

Rwanda Health Enterprise Architecture (RHEA) Project Meeting 26 – 29 March 2012

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Rwanda Health Enterprise Architecture (RHEA) Project

- RHEA is an initiative of the Rwandan Ministry of Health eHealth Coordination Unit.
- RHEA seeks to develop and implement an health enterprise architecture for Rwanda.
- Initial funding
 - International Development Research Center (IDRC) and Rockefeller Foundation (RF) 2009-2012
- Additional funding
 - Health Informatics Public Private Partnership (HI-PPP), a project funded by the US President's Emergency Plan for AIDS Relief (PEPFAR); 2010-2012



RHEA Objectives

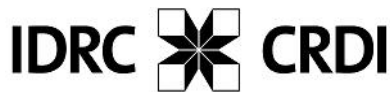
- Complete an Implementation Science/Research Project to present the impact of a health information exchange (HIE) on the maternal healthcare delivery system in Rwanda
- To develop a pilot implementation HIE in Rwanda focused on the maternal health care system in Rwanda.
- Expand the understanding of HIE in Rwanda within the health delivery system and the technical community.



Funders

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1. International development Research Centre (IDRC)
2. Rockefeller Foundation
3. President's Emergency Plan for AIDS Relief (PEPFAR)

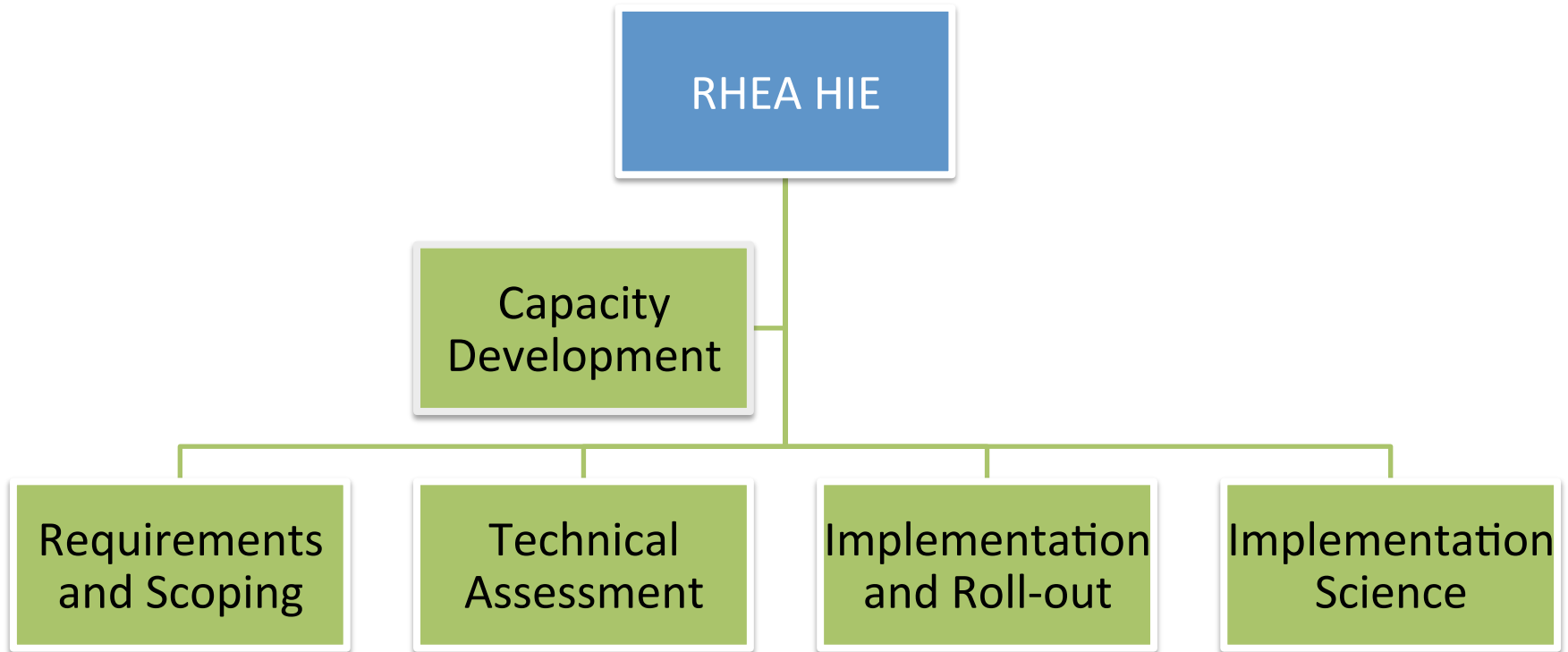


Partners

1. Ministry of Health, Rwanda
2. Jembi Health Systems, South Africa & Rwanda
3. Pivot Access, Rwanda
4. HEAL, University of KwaZulu-Natal, South Africa
5. BLEAO Informatica em Saúd, Brazil
6. Liz Peloso Consulting
7. eZ-Vida, Brazil
8. CDC, USA
9. Regenstrief Institute, USA
10. InSTEDD, USA
11. Partners in Health
12. Millennium Villages Project
13. World Health Organization
14. Nethope
15. Mohawk College
16. ecGroup



RHEA HIE Project overview



RHEA - HIE Sub-Projects

- **RHEA is broken down into 5 sub-projects:**
 - **Capacity Building/Country Office Project**
 - *To develop capacity in Rwanda and to open a country office to coordinate the work, going forward.*
 - **Implementation Science/Research Project**
 - *To develop an implementation science and evaluation framework to assess the potential impact of providing access to foundational registries and services and improving interoperability between applications.*
