



# Digital Health Strategy Update 2018

September 2018



**INTRODUCTION** 

**CURRENT STATE** 

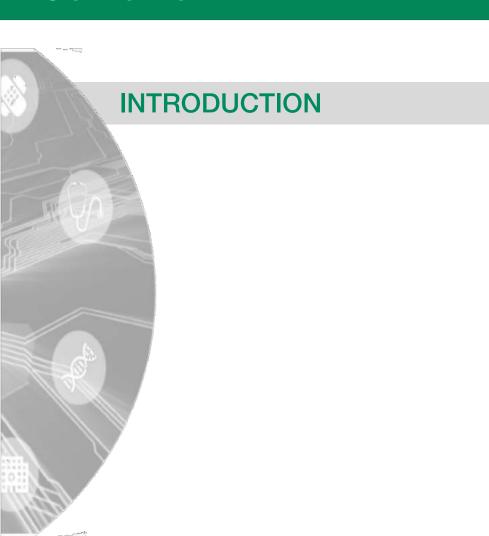
**DIGITAL HEALTH STRATEGY** 

STRATEGIC FRAMEWORK

**IMPLEMENTING THE STRATEGY** 

**MEASURING SUCCESS** 

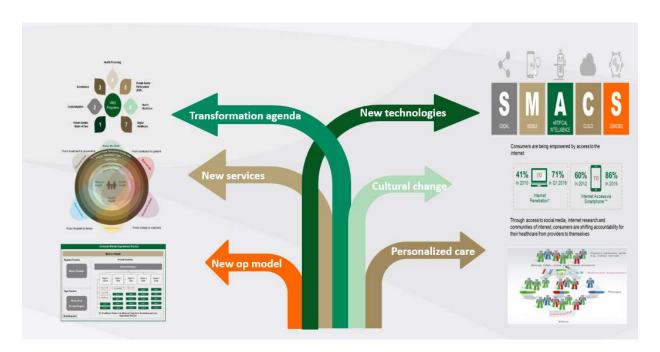
**MOH PRIORITES** 



# Purpose of this document

The Ministry of Health (MoH) has developed this Digital Health Strategy Update to support delivery of the Vision 2030 for the MoH Healthcare sector. It has been created as an update to the 2017 eHealth Strategy to reflect:

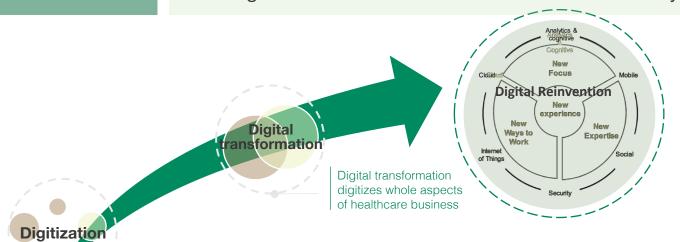
- Implementation of Vision 2030
- MoH 2.0 and Cluster autonomy
- The need for digital reinvention
- Rapid digital change



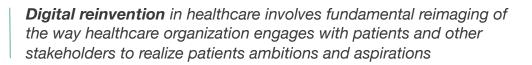
# Digital Health Journey

What is Digital Health?

Digital Health is the cost effective and secure use of information and communication technologies and the associated cultural change it induces, to help people manage their health and wellbeing and transform the nature of healthcare delivery



Digital reinvention incorporates digital technologies like never before to deliver healthcare benefits and results via innovative strategies.



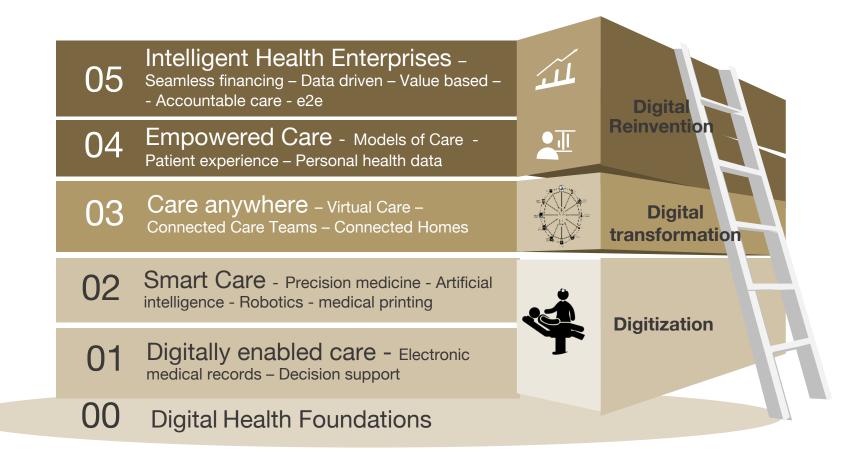
Digitization improves efficiency by applying technology to individual resources or processes.







