Dissertation Report

on

Change Management in Implementation of Health IT Systems in India: Challenges, Resistance Factors, and Strategies for Successful Adoption

at

International Institute of Health Management Research, New Delhi

by

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(PG/24/058)

Under the guidance of
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PGDM (Hospital and Health Management) 2024-26



International Institute of Health Management Research

New Delhi

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List of Abbreviations

Abbreviation	Full Form
ABDM	Ayushman Bharat Digital Mission
CDSS	Clinical Decision Support System
CHW	Community Health Worker
EHR	Electronic Health Record
EMR	Electronic Medical Record
HIS	Hospital Information System
HIT	Health Information Technology
HMIS	Hospital Management Information System
eHealth	Electronic Health
mHealth	Mobile Health
NDHB	National Digital Health Blueprint
OPD	Outpatient Department
RACI	Responsible, Accountable, Consulted, Informed
READI	Readiness, Engagement, Adoption, Deployment, Institutionalization
TAM	Technology Acceptance Model
UTAUT	Unified Theory of Acceptance and Use of Technology
COVID	Coronavirus Disease
AI	Artificial Intelligence
MIS	Management Information System

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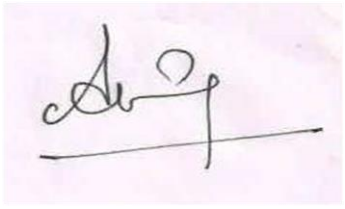
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We wish him/her all the best for future endeavors.



Mentor: Dr. Altaf Yousuf Mir
Associate Professor - IIHMR, Delhi

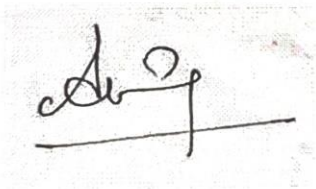
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I wish him all success in all his/her future endeavors.

Dr. Punit Yadav
Dean Academic and Student Affairs
IIHMR, New Delhi



Dr. Altaf Yousuf Mir
Associate Professor
IIHMR, New Delhi

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Name	Signature
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Dr. Supten Sarbadhikari	

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This is to certify that **Mr. Anmol Jyoti**, a graduate student of the PGDM (Hospital & Health Management) has worked under our guidance and supervision. He is submitting this dissertation titled **"Change Management in Implementation of Health IT Systems in India: Challenges, Resistance Factors, and Strategies for Successful Adoption"** at **"International Institute of Health Management Research, New Delhi"** in partial fulfilment of the requirements for the award of the PGDM (Hospital & Health Management).

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Mentor Name: Dr. Altaf Yousuf Mir
(Associate Professor - IIHMR, Delhi)

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ABSTRACT

The rapid digital transformation of healthcare has significantly increased the adoption of Health Information Technology (Health IT) systems across India. Initiatives such as the Ayushman Bharat Digital Mission (ABDM) and the National Digital Health Blueprint (NDHB) have accelerated the implementation of technologies including Electronic Health Records (EHR), Electronic Medical Records (EMR), Hospital Information Systems (HIS), telemedicine platforms, Clinical Decision Support Systems (CDSS), and mobile health applications. While these technologies have the potential to improve healthcare quality, operational efficiency, continuity of care, and clinical decision-making, their successful implementation remains a major challenge. Evidence from the existing literature indicates that technical readiness alone is insufficient for sustainable adoption. Organizational resistance, inadequate infrastructure, limited digital literacy, workflow disruptions, interoperability issues, financial constraints, privacy concerns, and insufficient stakeholder engagement continue to hinder effective implementation in many Indian healthcare settings.

This study adopts a secondary research methodology by critically reviewing peer-reviewed journal articles, government reports, policy documents, and published case studies related to Health IT implementation in India. A thematic analysis was conducted to identify common implementation barriers, resistance factors among healthcare professionals, and change management practices reported across the literature. Based on these findings, the study proposes a structured change management approach through the READI Framework, consisting of Readiness Assessment, Engagement of Stakeholders, Adoption Enablement, Deployment through Phases, and Institutionalization. The framework emphasizes leadership commitment, stakeholder participation, role-based training, phased implementation,

continuous communication, and post-implementation monitoring to facilitate successful adoption.

The findings suggest that Health IT implementation should be viewed as an organizational transformation rather than a purely technological intervention. Successful digital transformation depends not only on the availability of technology but also on the preparedness of healthcare organizations, effective management of human factors, and sustained organizational support. The proposed framework offers a practical roadmap for healthcare administrators and policymakers to strengthen Health IT adoption and improve the long-term sustainability of digital health initiatives in India.

About The Organization

The International Institute of Health Management Research (IIHMR), Delhi, is a premier institute in the field of public health, hospital management, health care administration and health information technology for education, research, training and consultancy. The institute is committed to empower the health care systems by promoting quality education, research based learning and professional excellence in health management.

Over the years, IIHMR Delhi has carved a niche for itself as a centre for studies in public health and interdisciplinary research. The institute works with government agencies, hospitals, non-governmental organizations and international bodies on pressing public health issues and improving health care. IIHMR Delhi plays a significant role in the development of healthcare policies and capacity building through its academic programmes, workshops, seminars and research initiatives.

Vision

IIHMR Delhi aims to be a globally recognized institute in health management education, research and training through innovation, leadership and excellence in public health and health care systems.

Objective

The mission of IIHMR Delhi is:

- To offer quality education and professional training in health management and public health.
- To foster research and evidence-based practices in health care system improvement.

- To train competent health professionals and future leaders to face the health challenges in the country and the world.
- To promote cross-disciplinary research and collaboration to inform health policy formulation and sustainable health solutions.

Acknowledgement

I would like to convey my heartfelt appreciation for the International Institute of Health Management Research (IIHMR), New Delhi, for providing me the opportunity and environment for conducting the dissertation study.

In particular, I would like to thank my guide, Dr. Altaf Yousuf Mir, for his guidance, suggestions, and advice during the process of this research work. His help was essential in developing an understanding of the subject matter in order to conduct this research successfully.

I would also like to express my appreciation to the faculty members of IIHMR, New Delhi, for their support during my study.

Last but not least, I would like to acknowledge all those people whose contributions were instrumental in the successful completion of my dissertation study.

Chapter 1

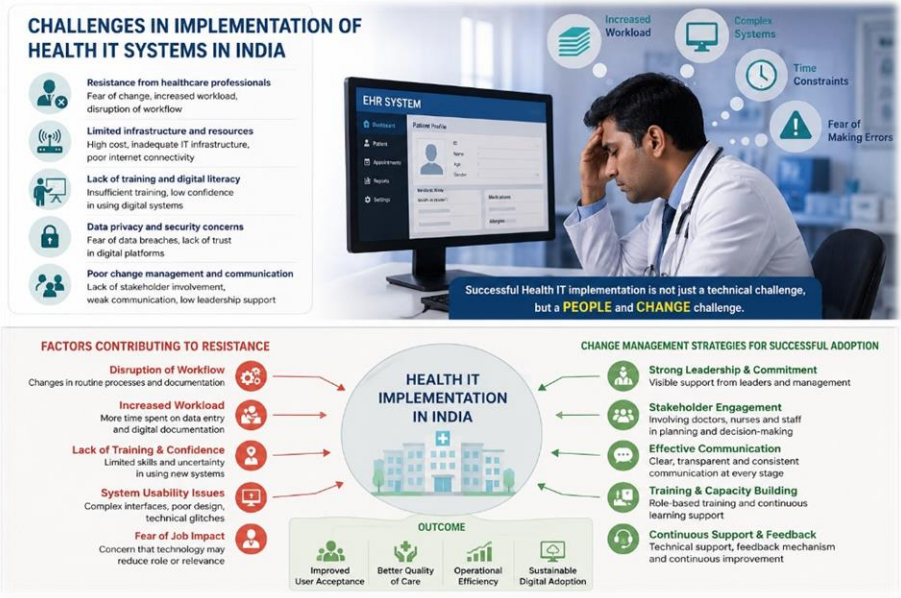
INTRODUCTION

1.1 Problem Statement

The healthcare industry in India is gradually getting involved in the process of digital transformation through the introduction of Health IT systems such as electronic health records, electronic medical records, hospital information systems, telemedicine services, digital health records, decision-support systems, and health information exchanges. The use of those Health IT systems can lead to the improvement in the quality of care, reduction in record duplication, enhanced clinical decision making, hospital efficiency, and continuity of care. Moreover, national programs like Ayushman Bharat Digital Mission have promoted the introduction of Health IT systems to create an integrated digital health infrastructure. Nevertheless, it is essential to emphasize that the efficient implementation of Health IT systems requires not only the existence of the required digital platforms but also proper management of the shift from conventional to modernized healthcare systems. In many healthcare settings, the implementation of Health IT systems implies changes in the way work processes are conducted; for instance, manual procedures could get replaced by digital alternatives. Besides, the staff should adopt the new work approaches quickly enough. This shift can be problematic for medical practitioners, nurses, administrators, technical staff, and other healthcare professionals. Some of the users may get disoriented by the change if they are not adequately trained and informed regarding the deployment of the system. These people may think that the system is burdensome and adds up to their work, distracts them from providing services, or makes the job harder in general. Other users may resist the change out of the fear of committing mistakes through electronic means, lack of technical competence, privacy concerns, or distrust toward the system.

When applying the concept to India, there may arise various difficulties with the transition due to differences among healthcare institutions with regard to their technological capacities. Private hospitals tend to have more funds, skilled IT professionals, and access to advanced tools, whereas public hospitals or smaller institutions can experience issues with internet connections and skilled personnel. As a result, there will be variations in the adoption of Health IT across the country.

Also, another significant challenge is that the implementation of Health IT initiatives is seen as a technology-related process, rather than giving proper attention to the people and organizations implementing the system. The fact is that the adoption of the Health IT system involves a behavioural change as well as an attitudinal change. Moreover, if the employees of a particular organization are not fully convinced by the value of the system being implemented, and if they think that the system is not relevant for their actual requirements, then there will be resistance to implementation.



Despite the evident progress of India regarding health IT policies and infrastructure, an obvious gap exists between the development of these initiatives on a policy level and their adoption by hospitals. Just having digital health initiatives does not imply their effective implementation. In order for Health IT systems to be successfully adopted and used, effective

change management strategies should be applied. They might include such aspects as involvement of top leadership, engagement of stakeholders, good communication, end-user training, alignment with workflows, continuous support, and so forth.

As a result, the problem that will be considered in the paper is the challenge connected with change management in implementing Health IT systems in Indian healthcare organizations. This paper will investigate the main challenges associated with Health IT implementation, reasons for the emergence of staff and doctor resistance towards its adoption, and possible ways to overcome them. Since the successful implementation of Health IT is not only about technical issues but is also related to human factors, this issue needs to be investigated.

The research of the topic will be conducted through secondary research methods, including analysis of literature and publications, as well as other sources.

Aim: The purpose of conducting the research is to gain a clearer idea about the importance of change management for effective implementation of Health IT systems in Indian healthcare organizations.

1.2 Scope of the Project

The scope of this dissertation will be confined to the analysis of the effect of Change Management in implementing Health IT in India. Specific emphasis will be put on identifying the barriers, factors of resistance and ways that should be followed to successfully implement these technologies.

The current study will consider Health IT used in the healthcare sector in India, including such tools as Electronic Health Record systems (EHR), Electronic Medical Record systems (EMR), Hospital Information Systems (HIS), telemedicine tools, clinical decision-making tools, and other digital health platforms developed within the national programs such as the Ayushman Bharat Digital Mission (ABDM).

The project will concentrate not on the development of such technologies but on their implementation and usage by medical institutions as well as users' perceptions regarding these changes.

The main obstacles associated with the implementation of health IT in the healthcare sector of India will be identified and analyzed in the study. In addition to this, the study will explore reasons behind physician and hospital staff resistance towards computerization and impact of elements like workload, change anxiety, usability, and lack of participation in decision-making on acceptance.

Additionally, a review of existing change management strategies in Health IT implementation will be included in the study. This could include stakeholder involvement, management involvement, communication plans, capacity building, training, phased implementation, feedback systems, and continuous technical support. Applicable change management and technology adoption theories such as Kotter's 8-Step Change Model, Lewin's Change Management Model, and Technology Acceptance Model (TAM) may be included in this discussion to offer theoretical foundation for the dissertation.

Since the research is secondary in nature, the scope will be confined to the analysis and review of relevant literature and articles, official papers, industry journals, and case studies of Health IT implementation in India. No primary research would be conducted with the hospital administrators, doctors, nurses, and patients. The existing research work will provide the foundation of this dissertation.



The geographical boundary of the current research would remain restricted to the boundaries of **India**, but the use of selected international sources of literature would be allowed wherever deemed necessary to support the discussion. The main emphasis would be on healthcare organizations including hospitals, clinics, public health institutions and health care organizations that use Health IT systems or are implementing them.

Finally, the outcome of the current study would be the formulation of a model of change management in Indian healthcare organizations that can facilitate smooth implementation, minimize resistance and enhance the adoption of Health IT systems in India.

Conclusively, the scope of the present project would include the following:

- Implementation of Health IT systems in Indian healthcare organizations.
- The major challenges related to their implementation.
- The causes and sources of doctors' and nurses' resistance.
- Change management strategies used by other healthcare organizations in Health IT implementation.
- Literature analysis, case studies and reports.

- Formulating recommendations on change management.

In essence, the study would not cover any software development, technology design, cost-benefit analysis of Health IT systems and field research.

1.3 Methodology

The methodology adopted for this paper is **Secondary Research**. Secondary research entails an evaluation of the existing body of work. This may include research papers, official documents, policies, information technology guidelines, and published case studies regarding Health IT implementation in India. No survey or interview questions were used during this research process. A review of existing literature on the issue was done to identify the main challenges associated with Health IT implementation in India.

Chapter 2

REVIEW OF LITERATURE

2.1 Introduction to Review of Literature

Health Information Technology (IT) systems in India are no longer just a matter of technology implementation. The topic has taken on new dimensions becoming an organizational, behavioural and policy one. There is an increasing expectation from hospitals and health organizations to implement systems such as electronic health records, hospital information systems, telemedicine platforms, mobile health systems, clinical decision support systems and digital health registries. The benefits offered by such systems include improved documentation, enhanced care coordination, effective communication and better planning of the health care system. Nevertheless, the literature makes it clear that the effectiveness of such systems is realized only through their successful integration into practice.

This chapter provides a review of literature related to change management in the implementation of Health Information Technology systems in India. The review is guided by the four objectives of the dissertation, namely identification of the challenges of implementation, resistance analysis in healthcare professionals, change management techniques and development of a framework applicable to Indian healthcare system. Special emphasis has been made on the literature specific to India, including peer-reviewed research, case studies of implementation, reports and government policy papers. Global literature has also been included to the extent of necessity for theory explanation.

In summary, the papers discussed here suggest that implementation of Health IT in India has multiple challenges related to infrastructure, funding, technology, legal concerns, behavior and culture. While in some cases, the problem is directly caused by the technology itself, other problems arise due to lack of user participation, workflow redesign, inadequate training,

or when implementation is seen as an installation job rather than a process. That is why this literature review is presented in a thematic manner as opposed to merely describing each paper consecutively.

It is evident from the literature that change management plays a pivotal role in Health IT adoption. Physicians, nurses, community health workers, administrative staff and patients can have varied reactions to the change depending on various factors such as usefulness, usability, impact on workload, security, reliability of the technology and its training needs, among others. The reaction to the change can vary considerably depending on the Indian healthcare sector characteristics.

