Conceptual Framework to Improve EMR Adoption in India

Dissertation Submitted to

The IIHMR University, Jaipur

for the partial fulfilment for the award of the degree of

Master of Business Administration (MBA)

In

Hospital and Health Management

by

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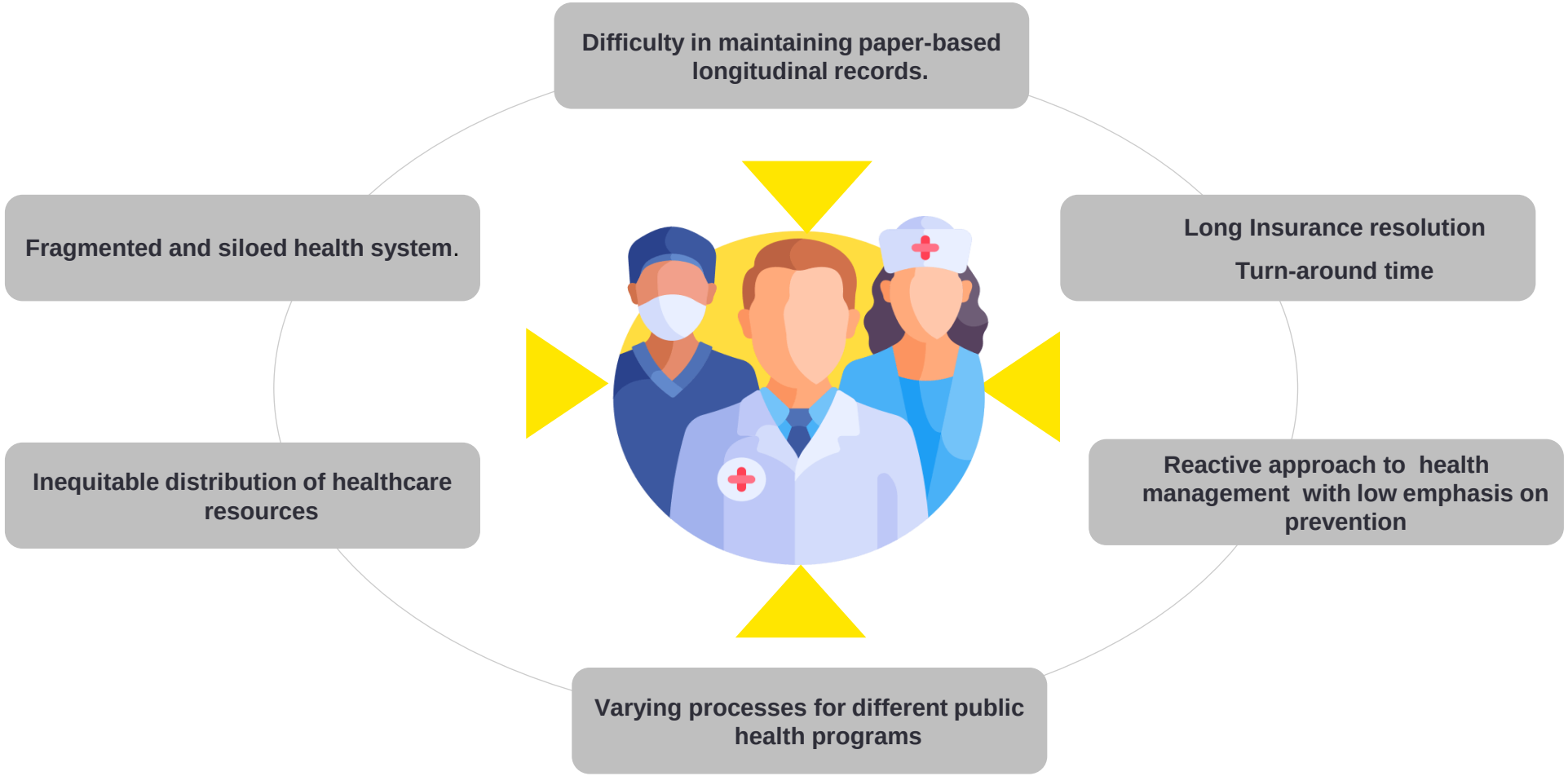
INTRODUCTION

Why Do We Need the Digitalisation of Healthcare in India?

