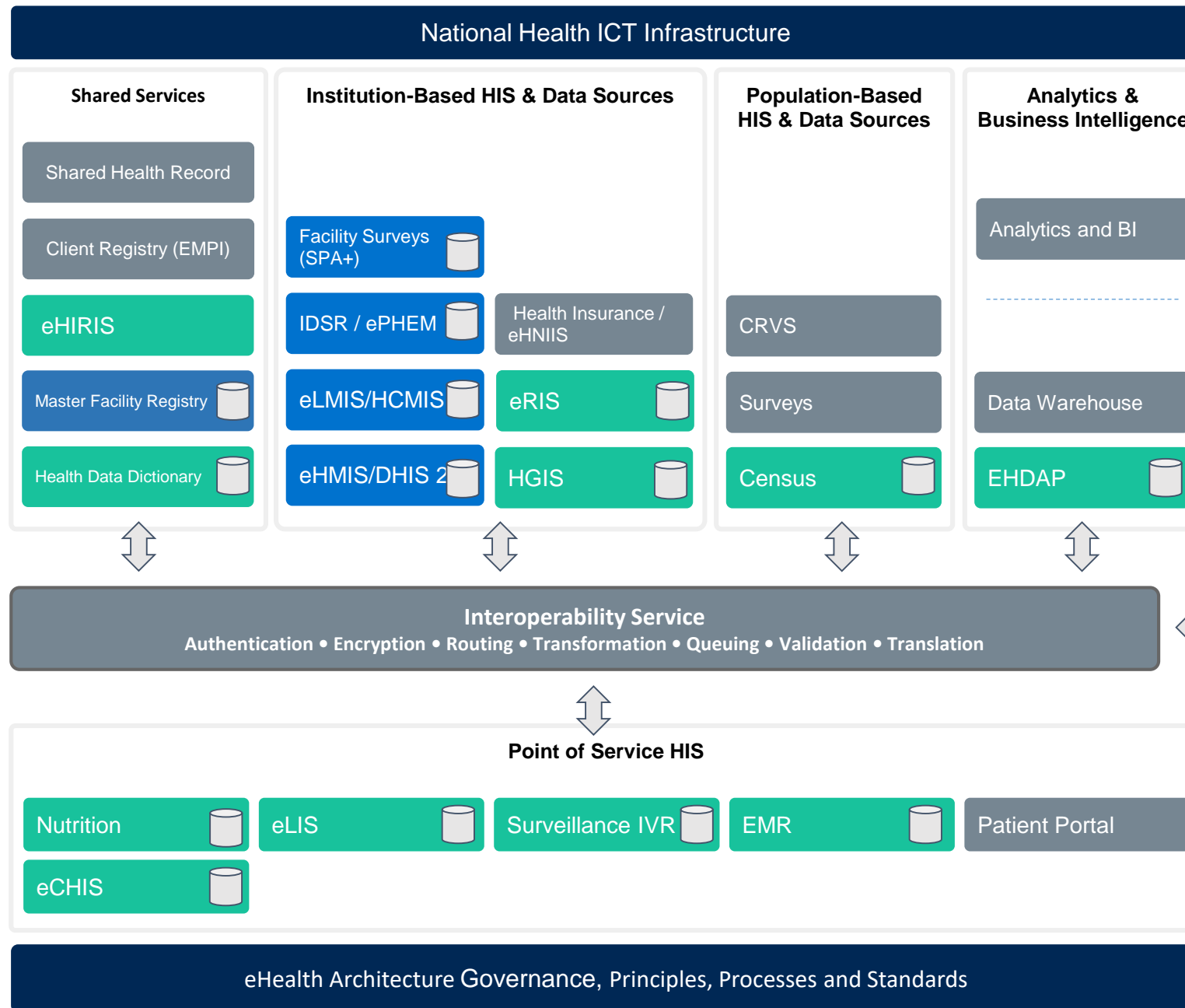




# Ethiopia eHealth Architecture (eHA)

The **Ethiopia eHealth Architecture** is a conceptual model that depicts the information systems, data sources, and integrations that the Ministry of Health proposes to implement and maintain to help achieve its strategic goals.

# Ethiopia eHealth Architecture



**LEGEND:**

- Development not started
- Under Development
- Functional Application

# Why eHealth Architecture (eHA)?

The eHealth Architecture provides a foundational plan to support the acquisition, exchange, sharing and use of health data.

