ACTUARIAL SOCIETY OF SOUTH AFRICA

QUANTIFYING RISK, ENABLING OPPORTUNITY

Health Information Exchanges

Realising the Promise of Health Information Technology

Lourens Walters
Chair of the PHISC subcommittee on Electronic Health Records
4 May 2016

Healthcare IT (HIT)

Health Information Technology for Economic and Clinical Health (HITECH) Act – USA 2009

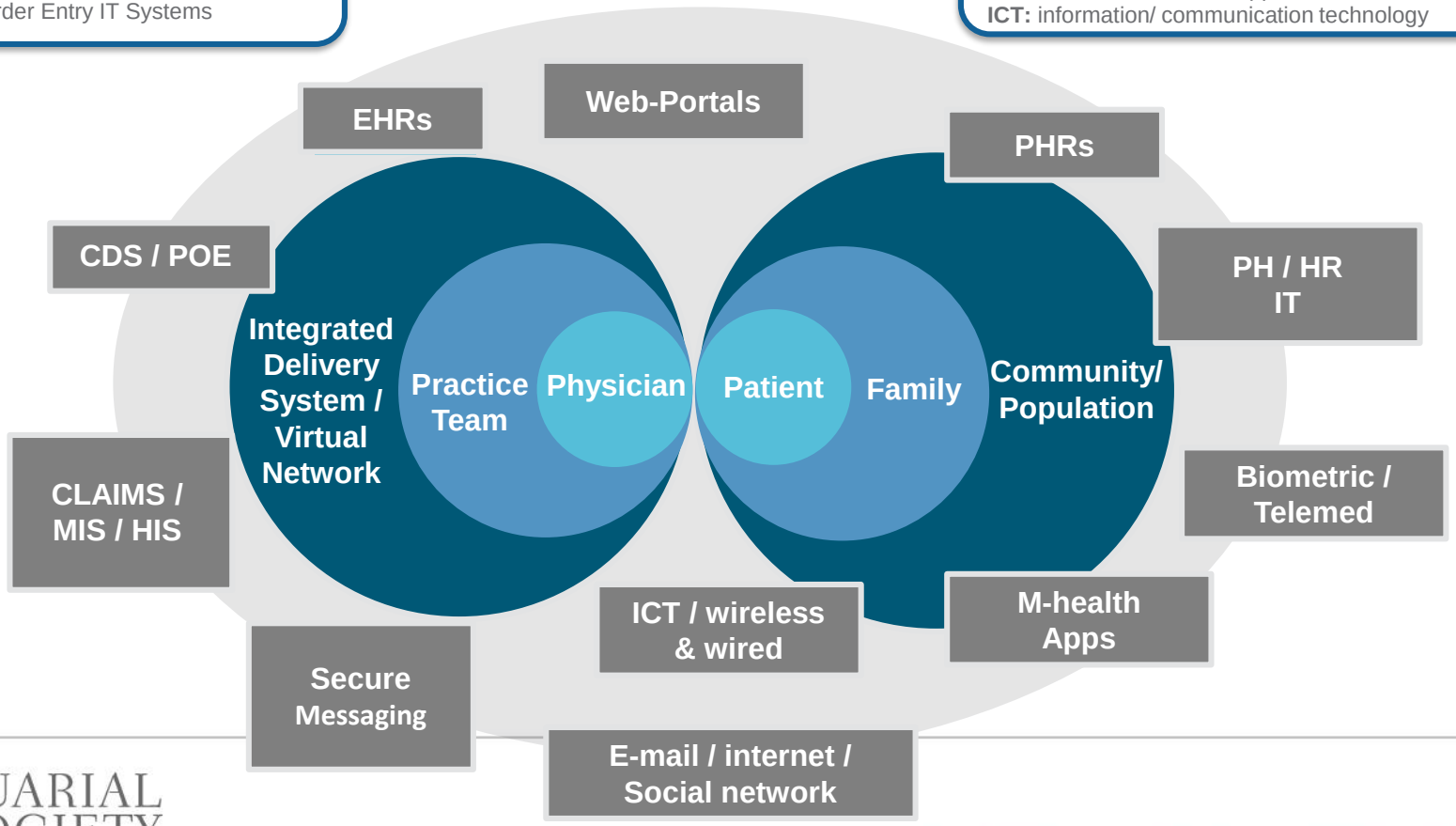
Health information technology helps saves lives and lowers costs. The act has a goal of saving the government $10 billion by means of:

- improvements in quality of care
- and care coordination and
- reductions in medical errors and
- duplicative care

How does HIT work?

