POLICY BRIEF

Digital Transformation of the Health Sector in Sri Lanka

Ministry of Health
2022

OVERVIEW

Digital transformation of healthcare will lead to more patient-centric approach on healthcare delivery as well as help to streamline operations. The incorporation of Digital Health to health care delivery has improved the efficacy and cost effectiveness of patient care all over the world, ultimately improving the health of the people.

This document summarizes the overall process taken by the Ministry of Health along with the Global Fund, World Bank and Asia Development Bank on digital health transformation. Development of the National Digital Health Architecture Blueprint and the expected road map for realization will enhance and streamline the digitalization of the health sector in Sri Lanka optimizing the scarce resources resources at a time of financial constraints..

HIGHLIGHTS

• The Process of digitalization of Hospitals started in 2012 and currently there are 68 hospitals with Health Information Systems(HIS) inplace .

• The final version of the National Digital Health Architecture Blueprint will be completed by December 2022.

• Development of National Digital Health Data exchange standards , adoption of terminology services (eg. ICPC, ICD10 etc) and inter opera-ble plan to connect all information systems and public health programmes and other supportive services using FHIR (Fast Healthcare Interopera-bility Resources) profiles will be prioritized.

• Development of Client, Provider and Institute registries as well as other key digital assets to facili-tating digital health transformation.

• Development of National electronic health record (NeHR) assisting continuation of care of individual by linking different Health Information Systems.

• Digital Infrastructure for another 120 secondary and tertiary care hospitals to be developed by 2025.

• Development and adoption of digital health governance framework, establishment of hospital health information units and national monitoring mechanism will be facilitated.

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INTRODUCTION

One of the key Health System Building Blocks that support healthcare delivery is 'Health Information'. Digital Health is a tool that enhance Health Information systems in delivaring acurate, reliable, relavant and timely health information for public, curative and administrative decision making. Use of technologies, for processes such as medical images and telemedicine date back over many decades. However, with the expansion of healthcare modalities, it became an information intensive service where it is utilised for health care related decisions spanning from screening, diagnosis, treatment and outcome assessment to administrative decisions, planning and monitoring. Digital technologies have the potential to revolutionise how people interact with health services. Ministry of Health of Sri Lanka has deployed many digital health interventions to enhance the efficiency and sustainability of health system in delivering quality, affordable and equitable care. To further enhance and streamline the digitalization process of health sector, the Min-

Why Digitalize the Health Sector?

Improved patient outcome by adherence to clinical guidelines

Easy and timely access to reliable data, across all health services improving service delivary and patient care.

Cost of healthcare reduced through availability of patient information via the electronic medical records by minimizing the duplication.

Improves quality and efficiency of patient centric healthcare via a continuum of care to the citizens, across primary, secondary and tertiary care and across public and private service providers with a robust referral system.

Promotes health data analytics and supports to create a culture of data-driven evidence informed policy making.

Enhances the efficiency and effectiveness of health administration at all levels.

Facilitate Universal Health Coverage (UHC) and achieving Sustainable Development Goals (SDGs).

How far have we already progressed in the Digital transformation of the Health sector in Sri Lanka?

Digitalization of healthcare in Sri Lanka was initiated in the early 2000. Transformation governance, clinical care, public health, education and health administration. Digital transformation was empowered by the establishment of health informatics as a medical speciality in the country. The digital transformation included various information systems including hospital health information systems. More than 60 major state sector hospitals have been empowered with the two leading hospital health information systems (HHIMS and HIMS) and more than 10 million patients have got registered. These hospital information systems cover outpatient records, admissions, transfers and discharges, laboratory, pharmacy and radiology information.

Picture Archiving Communication Systems (PACS) enable storage and transfer of radiological images without the need to print. Similar hospital health information systems are functional in the private health sector institutes. Further at national level, there are many other health information systems that are operational. These include systems that support indoor morbidity and mortality data collection, medical supplies management, reproductive health information management, COVID 19 and other immunization data management, STD/AIDs patient management, mental health care and eLearning systems that support Continuous Professional Development.

What are the main challenges in these existing digital health solutions?

- Most of the existing health information systems are focused on a specialized area and are not designed to link to other information systems and therefore data sharing is not possible.

- Patient management data systems generate unique numbers at the hospital level and are not able to be connected to another similar system at other hospitals and therefore often patient information cannot be shared across hospitals for providing a continuum of care to patients.

- The software architecture of some of the existing systems are too archaic and these systems cannot be transformed to be interoperable.