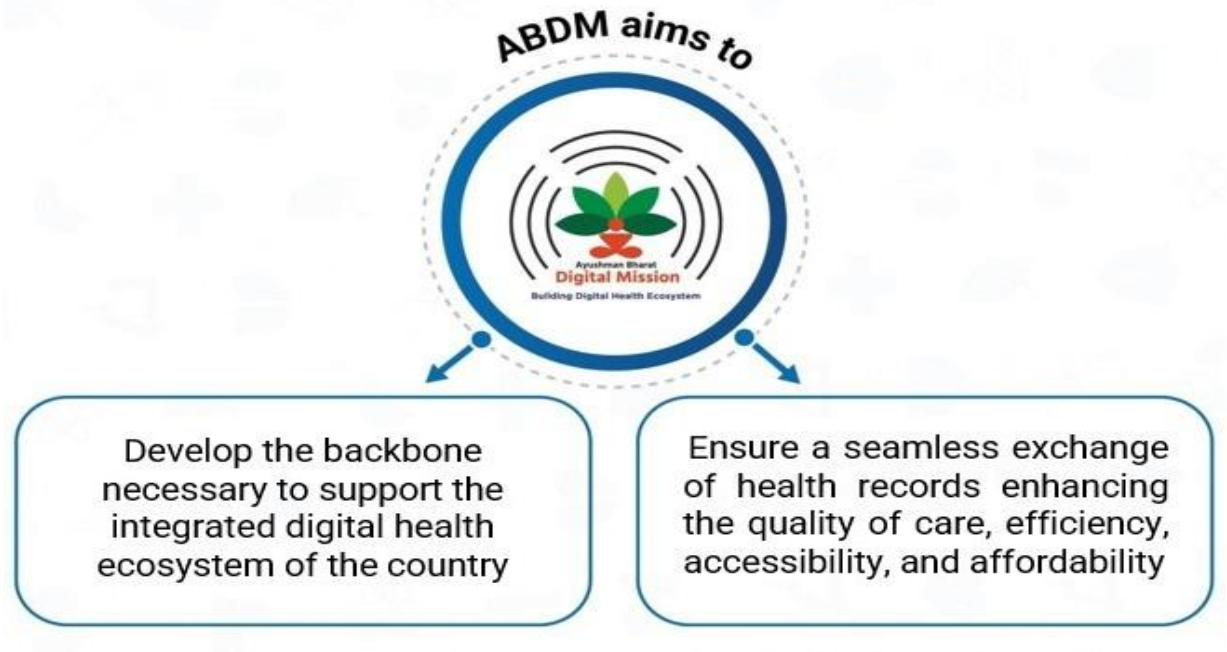
Problems Plaguing Our Healthcare Ecosystem

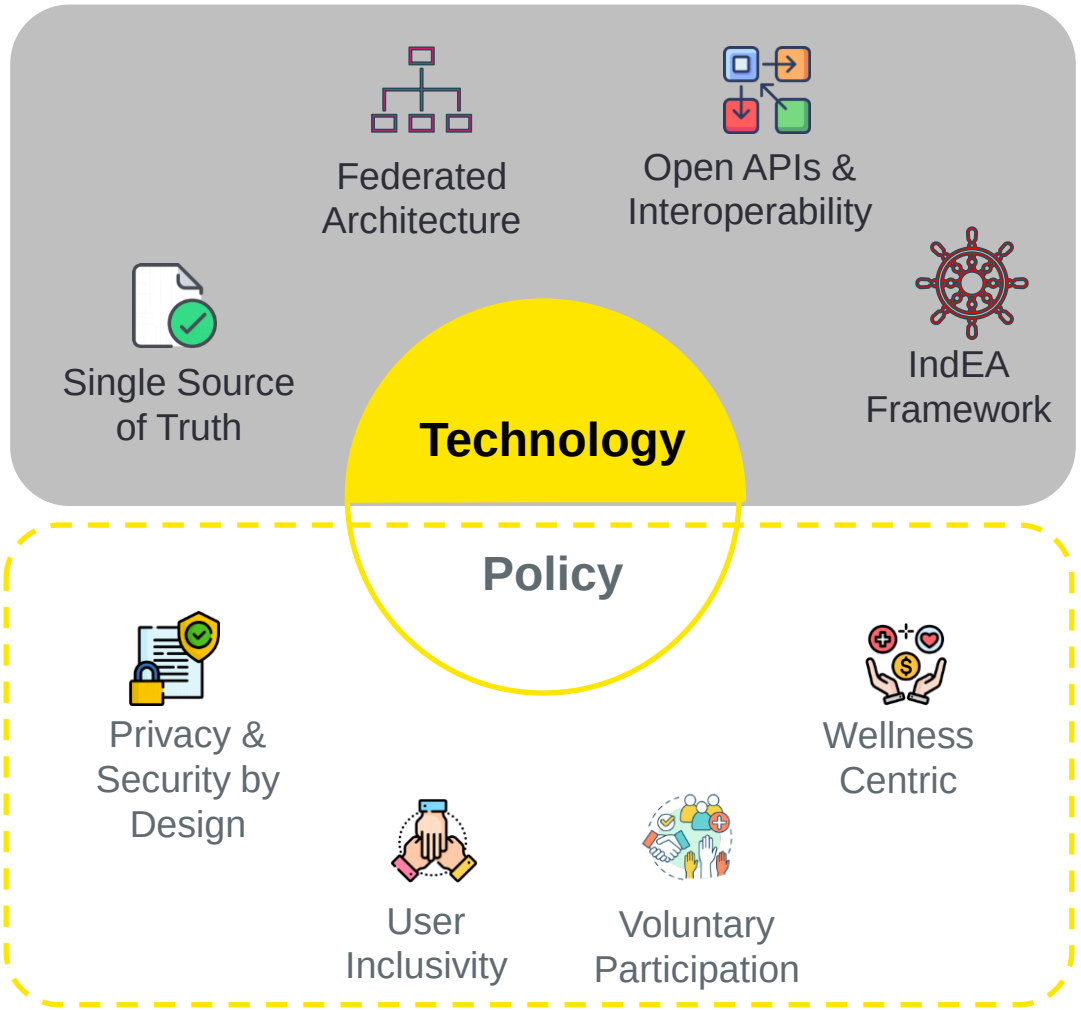


ABDM: Vision and Guiding Principles

Vision

To create an **interconnected** health ecosystem enabled by digital technology with the ultimate objective to improve **patient health outcomes**