2.2 Search and Selection Logic for Literature

Implementation of health information technologies (Health ITs) in India can no longer be seen as merely a technical exercise. Implementation of such systems has become a managerial, organizational, behavioural and political concern. Hospitals and health care organizations are now being expected to deploy electronic health record (EHR), hospital information system (HIS), telemedicine solutions, m-health systems, decision support system (DSS) and health registries systems. While these technological solutions offer benefits like better documentation, continuity of care, improved communications and health systems planning, the literature on such systems indicates their benefits can only be realised when there is acceptance and integration of such systems into daily practice.

This chapter will discuss literature on change management associated with implementing Health IT systems in India. The chapter is premised on the four objectives of this dissertation. This chapter will thus discuss literature on challenges associated with implementation of health ITs, literature on resistance from healthcare professionals during implementation

process, literature on change management practices and finally development of framework for implementation of Health IT in Indian healthcare setting. The literature on Health IT in Indian context will get priority while selecting materials. Some global foundational literature will be included when necessary.

Based on the reviewed studies, it can be concluded that implementation of Health IT in India involves several issues related to infrastructure, finance, technology, legislation, behavior and culture. Implementation failure, however, does not usually arise due to the software only. Issues occur when users are not engaged; when new work processes have not been created; when training is insufficient; and when leaders consider digital implementation to be an installation rather than a process. This way, this review is arranged according to themes in order to facilitate connections across systems, including EHRs, HIS, telemedicine, mHealth and digital health IDs.

It becomes clear from the literature that change management plays an important role in Health IT implementation. For example, doctors, nurses, community health workers, administrative workers, and patients may react to digital transformation in different ways. Their reactions may depend on factors such as usefulness, usability, workload, trust, privacy, reliability, training, and leadership. At the same time, these factors may differ for India depending on infrastructure, digital literacy, resources, and setting (public/private).

2.3 Review of Literature Matrix

The matrix below provides an overview of 35 important sources chosen for conducting the literature review. In addition, this matrix is India-specific, and only few global sources have been considered when necessary. The aim of this matrix is to demonstrate how each source supports the research objectives.

S. No.	Author(s) & Year	Title	Journal / Publication	Setting & Study Design	DOI/source
1.	Inampudi S, Rajkumar E, Gopi A, Vany Mol KS, Sruthi KS, et al. (2024)	Barriers to implementation of digital transformation in the Indian health sector: a systematic review	Humanities and Social Sciences Communications	Systematic review of digital health barriers in India	https://doi.org/10.1057/s41599-024-03081-7
2.	Jaroslawski S, Saberwal G. (2014)	In eHealth in India today, the nature of work, the challenges and the finances: an interview-based study	BMC Medical Informatics and Decision Making	Interview-based study of eHealth organizations in India	https://doi.org/10.1186/1472-6947-14-1
3.	Srivastava SK. (2016)	Adoption of electronic health records: a roadmap for India	Healthcare Informatics Research	Policy and roadmap paper on EHR adoption in India	https://doi.org/10.4258/hir.2016.22.4.261
4.	Faujdar DS, Singh T, Kaur M, Sahay S, Kumar R. (2021)	Stakeholders' perceptions of the implementation of a patient-centric digital health application for primary healthcare in India	Healthcare Informatics Research	Stakeholder perception study in Indian primary healthcare	https://doi.org/10.4258/hir.2021.27.4.315
5.	Praveen D, Patel A, Raghu A, Clifford GD, Maulik PK, Abdul	SMARTHealth India: development and field evaluation of a mobile clinical decision support	JMIR mHealth and uHealth	Field evaluation of mobile CDSS in rural India	https://doi.org/10.2196/mhealth.3568

S. No.	Author(s) & Year	Title	Journal / Publication	Setting & Study Design	DOI/source
	AM, et al. (2014)	system for cardiovascular diseases in rural India			
6.	Praveen D, Patel A, McMahon S, Prabhakaran D, Clifford GD, Maulik PK, et al. (2013)	A multifaceted strategy using mobile technology to assist rural primary healthcare doctors and frontline health workers in cardiovascular disease risk management	Implementation Science	Implementation protocol for rural digital decision support	https://doi.org/10.1186/1748-5908-8-137
7.	Peiris D, Praveen D, Mogulluru K, Ameer MA, Raghu A, Li Q, et al. (2019)	SMARThealth India: a stepped-wedge, cluster randomised controlled trial of a community health worker-managed mobile health intervention	PLOS ONE	Cluster trial of mHealth intervention in rural India	https://doi.org/10.1371/journal.pone.0213708
8.	Rajkumar E, Gopi A, Joshi A, Thomas AE, Arunima NM, Ramya GS, et al. (2023)	Applications, benefits and challenges of telehealth in India during COVID-19 pandemic and beyond: a systematic review	BMC Health Services Research	Systematic review of telehealth in India	https://doi.org/10.1186/s12913-022-08970-8
9.	Das AV, Rani PK, Vaddavalli PK. (2020)	Tele-consultations and electronic medical records driven remote patient care: responding to	Indian Journal of Ophthalmology	Ophthalmology teleconsultation and EMR case in India	https://doi.org/10.4103/ijo.IJO_1089_20

S. No.	Author(s) & Year	Title	Journal / Publication	Setting & Study Design	DOI/source
		the COVID-19 lockdown in India			
10.	D'Souza B, Suresh RS, Hisham S, Shetty A, Sekaran VC, Pallagatte MC, et al. (2021)	Healthcare delivery through telemedicine during the COVID-19 pandemic: case study from a tertiary care center in South India	Hospital Topics	Case study from a tertiary care centre in South India	https://doi.org/10.1080/00185868.2021.1875277
11.	Biswas S, Adhikari SD, Gupta N, Garg R, Bharti SJ, Kumar V, et al. (2020)	Smartphone-based telemedicine service at palliative care unit during nationwide lockdown: our initial experience at a tertiary care cancer hospital	Indian Journal of Palliative Care	Indian palliative care telemedicine experience	https://doi.org/10.4103/IJPC.IJPC_161_20
12.	Garg D, Majumdar R, Chauhan S, Preenja R, Parihar J, Saluja A, et al. (2021)	Teleneurorehabilitation among persons with Parkinson's disease in India: the initial experience and barriers to implementation	Annals of Indian Academy of Neurology	Teleneurorehabilitation implementation study in India	https://doi.org/10.4103/aian.AIAN_127_21
13.	Kesavadev J, Saboo B, Shankar A, Krishnan G, Jothydev S. (2015)	Telemedicine for diabetes care: an Indian perspective - feasibility and efficacy	Indian Journal of Endocrinology and Metabolism	Indian perspective on telemedicine for diabetes	https://doi.org/10.4103/2230-8210.167560

S. No.	Author(s) & Year	Title	Journal / Publication	Setting & Study Design	DOI/source
14.	Ghoshal UC, Sahu S, Biswas SN, Singh P, Chaudhary M, Ghoshal U, et al. (2021)	Care of inflammatory bowel disease patients during COVID-19 pandemic using digital health-care technology	JGH Open	Indian digital care model for IBD patients	https://doi.org/10.1002/jgh3.12498
15.	Maroju RG, Choudhari SG, Shaikh MK, Borkar SK, Mendhe H. (2023)	Role of telemedicine and digital technology in public health in India: a narrative review	Cureus	Narrative review of telemedicine and digital health in India	https://doi.org/10.7759/cureus.35986
16.	Jain D. (2023)	Regulation of digital healthcare in India: ethical and legal challenges	Healthcare	Legal and ethical review of digital healthcare in India	https://doi.org/10.3390/healthcare11060911
17.	Ateriya N, Saraf A, Meshram VP, Setia P. (2018)	Telemedicine and virtual consultation: the Indian perspective	National Medical Journal of India	Indian perspective on telemedicine and virtual consultation	https://doi.org/10.4103/0970-258X.258220
18.	Bairaparedd y KC, Alaparthi GK, Jitendra RS, Prathiksha, Rao PP, Shetty V, et al. (2021)	'We are so close; yet too far': perceived barriers to smartphone-based telerehabilitation among healthcare providers and patients with COPD in India	Heliyon	Qualitative study of telerehabilitation barriers in India	https://doi.org/10.1016/j.heliyon.2021.e07857
19.	Kumar P, Aggarwal M, Dhawan R, Dass J, Kumar G, Sharma V, et al. (2021)	Tele-medicine services in hematological practice during COVID pandemic: its feasibility and difficulties	Indian Journal of Hematology and Blood Transfusion	Telemedicine feasibility study in hematology practice in India	https://doi.org/10.1007/s12288-020-01385-7

S. No.	Author(s) & Year	Title	Journal / Publication	Setting & Study Design	DOI/source
20.	Raheja A, Manjunath N, Garg K, Tandon V, Gupta V, Mishra S, et al. (2021)	Turning a new chapter in neurosurgery outpatient services: telemedicine a savior in this pandemic	Neurology India	Telemedicine in neurosurgery outpatient services in India	https://doi.org/10.4103/0028-3886.314523
21.	Bhargava S, Sarkar R. (2020)	Impact of COVID-19 pandemic on dermatology practice in India	Indian Dermatology Online Journal	Dermatology practice and digital shift in India	https://doi.org/10.4103/idoj.IDOJ_240_20
22.	Ghai S. (2020)	Teledentistry during COVID-19 pandemic	Diabetes & Metabolic Syndrome	Indian teledentistry perspective	https://doi.org/10.1016/j.dsx.2020.06.029
23.	Sampathkumar S, Sankar M, Ramasamy S, Sriram N, Saravanan P, Ram U. (2022)	Uptake, engagement and acceptance, barriers and facilitators of a text messaging intervention for postnatal care of mother and child in India	International Journal of Environmental Research and Public Health	Mixed-methods feasibility study of mHealth in India	https://doi.org/10.3390/ijerph19158914
24.	Bhatt S, Isaac R, Finkel M, Evans J, Grant L, Paul B, et al. (2018)	Mobile technology and cancer screening: lessons from rural India	Journal of Global Health	Rural India mHealth cancer screening experience	https://doi.org/10.7189/jogh.08.020421
25.	Desingh V, Baskaran R. (2022)	Internet of things adoption barriers in the Indian healthcare supply chain: an ISM-fuzzy MICMAC approach	International Journal of Health Planning and Management	Modeling study of IoT adoption barriers in Indian healthcare supply chains	https://doi.org/10.1002/hpm.3331

S. No.	Author(s) & Year	Title	Journal / Publication	Setting & Study Design	DOI/source
26.	Gandhi AP, Soundappan K. (2024)	Perception towards electronic health records and uptake of digital health IDs among urban residents in northern India	Indian Journal of Medical Research	Mixed-methods study on EHR and digital health IDs in northern India	https://ijmr.org.in/perception-towards-electronic-health-records-uptake-of-digital-health-ids-among-the-urban-residents-in-northern-india-a-mixed-methods-study/
27.	Powell AC, Ludhar JK, Ostrovsky Y. (2017)	Electronic health record use in an affluent region in India: findings from a survey of Chandigarh hospitals	International Journal of Medical Informatics	Survey of EHR use in Chandigarh hospitals	https://doi.org/10.1016/j.ijmedinf.2017.04.011
28.	Scholl J, Syed-Abdul S, Ahmed LA. (2011)	A case study of an EMR system at a large hospital in India: challenges and strategies for successful adoption	Journal of Biomedical Informatics	Case study of EMR implementation in a large Indian hospital	https://doi.org/10.1016/j.jbi.2011.07.008
29.	Shilpa DM, Naik P, Shewade H, Sudarshan H. (2020)	Assessing the implementation of a mobile App-based electronic health record: a mixed-method study from South India	Journal of Education and Health Promotion	Mixed-method study of mobile app-based EHR in South India	https://doi.org/10.4103/jehp.jehp_366_19

S. No.	Author(s) & Year	Title	Journal / Publication	Setting & Study Design	DOI/source
30.	Trikha S, Arora B, Sharma M, Thakur P. (2020)	Implementing e-Upchaar: Hospital Management Information System for public health facilities in Haryana	Electronic Physician	Public-sector HMIS implementation report from Haryana	https://www.ephysician.ir/
31.	Ministry of Health and Family Welfare, Government of India. (2016)	Electronic Health Record Standards for India	Government of India policy document	Government EHR standards document	https://main.mohfw.gov.in/
32.	Ministry of Health and Family Welfare, Government of India. (2019)	National Digital Health Blueprint	Government of India policy blueprint	Policy blueprint for national digital health ecosystem	https://www.mohfw.gov.in/?q=en/newshighlights/final-report-national-digital-health-blueprint-ndhb
33.	National Health Authority. (2021 onwards)	Ayushman Bharat Digital Mission	National Health Authority digital health mission portal	National digital health mission platform	https://abdm.gov.in/
34.	Board of Governors in Supersession of the Medical Council of India. (2020)	Telemedicine Practice Guidelines	Ministry of Health and Family Welfare / Medical Council of India guideline	National guidelines for telemedicine practice in India	https://www.mohfw.gov.in/

S. No.	Author(s) & Year	Title	Journal / Publication	Setting & Study Design	DOI/source
35.	Davis FD. (1989); Venkatesh V et al. (2003); Kotter JP. (1995); Lewin K. (1947)	Foundational technology acceptance and change management theories: TAM, UTAUT, Kotter's 8-Step Model and Lewin's change model	MIS Quarterly, Harvard Business Review, Human Relations and related theoretical literature	Foundational theoretical literature	https://doi.org/10.2307/249008; https://doi.org/10.2307/30036540; https://hbr.org/1995/05/leading-change-why-transformation-efforts-fail; https://doi.org/10.1177/001872674700100103

2.4 Digital Transformation in Healthcare

The transformation of the Indian healthcare through the use of digital technology has gained momentum due to increased focus on policies, increased usage during the pandemic, and the increasing necessity to handle huge amounts of data related to health. The health sector in India serves a large, diversified population; hence, manual processes cannot offer continuity, interoperability, and decision-making support. Digital transformation will enable better health service provision, record keeping, eliminate duplications, and facilitate planning in the health sector. The literature has been consistent in revealing the fact that digital transformation entails more than the procurement of IT equipment.

According to Inampudi et al., there are various challenges associated with digital transformation in the Indian healthcare setting. These include lack of IT infrastructure, the costly nature of IT systems, privacy concerns, language barriers, user barriers, and legal concerns [1]. This evidence is congruent with the problem statement of the current dissertation since it highlights the presence of technical and human barriers within the Indian setting. This literature review also reveals that digital transformation calls for collaboration

among the government, medical professionals, patients, and implementing agencies. Therefore, change management is inevitable since different stakeholders have varying expectations.

