Standards and Interoperability –
Laying the Foundations for Digital Health Systems

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Connecting knowledge for innovation.

Outline

ADB and Digital Health

Laying the Foundations for Digital Health

Regional healthcare trends drive digital health

Aging society

in Asia by **2030 there will be 615M** people older than 65, double than today

Increasing spending

Healthcare **expenditure keeps growing**

Rising expectations

Patients increasingly using the internet **to engage in their health**, get savvier about products and services

Advancing technology

Explosion of new technologies e.g. AI, next-gen sequencing, advanced materials

Shifting innovation

"Patient-centric" philosophy and **personalized therapies** ask for transformation in healthcare

Digital Health can enable more efficient, quality care and improve access to services.

Digital Health is a catalyst for health care

Disease surveillance and population health

Healthcare service delivery

Health system leakages

Health workforce

- Digital Health is a key enabler for achieving and measuring UHC and SDG3 through population health monitoring dashboards.
- Measuring UHC with ICT-enabled monitoring systems can enhance evidence based health policies and decision making with more reliable data to ensure better health systems performance.
- ICT solutions empower patients and communities to engage at all levels of the health system (mHealth, reminders, EMRs, Telemedicine).
- Aging Populations and chronic diseases require patient-centric prevention, management and monitoring
- ICT solutions have the potential to reduce healthcare costs to families, improve equitable access to quality services.
- ICT solutions increase accountability and sustainability in health service delivery (digital payment systems).
- Reduces time health workers spend on documentation

Technology supported health care improves efficiencies

Examples from Australia

$2bn
Cost of adverse events

$1.5bn
Cost of non-collaboration on Chronic Disease Management

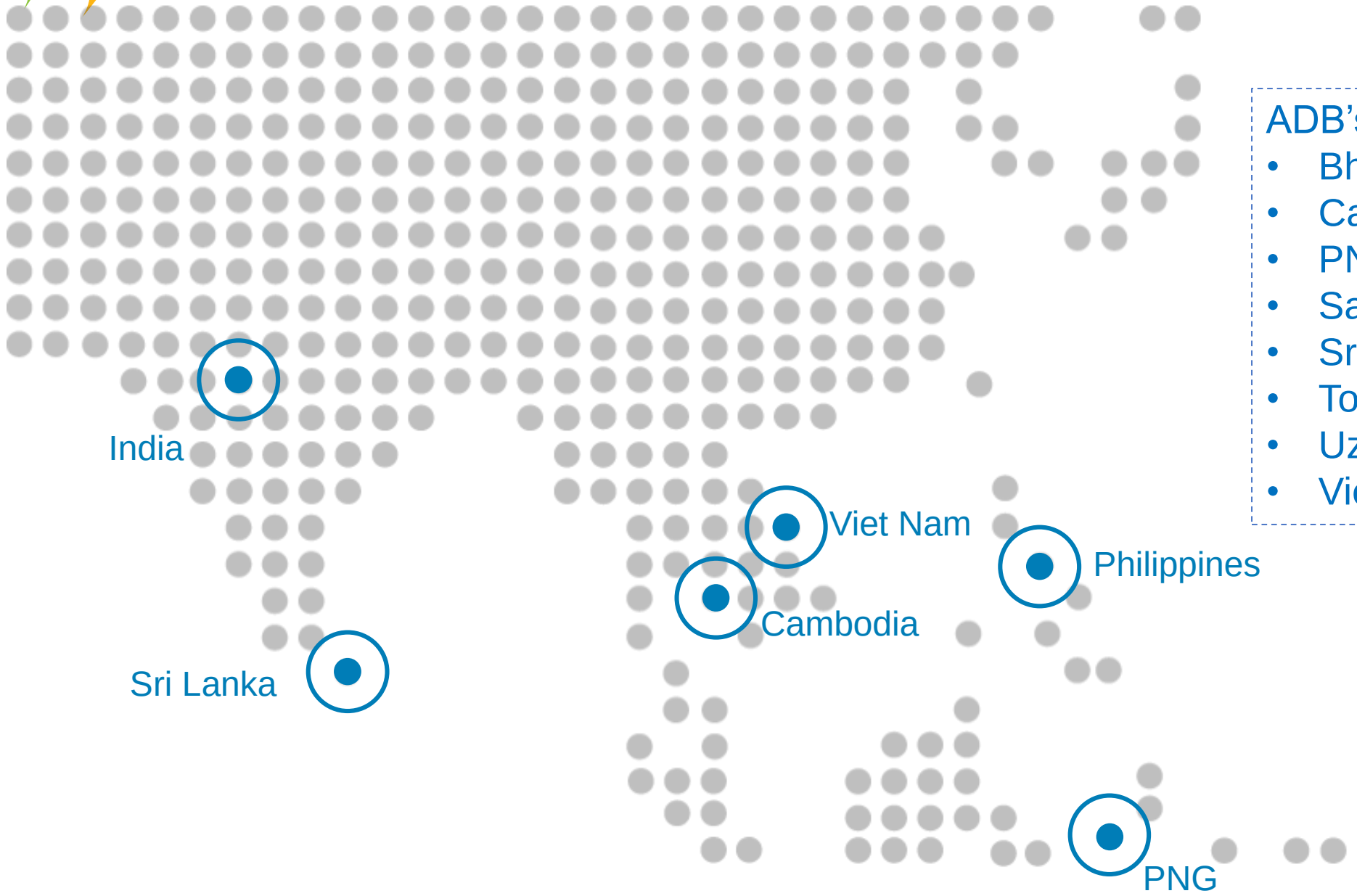
$380m
Cost of preventable medication errors

17% of
Pathology tests are duplicates ($306m)

18%
of errors due to wrong medical Info

25%
of Physician's time spent on getting medical info

Digital Health Landscape in Asia - Status quo



ADB's digital health activities:

- Bhutan
- Cambodia
- PNG
- Samoa
- Sri Lanka
- Tonga
- Uzbekistan
- Viet Nam

Summary of Issues

Weak national health informatics capacity,
no specific university course

Lack of standards
E-Governance frameworks not in place

Lack of unique health IDs
Not always unique patient identification available

Lack of partnerships
Weak collaboration between private and public sector

Weak inter-agency collaboration
Especially between ICT Ministry and MoH

Fragmented
Information Systems

Lack of regulation
Mixed care providers) with weak coordination

3 Requirements

for laying foundations

2

Interoperability and Standards for Health Information Exchange

1

Policy, strategy, legislation, governance

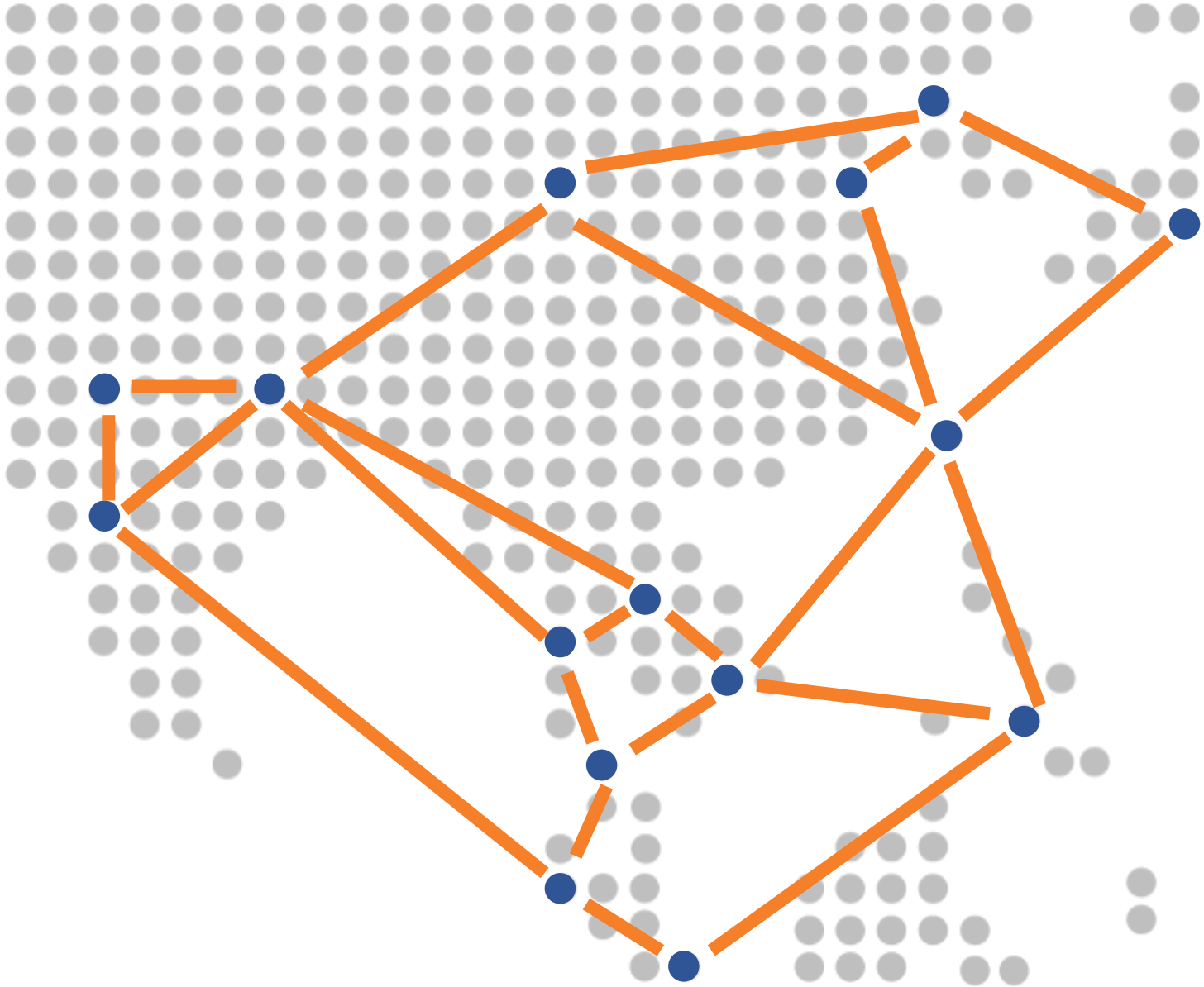
3

Private sector collaboration

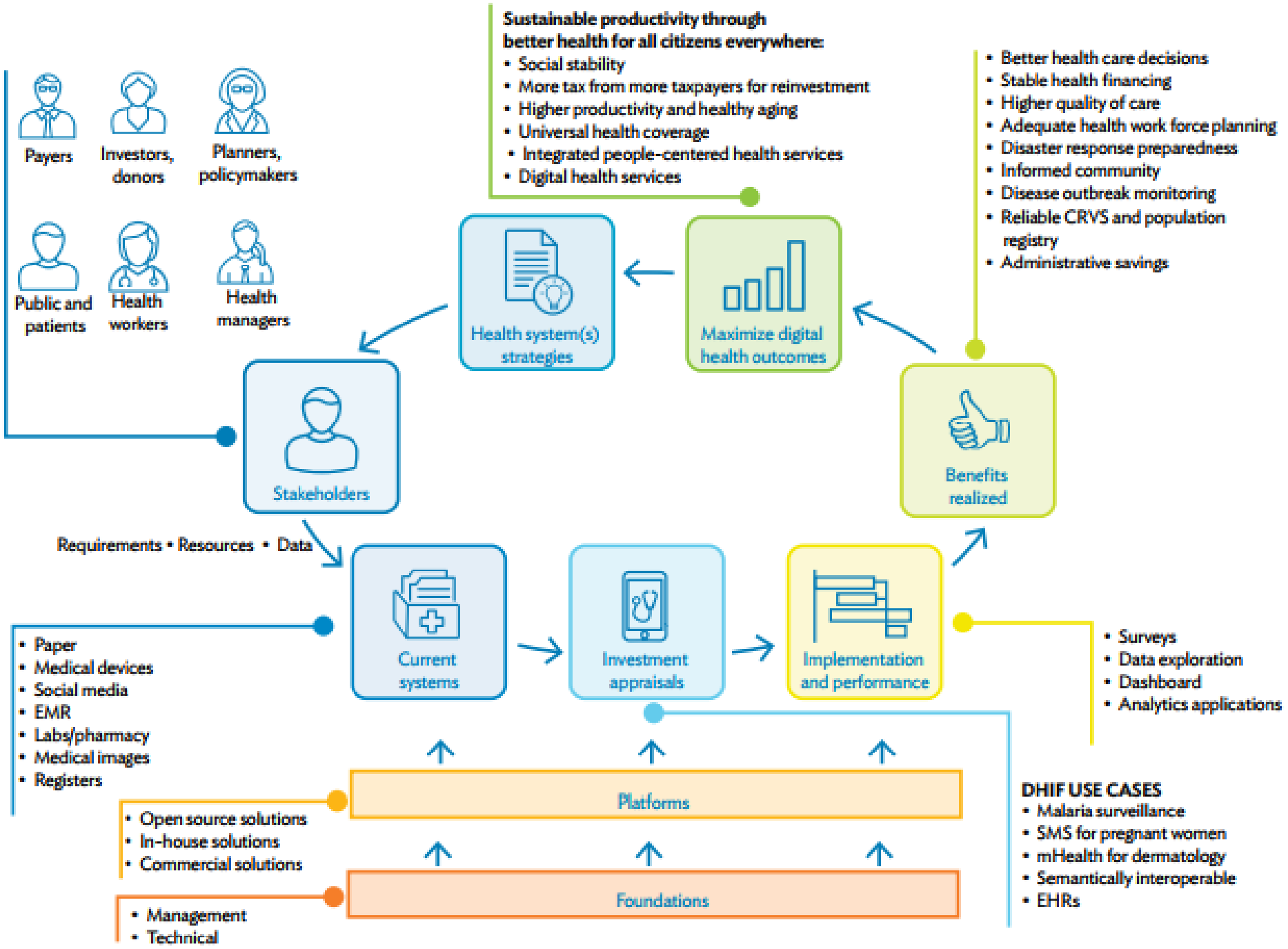
Requirement

1

Policy, strategy, legislation, governance



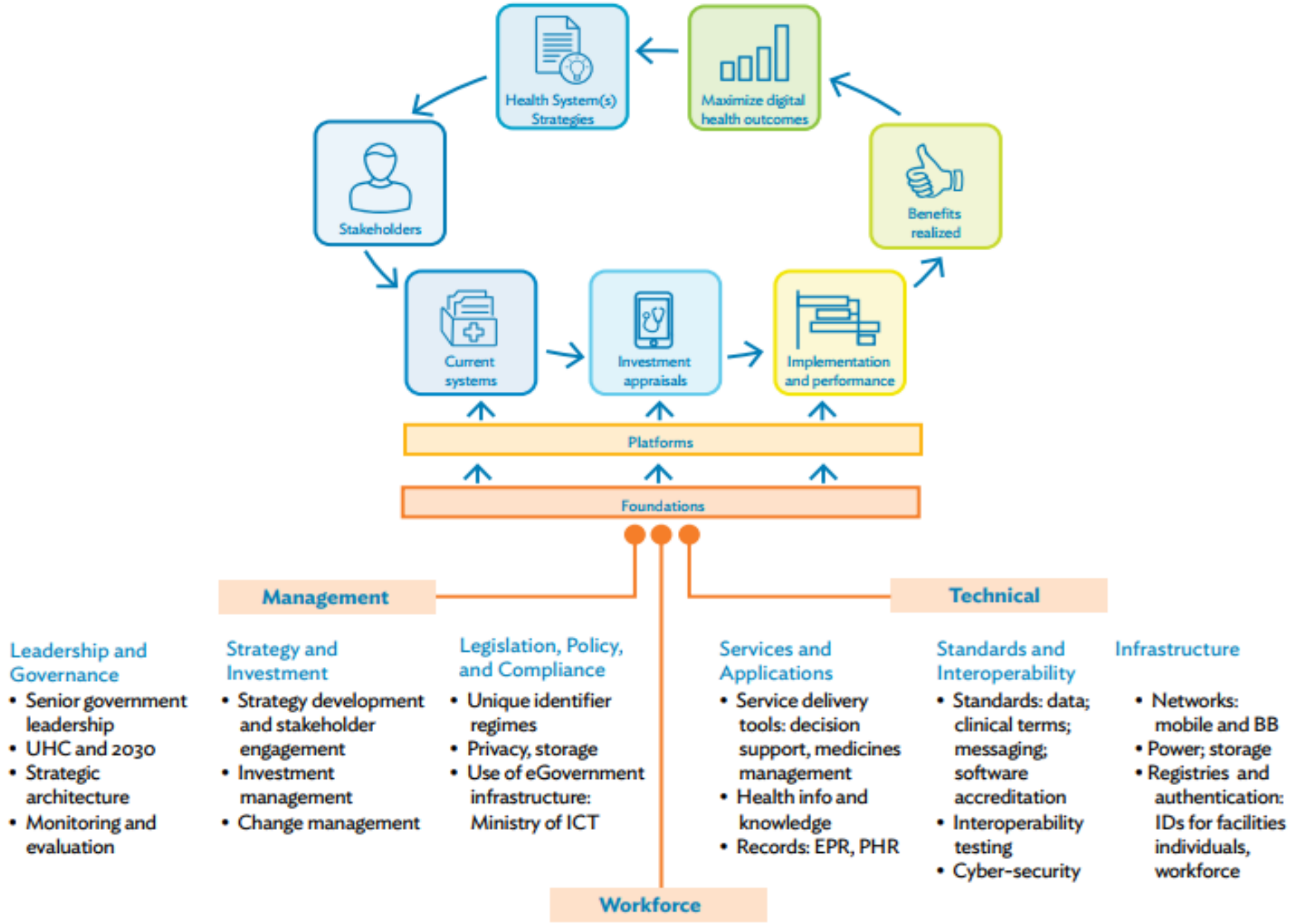
Digital Health Investment Cycle



CRVS = civil registration and vital statistics, DHIF = digital health impact framework, EHR = electronic health record, SMS = short message service.

Source: Digital Health

Foundations for delivering benefits

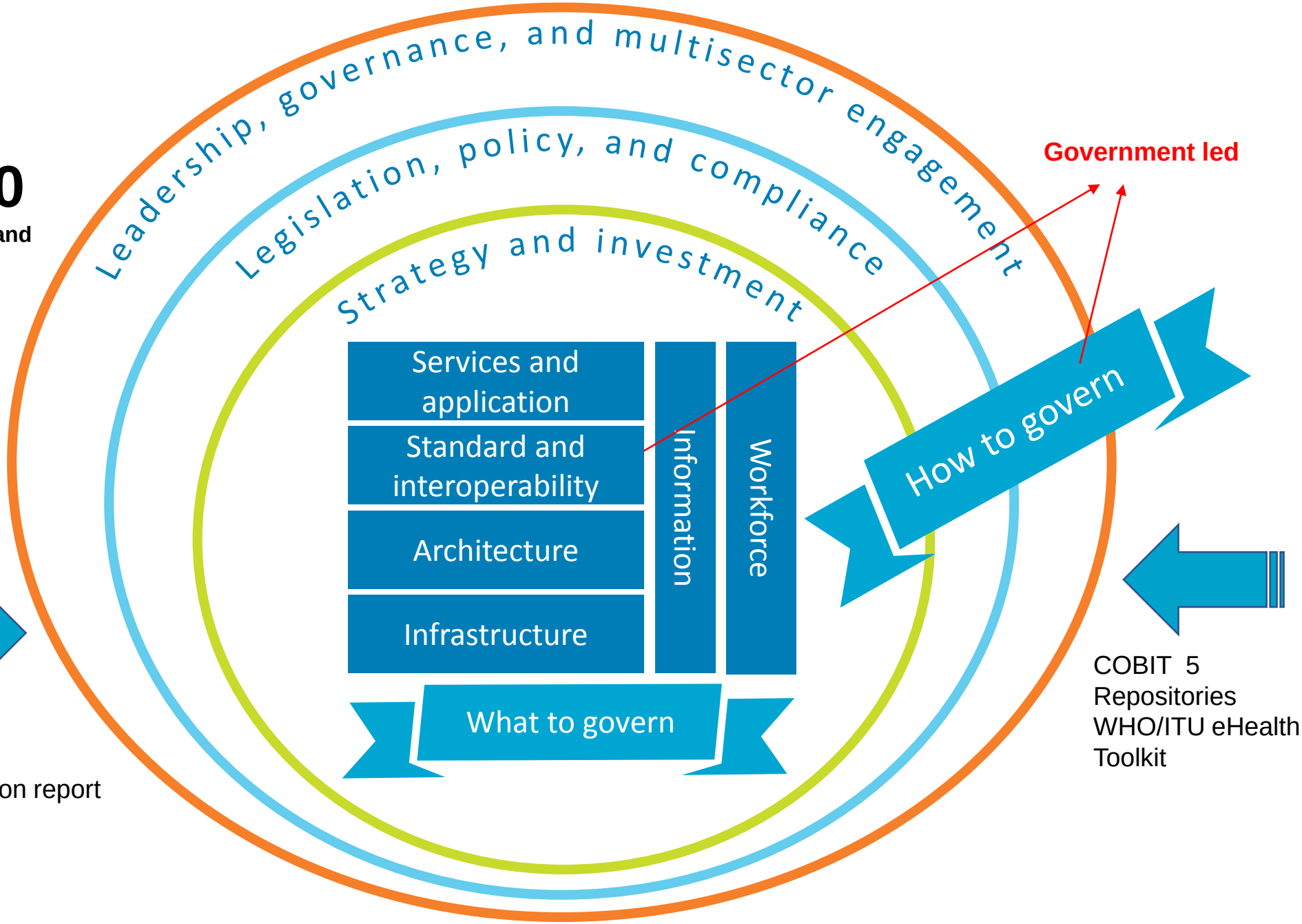


BB = broadband, EPR = electronic patient/(medical) record, ICT = information and communication technology, ID = identity, PHR = personal heath record, UHC = universal health coverage. .

