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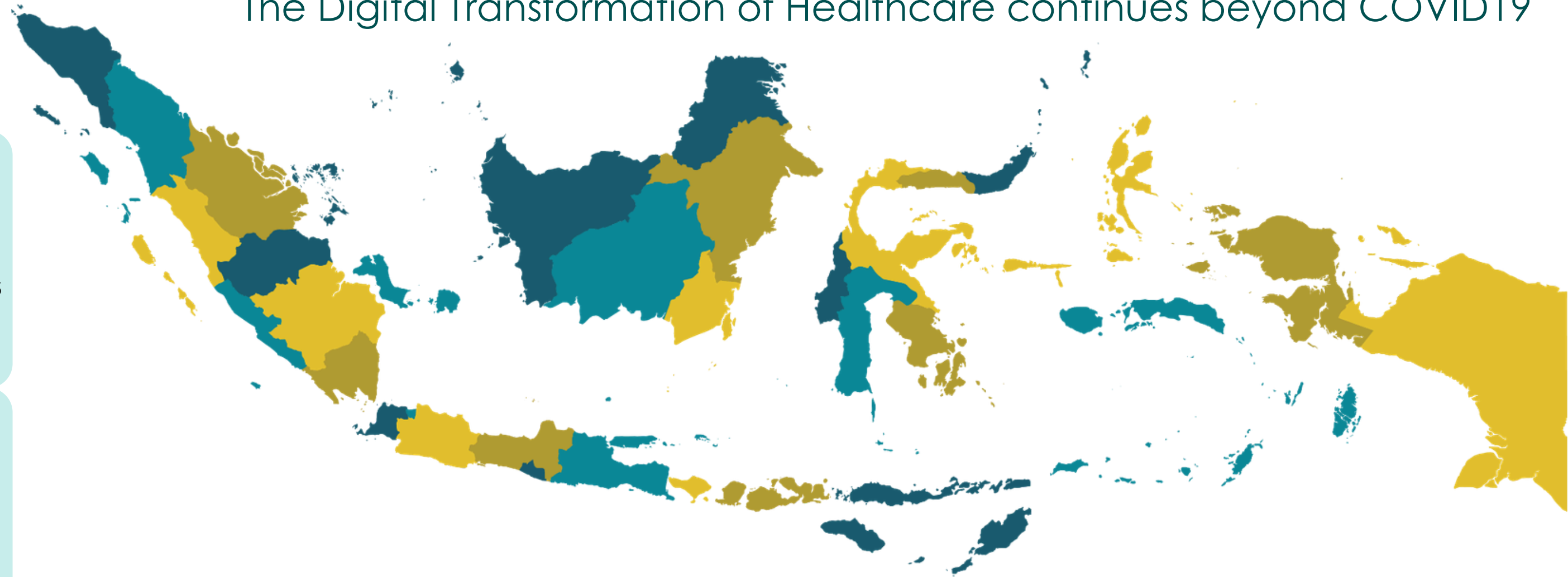


The Digital Healthcare Transformation Journey in Indonesia

Rudy Kurniawan

Center for Data and Information Technology
Ministry of Health of the Republic of Indonesia

The Digital Transformation of Healthcare continues beyond COVID19



1,420

Community Health Centers have Poor Internet

1.6M+

Healthcare Workers spread throughout

60,000+

Health Facilities across the archipelago

400+

Health Information System

With such staggering numbers of health-related and demographic of Indonesia, the MoH have carefully formulated the strategy for our

FOCUS ON DIGITAL TRANSFORMATION

279.9 MILLION TOTAL POPULATION

17,000+ ISLANDS ACROSS 1.905 MIL. KM² AREA

- **SATUSEHAT integration with healthcare facilities across Indonesia.**
- **Electronic Medical Record (EMR) accessibility through SATUSEHAT Mobile.**
- **Module for optimizing primary health services.**

DIGITAL TRANSFORMATION JOURNEY

Covid Focus & Blueprint Preparation

Setup Platform, Standard & Regulation, & Initial Integration

Covid App Transition & Integration-Rollout

2021

2022

2023

July

PEDULI LINDUNGI, SIRANAP, SILACAK, and independent isolation telemedicine



January

International COVID-19 vaccination certificate

Telemedicine for Covid expansion

May

ASIK launched

PeduliLindungi recognised in ASEAN and European Union

July

SATUSEHAT Platform launched

PeduliLindungi as Top 45 in SINO-VIK KemenpanRB competition

September

Medical worders data update

Best Government Collaboration for Pandemic Solution IBF 2022 award for PeduliLindungi

November

PeduliLindungi chosen as first place at IdenTIK Enterprise 2022

Januari

Peresmian DTO SPACE

Feb-Nov

► PeduliLindungi transition into SATUSEHAT Mobile (SSM)

► EMR access through SSM

► SATUSEHAT Dashboard

► ASIK for Immunisation & Stunting

► Road Show others Province Satu Sehat Integration

► PLATARAN Sehat Launch

► G20 Initiative adopted by WHO through GDHCN; ASEAN UVM alongside ASEAN KMP agreed and released

► Omnibus Law for Health System

► Regulatory Sandbox

► Developing AI

March

DTO formed as per MoH Decree No. HK.01/07/MENKES/3605/2021

December

Digital Health Transformation Strategy 2021-2024 Blueprint

Top Digital Award IT 2021 - IT Works (★★★★)

February

Assisting MotoGP health protocol in Mandalika

March

First Sprint Accelerator

First Health Working Group G20 Presidency

June

Good Design Indonesia (GDI) Best 2022 for PeduliLindungi

Satu Data Dashboard development

August

Biomedical Genome Science Initiative (BGSi) Launch

More than 100mil PeduliLindungi users

Ministry Degree for EMR

October

Road Show Java-Bali Satu Sehat Integration

Digital Resiliency for PeduliLindungi IDC Enterprise Award 2022

December

SIMPIDI 2.0 Launch

SEAGC 2022

SATUSEHAT Application development

Joining Snomed CT Member



Blueprint of Digital Health Transformation Strategy 2024



Transform healthcare delivery in Indonesia

Currently using a blueprint for the period of 2024-2029



A. Integration and Development of Health Data System

1. National One Health Data

Implementation of single identity health record

2. Health Data System Integration

Integration of electronic system services between health institutions, government, and health industry

3. Development of Health Big Data Analysis System

Development of AI based big data ecosystem at central and local governments

OUTCOME

Improved health policy based on accurate, update and complete data

B. Integration and Development of Healthcare Application System

4. Integrated Health Applications

Digitalization and integration of health care information system (puskesmas, clinic, hospital, lab, and dispensary)

5. Integration of Business Process and HR Improvement

Business Process Integration and HR Improvement on health informatics

6. Health Application Helpdesk

Availability of Helpdesk and customer management system for health applications

OUTCOME

Efficient health services at puskesmas, clinic, hospital, lab, and dispensary

C. Health Technology Ecosystem Development

7. Expansion of telemedicine technology

Expansion of telemedicine from health facilities to the public

8. IT ecosystem for health and biotechnology

Regulation and implementation of regulatory sandbox prioritizing health technology 4.0

9. Integration of health biotechnology research

Integration of biotechnology R&D and healthcare providers

OUTCOME

Collaboration and digital health ecosystem involving the government, industry and the public