 - **Technical Assessment Project**
 - *To perform an assessment of the proposed technology solution and evaluate the potential to fulfill the requirements for an HIE in Rwanda*
 - **Requirements and Scoping Project**
 - *To define and configure foundational components of the HIE in Rwanda, including client and provider registries, terminologies and shared health record and to accurately scope, define and plan for the implementation pilot.*
 - **Implementation Pilot Project**
 - *To create the evaluation environment to support the research project. Included within this are the various technical components needed: Client Registry, Facility Registry, Provider Registry, Interoperability Layer, Shared Health Record, Terminology Service.*



RHEA Capacity Building Sub-Project

- Aim: Build capacity in Rwanda to ensure the long term sustainability of the project
- Lead(s): Emmanuel, Jonnea
- Status: Ongoing
- Deliverables:
 - Company opened in Rwanda under guarantee to Jembi
 - Office opened in Kigali and staff hired.
 - Drafted MoU with MoH
 - Drafted contracts with Pivot Access



HIE Implementation Science

- Aim: The primary research question is: Does the RHEA maternal health information platform improve the quality, timeliness, and use of data toward the achievement of better obstetric health outcomes in the (Rwamagana or Kirehe) district. If so, what technical and operational factors contribute to the improvement?
- Lead(s): Paul Biondich
- Status: In Progress
- Deliverables (Studies):
 - Top level clinical outcome analysis
 - Impact of enhanced clinical summaries on the completeness of preventive antenatal services
 - Effect of HIT Platform on clinician efficiency in health centers
 - Impact of clinical reminders on provider behavior
 - Qualitative study on clinician's perspectives of information technology



HIE Requirements Definition

- Aim: Develop the functional requirements for the HIE in Rwanda
- Leads: Liz Peloso
- Status: Complete
- Deliverables:
 - Signed off functional and non-functional requirements for health information exchange in Rwanda.
 - Revised and Reviewed requirements with project solution shift.