Source: Digital Health

HIGAF 2.0

Health ICT Governance and Architecture Framework



Good Governance
Stakeholder Mapping
Broadband Commission report

COBIT 5
Repositories
WHO/ITU eHealth Strategy Toolkit

Source: Adapted from WHO/ITU National eHealth Strategy Toolkit.

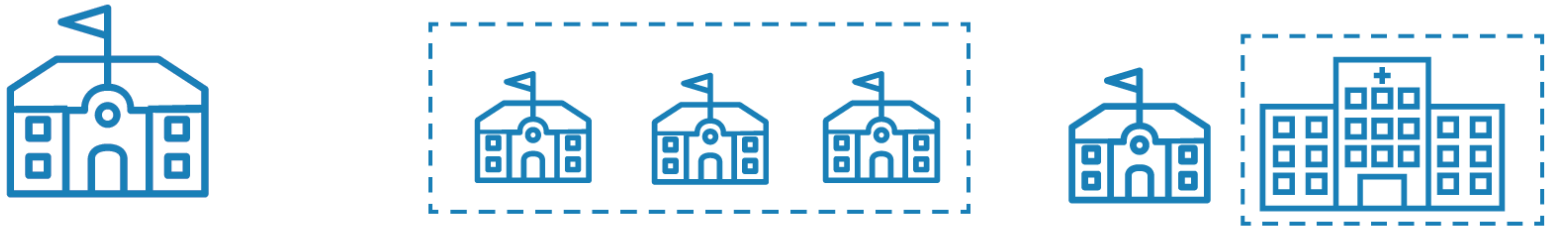
Laying governance foundations

Legislation, Policy and Compliance
Privacy protection, electronic transmission and storage of data

Strategy and Investment
Digital Health Strategy, costing, investment case

Leadership and Governance
Governance structure, stakeholder engagement, monitoring

A Broadband Commission Report proposes 3 governance models for Digital Health

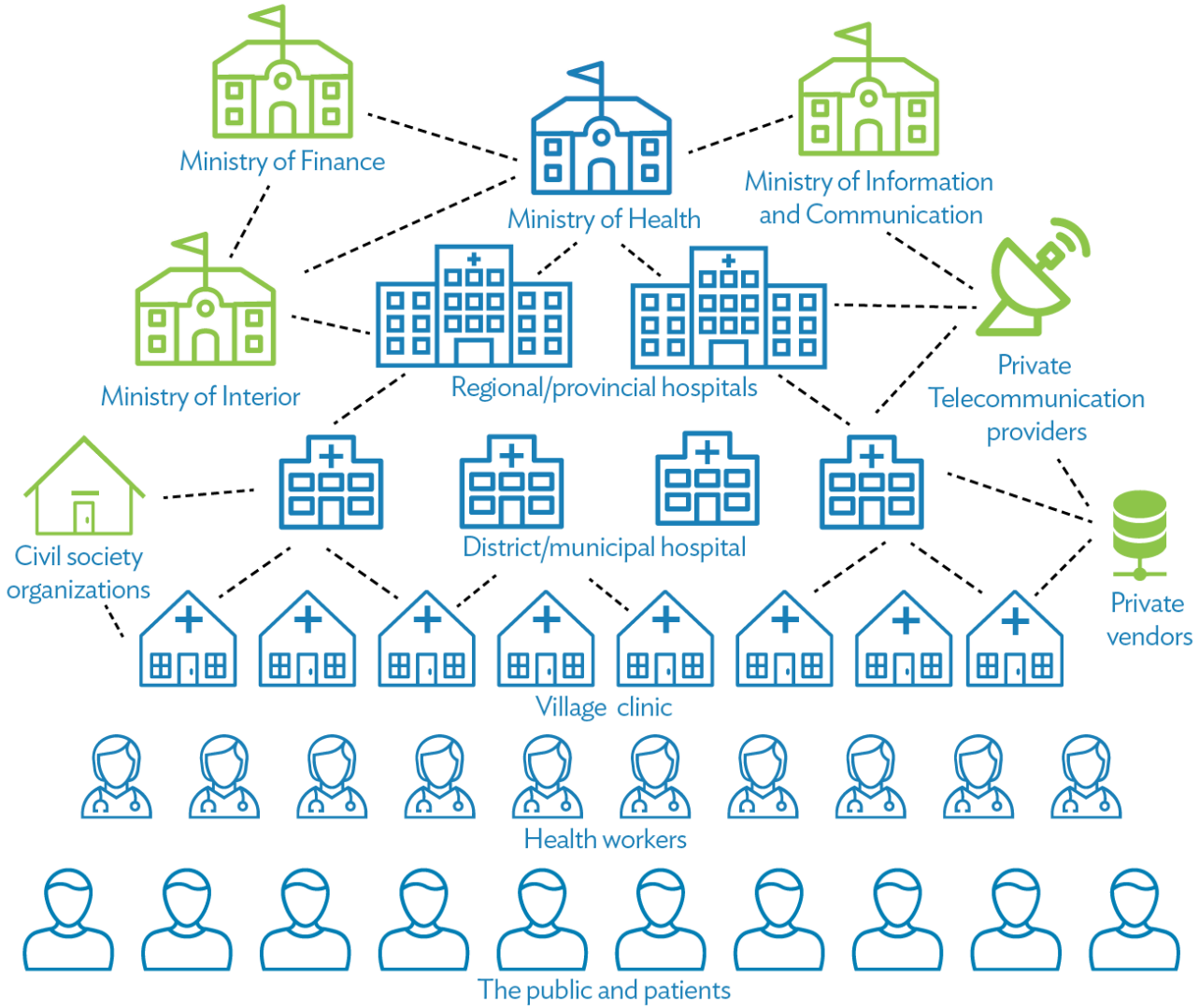


Ministry of health (MOH) mechanisms	Government-wide digital agency mechanism	Dedicated health agency mechanism
The MOH drives digital health and mobilises technical capacity and skills from other ministries, agencies, firms, and organisations to deploy digital health systems.	The MOH drives digital health, but is a client to a government-wide technology agency that provides significant ICT infrastructure and capacity.	The MOH leads health strategy, while a designated third-party agency or directorate drives digital health strategy and solution implementation through its own technical capacity and resources.

→ Stresses cooperation between health and ICT sectors
→ Not to be seen as rigid models but components of a spectrum
→ Suitability of model depends on country context

Source: Adapted from Broadband Commission report.