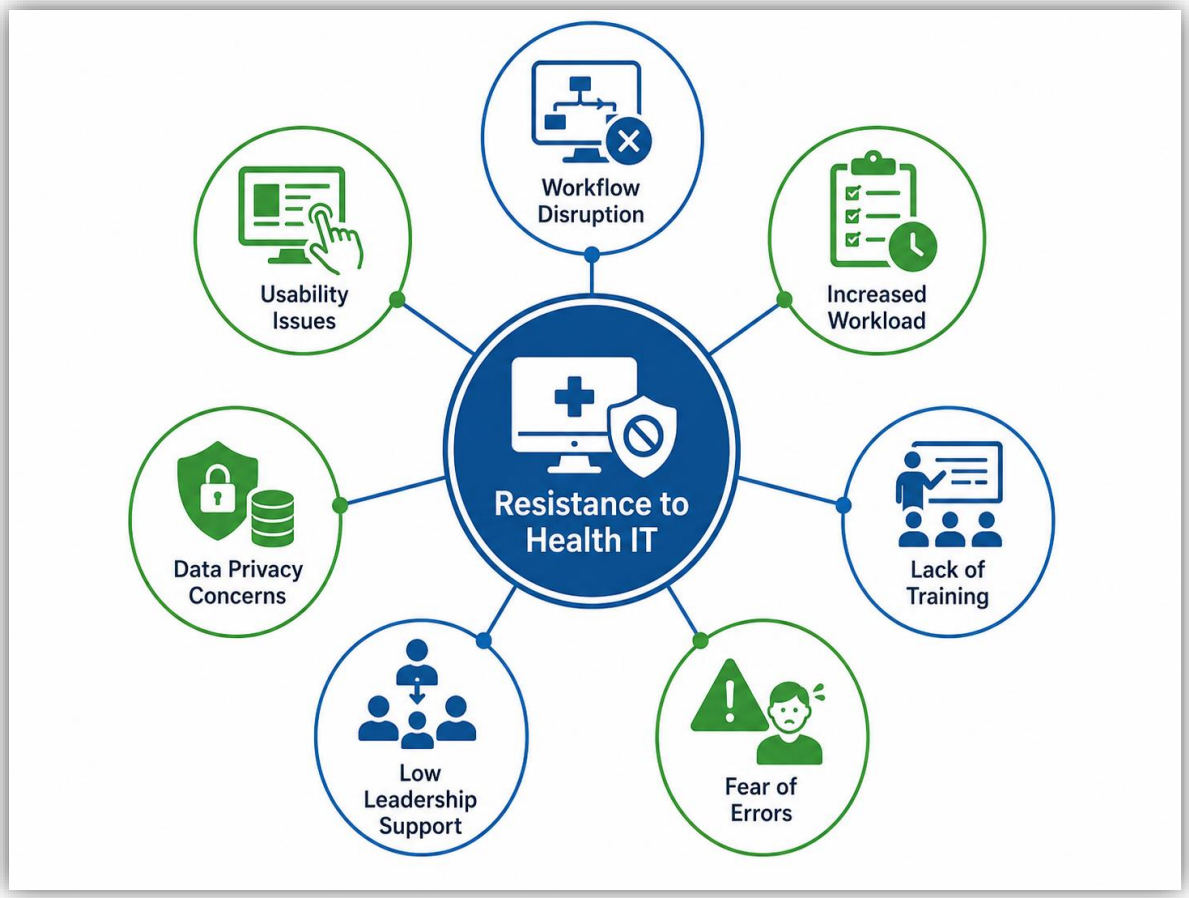
On top of all other studies, Jaroslawski and Saberwal through interviews demonstrate additional challenges to implementing eHealth projects in India by pointing out financing, scalability, and sustainability problems of those [2]. In addition, many digital health projects might start off well but experience difficulties with funding, workforce, maintenance, and management issues. Thus, it becomes clear that the implementation of technology should not be limited to a one-time launch. Instead, it should be perceived as an ongoing process of planning, adoption, stabilization, and optimization.

The National Digital Health Blueprint and ABDM have offered India policy guidance for developing its digital health ecosystem [32,33]. Indeed, they can be considered relevant because such measures create the general policy and framework for interoperability, health IDs, registries, and digital health records. Yet, the fact remains that even after establishing a certain framework at the national level, hospitals might face difficulties in using digital technologies. Such challenges might come from opposition by doctors, insufficient quality of data entry, lack of training, and inefficient integration with workflows.

The COVID-19 pandemic acted as a significant catalyst for the use of digital health in India. Remote consults became visible through various restrictions on movement during the pandemic periods. Literature in ophthalmology, oncology, neurology, dermatology, gastroenterology, and palliative care indicates that there were attempts at using digital technology in India to ensure continuity of care [9,11,12,14,21]. There were certain challenges in the way as well, such as those of examinations, connectivity, unfamiliarity with new systems, medico-legal questions and logistics.

As for digital transformation overall, it appears that it happens in different ways in India. There are variations by region, specialty, institution and demographics. The key lesson from the literature is that any transformation process should take into account particular circumstances. A large tertiary care facility, a rural primary health facility, a municipal hospital and a specialist private practice may all have different strategies for implementation of the same digital task.

2.5 Health IT Systems Covered in Indian Literature



Discussion of health information technology (HIT) systems in India does not revolve around one type of HIT system, but many different ones. Electronic health record (EHR) systems and electronic medical record (EMR) systems are two types of HIT systems that have been

studied extensively due to the need for longitudinal records and interoperability. For example, the roadmap by Srivastava for adoption of EHR systems in India stresses the importance of standards, architecture, laws and institutions [3].

Adoption of the EHR system is closely associated with the problem of standardization. According to the EHR standards developed by the government of India, standardization can help establish guidelines for both technical aspects (data structure, data exchange, and interoperability), and policy issues [31]. Without standardization, hospitals can develop their own disjointed digital records that are not interoperable. Change management perspective suggests that standards affect documentation of services rendered, capture of data, and redesigning of forms.

HIS and HMIS are other relevant frameworks since these systems have implications for operational aspects of hospitals. They might consist of modules such as patient registration, billing, pharmacy, laboratory, radiography, inpatient management, and inventory and reporting [30]. In their analysis of e-Upchaar, Trikha et al. explain the requirements for introducing HMIS systems in the public sector in Haryana [30].

Telemedicine has become one of the most prominent applications of Health IT in India. Several studies from different specialties highlight that telemedicine could ensure improved access to care and continuity of treatment, especially during disruptions [8-14,17-22]. Nevertheless, this tool brings about changes to how consultation, examination, documentation, patient communication, and follow-up occur in healthcare practice. Thus, implementing telemedicine calls for proper change management among practitioners and patients.

Literature on m-health and CDSS provides the third category of literature. SMARTHealth India projects prove that a mobile CDSS can be used by CHWs and doctors to manage heart

diseases in rural communities in India [5-7]. These studies are critical for several reasons; first, they prove that Health IT implementation can contribute to tasks' redistribution and evidence-based medicine only if designed based on the real work environment.

Another aspect of Health IT use in India relates to the usage of digital health IDs and ABDM-enabled electronic health records. Gandhi and Soundappan report that the awareness levels concerning EHR and ABDM services were low among urban dwellers of northern India. Nonetheless, participants expressed their readiness to accept the concept of national EHR, given their lack of concerns regarding illiteracy and confidentiality issues [26]. Such a finding indicates that the issue is no longer confined to healthcare specialists. Patients and citizens also require knowledge and trust.

Thus, the above systems illustrate that Health IT application in India involves several aspects. Clinical, administrative, public health, regulatory and citizen-facing aspects are to be covered within the framework of Health IT initiatives. Being various, those solutions cannot be approached using one strategy. Nonetheless, common trends can be identified. Such trends include training, communication, workflow, management support and trust.

2.6 Challenges in Implementation of Health IT Systems in India

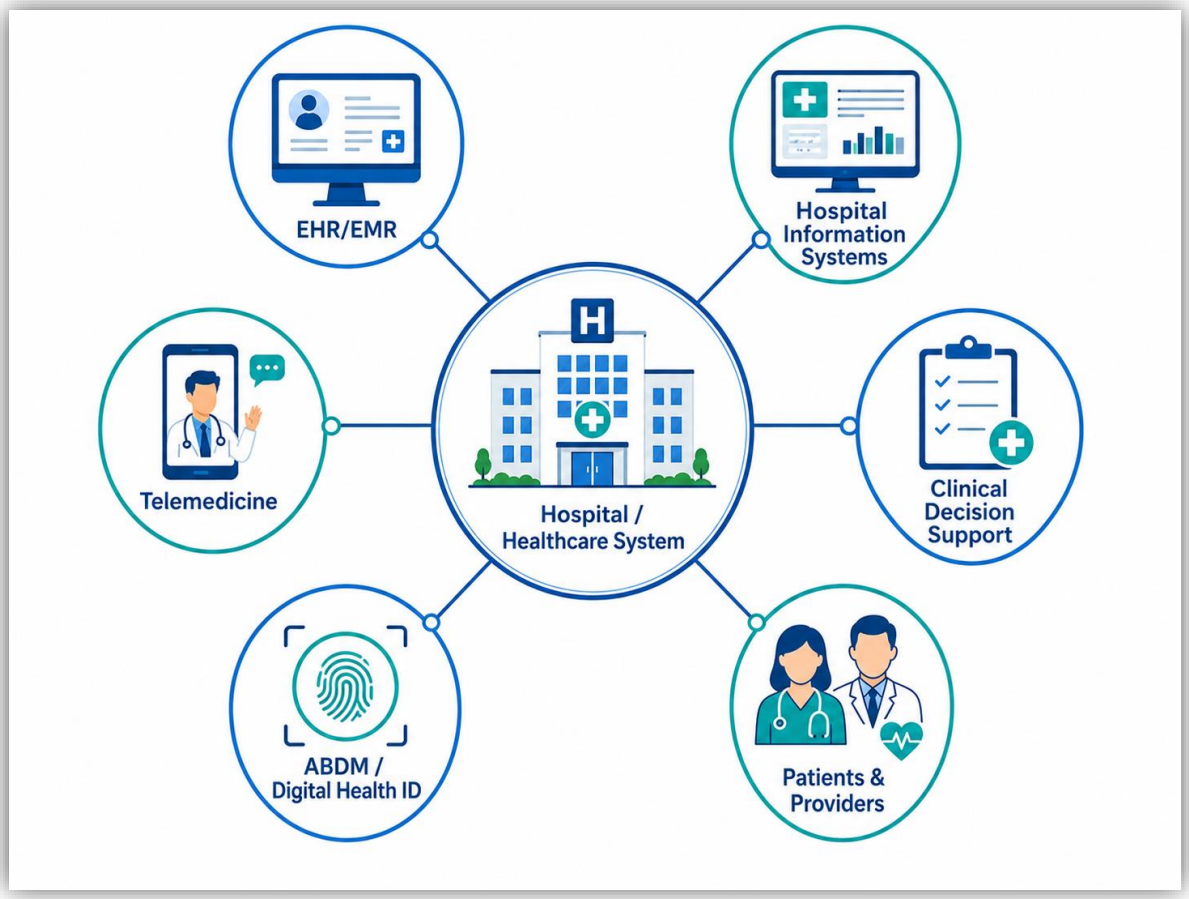
1. **Infrastructure:** It is possible that many Indian healthcare organizations, such as small public hospitals, might experience difficulties with regard to network accessibility and lack of hardware resources, as well as poor IT maintenance. According to Inampudi et al., a problem of lack of IT infrastructure and network coverage can be considered one of the main barriers to digitization [1]. Due to poor performance, users might revert back to paper-based solutions, thus hindering the process of adaptation.

2. **Cost:** Implementation of Health IT includes hardware components, software components, networking, maintenance, data migration, cybersecurity, system training, and system administration. According to Jaroslawski and Saberwal, financial problems and challenges associated with sustainability are crucial factors influencing eHealth initiatives in India [2]. Such an issue appears relevant for public hospitals, where financial means might be limited.
3. **Interoperability:** While there is a policy direction for interoperable digital health records in India, systems on the ground remain fragmented. Srivastava emphasized interoperability as a critical requirement for EHR adoption in India [3]. Without interoperability, hospitals might form digital silos. In effect, interoperability is important for maximizing the utility of EHRs. Poor interoperability increases frustration because the user will have to key in the same data into different systems, perceiving digital systems as more work than aid.
4. **Training and digital literacy:** here are wide differences among health professionals when it comes to proficiency in technology. Doctors and nurses may be clinically trained but not necessarily adept at using newly introduced digital platforms. Community health workers may need to be hand-held in order to effectively use new software. In the SMARTHealth research program, it was demonstrated that digital decision support systems were beneficial when training and workflow considerations were taken into account [5-7].
5. **Workflow disruption:** The health information technology system transforms the process. Registration, documentation, ordering test results, prescribing drugs, accessing test reports and preparation of discharge summary notes are some tasks that could move online. In the event that the process involved in such a system does not align with clinical workflow, then the system could become a burden on the users.

Scholl et al.'s case study of an EMR project in an Indian hospital illustrates some of these issues [28]. It reiterates the need to understand user workflows before implementing an IT system.

6. **Data privacy and security:** Issues around confidentiality and security of personal information may arise with electronic records. The review by Jain on digital healthcare regulations in India addresses some of the concerns that may arise regarding issues of ethics and legality in this regard [16]. Gandhi and Soundappan also report that adoption of EHR and digital IDs are connected with literacy and data protection issues [26]. Trust becomes one of the key aspects of change management.
7. **Organizational readiness:** Even after buying the system, the hospital may lack governance, leadership commitment, change champions, and feedback channels. Faujdar et al. highlighted the need for perception by stakeholders regarding a patient-centric digital solution in the case of primary care [4]. The staff is more hesitant to embrace the system as they will feel it was thrust upon them. Hence, organizational readiness should include leadership, organizational culture, resources, staff involvement, and role clarity.
8. **Variation between healthcare settings:** The Indian health care system consists of central government hospitals, state hospitals, municipal hospitals, corporate hospitals, charitable hospitals, small nursing homes, primary health centres, and community-based programs. The digital solution that works for one category of organizations will fail in others. That is because implementation considerations will be different for each. This is why the current dissertation emphasizes change management and not merely technology selection.

2.7 Resistance Factors among Healthcare Professionals



One of the most significant issues in implementing Health IT technology is that of professional resistance. Resistance need not necessarily imply that doctors or staff members are opposed to technology. It could actually indicate some real concern regarding their workload, time management, patient care, or other factors. According to literature, resistance needs to be considered as a part of the feedback process regarding implementation, and not just as negative resistance.

Doctors tend to oppose digital health technologies if there is an increase in the documentation time. In crowded outpatient departments, the addition of even a few minutes for documentation per patient results in very long queues and delays. In case of difficult screens of EHR or HIS, the software could become cumbersome to doctors, thus obstructing the

clinical process. While this point holds true globally, literature from India shows that this problem is further aggravated due to limited resources and high patient load [1,27,28].

Reasons for resistance among nurses and administration may vary. For example, nurses may be concerned with issues of double documentation or entering information into computerized medical records. For registration or billing personnel, the issue could be related to the increased workload when lines are formed because of poor functionality of software or unfamiliarity of patients. The use of software in a language not native to the country and frequent access to the Internet may pose additional challenges for the frontline staff [5-7,23,24].

Fear of mistakes is yet another important concern that affects the adoption of technology in healthcare settings. When the use of paper records is practiced, individuals have more control over the process since it is well-known to them. However, in the case of eHealth tools, various additional requirements such as completion of certain fields or mandatory audits will need to be addressed. Mistakes will no longer remain unnoticed and could be easily tracked by others.

Professional autonomy could also contribute to resistance. The issue is that doctors might consider clinical decision support systems and templates as threats to their autonomy. It is particularly applicable to clinical decision support systems, prescribing alerts, and AI-driven technology. As per SMARTHealth India research, decision support is effective if used to help, but not replace, professionals and frontline workers [5-7]. To ensure successful adoption, it is crucial that users recognize the importance of Health IT tools as instruments for professional decision-making.

The absence of perceived usefulness is one of the main sources of resistance. When users perceive no evident advantages of a technology, they tend to use it just because it is

mandatory. Technology acceptance model by Davis states that the two key determinants of technology adoption are perceived usefulness and ease of use [35]. Therefore, in the case of Health IT and Indian healthcare environment, it is vital to ensure that users understand the tangible benefits brought about by such solutions.

The issue of trust is also very relevant. Will the data be safe? Will the system crash during high-traffic times? Will IT help address the problem immediately? Will management place the blame for system failures on users? Both the regulatory concerns discussed by Jain and data security as revealed by Gandhi and Soundappan clearly indicate that the matter of privacy and trust is far from theoretical [16,26]. They significantly impact the willingness to undergo digital transformation.

Lack of proper communication may become an obstacle too. For example, employees may feel left out when decisions are made and communicated after the fact. This causes rumours and confusion. Kotter's change theory emphasizes the importance of creating a sense of urgency, developing coalitions, and communicating vision [35]. The application of change theory in health care implies an explanation of the need for introducing a new system, its consequences, as well as support measures and feedback opportunities.