EHR: Electronic Health Record
PHR: Personal Health Record
CDS: Clinical Decision Support IT Systems
MIS/HIS: Management/Health IT Systems
POE: Provider Order Entry IT Systems

PH/HR: Public Health / Human Resource IT Systems
Telemed: Telemedicine/ Remote patient monitoring
M-Health: Mobile health applications
ICT: information/ communication technology



SOURCE: Weiner, 2012, http://www.ijhpr.org/content/1/1/33

Critical HIT Components

Electronic health record

- Longitudinal electronic record of patient health information in any care delivery setting
- Interoperability standards to exchange info outside a single healthcare delivery system
- Supports care-related activities e.g. evidence-based decision support, quality management

Electronic medical record

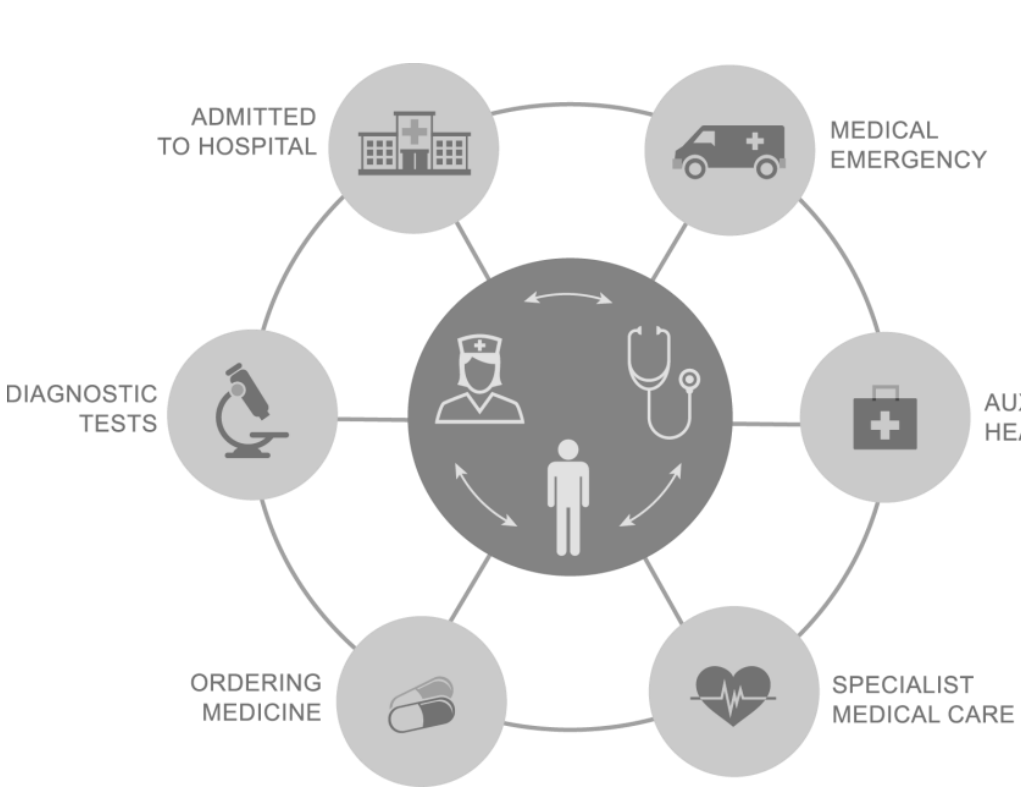
- Record created in hospitals and ambulatory environments that is typically the source of data for the EHR
- Added Functionality e.g.

1. e-Scripting
2. Decision support

Personal health record

- Contains medical history
- Integrated with Personal monitoring devices
- Beneficiaries empowered to manage their health
- Drives behaviour change
- Enhanced communication

HIT in Practice



Family Practitioner EHR

Hospital EHR

Public Health EHR

Labs & Diagnostic EHR

Specialist EHR

Pharmacy EHR

What is Health Information Exchange – HIE?