## DATA

Making data transparent and accessible

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## HEALTH RECORD

Provides support for a patient based longitudinal health record

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## TRACKING

MOH health indicators and goals longitudinally

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## INTEROPERABILITY

Supports reuse of software applications with efficient components, standardized data and a plan for integration

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# The Systems

- Point of service systems – source of routine data
  - National implementation : community-based systems eCHIS
  - Electronic Community Health Information System (eCHIS), based on Commcare, a mobile-based platform
  - Widely used by health extension workers (HEW)
  - FMOH plans to expand eCHIS implementation to all the HPs in agrarian, urban, and pastoralist settings of the country



# The Systems

- National health management information systems - source of aggregate data in various dimensions
  - DHIS2 -HMIS implementation
  - of different reporting periods such as yearly, quarterly, monthly, and daily reports
  - DHIS2 is configured with more than 37 data sets and 4322 data elements
  - National implementation



# Challenges

- Lack of integration of those systems is resulting
  - fragmented reports and thereby data inconsistency and imposing difficulty for a full and interlinked report of certain indicators.
  - a large variety of data generated daily
  - Not aligned with eHA





# Our approach

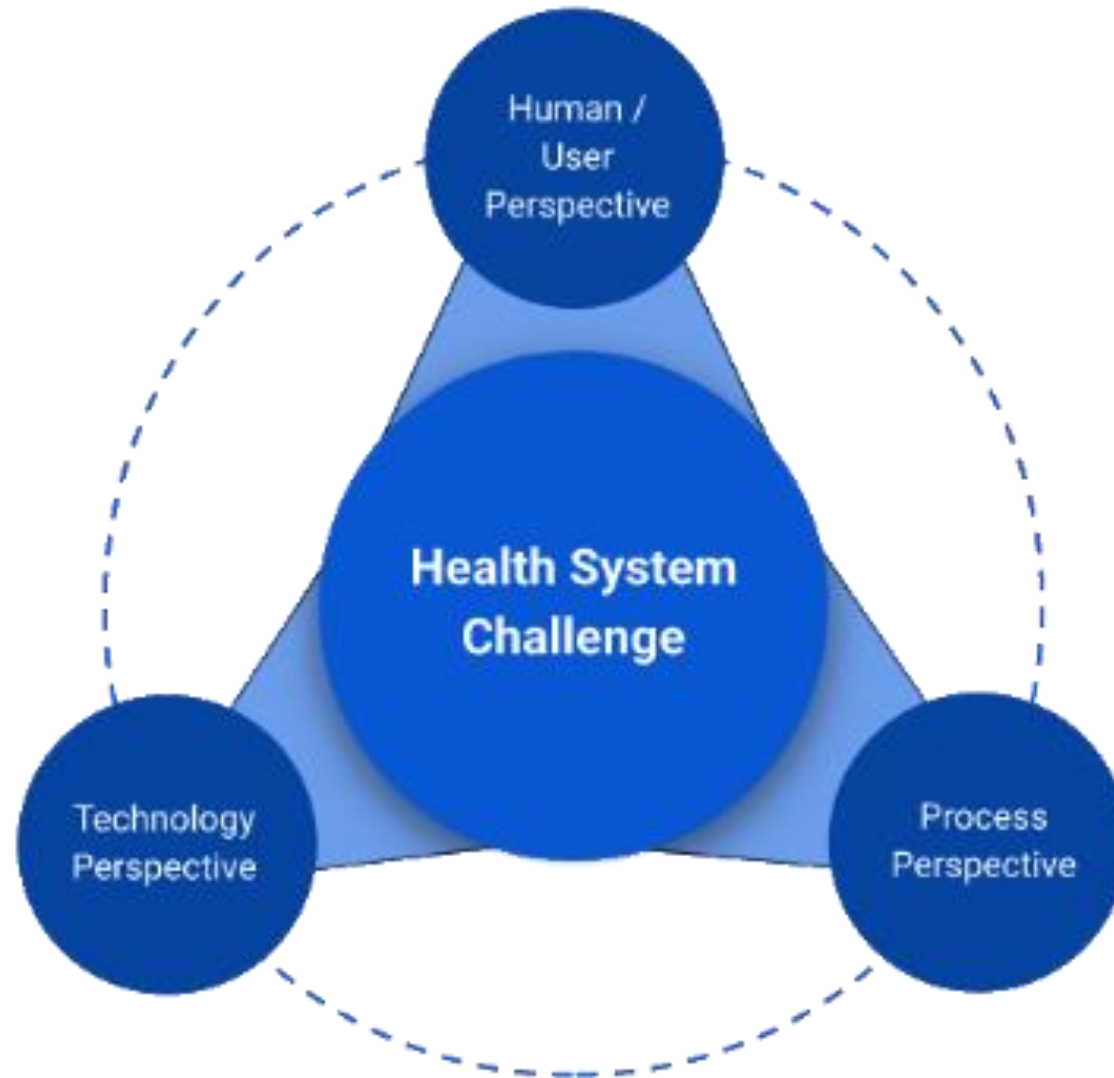
- Stakeholder's engagement
- Define current and future use cases
- Must be aligned to eHA



# Stakeholder's Engagement

- Building a sense of ownership for the solution
- End users are the ones that will need to use the solution
- A co-developed solution will better represent user needs
- Ministry of Health (MoH)
  - Policy and Planning Directorate (PPD)
  - HIT Directorate (HITD)
- Universities
- Technical staff