# Digital Health Journey



# **KSA Evolution Of Digital Health**











### 2010 MOH eHealth Strategy

 Some Stand Alone systems

**Limited Functionality** 

No interoperability

Focus: 2010 -2020 Roadmap

Systems Focus: Administrative and Patient master Index  Some Stand Alone & Centralized systems

**Extended Functionality** 

No interoperability but IHE profiles available

Focus: SCMO

### Systems Focus:

- Administrative for Centralized
- RIS PACs
- HIS
- ERP
- Portal Services
- Infrastructure
- Standards
- HESN

### 2017 MOH eHealth Strategy update

 Commenced Rollout of Cloud /Opex model systems

Full Functionality being developed

Planning interoperability for Cloud based solutions

### Focus:

- 2017- 2021 Roadmap
- Organization transformation

### Systems Focus:

- HIS rollout
- PHC Rollout
- Imaging
- ERP for MOH
- Infrastructure
- HESN
- Mawed

### 2018 Digital Health Strategy update

- Rollout of Cloud /Opex systems
- SeHE commenced

Full Functionality being rolled out

MOH Cloud based solutions interoperable

### Focus:

- · Governance / Gating
- Cluster enablement
- Enablers

### Systems Focus:

- HIS rollout
- PHC Rollout
- Imaging
- · ERP for Clusters
- Mawed
- Regional Labs
- Infrastructure
- SeHE

### 2020 Digital Health Strategy planned

 All Facilities have access to eMR and SeHE

Full Functionality available

Expanded interoperability via SeHE

ITSS & Clusters Roadmaps

### Systems Focus:

- SeHE
- Telemedicine
- Cybersecurity
- · System Certification
- Advanced functionality
  - Artificial Intelligence
  - Analytics
  - Models of Care



# Saudi Digital Trends

**75%** 

2016 | Smartphone penetration in Saudi

KSA Ranked 2<sup>nd</sup> Worldwide

22

Apps on average **on** each Saudi smartphone

Global avg: 26 apps / phone

#1 in the World

### 90 Million

Youtube views from Saudi Arabia every day.

#1 in the World!

33 %

Of population in Saudi Arabia is active on Twitter

Compared to a global average of 20%

35%

of all IT Investments in Saudi Arabia in 2016 will be in the Cloud

Compared to 62% Worldwide

**78%** 

Of Saudi companies planning Big Data & Analytics roll-outs TOP 20 in the World

### 8 Million

Facebook users in KSA

KSA contributes to a significant portion of protection & consumption of this data

80%

Of data generated is unstructured (social, video..etc)

**44z**B

Unstructured data by 2020 (that's 18 zeros to MB)

### **National Global Benchmarks**



### **Current State**





108/274



**43**/43

# Unified Digital Medical Records

Today the realized percentage is equivalent to 0% but standards are pending to be approved and tested so the maturity is realized immediately on systems that are ready to plug into the Health Exchange

# 39% of MoH Hospitals in the KSA have an EMR Solution Implemented<sup>(3)</sup>

Today many healthcare facilities have the capability of connecting with the Health Exchange once HIE interoperability standards are tested and implemented

Other Gov. Healthcare Facilities in the KSA that have EMR Solutions Implemented<sup>(6)</sup>





**69**/134



4 Hospitals (MoH)

### Number of Primary Healthcare Centers in MoH with EMR Solutions Today<sup>(2)</sup>

Many people in rural areas rely on Primary Health Care Centers as the only health facility within driving distance

### Tele-Health at Home<sup>(5)</sup>

The solution was recently launched to target 69 Jurisdictions in total, including Tabuk, Asir, Jazan, Northern Border, Najran, AlJouf, and Al Baha regions, as well as Al Qunfudhah, Hafer Albaten and Bisha iurisdictions.