- Some of the systems do not have the capacity to manage large data sets.

- Inadequate sustained financing for maintenance of the existing systems

- Insufficient human resource to maintain the digital health systems

- Digital applications are introduced haphazardly without considering the national digital health needs leading to waste of resources.

How to address these key challenges and facilitate digital health transformation?

Sri Lanka is embarking on a new wave of digital transformation in the health sector with the adaptation of using digital health technologies. The success of this proposed digitalization of the health sector depends on developing appropriate digital health architectures, human resources, sustained financing and acceptance by the general public.

To facilitate digital health transformation and address key challenges, the Ministry of health has initiated the development of a National Digital Health Architecture Blueprint, interoperable plan, capacity building, provision of hardware and network to many hospitals and incorporation of digital health applications.

Transforming from current state to a digitaly enabled national HIS requires well laid out, accepted, approved digital health blueprint architecture.

What is The National Digital Health Architecture Blueprint

Digital Health Blueprint is a set of principles,-structures,standards, and guidelines that solution developers and designers can use to ensure that national systems will be compatible and interoperable

The overall goal of the Blueprint is to ensure that each individual in Sri Lanka is provided with a secure and private lifetime electronic record of their health history and that authorized providers will be able to access these records in support of high- quality care.
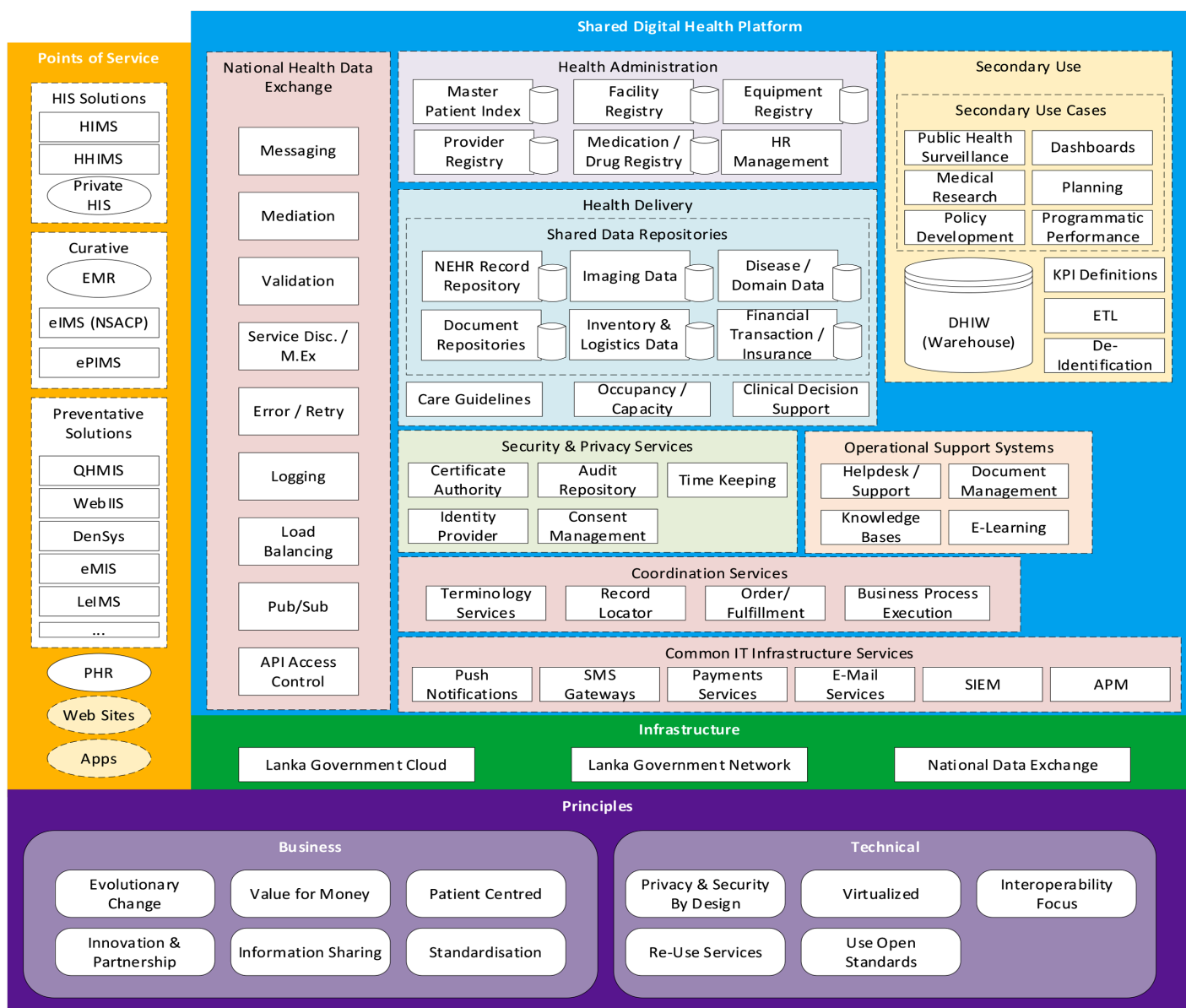
This lays the foundation for accessing better quality and complete information, resulting in better decisions and better health outcomes