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

Achievements of the 2021-2024 Health Digital Transformation Blueprint

1 Standardization and Integration of Health Data

SATUSEHAT Data
SATUSEHAT IndonesiaKu
SATUSEHAT Mobile
SATUSEHAT Rekam Medis
SATUSEHAT Platform
SATUSEHAT eResep
SATUSEHAT SDM
SATUSEHAT Logistik

Development of **Health Master Data** (Patient, Health Facilities, Healthcare Workers, Pharmacies, Medical Devices, and Claim) implemented together with **Health Terminology Standards** (ICD 10, ICD 9-CM, LOINC, and SNOMED CT) and **Data Exchange with HL7 FHIR Standards**

2 Application Integration to Simplify Health Service Processes

Integration of Health Service Applications >**30,000** Health Information Systems

| | | |
|--|--|--|
| Terdaftar Terdaftar di SATUSEHAT Portal atau Status Memiliki RME di DFO 43.220 62.04% | Terintegrasi Telah Diberikan API Production 41.023 58.89% | Terkoneksi Mengirim Data ke SATUSEHAT 30.406 43.65% |
|--|--|--|

Focus on Internal Application Integration of the Ministry of Health Primary Care Cluster

| | | | |
|----------------------|--|---------------------|--|
| E-Cohort | App Kescatin | SITKO, SIPGAR | SIPTM |
| Integrated Nutrition | MPDN | E-PPGBM | SIMKESWA, SYNAPZA, SYNCHRONOUS |
| SIJIWA, SIQUALITY | SILANTOR, E-Filca, PWS | ISPA, NAR, SILACAK, | SITB, SISMAL, SIHA, SKDR, SITASIA, SIHEPI, SIARVI, |
| | PWS Measles, PWS PD3I, STBM, SIKELIM, FIRE, TFU, TPP | | |

3 Health Technology Ecosystem

BGSI (Biomedical and Genome Science Initiative)

- 10: 9 Disease Targets, 1 hWGS
- 1: Biobank Sentral
- 9: Biobank Hubs
- 9: Genomic Sequencing Facilities

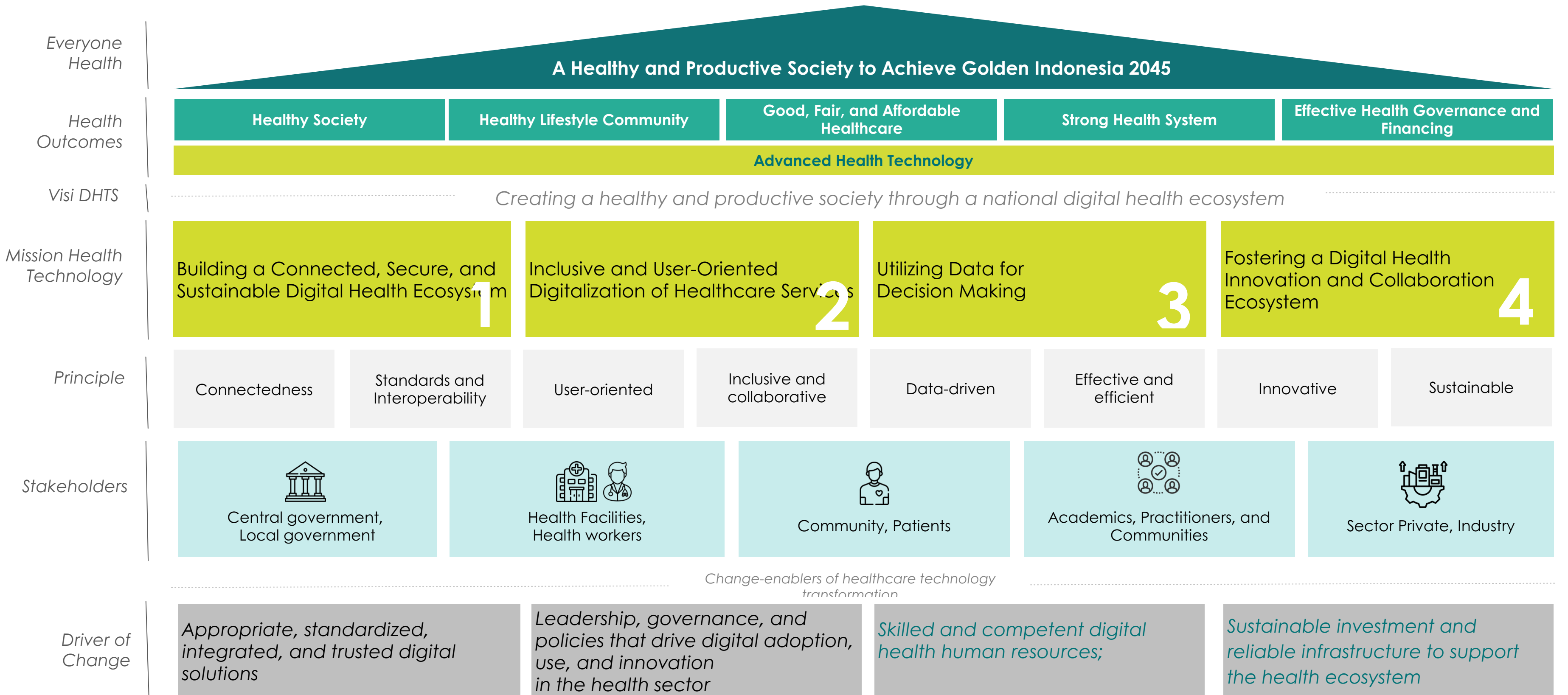
Regulatory Sandbox

Telemedicine Cluster
15 Participants in Digital Health Innovation:
9 'Dibina' Mentored, 5 "Diawasi" Monitored, 1 Stepped Down