### Telemedicine<sup>(4)</sup>

Adoption of Telemedicine technology is picking up. This offers a great relief in follow up visit traffic to healthcare facilities in major cities (Facility to Facility) (KFMC, KKESH, Grayat, Arar)

### **Already Implemented Strategy Elements**

### Solution Deployment: HIS Waves & PHC-Pllots

**Roadmap**: Defined in Digital Health Programs

### Standards:

Defined for HIS processes & data Aligning with National standards

# Organisational Development: Merged IT Departments and re-org into a new DIGITAL HEALTH UNIT

### Governance:

Setup various Boards & Project Committees Setup a gating team supported by a digitized a gating process

### **Policies**

Supported the delivery of the Telemedicine Policy

### VRO

Digitisation of Models of Care (in progress)
Cluster Support Strategy & Digital Health Ambassadors
Good progress in alignment with other themes

### IT Shared Services:

Setup a Service Catalogue
Working on org. transition and delivery models

# **Current Strategic Risks**



### Ensuring Digital Health solutions are implemented, and implemented correctly

- Provide Investment framework & measure success
- Remove barriers to adoption (e.g. training, technology)
- · Support implementation with coaches, educators



### Cross program coordination across all business lines

- Establish a Transparency & accountability processes
- · Project gating to aid communication and compliance
- Expertise to support the Digital Health Ecosystem



### Shortage of skilled workforce

- Support implementation with coaches, educators
- Establish communication channels to share knowledge, skills and resources
- Establish an IT shared services to support the Digital Health Ecosystem



### Participation of healthcare providers to establish Unified Health

- Onboarding office to support healthcare providers to connect
- Incentivizing and mandating all stakeholder to participate



### **Technology changes rapidly**

- · Focus on data and information management
- Support and embrace innovation
- Coordination of various technologies
- Changing technologies
- · Infrastructure readiness



### The transformation agenda will see a major rise in costs

- Focusing on priority programs that deliver high value benefits (priority MoH solutions)
- · Capitalize on improved healthcare outcomes
- Implement the Investment Framework



### Threat of security, data and privacy breaches

 Establish a healthcare cyber security people, processes and tools



### **VRO Alignment**

 Ensuring necessary coordination and alignment between the VRO programs



## **DIGITAL HEALTH STRATEGY**

## **Digital Health Strategy**

### Why do we need the Digital Health Strategy

- Digital technologies and the cultural change they drive will play a significant role in supporting the delivery of Digital Health Vision and in achieving Vision 2030.
- The complexity of the sector and the rapidly changing digital landscape requires the digital health strategy to guide the use of and investment in digital technologies.
- Fragmented and unconstrained use of digital technologies across the sector will increase inequities, introduce inefficiencies and waste scarce resources.

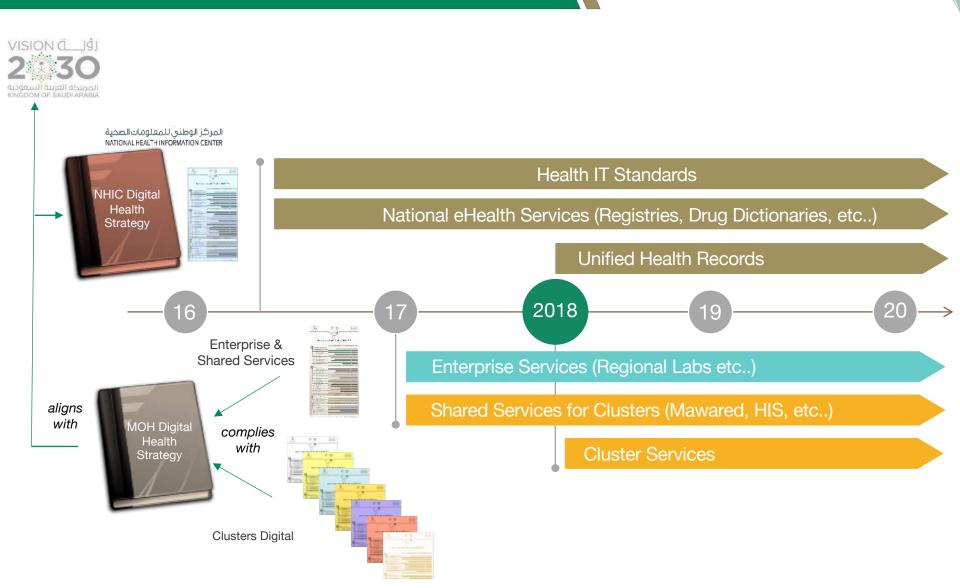
# What is the Digital Health Strategy?

The Digital Health Strategy is **overarching strategy** that creates the right conditions for the MoH digital health ecosystem **to enable the vision but allows organizations freedom to act.** 

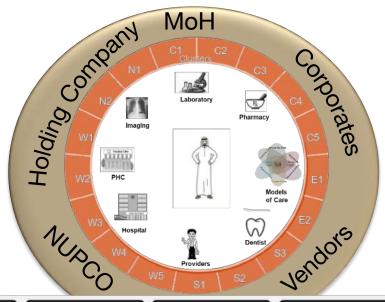
# What does the Strategy include?