- Verb: Electronic sharing of health information
- Noun: The entity that supports electronic sharing of health information
  - "HIE is a set of services that supports access among parties who are motivated by common interest and governed to ensure that the rights of patients and participants are protected" (Frisse, 2012)
  - Common infrastructure that enables the exchange of electronic health information between healthcare providers

HIE Examples

HealtheConnections™
RHIO Central New York

MIDSOUTH eHEALTH ALLIANCE

ClinicalConnect
Health Information Exchange

- Since 1980s – worldwide implementation
- There were at last count ~280 operational HIEs in USA
- A recent study reviewed nearly 86,000 emergency department encounters and found that the HIE reduced:
  - The average length of stay (LOS) by 7%
  - The odds of readmission to ER within 30 days of discharge by 5%
  - The odds of a patient being seen by multiple physicians by 12%

SOURCE: Janakiraman, Ramkumar and Park, Eunho and Demirezen, Emre and Kumar, Subodha, The Effects of Health Information Exchange Access on Healthcare Quality and Efficiency: An Empirical Investigation (February 10, 2017). Available at SSRN: https://ssrn.com/abstract=2915190

HIE Benefits

- Better Quality of Care (more information → better medical decision making)
- Lower Cost of Care (avoided duplicative testing, inpatient admissions, etc.)
- Community/ Public Health Benefits (public health reporting, drug surveillance)