Telehealth Cluster

Digital Health Transformation Strategy 2025-2029 (DHTS 2.0) and Costing

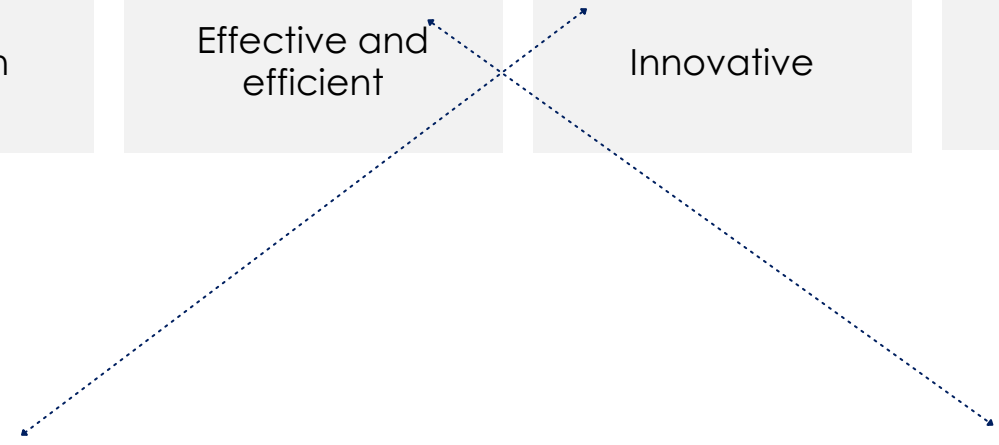
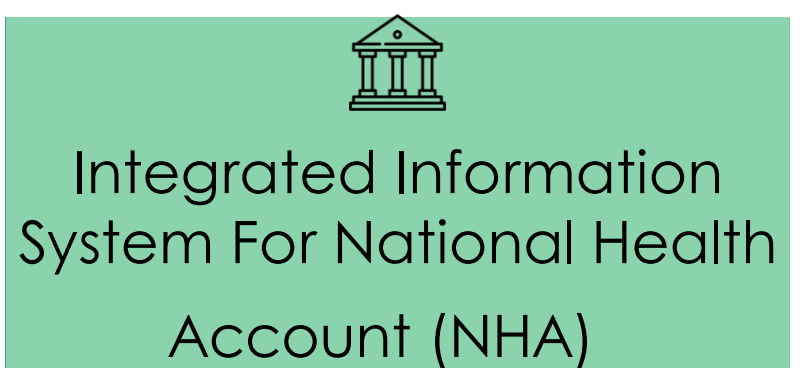
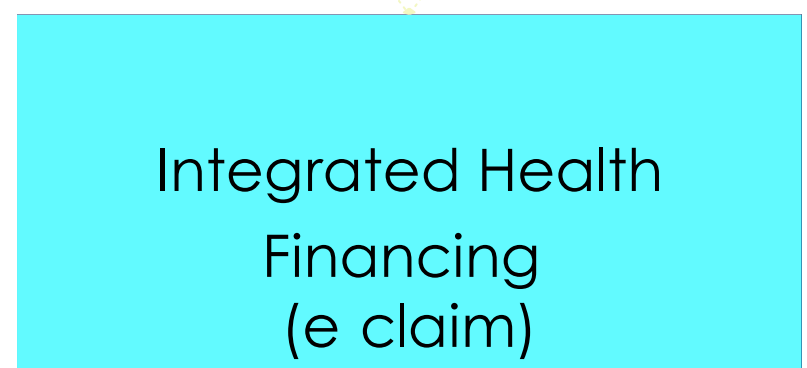
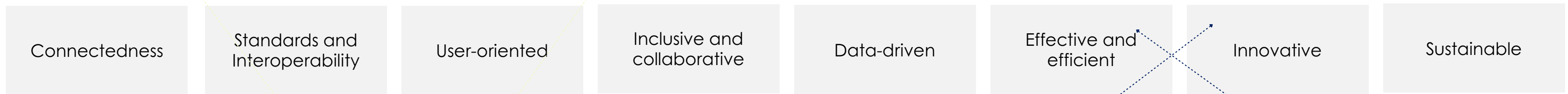
The health technology transformation framework has four primary missions, anchored by Law 17/2023 concerning the implementation of Health Information Systems (SIK) and Health Technology and Presidential Regulation 82/2023 concerning the acceleration of digital transformation and the integration of digital services. The outcome of this transformation is to achieve the health sector vision as outlined in Asta Cita, the RPJMN (National Medium-Term Development Plan), the RIBK (Indonesian Health Service Plan), and the Health Strategic Plan.



Digital Health Transformation Strategy 2025-2029 & Health Financing

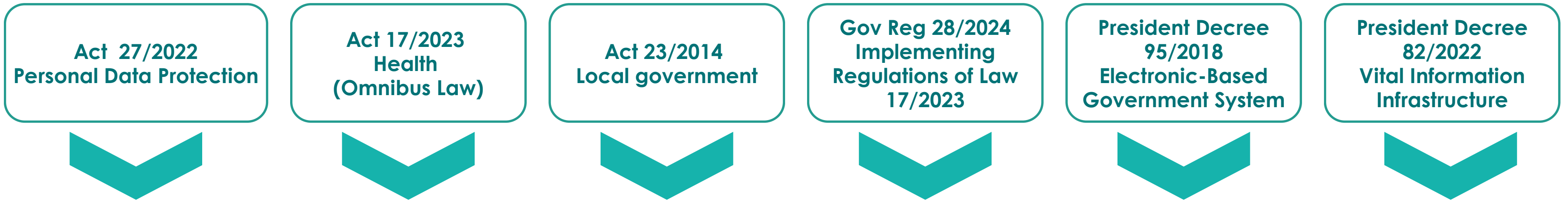


Creating a healthy and productive society through a national digital health ecosystem



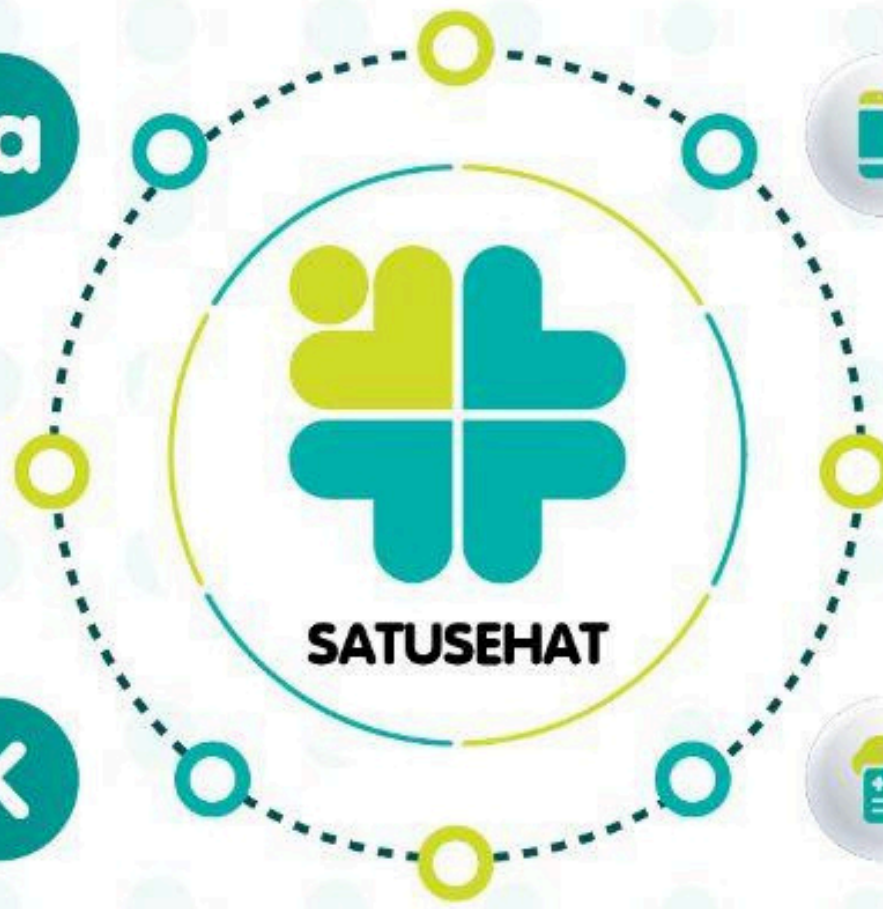
Regulations to Support Health Technology Transformation

Supporting the Implementation of SATUSEHAT and Electronic Medical Records (EMR)



