

The background image shows a panoramic aerial view of the Hong Kong skyline at night. The city is densely packed with skyscrapers, their windows glowing with lights. In the foreground, the dense urban area of Kowloon is visible, while across the Victoria Harbour, the brightly lit financial district of Central and the Peak are clearly seen. The water of the harbour reflects the city's lights.

DIGITAL HEALTH IN HONG KONG A VISION FOR THE FUTURE

Dr NT Cheung
Head (IT & Health Informatics) & CMIO, Hospital Authority
Consultant(eHealth), Food & Health Bureau

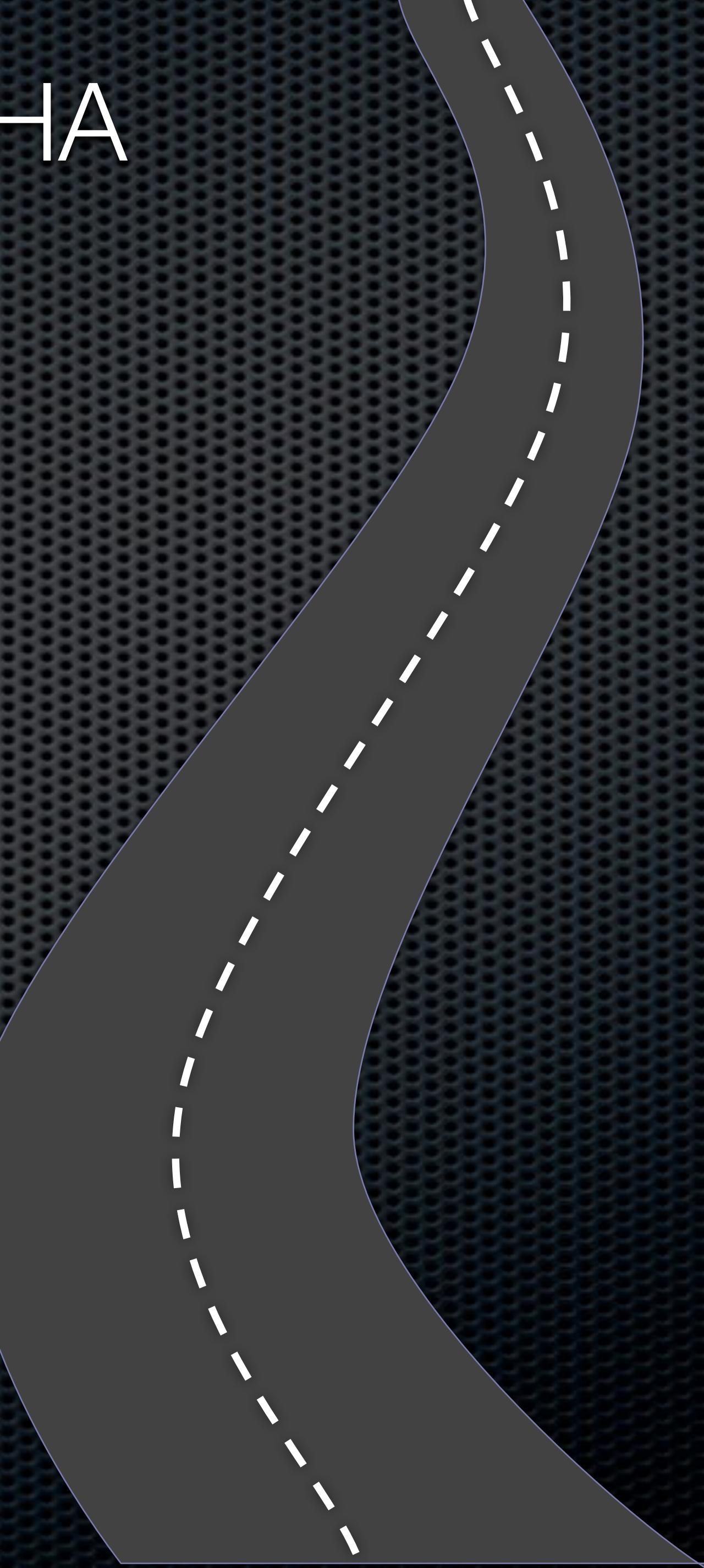
Hospital Authority

- ❖ Established 1991
- ❖ 43 Public Hospitals
- ❖ 47 Specialist Outpatient Clinics (SOPD)
- ❖ 73 General Outpatient Clinics (GOPC)
- ❖ 28,126 Beds
- ❖ 75,887 Staff
- ❖ Around 25,401 Nurses
- ❖ 6,466 Doctors
- ❖ HK\$ 60B Annual Operating Budget
(~A\$10 billion)
- ❖ 6.4m GOPC Attendances
- ❖ 9.4m SOPD Attendances
- ❖ 2.2m A&E Attendances
- ❖ 1.8m Inpatient and Day Patient Discharges



eHealth in the HA

An Ongoing Journey

- 
- 1990** “Green fields”
Patient administration + Departmental systems
- 1995** Clinical Management System (CMS)
CMS Phase II
- 2000**
 - Electronic Patient Record (ePR)
- 2008**
 - ePR Image Distribution
 - CMS Phase III
 - Filmless HA
- 2010**
 - Inpatient MOE
 - HK-wide eHRSS
- 2016**
 - Mobile CMS
 - CMS IV
- 2019+** HA Go
eHRSS Stage 2

ENTERPRISE-WIDE ELECTRONIC PATIENT RECORD (EPR) FOR ALL HA PATIENTS

The image displays four screenshots illustrating the integration of various healthcare data into a single enterprise-wide electronic patient record (EPR) system.