Stakeholder Barriers to Participation

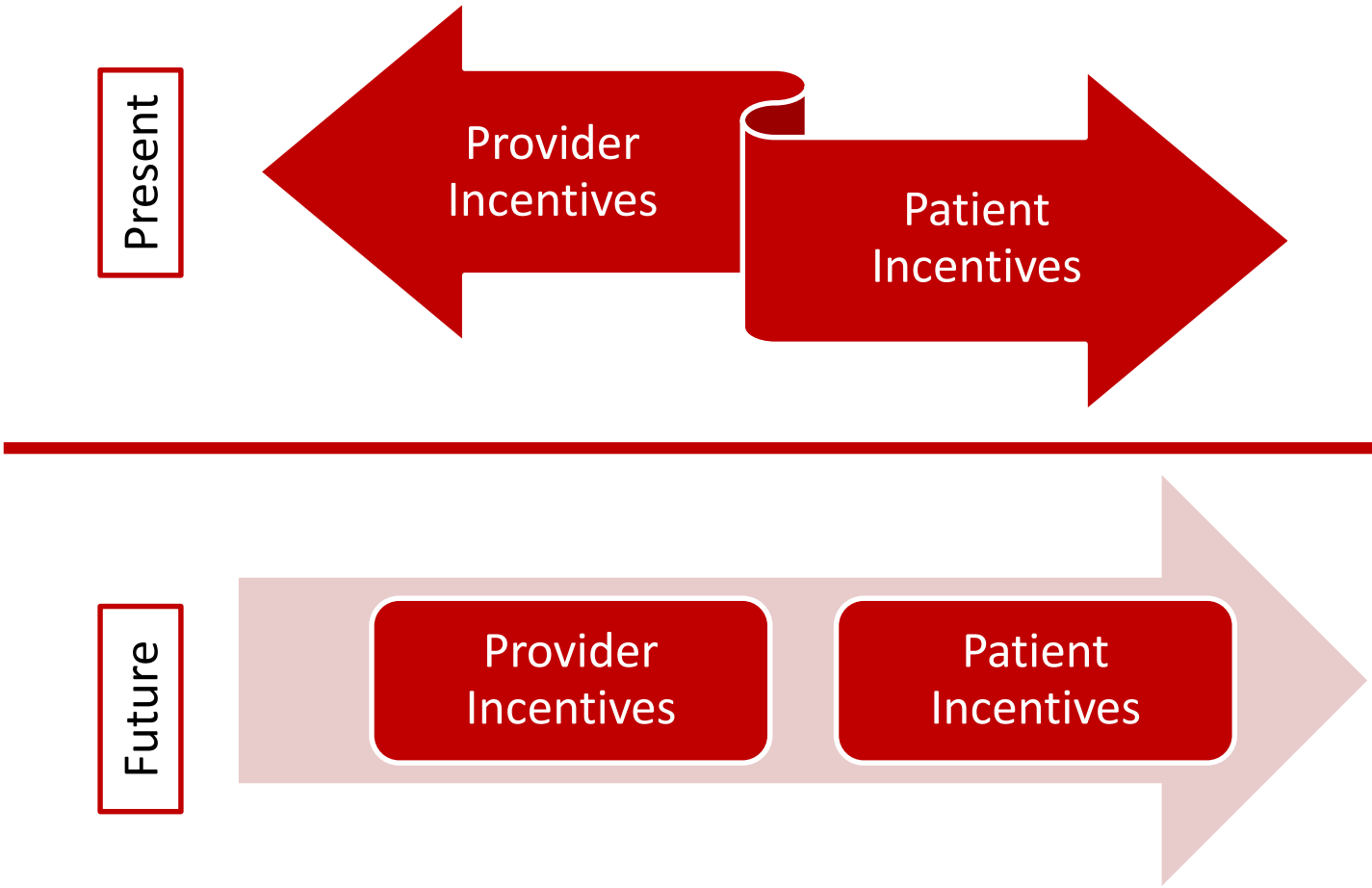
Trust

Incentives

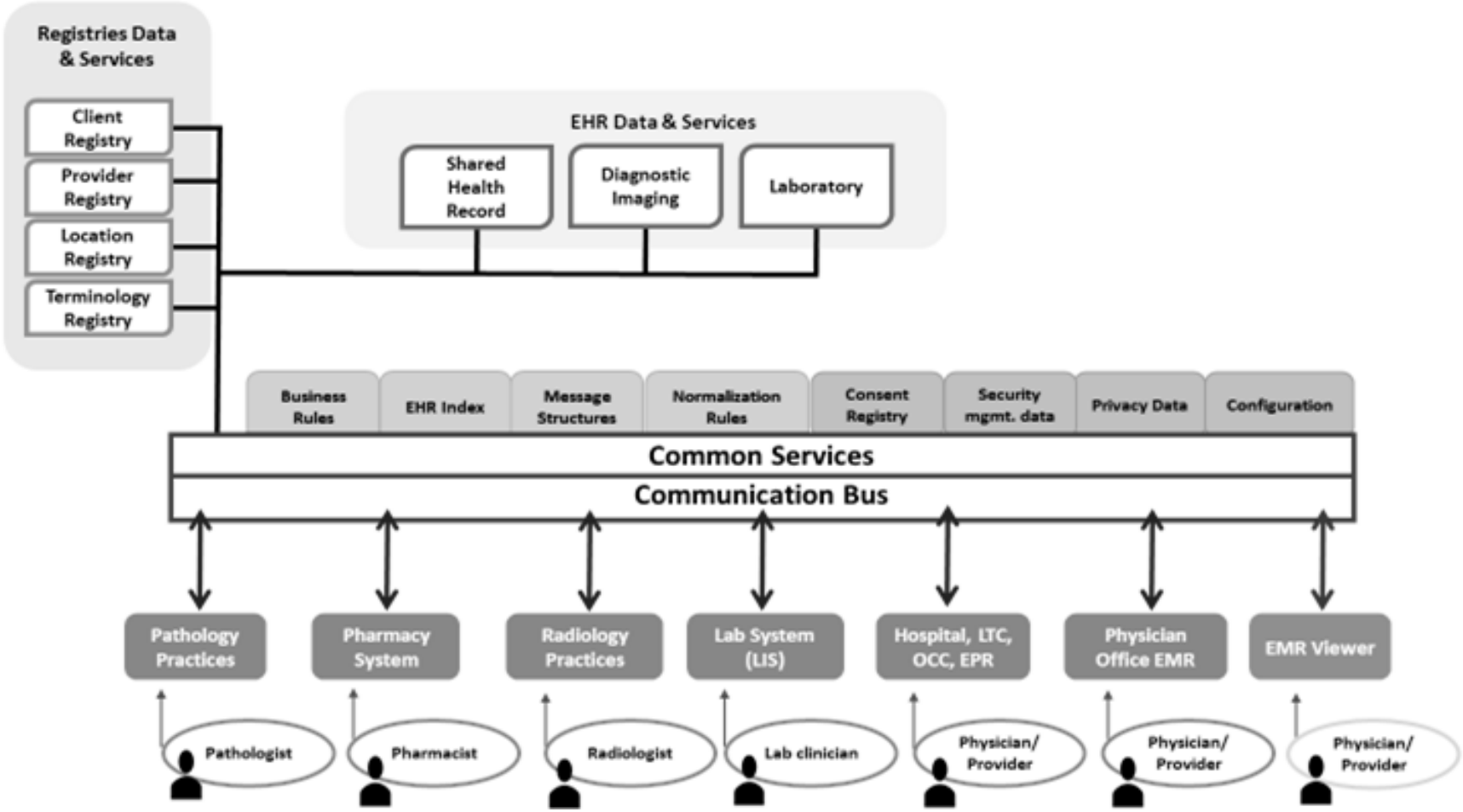
Business Model

Key to Participation

Volume **Value**



HIE Architecture



Key HIE Challenges

Privacy

Interoperability

Value Proposition

HIE.ZA

South African HIE Vision

- Securely provide health information sharing services that improve consumer health outcomes, quality, safety and efficiency, and drive down healthcare system costs for all South Africans