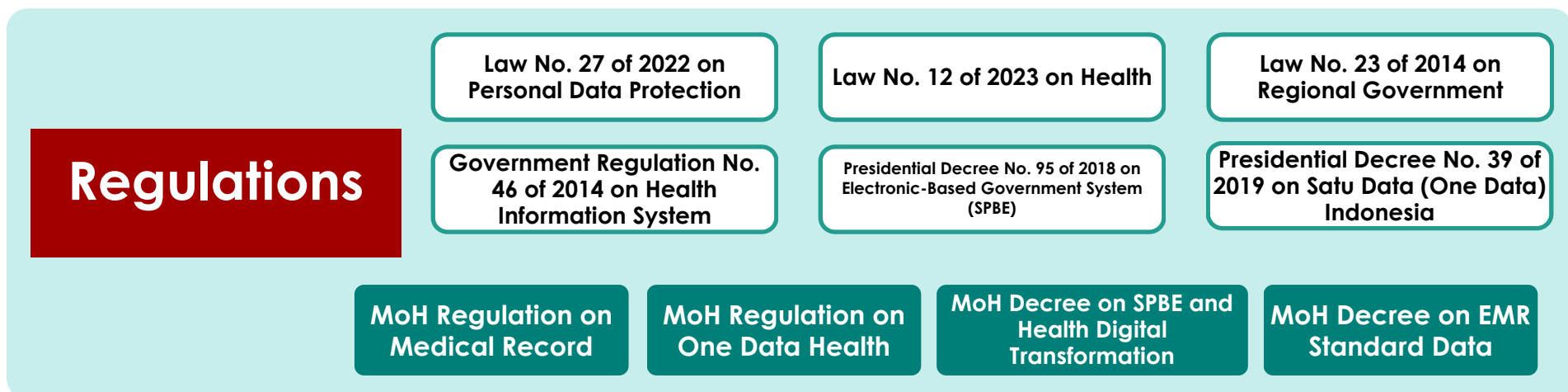
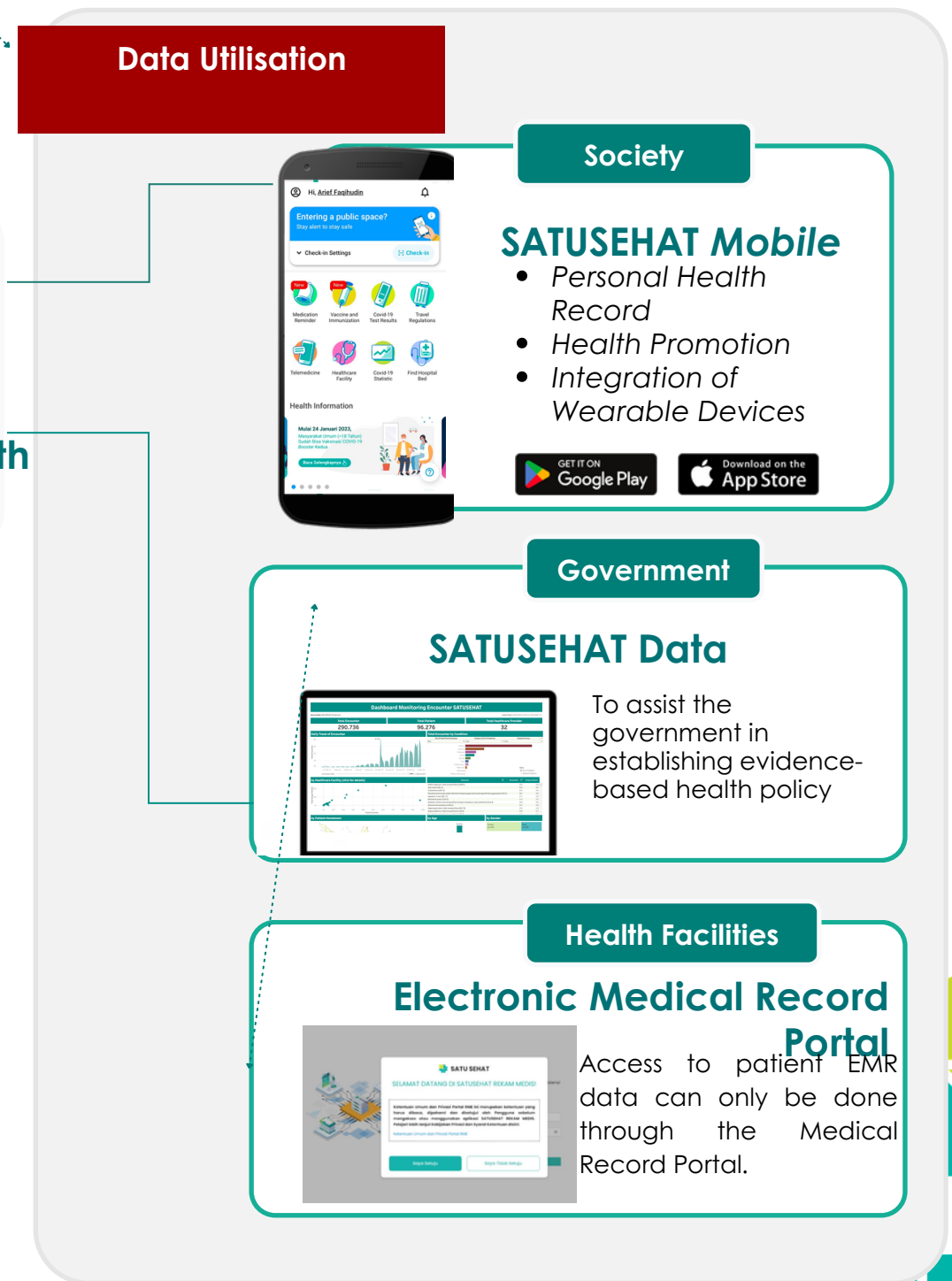
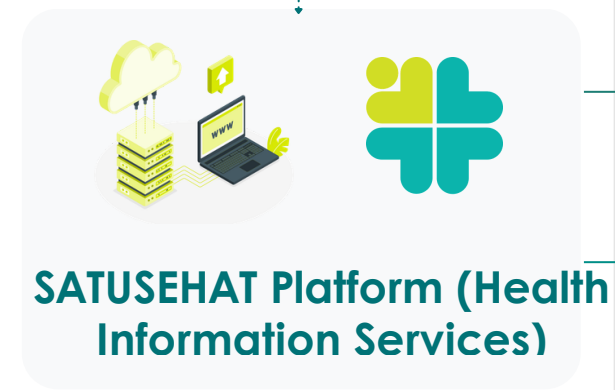
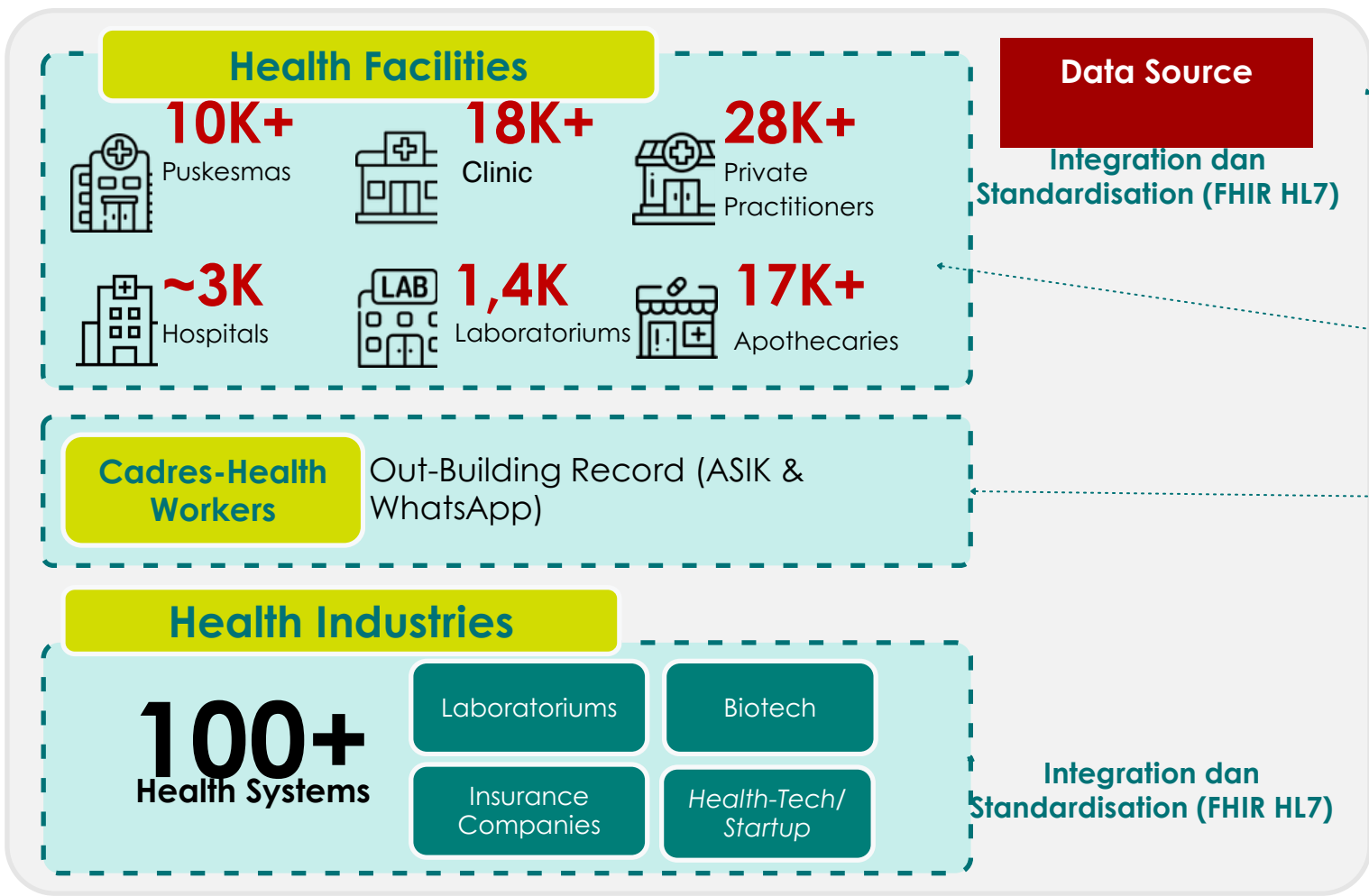
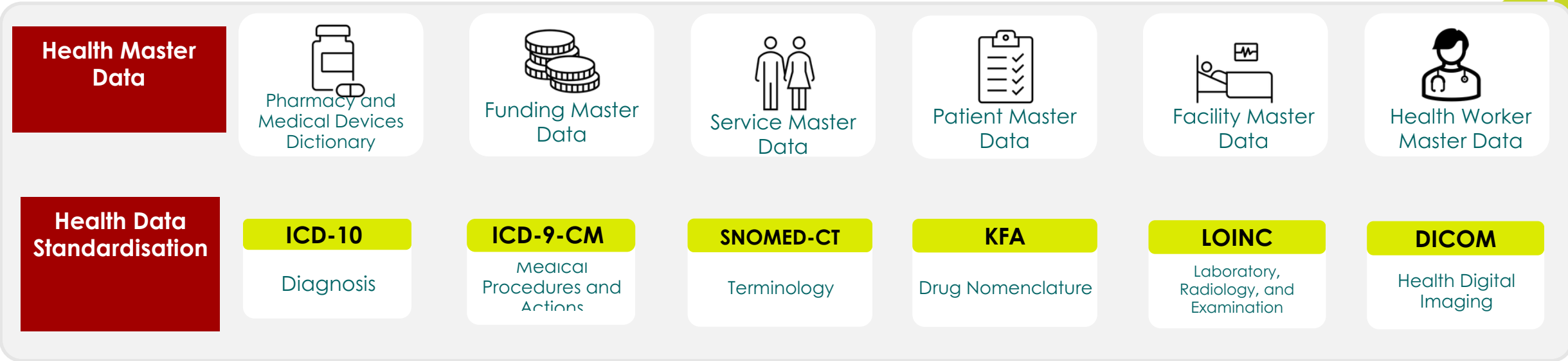
SATUSEHAT