In summary, the literature points to the fact that resistance is multi-faceted. Resistance can be cognitive, emotional, technical, or behavioural. It can originate with doctors, nurses, administrators, IT experts, or patients. For effective change management, it is imperative to understand the root causes of the resistance before devising any strategy to address it. Training will not work to overcome resistance stemming from usability issues, and communication will not address resistance due to slow infrastructure.

2.8 Change Management and Technology Acceptance Frameworks

The theory of change management as well as the technology acceptance models are useful in explaining whether or not Health IT systems will be either embraced or rejected by practitioners. Since health IT adoption affects work procedures, documentation processes, modes of communication and decision-making, this phenomenon cannot be analyzed in terms of purely technical factors. Change management principles and concepts are essential when analyzing health IT projects.

As far as the Lewin's model is concerned, the implementation of a digital system can be explained in terms of the three phases, which include unfreezing, changing and refreezing. Unfreezing phase refers to preparing doctors, nurses and other staff members for adopting digital technologies by making sure that they embrace change. Changing phase requires training, installation, workflow adjustment and effective support. Refreezing phase includes adopting new digital practices.

The relevance of Kotter's 8-step model can be explained with regards to such critical aspects as the role of leadership, urgency, communication and stakeholders' involvement. When implementing a new IT system in hospitals, there should be a high level of leadership, urgency and communication between doctors/staff and managers/project owners. Users would readily accept such systems provided that they are aware of their purposes and roles.

The TAM model assists in analyzing user acceptance of Health IT technology by two key dimensions, namely usefulness and ease of use. The acceptance is higher when healthcare providers feel that the technological solutions help enhance patient care, save time and facilitate decision-making. Otherwise, resistance emerges when the technology is complicated to use or makes work harder.

On a similar note, the Unified Theory of Acceptance and Use of Technology (UTAUT) model emphasizes performance expectancy, effort expectancy, social influence and facilitation conditions. All these factors have significant importance in the Indian healthcare context, where adoption can be influenced by issues of training support, facilitating conditions, management encouragement and social influence.

Both models provide a good theoretical framework for understanding resistance and adoption of the Health IT technology. Nevertheless, both are provided in this context as theoretical constructs to justify the literature review. Implementation issues are going to be analyzed separately in a dedicated chapter on change management strategies.

2.9 India-Specific Case Studies and Implementation Experiences

There are numerous case studies from the Indian context which demonstrate application of the theoretical principles for Health IT implementation in practical settings. SMARTHealth India initiative is one of the best cases demonstrating the role of m-health technology, decision-support system, community health workers and doctors in improving cardiovascular care in rural settings [5-7]. This particular case study proves that digitalization can be an effective means for reinforcing primary care provided that the technology is well fitted to local practices and training is provided. At the same time, multiple stakeholder involvement is necessary for successful implementation.

Das et al.'s teleconsultation and EMR-based remote care model in ophthalmology is another example that has significant implications for the subject under discussion [9]. In essence, the case study demonstrates that electronic medical records can serve as a basis for quick transitioning to remote care if physical access is unavailable. Change management theory is relevant for this case since it is possible to conclude that prior digital readiness facilitates quick crisis response.

A good illustration of the ability of a healthcare organization to continue offering services via telemedicine during the ongoing pandemic is presented by D'Souza et al.'s paper on the implementation of tertiary care telemedicine in South India [10]. In this case, it is clear that implementation goes beyond merely turning on an available platform. The process also involves scheduling, patient communication, clinician availability, documentation, triage, and follow-up. These are integral elements of the change management process.

As shown by specialty-specific papers in telemedicine, there are certain differences in the way telemedicine is implemented depending on the service offered [11-14,19-22]. Some specialties allow the provision of counseling and effective follow-up in telemedicine while others need the physical presence of clinicians and patients for clinical assessment or testing. Thus, implementation of health IT needs to depend on the nature of the service to be delivered.

The case study of the adoption of the EMR in a major Indian hospital conducted by Scholl et al. is highly relevant because it focuses on important aspects associated with EMR adoption [28]. Adoption of EMR influences core documentation processes; hence, there is need for changes.

One such example of implementing health IT in the public sector can be seen through the case of e-Upchaar HMIS in Haryana state [30]. Public healthcare centers have certain unique challenges in comparison to private hospitals, such as their size and organizational structure, limited resources, and need to coordinate across multiple centers. Implementation of health IT initiatives within the public sector requires certain policies, procedures, and continuous monitoring.

The role of citizens in relation to digital health IDs and Electronic Health Records in northern India is discussed in the literature [26]. In order for a healthcare initiative involving patients

to be effective, people must understand what happens to their information and must trust it. Therefore, change management in healthcare digital transformation should encompass not just staff in the hospital but the general population.

These examples clearly demonstrate that implementing health IT in Indian healthcare is possible and even necessary under some conditions. However, one should focus not only on technology itself but on its adaptation to the context of healthcare institutions and people.

2.10 Literature-Based Insights on Improving Health IT Adoption

From this literature, there emerges a clear indication that successful Health IT adoption in India cannot be achieved simply by installing technology such as software or platform. Health IT adoption will only succeed once the organization has managed to coordinate three important components: People, Process and Technology. Across all studies on EHRs, EMRs, HIS, telemedicine, mHealth and digital health in India, it emerges that user acceptance is greatly influenced by how well the changes are adopted, communicated, supported and sustained.

A number of key strategies emerge from the reviewed literature which may be important in promoting Health IT adoption in India. These include stakeholder engagement, leadership involvement, training, workflow alignment, staged adoption, technical support, communication, privacy, feedback and outcomes monitoring among others. These are some of the key strategies which appear to be linked to the challenges outlined above in relation to the literature review on Health IT adoption in India.

At this point in the literature review, these are only strategies that emerge from literature. They are not yet meant to be an entire implementation plan at this stage of the review.

Table 1: Literature-Based Strategies

Literature-Based Strategy	Brief Relevance
Stakeholder engagement	Helps medical practitioners, nurses, administrative personnel, and even the IT teams to be more part of the process before deployment, thus eliminating feelings of imposition in the adoption of the technology.
Leadership involvement	Brings focus, ownership, and trust. The involvement of the hospital management in supporting the initiative builds trust and confidence.
Training and capacity building	Eliminates fear, boosts confidence, and allows understanding of the new system in terms of its place within daily operations. Multiple sessions of practice training become necessary especially for settings where there is a lack of diverse digital skills.
Workflow alignment	Ensures that the implementation does not disrupt or hinder current operations and procedures. This becomes important in preventing any burden due to increased documentation.
Phased implementation	Facilitates the adoption process through pilots, departmental-level introduction, and gradual expansion. It helps in identifying any issues that may arise.
Technical support	Offers necessary help whenever any error is encountered by the users, such as logging in, connectivity issues, operation challenges, etc.
Communication	Clarifies purposes, advantages, timelines, and any changes associated with the system. It facilitates informed adoption through good communication practices.
Data privacy and trust-building	Answers any concerns regarding issues such as patient confidentiality and consent, data access, etc. It promotes trust in the system.
Feedback mechanism	Ability for end-users to report problems and provide recommendations for improvement. Feedback will help organizations tailor their system to actual practice needs.
Outcome monitoring	Provides monitoring for use, documentation, user satisfaction, efficiency, and clinical outcomes. Monitoring helps to assess whether adoption is having an effect on practice.



To conclude, the literature suggests that the adoption of Health IT can be enhanced by treating it as an organizational change process rather than just implementing technology. The strategies discussed above clearly address the barriers highlighted by literature with regards to Health IT implementation in India. Nonetheless, the implementation of the said strategies is contingent upon factors such as the type of healthcare facility, resource availability, user preparedness, and management commitment.

2.11 Research Gaps Identified from Literature

1. The first significant gap in the Indian literature is that while the issues related to the challenges faced by hospitals with regard to implementing digital health have been identified, most of these problems are not presented in terms of challenges in change

management. The issues discussed include those related to infrastructure, cost, training, privacy, and acceptability.

2. The second gap is the lack of comparative knowledge across stakeholders in the context of Health IT use. There are different experiences when it comes to the use of Health IT by doctors, nurses, IT personnel, administrators, patients, and other groups of users. Research focusing on the experience of using Health IT among different stakeholder groups is needed.
3. The third gap in the literature is that many implementation-related studies consider the adoption of digital health technology during crises, particularly during the coronavirus pandemic. While these studies shed light on the rapid adoption of digital technology during emergencies, more research is needed regarding its sustainability beyond the crisis period.
4. The fourth research gap relates to the lack of empirical evidence of effective change management practices at the hospital level in India. There is some literature available with respect to implementation and use of EMR, telemedicine, and HMIS in India, but there isn’t any comprehensive documentation regarding the change management activities related to communication, feedback, training and leadership.
5. The fifth gap exists between policy-level digital health projects and actual implementation on ground. The policies laid out in ABDM and NDHB are commendable, but there isn’t much literature yet available on hospitals' and end-users' adaptations towards the digital health IDs and interoperable systems.

Table 2: Research Gaps

Research Gap	Evidence from Literature	How the Present Study Addresses It
Change management is often under-explored in Indian Health IT implementation.	Many India-focused studies list barriers such as infrastructure, cost, training and privacy, but do not always integrate them into a formal change management approach [1-4].	The study analyses implementation barriers through a change management lens and proposes a practical framework.
Stakeholder resistance is not always studied across groups.	Studies often focus on doctors, patients, specific specialties or field workers separately [5-14,26].	The dissertation discusses doctors, nurses, administrative staff, IT teams, management and patients as interconnected stakeholders.
Hospital-level implementation lessons are fragmented.	Indian case studies exist for EMR, HMIS, telemedicine and mHealth, but they are spread across different clinical and administrative settings [9,10,28-30].	The study synthesizes lessons from multiple implementation experiences to identify common strategies.
Policy vision and ground-level adoption are not always connected.	ABDM, NDHB and EHR standards provide national direction, but awareness, trust and adoption challenges remain [26,31-33].	The research correlates national digital health policies to change management needs within healthcare organizations.
Sustainability after implementation has been under-addressed in the research.	Telemedicine research during the pandemic period reveals fast adoption, yet stability needs more focus [8-14].	Post-implementation sustainability has been taken into account in the recommended model.

2.13 Summary of Review of Literature

This chapter's literature review demonstrates that the introduction of Health IT in India is associated with many interrelated factors. Digital technologies such as EHR, HIS, telemedicine, mHealth, and CDSS could potentially improve accessibility, documentation, and follow-up, but their success relies on several criteria, including infrastructure, training, workflow compatibility, leadership, and user acceptance.

Studies of the Indian experience suggest that the introduction of new technologies into the healthcare system encounters challenges, including poor infrastructure, high costs, problems related to patients' privacy, low levels of digital literacy, lack of standards, issues with information exchange, and uneven organizational readiness. Examples from the cases of telemedicine, EMR, and mobile decision support systems demonstrate that digital solutions could work well when adjusted to the workflow and supported through training and leadership.

Healthcare professionals' resistance to innovations is more complex than merely a refusal of digital solutions. This problem stems from such factors as increased workload and time pressure, poor technology design, potential harm to patient care and responsibility of clinicians, and lack of support.

The theory relating to TAM, UTAUT, Lewin and Kotter will help address the behavioural and managerial issues involved in adopting an innovation. Nonetheless, all these theories have to be adopted to suit the Indian health care setting. For any change management program to succeed in India, some critical steps have to be undertaken, such as assessing readiness, engaging stakeholders, workflow modification, among others.

Chapter 3

CHANGE MANAGEMENT

This chapter will outline an organized approach to change management in the implementation of Health IT in Indian hospitals. The change management framework has been designed based on the issues and barriers identified during the review of literature as well as some best practices for Health IT implementations. These include Electronic Health Records (EHR), Electronic Medical Records (EMR), Hospital Information Systems (HIS), telemedicine, Clinical Decision Support (CDS) solutions and digital health platforms that can work with ABDM.

In this chapter, the primary argument is that Health IT implementation cannot be considered merely an installation of technology. This process involves planning for change at multiple levels – individuals, processes, leadership, communication, training and culture. This is particularly critical given the wide disparity between hospitals in Indian healthcare facilities in terms of infrastructure, budget, staffing and digital maturity.

This chapter, therefore, attempts to translate the lessons learned from the literature into an action plan. First, the methodology behind developing the framework is explained, followed by the proposed READI framework.

3.1 Introduction to Change Management in Health IT Systems

Healthcare information technology implementation has impacts that go beyond technology and affect various aspects of how the organization functions. These include registration, clinical documentation, prescription writing, diagnostic orders, reports access, billing, discharging of patients, interoperability, patient communications and decision making. This is

why implementation will not succeed when efforts concentrate exclusively on buying software or deploying hardware. It is also essential to consider other issues, such as the routines that will be affected and the people who will need to adapt.

For India, where there is great diversity in healthcare delivery, change management becomes even more vital. Various institutions, including corporate hospitals in urban centers, district hospitals, municipal hospitals, charitable hospitals and primary health centers may each require a different implementation strategy. However, the same digital tool may be relevant for all such institutions. What needs to vary is the implementation process itself.

These obstacles identified by the Review of Literature can be classified into eight major categories: limitations of infrastructure, cost implications, interoperability obstacles, training and digital illiteracy issues, disruptions to workflow, issues of data privacy and security, and lack of organizational readiness. All these problems are highly related to human behavior and organizational readiness. For example, limitations in infrastructure will create more frustration among employees; lack of training may cause fear of making errors; inefficient workflow will add to the user workload; and lack of adequate leadership will decrease motivation.

Change management offers a solution in dealing with these problems. It assists healthcare organizations to prepare users for implementation of the technology, involve stakeholders in decision-making processes, justify the need for changes, align digital technology with the work flow, conduct training sessions repeatedly, deal with resistance and monitor adoption of the technology after the implementation. The effective strategy of change management includes taking into consideration that sometimes people are resistant to change because there are real reasons for such resistance, for example, workload, usability and patient safety issues.

In this dissertation, the process of change management is thus defined as a deliberate strategy to facilitate the transition of people and organizations from current manual and fragmented processes, or even partially computerized processes, to sustainable use of Health IT systems. It is about more than just implementing a system; it is about ensuring its acceptance and successful integration into practice.

3.2 Methodology Used for Developing the Change Management Plan

The change management plan presented in this chapter is the result of a methodology-based approach to planning. As the dissertation uses secondary data analysis methods, there will be no need for primary survey data collection or interviews. However, the plan would incorporate results of the literature review, including India-focused cases, policy approaches and theories outlined in the Review of Literature section.

The process consists of a logical sequence of steps. First, the relevant implementation challenges outlined in the literature review were selected. Then, the resistance factors for each stakeholder were determined. Next, a connection was made between the challenges and appropriate change management strategies. Then, the sequential implementation strategy was created so that the hospitals could adopt the health IT systems in stages, rather than implementing them immediately. Finally, monitoring and evaluation strategies were added.

This methodology was chosen for the present study as it allows translating the results of the literature review into a viable framework. It also ensures that the plan reflects the reality of the Indian healthcare system and not just presents an idealized model applicable worldwide. Conceptually, the plan is based on Lewin's change model, Kotter's leader-driven change

model and technology acceptance theories such as TAM and UTAUT.