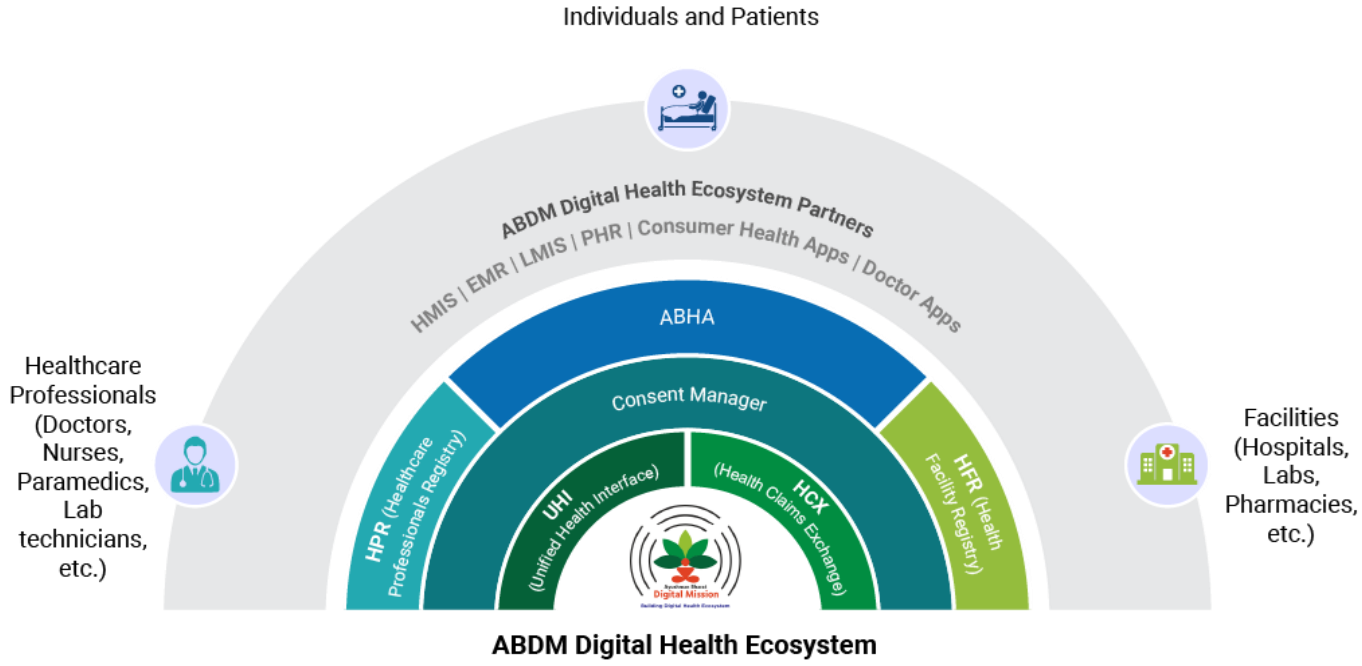
Visit: *https://abdm.gov.in/* for more information

Ayushman Bharat Digital Mission (ABDM): Overview

National Health Authority (NHA)'s ABDM program promotes digitization and transformation of Healthcare industry just like Aadhar & UPI have transformed the Financial Services industry!

How ABDM work?

- Each **citizen has an Ayushman Bharat Health Account (ABHA)**
- **Hospitals need to register with NHA and get a Healthcare Facility Registry (HFR) ID**
- ABDM enables **exchange of patient records** (e.g., labs, discharge summary) between ABHA and HFR, **based on patient consent**
- Consumers & Patients can access their health records using an **ABDM-certified Personal Health Record (PHR) app**
- **NOTE: Actual patient data is NOT store in ABDM or by NHA** - ABDM only facilitates data exchange between parties



Hospitals need to use an ABDM-certified EMR to be able to participate in the ABDM Ecosystem

