Healthcare for All : Role of ICT in Transforming Health

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17th National Conference on e-governance
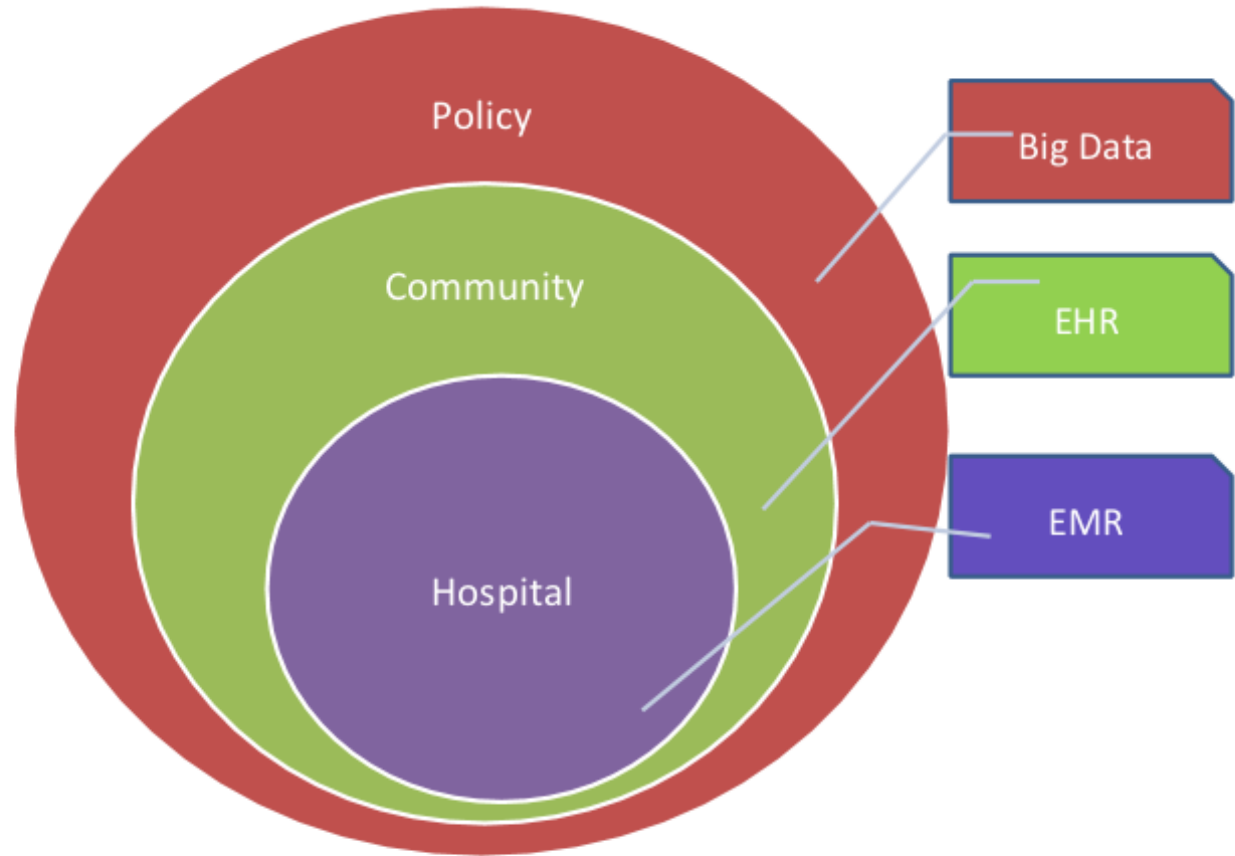
Kochi, Kerala – 30-31 January 2014