- Describes the digital health vision, including the culture and values that will underpin this future.
- Recognizes the opportunities that technology provides in realizing the strategic objectives.
- Defines guiding principles, capabilities and enablers required to achieve those objectives.
- Defines a shared understanding of success and monitors progress

# **Digital Health Strategy Context**



# **MOH Digital Health Systems**





The Ministry of

**National Guard** 

The Ministry of

Interior

The Ministry of

Defense and

Aviation

The Ministry of

Education

Digital health ecosystem describes the complex network of interactions between the individuals, organisations, technologies, information and resources within the health sector. It includes all people, carers, healthcare professionals, policy makers and the environment in which they interact. While the scope of this strategy is the MoH Digital Health Ecosystem it must be able to interact with all of the KSA Digital Health Ecosystem.



## STRATEGIC FRAMEWORK

# **Strategy Framework**



Vision 2030



Vision 2030 Strategic Objectives

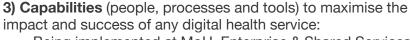


MOH Digital Health Strategy

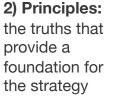
1) Digital Health Vision to support 2030



enables the vision



- Being implemented at MoH, Enterprise & Shared Services
- Recommended for all Clusters Services



- **4) Enablers** (frameworks, guidelines & resources) that support the creation of strategically aligned digital capabilities within MoH Digital Health eco-system:
- MoH will create/obtain/mandate the enablers
- MoH Digital Health eco-system (including Clusters) must comply/leverage the enablers
- MoH will monitor their use and effectiveness in the delivery of the capabilities.



achieves the objectives

- 5) Digital Health Strategic Objectives the goals that help to convert the vision to reality:
- Are set with the broad strategy in mind but will not necessarily align directly with individual components of it.
- Used to measure progress and success.



delivers the strategy

### MoH Ecosystem Delivery (Roadmaps and plans)

- MoH will have a roadmap/plan for delivery of the enablers & digital capabilities required by the Ministry.
- MoH have a roadmap/plan for enterprise and shared digital capabilities currently being delivered by MoH (although this may
  move to an IT Shared Services Organization see Appendix B)
- All other parts of MoH ecosystem (eg Clusters) will develop and implement roadmap/plans in response to their own
  organizational context which aligns to the Strategy, describes capabilities being delivered and includes use of enablers.

# **Strategy Framework**



Vision 2030



Vision 2030 Strategic Objectives

achięves

bjective:





1) Digital Health Vision "A consumer-centric, world-class and sustainable health system enabled by eHealth"

Values - "Enabling - Harmony - Positivity – Innovation - Teamwork"



### enables the vision

### 2) Principles

- Person centred
- Transparency, collaboration and communication
- Build with the future in mind
- Resource efficiency
- Security and privacy by design in the systems, access and how the information is used

### 3) Capabilities

Personal Experience	Digital Trans- formation	Digital Reinvention	Trust	Governance	Agility



Transparency,	Architecture &	Foundation	Trust	Investment	Innovation
Accountability	Standards	Services		Framework	Framework

5) Digital Health Strategic Objectives

Improve The Personal Experience

Increase The Efficiency And
Performance

Improve Health Outcomes And Equity

Enable Health Providers To Deliver Better Services

Provide Evidence For Policy, Research And Planning



**1** delivers the strategy

### 1) Digital Health's Values, Vision & Mission

# Values "Enabling - Harmony - Positivity - Innovation - Teamwork"

### Mission

"To transform healthcare delivery through technology to deliver safer, more efficient healthcare services for the population of Saudi Arabia"

### Vision

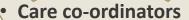
"A consumer-centric, world-class and sustainable health system enabled by Digital Health"

### What does the vision mean?

### Healthcare providers

have multi-functional devices, e.g. a handheld imaging machine, to detect abnormalities. This information is relayed in real-time to specialists to review if required.

- Artificial Intelligence monitor
   patients virtually from their home
   devices. Alerts sent for abnormal
   readings & possible actions
   recommended.
- Virtual clinics deliver care via digital technology in a patient's home, aged care facility, etc



use mobile devices to update & automatically upload to the individual's care plan for everyone within their care team to see.

- Their day is spent guiding patients through various significant health events as their routine healthcare needs are self-managed and provided virtually at a time and place that suits them.
- Automated systems mean my patients receive the right care, where and when they need it.



Researchers have access to a wide range of anonymized datasets, with approval for research purposes

- Their research is targeted towards solving real world problems and feeds into clinical decision support and risk stratification systems.
- With real-time data available from many sources, research is forwardlooking, capturing trends and assessing their implications.