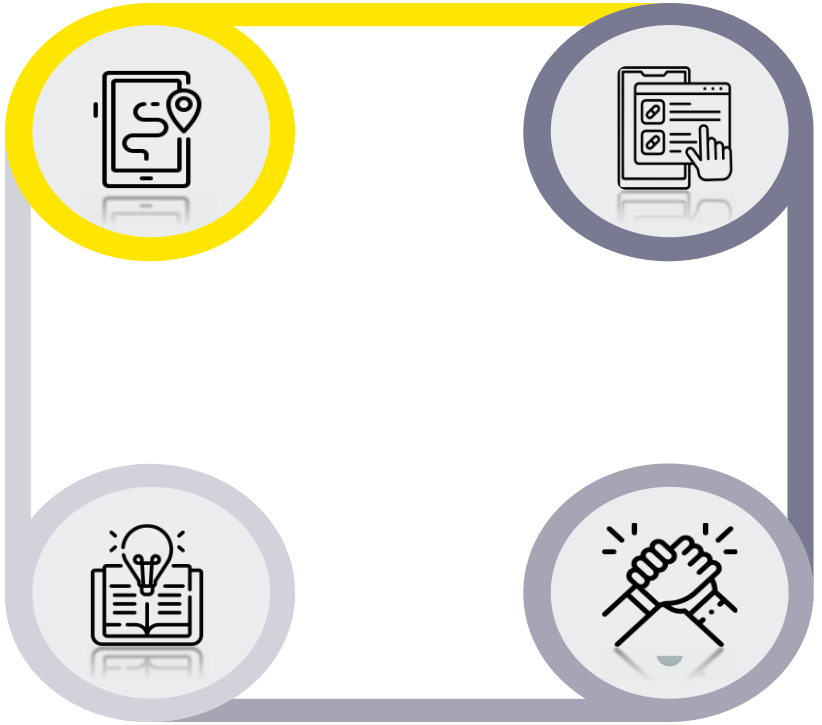
BACKGROUND

Proposed Conceptual Framework aims to create a network of small / mid-sized system integrators in Tier 2, Tier 3 and semi-urban regions to support Digital Health adoption in hospitals

KEY STEPS

Pilot Location

To conduct pilots at four locations to gain insights into implementing the SIDH program on a larger scale



Deployment of EMR

Establishing a business arrangement between the EMR provider and SIDH for the local deployment of an EMR solution across hospitals with >10beds <250beds

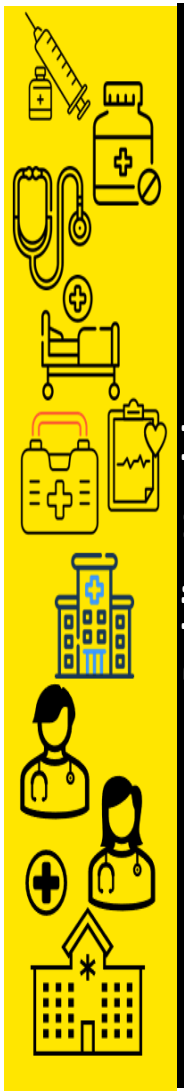
Learnings

Learnings from these pilots will be captured and feed into scaling the project at a large scale.

Facilitate

3rd Party Organization to play the role of a facilitator for these business relations to fructify and thrive. (Like an incubator).

India Healthcare market is broadly split into Public Health and Private Health entities.



Public Health

1. **Facility selection:** Public health facilities are largely covered by Central Government/ NHA (for National facilities) and by State Governments for state health facilities
2. **Resource Allocation:** Access to internal resources (e.g., IT / Tech team), can hire external experts / consultants, or can get EMR vendor to support this effort

Total Market Potential

1. **Primary focus facilities:**
   - **Large facilities (e.g., 100-250 bed hospitals)**
   - **Mid-sized facilities (e.g., 25-100 bed hospitals)**
   - **Small facilities (e.g., 10-25 bed hospitals)**
2. Facilities not in focus:
   - Very large facilities (e.g., >250 bed hospitals)
   - Very small facilities* (e.g., under 10 bed hospitals)
   - Doctors Clinics

