

# Healthcare and Telecommunication

DR. ANIL SAMARANAYAKE

MBBS, MSC, MD, ICCA [USA], M. A. [ MASS COMMUNICATION] SJU, GPN [BOSTON  
UNIVERSITY -USA], IHRM [UPPSALA UNIVERSITY – SWEDEN]  
FORMER RESEARCH FELLOW [MELBOURNE UNIVERSITY - AUSTRALIA]

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DIRECTOR, HEALTH INFORMATION

MINISTRY OF HEALTH, NUTRITION AND INDIGENOUS MEDICINE

# Health System Sri Lanka

**Location :** Island nation in South East Asia

**Area :** 65,610 km<sup>2</sup>

**Population :** 21.67

**Population density :** 342 persons per sq. km

**Health care expenditure :** 3.5% GDP (USD 369)

Provide **free healthcare at the point of delivery** to every Sri Lankan

**1085 State health care institutions** providing ~ 90% inward care and ~50% out-patient care



# Health System Sri Lanka : Achievements

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- **Life expectancy at birth (years)**
  - Female : 78.6
  - Male : 72
- **Neonatal mortality rate (per 1,000 live births) : 6.5**
- **Infant mortality rate (per 1,000 live births) : 9.1**
- **Maternal Mortality Rate (100,000 live births) : 39.3**
- **Institutional deliveries : 99.9 %**
- **Diseases eliminated : Malaria, Filariasis, Polio, Rubella, Measles**

# Health Goals

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## OUR VISION

A healthier nation that contributes to its economic, social, mental and spiritual development.

## OUR MISSION

To contribute to social and economic development of Sri Lanka by achieving the highest attainable health status through promotive, preventive, curative and rehabilitative services of high quality made available and accessible to people of Sri Lanka. Objectives are;

To empower community for maintaining, promoting their health

To improve comprehensive health services delivery actions

To strengthen stewardship management functions

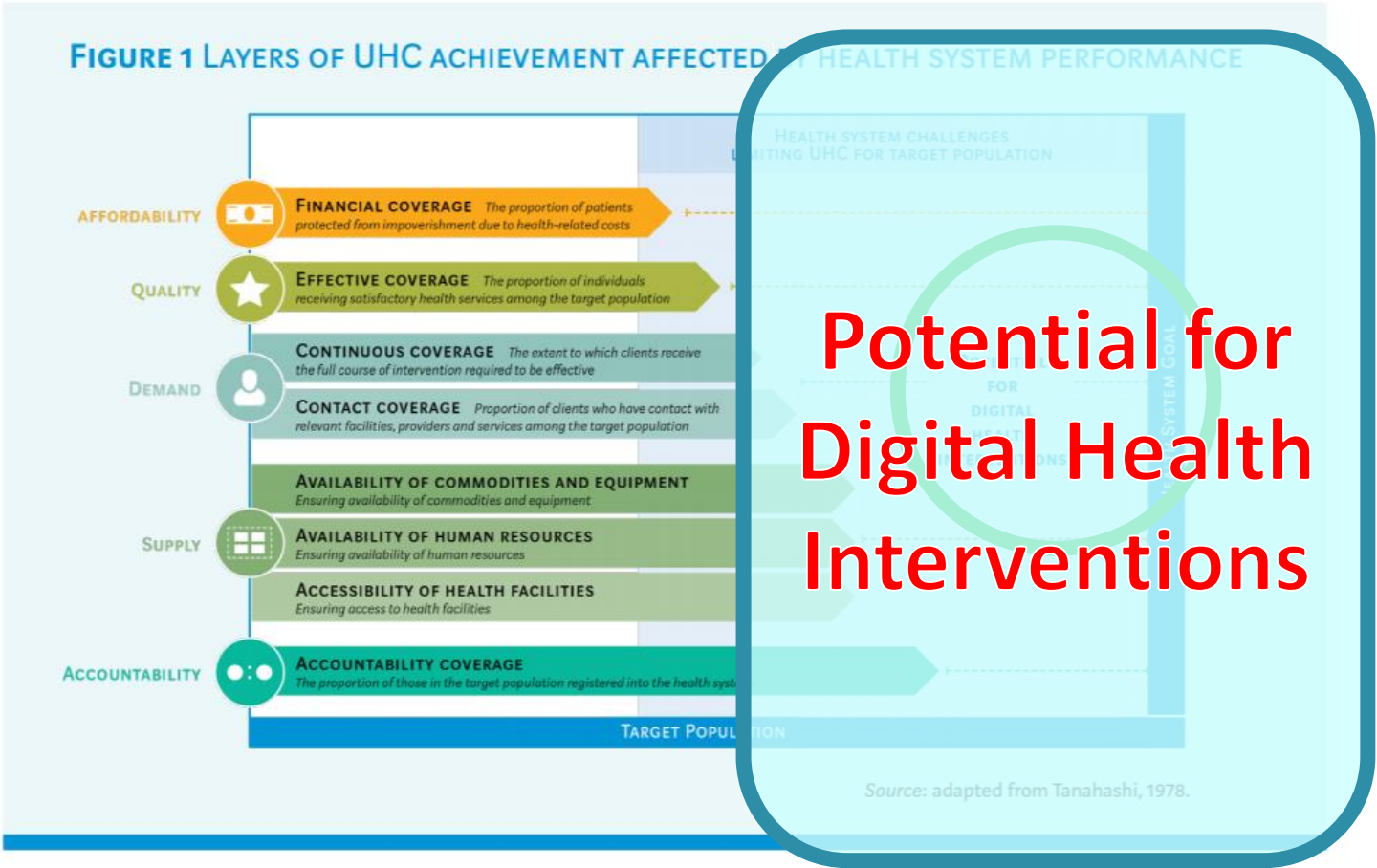
To improve the management of human resources