as the Health Technology Ecosystem
that Provides Integrated and High Quality Healthcare Service

 **SATUSEHAT Platform** **SATUSEHAT Data** **SATUSEHAT Mobile** **Sehat IndonesiaKu** **SATUSEHAT Rekam Medis** **SATUSEHAT SDM** **SATUSEHAT Resep** **SATUSEHAT Logistik**

SATUSEHAT

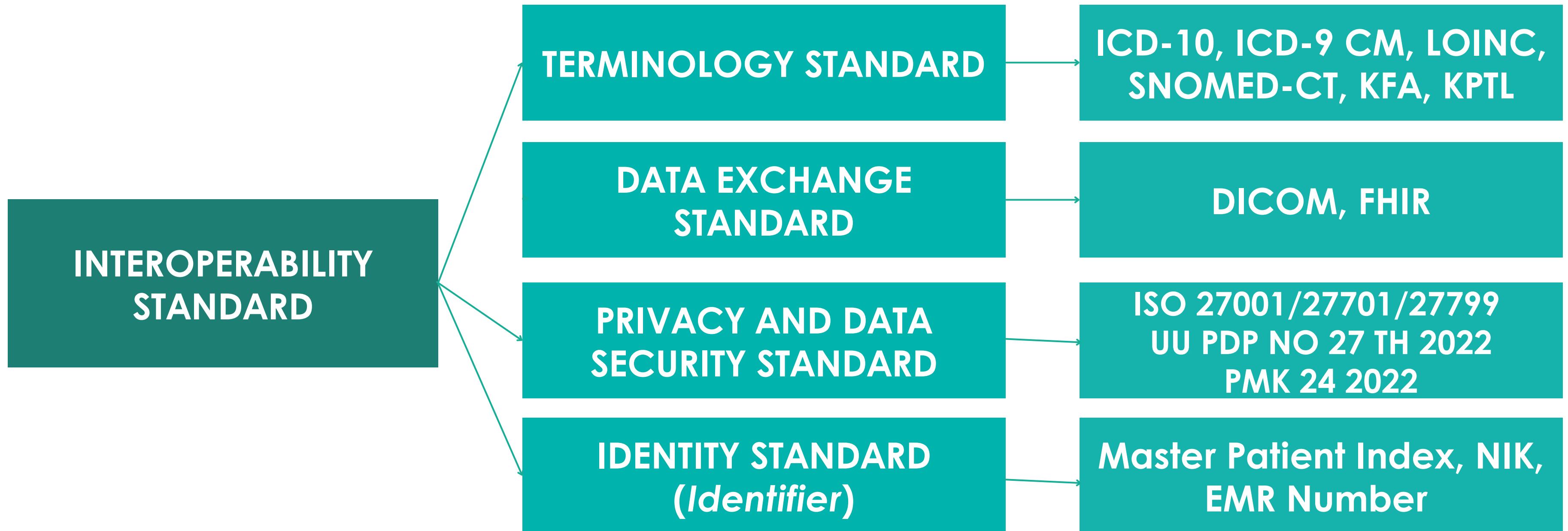
Connecting and empowering the entire health system ecosystem and users (society)