Structure of the Presentation

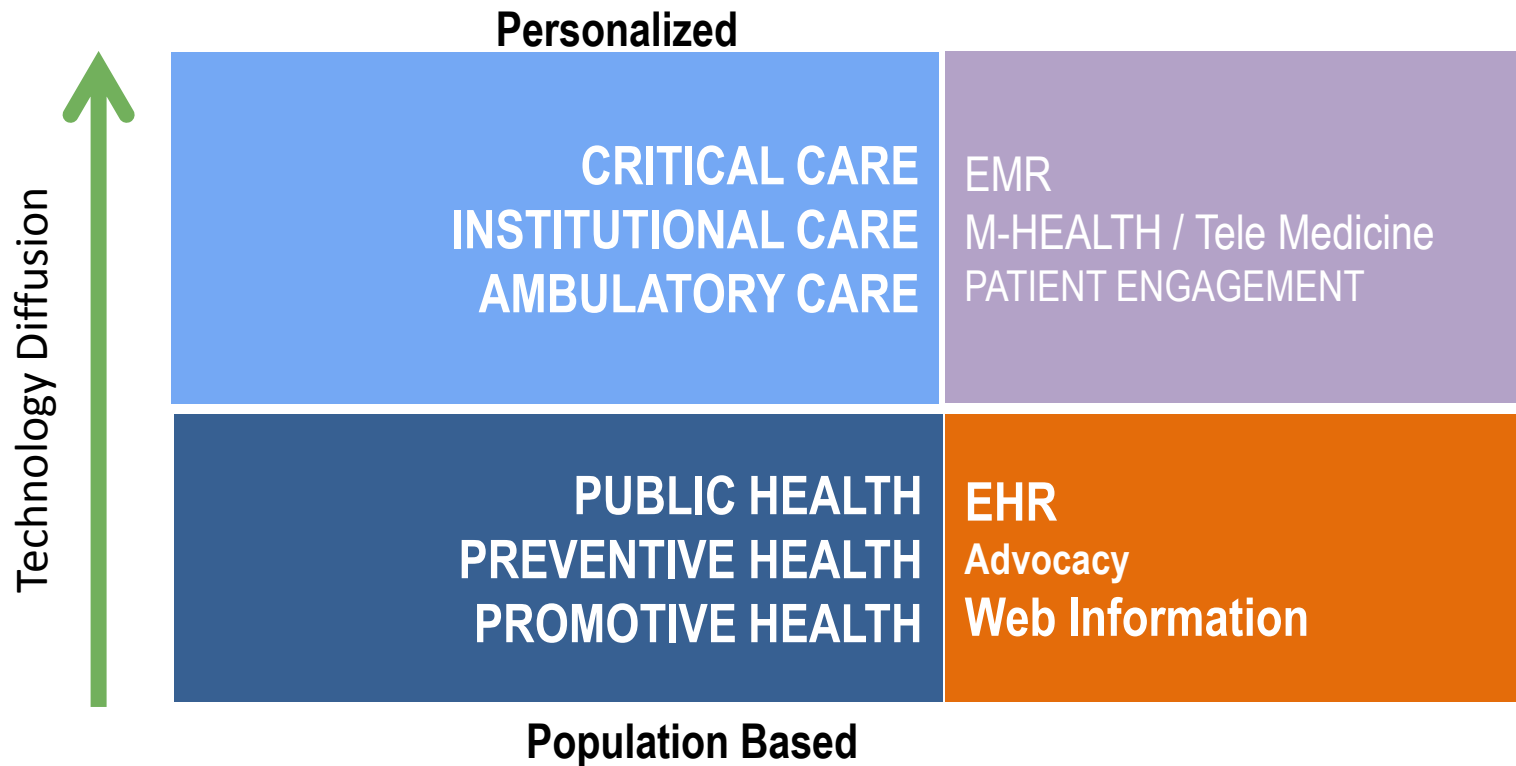Quality of Care
Cost
Equity
Asymmetry of Information