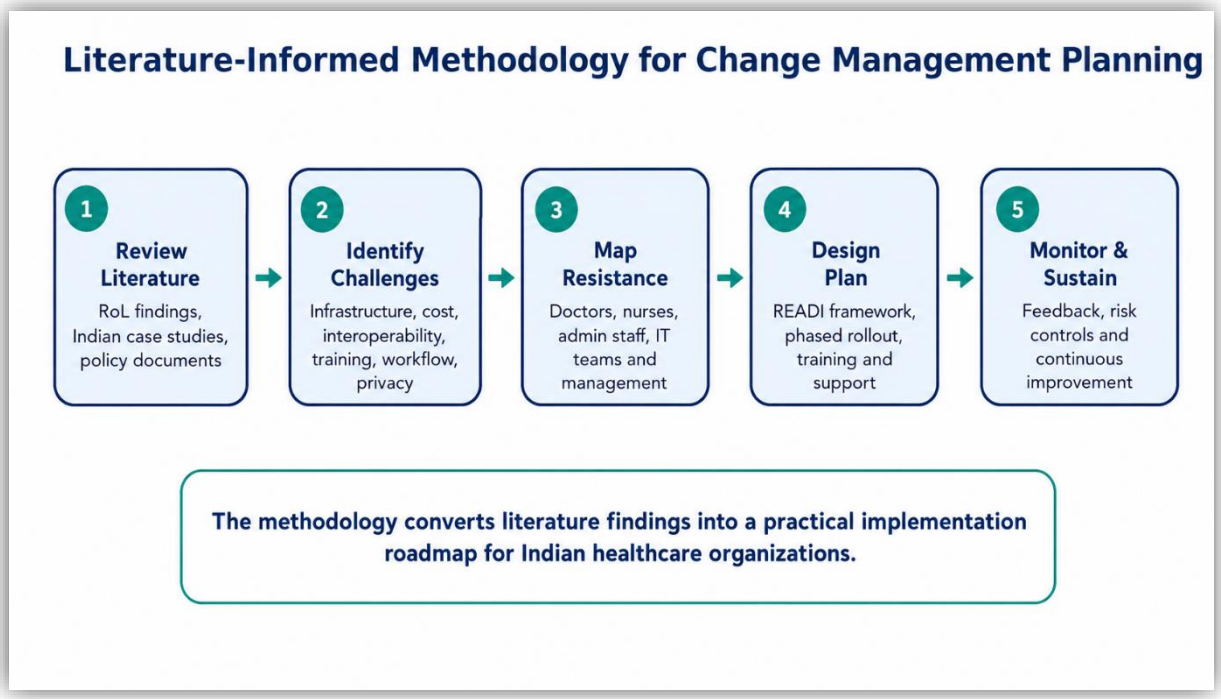


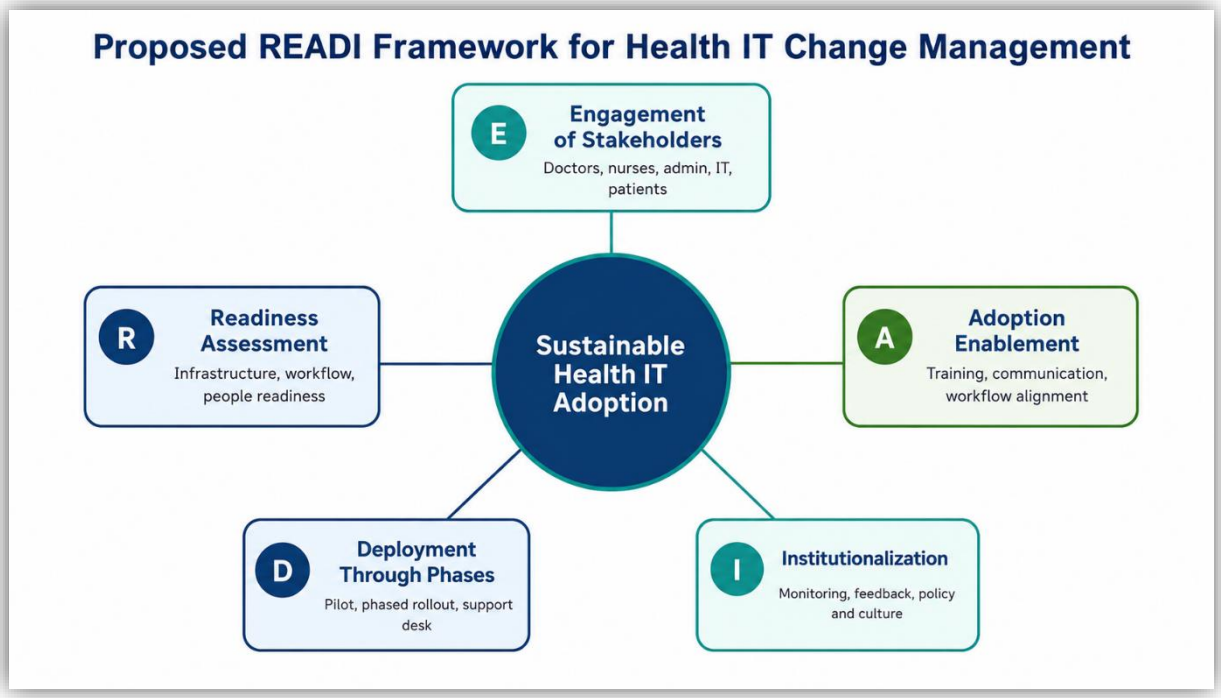
Table 3: Methodological Steps Used for Developing the Change Management Plan

Step	Purpose	Output for the Plan
Identification of implementation challenges	To understand the major barriers emerging from Indian Health IT literature.	Eight core implementation challenges were selected as the base for planning.
Mapping of stakeholder resistance	To identify how different users may respond to Health IT implementation.	Resistance factors were linked with doctors, nurses, administrative staff, IT teams, management and patients.
Strategy alignment	To connect each challenge with suitable change management actions.	A challenge-strategy mapping table was developed.
Framework development	To convert literature-based insights into a simple implementation model.	The READI framework was designed for Indian healthcare settings.
Monitoring and sustainability design	To make adoption measurable and long-term.	Indicators, feedback mechanisms and risk controls were included.

This methodology will help to make sure that the proposed plan will be connected to the literature review part. Indeed, each part of the proposal is created based on some gaps or challenges found in the preceding chapter. In this way, the academic logic of the whole research can be maintained.

3.3 Proposed READI Framework for Health IT Management

In order to develop the change management strategy in a succinct and memorable manner, the concept of the READI model is introduced here. The acronym READI refers to readiness assessment, stakeholder engagement, adoption enablement, deployment by phases, and institutionalization. The idea behind this model is to encourage health care organizations to consider more than just the technical aspect of change.



READI model is appropriate for Indian healthcare setting since the approach takes into account factors such as readiness instead of acquiring technology first. Many cases of failure of Health IT projects happen since many institutions try to implement digital solutions before they have an adequate level of awareness concerning their current situation, such as knowledge of infrastructure, staff working patterns and readiness of leadership to adopt technology.

The second element of READI model – stakeholders' involvement, considers that different groups have various interests when it comes to Health IT project. The third one, namely adoption enablement, is based on training and communication. The fourth phase, implementation through phased approaches, helps to carry out implementation gradually via pilot projects and further phases of implementation. The last but not least element is institutionalization.

Table 4: Components of the Proposed READI Framework

READI Component	Meaning	Main Activities	Expected Result
R - Readiness Assessment	Assess whether the organization is prepared for Health IT implementation.	Infrastructure review, workflow study, staff skill assessment, budget review, risk identification.	Realistic implementation planning and early identification of gaps.
E - Engagement of Stakeholders	Involve all major users before and during implementation.	Stakeholder meetings, change champions, departmental consultation, user concern mapping.	Reduced resistance and improved ownership.
A - Adoption Enablement	Prepare users to adopt the system confidently.	Role-based training, communication, workflow redesign, user manuals, peer learning.	Improved confidence, reduced fear and better system usage.
D - Deployment through Phases	Introduce the system gradually and learn from early stages.	Pilot testing, phased rollout, issue tracking, helpdesk support, vendor coordination.	Controlled implementation and fewer disruptions.
I - Institutionalization	Make digital use part of routine organizational practice.	Monitoring indicators, feedback loops, policy integration, refresher training, leadership review.	Sustainable adoption and continuous improvement.

The READI approach is not meant to replace the existing change management approaches such as Lewin's or Kotter's. However, it converts the general concepts involved in these approaches to a healthcare-focused model that is also India-centric in its planning approach. It ensures simplicity of planning while considering all the aspects of change management.

3.4 Detailed Change Management Plan

The proposed change management plan is designed as a step-by-step process that can be followed by hospitals and healthcare organizations implementing Health IT systems. The plan is not limited to large hospitals. It can be adapted for public hospitals, district hospitals, specialty clinics, primary health centres and private institutions depending on their size and available resources.

The plan begins before software deployment and continues after the system becomes operational. This is important because many implementation efforts fail when planning stops at installation. Users may continue to face difficulties after the system goes live. Therefore, technical support, feedback, monitoring and continuous improvement are treated as part of the plan, not as optional afterthoughts.

The plan also recognizes that Health IT adoption is gradual. Users may initially use only limited features, may enter incomplete data or may continue parallel paper records. These behaviours should not be ignored. They should be understood as signs that further training, workflow correction or leadership support may be required.

Table 5: Step-by-Step Change Management Plan for Health IT Implementation

Step	Purpose	Key Activities	Expected Outcome
1. Establish change governance	Establish a governance framework to manage the process of implementing the Health IT solution.	Form a steering committee consisting of key personnel from the hospital, clinicians, nurses, administrative officials, IT personnel, and vendors.	Ownership, responsibility, and accountability.
2. Assess the readiness of the organization	Determine if the organization is ready to go through digital transformation.	Consider infrastructure, internet connectivity, hardware, current processes, employee capabilities, budget, and data security readiness.	The basis to start on.
3. Map stakeholders and resistance points	Identify who will be affected and how they may respond.	Map doctors, nurses, administrative staff, technicians, IT users, management and patients; document likely concerns.	Early understanding of possible resistance.
4. Prepare a communication strategy	Clearly state the objectives and advantages of the system.	Draft communication material for the relevant departments, hold meetings, prepare FAQs, and set timelines, roles, and expectations.	Enhanced clarity and increased trust.
5. Align processes and workflow	Prevent the disruption of the work processes by the system.	Examine existing workflow and consider redesigning processes such as registration, documentation, ordering, reporting, and discharge.	Improved system-workflow fit.
6. Training and Capacity Building	Confidence building for the end-users.	Training based on roles, demonstration, practice, refresher training, and super-user support.	Enhancing digital literacy and reducing anxiety.
7. Selecting Change Champions	Use the power of peer influence.	Selecting doctors, nurses, administrators, and IT professionals who can act as leaders.	User ownership and support at the local level.
8. Pilot test	Conduct testing before implementation.	Implement in one department, module or facility; document errors, downtime, workflow issues and user feedback.	Early correction before wider implementation.

9. Rollout phase by phase	Implement incrementally over time.	Rollout can be done department-wise or module-wise, through training and helpdesks.	Gradual adoption with minimized risk.
10. User technical support	Users should get technical assistance during system issues.	Set up helpdesk, escalation process, vendor support, downtime protocol and quick issue reporting.	Reduced frustration and higher trust.
11. Evaluate adoption	Monitor if the system is used effectively.	Track usage, data completeness, support tickets, waiting time, user satisfaction and paper record reduction.	Evidence-based assessment of adoption.
12. Institutionalization and Improvement	Make the change sustainable.	Institutionalize digital technology use, evaluate performance and conduct further improvements.	Long-term sustainability of Health IT adoption.

Governance and Ownership: The first consideration should be whether the system is owned by the organization as a whole and not only IT and vendors. Governance can be achieved by setting up a steering committee that will give direction and resolve any conflicts, ensuring clinical, administrative and technical representation. The absence of governance could delay decision making.

Preparation for go-live: A readiness assessment would show the organization where improvements are necessary prior to implementation. The assessment may reveal that some departments are lacking in sufficient numbers of computers, that basic computer training is needed and that there are frequent downtimes when using the internet.

Pilot Implementation: This is important since the organization gets firsthand experience of the system. Pilot projects can show the organization whether users will find it easy to use the system, its impact on work process, how much training is required and any technical problems that might arise. Success of the pilot implementation would instill confidence in other departments.

Sustainability Post Go-Live: The system cannot be said to be successful simply because it is operational. Success depends on usage, data quality, user satisfaction and improvement of processes.

3.5 Implementation Roadmap and Timeline

The change management process should follow a phased roadmap implementation strategy. This is critical particularly in an Indian healthcare environment, where budget, infrastructure and personnel preparedness can be managed incrementally. It will help mitigate any stress that some departments could experience in addition to their workload.

The following timeline is illustrative of what could be done depending on whether it is an entire HIS that is to be deployed in a larger organization or a particular module such as digital registration or telemedicine services. What is important in each stage is having defined actions, people involved and results.

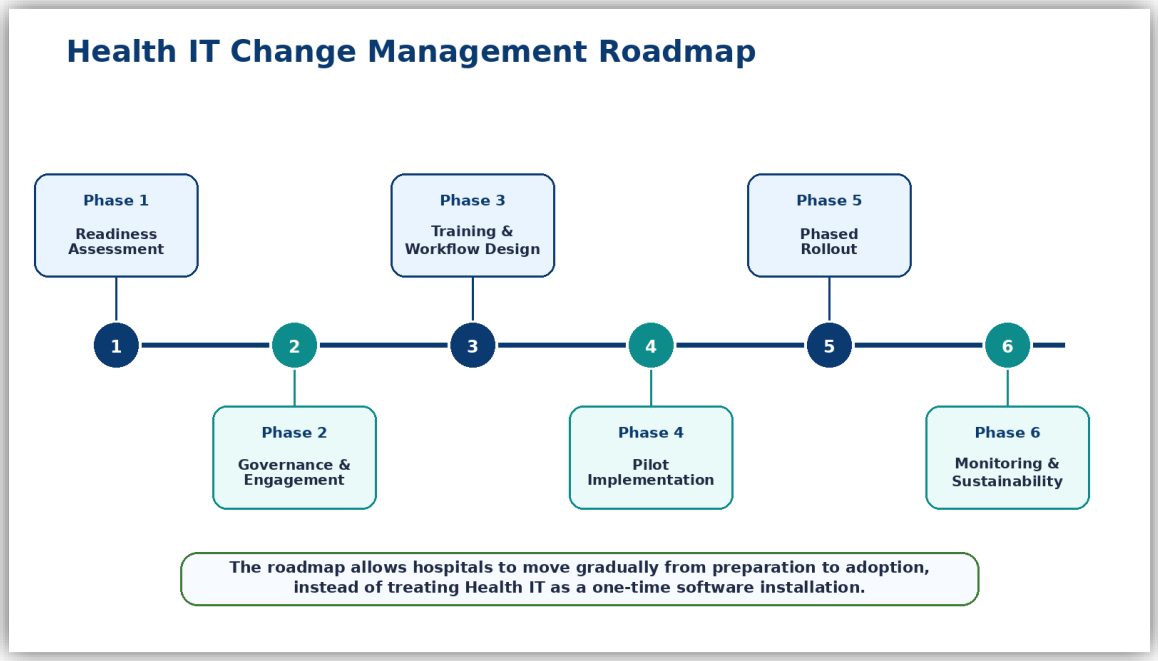


Table 6: Indicative Implementation Timeline for a Health IT Change Management Plan

Phases	Durations	Major Activities	Key Deliverables
Phase 1: Preparation & readiness	Month 1	Readiness assessment, stakeholder mapping, governance setup, risk assessment.	Readiness report, stakeholder map and governance committee.
Phase 2: Planning and design	Month 2	Communication planning, workflow mapping, process redesign, training schedule, data security planning.	Implementation plan, communication plan, training plan and workflow maps.
Phase 3: Pilot implementation	Month 3	Pilot run in chosen department/module, issue management, user feedback & early fixes.	Pilot report, revision of deployment plan.
Phase 4: Progressive rollout	Month 4-5	Rollout to departments, helpdesk facility, refresher training, and adoption monitoring.	System usage by planned departments.
Phase 5: Stabilization phase	Month 6	Pending issue resolution, data quality assurance, reduced parallel paper processing & evaluation.	Stabilization report and improvement action list.
Phase 6: Sustainability phase	Month 6 onwards	Monitoring, feedback collection, policy embedding & refresher training.	Continuous improvements & sustainable adoption.