INTEROPERABILITY

The ability of data to be shared and exchanged between interacting electronic systems



SATUSEHAT achievement

Data as of January 18, 2026



INTEGRATED FACILITIES



40,292

Integrated health facilities into SATUSEHAT



91%
Primary Care



95%
Hospitals

PROFESSIONAL LICENSING & EFFICIENCY



1.8 million+

Lifetime STR is issued for medical personnel



Before: 14 Days



Max 5 Days:
Process of issuing a doctor's permit

PATIENT IMPACT & SERVICES



70+ M
Health Screening



62 M
Medication



62 M
Medication



271 million+
Patients
Integrated SATUSEHAT



16 M
Lab Test



439 K
Radiologi



45,457
Digital learning
Materials



Health Technology **Innovations** to Improve Health Services

Focus on utilizing technological innovation to improve the quality of healthcare service



among them through **biomedical technology** in **precision medicine**, **artificial intelligence** and the **application of robotic technology**



Biotechnology
(Precision Medicine)



Artificial Intelligence



Robotics

The Ministry of Health has formed the **National Committee for Artificial Intelligence (AI)** and the **National Robotics Technology Committee in the Health Sector**, consisting of practitioners, researchers, engineers, other Ministries / Institutions and Higher



Healthcare AI Task Force



3 Task

1 Produce AI for Healthcare Regulation 

2 Build AI Healthcare Use Case 

3 Global Healthcare AI Hackathon 





Ethics & Principles of AI in the Healthcare Sector




World Health Organization

Ethics and governance of artificial intelligence for health

Guidance on large multi-modal models



WHO Consensus on Ethical Principles for the Use of AI in Health

| | | |
|--|---|--|
| <p>Protect autonomy</p>  | <p>Promote human well-being, human safety and the public interest</p>  | <p>Ensure transparency, explainability and intelligibility</p>  |
| <p>Foster responsibility and accountability</p>  | <p>Ensure inclusiveness and equity</p>  | <p>Promote AI that is responsive and sustainable</p>  |



Usecase

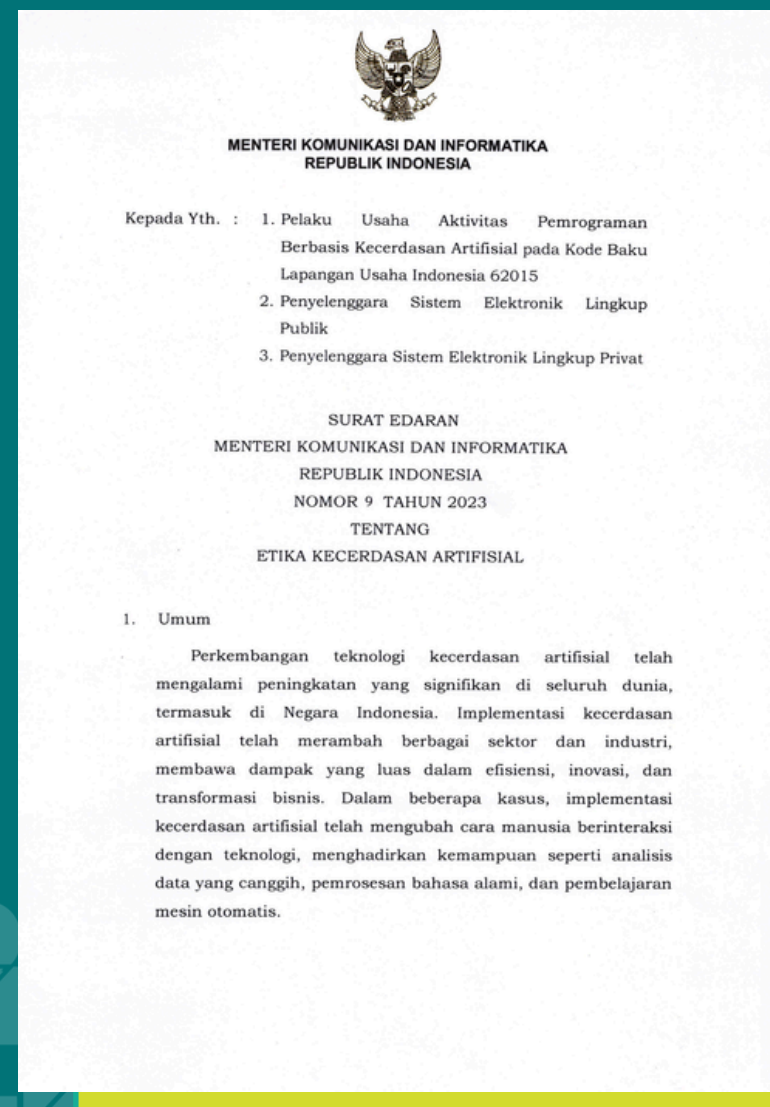
1. Diagnosis and clinical care
2. Patient-centred applications
3. Clerical functions and administrative tasks
4. Medical and nursing education
5. Scientific and medical research and drug development

Risk

- | | | | |
|-------------------------------|--------------------------|-------------------|---|
| Overestimate to AI | Biased Systems | Cybersecurity | Dominance of Large Technology Companies |
| Accessibility & Affordability | Impact on the Profession | Dependency on LLM | Carbon Emissions from AI Computing |



Indonesia's National Artificial Intelligence Regulation : Circular Letter of the Minister of Communication and Informatics Number 9 of 2023 concerning Artificial Intelligence Ethics



1. Inclusivity

2. Humanity

3. Security

4. Accesibility

5. Transparancy

6. Credibility & Accountability

7. Personal Data Protection

8. Sustainable Development & Environment

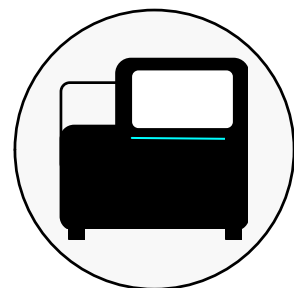
9. Intellectual Property

Even though it is still in the form of a Circular Letter (SE), this policy reaffirms the need to consider the applicability of other regulations and the requirement to implement risk management policies in AI development

