INNOVATION IN ICT IN HEALTH

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INNOVATION IS A CULTURE NOT A STRATEGY

India has been very ingenious in finding workarounds but we have lost it along the way to modernization

Organizations not designed 'ground up' for innovation will not be creative. Innovation strategies can be extraordinarily disruptive.
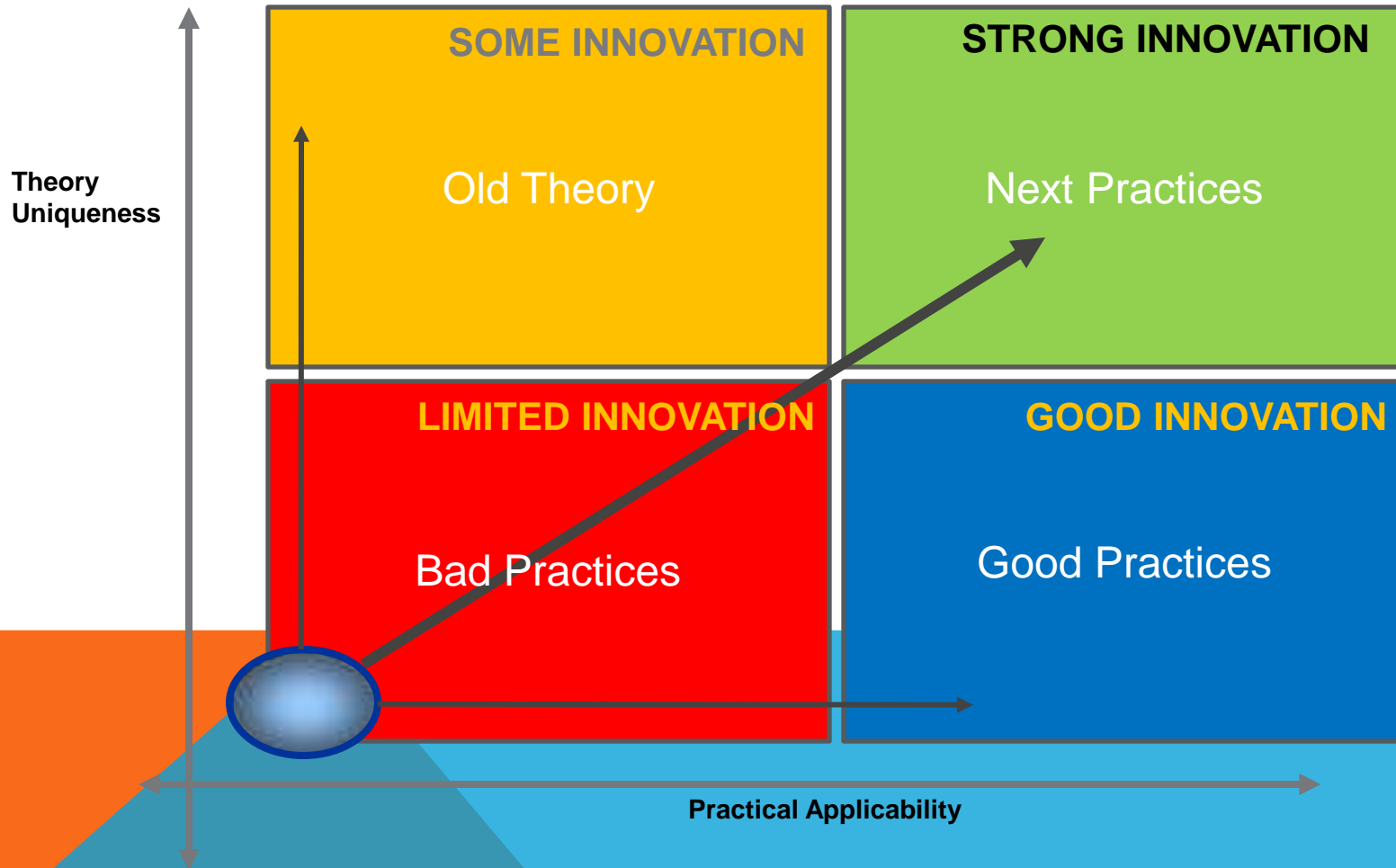
Culture of innovation has to be nurtured in the organization.