- Screenshot 1:** A Microsoft Internet Explorer window showing the EPR interface. The top bar shows "File Edit View Favorites Tools Help". The address bar shows "http://app.hmaa.hk/Content/Reg_validator.asp". The main area displays patient information: HKID: K1001000, Name: PATIENT_308997(病人), DOB: 01/12/1965 (Exact? Y), Age: 39, Sex: F, Death: N. On the left, a navigation tree includes sections like Diagnosis, Procedure, Clinical Note, Radiology Record, Medication, Dispersed - By Episode, Dispersed - Summary, and Laboratory Result. A "Search by Request Date" panel is also visible.
- Screenshot 2:** A Microsoft Internet Explorer window titled "Radiology Enterprise Web V2.1 - Microsoft Internet Explorer". It shows a grid of MRI scan images labeled "PATIENT_308997" and "HN-61885884". A legend indicates "1 Images" and "10 Images". The interface includes a search bar and a "Report" section.
- Screenshot 3:** A Microsoft Internet Explorer window titled "Electronic Patient Record (ePR)". It shows a grid of MRI scan images labeled "PATIENT_308997" and "HN-61885884". A legend indicates "1 Images" and "10 Images". The interface includes a search bar and a "Report" section.
- Screenshot 4:** A Microsoft Internet Explorer window titled "Electronic Patient Record (ePR)". It shows a table of laboratory results for Case: HN98004663(A), HKID: JU000226(3), Name: PATIENT_000226, Sex: M, Age: 72y. The table includes columns for Reference Date, Reference Time, Hospital Code, and various test results like Haemoglobin, RBC, HCT, MCV, MCH, MCHC, Platelet, WBC, APTT, Prothrombin Time, Sodium, Potassium, Urea, Creatinine, Protein, Total, and Albumin. The table has a "Summary" and "Event" tab at the top.

The Digital Health imperative



Healthcare service
transformation



Technology &
industry evolution



Internal IT transformation

An Urgency for More Agile Integration of IT Innovation into HA's Services



Robotics



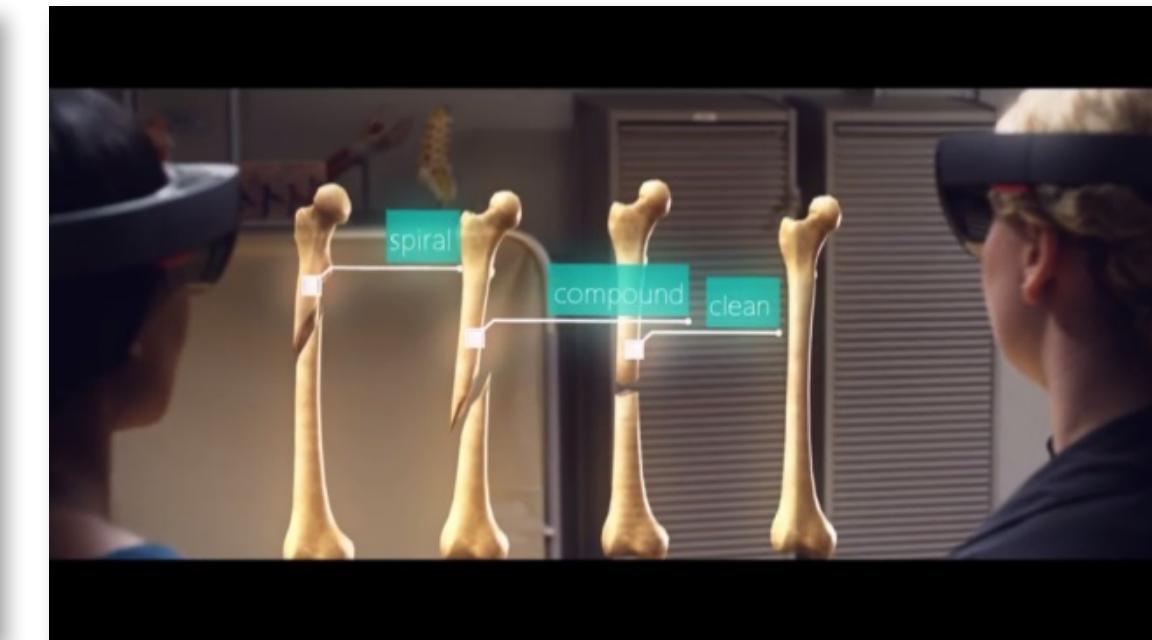
Telemedicine



Mobile & IoT



Big Data Analytics &
Artificial Intelligence



Virtual Reality &
Augmented Reality

Our Response: IT Strategy for a Digital HA



3 Demand Strategies: Transforming HA Service Provision



1 Next Generation Clinical Management

- HA's care model transformation
- Efficiency improvement
- Clinical quality and risk management



2 Enhanced Patient Experience and Outcome

- Data-driven insights for better outcome
- Patient engagement
- Community collaboration



3 Digital Workplace and Collaboration

- Mobile tools
- Staff collaboration
- Enhanced resource management
- Value-adding process



4 Advanced Process and Infrastructure

- Smarter IT services
- Advanced infrastructure
- More reliable and secure platform



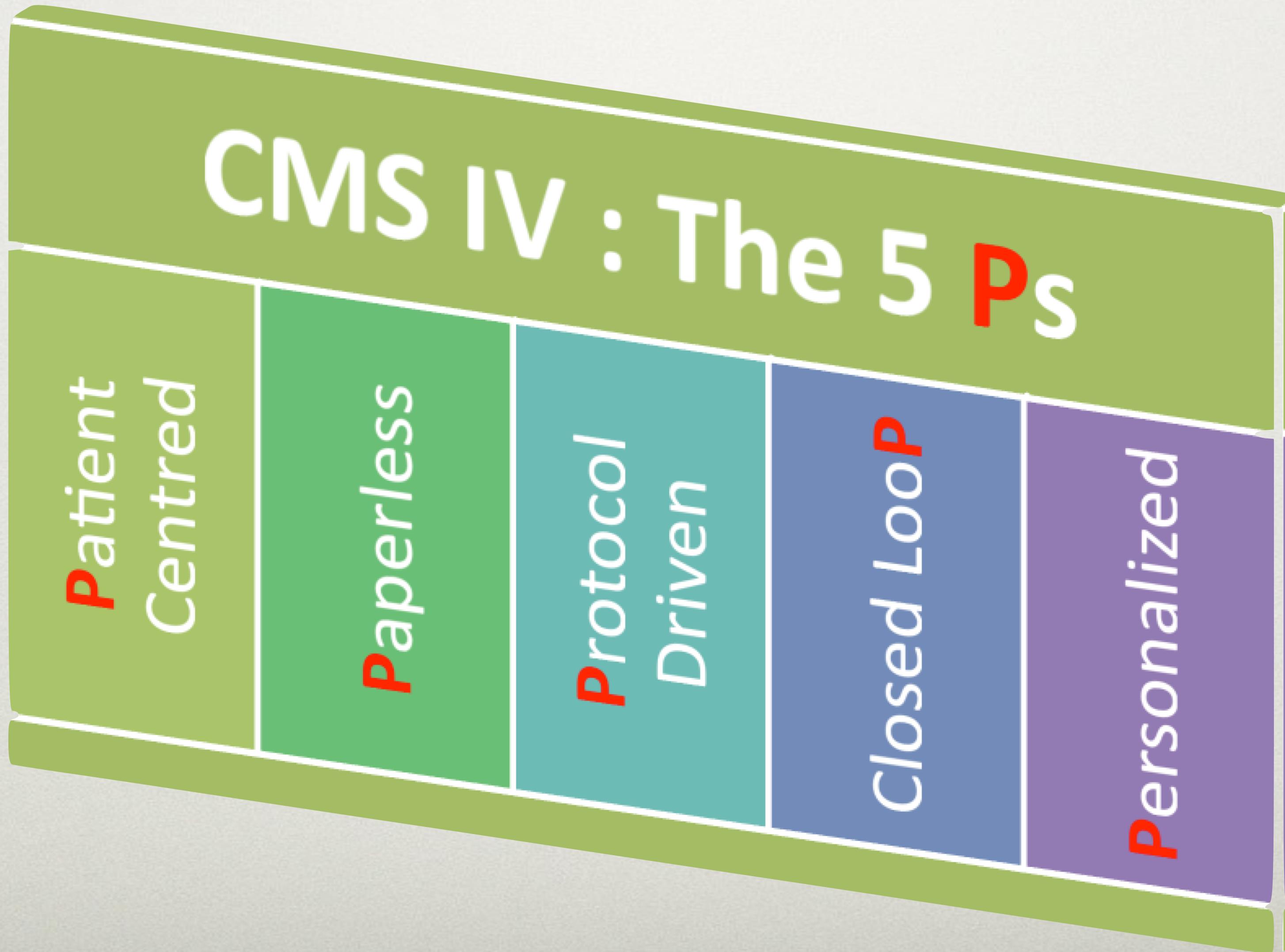
5 Resource Centralization and Specialization