A complex web of stakeholders enables Digital Health



Stakeholder Mapping

Step #1

Identify stakeholders that have roles in Digital Health policy-making and implementation

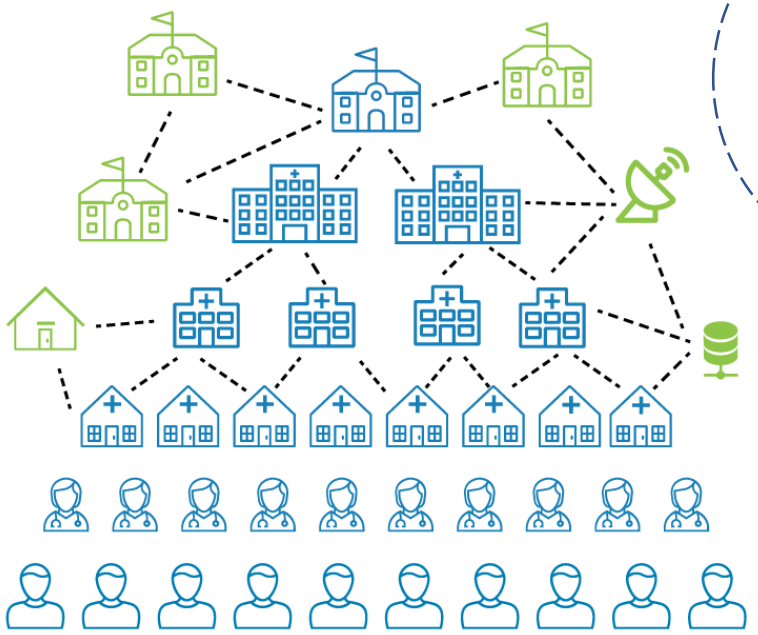
Step #2

Identify key Digital Health decision makers

Step #3

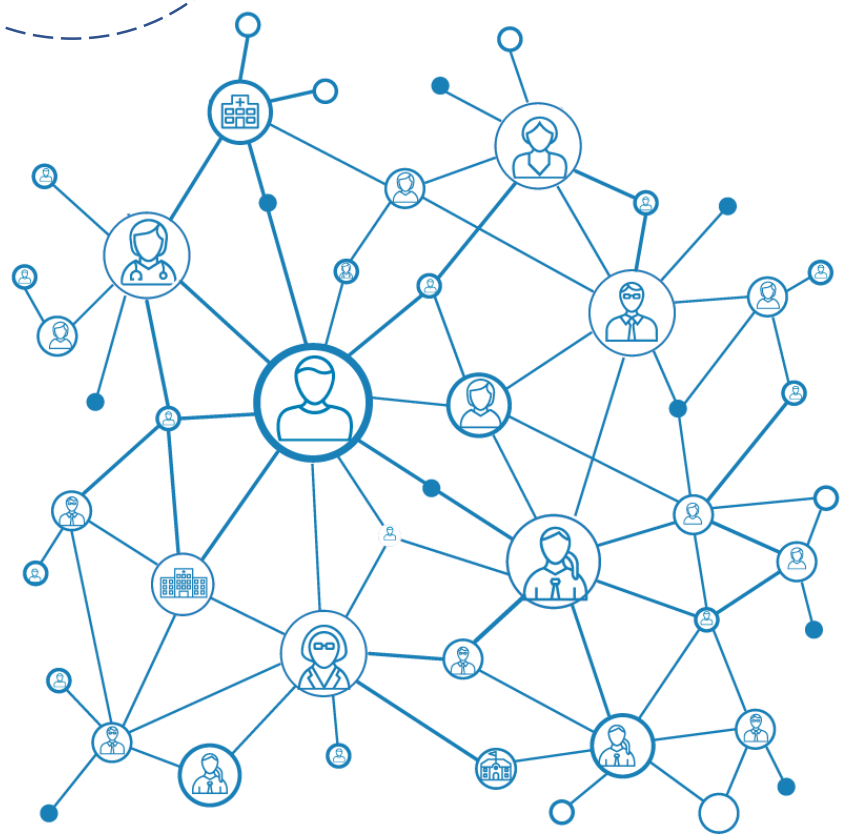
Identify stakeholders who bring in key resources for Digital Health (human, financial, technological, knowledge)

Moving towards Polycentric and Patient-Centric Governance for Digital Health

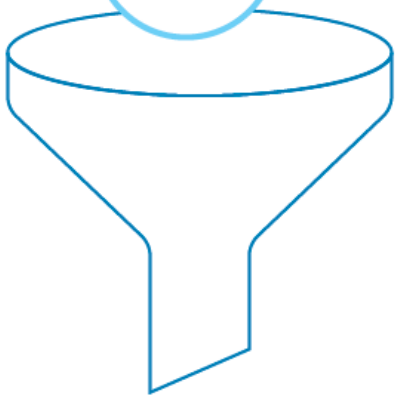


Transforming to less-hierarchical, patient-centered health system

Internet of Things – Devices and Wearables - mHealth



- *Catalysts*: Aging populations, chronic disease prevention and management
- Mobile information
- Consent policy and accessing health data
- Safe and secure data management
- Networked medical devices
- Reminder systems



Digital health stregthening

Bringing stakeholders together

Convergence meetings

- Bringing different stakeholders together to support create a digital health vision.
- HISs are often uncoordinated and fragmented, which can affect data quality.
- Objective is a comprehensive HIS, which improves health care quality, and decision making for health sector planning.
- The convergence workshop o identify mechanisms to strengthen HIS in the country.
- Countries so far: Myanmar, Bhutan, Indonesia, Viet Nam, Timor-Leste, Nepal