# Current State Analysis

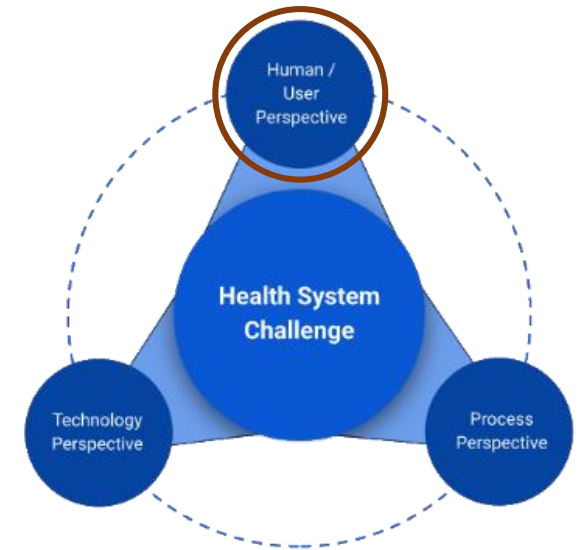


# Current State Analysis- Scenario

## Human / User Perspective

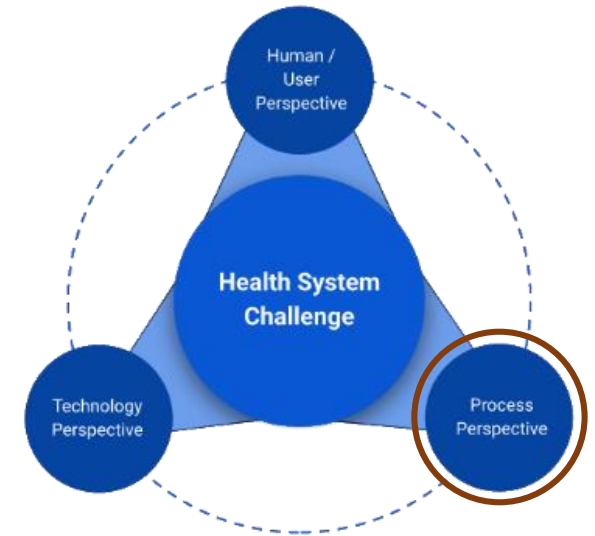
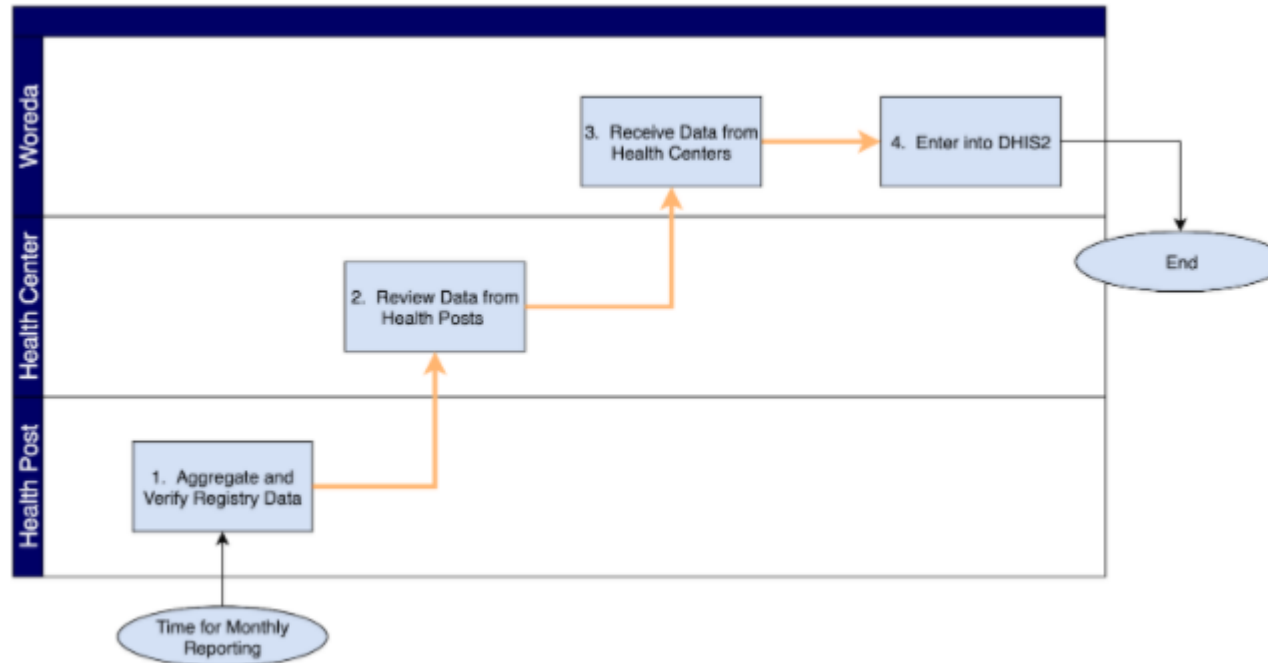
“Helen is a health extension worker who works in the local health post that is part of the health center that is a few miles away. The Health Post does not yet have reliable internet. Because of this, Helen’s monthly reporting process is paper-based. She uses the paper records system to record information on the patients that she sees. On a typical day, she sees ten patients and records their data in the appropriate health cards as well as the appropriate standard registers and tally sheets that she has been given by the Woreda. Every month, she aggregates the data on her spreadsheets; data is moved to the (service and disease) reporting forms. She gives her paper reports to the HMIS focal person at the health center at the end of the reporting period.