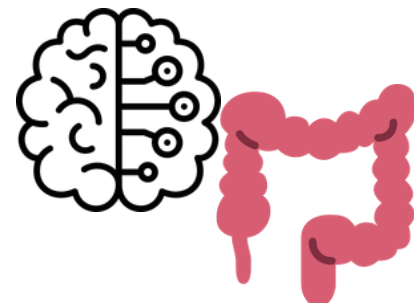
AI HEALTHCARE USE CASE

1

Genomics



Whole Genome Sequencing



Neural network model prediction

Machine Learning to study DNA
Characteristic of cancer cell,
Oncology precision AI therapy

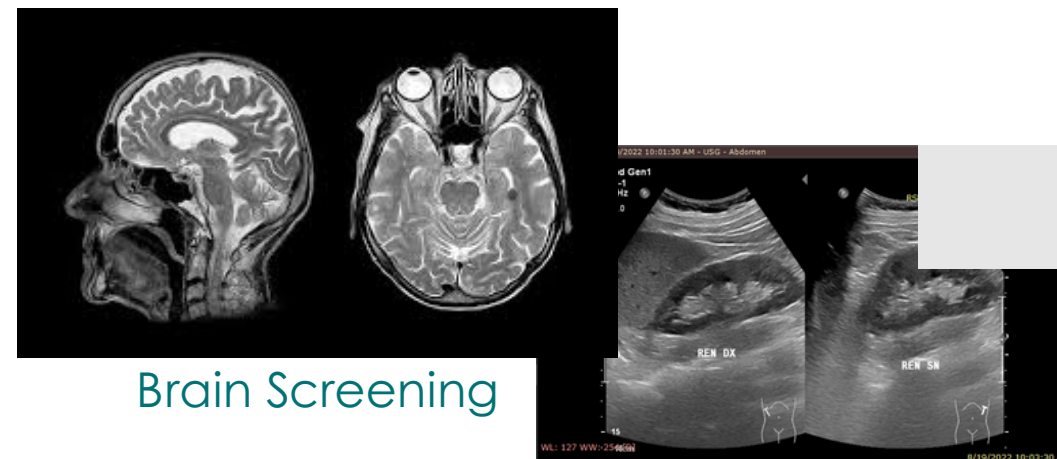
2

Healthcare Imaging AI



TB Screening, collaboration with AI technology

Example of a DICOM file received by SATUSEHAT

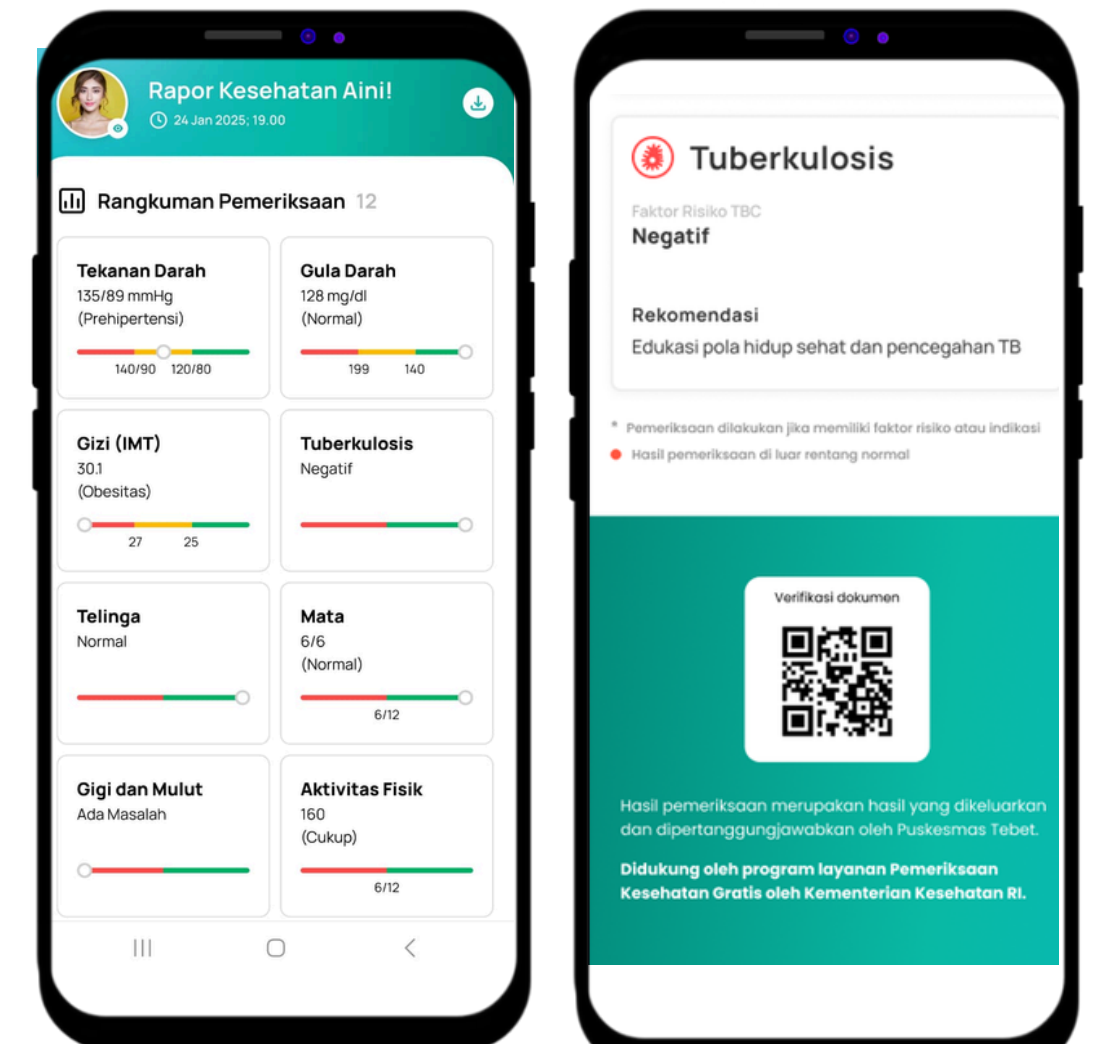


Brain Screening

Automatic detection of abnormal
findings on imaging in pathology
and radiology

3

Large Language Models



Analyzed health resume and
recommendation in Free Health
Check Up Reports



Participants, Topic & Winners

Participants

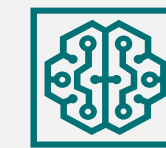


3-5 member per each team

278 Team from 10 Countries



Healthcare Professional



AI Engineer / Scientist

Each team must be composed of 1 healthcare professional and 1 AI engineer / scientist

Everyone from every background can join the hackathon, but each team must be composed of 1 healthcare professional (e.g. medical doctor and epidemiologist) and 1 AI engineer / scientist (e.g. data engineer and data scientist)

Topics & Winners (Top 5)