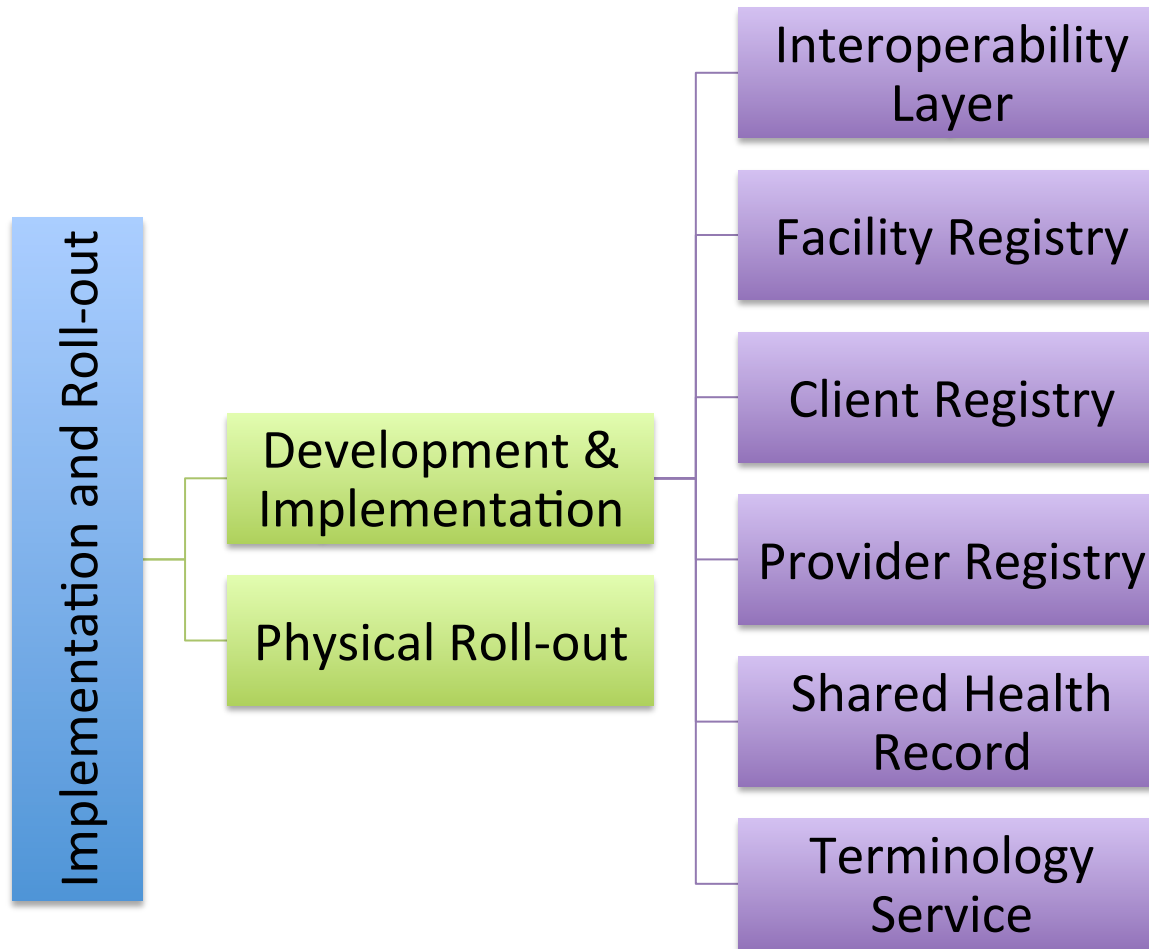


HIE Implementation

- Aim: Configure and implement a HIE in Rwanda
- Leads: Carl Fourie
- Status: In Progress
- Deliverables:
 - Signed off functional and non-functional requirements for health information exchange in Rwanda
 - Initial Interoperability layer available
 - LHF Project (Facility Registry)
 - Work towards POC system functionality within environment