What has been the experience here & elsewhere

What is being contemplated in Kerala

Healthcare Ecosystem

Overview of Application of ICT in Health Sector

Personalized

Technology Diffusion →

CRITICAL CARE
INSTITUTIONAL CARE
AMBULATORY CARE

EMR
M-HEALTH / Tele Medicine
PATIENT ENGAGEMENT

PUBLIC HEALTH
PREVENTIVE HEALTH
PROMOTIVE HEALTH

EHR
Advocacy
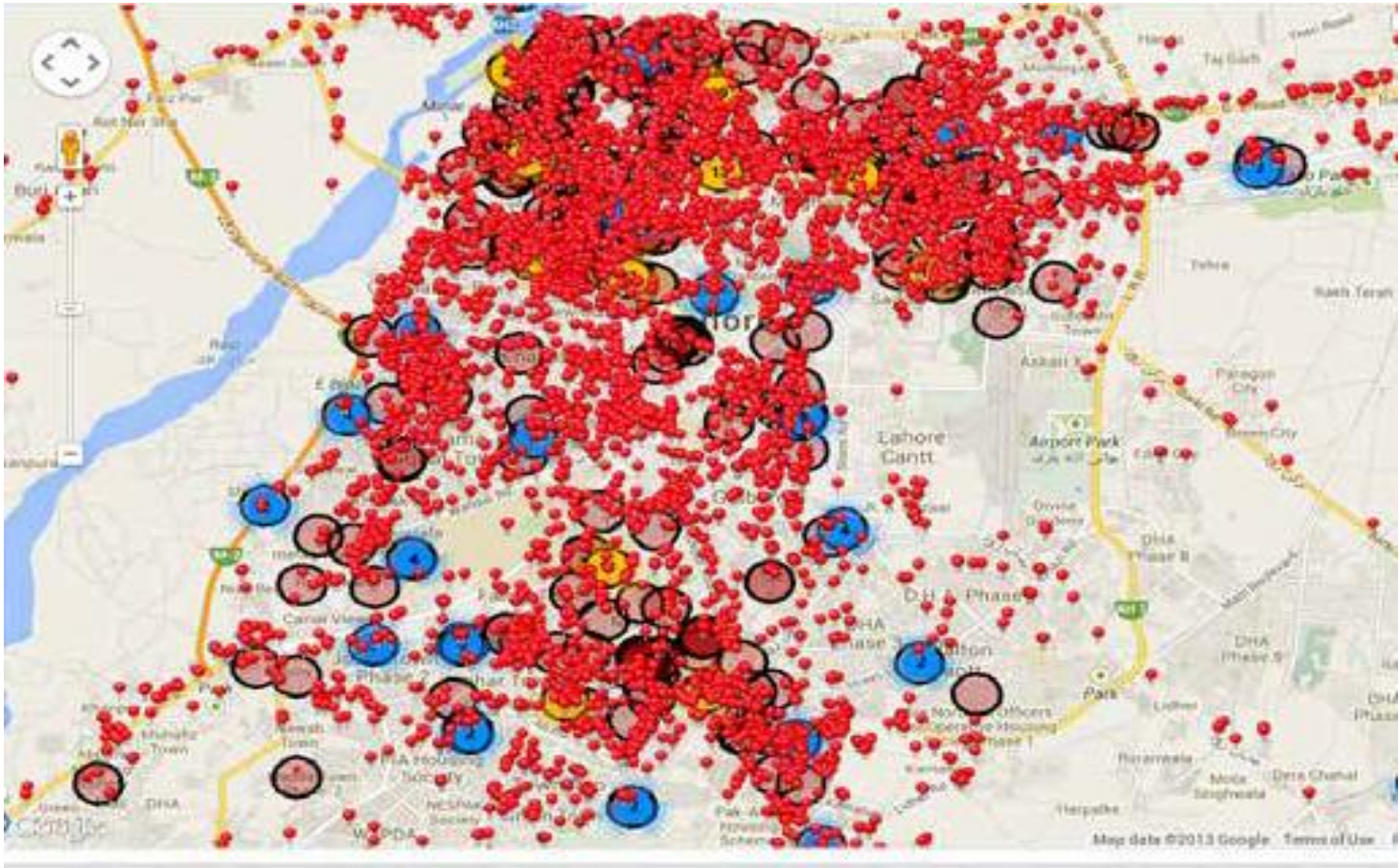**Web Information**

Population Based

ICT and Population Health (Nutrition)

This map of San Francisco city was obtained by analysis of city-wide cell phone mobility
Data and interviews with local citizens – Restaurants, stores and entertainment were differently
color coded.