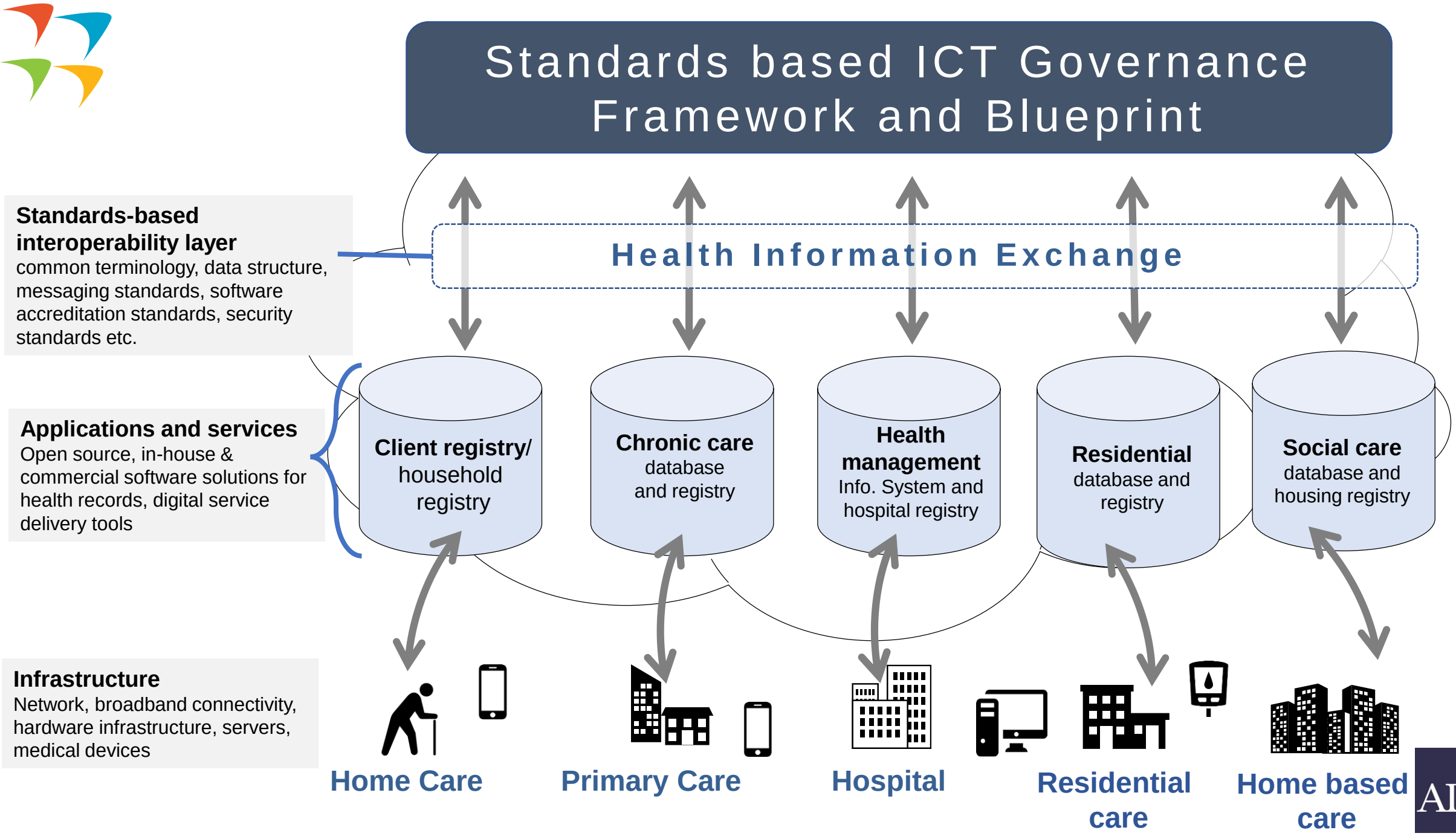
Requirement

2

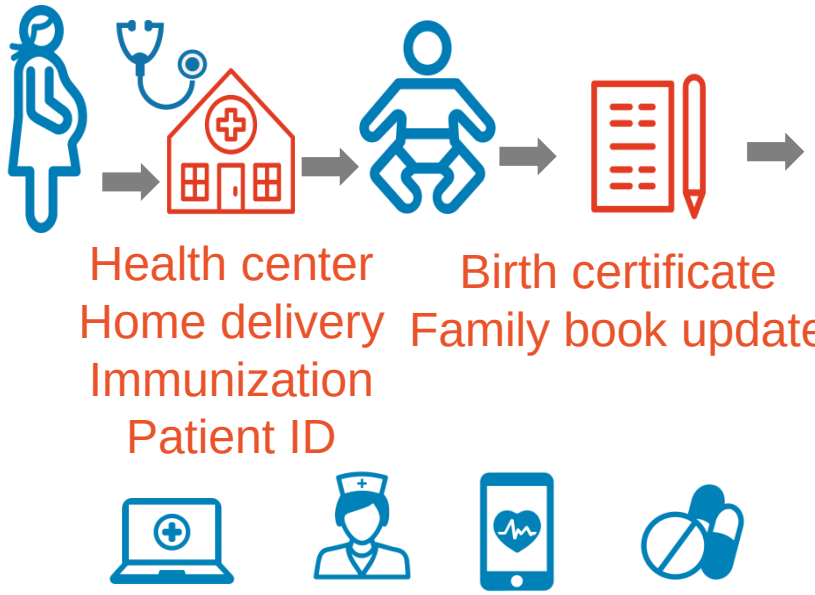
Enabling Health information exchange

Data Fragmentation across health systems

Standards based ICT Governance Framework and Blueprint



Health sector links with eGovernance



Health center
Home delivery
Immunization
Patient ID

Birth certificate
Family book update

CRVS

POPULATION REGISTRY

Education
Health
Driving license/
Vehicle registration
Identity
Land registry
State benefit
International
Immigration/
Border control

eHealth

eGovernment

ADB

ADB supports the Regional Standards and Interoperability Lab (SIL-A)

ADB

SIL-Asia for risk mitigation of digital health investments

TEAMING

MOH, private sector, collaborate to enable standard bases digital health.

TRAINING

Training programs on digital health technologies, standards and best practices.