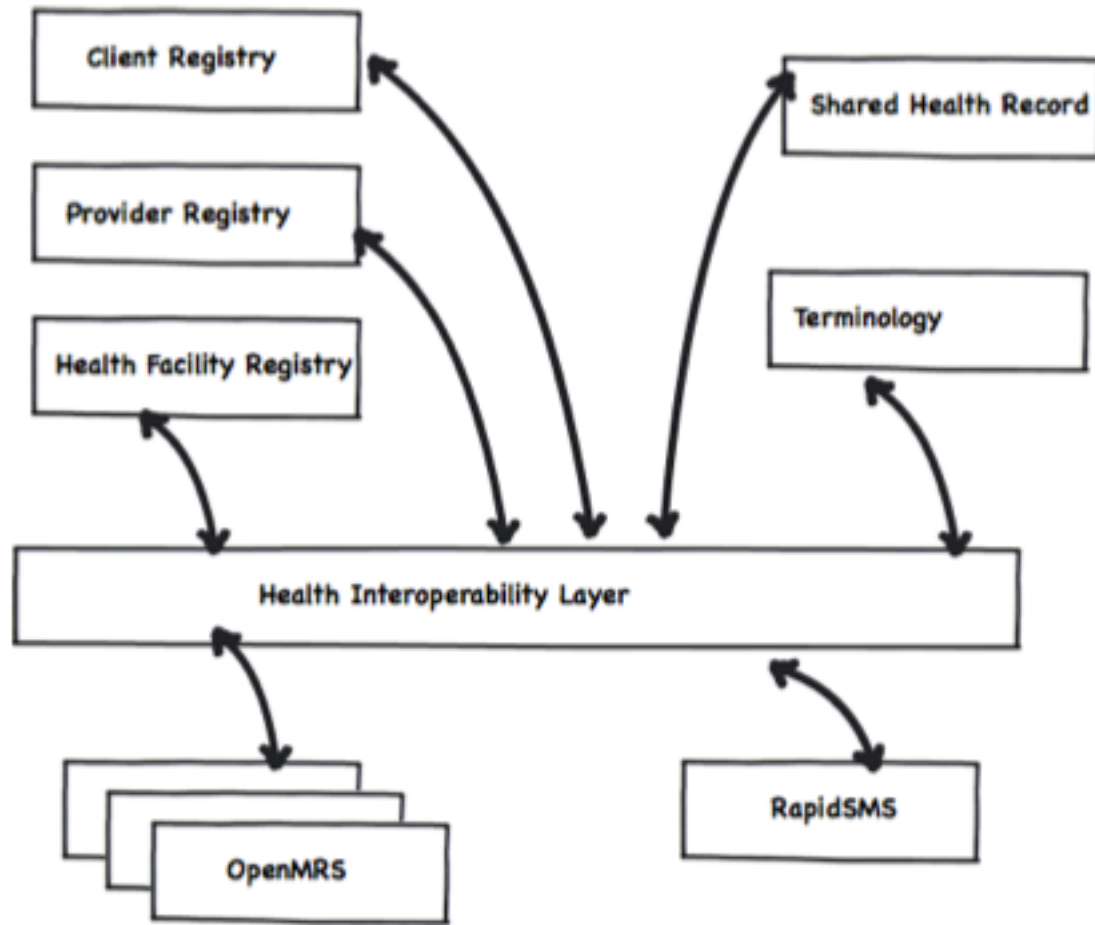
Implementation and Roll-out



Design

- **Client registry** – a database which uniquely identifies and holds all consumers (clients/patients) of health care services nationally. This is potentially every person in the country.
- **Provider registry**- a database which uniquely identifies and holds all providers of health care services nationally.
- **Facility registry**- a database which uniquely identifies and holds all facilities providing health care services nationally. This will include the specific service “packages” they provide.
- **Shared health record**- a shared repository which forms a longitudinal patient record.
- **Interoperability Layer (iHIX)**- Connections to point of care applications and registries
- **Point of Care Applications**- All applications being implemented in the pilot leveraging off the shared architecture.
- **Terminology Service**- an application storing and managing the lists of codes and terminologies used in the project and Rwanda’s health system.