# Current health system challenges

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- Increased healthcare demand
- Ensuring Universal Health Coverage
- inadequate capacity, limited access to specialist care
- Inconsistent service standards
- Disparity in care between rural and urban areas
- Primary focus on curative
- High healthcare expenditure
- .....

# Digital Health Potential

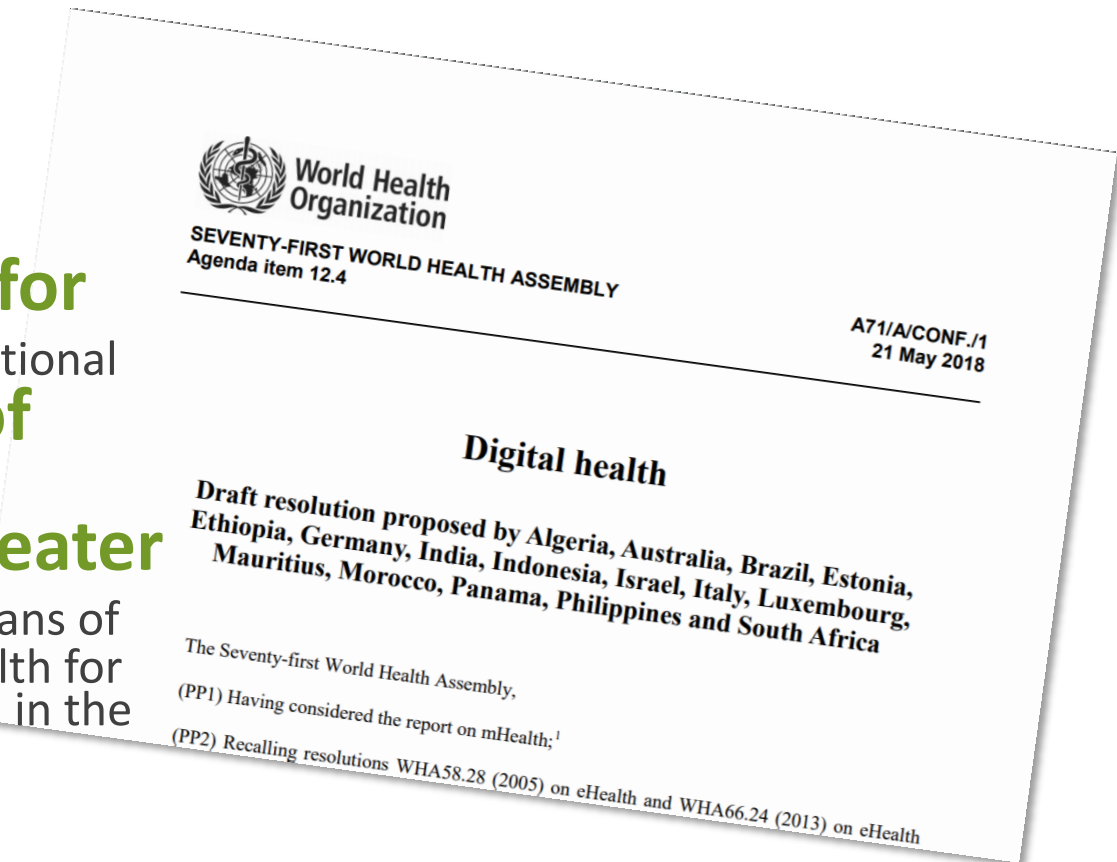


# Digital health focus

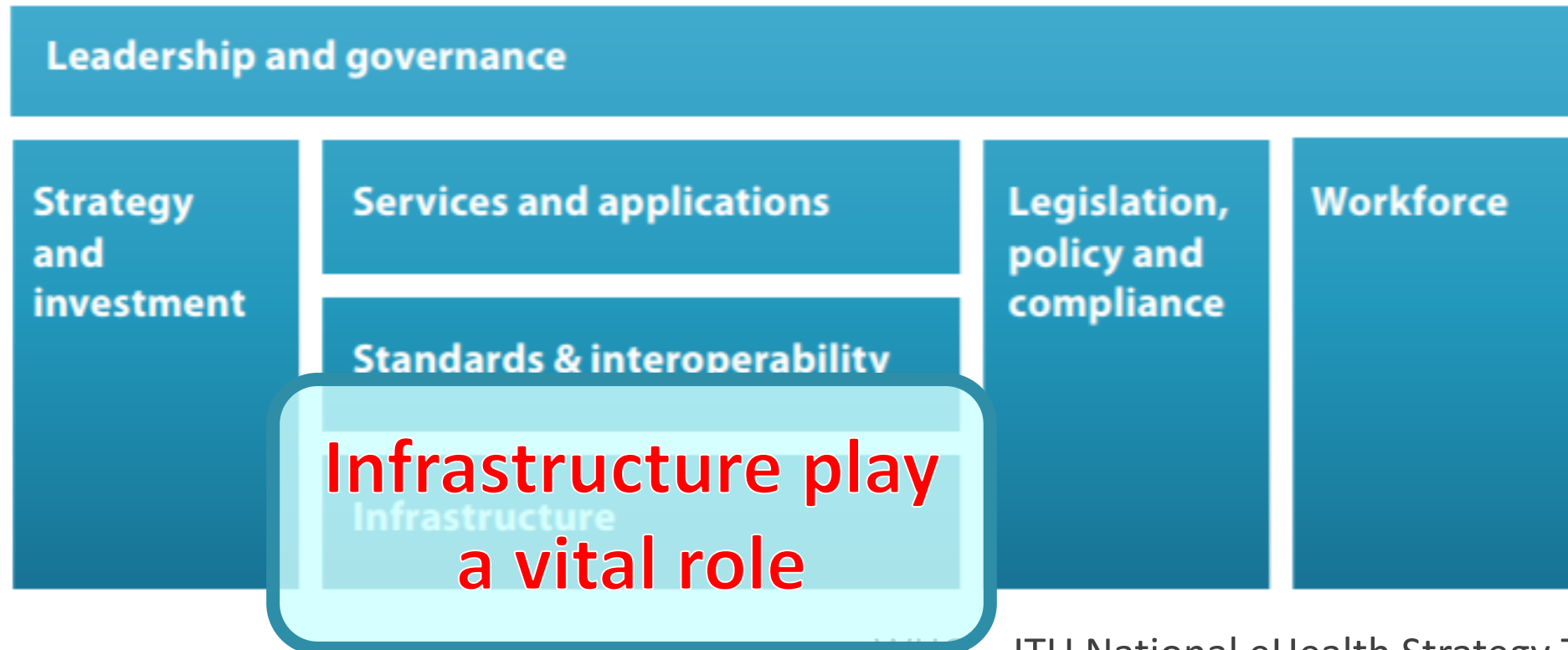
World Health Organization WHA71.7 (2018)