ICT and Dengue Control (Population Health) in Lahore

Government of Punjab & IT University of Punjab developed a open source software based on the one developed by CDC, US to identify and control the spread of Dengue In 2012 & 2013.

ICT & Quality of CARE

mPEDIGREE

Medication Purchases & Diagnostic Trends
Using text messages customers can validate the certification and authentication of pack of medicines and to discern broader patterns such as changes in doctor prescription preferences.

DIMAGI

To check fraudulent data entry by Frontline Health Workers(FLWs) developed on a Core platform commcare, presently practiced in 50 organizations in 30 countries. The idea is to determine the value of Views of FLW on patients' needs as Physicians have little time.

Care Data

Availability & value of clinical data across all health & care services in England Patient care experience

UK – Mastodon.C

Government funded analysis of validation in prescribing pattern across UK to see whether the variations in prescriptions are physician centric or patient centric & to see whether there could be savings.
1 Billion Pounds

ICT & Cost of Healthcare

US	Fair health - 2009 a non profit company buys the data from private payers and maintains a web site that provides information on the possible Out-of-pocket expenses, choose health plans and negotiate with buyers.
	Medstar Washington Hospital Centre, has analysed patient records, demographics and treatments for reducing readmission rates and infections by using Microsoft 'amalga' software.
Ghana	Ghana resorted to data analytics to trace suspicious and fake Mediclaims. Although, it is in initial stages, the fake claims have come down drastically thereafter.
Qatar	By combining EHR with hospital readmission rates, medication prescriptions and online social data provide rich information on health risk profiles, care plans, improve communication to facilitate Behavior changes

What is being done in Kerala

M-care

A handheld device developed by C-DAC to collect demographic & family health data, using a PDA. This was practiced in 120 Sub-centers covering a population of 7.7 Lakhs

Tele-medicine (Cancer & Opthalmology)

Sanjeeveni & Sanayanam

Picture Archival Communication System (PACS)

Regional Cancer Center has implemented this making it easy to report on complex radio images by pooling the HR resource in the Institution