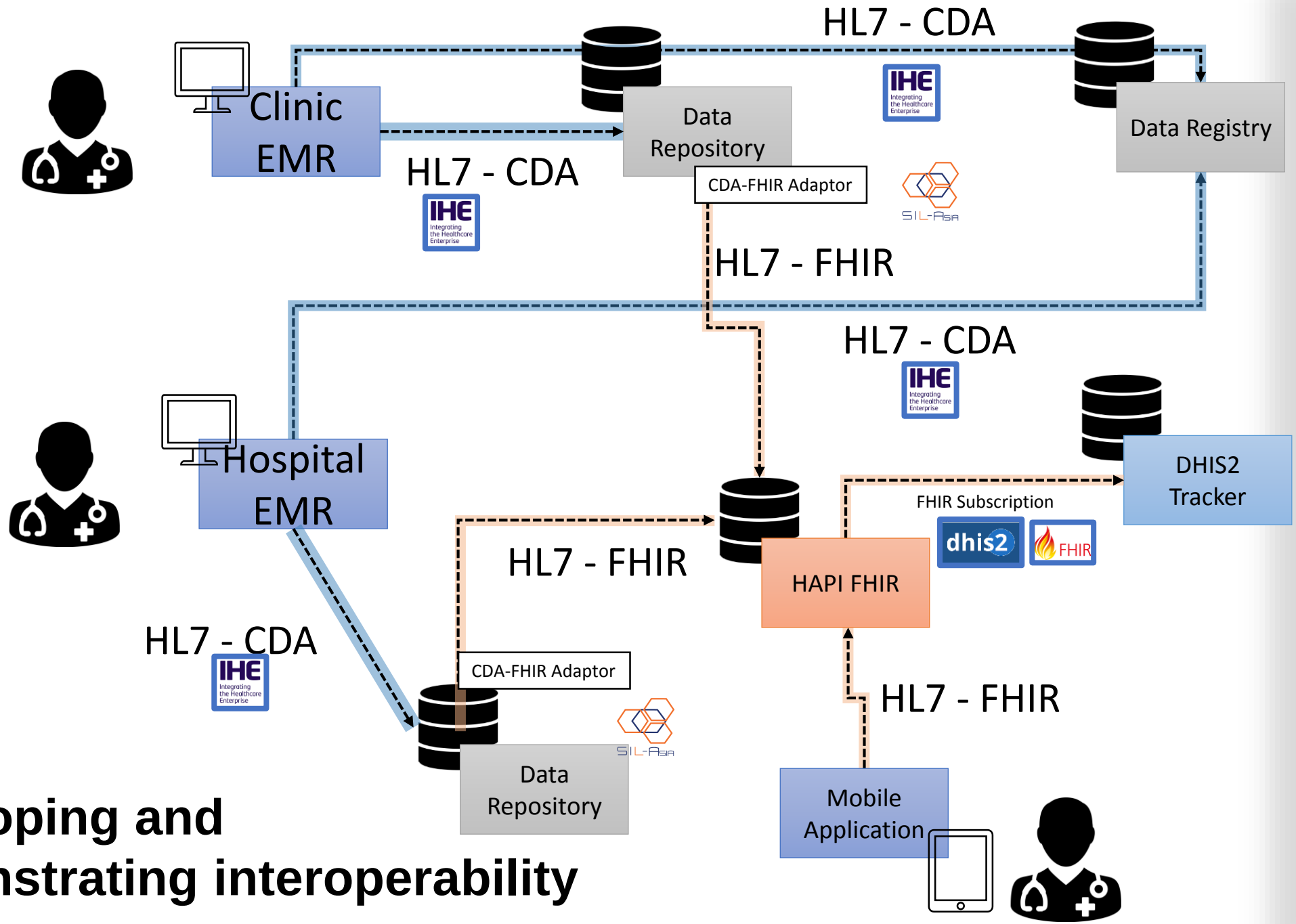
TOOLING

Develop/ support open source software components for standards-based eHealth interoperability profiles.

TESTING

Provide a conformance test and software interoperability certification.

ADB



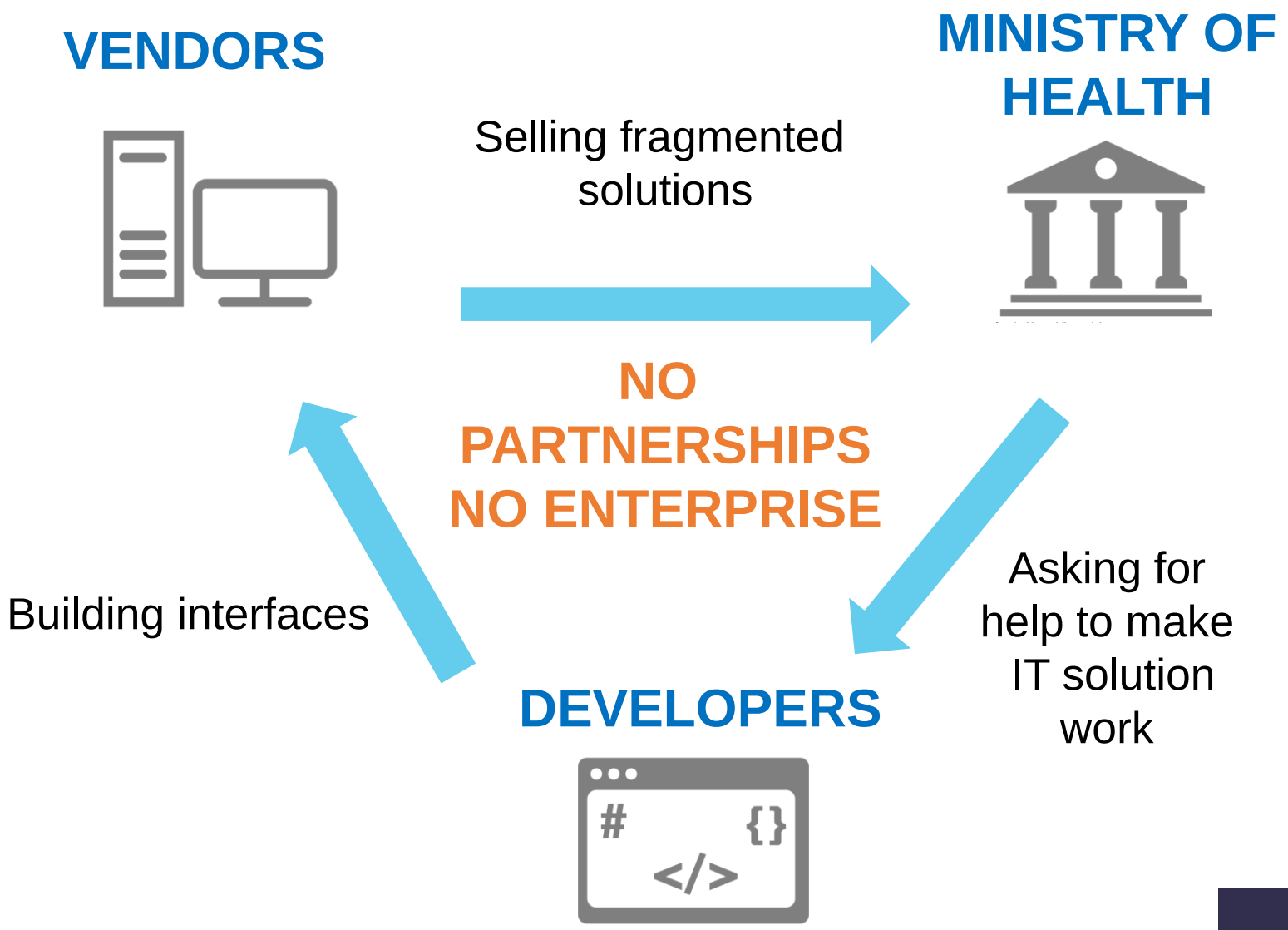
Developing and demonstrating interoperability