- Talent specialisation
- Learning culture
- IT for IT
- Better business alignment

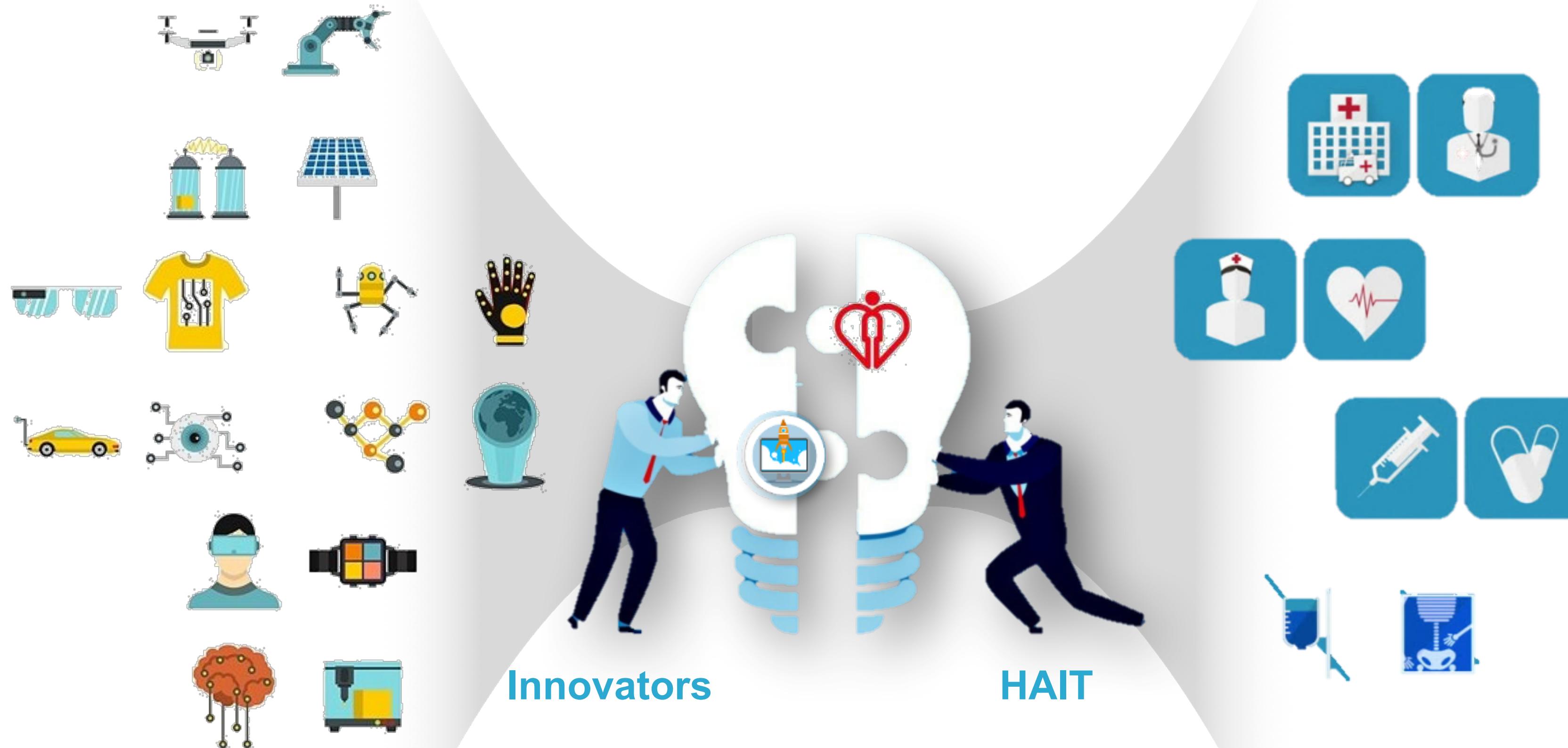


2 Supply Strategies: Uplifting IT Capability

THE 5 PILLARS OF THE NEXT-GENERATION CMS

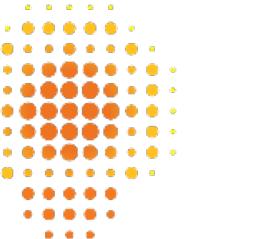


Our Positioning in IT Innovation Collaboration



***HA as a **convertor** of innovation technology
into real-life solutions for better healthcare***

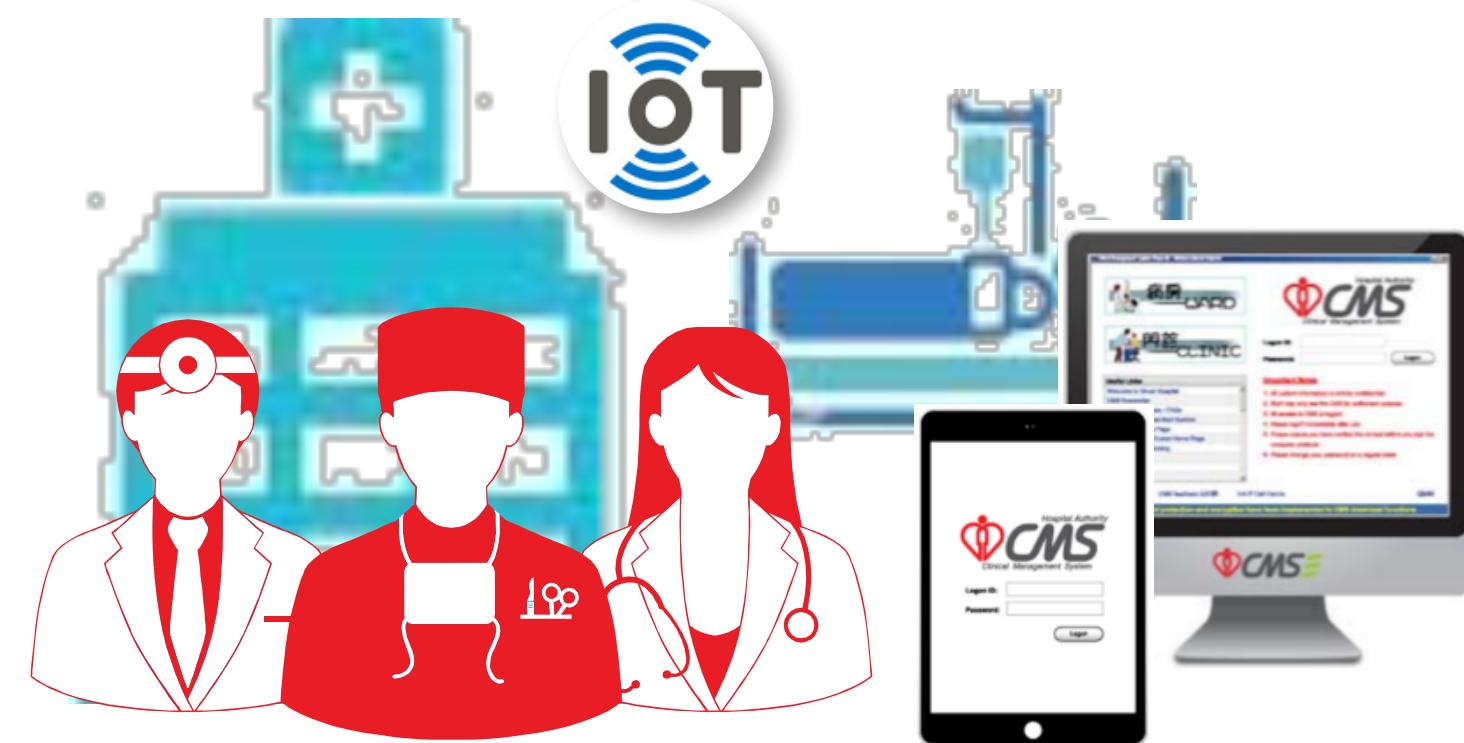
Data-Driven Care



IT.INNOVATION
CENTRE

280 Terabytes of
Health Data

Millions of
Transactions
Daily



Valuable Data to Improve
Population Health

2017 Medication Decision Support Alerts

95,000 orders
changed

Drug Allergy		Outpatient	Inpatient	Total
	Order changed	43,461	15,889	59,350

Drug-Drug Interaction		Outpatient	Inpatient	Total