OP1. URGES Member States:

(1) to assess their **use of digital technologies for health**, including in health information systems at the national and subnational levels, in order **to identify areas of improvement**, and to prioritize, as appropriate, the development, evaluation, implementation, scale-up and **greater utilization of digital technologies**, as a means of promoting equitable, affordable and universal access to health for all, including the special needs of groups that are vulnerable in the context of digital health;



# Digital Health Building Blocks



WHO – ITU National eHealth Strategy Toolkit



# WHO – ITU Categorization of Digital Health Interventions



## 3.0 HEALTH SYSTEM MANAGERS

<b>3.1 HUMAN RESOURCE MANAGEMENT</b>	<b>3.3 PUBLIC HEALTH EVENT NOTIFICATION</b>	<b>3.6 EQUIPMENT AND ASSET MANAGEMENT</b>
3.1.1 List health workforce cadres and related identification information	3.3.1 Notification of public health events from point of diagnosis	3.6.1 Monitor status of health equipment
3.1.2 Monitor performance of healthcare provider(s)	<b>3.4 CIVIL REGISTRATION AND VITAL STATISTIC</b>	3.6.2 Track regulation and licensing of medical equipment
3.1.3 Manage certification/registration of healthcare provider(s)	3.4.1 Notify birth event	<b>3.7 FACILITY MANAGEMENT</b>
3.1.4 Record training credentials of healthcare provider(s)	3.4.2 Register birth event	3.7.1 List health facilities and related information
<b>3.2 SUPPLY CHAIN MANAGEMENT</b>	3.4.3 Certify birth event	3.7.2 Assess health facilities
3.2.1 Manage inventory and distribution of health commodities	3.4.4 Notify death event	
3.2.2 Notify stock levels of health commodities	3.4.5 Register death event	
3.2.3 Monitor cold-chain sensitive commodities	3.4.6 Certify death event	
3.2.4 Register licensed drugs and health commodities	<b>3.5 HEALTH FINANCING</b>	
3.2.5 Manage procurement of commodities	3.5.1 Register and verify client insurance membership	
3.2.6 Report counterfeit or substandard drugs by clients	3.5.2 Track insurance billing and claims submission	
	3.5.3 Track and manage insurance reimbursement	
	3.5.4 Transmit routine payroll payment to healthcare provider(s)	
	3.5.5 Transmit or manage incentives to healthcare provider(s)	
	3.5.6 Manage budget and expenditures	



## 1.0 CLIENTS

<b>1.1 TARGETED CLIENT COMMUNICATION</b>	<b>1.3 CLIENT TO CLIENT COMMUNICATION</b>	<b>1.6 ON-DEMAND INFORMATION SERVICES TO CLIENTS</b>
1.1.1 Transmit health event alerts to specific population group(s)	1.3.1 Peer group for clients	1.6.1 Client look-up of health information
1.1.2 Transmit targeted health information to client based on health status or demographics	<b>1.4 PERSONAL HEALTH TRACKING</b>	<b>1.7 CLIENT FINANCIAL TRANSACTIONS</b>
1.1.3 Transmit targeted alerts and reminders to client(s)	1.4.1 Access by client to own medical records	1.7.1 Transmit or manage out of pocket payments by client
1.1.4 Transmit diagnostics result, or availability of result, to clients	1.4.2 Self monitoring of health or diagnostic data by client	1.7.2 Transmit to client health vouchers to client for health services
<b>1.2 UNTARGETED CLIENT COMMUNICATION</b>	1.4.3 Active data capture/documentation by client	1.7.3 Transmit or manage incentives to clients for health services
1.2.1 Transmit untargeted health information to an undefined population	<b>1.5 CITIZEN BASED REPORTING</b>	
1.2.2 Transmit untargeted health event alerts to undefined group	1.5.1 Reporting of health system feedback by clients	
	1.5.2 Reporting of public health events by client	