HIE.ZA

*To facilitate the conceptualisation and feasibility analysis of the HIE, participation in these initial phases has been **limited to a small group of founders;** thereafter participation will be opened to **all industry stakeholders***

Founding group

Conceptualisation and feasibility analysis

Hospital groups
- Life Healthcare
- Mediclinic
- Netcare

Medical aid administrators
- Discovery
- Medscheme
- MMI Health

2017/18

- Founding governance and technical principles
- Initial use cases and roadmap

All industry stakeholders

Implementation an ongoing operation

- Hospitals
- Medical aid administrators
- Pathology labs
- Radiology labs
- Pharmacies
- Medical professionals
- Industry bodies
- Medical systems developers
- Data providers (e.g. registries)
- Public sector
- Etc.

2018+

- Open to all interested parties who will collectively agree all HIE governance decisions

HIE.ZA Goals and Operating Principles

*A **not for profit**, **collectively governed** organisation for the benefit of **all patients and healthcare stakeholders** in SA*

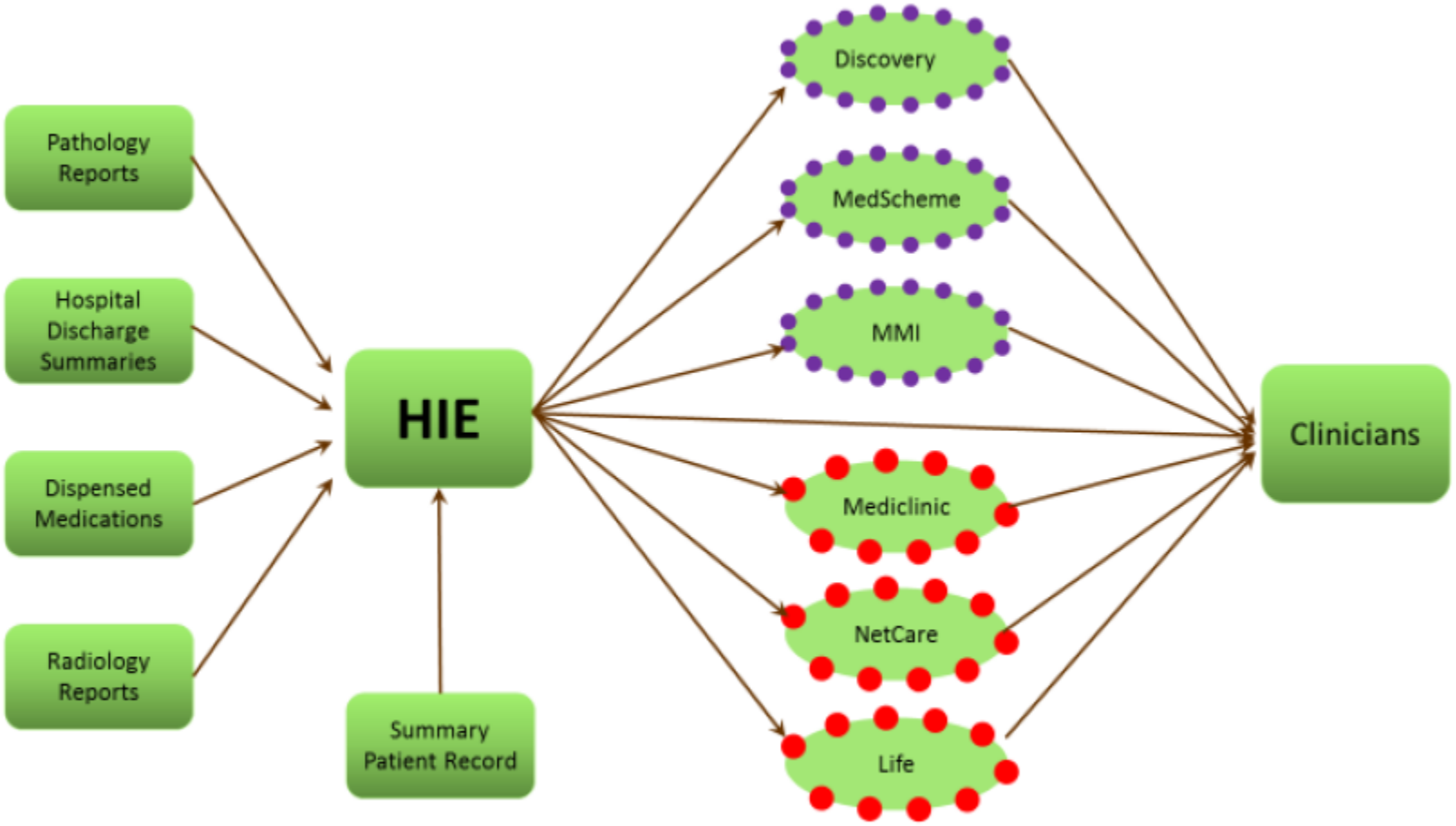
HIE goals

- Improving healthcare consumer outcomes by supporting effective care processes across the continuum of care