	Order changed	15,703	15,752	31,455

G6PD Deficiency		Outpatient	Inpatient	Total
	Order changed	2,491	467	2,958

Long Term High Dose Steroid		Outpatient	Inpatient	Total
	Order changed			1,204



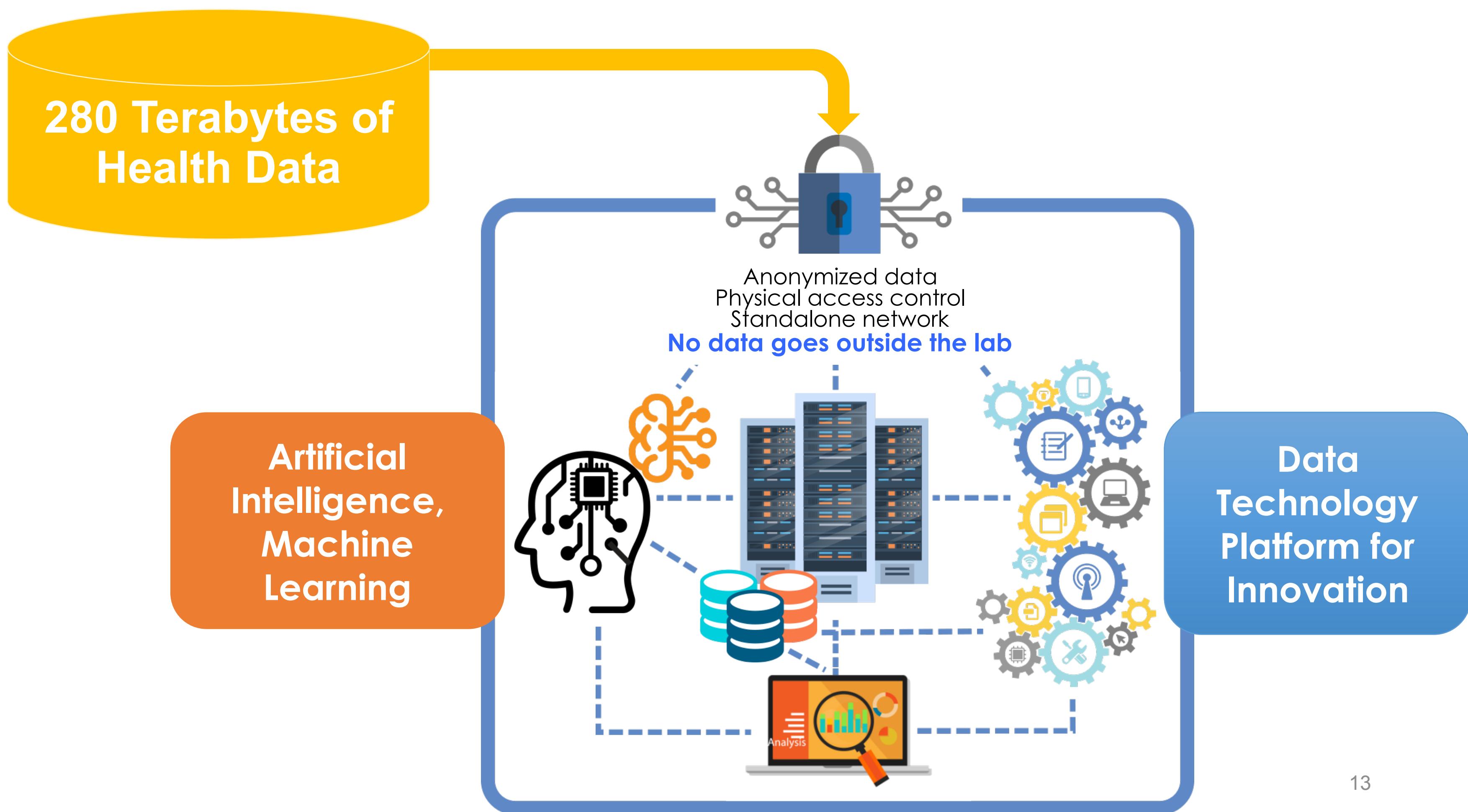
Domain	Data analyzed	Outcome
Fluid orders	52,221 IV Fluid prescriptions	Enhanced common fluid orders list and common frequencies
Duplication checking	124,240 drug items	Spurious prompts reduced
Late administration	199,912 administration events	“Late given” reason list enhanced
Free text allergies	97,343 free text entries	All valid drug allergies converted to structured entries
Allergy entry	Implemented predictive text entry	95% reduction in free text entries
Referral reasons	956,344 referral reasons	Converted to 7,231 distinct structured reasons