## 2.0 HEALTHCARE PROVIDERS

<b>2.1 CLIENT IDENTIFICATION AND REGISTRATION</b>	<b>2.5 HEALTHCARE PROVIDER COMMUNICATION</b>	<b>2.8 HEALTHCARE PROVIDER TRAINING</b>
2.1.1 Verify client unique identity	2.5.1 Communication from healthcare provider to supervisor	2.8.1 Provide training content to healthcare provider(s)
2.1.2 Enrol client for health services/clinical care plan	2.5.2 Communication and performance feedback to healthcare provider	2.8.2 Assess capacity of healthcare provider
<b>2.2 CLIENT HEALTH RECORDS</b>	2.5.3 Transmit routine news and workflow notifications to healthcare provider(s)	<b>2.9 PRESCRIPTION AND MEDICATION MANAGEMENT</b>
2.2.1 Longitudinal tracking of client's health status and services received	2.5.4 Transmit non-routine health event alerts to healthcare providers	2.9.1 Transmit or track prescription orders
2.2.2 Manage client's structured clinical records	2.5.5 Peer group for healthcare providers	2.9.2 Track client's medication consumption
2.2.3 Manage client's unstructured clinical records	<b>2.6 REFERRAL COORDINATION</b>	2.9.3 Report adverse drug effects
2.2.4 Routine health indicator data collection and management	2.6.1 Coordinate emergency response and transport	<b>2.10 LABORATORY AND DIAGNOSTICS IMAGING MANAGEMENT</b>
<b>2.3 HEALTHCARE PROVIDER DECISION SUPPORT</b>	2.6.2 Manage referrals between points of service within health sector	2.10.1 Transmit diagnostic result to healthcare provider
2.3.1 Provide prompts and alerts based according to protocol	2.6.3 Manage referrals between health and other sectors	2.10.2 Transmit and track diagnostic orders
2.3.2 Provide checklist according to protocol	<b>2.7 HEALTH WORKER ACTIVITY PLANNING AND SCHEDULING</b>	2.10.3 Capture diagnostic results from digital devices
2.3.3 Screen clients by risk or other health status	2.7.1 Identify clients in need of services	2.10.4 Track biological specimens
<b>2.4 TELEMEDICINE</b>	2.7.2 Schedule healthcare provider's activities	
2.4.1 Consultations between remote client and healthcare provider		
2.4.2 Remote monitoring of client health or diagnostic data by provider		
2.4.3 Transmission of medical data to healthcare provider		
2.4.4 Consultations for case management between healthcare providers		



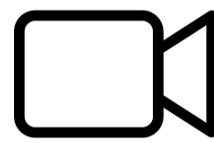
## 4.0 DATA SERVICES

<b>4.1 DATA COLLECTION, MANAGEMENT, AND USE</b>	<b>4.2 DATA CODING</b>	<b>4.3 LOCATION MAPPING</b>
4.1.1 Non routine data collection and management	4.2.1 Parse unstructured data into structured data	4.3.1 Map location of health facilities/structures
4.1.2 Data storage and aggregation	4.2.2 Merge, de-duplicate, and curate coded datasets or terminologies	4.3.2 Map location of health events
4.1.3 Data synthesis and visualization	4.2.3 Classify disease codes	4.3.3 Map location of clients and households
4.1.4 Automated analysis of data to generate new information or predictions on future events		4.3.4 Map location of healthcare provider(s)
		<b>4.4 DATA EXCHANGE AND INTEROPERABILITY</b>
		4.4.1 Data exchange across systems