Private Health

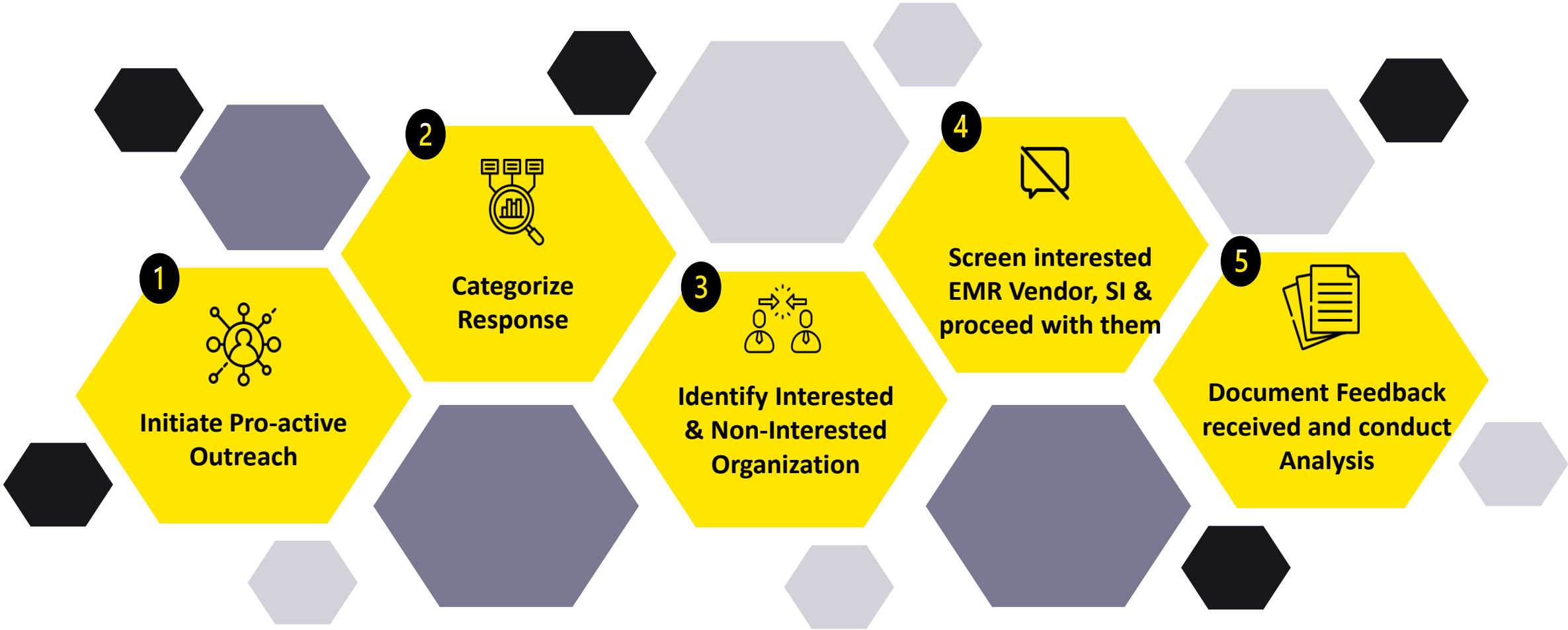
REVIEW OF LITERATURE

Title of Literature	Place of Study	Objective	Findings
Case Study of an EMR system in large hospital in India: Challenges and Strategies for successful adoption.	India	The authors describe an interpretive case study in one of the large eye hospitals of India that adopted an EMR system. Few of the major challenges in the use and attempt to adopt the system by the hospital were relatively complex organizational climate differences, different sets of expectations from the system among stakeholders, and very difficulty rightly identifying the designing strategy.	Despite the potential benefits, adopting EMRs in developing countries is not without obstacles. These Challenges arise from conflicting stakeholder demands, user doubt and limited IT abilities. These barriers can be surmounted by effective communication, involving users and paper-like interfaces that are easy to use by people with no computer literacy. Moreover, social and financial incentives can encourage acceptance of these systems as well as raising awareness for more computer applications Frameworks.
Electronic Health Record Adoption In US Hospitals: Progress Continues, But Challenges Persist	US	To analyse trends in hospital adoption of HER in the US, focusing on progress made, remaining challenges, and areas needing further attention	Commonly reported barriers included up-front and ongoing cost, physician's cooperation, and the complexness of meeting meaningful- use criteria. Nationwide hospital EHR adoption, is now within reach but will require a focus on small and rural. Strategy are needed for the financial challenges hospitals face in adopting EHR, especially now that penalties for nonadoption have begun

Technology' Acceptance Model: A case of electronic health record in Estonia	Estonia	This study aimed to identify the key factors that motivate Estonian healthcare professionals to use the EMR/HER and to understand the activities undertaken by Estonia to encourage use of EMR Adoption.	One of the factors engendering positive attitudes toward the Estonian EHR system was psychological ownership. It influenced attitude towards the system and the usage of the system, perceived ease of use. Case provides support for perceived usefulness to influence attitude and thus acceptance and usage levels in the Estonian EHR case.
The role of the EMR in developing countries for care delivery development: a systematic review	US	One of the factors that engendered positive attitudes toward the Estonian EHR system was psychological ownership. It influenced the attitude towards the system and the usage of the system, perceived ease of use. Case provides support for perceived usefulness to influence attitude and thus acceptance and usage levels in the Estonian EHR case.	For several decades, the potential of an EMR system to actually revolutionize the practice of medical care by facilitating healthcare delivery and decision-making processes has been noted. Among the many advantages of an EMR system are its accurate medication lists, the accomplishments of legible notes and prescriptions, immediately available charts, among very many others. Despite various challenges in the developing world, ranging from human expertise to financial resources, quite a number of research works have always shown how feasible it would turn out to be in coming up with an EMR system design and implementation with support from developed nations.
EHRs: The Challenge of making Electronic Data usable and interoperable	US	For many decades, the potential of an EMR system to really change the practice of medical care has been identified, which involves facilitating healthcare delivery and decision-making processes. Among the numerous benefits of an EMR system are accurate and exact medication lists, accomplishment of legible prescriptions, charts that are immediately present, among many more. Despite challenges facing the developing world, ranging from a lack of human expertise to financial resources, quite a number of research works have always shown how feasible it would turn out to be with support from developed nations in designing and implementing an EMR system that fits into this environment.	Meaningful use incentives did a great deal to increase the adoption rate of EHRs among physicians but brought negative consequences in terms of reduced efficiency, increased clerical burden, and increased professional burnout risk for the physicians themselves. The ONC estimated that accomplishing nationwide interoperability in the US health system would occur between 2021 and 2024 in its October 2015 report entitled "Connecting Health and Care for the Nation: A Shared Nationwide Interoperability Roadmap". Despite the incentive payments that are possible, financial costs remain one of the biggest barriers standing in the way of EHR implementation.
Electronic medical record adoption progress in Canada	Canada	The researchers studied the rate at which physicians in Canada have adopted electronic medical records; provincial incentives; the benefits perceived from and barriers to, EMR adoption.	Canadian physicians remain at the stage of EMR adoption. Progression in the use of EMRs requires experienced knowledgeable technical support during implementation, and financial support for the transcription of patient data from paper to electronic media. Interoperability of EMR offerings for hospitals,