Initial Solution

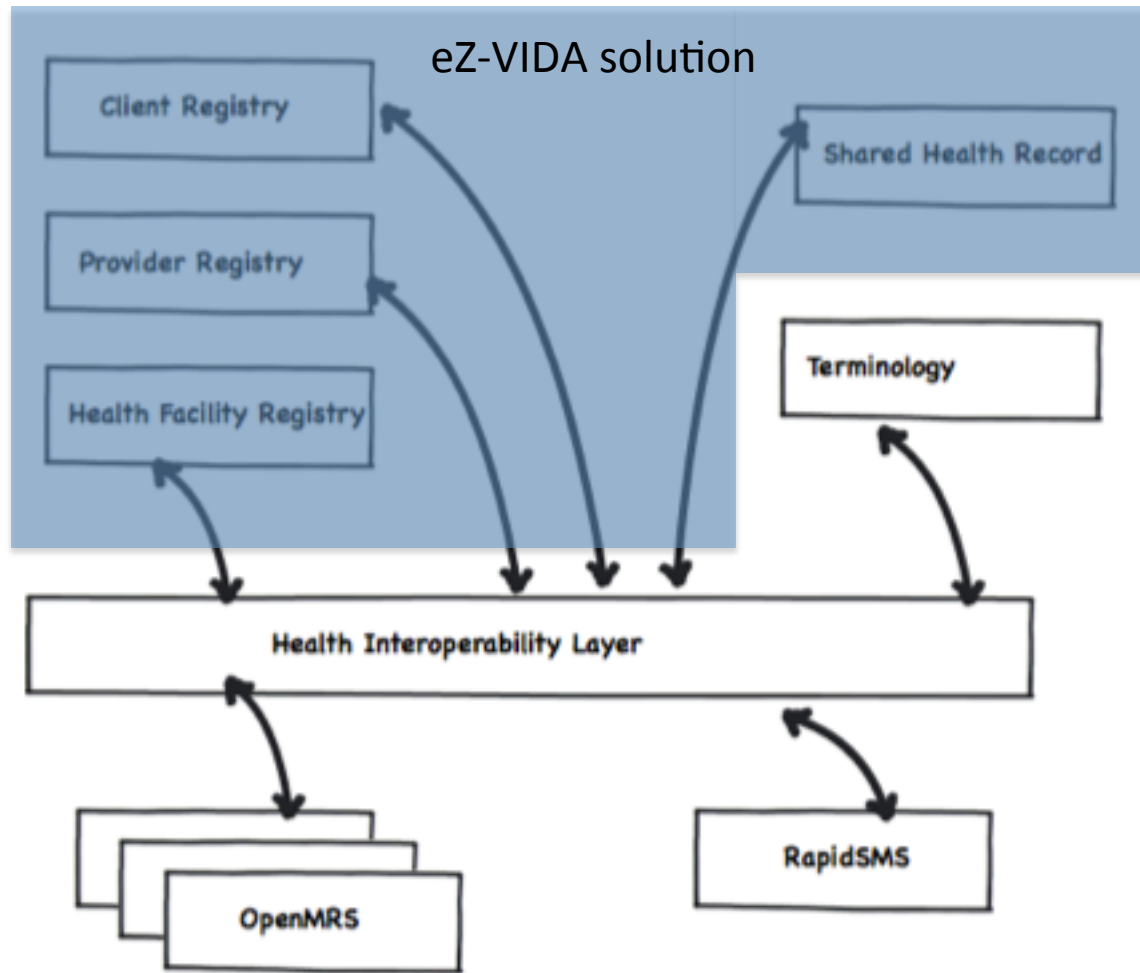
- Software Solution
 - Ez-Vida ez-HIS solution
- Characteristics
 - Existing solution stack
 - Built and operated around Brazilian system
 - Centralized solution



Component to Software pairing

<u>Component</u>	<u>Tool / Software</u>
Registries <ul style="list-style-type: none">• Client Registry• Provider Registry• Facility Registry	eZ-VIDA
Shared Health Record	eZ-VIDA
Interoperability Layer	iHix (Mirth, Mule, Custom Development)
Point of Care / Service Systems	OpenMRS, RapidSMS