Alemu is the HMIS focal person at the Health Center. He must take all of the tally sheets from the HEWs like Helen and enter the data into DHIS2. This takes several hours a month and it is challenging to get all of the information tabulated and entered correctly.”



# Current State Analysis- Scenario

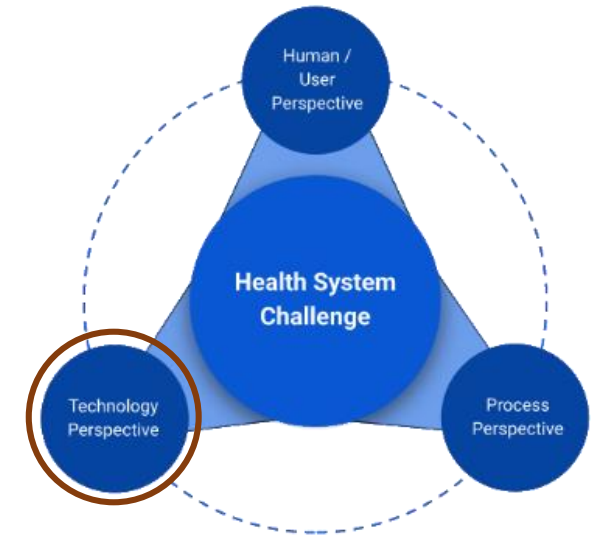
## Human / Process Perspective



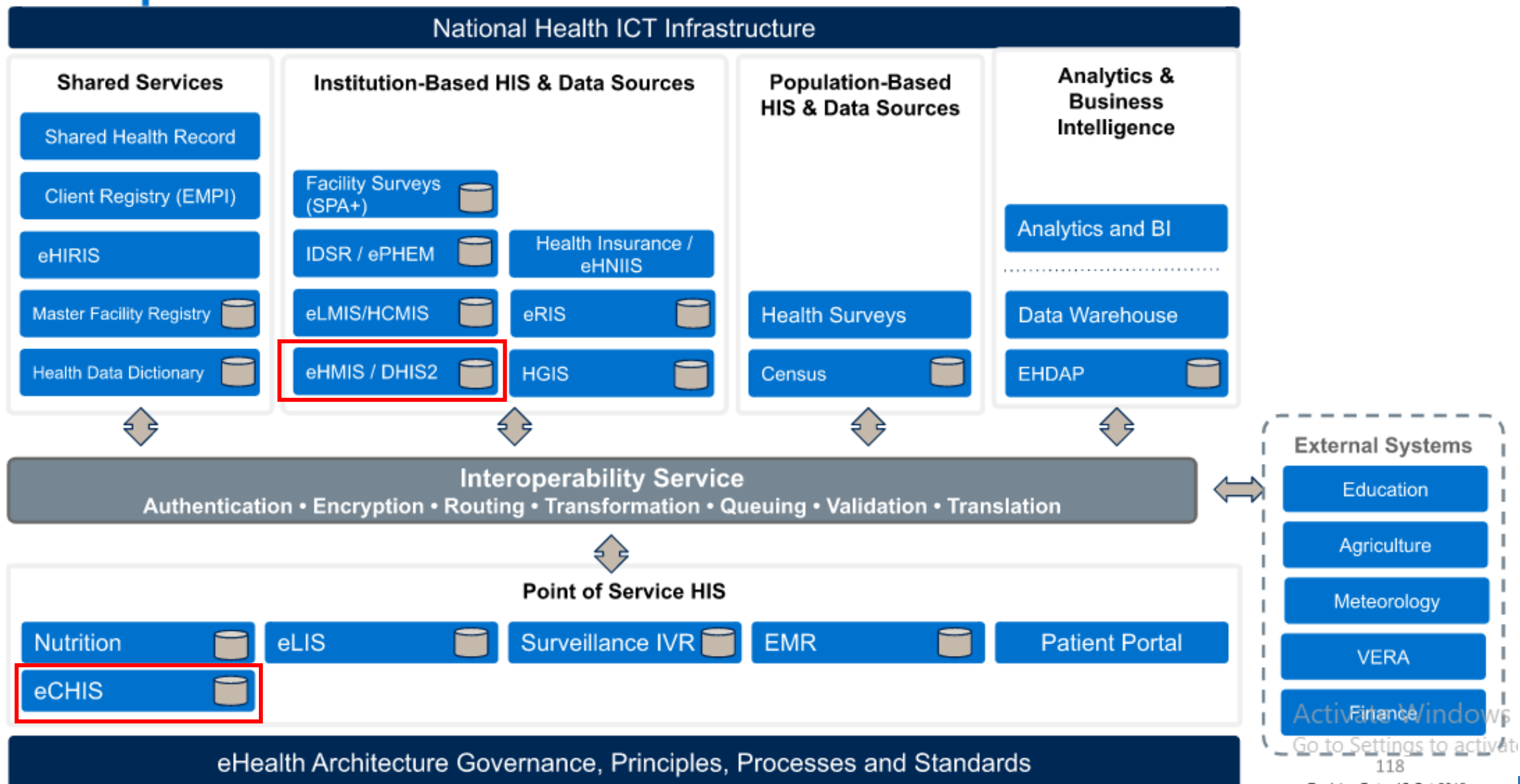
# Current State Analysis- Scenario

## Human / Technology Perspective

- Identify eHA component used
- Understand and document existing technology
  - Interfaces available(web, app)
  - APIs spécification

