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Governance and regulatory systems in building healthy digital environment (Bhutan)



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- e-Governance Policy of the Royal Government of Bhutan
 - Government shall go digital by default while reforming or introducing new services
 - Agencies shall reuse and share common services, ICT infrastructure, and data
- National Health Policy
 - Government shall ensure all medical services are provided online
 - ...
- National eHealth/Digital Strategy and Action Plan 2018 & 2025
- Existing Digital Health Systems
 - 38 Digital Health Systems
 - COVID-19 Pandemic: Bhutan made optimal use of digital solutions



Overview of digital governance in Bhutan



- Digital Health Steering Committee at MoH
 - Chaired by Hon'ble Health Minister
- Digital Health Technical Working Group
- Digital Health Secretariat

ePIS Module Deployment

PR (Priority) I	PR II	PR III	PR IV
- Administration - Appointment - Reception - Doctor Desk - Radiology - Laboratory - Pharmacy - Traditional Medicine - Billing - Inventory - MIS Reports	- Inpatient Department (IPD) - Emergency - Operation Theatre - Community Health - Physiotherapy - Dialysis - Forensic	- Blood Bank - Mobile App for Patient - Endoscopy,ERC P, Colonoscopy - Mortuary - Autopsy - Audiology	- Grievance - International Referral - Ambulance - Linen & Laundry - Cathlab - CSSD - Biomedical - Que management - Diet & Kitchen - Medical Record - Web Portal for Patient - TB - HR - TeleConsultation



38 modules developed

ePIS Implementation



Phase I: 10 Health Facilities (1 NRRH, 2 RRHs,NTMH, 2 Hospitals, 2 PHCs, 1 Subpost, 1 HISC)- April 2023-December 2023



Phase II: 49 Hospitals - January 2024- November 2024



Phase III: 186 Primary Health Centers and 50 Subposts (December 2024-January 2025)

Key Features

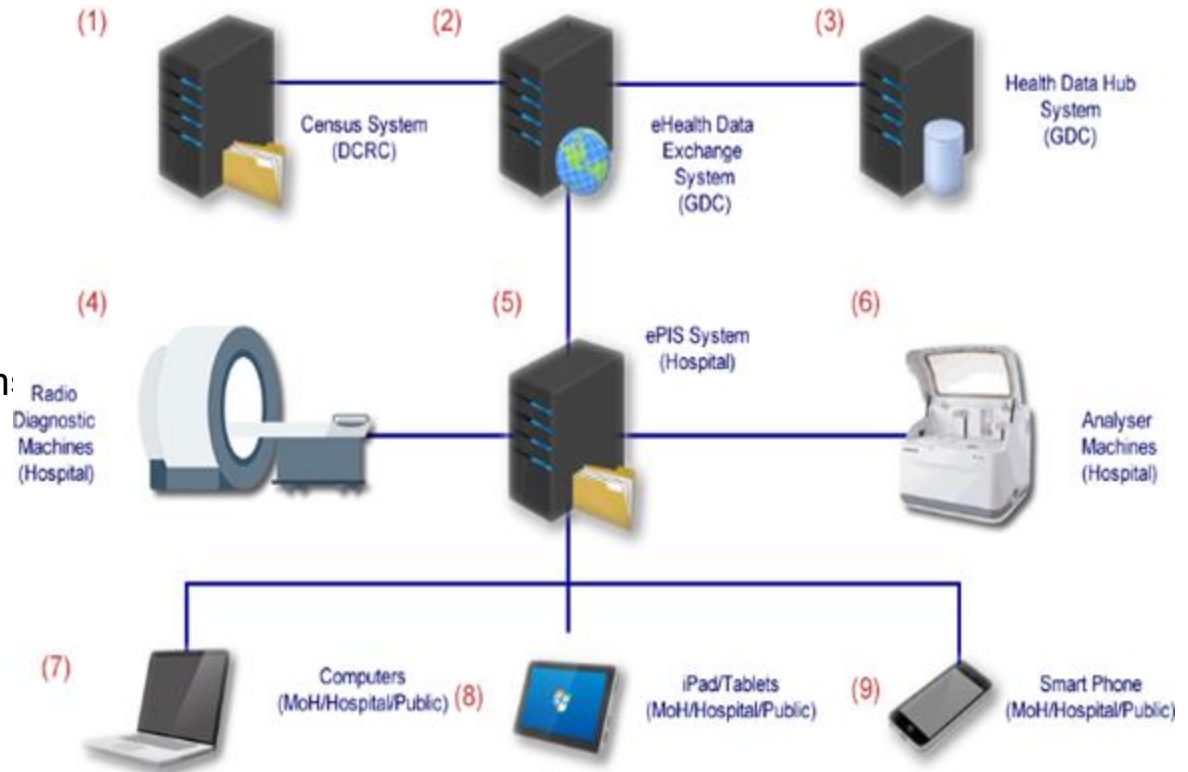
1. Integrated System

- a. Medical device
- b. Other system
 - i. MoH systems
 - ii. Other agency system