Data Driven System Development

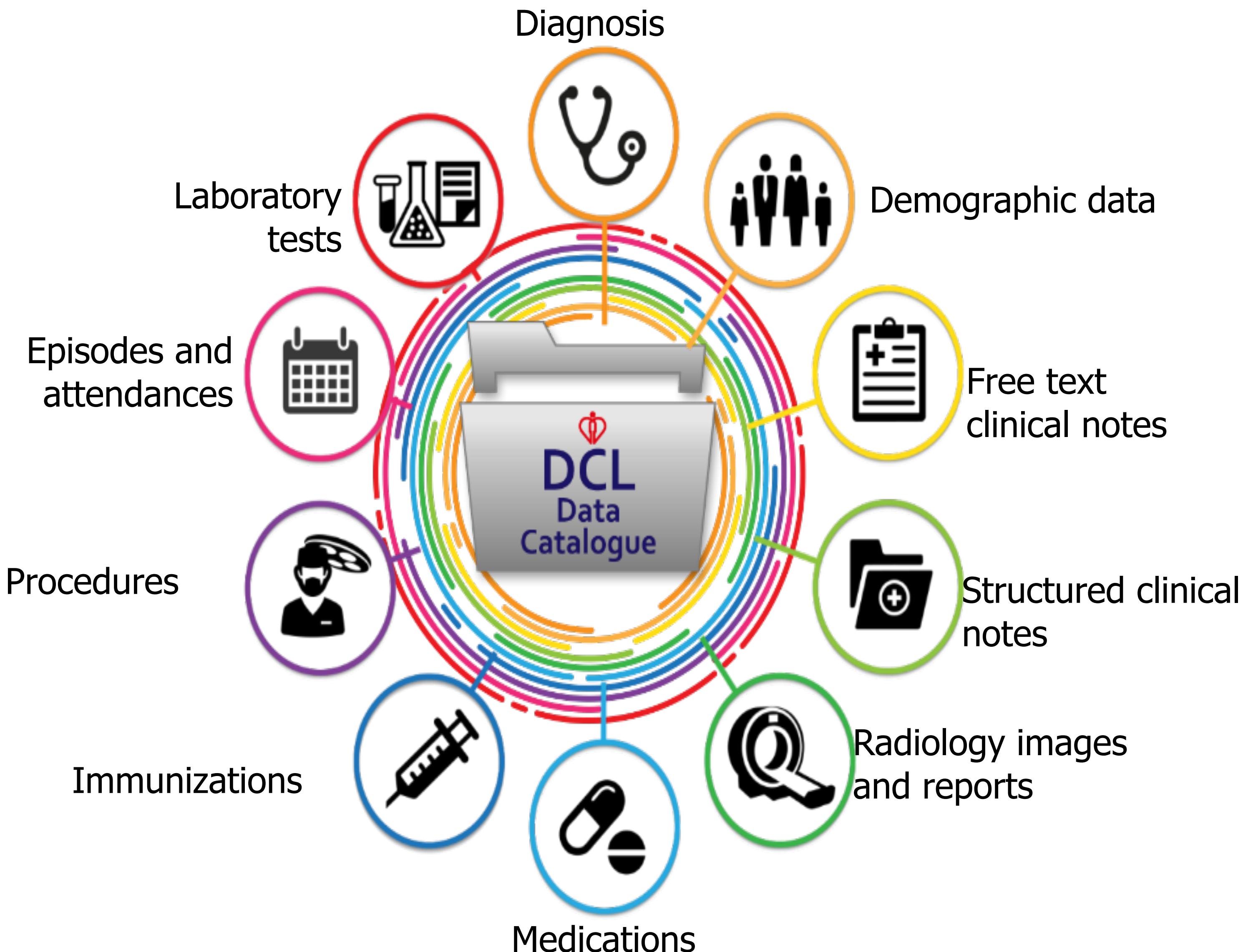
HA Data Collaboration Lab (HADCL)