Roadmap is another tool for helping the hospital management set realistic expectations. The user must understand that problems at the onset are normal, and help will be provided throughout the process. A phased roadmap minimizes fear since it indicates that change is not being forced upon the organization.

3.6 Strategies to Overcome Key Challenges Identified in the Literature Review

The Review of Literature indicated that there were eight major issues involved in implementing Health IT in India. The change management plan should address these issues. The table below links each issue to relevant strategies and contributions from them.

Table 7: Mapping of RoL Challenges with Change Management Strategies

Challenge Identified in RoL	Change Management Strategy	Expected Contribution
Infrastructure limitations	Readiness assessment, minimum infrastructure checklist, backup internet, hardware planning and phased rollout.	Prevents system downtime from becoming a reason for rejection.
Cost and sustainability concerns	Prioritize essential modules, use phased budgeting, demonstrate pilot value and include maintenance costs in planning.	Improves management commitment and reduces financial uncertainty.
Interoperability issues	Adopt standard-based systems, vendor coordination, data exchange planning and ABDM alignment where applicable.	Reduces digital silos and duplicate data entry.
Training and digital literacy gaps	Role-based training, hands-on practice, super-user model, refresher sessions and simple job aids.	Builds confidence and reduces fear of errors.
Workflow disruption	Workflow mapping, process redesign, user testing and clinical involvement before rollout.	Aligns the system with real work practices.
Data privacy and security concerns	Access control awareness, consent communication, privacy training and clear accountability.	Improves trust in digital systems.
Low organizational readiness	Leadership involvement, governance committee, change champions and feedback mechanisms.	Builds ownership and prepares the organization for change.
Variation across healthcare settings	Context-specific implementation plan, modular rollout and locally adapted training.	Ensures the plan fits different types of Indian healthcare facilities.

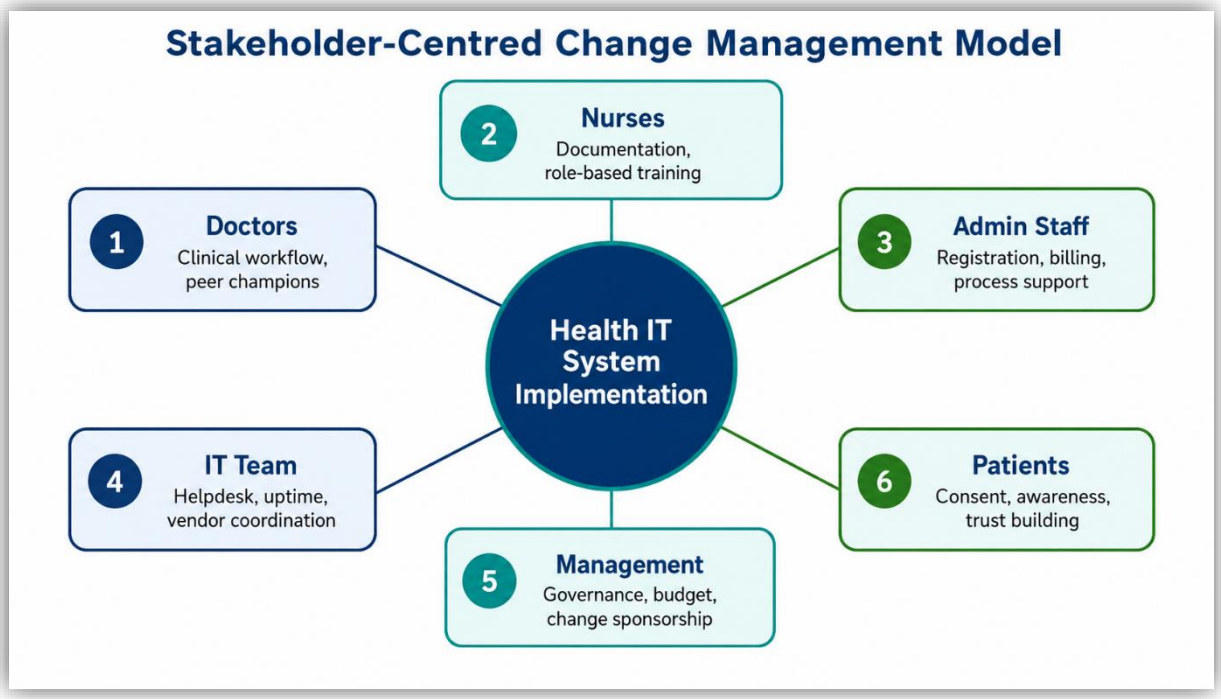
The mapping above is very critical as it reveals that the proposed plan is quite practical. The recommendations presented above are tied to an existing challenge within the literature. For instance, training is geared towards resolving digital literacy and the fear of making errors, while workflow mapping helps in resolving the challenge that HITS could possibly make the workload too high and disrupt clinical processes.

Stakeholder involvement and support from the management resolve organizational readiness issues; data privacy training is linked to addressing trust issues. Rollout in phases resolves the

infrastructural issues. The mapping makes the plan realistic as it understands that there cannot be one strategy that resolves all challenges related to health IT implementation.

3.7 Stakeholder-Specific Change Management Plan

Various stakeholders view the implementation of Health IT in various ways. Doctors may have issues with extra documentation and lost clinical time. Nurses may fear duplication and medication errors. Administrators may encounter problems pertaining to enrollment, billing and accuracy of records. The IT personnel may deal with user dissatisfaction and IT management. Management in the hospital will be concerned about costs and compliance. Patients may have issues with privacy and use of technology.



It is important to design a plan that addresses stakeholders specifically. Failure to do so may reduce the success of the process since each category will have varying issues. The following plan highlights potential concerns as well as the appropriate change management strategies.

Table 8: Stakeholder-Specific Change Management Plan

Stakeholder	Likely Concerns	Change Management Actions	Expected Outcome
Doctors	Increased documentation time, disruption in clinical workflow, concern about autonomy and clinical judgement.	Involve doctors in workflow design, appoint clinical champions, provide specialty-specific training and reduce unnecessary data entry.	Improved clinical acceptance and better quality of digital documentation.
Nurses	Double documentation, medication errors, handover issues and workload pressure.	Provide hands-on role-based training, simplify nursing forms, create quick reference guides and ensure floor-level support.	Reduced anxiety and smoother nursing workflow.
Administrative staff	Registration delays, billing errors, reporting pressure and fear of accountability.	Provide process training, mock practice sessions, helpdesk support and clear escalation channels.	Faster registration, better billing accuracy and improved reporting.
IT team	System downtime, user complaints, vendor coordination and data security responsibilities.	Define escalation protocol, uptime monitoring, vendor support schedule and user issue classification.	Stronger technical support and quicker problem resolution.
Hospital management	Cost, return on investment, staff resistance, compliance and sustainability.	Use dashboards, adoption indicators, governance review meetings and phased budgeting.	Better decision-making and sustained leadership support.
Patients	Privacy concerns, lack of awareness, difficulty in using digital platforms and consent confusion.	Provide simple communication, consent explanation, helpdesks and multilingual support where possible.	Improved trust and patient cooperation.

3.8 Training, Communication and Support Plan

Training and communication are two essential components that help overcome resistance. While training is used to build skills, communication builds knowledge. Although a user can understand how to use the system, he/she may still resist it if the reasons behind change are not well understood. The same goes for digital transformation; users may approve the idea,

but if they lack adequate training, they will experience anxiety. This is why both aspects need to be considered together.

First of all, a role-based training approach needs to be followed. Different people require different types of training. It would be inappropriate to provide the same training material to physicians, nurses, administrators, and information technology staff. Physicians may be trained to handle order entry and decision support. Nurses may be trained in medication records, handovers, and documentation of patient care. Administrators may require training in registration, billing, and reports.

It should be clear, repeated, and open. The users need to understand why the new system is needed, what will change and when, whom they can seek help from, and how their comments will be valued. Moreover, communication shouldn't create false expectations. Rather than saying that there will be no issues at all, it would be more beneficial for the company to tell that the beginning will have problems.

Table 9: Role-Based Training Plan

User Group	Training Focus	Training Method	Suggested Timing
Doctors	Clinical documentation, e-prescription, diagnostic ordering, report viewing, decision support and privacy practices.	Workshops, specialty-specific demonstrations, peer champion support and case-based practice.	Before pilot, before rollout and refresher after go-live.
Nurses	Nursing notes, medication administration, vitals entry, handover documentation and discharge coordination.	Hands-on ward-based sessions, simulation practice and quick reference sheets.	Repeated short sessions before and during rollout.
Administrative staff	Registration, appointment scheduling, billing, insurance data, reporting and error correction.	Process demonstrations, mock registration drills and supervised practice.	Before pilot and during first weeks of rollout.

IT team	System configuration, user support, downtime protocol, access management, ticketing and vendor escalation.	Technical training, vendor-led sessions and escalation drills.	Before pilot and continuously during implementation.
Management	Adoption dashboards, implementation risks, resource requirements and review indicators.	Briefing sessions, dashboard orientation and governance meetings.	Monthly during implementation and quarterly after stabilization.

Table 10: Change Communication Plan

Stage	Message Focus	Target Audience	Communication Channels
Pre-implementation	Why the system is being introduced; expected benefits; broad timeline.	All staff, department heads and management.	Town hall meetings, departmental briefings, emails and posters.
Training phase	Training schedule, user roles, support contacts and practice expectations.	Doctors, nurses, admin staff and IT users.	Training calendars, WhatsApp/email updates and department notices.
Pilot phase	Pilot scope, known issues, feedback channels and correction plan.	Pilot department and related departments.	Daily huddles, issue logs and short feedback meetings.
Rollout phase	Go-live dates, helpdesk support, escalation routes and downtime protocol.	All affected users.	Go-live circulars, helpdesk cards and floor support announcements.
Post-implementation	Adoption progress, improvements made, user feedback and next steps.	All stakeholders including management.	Monthly dashboards, feedback summaries and review meetings.

An effective support process is equally critical. The users should not be left alone once the training process is over. There should be a process of providing help, floor walkers during go live, issue escalation procedures, response times, and reviewing recurring issues. This is because recurring unsolved issues will force them to revert to their old ways.

3.9 Monitoring, Evaluation and Continuous Improvement

Monitoring and evaluation will tell us if the adoption of the Health IT system has been achieved and if any improvements in work process have been made through the adoption. Implementation of the system should not just be based on the installation of the software

itself. It should rather be based on how often it is used, how complete its database is, how many errors happen and how soon it can resolve those errors.

The system must include both quantitative and qualitative measurements. Some examples of quantitative measures would be frequency of log-ins, data input completion, decrease in the amount of paperwork, ticketing, and patient waiting time. On the other hand, some qualitative measures could include user satisfaction, workload perception, system trust level, and department feedback.

Continuous improvement is inevitable since no Health IT system can be considered perfect during implementation. There may be a need to change the workflow processes, simplify the forms needed, re-train users, and even correct problems brought about by the vendors of the Health IT system.

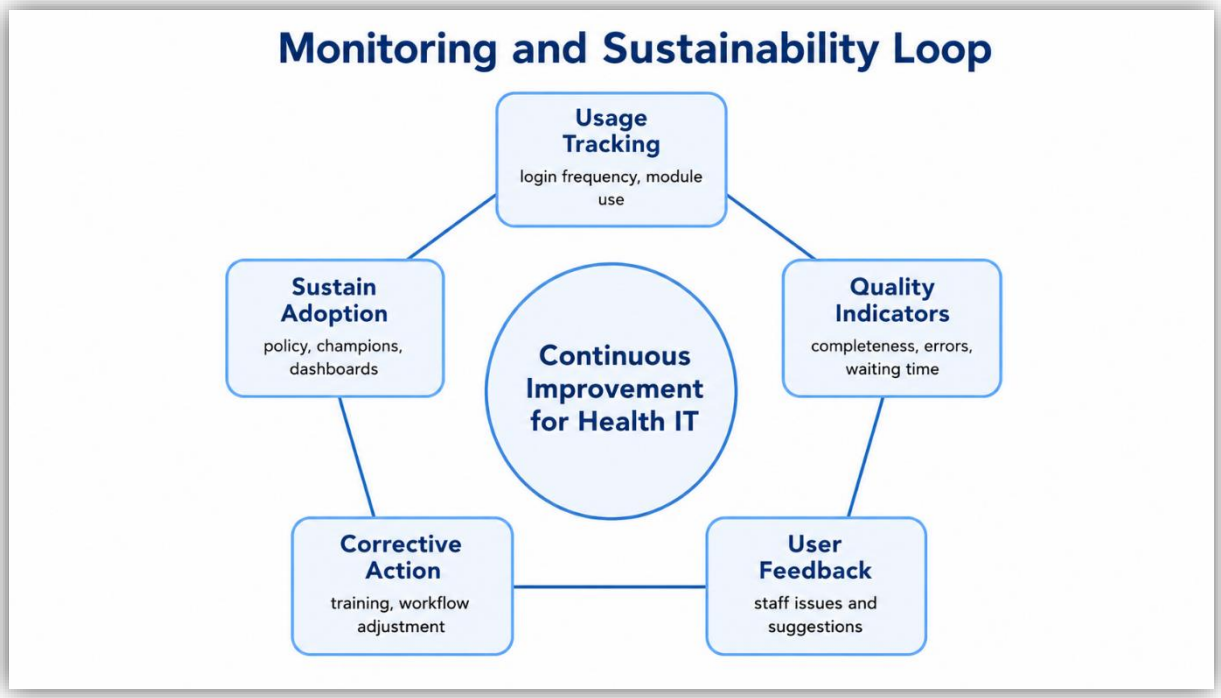


Table 11: Monitoring and Evaluation Indicators

Indicator	What It Measures	Data Source	Suggested Target / Interpretation
Training coverage	Percentage of target users trained before go-live.	Training records.	At least 90% of identified users trained.
System usage	Number of active users and login frequency by department.	System logs.	Increasing usage trend after rollout.
Data completeness	Completeness of mandatory fields in digital records.	EHR/HIS reports.	Improved completion rate over time.
Support tickets	Number and type of issues raised by users.	Helpdesk records.	Reduction in repeated issues after stabilization.
Workflow efficiency	Time taken for registration, documentation, report retrieval or discharge process.	Time-motion review or system reports.	Reduced delays after stabilization.
User satisfaction	Perception of ease of use, usefulness and support quality.	Short surveys or feedback forms.	Improvement across review cycles.
Paper record reduction	Extent to which parallel paper documentation decreases.	Department audit.	Gradual reduction in duplicate paper work.
Privacy and access compliance	Appropriate role-based access and awareness of privacy rules.	Audit logs and training records.	Reduced unauthorized access risks.

Review of the indicators can be done periodically by the governance committee. At the initial stages, which may last for a few weeks following the implementation of the system, the review can be on a weekly basis. Once the system is stabilized, the reviews can be done on a monthly basis. Once the system has become normalized, a review may be needed only once every three months.

3.10 Risk Management Plan

The adoption of Health IT in any organization has its own set of risks that the system can be faced with. Such risks can range from technical problems to user behaviour problems or

managerial issues. A change management process can therefore help to identify such risks and develop mitigation strategies accordingly.