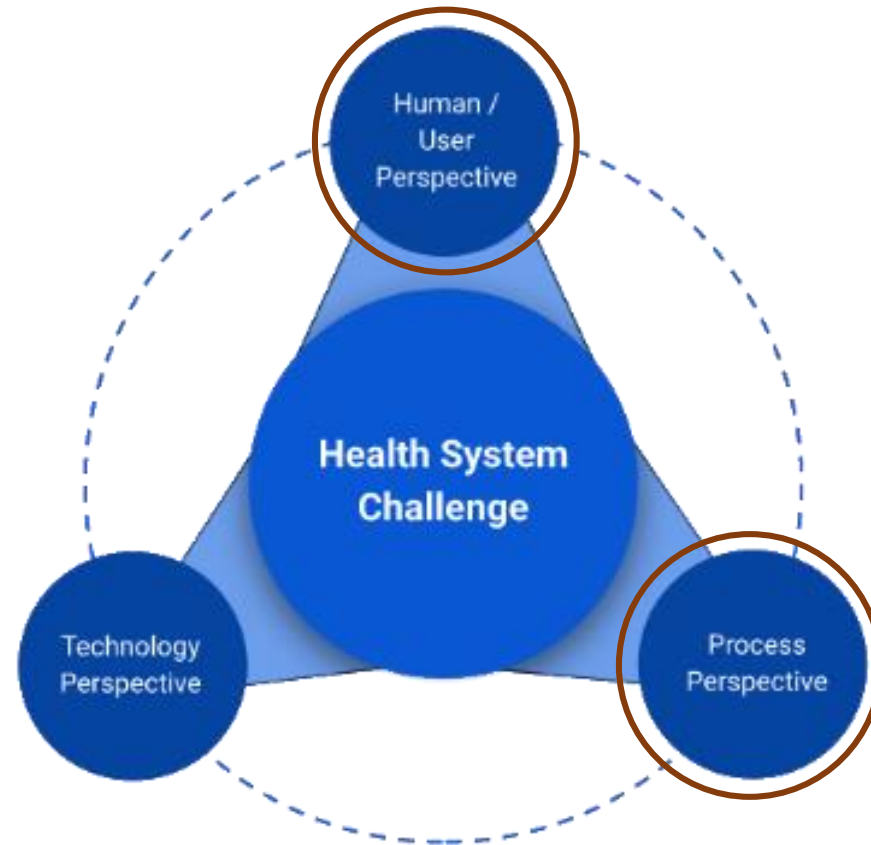


# Ethiopia eHealth Architecture



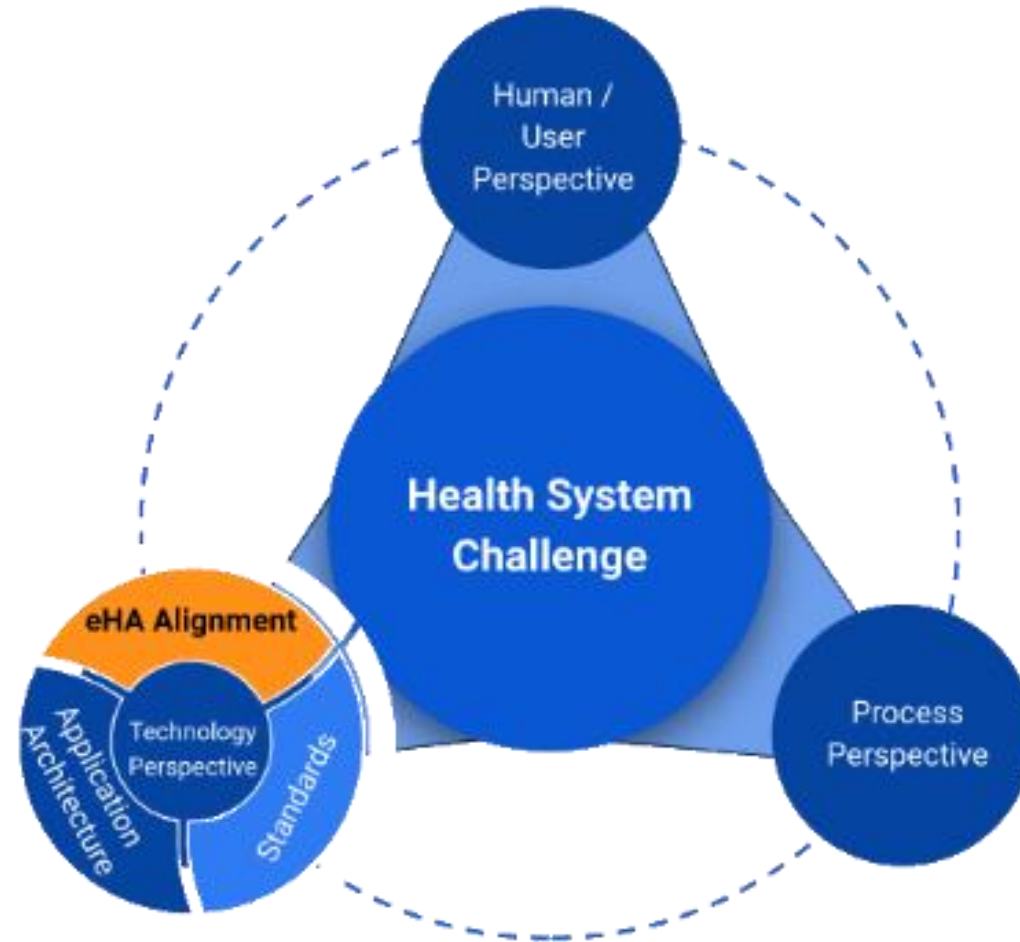
# Future State Analysis- Scenario

## Human / Process Perspectives

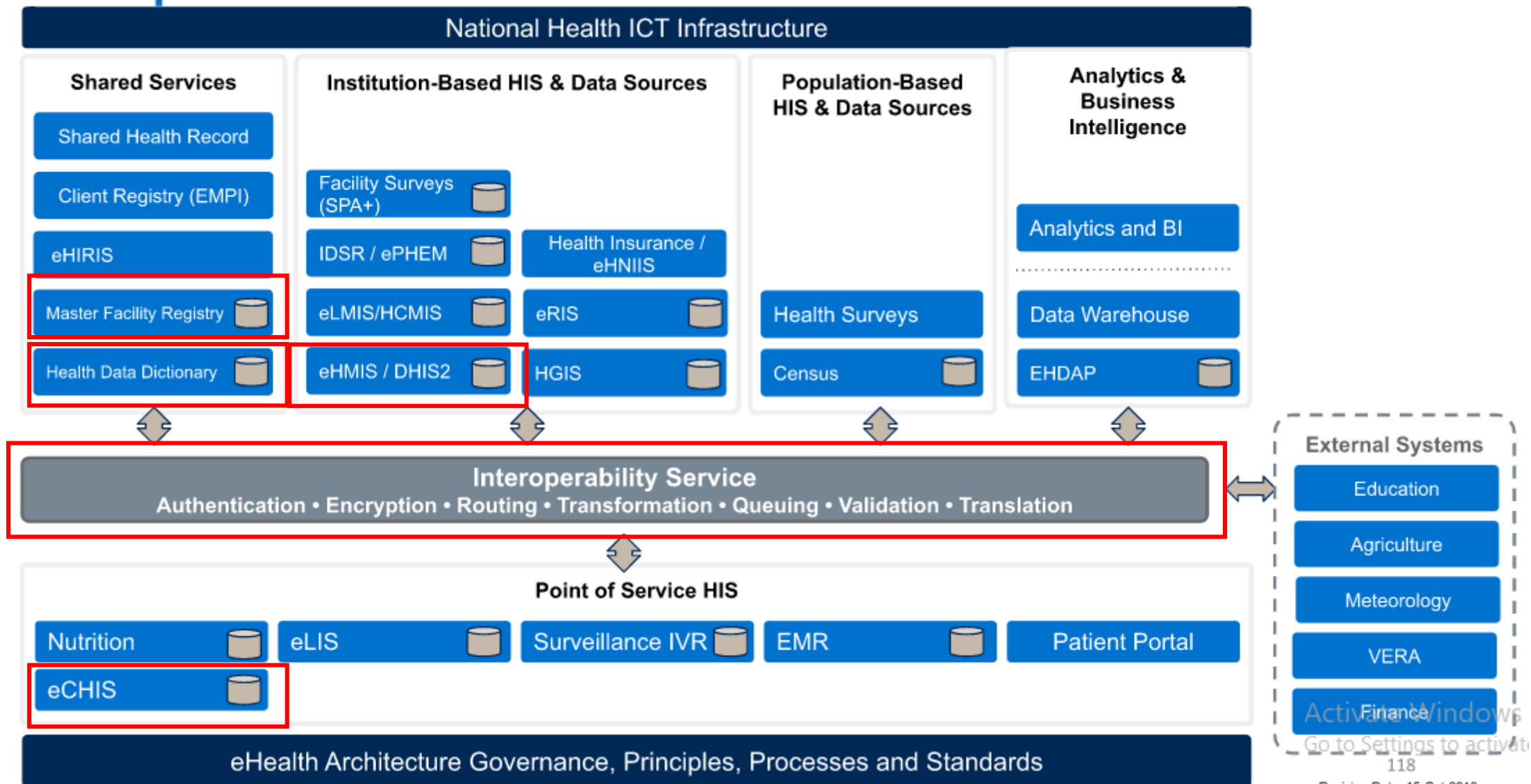