- People feel empowered in how I manage my health and wellness and feel healthier
- Their care is available anywhere and co-ordinated by a virtual team
- They have personal devices to alert me early to potential health problems and help me measure my progress to my health goals.



work in an open source environment where companies co-operate rather than compete.

Organizations pay for the delivery, customization, management and hosting of technologies, rather than software licenses. All systems use standards & are fully interoperable.

The app market is consumer-driven.
 with apps certified that they meet agreed requirements.

# 2) Principles

- **Person centred** the need for a person centred approach and the experience of people with the MoH health sector will guide innovation, improvement, and targeting increased equity.
- Transparency, collaboration and communication We will focus on valuing strong consumer, executive, clinical and technology involvement and leadership. We will actively encourage decisions, success stories and lessons learned to be available across the digital health ecosystem.
- Build with the future in mind achieving the Vision 2030 will require digital reinvention across the KSA digital ecosystem, new models of care enabled by connectivity, new technologies and innovation. (eg consider cloud computing wherever possible, the use of artificial intelligence etc)
- Resource efficiency including:
  - implementing systems that improve efficiency,
  - looking for new commercial models to fund digital capabilities (eg Opex model)
  - Leverage national & MoH Infrastructure
  - Look for economies of scale
- Security and privacy by design in the systems, access and how the information is used
   Trust will be the most important consideration when creating, obtaining and deploying digital capabilities

# 3) Capabilities

Personal Experience	Digital Transformation	Digital Reinvention	Trust	Governance	Agility
<ul> <li>Improving the patient's experience with MoH.</li> <li>Improving access via virtual healthcare services.</li> <li>Enabling informed decision making which drives behavioral change and increases accountability of personal health.</li> </ul>	Real-time access to accurate high quality information enables better assessment and treatment of people.  Linking every aspect of healthcare, ensuring professionals and individuals have access to all the information they need when and where required.  Leveraging services that are focused on the consumer needs and cross organisational boundaries.	<ul> <li>All healthcare stakeholders have access to data which allows for evidence based policy reforms and decision making.</li> <li>Design thinking to reframe problems, on-going experimentation and testing to gain understanding, examine assumptions and test solutions.</li> <li>Incorporate new digital models with new technologies, Mobile, Cloud, Social, Analytics, IoT.</li> </ul>	<ul> <li>Preserve trust in the healthcare system and protect all stakeholders rights.</li> <li>Cybersecurity awareness &amp; understanding.</li> <li>Consumer data is disclosed solely to relevant stakeholders at appropriate times.</li> <li>Consumer data is kept secure, restricting access to invalid users and blocking potential threats.</li> </ul>	▶ Governance is critical in ensuring that an organisation's Digital Health Roadmap is successfully implemented and is aligned with the business strategy, achieve their strategies and goals, and manage risk.      ▶ Enable accountability across all stakeholders.	<ul> <li>An agile, connected &amp; high performing workforce with modern tools.</li> <li>Capabilities in service management, program &amp; project management, cybersecurity, data and information governance, person-centred design, service design and informatics are priorities.</li> </ul>
1-1			P		W. Control of the con

# 4) Enablers

Transparency, Accountability	Architecture & Standards	Foundation Services	Trust	Investment Framework	Innovation Framework
<ul> <li>Creating structures, policies and processes to ensure successful delivery of the Digital Health Strategy.</li> <li>Strategic Committees and / or Boards set direction, monitor progress, and are ultimate issue resolution bodies.</li> <li>Functional or Operational Committees(if required)</li> </ul>	create new standards where gaps exist.	<ul> <li>▶ Provide capabilities that bind the MoH digital health ecosystem together (Interoperability, information access, services).</li> <li>▶ Provide capabilities that are used across MoH enterprise.</li> <li>▶ Infrastructure</li> </ul>	<ul> <li>Ensure ongoing integrity and confidentiality of health information,</li> <li>Effective privacy measures.</li> <li>A mature security culture.</li> </ul>	Investment & commercial management including: procurement, approval, commercial relationship management & operational service management.  Support choice eg: centralized procurement or RFP services or requirements compliance  Funding models utilize public & private funding.	Coordination and supporting frameworks to drive maximum value from innovation.  Metrics on healthcare processes and outcomes are recorded and made available to relevant institutions (i.e. administration, academic research, etc.), establishing accountability and a means for evaluation.
		**		<u> </u>	