Enabled through telecommunication



Voice



Video

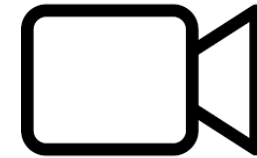


Data

# Voice / Video / Data

## Clients

- **Citizen based reporting**
  - Dengue tracking app
- **On-demand information services to clients**
  - Weekly Epidemiology Reports
  - Public health websites and social media for information dissemination
- **Client financial transactions**
  - Planned implementation of open source Insurance Management Information System



# Voice / Video / Data

## Healthcare providers

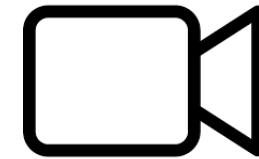
- **Client Identification and Registration** – Personal Health Number for every Sri Lanka
- **Client Health Record** – National electronic health record planned under the primary health care reorganization
- **Health worker Decision Support** – State HIS systems planned to be upgraded with Clinical Decision Support to enable CVD Risk assessment, Drug interactions, Allergies alerts, Rational antibiotic prescribing, etc.
- **Telemedicine** – Suwasariya 1990, Healthnet (Health Promotion Bureau) 0710 107107,



# Voice / Video / Data

## Healthcare providers

- **Health worker communication** – Emergency SMS system for Accident Service, NHSL
- **Referral coordination** – To be implemented for primary healthcare reorganization
- **Health worker activity planning and communication**
- **Health worker training** – Digital Health Academy
- **Prescription of medication and management** – Computerized Physician Ordering Modules in HIMS and HHIMS systems
- **Laboratory and Diagnostic Image Management** – LIMS and PACS/RIS modules in HIMS and HHIMS systems



# Voice / Video / Data

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## Healthcare Managers

- **Human resource Management** – Human Resource Management Information System (HRIS) and Human Resource Management Information System(HRMIS) for Doctors
- **Supply chain management** – Medical Supplies Information System (MSIS)
- **Public health event notification** – FluSys, DenSys, WebIIS, e-Surveillance, e-AEFI
- **Civil registration and vital statistics** – Verbal Autopsies (SmartVA)
- **Health Financing** -
- **Equipment and assist management** -
- **Facility management** -



DENGUE SENTINAL SITE SURVEILLANCE  
Epidemiology Unit  
Ministry of Health - Sri Lanka