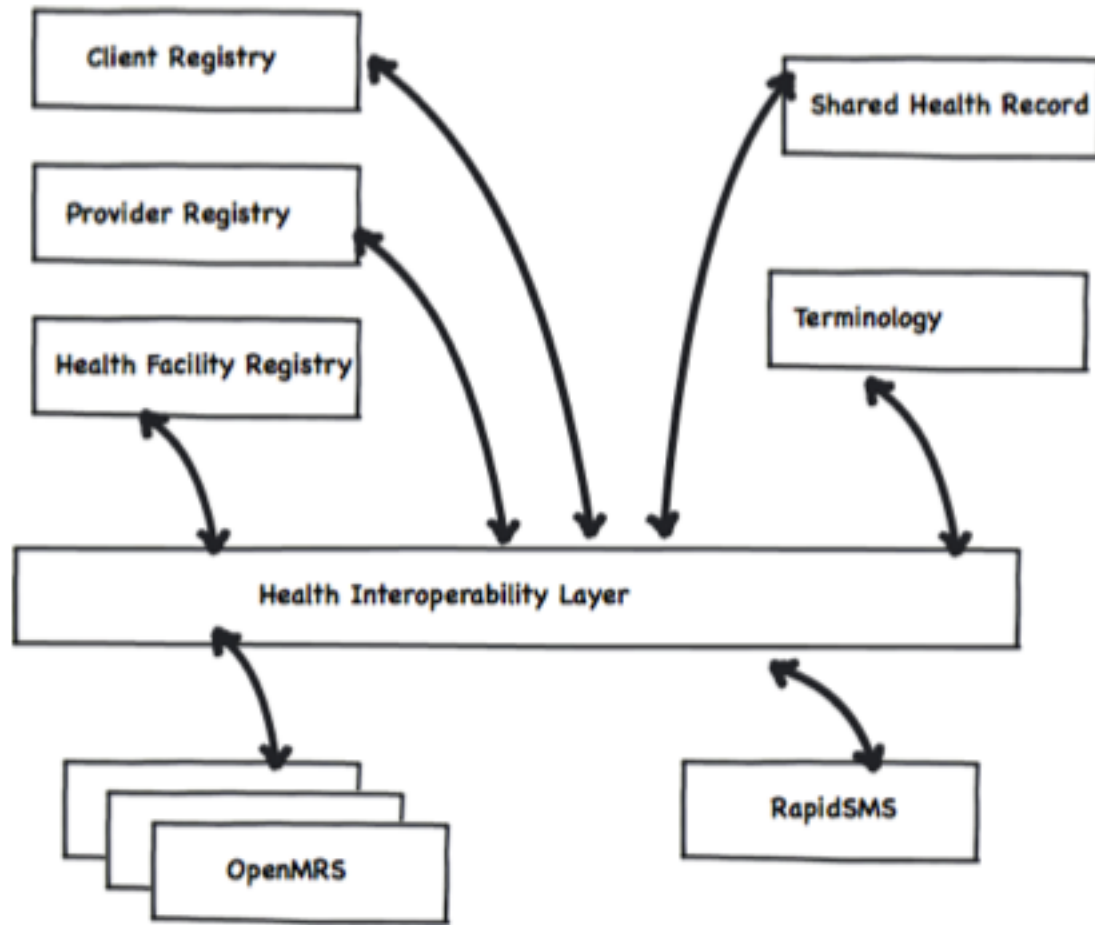




New Direction

- LHF Project
- Far more iterative approach
- More modular design (SOA design)
- Being built with Rwandan team for Rwanda (peer-assist from RSA, USA etc)