METHODOLOGY

Stakeholder Consultation Approach: The study will employ a qualitative approach which is focused on primary data collected through in-depth interviews and the interactions carried out during field visits with the three principal stakeholders- EMR Vendors, System Integrators (SI) and Private Hospitals.



Pilot Site selection Framework

State

City

Hospitals

Criterias for Selecting Pilot Site
2021 Population in million
Density Area km sq.
Literacy rate
Hospital
Private Beds

Pilot Definition	Five Pilot Sites Each site with ~500 beds, across multiple hospitals

EMR Vendor Consultation through Questionarie to understand the challenges in Adoption and assess their interest in the framework

ABDM Compliance: Prioritize vendors actively pursuing ABDM compliance, specifically aligning with M1, M2, and M3 milestones.

Extensive Module Coverage: Verify that the chosen vendor covers every module included in our Minimum Viable Product, covering essential features for effective management of healthcare data.

Brand Value: Partner with well-known industry players recognized for their expertise, commitment, and track record in delivering cutting-edge EMR solutions.

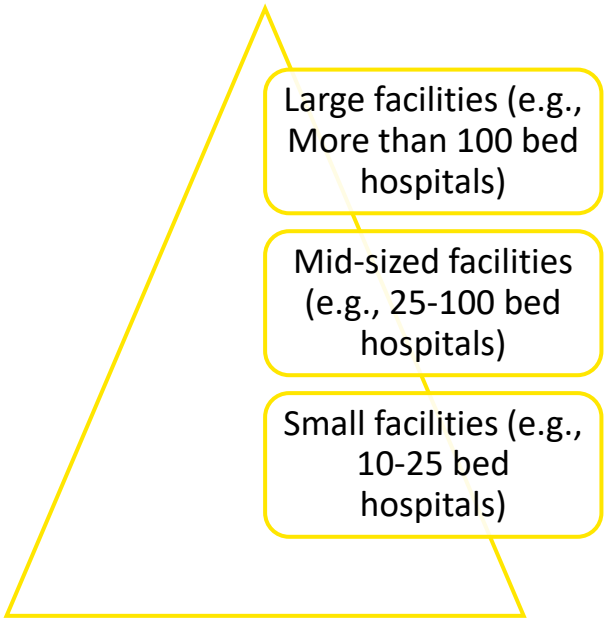
Vendor Selection Process

We reached out to over 40 Electronic Medical Record (EMR) vendors using a convenient sampling method that met the selection criteria requirements. This approach shows our commitment to a thorough and strategic process for choosing the right vendor for EMR adoption in India.

SI Selection Matrix

Criteria	Specifications	Description	Rating	Total Score
Age of Company	10 +	How old is the company	10	10
	5 to 10		5	
	<5		3	
Line of Business	IT & ITeS		10	10
	Consultancy services - Healthcare		8	
	Consultancy services - non-Healthcare		6	
	IT Infrastructure / Hardware		4	
	Others		2	
Clientele	Hospital Client	Include both pvt & govt hospital	15	15
	Other Healthcare Client		10	
	Non healthcare Client		5	
Operating Office	Within India within pilot cities		10	10
	Within India outside pilot cities		5	
	Outside India		0	
Number of Offices	More than 5		5	5
	3 to 5		3	
	Less than 3		1	
Number of Employees	>20	The total number of employees working on a full-time basis.	10	-
	10 to 20		5	
	Less than 10		3	
Revenue	>31	Minimum annual revenue of Rs.25 lakhs per year for last 2 years	10	-
	25 to 30		5	
	Less than 25 lakh		3	

Hospital Selection Matrix



Criteria	Variable	Observation	Score	Total Score
Bed Strength	Number of beds	Less than 10 beds	0	
		More than 100 beds	0	
		10-50 beds	3	
		51-100 beds	5	
Availability of website	1.Presence of a website 2.User-friendliness 3.Basic information accessibility	No website	1	
		Basic website(hospital type, specialty type,services provided,contact details)	3	
		Advanced features (if the website allows OPD appointment bookings)	5	
Chain of hospitals	1.Number of hospitals in chain 2.Geographical spread	Single Hospital	1	
		2-4 hospitals	3	
		>4 hospitals	5	
Availability of HFR ID	Compliance and interoperability of the hospital with the national digital health ecosystem.	No	1	
		Yes	3	

Key Market Focus of the proposed Framework

India Healthcare market is broadly split into Public Health and Private Health entities.