Roadmap For Digital Health Transformation In Sri Lanka

Existing Health Information Systems

- OPD ADT L|P|R HIMS
- OPD ATD L|P HHIMS
- CLOUD HIMS
- My Health Sri lanka APP

- HRIS
- STD/AIDS (EIMS)
- AEIS
- MS MIS
- eIMMR
- HFSM
- eRHMIS
- AMC sys
- QHRMS
- MHMIS
- NBTSIS
- eMSRS
- LeIS
- DNMS
- CRVS

eLearning | StaySafe | National COVID 19 Surveillance System
Supariksha | Telemedicine | COVID Vaccination Tracker

NATIONAL DIGITAL HEALTH ARCHITECTURE BLUE PRINT

Shared Digital Health Platform

Points of Service

HIS Solutions
- HIMS
- HHIMS
- Private HIS

Curative
- EMR
- eIMS (NSACP)
- ePIMS

Preventative Solutions
- QHMIS
- WebIIS
- DenSys
- eMIS
- LeIMS
- ...

- PHR
- Web Sites
- Apps

National Health Data Exchange
- Messaging
- Mediation
- Validation
- Service Disc. / M.Ex
- Error / Retry
- Logging
- Load Balancing
- Pub/Sub
- API Access Control

Health Administration
- Master Patient Index
- Facility Registry
- Equipment Registry
- Provider Registry
- Medication / Drug Registry
- HR Management

Health Delivery

Shared Data Repositories
- NEHR Record Repository
- Imaging Data
- Disease / Domain Data
- Document Repositories
- Inventory & Logistics Data
- Financial Transaction / Insurance
- Care Guidelines
- Occupancy / Capacity
- Clinical Decision Support

Security & Privacy Services
- Certificate Authority
- Audit Repository
- Time Keeping
- Identity Provider
- Consent Management

Operational Support Systems
- Helpdesk / Support
- Document Management
- Knowledge Bases
- E-Learning

Coordination Services
- Terminology Services
- Record Locator
- Order/ Fulfillment
- Business Process Execution

Common IT Infrastructure Services
- Push Notifications
- SMS Gateways
- Payments Services
- E-Mail Services
- SIEM
- APM

Secondary Use

Secondary Use Cases
- Public Health Surveillance
- Dashboards
- Medical Research
- Planning
- Policy Development
- Programmatic Performance

- DHIW (Warehouse)
- KPI Definitions
- ETL
- De-Identification

Infrastructure
- Lanka Government Cloud
- Lanka Government Network
- National Data Exchange

Principles

Business
- Evolutionary Change
- Value for Money
- Patient Centred
- Innovation & Partnership
- Information Sharing
- Standardisation

Technical
- Privacy & Security By Design
- Virtualized
- Interoperability Focus
- Re-Use Services
- Use Open Standards

Expected roadmap for realisation of National Digital Health Blueprint for Sri Lanka

Immediate

- Development of a national procurement plan and provision of computers, network and connectivity facilities to selected hospitals
- Establishment of provintial training centres on digital health
- Development of National Digital Health Data Exchange (NHDX) connecting public health, hospital data systems and other supportive services
- Upgrading of HHIMS
- Health Information Management Units (HIMU) established in selected hospitals to support governance and implementation activities

Short-term

- Procuring and implementation of foundational components of NHDX (vocabulary service software, etc.)
- Initiation of design, development, and integration of point-of-service systems to NHDX (HIV, TB, Primary Care, Ambulatory Care, etc.)
- Initiation, design and development of NHDX applications (e.g., eReferral, patient portal, Personal Health Record with a mobile access etc.)
- Establishment of training centres, development of training modules
- Designing and implementation of health information warehouse, reporting and analytics system