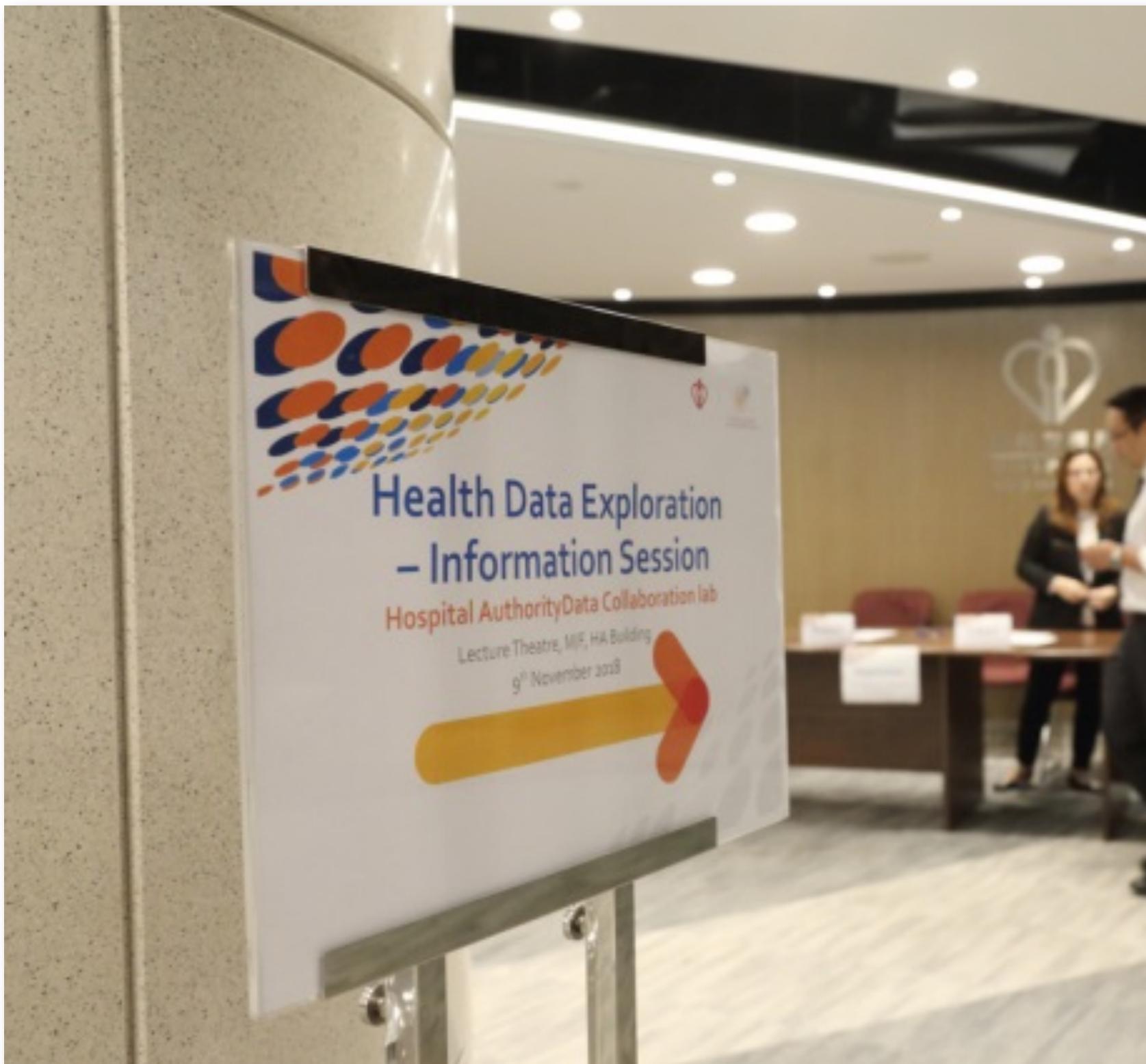
Established 2018 Q4



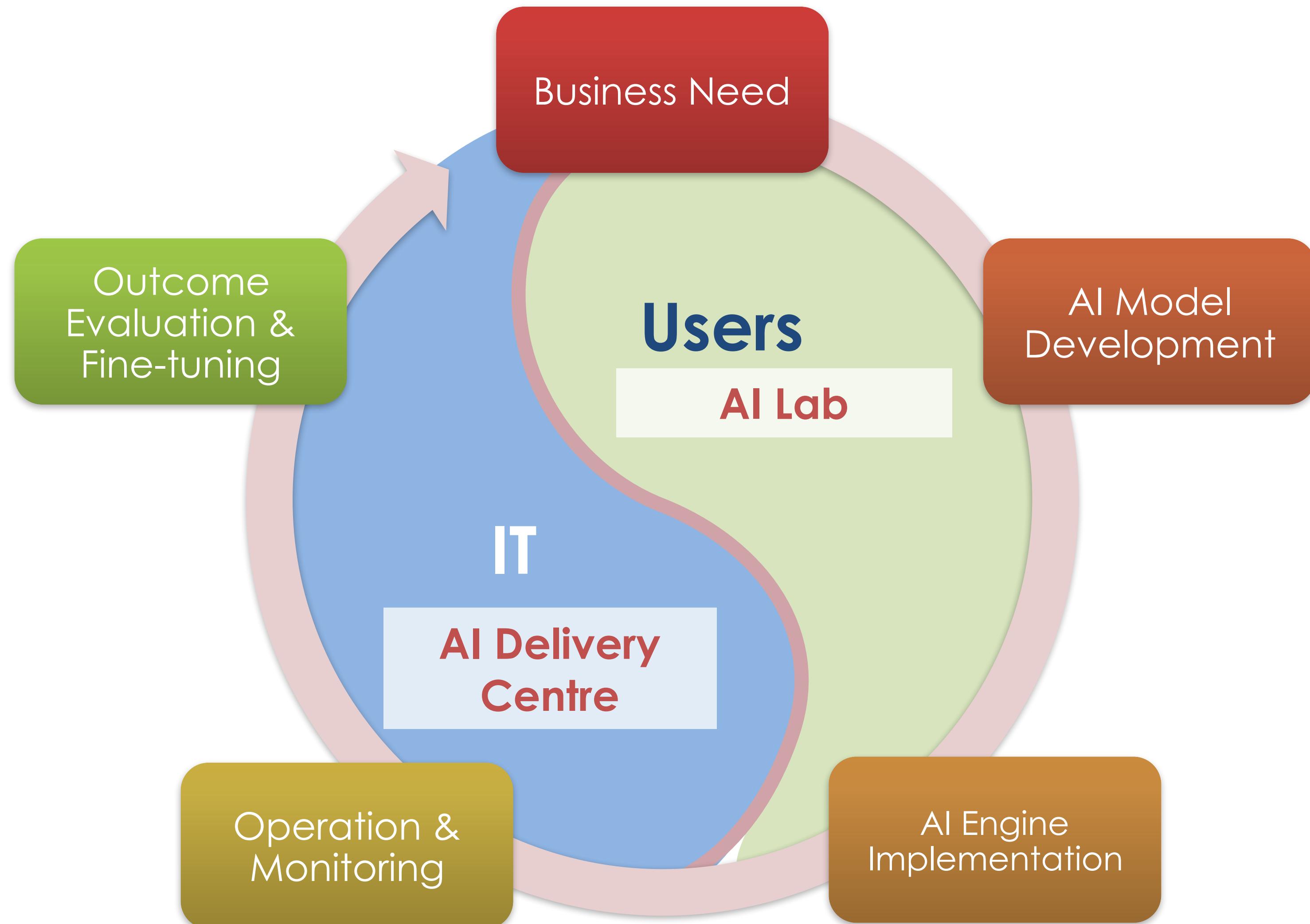
HADCL Data Catalogue



Engagement with the Ecosystem



AI Lab & AI Delivery Centre to Convert Ideas into Service Benefits



Guiding Principles for AI Adoption in HA

- AI is **decision support**, not decision making
- It must be trained and validated on **local data**
- It must integrate into **workflow**
- Needs continuous **user involvement** and monitoring
- AI opportunities exist **for all**