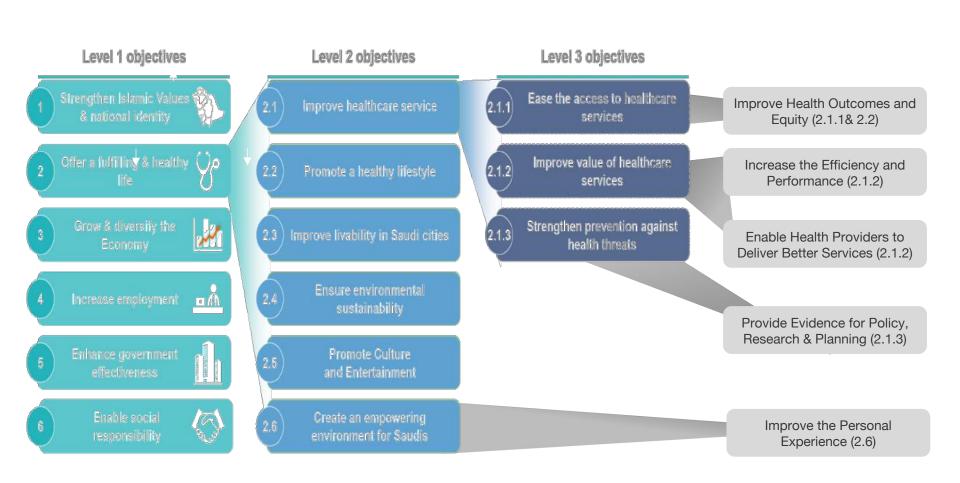
# 5) Digital Health Strategic Objectives

The goals that help to convert the vision to reality.

- Are set with the broad strategy in mind but will not necessarily align directly with individual components of it.
- Used to measure progress and success.

Improve the Personal Experience	<ul> <li>Technology is improving people's experience of care</li> <li>Care is provided closer to where people live and work.</li> <li>Technology empowers people to flourish by fully participating in their health care.</li> <li>People make informed choices about the health and social services that work best for them and have access to information to help them make those choices.</li> </ul>
Increase the Efficiency and Performance	<ul> <li>Technology is improving best-value use of resources.</li> <li>The money spent on digital capabilities is optimized</li> </ul>
Improve Health Outcomes and Equity	Use new and emerging technologies to improving the health services available and healthy outcome, While addressing difference in the use of digital health services due to location, cost, digital literacy or other factors.
Enable Health Providers to Deliver Better Services	Healthcare providers have access to the digital technologies and trusted information they need to collaborate in the delivery of health and wellness services, and use their digital capabilities to transform and improve the services they deliver
Provide Evidence for Policy, Research and Planning	Insights into digital health information support policy development, research and service planning.

# Vision 2030 objectives alignment





**IMPLEMENTING THE STRATEGY** 

# MoH Role in Implementing the Strategy

Define and maintain a clear strategy	MoH will govern the implementation of the Strategy and update and refine the Strategy over time to reflect changes in the MoH digital health ecosystem and as new requirements or guidance become available or is needed.
Measure progress and maturity	MoH will measure progress towards the objectives. (Note: All MoH digital health ecosystem will be required to contribute to the measurements).
Deliver enablers	MoH will ensure that the enablers defined in this Strategy are implemented and will require all of the MoH digital health ecosystem to adopt and leverage them appropriately.
Continue with business as usual	Until such time as MoH Digital Health ecosystem transformation is complete, MoH will continue to provide Digital Health services as defined in the Digital Health Roadmap (see Appendix A)
Support the development and transition to the new MoH digital health ecosystem	MoH will continue to support:  Clusters develop Digital Health Roadmaps which aligns with this strategy (including the implementation of enablers)  the transition to an IT Shared service to provide enterprise service and shared services across clusters



**MEASURING SUCCESS** 

# **Measuring Success**

- Progress in implementing the Strategy will be measured by MoH.
- MoH will use the indicators to measure progress over time (these indicators are in development, some examples have been provided in the table below)
- MoH will also measure outputs and digital health activity (these are currently being developed, for example number of Hospitals with eMR capabilties)

Improve the Personal Experience	<ul><li>Increase in patient experience with MoH healthcare services.</li><li>Increase in the number of people accessing health data online.</li></ul>	
Increase the Efficiency and Performance	<ul> <li>Increase in Health outcomes achieved by MoH facilities (as measured by the KSA Health Index) per dollar spent on digital health services.</li> <li>Increase in % of digital health services that use real time data insights to support health service delivery.</li> <li>Increase in % Organizations that are within digital health budget.</li> </ul>	
Improve Health Outcomes and Equity	<ul> <li>Increase in % of the population that has access to digital health services.</li> <li>Reduction in the gap between the population with most access to digital health services, and the population without.</li> <li>Increase in patient safety (to be developed)</li> </ul>	
Enable Health Providers to Deliver Better Services	Progress towards the MoH [to be developed] planned digital health maturity. Increase in % compliance with mandated digital health enablers.	
Provide Evidence for Policy, Research and Planning	<ul> <li>Increase in number of pub</li> <li>lished policies or research papers that reference or embed reliable data and information insights increases.</li> <li>Increase in % of digital health services that provide access to data for health policy, research and planning increases</li> </ul>	

