Health Technology Transformation through Integration and Standardization of System & Data

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Accelerating the Digital Transformation of Health in Indonesia

Crisis is the right time to make changes

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1 The pandemic awakens the importance of Health Sector Resilience

- The pandemic shows systemic problems that must be fixed
- It is necessary to increase the capacity and resilience of the health system

2 Health system Indonesia is ready to Transform

- Digital technology is widely available and the public is more open to change
- The pandemic encourages the acceleration of the implementation of the digital health transformation to be carried out immediately

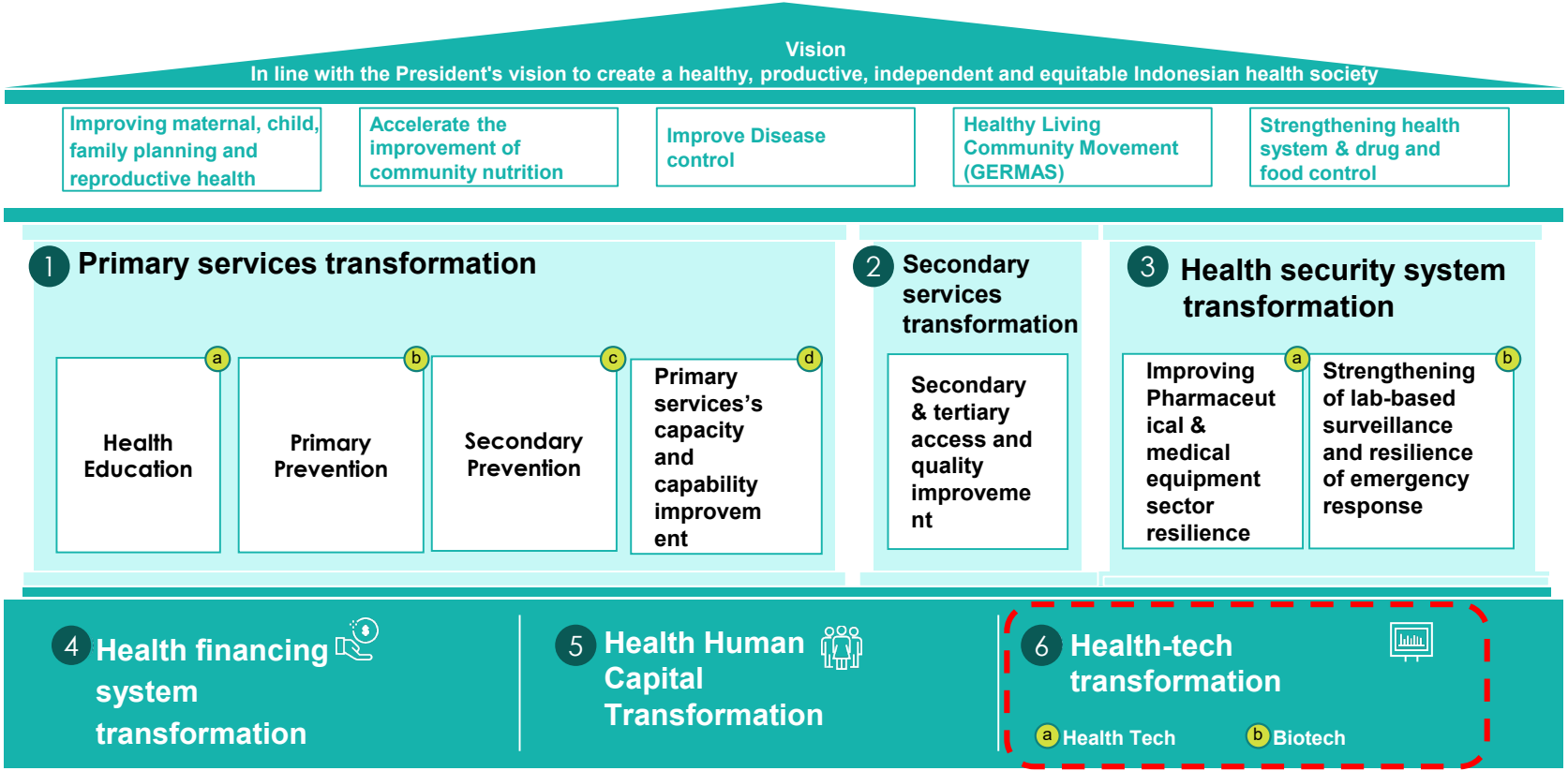
3 Collaboration is needed Towards Healthy Indonesia

- Towards a Healthy Indonesia, the Ministry of Health cannot handle it alone, so cooperation with all health industry players is needed
- The Ministry of Health must build a platform to connect various data and systems in the health ecosystem in a single unit

Digital Transformation Acceleration be one **agenda of national priority and importance** after the COVID - 19 Pandemic.