Q-Management System

SAT hospital has a state of facility to fix appointments with doctors of choice for patients
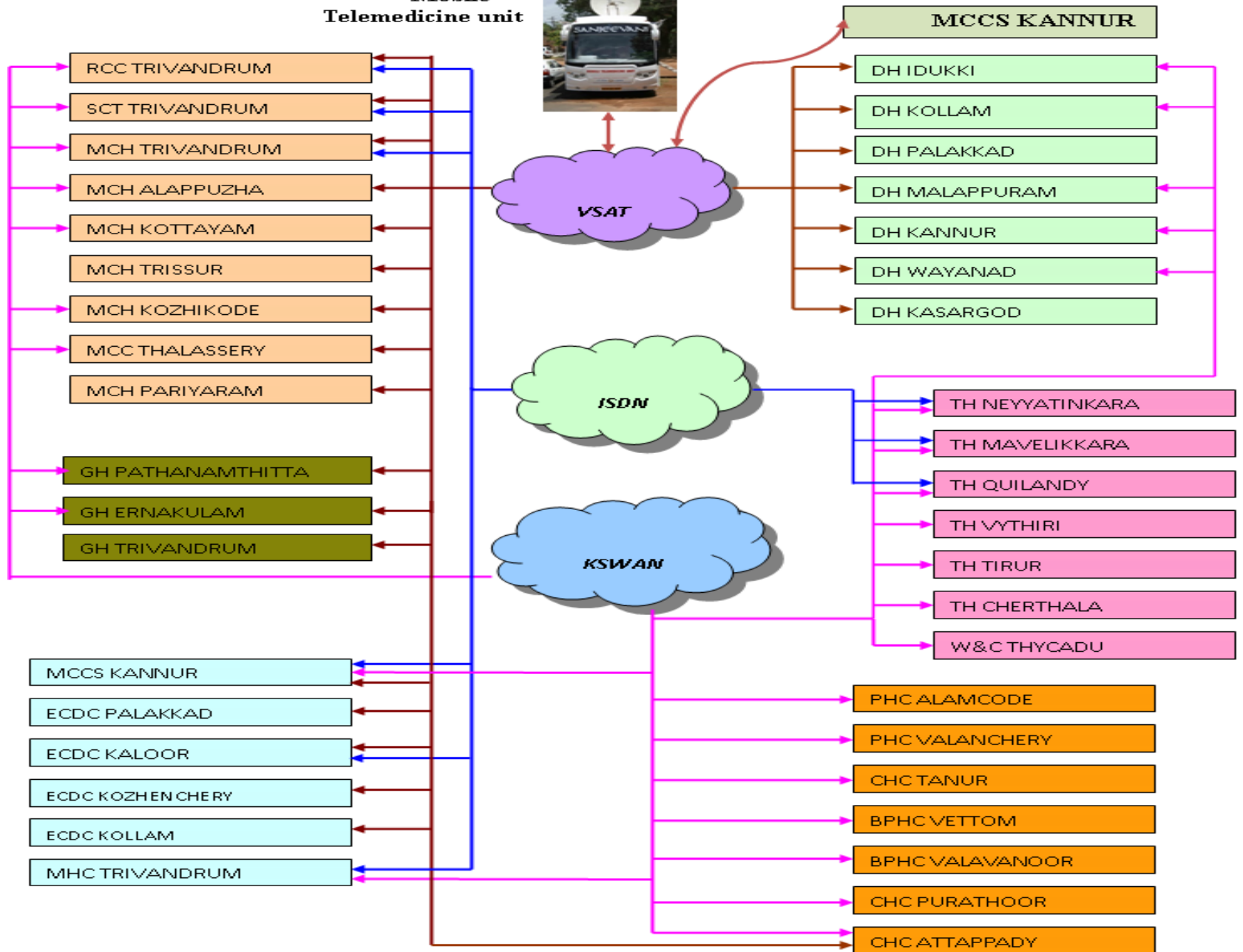
DR SMS

Provides information about the nearest hospitals and facilities available for the citizens.

Tele-consultation in Rural Telemedicine Project

Mobile Telemedicine unit

MCCS KANNUR

RCC TRIVANDRUM
SCT TRIVANDRUM
MCH TRIVANDRUM
MCH ALAPPUZHA
MCH KOTTAYAM
MCH TRISSUR
MCH KOZHIKODE
MCC THALASSERY
MCH PARIYARAM

GH PATHANAMTHITTA
GH ERNAKULAM
GH TRIVANDRUM

VSAT

ISDN

KSWAN

DH IDUKKI
DH KOLLAM
DH PALAKKAD
DH MALAPPURAM
DH KANNUR
DH WAYANAD
DH KASARGOD

TH NEYYATINKARA
TH MAVELIKKARA
TH QUILANDY
TH VYTHIRI
TH TIRUR
TH CHERTHALA
W&C THYCADU

MCCS KANNUR
ECDC PALAKKAD
ECDC KALOOR
ECDC KOZHENCHERY
ECDC KOLLAM
MHC TRIVANDRUM

PHC ALAMCODE
PHC VALANCHERY
CHC TANUR
BPHC VETTOM
BPHC VALAVANOOR
CHC PURATHOOR
CHC ATTAPPADY

Sanjeevani - Tele-Oncology

Population covered	22,87,053
Screened	51713
Full blown cancer identified	139
Early stage cancers identified	273
Cryotherapy given for early stage cervical cancers	125
Patients referred to RCC, Trivandrum	241
Cervical inflammation cases	3672
Other disease identified	4348

Sunayanam
Mobile Tele-Ophthalmology Unit
### (January 2011 to June 2013)

Camps conducted	218
Patients screened	6357
Glaucoma cases identified	422
Diabetic Retinopathy cases identified	806