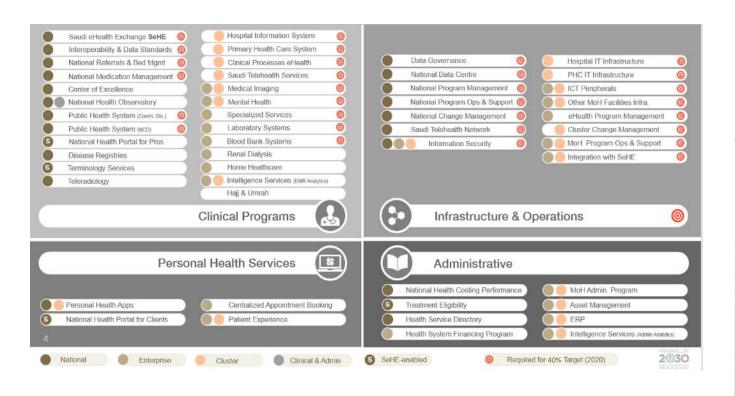


**MOH PRIORITES** 

# MoH Priorities over next 2 years

		Status
Infrastructure	Hosting     Storage     Lan connectivity     Wan connectivity     Internet access     Peripherals	All available for implementation (contact eHealth to commence planning)
Core Applications	HIS     PHC information system     ERP     PACS     Data Analytics (Data warehouse)	HIS- available for implementation after October 1 PHC- in development ERP- available for implementation PACs- (Radiology, Cardiology & Dental –RFP award in final stages Analytics- commencing end 2018
Non Core applications	Document management system (e-Correspondence)     MS Office suite (Exchange, Office)	All available for implementation (contact eHealth to commence planning)
Services	Security     Planning support	• Shared services being developed
Enablers	Investment Framework (see next) Governance (see next) SeHE Architecture and Standards	• Enablers being developed