- Enhancing healthcare consumer engagement and experience
- Reducing current costs and avoiding future costs for patients and stakeholders in the South African healthcare system
- **Encouraging and supporting uptake of Electronic Medical Record (EMR) solutions**
- **Supporting the public health care system by providing access to HIE.ZA and technologies**
- Supporting all regulations and public policies

HIE Operating Principles

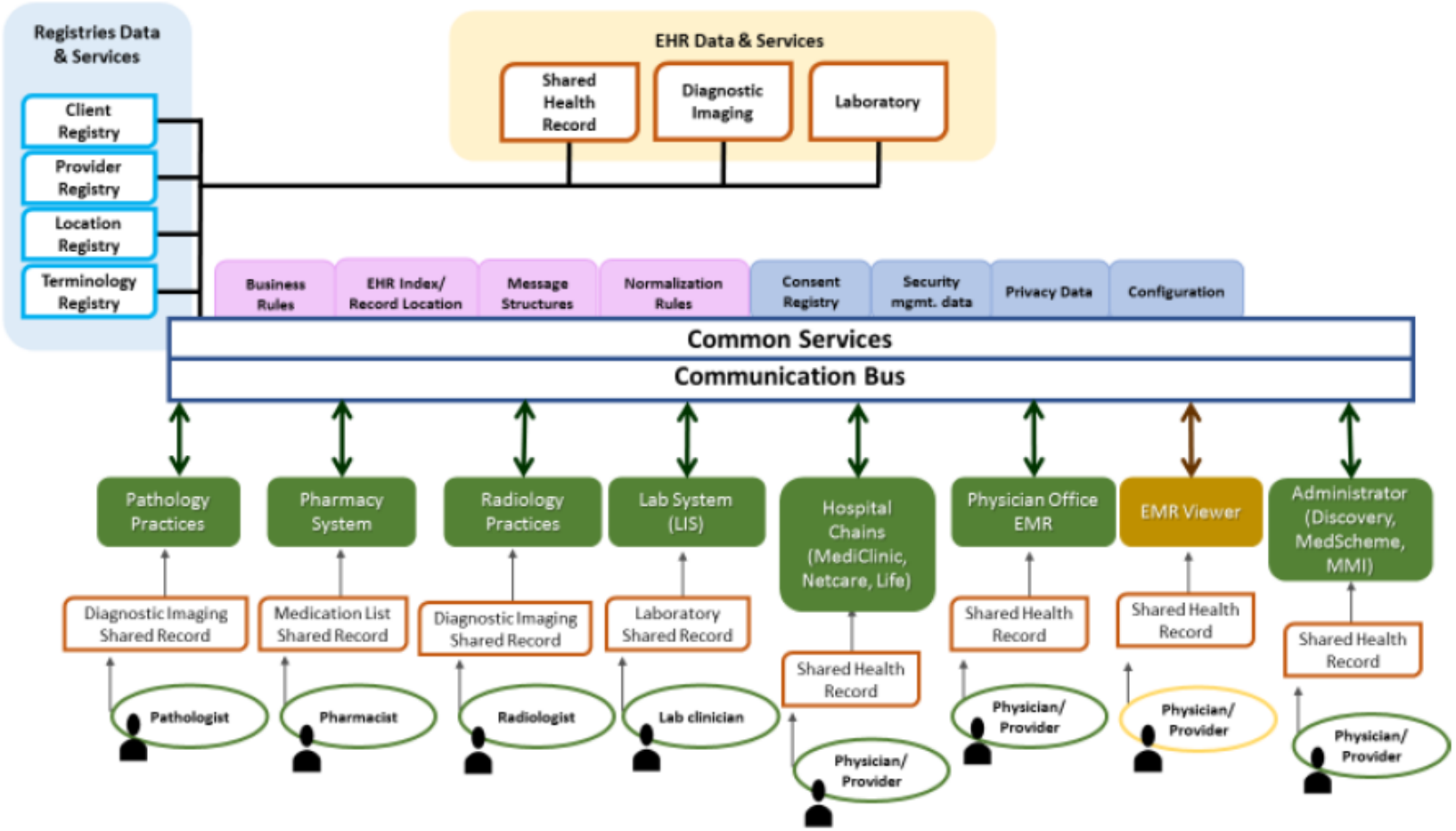
- Strategies and investments in Health Information Sharing will improve patient and member outcomes, enhance patient safety and quality of care, and drive down system costs for patients and stakeholders in the South African healthcare system
- Not for profit business that is **financially sustainable** in the short and long term
- Participants have **equal membership and voting** rights and equal responsibilities
- Participants governed by a single, multiparty Data Use and Reciprocal Support Agreement
- Strategy and architecture for addressing common health information sharing needs will be collectively developed and published
- **Will not intrude on participant-specific differentiators**