E-nayana software developed by C-DAC is used to transmit image of Retina from the Field the specialist in the Regional Ophthalmic Institute, Trivandrum

SAT Hospital, Medical College Trivandrum

3500 OPD consultations a day 2900 Inpatients

➢Integrated Queue Management system
➢Ensures patient meets the same doctor during every OPD visit
➢Helps build Doctor-Patient relationship
➢Facilitates learning as it allows doctor to observe effects of treatment prescribed by himself
➢Subsequent Consultations are easy as there is no need to learn history afresh
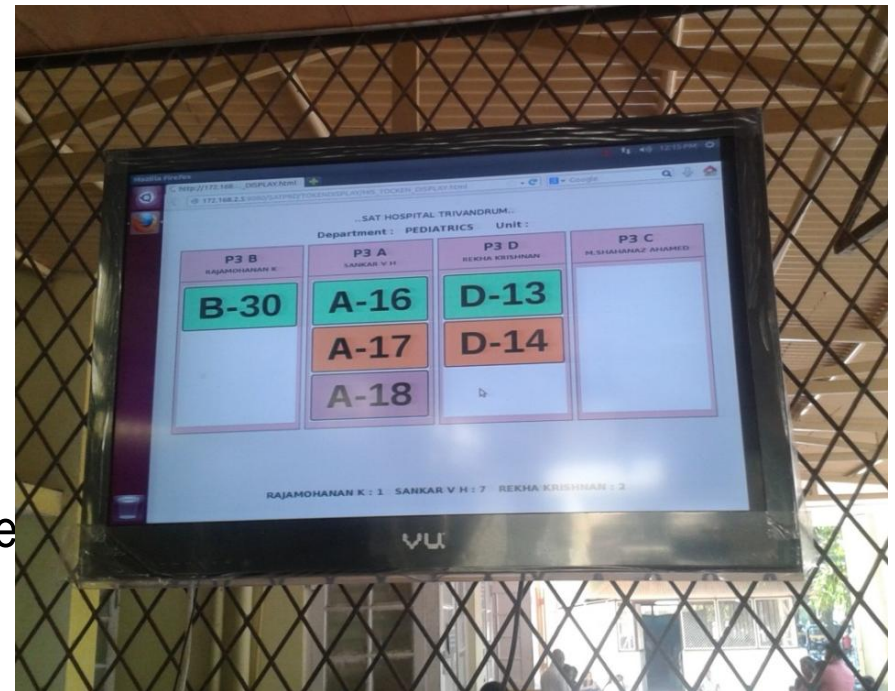
e-health, Kerala

The project is aiming to :

- Create an elaborate and accurate database of demographic and healthcare information.

- Automate the healthcare service delivery

- Create a central data base of EMR of Citizens

e-Health - Project Components

A Central Repository of Demographic, Public Health and Healthcare data pertaining to the State (Digitized Family Health Register)

A high Bandwidth reliable Network connecting all hospitals (in Public Sector) in Kerala linking to Central patient Data Repository (WAN)

Centralized Healthcare Information System including EMR and EHR

Digitized Family Health Register

- Aadhaar to be used as the Primary Key as Kerala has a very high % of Aadhaar Registration
- Other existing digital databases about citizen data such as PDS database (Ration Card), Socio Economic Census database, EPIC etc will be compiled to create a base data
- Field Survey Using Smart phones /Tablet

WAN

- High Bandwidth Primary and Secondary Connectivity at every Hospital

Centralized Healthcare Information System

- Real-time data capture
- One citizen – One EMR Policy
- Centralised Picture Archiving and Communication System (PACS) and Radiology Information System (RIS)
- Conformity with GoI EMR/EHR Standards
- Seamless information flow to GoI Frameworks (IDSP, MCTS, HMIS)
- Strict Access Control to ensure confidentiality
- Web interface for each private institution to report the data on diseases regularly.