Must works with all stakeholders to select and deploy innovative improvements that measurably improve service quality and provides truly 'out of the box' thinking to the organization.
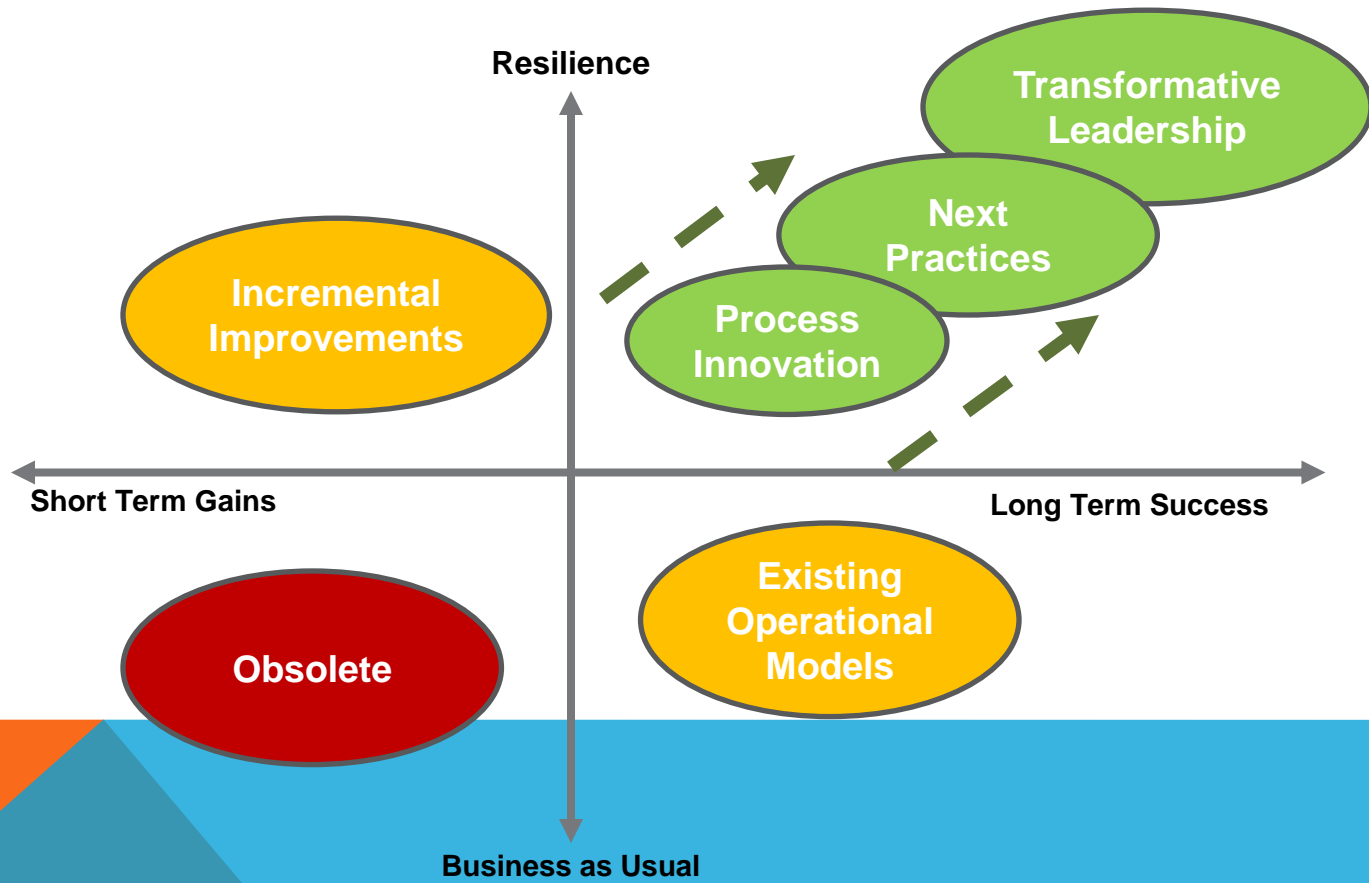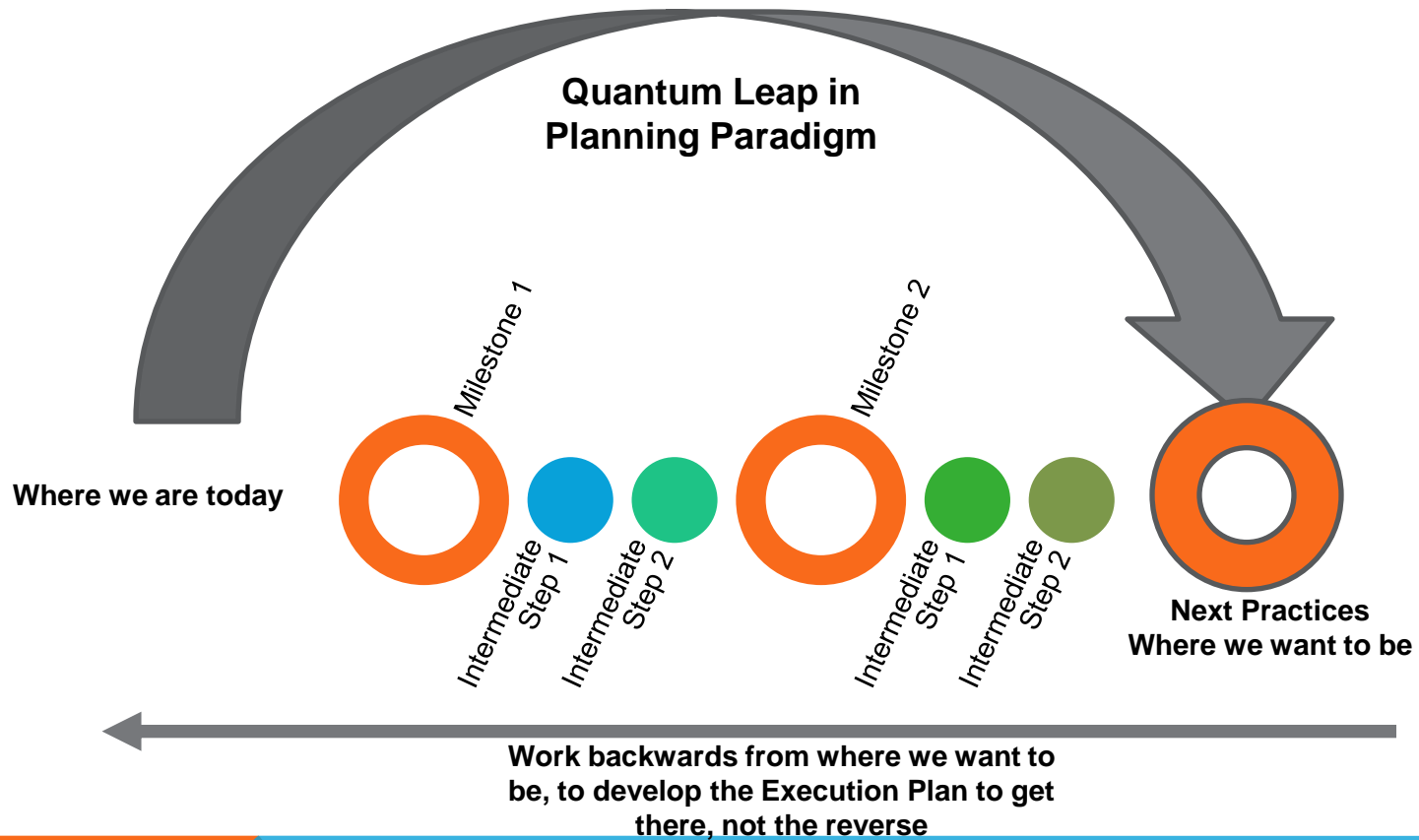
DEPLOY INNOVATIONS AND MEASURE OUTCOMES