- **Public Health** –Central and State Governments, and other government owned hospitals & healthcare facilities

- **Private Hospitals & healthcare facilities**
  - **Very large facilities (e.g., >250 bed hospitals)**
  - **Large facilities (e.g., 100-250 bed hospitals)**
  - **Mid-sized facilities (e.g., 25-100 bed hospitals)**
  - **Small facilities (e.g., <25 bed hospitals)**

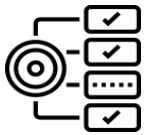
- **Private Labs and Pharmacies (covered in next phase)**

Primary FOCUS of Framework– need for System Integrators to support hospitals and healthcare organisations

Phase-wise Implementation Plan

Program Definition

Business Model



- Comprehensive business operational model - Market assessment, stakeholder consultation & building robust financial models
- Setting program objectives & define key metrics for evaluating success
- Development of SI profile
- Creation of robust training curriculum & assessment mechanism
- Criteria for site selection in the targeted private health segments

- Viable financial model with revenue and cost

Phase 1

Onboarding/Preparation

Procurement Model

- Finalization of scalable procurement model in coordination with Authorities
- Establishing clear criteria for pilot site selection, SI participation & EMR vendor selection
- Creation of Term Sheet
- Exploration of alternate options to expedite SIDH onboarding
- Development of high-quality training content & marketing toolkit

- PIM
- SI Identification/Selection
- SI onboarding

Phase 2

Onboarding/Go Live

Pilot Usage & Adoption

- Conduct selection of SI partners, in close coordination with NHA
- Delivery of customized training programs to SI
- Facilitate collaboration between SI & certified EMR/HMIS companies
- Create marketing toolkit to SI
- Workshops for hospitals, SI & EMR/HMIS

- SI Trainings
- Workshops

Phase 3

Monitoring & Support

Output Focused

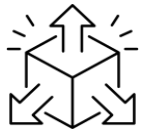
- Regular meeting for program progress review
- Ensure efficient program running
- Timely issue mitigation
- Inputs for Branding plan

- Progress Report
- Issue Log

Phase 4

Scalability Blueprint

Learning from Pilot

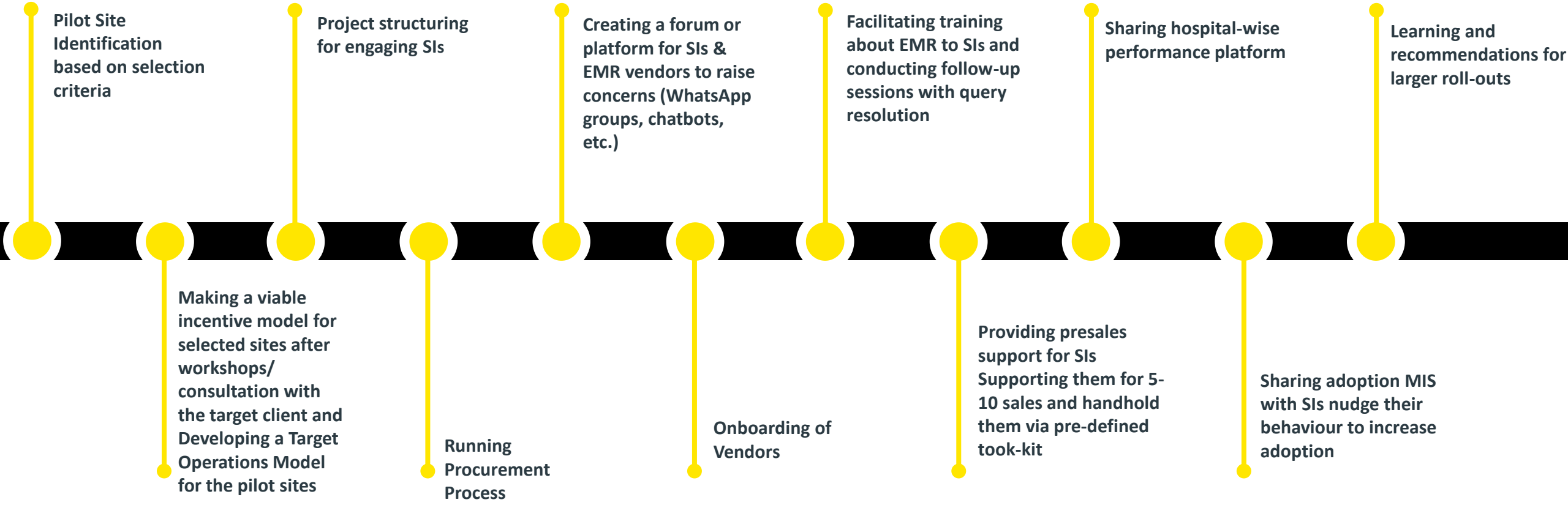


- Gather feedback from all stakeholders for program refinement and optimization to ensure program scalability & sustainability
- Apply learnings from pilot phase for program expansion