# Appendix A: Digital Health Roadmap



### **Delivery Levels**

24 National

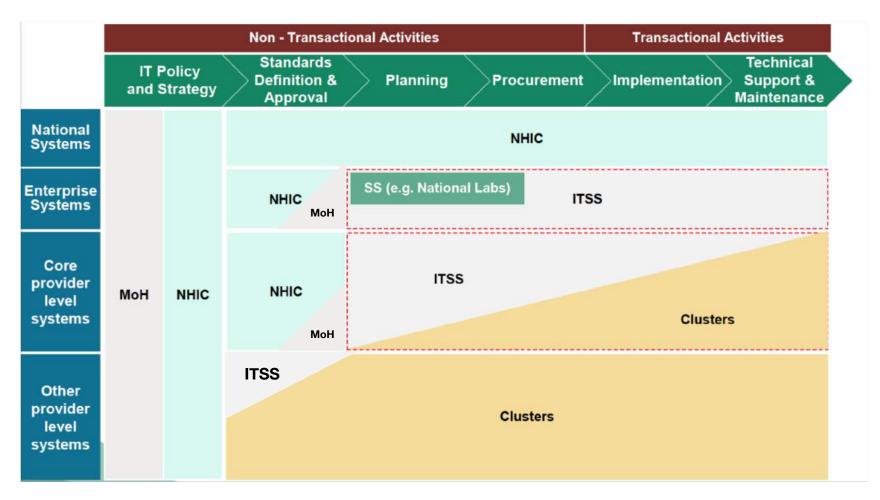
21 Enterprise

21 Cluster

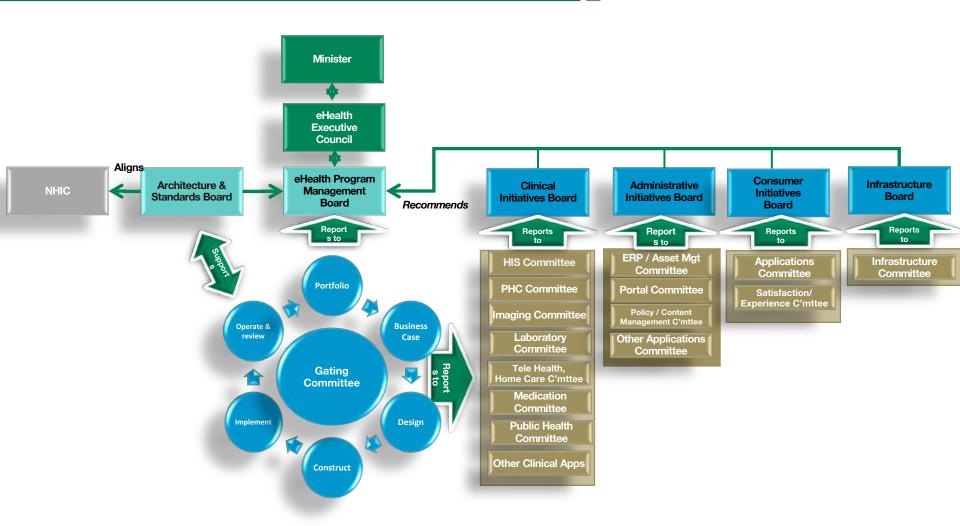


### Appendix B: IT Shared Services - Scope

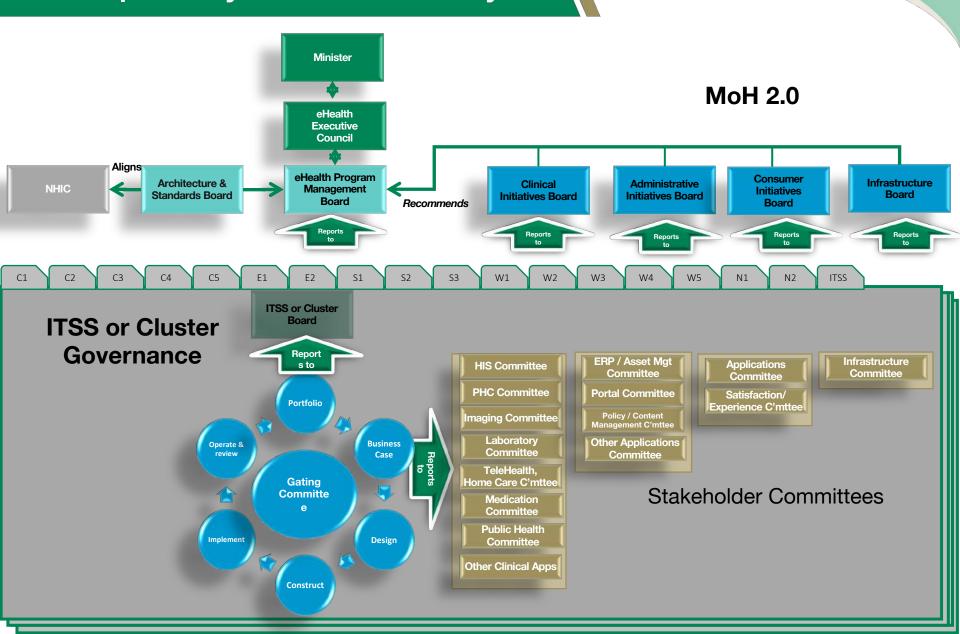
Status Update: Defining Service Catalogue and Operational Models



### Current Governance



# **Transparency & Accountability**



# MoH Digital Health Contacts

Dr Ahmed Balkhair	General Supervisor	ABalkhair@moh.gov.sa
Eng Hashem Abubaker	Assistant General Supervisor for Digital Transformation	hashem@moh.gov.sa
Dr Mona AlMehaid	Head of Clinical Programs (eg HIS, PHC, Lab & Blood Bank)	malmehaid@moh.gov.sa
Eng Monief Eid	Imaging ( Radiology, Cardiology, Pathology & Dental)	mmonief@moh.gov.sa
Eng. Mona AlSubaie	Head of Applications Engineering (eg Centralized appointment booking)	mssubaie@moh.gov.sa
Eng. Ahmed Alzahrani	Assistant General Supervisor for Infrastructure	Ahmedz@moh.gov.sa
Eng. Yazeed Alotaibi	Head of Business Solutions (Mawared, etc.)	yaotaibi@moh.gov.sa
Colleen Brooks Dr Mahdi Khaled	Digital Health Program Strategy Cluster Enablement	cbrooks@moh.gov.sa mahkhaled@moh.gov.sa
Eng Sulaiman Alturki	PMO / New Digital Health Service Requests	ICT-Gating@moh.gov.sa
Eng. Furqan Ahmed	VRO / General Enquires	fahmed@moh.gov.sa

# THANK YOU