Ministry of Health is committed to Health System Transformation

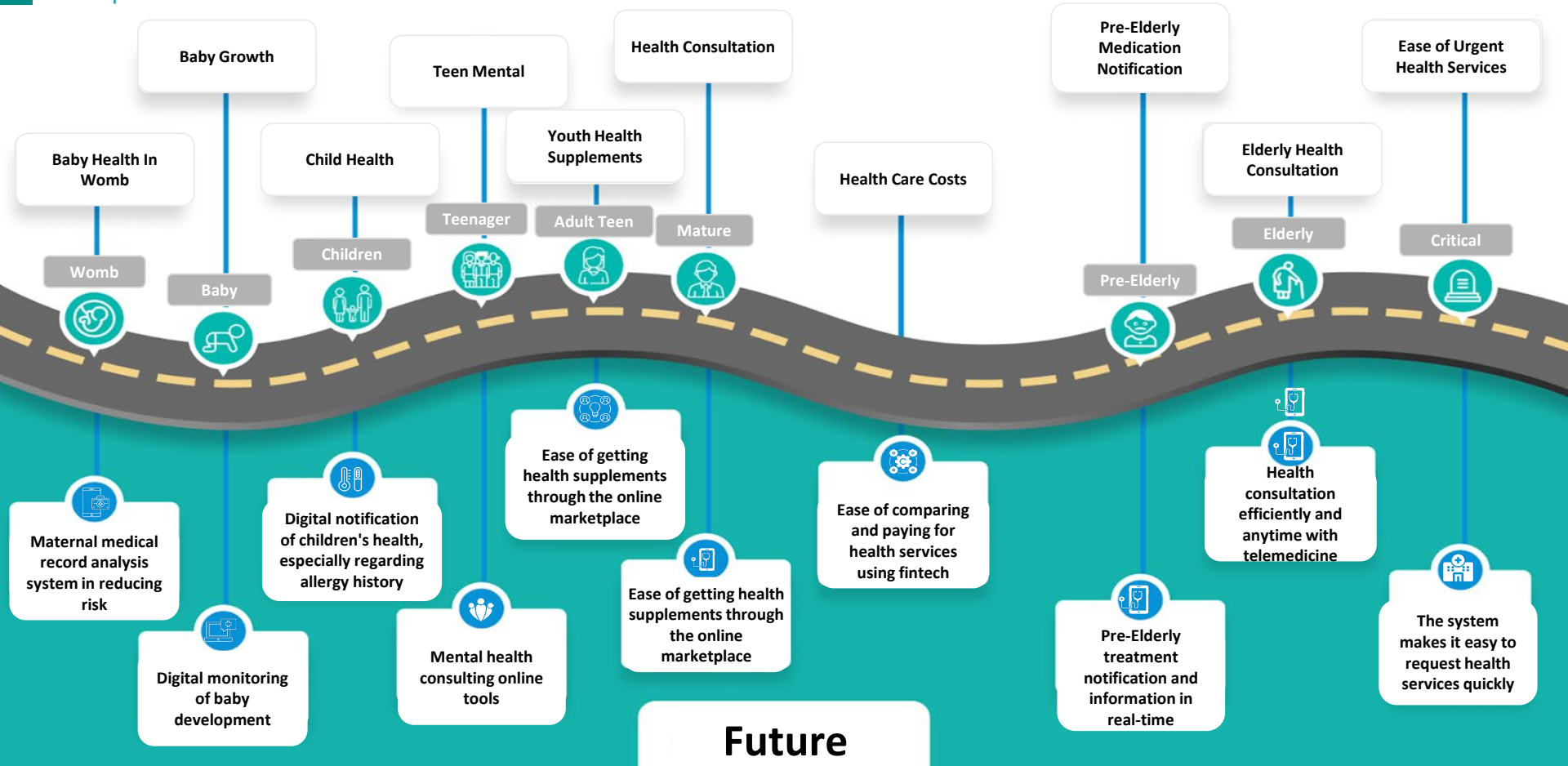
6 pillars of transformation to support Indonesia's health



*National Mid Term Development Plan

Digitizing Health from Early Life

The patient has a continuous medical record



Launching Blueprint of Digital Health Transformation Strategy 2024

Transform healthcare delivery in Indonesia

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Download on http://dto.kemkes.go.id/