THE INNOVATION QUADRANT

THE INNOVATION QUADRANT

NEXT PRACTICES - INNOVATION

Quantum Leap in Planning Paradigm

Milestone 1

Milestone 2

Where we are today

Intermediate Step 1

Intermediate Step 2

Intermediate Step 1

Intermediate Step 2

Next Practices Where we want to be

Work backwards from where we want to be, to develop the Execution Plan to get there, not the reverse

HEALTH DELIVERY HAS CHANGED WITH TIME AND SO HAVE ELECTRONIC SYSTEMS TO SUPPORT HEALTH DELIVERY. HOWEVER CLOSING THE LOOP REMAINS A CHALLENGE..

- CPOE
- Evidence Based
- KPI – Dashboards
- Trend Analysis

- Personalization
- Web based Portals
- Mobile Platforms

- Cradle –to-Grave Records
- Traceability
- Reduced Errors

- Integrated Imaging
- Document Management
- Reliability Improvement

- Transaction Based
- One dimensional

•CLOSING THE LOOP

•CONSUMER RELATIONSHIP MANAGEMENT

•ENTERPRISE
•INTEGRATION

•DEPARTMENT WORKFLOW
•AUTOMATION

•DATA
•CAPTURE

COMPLEXITY · EFFICIENCY · QUALITY OF CARE · BUSINESS VALUE

•Collector → •Documentor → •Helper → •Colleague → •Mentor

•Stand Alone Applications → •Point to Point Integration → •Integrated Healthcare Enterprise (IHE)

•Electronic Health Records

•Healthcare Knowledge

•Healthcare IT Infrastructure

REFERENCES TO INFORMATICS

Key Inputs to the 12th Plan Process

HMIS TN

eMamta Gujarat

IDSP

NRHM -Web Portal

HISP- DHIS

Malaria - NAMMIS

MoHFW- MCTS

NACO SMIS

AP Public Health IT

1. Approach to the 12th Five year Plan, para 9.23, page 121. 9.41, pg.125

2. Background Paper for Steering Committee on Health for the 12th Five Year Plan- pg 3, para 4.7, pg 6, para V.2.,4, pg 9, and pages 18 to 20 paras 49 to 58., pg 21 para V.

3. HLEG Report on Universal Health Coverage: pg 38 para recommendation 3.6.3. pg 263 to 265, recommendation 5

4. Working Group on National Rural Health Mission in the 12th Five Year Plan pg. 36 para 5.14, Pg 83, para 9 to 11,

5. Working Group on Communicable diseases pg. 78 para 6. Pg 134,139,pg 209,

6. Working Group on Tertiary Care Institutions for the 12th Five year Plan. Pg 57 to 64, chapter 6, ICT in health care,

7. Working Group on AIDS control in the 12th Five Year Plan, Pg 35- 36 para 4.7 Strategy 5.Strategic Information Management Systems

8. Working Group on Drugs and Food Regulation for the 12th Five Year Plan, Recommendation : Drugs A.12 & Food D.iv E-governance.

9. Working Group on AYUSH in the 12th Five Year Plan Pg 19, para 5m pg 34,

10. Working Group on Health Research in the 12th Five Year Plan Pg 21, para vii,

BRIDGING THE GAP

Overarching goal is a health information network that links all service providers in public and private sector and also generates the aggregate figures for policy and management decision

A system based on universal registration and biometrics which is dynamic health record of every citizen, portable and accessible to service providers and patients

Generates the alerts for disease surveillance

LOOKING BACK-
15 YEARS OF ICT IN HEALTH: .

Past efforts have not yielded desired results : Need to identify causes in terms of people, process and technology,

People

- No culture of use of information for planning – information becomes an end in itself:
- Planning at district level not established
- Data analysis not geared to meeting needs of the Decentralised user – what's in it for them?

Process

- Process Errors in information flow get accentuated in the IT system
- Duplication of systems raises confusion and fatigue
- Problems of integration between multiple systems: both extent & direction
- Technology introduction not matched to level of institutional capacity

Technology

- Information overload and lack of actionable information in system design
- Procurement insensitive to software lifecycle and technology obsolescence
- Lack of standards – technology architecture, data standards, interoperability standards