15 HA Public Apps...Demand for More



2018
髓健通



2018
HK Blood



2018
九龍醫院一鍵通
Kowloon Hospital Guide



2017
糖訊通
DM Care



2017
喜程
HApi Journey



2015
造口護理通
Stoma Care



2015
依時
i-Easy



2016
預約通
BookHA



2017
威院急症先 Phone
PWH AE Aid



2017
家居防跌錦囊
Fall Prevention



2015
醫管局與你
HA Touch



2014
威院一路通
PWH easyGo



2014
e藥通
TouchMed

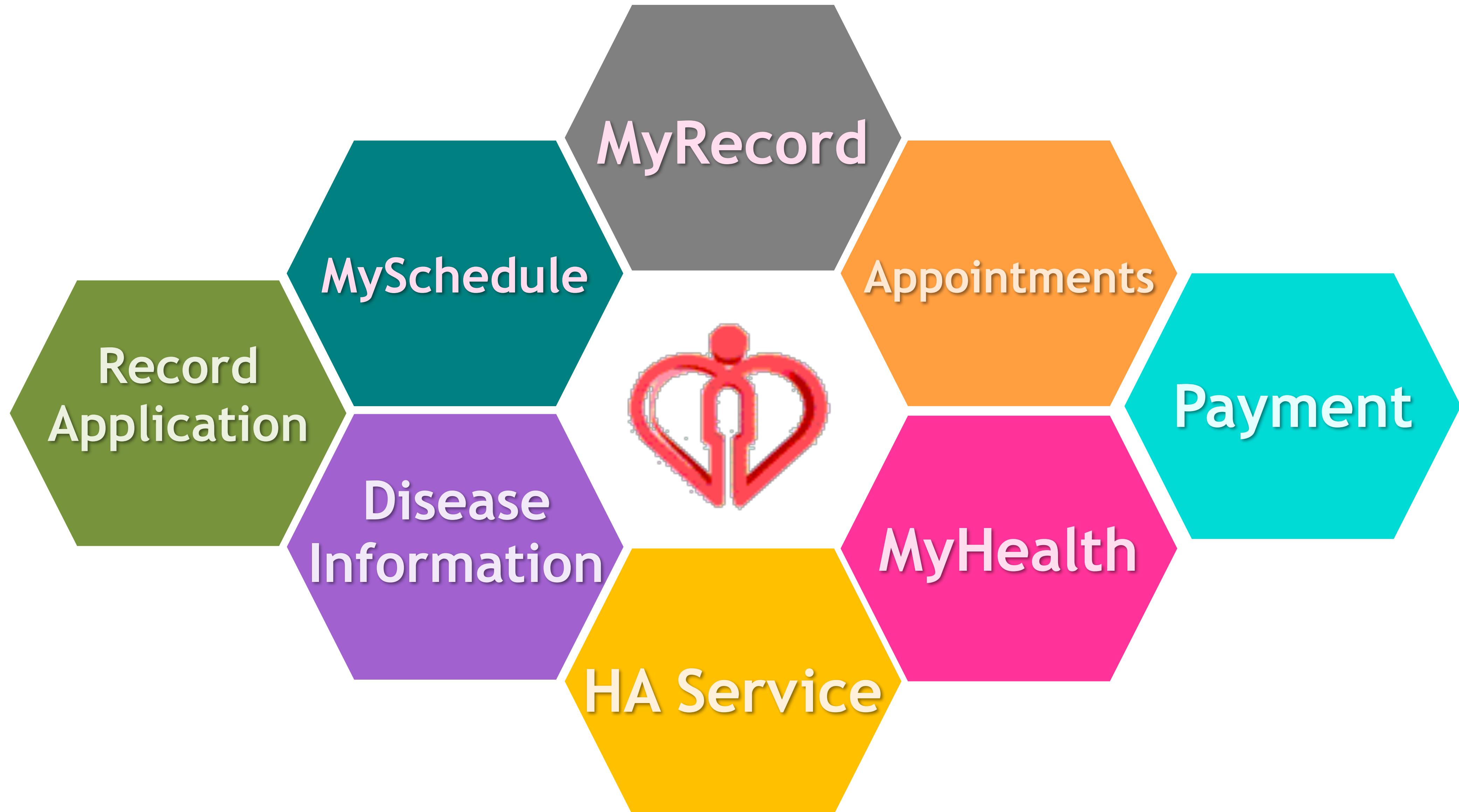