# Future State Analysis- Scenario Technology Perspective



# Ethiopia eHealth Architecture



Go to Settings to activate

# Future State Analysis- Scenario

## Technology Perspective - Standards

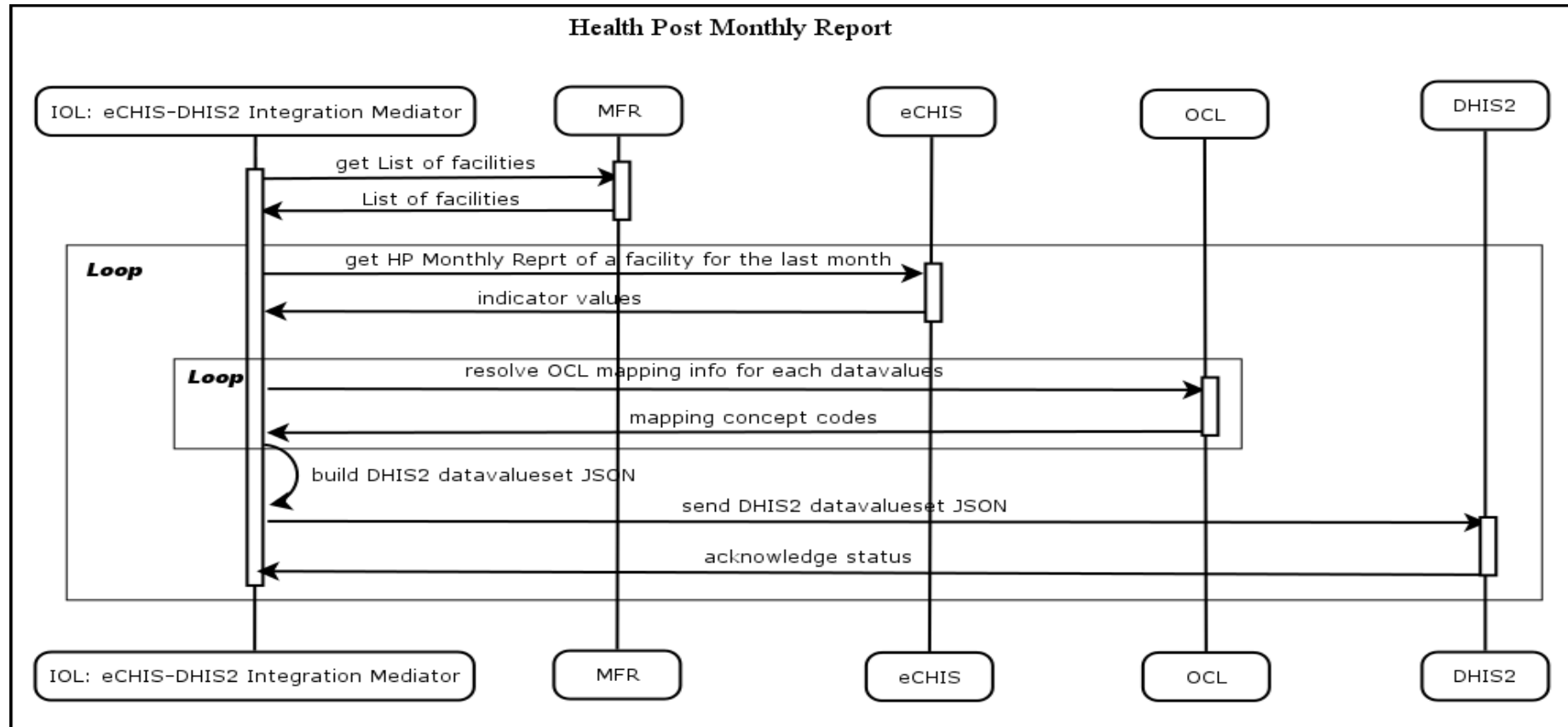
### Data Exchange roles

- Sending system
- Receiving system
- Interoperability layer - authentication, verification, audit log
- Shared services