BEHAVIOR CHANGE OCCURS IN SMALL STEPS AND REQUIRES CONSTANT REINFORCEMENT
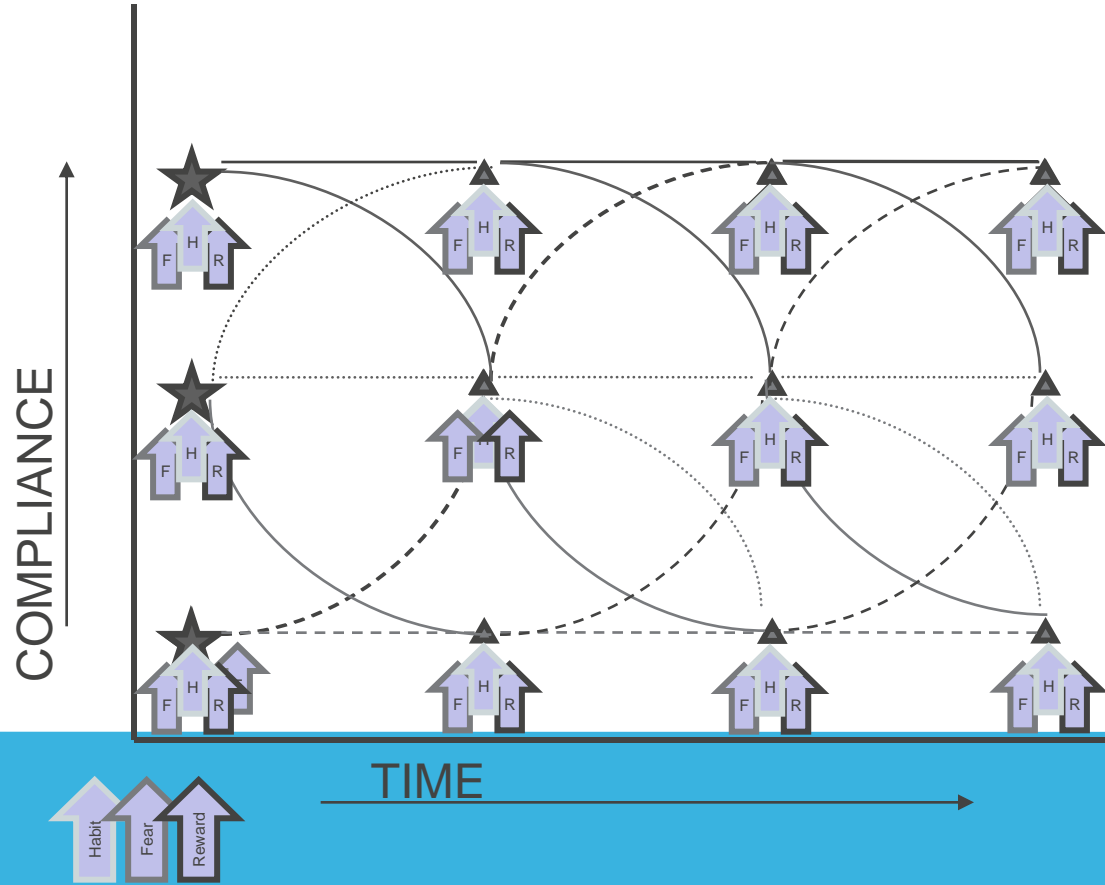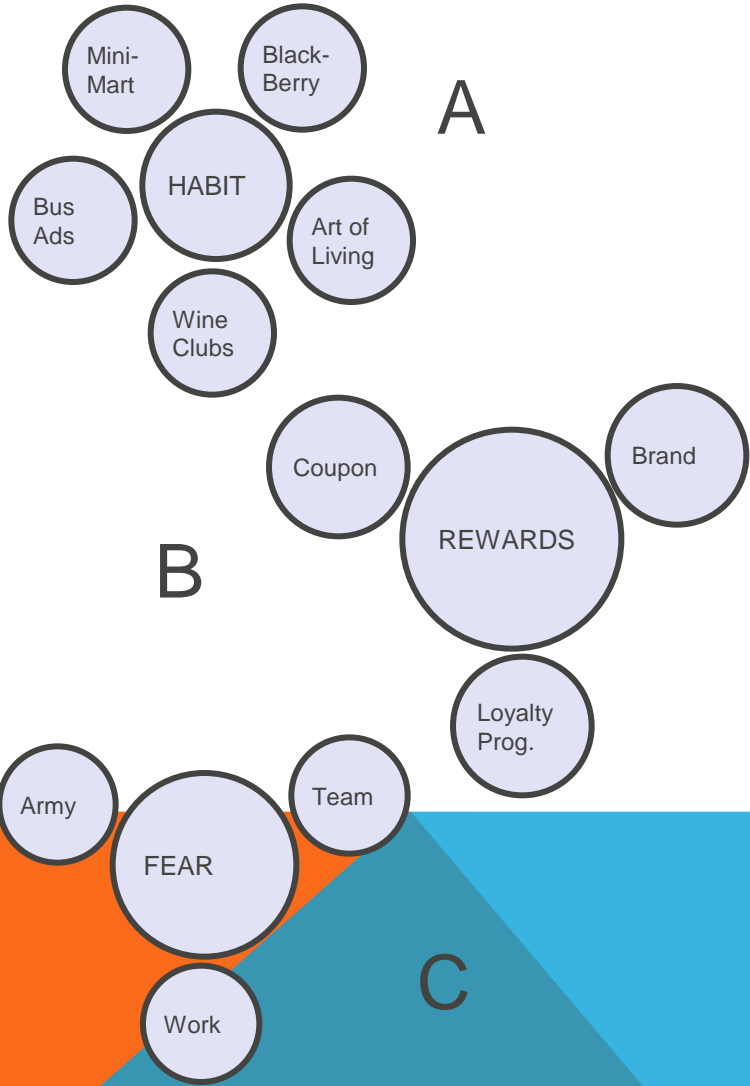
HEALTHCARE CHANGE MANAGEMENT