2. Mobile Apps

- a. Public
- b. Health professional

3. Medical/Health Data Hub



Use of Open standards and Tools

Global Health Standards



HL7 FHIR, ICD-11,
NANDA, DICOM

Open APIs & Integration



RESTful services
for national and
external systems

Scalable Architecture



Docker,
Kubernetes,
containerization

Achievements



Modules Developed

38 fully functional modules developed and deployed



Nationwide Rollout

ePIS operational across all hospitals and PHCs



Patient Records

Over 600,000 patients recorded



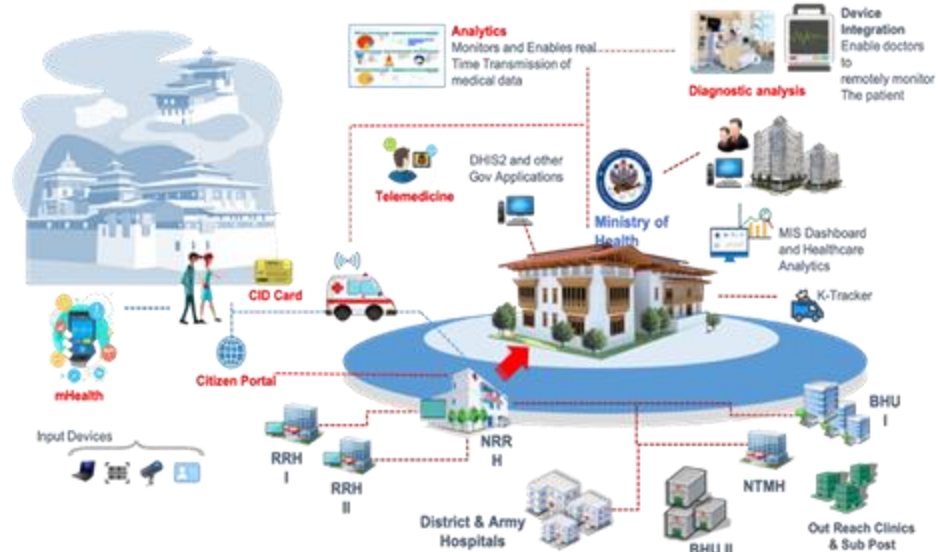
Registered Users

5,685 users actively registered



Capacity Building

4,640 health professionals trained





Key lessons



- **Importance of Standardization**

Using global health standards (HL7 FHIR, ICD-11, NANDA, DICOM) ensures interoperability, data consistency, and easier integration with other national and international health systems.

- **Stakeholder Engagement is Critical**

Early involvement of clinicians, hospital administrators, and government agencies ensures ownership, better adoption, and relevance to local workflows.

- **Phased Deployment Works Best**

Gradual rollout by hospital or module allows fine-tuning, avoids overwhelming staff, and helps manage technical issues early.



Challenges



- **Infrastructure Constraints**

Reliable internet connectivity or hardware resources in remote health facilities

- **Change Management**

Resistance from staff accustomed to paper-based systems.

- **Data Quality and Completeness**

Inconsistent or incomplete entry affects reporting, analytics, and decision-making.

- **Sustainability and Funding**

Ongoing costs for hardware, software updates, and support can challenge long-term sustainability.



Opportunities and way forward



- **Plans for Further Integration:**

1. Linking ePIS with other health systems for better data sharing.
2. Expanding telemedicine and remote care capabilities.

- **Adoption of Advanced Technologies:**

1. Using AI (Radiology, Pathology and ECG) and machine learning for analytics.
2. Adoption of other global health standards

- **Strengthening Public Health Monitoring:**

1. Real-time disease surveillance and outbreak response.
2. Data-driven policy-making for universal health coverage.



Thank you!