Medium-term

- Conducting training and capacity building activities for health staff
- Continuation of data validation activities
- Development, testing and documentation of disaster recovery plans for health information systems
- Continuous integration with critical health and non-health information systems
- Development and adoption of digital health governance framework and monitoring mechanism

Your responsibility as an important stakeholder of this digital health transformation:

- Create a digital leadership and governance structure aligning with the future digital health transformation.
- Build a culture for digital transformation with leadership driving support through communication and transparency at all organizational levels.
- To ensure the existing systems are compatible with the digital health architecture blueprint and standards.
- To ensure that the required human resources to maintain digital health systems (Health Informaticians, ICT officers etc.) are made available across all levels by identifying carder positions.
- To provide the required digital health related training programs and seek technical support from the health information unit to develop and implement new systems.
- To manage necessary policy and implementation support supply and logistics needed at district, province and national levels to run e-health systems.
- To facilitate the provision and maintainance of connectivity, replacement of hardware, monitoring of the digital roalth systems that are introduced.
- Understand cybersecurity as a major componant of digitalization and integrate at every stage of digital implementation for stronger risk management.

TERMS EXPLAINED

mHealth: The use of mobile and wireless devices (cell phones, tablets, etc.) to improve health outcomes, health care services, and health research.

Digital Tools: Digital tools are programs, websites or online resources that can make tasks easier to complete

Digital Health: The use of digital technologies in health as well as for devices that process and use digital information to achieve Health

Digital Blueprint: A Digital Blueprint is a digital version of a process diagram and includes - process flows, functional and non-functional requirements, and all regulatory requirements, amongst other critical information.

Digital Transformation: Digital transformation involves the adoption of technologies with the goal of improving workflows, efficiency, and patient care. EHRs, telehealth solutions, and cloud security technologies all contribute to digital transformation.

Health Informatics - Integration of healthcare sciences, computer science and information science, to assist in the healthcare delivery process.

APPLICABLE POLICIES, STRATEGIES AND STANDARDS

Legislations that are important for digital health practice

General legal documents in Sri Lanka that are important for Health

I. Electronic Transactions Act - No. 19 of 2006
II. Information and Communication Technology Act - No. 27 Of 2003
III. Computer Crime Act - No. 24 of 2007
IV. Intellectual Property Act - No. 36 of 2003
V. Right to Information Act, No. 12 of 2016
VI. Personal Data Protection Act, No. 9 Of 2022

Existing medical acts in Sri Lanka that are important for practice of Health, Information systems

I. Medical Ordinance 1924 and amendments
II. National Medicines Regulatory Authority Act, No. 5 Of 2015

Digital Health policies and guidelines affecting the use of Health Information systems in Sri Lanka

I. National Digital Health Guidelines and Standards - 2021
II. Information Security Guideline for Healthcare Institutions -2021
III. National Policy on health information – 2017

Message from the Secretary of Health

Mr. S.Janaka Sri Chandraguptha
Secretary / Ministry of Health

The National Health Policy 2016- 2025 outlines a robust framework for achieving Health for All through the adoption of the basic principles of accessibility, quality and affordability, and by leveraging the power of information and communication technologies to strengthen the health care delivery systems.

Digital health interventions strengthen outcome of every health service delivery programme in the country. With increased ease of use, acceptance by masses and adaptation by service providers, digital health interventions can be immensely helpfull in accelerating the transformation of health agenda and in enhancing the health outcomes of the entire population of the nation.

I am pleased to see the initiation by the Health Information Unit of the Ministry of Health in collaboration with the Global Fund to develop the National Digital Health Architecture Blueprint for Sri Lanka.

Message from the Director General of Health Services

Dr. Asela Gunawardena
Director General of Health Services

Ministry of Health of Sri Lanka has demonstrated use of digital health interventions in major national health programmes which have benefitted patients with timely service delivery and making government healthcare services more affordable and more accessible.

However, all these efforts need to converge into a single framework to achieve interoperability of data, which would benefit both policy makers for decision-making and patients with effective services at the time of need. National Digital Health Architecture Blueprint provides clear guidance for all stakeholders to engage and contribute to strengthen digital health systems in Sri Lanka.

I would like to specially acknowledge and thank, the Health Information Unit of Ministry of Health, ICTA, The Global Fund and all the other stakeholders for the initiation of development of the National Digital Health Architecture Blueprint for Sri Lanka and digital transformation of the health sector.

Ministry of Health

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