Top 5

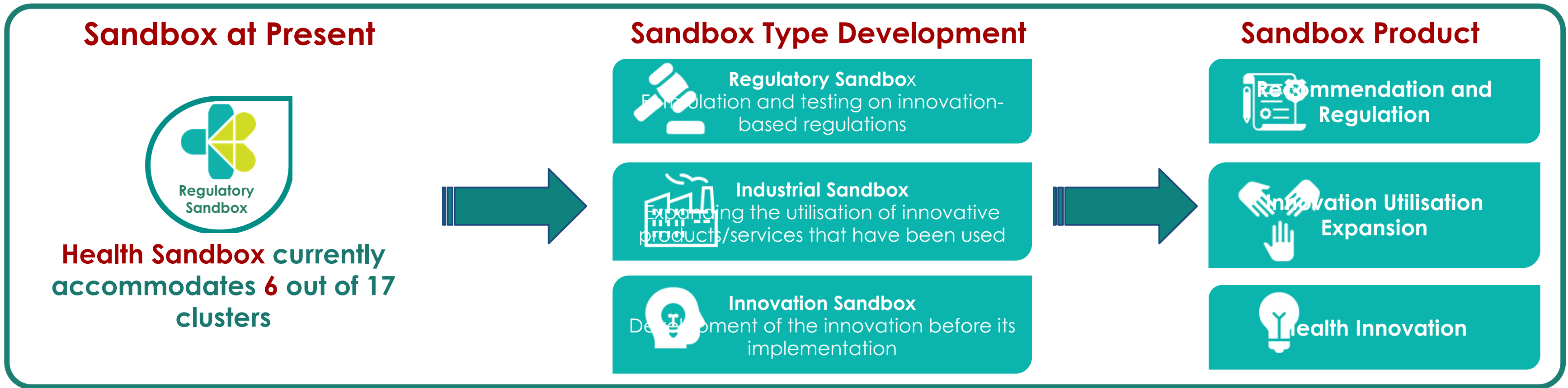
1. Stroke : satusihat Connect
2. CVD : Heartintelegece
3. Diabetes : Curalis
4. Tuberculosis : Mosaik
5. Stunting : Groundsight





Digital Health Innovation Development

Based on 17 Digital Health Clusters by Galen-Growth



Telehealth Cluster

Clusters to be Tested

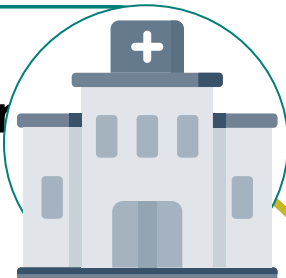
| | | | |
|-----------------------------|---------------------------|------------------------------|----------------------|
| Health Management Solutions | Online Health Communities | Population Health Management | Veterinarian |
| Health Services Search | Online Marketplace | Safety & Securities | Wellness |
| Insur Tech | Medical Education | Remote Monitoring | Healthcare Logistics |
| Medical Diagnosis | Patient Solutions | Research | Others |



SATUSEHAT AS THE INNOVATION THAT ANSWERS THE CHALLENGES AND PROVIDE SOLUTIONS FOR EVERY PART OF SOCIETY



HEALTH FACILITIES will be eased with **single system**
integrated health data



CITIZENS will be able to track own **personal health**



THE GOVERNMENT will be able to formulate more
data-driven policies



HEALTH INDUSTRIES will be eased in tracking **health data**
and providing services



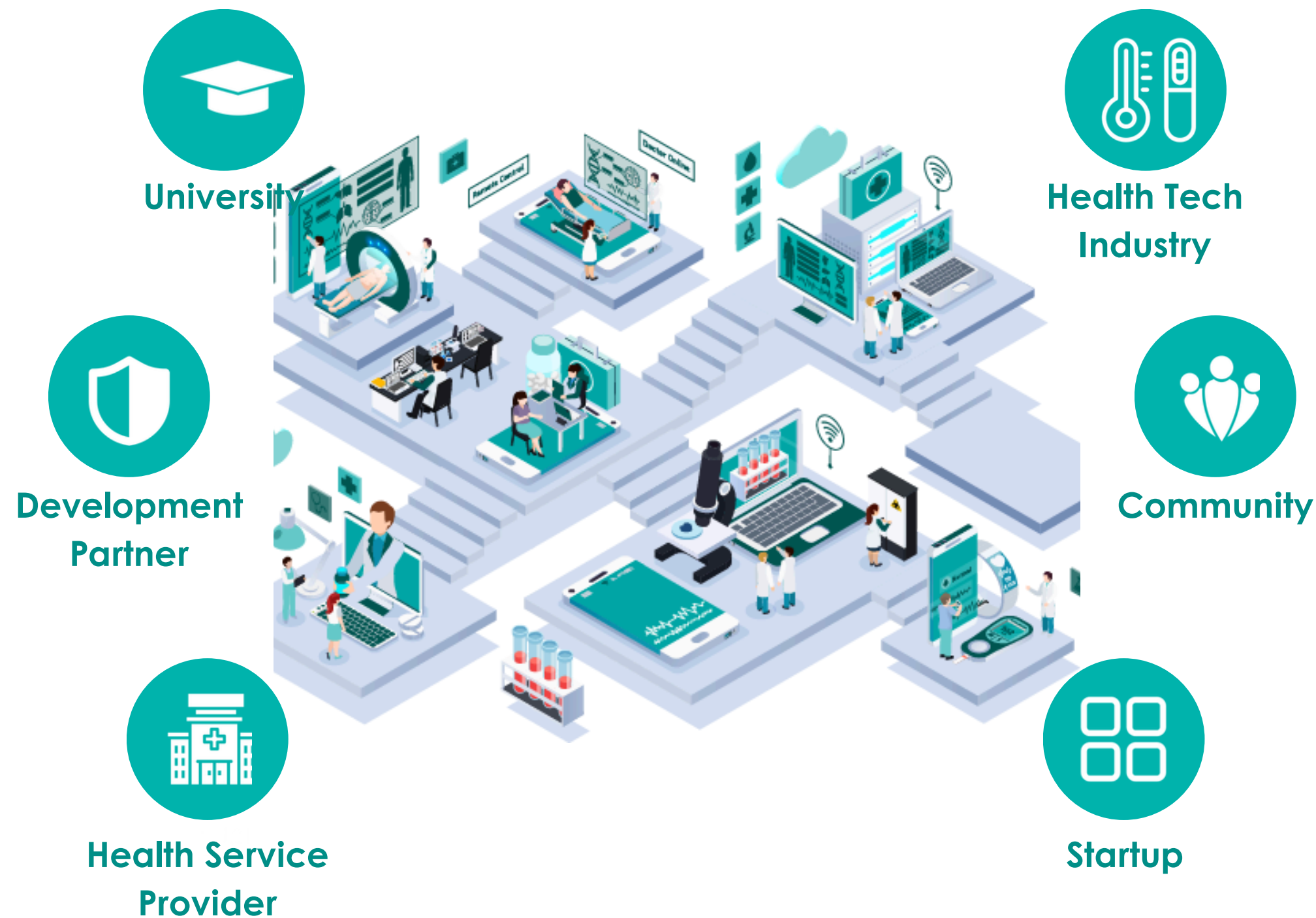


Health Transformation Collaboration Opportunity

The Ministry of Health Indonesia encourages collaboration to achieve health transformation



Digital Health Ecosystem



Call for Collaboration



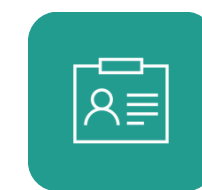
Knowledge/Expertise Collaboration

Collaboration on digital transformation projects **as experts**



Resource Collaboration

Collaborative **human and capital 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 **digitizing 60K health facilities and standardizing and integrating the health big data**





Kemenkes