CAUSE METHODOLOGY

Use a well recognised change management methodology such as CAUSE methodology for managing change in people, process and technology.

- **C**onsciousness of need to change

- **A**spiration to support change

- **U**nderstanding how to change

- **S**trength to over come hurdles and implement change

- **E**cosystem to support, sustain and adopt change

SMOOTH TRANSITION FROM CURRENT TO OPTIMAL STATE

LEARN FROM OTHERS

"NHS UK has failed in building a fully integrated centralised electronic care records system.

NHS has spent 6.4B out of 11.4B pounds in 9 years, but failed to meet its initial deadline and abandoned its original architecture"

CHI Canada has learnt from mistakes done in UK and is successfully developing a fully integrated de-centralised electronic care records system

Canada has published a standards based Healthcare-IT Architecture [blue print] and the financing to the states is subject to compliance with the blue print

NEHTA Australia and MoH Singapore are learning from UK and Canada to improve the public health informatics model further

India can learn from these successes and failures.

Source: https://www.infoway-inforoute.ca/lang-en/
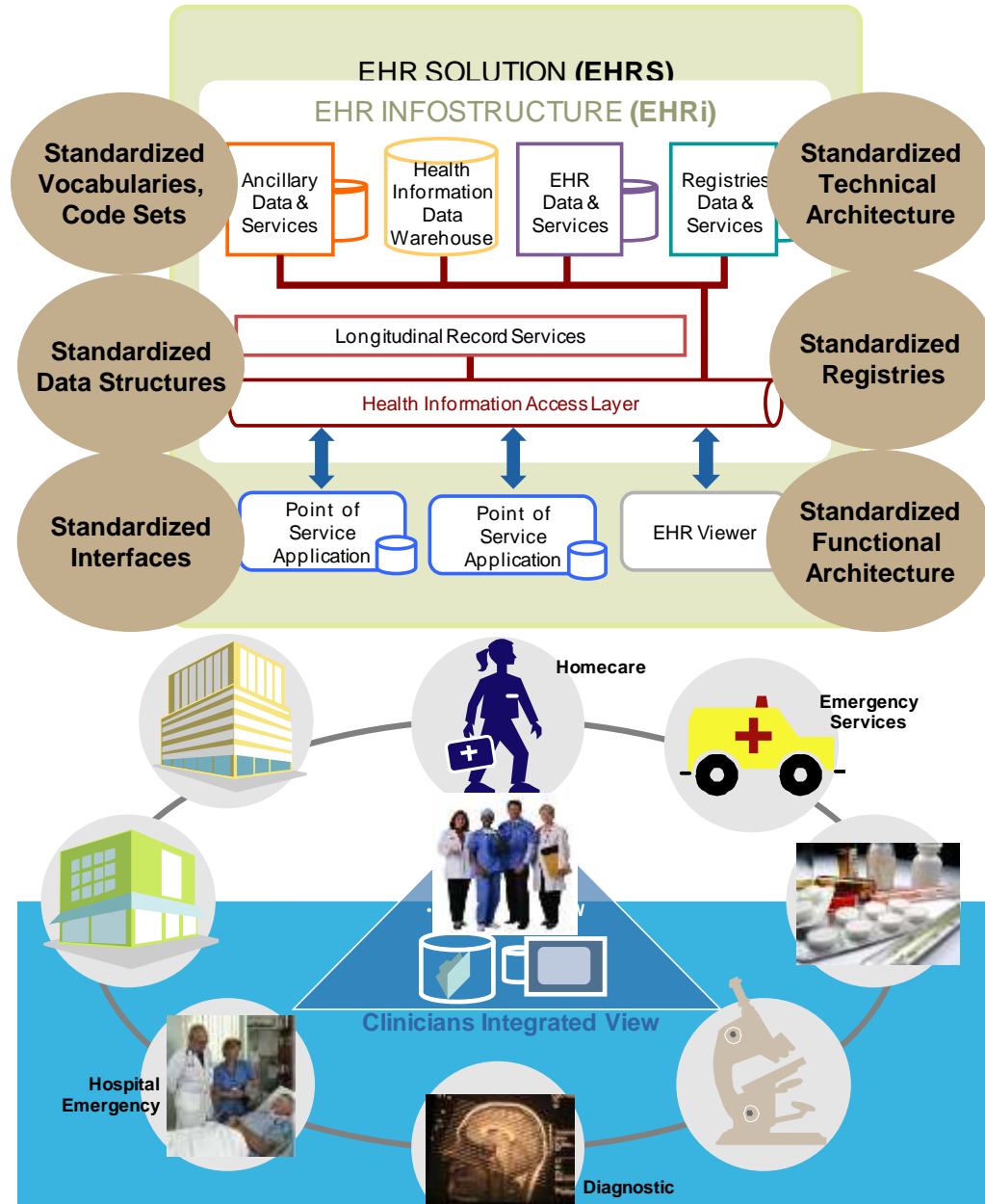
LEAPING FORWARD FOR INDIA