Need of an integrated solution
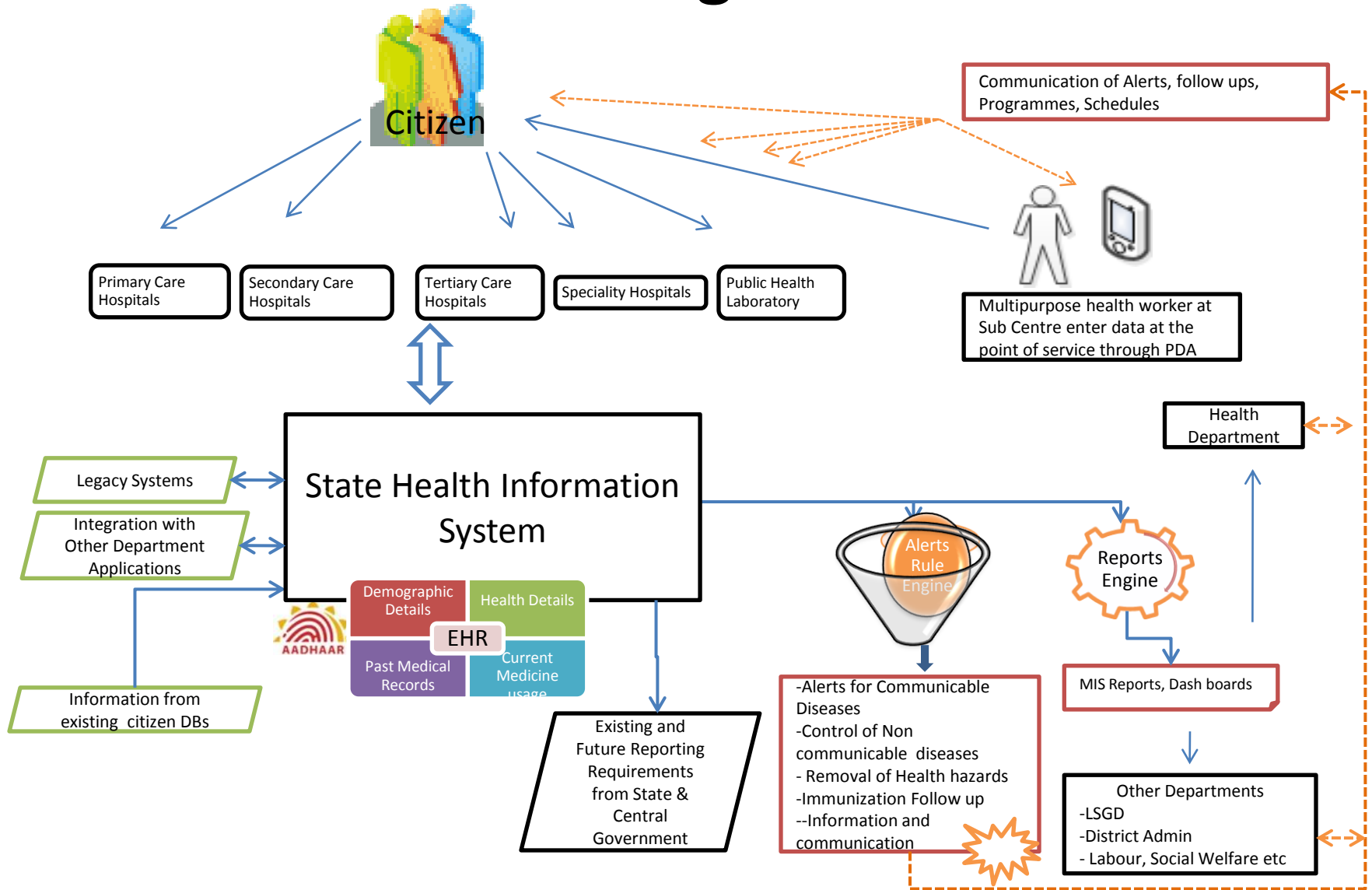
Summary

ICT could transform the Health Sector by:

Providing Information
Engaging Patients / community
Enhance the skills of the physicians
Abort / Contain epidemics of communicable diseases
Sound policy formulation

Thank you