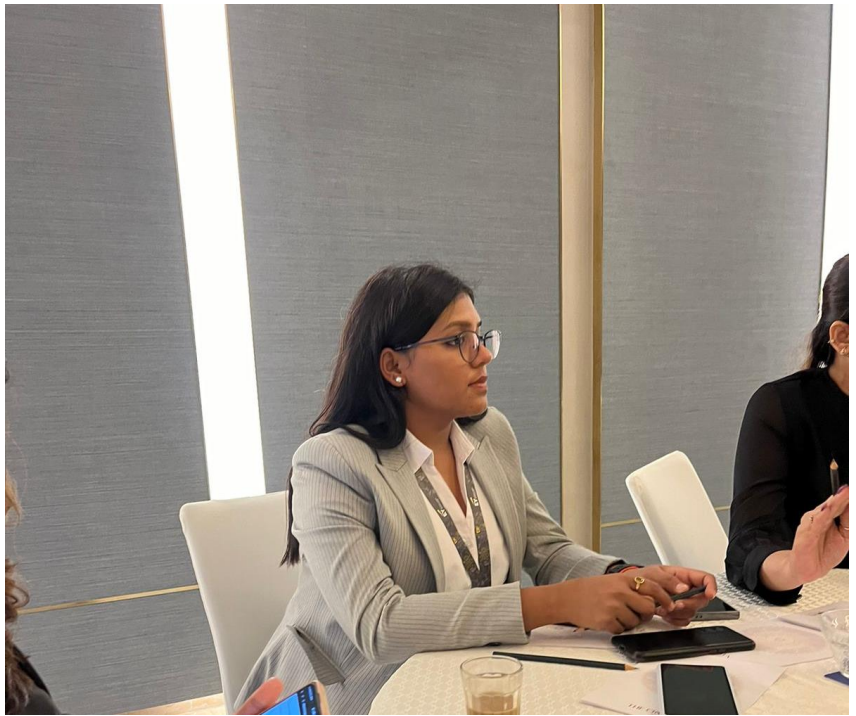
- Feedback Analysis Report
- Recommendations for national Roll-out

Phase 5

Implementation Action On-ground




System Integrator
in Digital Health
(SIDH) Initiative
Download The SIDH App!
Join the revolution in healthcare with SIDH!
Join Us inTransforming Healthcare WithTechnology!



RESULTS

EMR Vendors

As of now, 18 EMR vendors expressed keen interest in pursuing this framework, signifying a substantial resonance with our objectives and goals.
Ongoing discussions with the interested EMR Vendors focused on delving into the intricacies of their commercial models, marking the next crucial phase in the project

Issues preventing the adoption of EMR solutions are:

Product Perception
Value Proposition and Tech-Savviness
Reseller Challenges and Integration Problems
Adoption Challenges and Staff Turnover
Cost Concerns and Capital Investment:

System Integrators Consultation:
Key Implications and Learnings

- Lack of Consensus on ABDM Adoption
- Re-training of the Staff
- Concerns about Capital Expenditure (Capex)
- Experience
- Roles of System Integrators

Hospitals Consultation:
Key Insights & Challenges:

- Data privacy and security concerns
- Costing and Training Apprehensions
- Integration Issues with Other Existing Modules
- Extra Manpower and Cost Allocation
- Digital Maturity and Cost of Training
- Government Mandate on adoption of EMR in Private Hospitals:

Overall Apprehensions: Hospitals worry about data security, costs, and training for ABDM. To ensure success, the government should address these concerns with strong security, financial aid, and comprehensive training programs. This will build trust and lead to wider adoption of electronic medical records.

CONCLUSION: Competitive Advantage of EMRs to Hospitals

Efficient care delivery

Hospital software: Streamlines appointments, billing, health records

Best positioning in the market

A leading hospital pioneers digital health initiatives: online consultations, remote monitoring, and health record management

Reduction in healthcare costs

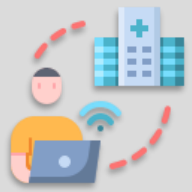
Affordability and accessibility ensured using AI based technology across urban and rural landscapes.

Clinical decision support

A medical networking app connects doctors for case discussions, opinions, and latest updates.

Increased patient engagement

Video consultations and medical record access for patients.



Remote consultations and patient monitoring

Virtual consultations and app-based follow-up care.

Framework: Win-Win for ALL Stakeholders!

Framework: Value to SI

- Expand business into new healthcare market
- Build relationships with local hospitals and healthcare facilities as well as leading EMR vendors
- Access to high-quality training, onboarding and other resources by NHA and EY
- Ability to sustain and grow business beyond EMR sales & adoption

Framework: Value to Hospitals

- Access to local system integrator who can support EMR selection & adoption
- Have onsite training for staff on EMR and related tools
- Get standards processes (e.g., ABDM registration) completed quickly
- Get additional IT support from SIDH as needed e.g., computers, printers, internet, wi-fi

Framework: Value to EMR Vendors

- Get access to SIDH in new geographies – increase reach
- Engage with SIDH to help accelerate the EMR sales process
- Work with SIDH on local technical support e.g., internet/wifi-issues
- Ability to provide local / onsite support esp. for Level 1 issues
- Have local support for consistent EMR usage by all stakeholders

THANKYOU