1. Build the eHealth Authority
2. Setting Standards
3. Get the architecture right
4. Integration across systems
5. ICT for quality of care
6. Capacity Building
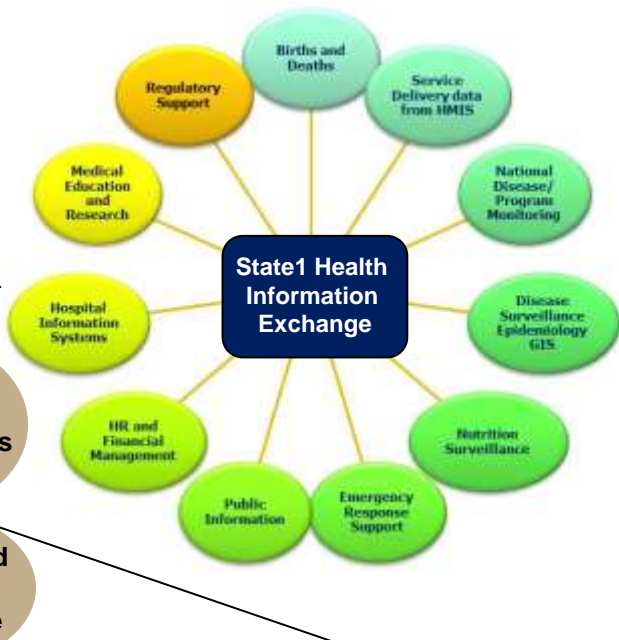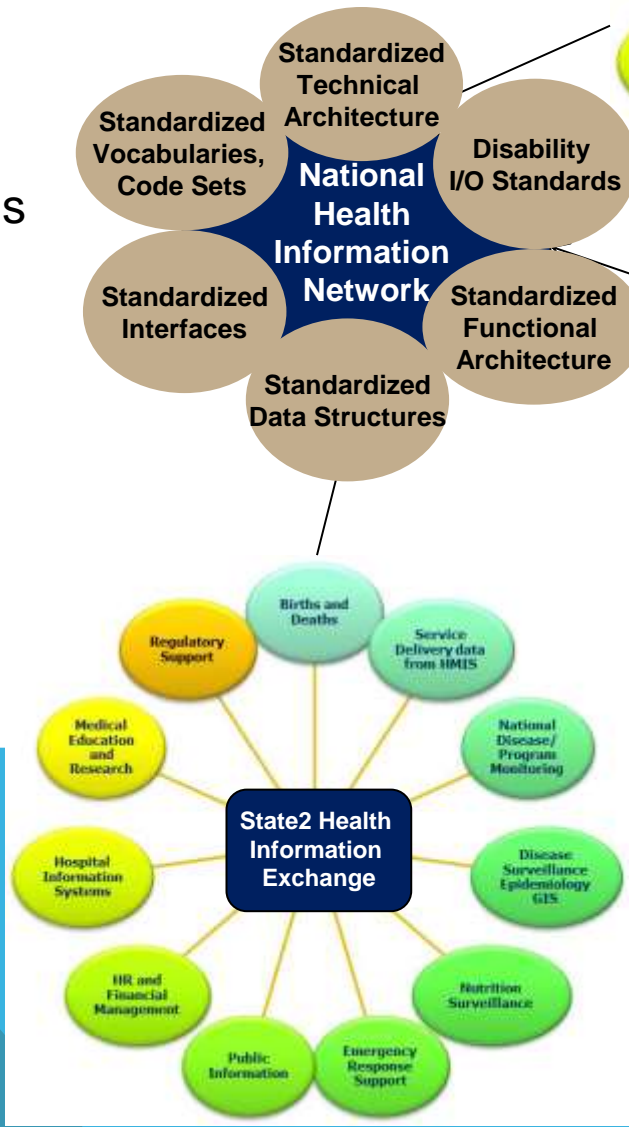
FLEXIBLE DATA INPUT