Software Solutions

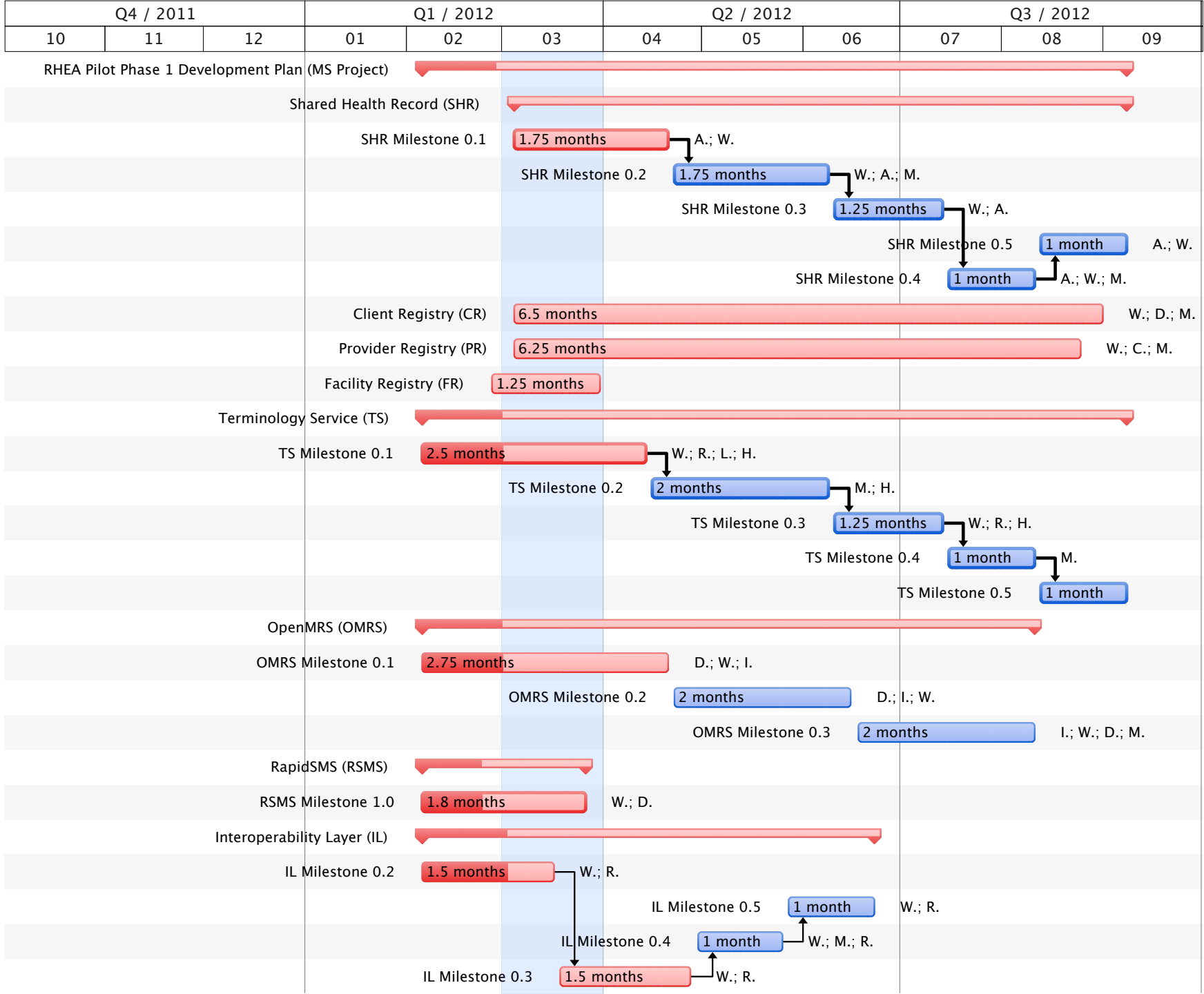
- Interoperability Layer
 - Customized Mule
 - <http://www.mulesoft.org>
- Facility Registry
 - Resource Mapper
 - <http://instedd.org/technologies/resource-map/>
- Client Registry
 - ?Mirth Match?
 - <http://www.mirthcorp.com/products/mirth-match>
 - ?OpenEMPI?
 - <http://openempi.kenai.com/>
- Provider Registry
 - ?OpenEMPI?
 - <http://openempi.kenai.com/>
 - iHRIS Customization
 - <http://www.capacityplus.org/hris/>
- Shared Health Record
 - ?OpenMRS?
 - <http://www.openmrs.org>
- Terminology Service
 - Apelon DTS
 - <http://www.apelon.com>



Resources

- Project Working Space
 - <http://rhea.jembi.org>
 - <http://jira.jembi.org/wiki/display/RHEAPILOT/Home>
- Content:
 - Current High Level design overview
 - Program Plan
 - Development Plan
- Call Schedule
 - Weekly Calls
 - Project Calls Team : Wednesdays @ 3:30 PM – 5 PM CAT
 - Facility Registry Call :





Remainder of Meeting

- Review Design Decisions
- Select technologies
- Map out way forward
 - Technical Level
 - Programmatic level
 - Implementation and Rollout