Log in

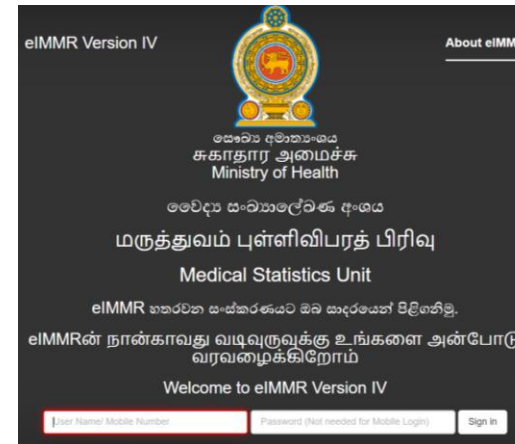
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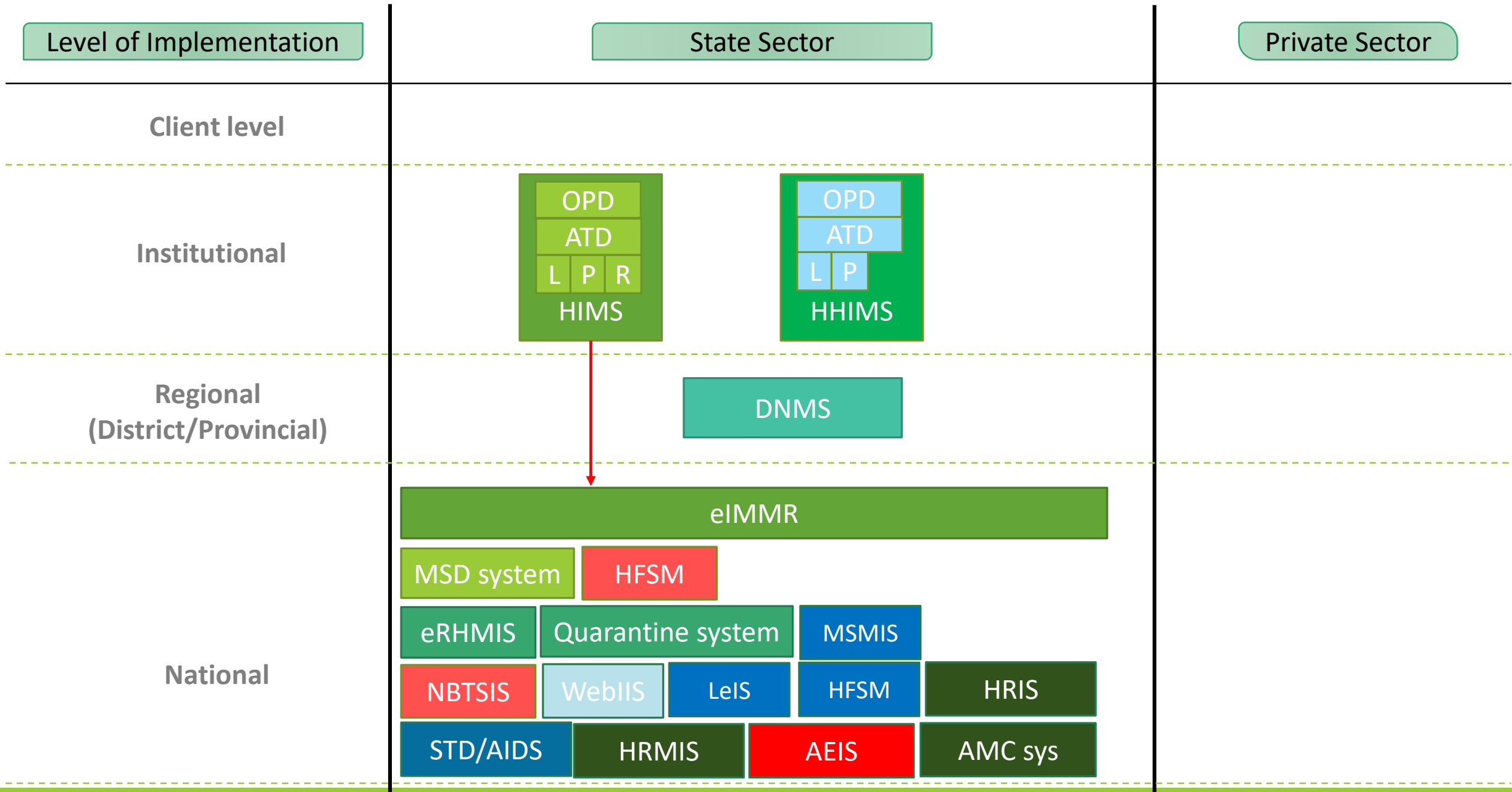
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# Voice / Video / Data

## Data services

- **Data Collection Management and Use** – Aggregate data management systems based in District Health Information Management System 2 (DHIS2)
- **Data coding** – ICPC 2, ICD 10 coding systems for statistical analysis
- **Location management** – National Spatial Data Initiative
- **Data exchange and interoperability** -





ATD – Admission, Transfer & Discharge, DNMS – District Nutrition Monitoring System, eIMMR – Electronic IMMR, eRHMIS – Electronic Reproductive Health Info system, WebIIS – Web based Immunization Info system, L – Laboratory, P – Pharmacy, R – Radiology

# Future potential

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## 5G Telecommunication

- Shifting of more Health Information Systems (HIS) to cloud based platforms due to higher bandwidth and reliability.
- Realtime applications such as remote surgery could be introduced when an economic justification can be made.
- Remote patient monitoring applications in appropriate settings
- Better telemedicine interventions
- Video conferencing to streamline healthcare administration





Thank you.