The Public Health IT system should be designed to be flexible so that it allows inputs in consolidated [District-wise or facility-wise] as well as granular [patient-based] models. Based on readiness, allow the States to decide mode of data entry – consolidated, facility-wise or patient-based; as long as the published architecture and standards for vocabulary, data, input/output, storage, integration, hardware and network are followed. Patient-based tracking should not become a pre-requisite for any public health IT system. In the absence of patient-based EMR, the public health IT system should be able to work on consolidated numbers alone.

a. Basic – The SC/PHC/CHC/DH should do the data entry on paper and the District enters the consolidated numbers into the public health IT system. In this case the patient registry will not have any data from such States/Districts.

b. Regular - The patient-based tracking should be done by the EMR at the point-of-care and consolidated numbers should be fed by the EMR into the public health IT system through a standards based integration. As per the current efficiency and training levels in the country, the regular patient-based data entry directly into the IT system is possible if the hospital/clinic is seeing less than 10 patients per hour on an average. The patient registry will have entries for the diseases being tracked and will also cater to population migrations where the portability of patient based health record is important. This registry based model is suitable for Cancer and some chronic diseases, whereas acute illness like common cold will not reach the registries unless we are tracking epidemic flues.

c. Advanced - The patient-based tracking should be done by the EMR at the point-of-care and consolidated numbers should be fed by the EMR into the public health IT system through a standards based integration. The patient and disease registries will be populated with top 20 diseases for public health resource planning, surveillance, and early warning. To implement this advanced data entry model across the board will require a lot of maturity in terms of people and process. Whereas in reality this will not be sequential, some States/Districts will move ahead and adopt the advanced data entry and others will be still doing regular or basic level data entry.

FLEXIBLE DATA OUTPUT

The blue-print should specify data analytics framework so that it can become flexible and capable of catering to local, District, State and National analysis and reporting requirements. This includes:

a. National Data Warehouse **–** Blue-print should define a National level data warehouse in the NHIN to analyse the consolidated data and produce indicator based reports from source systems.

b. Local Data Analytics **-** Blue-print should define a local data mart in every State HIE. The blue-print should provide online analytical processing [OLAP] for the users at all levels to generate their own reports needed to take local action. The users should be able to save the report format and define the frequency at which the reports should be populated with data and sent to them. This will significantly enhance acceptability, usability and adoption.

QUOTE FROM MOTHER OF NURSING

"The effect on sickness of beautiful objects, on variety of objects and especially brilliancy of colours, is hardly to be appreciated. Such cravings are usually called the "fancies" of patients but these "fancies" are the most valuable indication of that which is necessary for their recovery. People say that the effect is only on the mind. It is no such thing. The effect is on the body too. Little as we know about the way in which we are affected by form and colour and light, we do know this: that they have an actual and physical effect. Variety of form and brilliance of colour in the objects presented to patients are an actual means of recovery"

- Florence Nightingale

EXPECTATIONS OF A HMIS

Improve Information flows and analysis to aid better public health management to achieve the 8 goals:

Reduced IMR, MMR, TFR, child malnutrition , anemia in women and girls, improved sex ratio, reduce burden of communicable and NCDs, Reduced OOPs. Also

Disease surveillance needs.

Regulation needs

Knowledge generation-

Transparency

Improve quality of care of the individual patient by providing referral linkages, portable, retrievable records

Enable rights based perspective by increasing public access to Health information and increasing individual access to patient health records.

Use evaluation to show the link between any ICT deployment and the purpose it is expected to serve.