Requirement

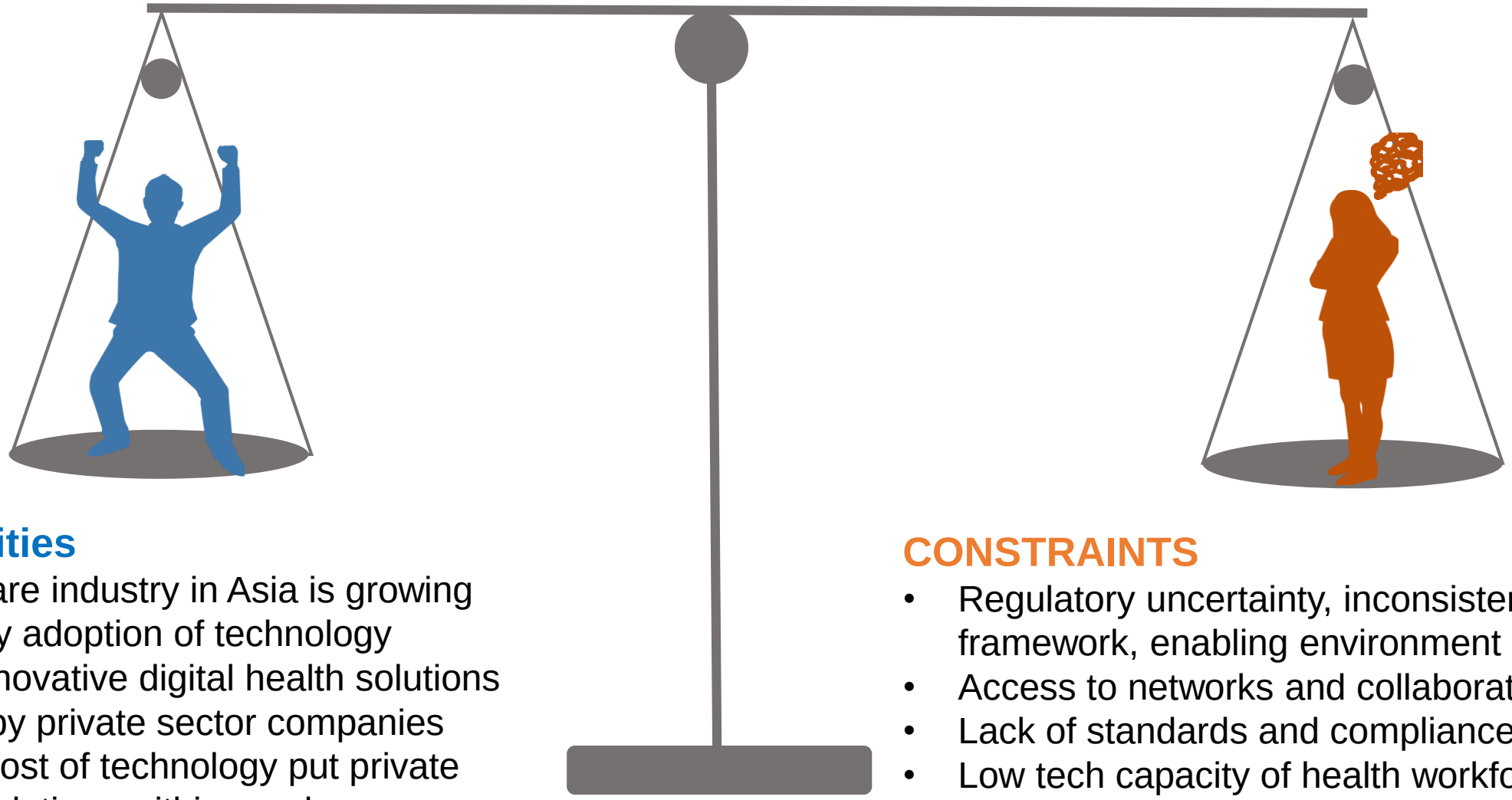
3

Public Private Collaboration

SITUATION NOW



There is a need to enhance private sector collaboration in Asia



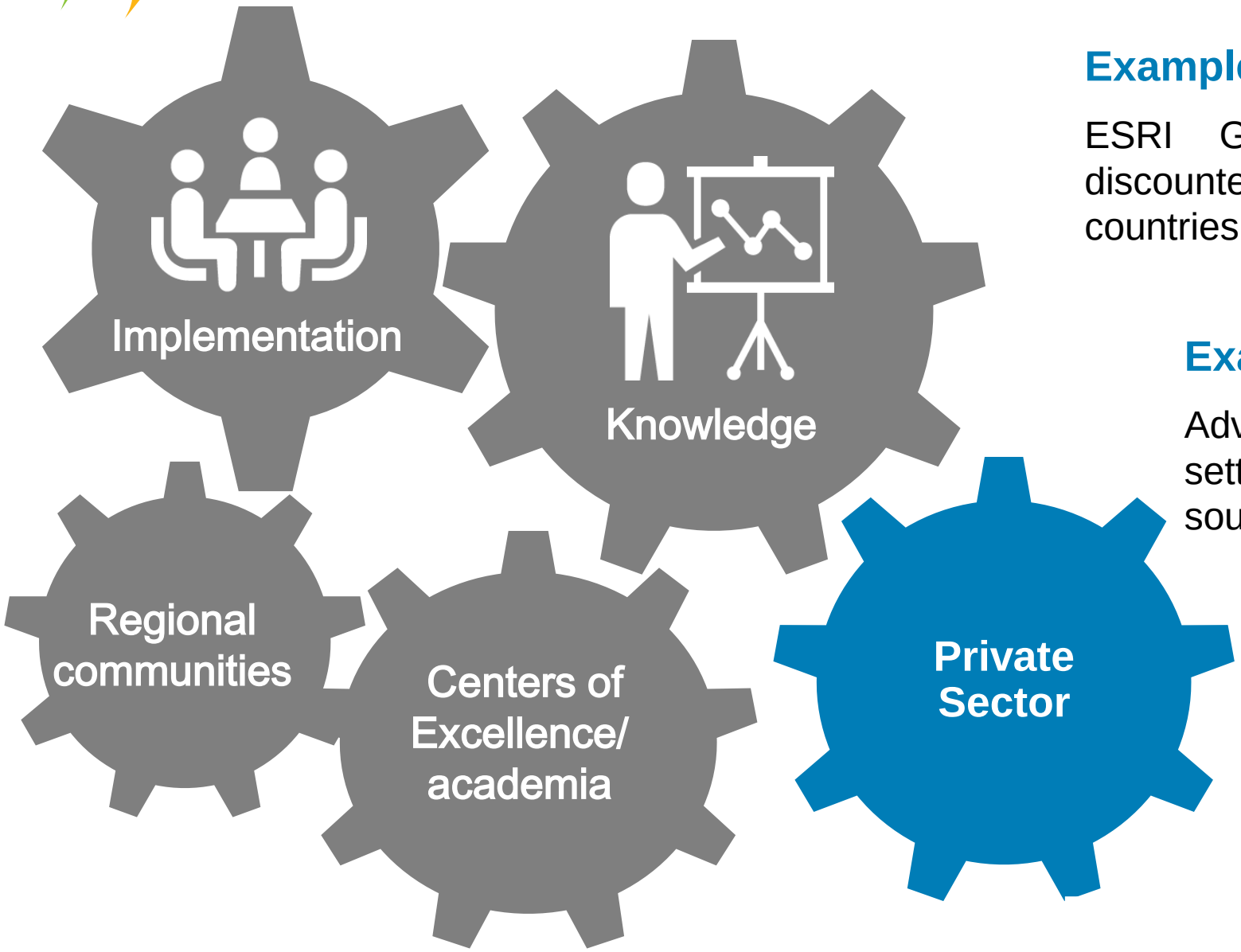
Opportunities

- Healthcare industry in Asia is growing fueled by adoption of technology
- Many innovative digital health solutions offered by private sector companies
- Falling cost of technology put private sector solutions within reach
- Patient-centered care

CONSTRAINTS

- Regulatory uncertainty, inconsistent legal framework, enabling environment
- Access to networks and collaborations
- Lack of standards and compliance
- Low tech capacity of health workforce
- Market diversity

Opportunities for public private collaboration



Example #1 SOFTWARE

ESRI GIS software company provides highly discounted software bundles to SIL-A and developing countries

Example #2 INTEROPERABILITY

Advanced Information Technology (AIT) setting up interoperability lab to test open source solutions

Example #3 PRODUCTS

Viettel and VNPT (Viet Nam Telecommunication companies) to develop standards-based electronic health records

Collaboration for scalable solution that work!

VENDORS

Private Sector

MINISTRY OF HEALTH

Standards and Policies

IHE

International Expertise

Standards development and implementation

COLLABORATION

Standards and Interoperability Lab Asia @ digital health innovation hub ADB

Standard compliant digital health enterprise

ADB

ADB

Thank you.