HIE.ZA Specific (Initial) Services



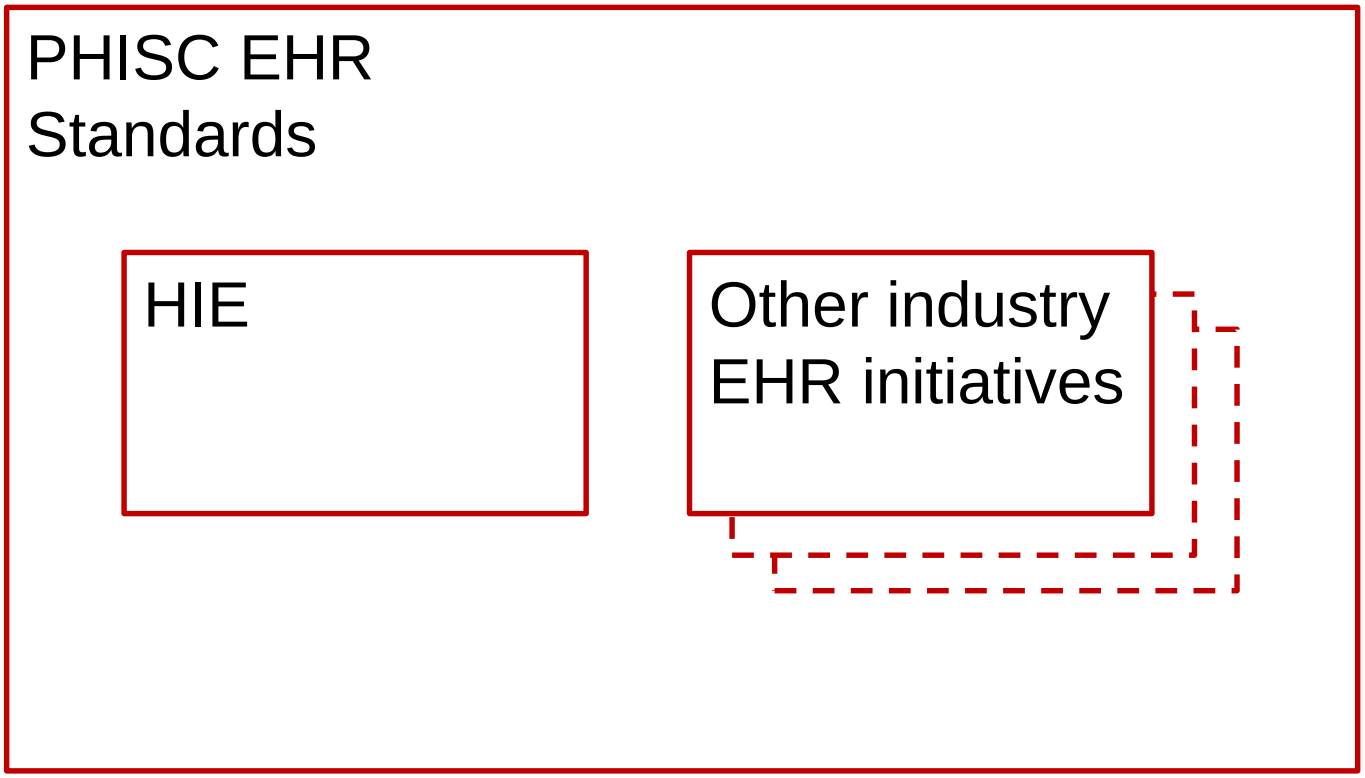
HIE.ZA Architecture

Hybrid Model



HIE.ZA in the context of PHISC EHR Standards

The HIE.ZA is one of potentially numerous EHR industry initiatives which will take guidance from the EHR standards established by PHISC