Health Digital Transformation Roadmap

System development as the focus of activities in 2022

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Priority Activities	2021	2022	2023	2024
Integration and Development Health Data	Health data **architecture design**	Development of a **single-health identity**-based big data system	**Implementation of an AI-based** health analysis system	Expanded coverage of **single-health identity**
Integration and Development Application System	Health system **interoperability** architecture design	**Integrated** health facilities information system development	**Implementation of integrated** health facilities information system	**Expanding the scope of the integrated** health facilities information system
Ecosystem Development Health Technology	Health information system **infrastructure and security assessment**	**Expansion of telemedicine** supporting infrastructure	AI, Blockchain & IOT-based **Regulatory Sandbox Implementation**	Health technology innovation **licensing expansion**

The focus in 2022 is **system development from architectural design** already made in 2021

To achieve our transformation goals we developed an integrated and standardized platform as strategic approach

SatuSehat Platform (Indonesia Health Services)

National Health Big Data Platform

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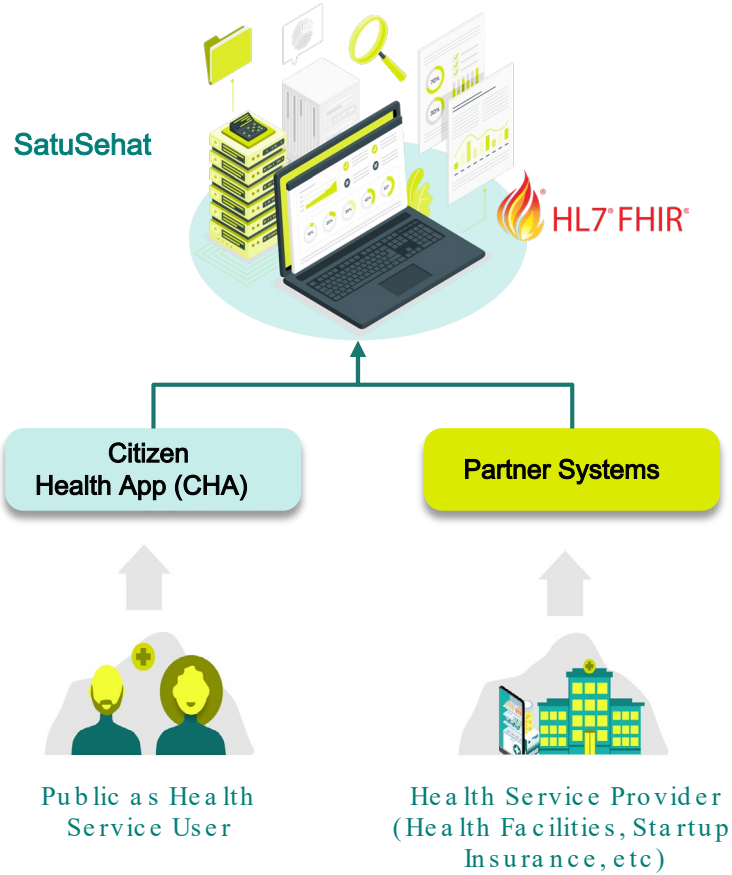

10,260 Puskesmas	**2,985** Hospitals	**1,400** Laboratoriums
11,347 Clinics	**5,862** GP & Dentist Clinics	**30,199** Pharmacies

Integration

SatuSehat **ensure data interoperability of the entire ecosystem of healthcare industry** so it can be used more widely for the better outcome

Standardization

Provide standardized specifications and mechanisms for business processes, data, technical and security

Source: Ministry of Health

Integration Architecture of SatuSehat

SatuSehat connect everyone to benefit everyone

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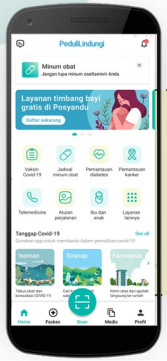
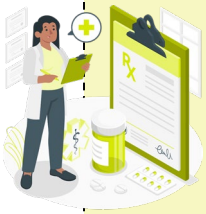


Patient/User

- Personal Health Record
- Health Promotion
- Personalized Education
- Wearable Devices Integration
- etc

Health Facilities



Integrated EMR.
Precise and coherent patients' medical treatment record across any facilities can be used to support more comprehensive clinical decision

Efficient data input due to integrated system allow medical personnel to put more focus on services than data input and administrative stuff

HL7 FHIR

SatuSehat

- FHIR API
- Terminology Server
- Master Data
- Developer Hub

Government

Integrated dashboard for evidence based policy and data driven decision-making

Precise and Up-to-date information for detecting, predicting, prescription any health problem and support health resilience system