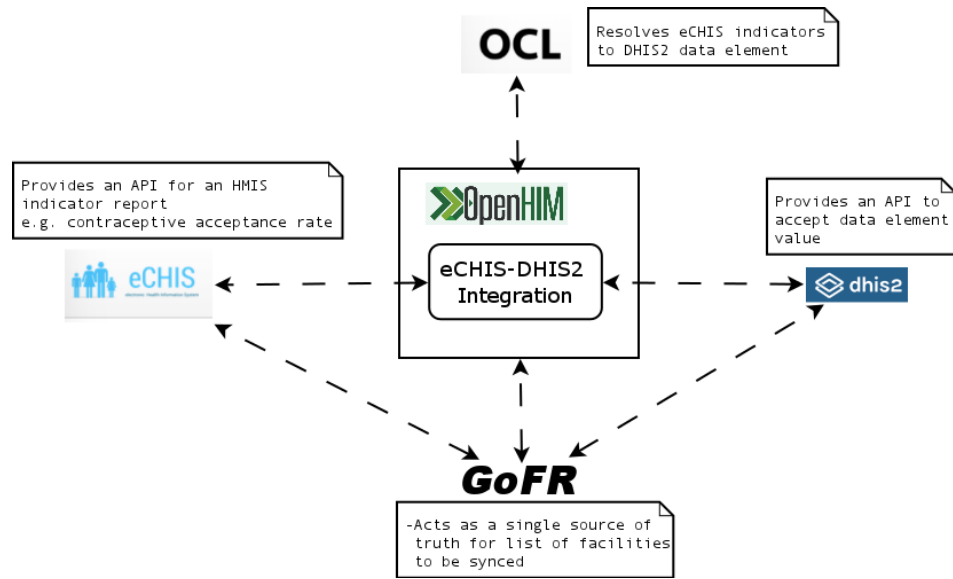
# Future State Analysis- Scenario

## Technology Perspective



# Future State Analysis- Scenario

## Technology Perspective – Application Architecture





# Initial results

- Focus upon specific indicators and disaggregation under that indicator
  - Contraceptive Acceptance Rate
  - Health Post monthly service report
- Successfully manage to exchange health data between the system
- Plan to deploy at a national level

# Initial results

Health First Health Service Delivery Report

Period: March 2012

Previous periods

Reproductive and Maternal Health    **Newborn and Child Health**    Nutrition    **Maternal**    Community services

Family planning, maternal care, delivery, safe abortion, and PPHCT

Code	Category	Number
<b>MMH_PP_CAR</b>	<b>Contraceptive acceptance rate</b>	
<b>PP_CAR_Age</b>	<b>Total new and repeat acceptors, disaggregated by age</b>	40
<b>PP_CAR_Age_New</b>	<b>Contraceptive new acceptors by age</b>	18
	<i>new acceptors by age should be equal to new acceptors by method</i>	
PP_CAR_Age_New_1	15-19 years	0
PP_CAR_Age_New_2	20-24 years	1
PP_CAR_Age_New_3	25-29 years	1
PP_CAR_Age_New_4	30-34 years	0
PP_CAR_Age_New_5	35-39 years	0
PP_CAR_Age_New_6	40-44 years	16
<b>PP_CAR_Age_Rep</b>	<b>Contraceptive repeat acceptors by age</b>	20
PP_CAR_Age_Rep_1	15-19 years	0
PP_CAR_Age_Rep_2	20-24 years	0
PP_CAR_Age_Rep_3	25-29 years	3
PP_CAR_Age_Rep_4	30-34 years	4
PP_CAR_Age_Rep_5	35-39 years	4
PP_CAR_Age_Rep_6	40-44 years	16
<b>PP_CAR_Mth</b>	<b>Total new and repeat acceptors, disaggregated by method</b>	26
<b>PP_CAR_Mth_New</b>	<b>Contraceptive new acceptors, by method</b>	1
	<i>new acceptors by age should be equal to new acceptors by method</i>	
PP_CAR_Mth_New_1	Oral contraceptives	0
PP_CAR_Mth_New_2	Injections	1
PP_CAR_Mth_New_3	Implants	0
PP_CAR_Mth_New_4	IUD	0
PP_CAR_Mth_New_5	Sublingual	0
PP_CAR_Mth_New_6	Other	0
<b>PP_CAR_Mth_Rep</b>	<b>Contraceptive repeat acceptors, by method</b>	20
PP_CAR_Mth_Rep_1	Oral contraceptives	1
PP_CAR_Mth_Rep_2	Injections	12
PP_CAR_Mth_Rep_3	Implants	10
PP_CAR_Mth_Rep_4	IUD	0
PP_CAR_Mth_Rep_5	Sublingual	0
PP_CAR_Mth_Rep_6	Other	0



# Lesson Learnt

- Effective collaboration between different stakeholders/teams
- Managing requirements and defining scope to implement such kind of imitative
- Constant learning and local skills improvement while developing interoperability solutions
- The Service Oriented Architecture of eHA supported the interoperability operations
- A showcase implementation of interoperability solutions between more than three HIS



# Thank you

For more information, please contact:

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