Risk management is even more important in the healthcare setting due to the sensitive nature of the systems being used. This is because, in some cases, failure to use the system properly can result in poor patient care. A hospital should therefore come up with its own plans on how to manage such situations.

Table 12: Risk Management Plan for Health IT Change Implementation

Risk	Possible Impact	Mitigation Strategy
Staff resistance	Low system usage, continued paper records and negative attitude toward implementation.	Early stakeholder engagement, change champions, role-based training and feedback meetings.
System downtime	Delayed registration, clinical documentation and reporting.	Backup internet, downtime protocol, vendor support and scheduled maintenance planning.
Poor training	Data entry errors, frustration and avoidance of system use.	Repeated hands-on training, refresher sessions and floor-level support.
Workflow mismatch	Increased workload and user dissatisfaction.	Workflow mapping, pilot testing and process redesign before full rollout.
Budget constraints	Delayed implementation, limited support or inability to upgrade.	Phased rollout, prioritization of essential modules and inclusion of maintenance costs.
Privacy breach or fear of breach	Loss of trust among staff and patients.	Access controls, privacy training, audit logs and clear accountability.
Vendor dependency	Slow issue resolution and lack of internal capability.	Service-level agreements, knowledge transfer and internal IT capacity building.
Leadership disengagement	Weak accountability and reduced staff motivation.	Governance meetings, adoption dashboards and visible leadership communication.

It is necessary to note that the process of risk management cannot be viewed solely as a document. Its implementation needs to be tracked continuously since new risks can arise

during piloting, launch, and stabilization. Therefore, a risk register will provide an opportunity for continuous identification, assignment of responsibilities, and their resolution.

3.11 Context-Specific Adaptation for Indian Healthcare Settings

The most important conclusion, which has been reached based on the literature review, concerns the non-uniformity of Indian healthcare institutions. No matter how effective any change management plan might be, there is no guarantee that the same approach to its implementation can yield the same result in different settings. For example, a tertiary corporate hospital could enjoy stronger IT infrastructure and financial capabilities while a district hospital could face a higher load and insufficient staff numbers. A primary health centre could rely on community health workers and simpler infrastructure. Telemedicine project could imply remote locations, varied levels of connectivity, and patient side problems related to digital skills.

Therefore, even though the same change management steps have to be included into the plan, its implementation could be customized depending on the institution where changes would be implemented.

If we look at a big hospital, then the implementation process might require some champions by departments, sophisticated dashboards and an official helpdesk facility. If we consider small hospitals, then implementation can emphasize on important modules, basic training and easy reporting. In case of primary care, emphasis can be on mobile-enabled processes, training and supervision of CHWs (Community Health Workers). Implementation in telemedicine would emphasize on scheduling, protocols, communication, and medico-legal issues.

The reason behind adopting this contextual methodology is to avoid the common error made during implementation: thinking that technology by itself would bring about a standardized use.

Table 13: Context-Specific Adaptation of the Change Management Plan

Healthcare Setting	Likely Contextual Issues	Suggested Change Management Adaptation
Tertiary / corporate hospitals	Multiple departments, high patient volume, stronger infrastructure, specialized clinicians.	Department-wise champions, advanced workflow mapping, phased module rollout, dashboards and formal governance meetings.
Government / district hospitals	High patient load, resource constraints, administrative complexity and public accountability.	Prioritize essential workflows, ensure leadership support, use simple training material and provide strong go-live support.
Primary Health Centres	Limited infrastructure, frontline worker dependence and community-level service delivery.	Mobile-friendly tools, repeated hands-on training, supervisor support and simplified data entry.
Small nursing homes / clinics	Limited staff, limited budget and less formal IT structure.	Start with minimum viable modules, low-cost training, vendor support and gradual record digitization.
Telemedicine services	Remote consultation, patient-side digital literacy, connectivity challenges and medico-legal concerns.	Clear consultation protocols, patient communication scripts, consent awareness and contingency processes.
ABDM-linked digital health initiatives	Interoperability, consent, digital health IDs, patient awareness and data exchange.	Awareness building, privacy explanation, staff orientation on ABDM workflows and standards-based implementation.

The adaptability of the plan makes the approach realistic as opposed to having to use the same plan for all the health care organizations, the plan can be adapted to suit the unique situation of the respective healthcare organization.

3.12 Operational Domains Covered by the Change Management Plan

Implementation of the Health IT will have an impact on various operational domains within a healthcare organization. In cases where change management is geared towards addressing the needs of the clinicians alone, there might be a lot of other things left untouched, like having problems in registration due to difficulties with patient identification and scheduling, billing due to issues with insurance data, laboratories due to order entry and report interfaces and pharmacies due to prescribing and stocking.

For this reason, a good plan must identify those operational domains impacted by the system and devise appropriate steps for each. This will go a long way in alleviating any confusion that might arise during the process, and also ensure that the other dependent departments are also catered for.

Below is a tabulation of the operational domain-wise change action. It can be referred to by the hospital implementation team to make sure that all necessary domains have been covered before going live.

Table 14: Operational Domain-Wise Change Management Actions

Operational Domain	Possible Implementation Concern	Change Management Action
Patient registration and appointments	Duplicate records, incorrect demographic details, queue delays and appointment confusion.	Patient identification protocol, registration training, duplicate-check process and clear queue management workflow.
Outpatient department	Increased consultation time, difficulty using e-prescription and clinical documentation burden.	Doctor-specific templates, quick entry options, OPD support desk and specialty-wise pilot testing.
Inpatient care and nursing stations	Medication documentation, vitals entry, handover and discharge coordination issues.	Ward-level training, nursing super-users, medication safety checks and simplified handover formats.

Laboratory and diagnostics	Order entry errors, delayed report upload and integration problems.	Clear ordering workflow, test code standardization, report verification and coordination with clinical users.
Pharmacy	Prescription readability, stock linkage, dispensing workflow and medication reconciliation.	E-prescription training, pharmacy integration testing and error-reporting workflow.
Billing and insurance	Coding errors, claim delays, package mapping issues and patient dissatisfaction.	Billing process mapping, payer-related training, audit checks and escalation mechanism.
Medical records department	Data completeness, coding, retrieval and record retention concerns.	Digital record policy, documentation audit and role-based access training.
Hospital administration	Reporting, dashboard interpretation, compliance monitoring and resource planning.	Management dashboard training, periodic review meetings and adoption scorecards.

Another benefit of using the operational domain-wise approach is that it allows for more accountability. Each department will know their responsibility in the move to digitalization, and the implementation team will be able to track which areas need further help. This avoids the scenario where the system is live but weak operationally.

3.13 Data Migration, Privacy and Trust-Building Plan

The aspect of data can also be said to be very sensitive. With the transfer of data from paper files or old IT systems to the newly implemented Health IT, there will need to be consideration of accuracy, completeness, confidentiality and access control aspects. Poor migration of data could hurt users' trust due to the discovery of missing or wrong data. In addition, the patients might be worried about issues to do with the storage and sharing of their health information.

Change management needs to include considerations on privacy and trust building strategies. The fact that a health IT has good privacy features does not suffice. The user ought to be informed on how privacy works in the system, access permissions, consent process and their

roles in terms of the maintenance of privacy. For example, healthcare providers ought to be familiar with whom they can share record information with, password protection requirements, auditing processes and privacy incidents reporting.

Data migration ought to be done in phases. First, the essential data can be migrated then historical information when needed. Validation should involve all users, clinicians and administrators inclusive.

Table 15: Data Migration and Privacy Change Management Plan

Component	Purpose	Practical Action
Data inventory	Identify what records exist in paper or older systems.	Prepare a list of data types, departments, file formats and priority records.
Data prioritization	Decide which information must be migrated first.	Prioritize active patients, recent encounters, critical clinical history and legally required records.
Data cleaning	Improve accuracy before migration.	Remove duplicates, correct obvious errors and standardize basic fields where possible.
Validation	Check whether migrated data is accurate and usable.	Use sample verification by clinical, administrative and IT representatives.
Access control	Protect patient confidentiality.	Define role-based access and communicate access rules clearly to users.
Consent and patient awareness	Improve trust in digital records.	Explain how records are stored, accessed and shared, especially in ABDM-linked workflows.
Audit and accountability	Prevent misuse and support governance.	Use audit logs, password discipline, incident reporting and periodic review.
Continuous correction	Fix data problems after go-live.	Create a process for reporting and correcting incorrect or incomplete records.

Trust is considered to be an outcome of behavior. Even when the technology is secure, users can resist because they do not understand how their privacy will be ensured. An open

communication process about privacy will eliminate the risk and enhance trust among health care professionals as well as patients.

3.14 Adoption Maturity Model for Health IT Implementation

Adoption of health IT is not a static process that occurs at once. A hospital may progress from mere awareness to limited usage, further to usage, and finally to optimized usage. Such an understanding helps the organization manage unrealistic expectations and recognize its current state in order to make necessary improvements to achieve the next stage.

The suggested maturity framework consists of five levels. Level 1 involves mostly manual operations and low digital readiness on the part of the organization. In Level 2, some digital tools might be available but usage of those is uneven. Level 3 refers to implementation of Health IT and its usage by the end users. In Level 4, Health IT is embedded in all organizational units. Finally, Level 5 involves the use of digitized information in decision making.

Table 16: Health IT Adoption Maturity Model

Maturity Level	Characteristics	Change Management Focus
Level 1: Manual / low readiness	Paper-based work, limited infrastructure and low staff confidence.	Basic readiness assessment, infrastructure planning and awareness building.
Level 2: Early digital use	Some digital tools exist but usage is partial or department-specific.	Training, workflow mapping and leadership communication.
Level 3: Routine system use	Most users use the system for core tasks, but support needs remain high.	Helpdesk support, issue tracking, refresher training and data quality review.
Level 4: Integrated adoption	Departments exchange information digitally and workflows are more stable.	Interoperability planning, dashboard review and reduction of parallel paper processes.
Level 5: Optimized and sustained use	Digital data supports quality improvement, management decisions and patient-centred care.	Continuous improvement, analytics, policy integration and innovation.

The value of the maturity model is in its ability to minimize the sense of urgency in declaring success right after go-live. It helps healthcare providers see the adoption process as one where the progress continues to be made, progressing from implementation to integration and sustainability.

3.15 Downtime, Backup and Operational Continuity Plan

One of the possible factors why the health care personnel may resist the use of digital systems is the fear that the system might fail. In a busy hospital environment, any delay caused by downtime will interfere with the tasks related to patient registration, issuing prescriptions and diagnostics, accessing reports, and processing bills. In case users are afraid that the digital system may fail, they will have to rely on paper-based documentation, which will increase the time required to input the information later. Thus, a downtime and backup strategy is crucial for change management.

The downtime strategy should outline actions taken by users in case the system goes down. These include using temporary documentation methods, contacting particular individuals, informing supervisors, reporting system downtime, updating records after system recovery, and checking data accuracy.

Operational continuity also involves backups for data, cybersecurity, as well as communication during technical disruptions. Rather than providing users with complicated explanations regarding technical details, they should get straightforward instructions on how to handle issues that arise.

Table 17: Downtime and Operational Continuity Plan

Scenario	Possible Impact	Continuity Action
System slowdown	Users experience delay but system remains partially functional.	Inform helpdesk, avoid repeated submissions, use priority workflow and monitor response time.
Complete system downtime	Digital documentation and transactions stop temporarily.	Activate downtime forms, inform departments, escalate to IT/vendor and document all critical actions.
Internet failure	Cloud-based or connected functions may be affected.	Use backup internet, offline process where available and communicate expected restoration.
Power disruption	Hardware and network devices may stop working.	Use UPS/generator support, protect devices and activate paper-based emergency workflow.
Data entry backlog after restoration	Information recorded during downtime must be entered into the system.	Assign responsibility, validate entries and mark records as downtime back-entry where applicable.
Cybersecurity concern	Suspicious access, phishing or possible breach.	Report immediately, restrict access if needed, preserve logs and follow privacy incident protocol.

Having a detailed plan of action in case of technical disruption may help lower the resistance since it ensures patients will still be cared for despite technical issues. Additionally, it helps avoid chaos and finger-pointing.

3.16 Pre-Go-Live Readiness Checklist

Prior to implementing a Health IT system, the implementation team should make use of a readiness checklist. The checklist ensures that all the necessary personnel, processes, and technology aspects have been properly addressed by the organization. A readiness checklist helps since it makes it easier for the governing board to analyze the entire implementation plan by breaking down the process into actionable items.

This checklist should never be taken lightly, especially if there are many issues left unresolved. In such a case, the go-live date will either be delayed or the process restricted to a pilot phase only.

Table 18: Pre-Go-Live Readiness Checklist

Checklist Item	Responsible Group	Suggested Completion Stage
Governance committee formed and roles defined	Leadership / project team	Before implementation planning
Infrastructure assessment completed	IT team	Before pilot
Department workflows mapped	Project team with department users	Before configuration and training
Role-based access rights defined	IT team and management	Before user creation
Training schedule completed for target users	Training team / department heads	Before go-live
Change champions identified	Department heads	Before pilot
Communication plan circulated	Project team	Before pilot and rollout
Helpdesk and escalation process ready	IT team / vendor	Before go-live
Downtime protocol prepared and shared	IT team and operations	Before go-live
Pilot feedback reviewed and corrections made	Governance committee	Before phased rollout
Data privacy awareness completed	Management / IT / compliance	Before full rollout
Monitoring indicators finalized	Project team and management	Before stabilization phase

The readiness checklist serves as an easy tool for management to determine if the organization is ready for implementation. Additionally, there is a sense of accountability involved in that there is an individual or department responsible for each task.

3.17 Responsibility Assignment Matrix for Implementation

A clear responsibility structure is necessary in view of the fact that the Health IT implementation affects various departments simultaneously. When no such structure is defined, then tasks can become redundant or incomplete. For instance, the IT department might expect department managers to organize training sessions, while the latter expects vendors to handle all implementation activities. This confusion will only work towards reducing implementation efficiency and user acceptance.

A responsibility matrix will ensure that everyone knows who is responsible, accountable, supporting and consulted or informed. This can be implemented as an RACI matrix where 'R' means Responsibility, 'A' implies Accountability, 'C' is for Consultation, while 'I' represents Informed. The reason for implementing this is not to complicate things but to assign ownership to each of the major activities.

In the context of this dissertation, the responsibility matrix will be created in such a way that it will fit into the hands of any organization. It will only depend on how a big hospital decides to implement it, by making it more specific to the organizational departments involved.

Table 19: Responsibility Assignment Matrix for Health IT Change Management

Implementation Activity	Responsible	Accountable	Consulted / Informed
Readiness assessment	IT team and project coordinator	Hospital leadership / steering committee	Consulted: Department heads, vendor; Informed: all affected users
Workflow mapping	Project team with department representatives	Clinical and administrative leadership	Consulted: Doctors, nurses, registration, billing and diagnostics staff; Informed: IT team and vendor
Training planning	Training coordinator / vendor trainer	Project lead	Consulted: Department heads and change champions; Informed: all target users
Communication rollout	Project coordinator	Hospital leadership	Consulted: HR / administration and department heads; Informed: all staff
Pilot implementation	Pilot department and IT team	Steering committee	Consulted: vendor, clinical champions and admin representatives; Informed: other departments

Issue resolution	Helpdesk / IT team	IT lead	Consulted: vendor and concerned department; Informed: project committee where needed
Privacy and access control	IT team / compliance lead	Hospital management	Consulted: department heads and legal/compliance advisors; Informed: all system users
Monitoring and reporting	Project team / quality team	Hospital leadership	Consulted: IT team and department representatives; Informed: all stakeholders through summary updates

Responsibility matrix facilitates the smooth implementation process since each critical activity has an individual responsible for it. Another advantage of this tool is that it prevents possible conflicts. If there are any, it will be clear who needs to take action or make a decision. This feature is crucial in pilot or go-live periods since several issues might come up simultaneously.