Health Industry
Insight sharing and utilization to strengthening collaboration

- Insurance Company
- *Health - Tech*
- Pharmacy
- Laboratorium
- Biotech Lab
- *etc.*

Health industry player can share their data with government through IHS to enrich each other's insight

Use Case : Integration Design of Health Financing Data

Integrating health financing Transactional Data to build easiness and accountability

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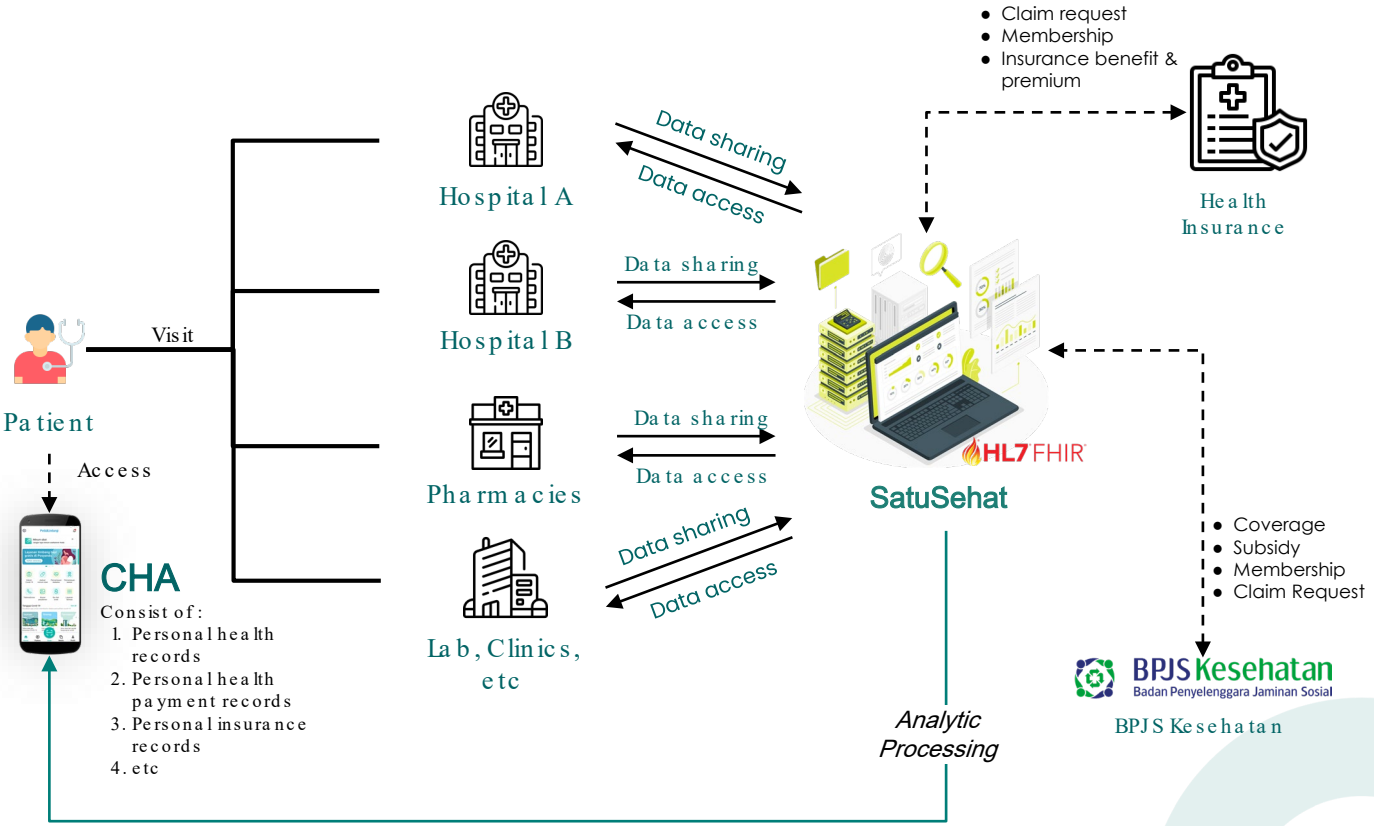
- Health service personnel can inputs data more **efficient** due to data sharing
- Patients will get more **comprehensive** and **personalized** health services and clinical treatment due to personal health record data sharing

392,9 mio *visits to health facilities with JKN in 2021 (~1,1 mio visits/ day)**



Personal Health Record and health services information can be accessed by user in CHA