2012
病人組織一覽
Finding Patient Groups



2011
減壓情識

HA Go - Engaging Patients Digitally

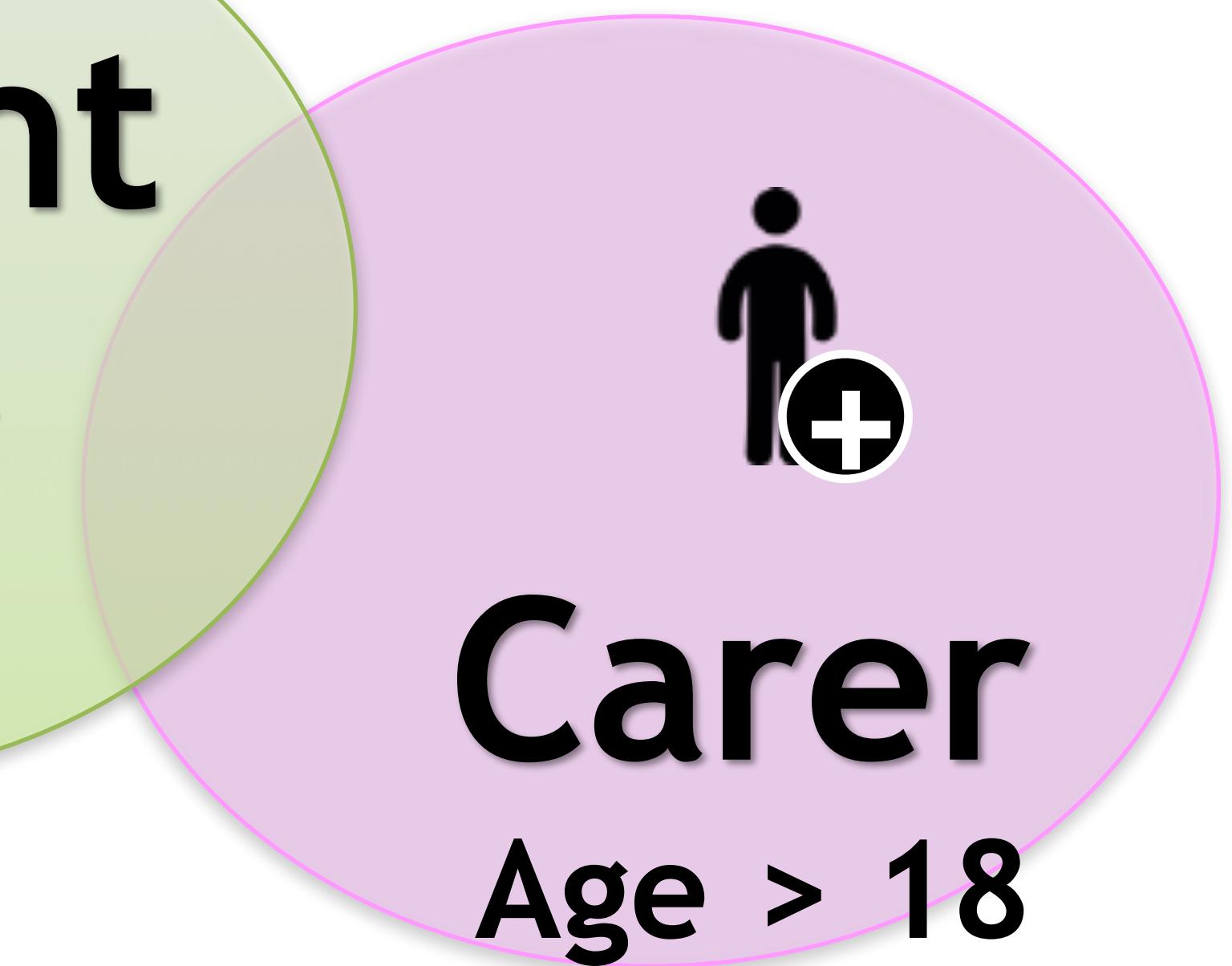


Membership System to Protect Patient Privacy

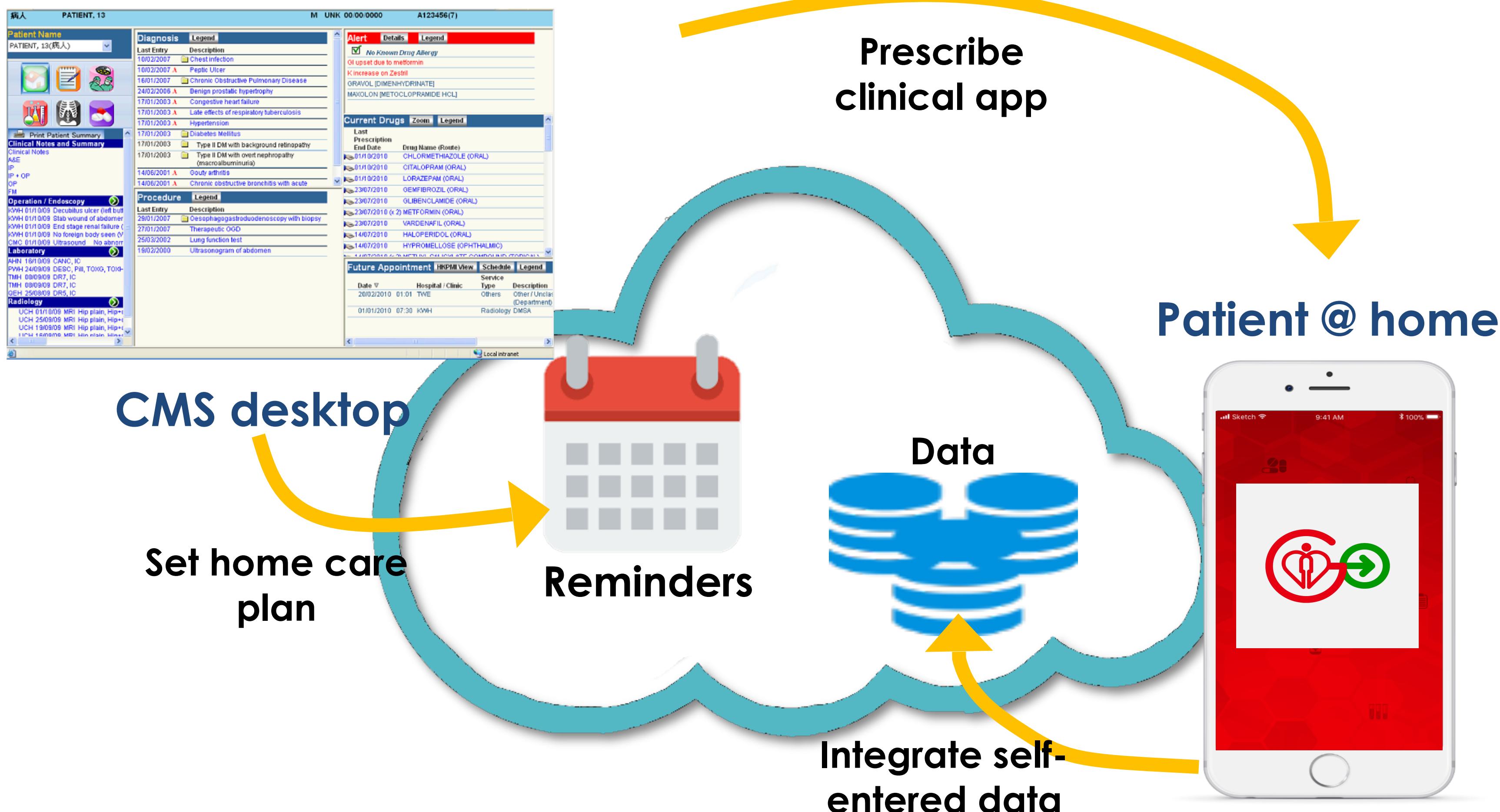
Guest
*View general
information*

**Registration &
Verification**

HA Go member
View patient records



HA Go integration with CMS



Build HK Healthcare Cloud Ecosystem