3.18 Change Management Documentation Pack

Documentation must accompany any Health IT project in order for success to be guaranteed. It promotes consistency when implementation requires different departments or shifts. However, documentation must not necessarily be complicated. In the health care setting, people are likely to use short, practical and easy-to-understand documents rather than technical ones.

Documents used in change management should cover all aspects of planning, training, communication, support and monitoring. Documents can be developed and kept simple to be

easily amended based on the course of implementation. The objective is to make changes visible and controllable.

For instance, doctors are likely to benefit more from a short user guide rather than the entire technical manual. A helpdesk escalation chart can minimize problems during go-live. Frequently asked questions documents can respond to queries about work load, confidentiality, downtime and patient flow. Dashboard templates can aid leaders in reviewing progress without having to wait until lengthy reports are provided.

Table 20: Suggested Change Management Documentation Pack

Document / Tool	Purpose	Main Users
Readiness assessment checklist	To confirm infrastructure, people and workflow preparedness before rollout.	Project team and leadership
Stakeholder map	To identify user groups, concerns and communication needs.	Project team and department heads
Communication brief / FAQ	To explain purpose, benefits, timelines, support channels and privacy safeguards.	All users
Role-based user guides	To support daily use of key system functions for each user group.	Doctors, nurses, admin staff and IT users
Training attendance and competency sheet	To track who has been trained and who needs additional support.	Training team and department heads
Issue log and escalation sheet	To record problems, assign responsibility and track resolution.	Helpdesk, IT team and vendor
Downtime protocol	To guide users when the system is unavailable.	All operational departments
Monitoring dashboard template	To review usage, data quality, support issues and adoption progress.	Management and steering committee

Documentation pack makes sure that the plan on change management gets implemented. If no documentation pack exists, the plan remains purely theoretical. With documentation pack, everyone gets aware of what is required of him, whom he can contact for assistance and how the progress will be assessed.

3.19 Practical Application Scenario: Outpatient Department EHR Rollout

In order to comprehend how the proposed change management strategy may be employed in real life situations, it would be helpful to present a basic scenario for its implementation. For example, let us assume that an average-sized Indian hospital wants to implement the EHR module in their outpatient department (OPD). The OPD will typically have many patients, doctors having little consultation time, and registration staff handling large patient numbers. The sudden introduction of EHR module will make doctors feel that the documentation time has increased, the registration staff will find data entry difficult, and the patients will wait for longer periods of time.

With the aid of the proposed READI framework of change management, the hospital will start with readiness assessment. The computer number, internet connection, OPD patient flow, pattern of consultations by doctors, and digital skills of staff would be assessed. Stakeholders would then be engaged through discussions about the system.

The hospital will then proceed with the redesign of the workflow. For instance, demographic information could be entered by the registration personnel before the visit of the client to the doctor. Doctors will use templates to diagnose illnesses and prescribe drugs to the patients. The nurses will also record patient's vital signs before the consultations take place. The pilot phase will involve just one OPD specialty for two weeks where, during this period, the support staff will be available and the workflow will be documented and improved.

The system can now be rolled out to other specialty clinics after pilot implementation. Management can analyze various parameters such as logins, consultation times, time taken to prepare prescriptions, waiting times by patients and even users' feedback on usability of the program. Doctors will reduce the number of templates used when they find them lengthy. Registrars may be further trained on how to avoid making mistakes when filling the forms.

Table 21: Application of Change Management Plan in an OPD EHR Rollout

Stage	Action	Expected Benefit
Before pilot	Assess OPD workflow, hardware, user readiness and patient volume.	Avoids starting implementation without preparation.
Stakeholder engagement	Consult doctors, nurses, registration staff and IT support.	Identifies likely resistance and practical workflow concerns.
Workflow design	Define who enters patient details, vitals, clinical notes, orders and prescriptions.	Reduces duplication and confusion during consultation.
Pilot rollout	Start with one specialty or limited OPD slot.	Allows controlled testing and early correction.
Go-live support	Keep helpdesk and floor support available during initial days.	Reduces anxiety and prevents return to paper methods.
Monitoring	Track usage, waiting time, documentation completeness and support tickets.	Provides evidence for improvement.
Scale-up	Expand to other specialties after correcting pilot issues.	Supports gradual and safer adoption.

The case of OPD illustrates the applicability of the proposed approach in practice. This example highlights the possibility to apply the same principles to the day-to-day decision-making process. Scenario planning might be helpful for hospital administrators and implementers because it allows connecting the theories of change management with practical issues.

3.20 Leadership, Governance and Change Champions

Leadership plays an important role in the success of the project. Hospital leaders' involvement increases the likelihood that users will appreciate the necessity of the project. Support from leaders does not mean only their approval of the budget. They should explain the importance of the system and participate in discussions, overcome difficulties, and help departments during the critical moments.

Governance is a way to make decisions and create solutions in a timely manner. The decisions required at the stage of implementation might be related to such things as workflow development, access to information, confidentiality policies, vendor coordination, departments' priorities, etc. Governance allows addressing these questions in a timely manner.

The Change Champions are members of the department who have the knowledge about the change and assist the rest of the users. They are extremely helpful because employees generally tend to believe what their colleagues say than an outsider like a trainer or vendor. An accomplished doctor, nurse, or administrator will provide real insights into the benefit of using the system.

Table 22: Suggested Governance Roles for Health IT Change Management

Governance Role	Key Responsibility
Hospital leadership	Provide vision, approve resources, review progress and remove organizational barriers.
Clinical representatives	Ensure that the system supports patient care and clinical workflow.
Nursing representatives	Identify documentation, medication and ward-level workflow needs.
Administrative representatives	Support registration, billing, reporting and patient flow processes.
IT team	Manage technical readiness, support desk, security and vendor coordination.
Change champions	Promote adoption within departments and collect practical feedback.
Vendor representatives	Support configuration, training, troubleshooting and system improvements.

3.21 Sustainability and Institutionalization of Change

Institutionalization is the last objective of managing change. The process of institutionalization is achieved by making the digital system integral to the operations of the organization instead of being only an initiative within the organization.

Sustaining the adoption of a digital system calls for including the processes in the organization's policies and job descriptions as well as performance evaluation systems. Orientation regarding the Health IT should be provided to the newly recruited members of the workforce. Refreshment courses need to be scheduled at periodic intervals. Usage statistics should be analyzed by management. Improvement possibilities should be brought to notice by the departments.

Apart from that, sustaining a digital system also needs planning both technically and financially. Costs related to hardware replacement, software updating, cyber security, vendor services, and data backup need to be considered. If ignored, there is a possibility that the deterioration of the system may happen over time, causing loss of trust among users.

Sustainability also requires feedback from users. There are changes in healthcare, which means that there are also changes in the digital system. Feedback received from doctors, nurses, administrators, and even patients should not be overlooked as an improvement opportunity. A constantly improved system is one that will last.

Table 23: Sustainability Measures for Long-Term Health IT Adoption

Sustainability Measure	Practical Application
Policy integration	Include digital documentation and system use in hospital standard operating procedures.
Continuous training	Provide refresher training and orientation for new staff.
Regular monitoring	Review adoption indicators, data quality and support issues.
Feedback culture	Encourage users to report issues and improvement suggestions.
Budget continuity	Plan for maintenance, upgrades, cybersecurity and hardware replacement.
Leadership review	Keep digital adoption on the agenda of management and departmental meetings.
Data governance	Maintain privacy, access control, audit logs and data quality practices.

3.22 Practical Success Factors for the Proposed Plan

For the implementation of the proposed change management plan to be successful, consistency in its implementation becomes imperative. In other words, even though a plan may seem flawless, it may become a failure due to inconsistent leadership backing, lack of proper training, ignoring user feedback and even blaming users for resisting changes without knowing why. Hence, there are certain success factors that need to be taken into account.

Firstly, visibility of leadership backing is crucial. The acceptance of the change is more likely to occur if the healthcare employees witness active support by managers, department heads and even clinicians who have gained the respect of employees. Secondly, user involvement needs to be taken seriously. Users must not be treated like mere approval agents whose opinion does not matter much.

Instead, their practical knowledge must be taken into consideration in workflow development, training and the time period when the introduction of a new system will take place. Thirdly, simplicity needs to be kept in mind. Digital systems, as well as change plans, need to be simplified for users. Fourthly, patience must be observed during the stabilization process.

Another element of success is ongoing communication. Employees need to know what is going to change and how their jobs will change and why as well as what kind of help and support they can expect from the company during the change. Measurement is the final success factor. Without measuring the adoption of Health IT into the process, leaders may not realize how successfully it has been adopted by their employees.

Table 24: Practical Success Factors for Health IT Change Management

Success Factor	Practical Meaning	Contribution to Adoption
Visible leadership support	Leaders should communicate the importance of the system and actively review progress.	Increases seriousness and reduces uncertainty among users.
User involvement	Doctors, nurses, administrative staff and IT users should be involved in workflow design and feedback.	Creates ownership and reduces resistance.
Simple workflows and documents	Training guides, SOPs and system forms should be easy to understand and use.	Improves usability and reduces fear of error.
Realistic timeline	Implementation should allow time for pilot testing, correction and stabilization.	Prevents rushed rollout and user frustration.
Continuous support	Helpdesk, floor support and change champions should remain active after go-live.	Prevents users from returning to paper methods.
Measurement of adoption	Usage, data quality, support tickets and user feedback should be monitored regularly.	Allows evidence-based improvement.
Local adaptation	The plan should be adjusted according to facility type, department workload and staff capacity.	Makes the plan practical for diverse Indian healthcare settings.
Trust and transparency	Privacy rules, consent processes and data access controls should be clearly explained.	Improves confidence among staff and patients.

All these success factors should be taken into account when implementing the Health IT project. These are guidelines for the implementation and not something to do separately from other tasks. Without considering them, the most technologically advanced health information system will not necessarily be adopted easily. If these factors are accounted for and the implementation goes according to plan, there is a greater chance for successful adoption.

Chapter 4

FINDINGS, RECOMMENDATIONS AND CONCLUSION

4.1 Key Findings

1. Health IT implementation should be viewed as organizational change. As the review shows, the success of the introduction of EHR, EMR, HIS, telemedicine and other digital technologies does not rely solely on the installation of software solutions; it also includes the readiness of organizations and their personnel to deal with the proposed changes.
2. Technical and digital infrastructure issues are one of the main challenges for Indian healthcare facilities. There may be difficulties with connection, hardware, maintenance and support, which can lead to distrust of digital solutions and returning to manual record-keeping.
3. Healthcare workers' resistance to the adoption of Health IT can be explained by objective factors. For example, physicians, nurses and office workers are often resistant to Health IT systems because of increased workload, fear of mistakes, difficult usability, insufficient training or any other real concern.
4. Training and communication are key elements of Health IT adoption process. Role-specific training, practice opportunities and adequate communication help users adapt to new systems.
5. Leadership plays a crucial role in success. The adoption of health IT will be facilitated by the positive attitude of the leaders, active communication and the allocation of resources to implement it. Additionally, appointing change agents throughout the departments will make the adoption easier.

6. Alignment with current workflow will decrease additional burden. In case a digital system does not integrate properly with current clinical and administrative workflows, users will feel additional burden. Therefore, before deployment, there should be a process mapping and design stage.
7. Trust is also one of the aspects of user adoption. There could be several concerns about data privacy, access control, consent and data usage. Therefore, building up the trust by having a proper privacy practice will be beneficial.
8. Implementation in India needs to be customized based on organization characteristics. Each Indian healthcare organization has different features such as organizational structure, size, digital readiness and patient flow rate. As such, each health IT adoption strategy will need to be customized for each Indian organization.
9. Gradual adoption is better than immediate implementation. It will allow collecting initial data about potential issues and make the process smoother.
10. The suggested READI framework would help facilitate structured implementation. The READI framework that is generated from this study covers readiness assessment, stakeholders' involvement, enabling adoption, deploying and institutionalizing the same. This framework gives a way forward on how to manage health IT change in India.

Table 25: Objective-wise Summary of Findings

Research Objective	Major Finding	Meaning for the Study
To identify key challenges in Health IT implementation in India.	Infrastructure, cost, interoperability, training, workflow disruption, privacy concerns and organizational readiness were identified as major challenges.	Health IT projects must be planned as organizational change initiatives, not only as IT installations.

To analyze factors contributing to resistance among healthcare professionals.	Resistance was linked to workload, lack of confidence, fear of errors, poor usability, limited involvement and low trust.	User acceptance should be built through training, engagement and workflow alignment.
To examine existing change management strategies.	Leadership support, communication, phased rollout, stakeholder involvement and feedback appeared repeatedly in the literature.	These strategies should be applied together rather than separately.
To propose a framework for effective change management.	The READI framework was developed as a structured plan for Indian healthcare settings.	The framework provides a practical roadmap for smoother Health IT adoption.

5.2 Recommendations

Based on the research findings, the following recommendations are made for the implementation and adoption of Health IT systems within the Indian context:

1. **Conduct Readiness Assessment Prior to Implementation:** It is necessary to perform a thorough readiness assessment of the infrastructure, readiness of people, areas where improvements are needed, and so forth prior to implementing any health information technology solutions.
2. **Involve all users in advance:** Users who will be working with the new health IT system need to be involved at the stage of design in order to address their requirements in advance.
3. **Give role-based training:** Every kind of user requires special training because he or she will use the system in a certain way.
4. **Start with phased implementation:** Instead of introducing the solution all of a sudden, hospitals are advised to start with pilot modules and learn from experience.

5. **Align health IT system with workflows:** Current workflow should be mapped before introducing a new system and the system should accommodate the existing processes and workflow.
6. **Develop a communication strategy:** The aims, advantages, anticipated changes, timelines, and support services must be communicated effectively to all users. Continued communication is vital.
7. **Ensure effective technical support services:** Help desk, escalation mechanism, vendor coordination procedure, and downtime strategy must be developed to avoid user frustration during any issues.
8. **Have change advocates:** Esteemed physicians, nurses, administrators, and IT staff can serve as change advocates. They can support other users, answer questions, and facilitate system use.
9. **Enhance data protection:** Access control, consent, security measures, and privacy must be explained to ensure that users are confident about the safety of data.
10. **Track implementation continuously:** Implementation should be assessed using indicators such as number of logins, module usage, data accuracy, user satisfaction, support queries, and decrease in paper-based activities.
11. **Tailor implementation process to different healthcare facilities:** The same approach might not apply to a tertiary hospital, small clinic, public hospital, and rural clinic. Therefore, the plan should be adjusted to the setting.
12. **Institutionalize the change:** Healthcare IT use must be incorporated into hospital policy, employee training programs, audits, dashboard reports, and quality initiatives.

4.3 Conclusion

In this dissertation, the issue of change management during the implementation of Health IT in India was analyzed using secondary sources. It was revealed that the effective implementation of health information technology in organizations does not depend on the technology itself, but also on those people who use it, work processes it affects and organizations implementing it.

The literature review revealed several challenges faced by healthcare organizations in India. Challenges such as infrastructure problems, financial issues, lack of interoperability, inadequate training, workflow changes, patient data privacy concerns, unpreparedness for the new technology, differences among the health care facilities and others were mentioned. Some of these challenges might become obstacles to change because they could cause resistance among medical staff.

Resistance to change does not necessarily imply rejection. According to the reviewed literature, it appears in cases of such reasons as increased workload, fear of making mistakes, inadequate level of expertise and user friendliness, insufficient employee involvement into decision making process and other practical reasons.

Thus, resistance should be recognized and managed appropriately because an adequate change management strategy will positively influence health IT implementation.

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