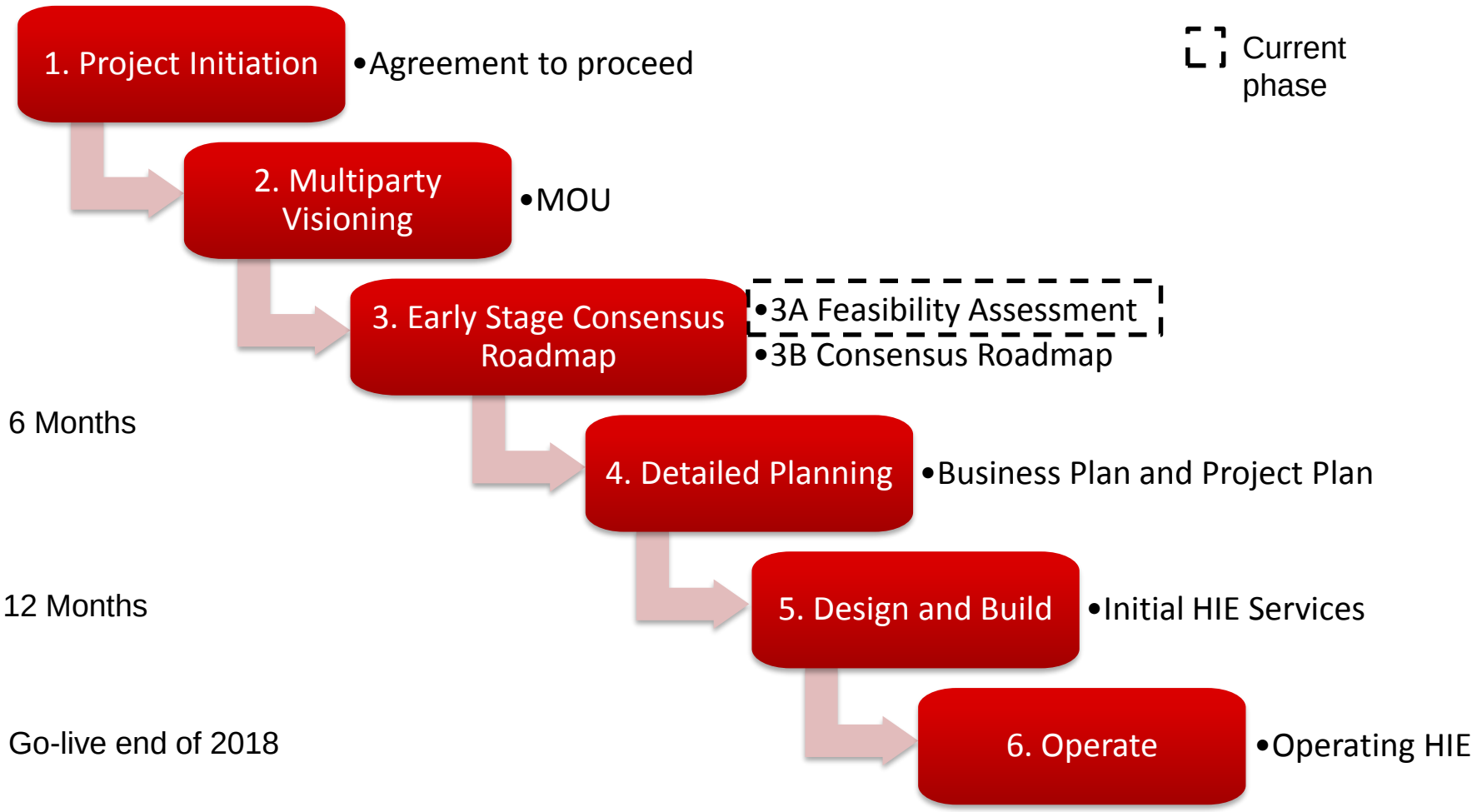


Key HIE.ZA Standardisation Areas

Goal: to adopt proven standards in use locally and internationally

- Areas of Standardisation
  - Structure and Syntax
    - E.g. HL7 FHIR (Fast Healthcare Interoperability Resources)
  - Transport
    - E.g. IETF Transport Layer Security (TLS)
  - Privacy and Security
    - E.g. HIPAA (American standard)
  - Semantic Standards
    - E.g. LOINC, WHO-ICD10

HIE.ZA Roadmap



WHAT'S NEXT?

A.
- ❑ Feasibility assessment report
- ❑ Engagement with industry stakeholders (private and public sector)

B.
- ❑ Development of detailed roadmap and detailed planning
- ❑ Design and build of HIE organization and technology

C.
- ❑ Implementation of initial use cases