*JKN : National Public Health Insurance

Source : BPJS Kesehatan

Integration Progress

Health facilities has integrated with SatuSehat (IHS), and will be more

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Piloting SatuSehat Integration

41 Hospital

Alpha Piloting

31 Hospital

Beta Piloting

Juli 2022

SatuSehat Integration in ***environment production*** in several phases

- **1st phase** : patients' registration and diagnose data
- **2nd phase** : medical procedure, vital condition, and dietary data
- 3rd phase : Lab observation, radiology data
- 4th phase : allergy, physical condition data
- 5th phase : drugs and pharmaceutical data

Next Action

SatuSehat Data Standardization and Management

Master Data Management to build reliable data ecosystem for further use

Patient Data (Master Patient Index)

- Product data specially designed as a standard for patient data to be validated by DUKCAPIL for data related to demographics
- Can be used as the main standard for patient data by all Health Service Facilities in Indonesia via IHS

Health Facilities Data

- Master data specially designed as a standard for Health Service Facility data which consists of 35 types of healthcare facilities.
- This data is compiled based on various sources such as SISDMK, RS Online, SIMADA, and others

Health Human Resources Data

- Specially designed data product as a standard data index for health workers combined from various data sources for health personnel (Name, STR, SIP, etc.)

Data on Medical Devices and Medicines (Kf+A Dictionary)

- Data product designed as Master data for Pharmacy, Drugs, and Medical Devices collected from various data sources such as BPOM, LKPP as reference standards for drug data (active substance content, size, volume, etc.) and medical devices

Financing Data

- The data product is designed as a Financing Master data that can be used by all Health Facilities and can be used as a standard for the preparation of cost formats for services, actions, and others.

Service Data

- Data products that are designed as Service Master data that can be used by all Health Facilities and can be used as service coding standards.

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SatuSehat (IHS) Data Standardization Use Case

Data Integration Management with Pharmaceutical and Medical Tool Dictionary (kf+a)

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Actual Product (Variant)
Paracetamol 500 mg Tablet (Generik)
Paracetamol 500 mg Tablet (Panadol)
Paracetamol 500 mg Tablet (Xepamol)

Brand

Reference used in Kf+a :

- **NDFA Regulation Number 24/ 2017** (dosage form & drug registration procedures)
- **ATC / DDD - WHO** (Chemical classification system of anatomical therapy drugs)
- **RxNorm NLM | NIH - US** (active substances integrated with ATC)
- **UCUM** (Measurement unit)
- **CVX - NCIRD** (Vaccines)

IHS kf+a

Pharmaceutical & medical tools dictionary/ catalogue (Kf+a)

Actual Product and Virtual Product according to data model in kf+a

Actual Product (Variant)	Virtual Product (Template)	Unit of Measure	Bentuk Sediaan	Jenis Farmalkes	Golongan Obat
Paracetamol 500 mg Tablet (Generik)	Paracetamol 500 mg Tablet	tablet	Oral Tablet	Obat	Obat Bebas
Paracetamol 500 mg Tablet (Panadol)	Paracetamol 500 mg Tablet	tablet	Oral Tablet	Obat	Obat Bebas
Paracetamol 500 mg Tablet (Xepamol)	Paracetamol 500 mg Tablet	tablet	Oral Tablet	Obat	Obat Bebas

*Kf+a provides unique code that is specific for each drug, drug raw material and medical device with **acknowledged standards and references** , to be used by related institutions/agencies*

High quality and integrated health data will benefit all parties in the health sector

SatuSehat (IHS) Supports Health Policy

Integrated - reliable data for decision making and health policy

- Patient Data
- Health Facility Data
- Health Workforce Data
- Medical devices Data
- Drug Data
- Financing Data
- Service and Outcome Data

HL7 FHIR

SatuSehat

Analytics

Policy & decision - making

- Health service enhancement
- Facilities outreach & accessibility
- Prescriptive and health resilience
- Pharmaceutical & medical tools
- Health sector planning & budgeting

.etc

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Health Transformation Collaboration Opportunity

The Ministry of Health encourages collaboration to achieve health transformation

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Digital Health Ecosystem

- University
- Medical Device Industry
- Insurance Provider
- Community
- Health Service Provider
- Startup

Call for Collaboration

Knowledge / Expertise Collaboration

Collaboration on digital transformation projects as experts

Fellowship Collaboration

Collaborative human resource support for a certain period of time who are directly involved every day in the digital transformation program

Implementation Collaboration

Collaboration as implementing partners for health digital transformation projects

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