



## Future of E-Health in India under Viksit Bharat @ 2047

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### ABSTRACT

Viksit Bharat @ 2047 isn't just a slogan - it's a big, ambitious vision for India. The idea is simple: by 2047, the country wants to grow stronger not just in terms of the economy, but also in making sure everyone has a fair shot and a better quality of life. One piece of this puzzle is healthcare, and honestly, digital tech has started to change the game. Over the past ten years, India has moved away from messy, paper-heavy health records to a digital system that actually connects people, makes care easier to get, and cuts down on the usual headaches and costs. But this shift isn't just about swapping paper for screens. It's changed how the government delivers services, how people interact with the health system, and even how health policies get made. This paper digs into how E-Health in India has grown, where it stands right now, and where it's headed. It takes a close look at big government pushes since 2015—thinks the Ayushman Bharat Digital Mission, those ABHA digital health IDs, the e-Sanjeevani telemedicine platform, and all the new ways people can now manage insurance, track diseases, or plan public health programs online. These changes have really reached into rural and remote corners, giving folks more access to care and saving them time and money. It's not just about shiny new tech; it's about real impact making healthcare fairer and less of a burden.

Now, if we zoom out and look at the world, India's approach is a bit different. While other countries often let the market or individual hospitals lead the digital charge, India's building something huge, public, and connected—something everyone can use. The focus is on making systems work together and making sure people stay in control of their own health data. That's why what's happening here matters, especially for other countries trying to upgrade their own healthcare without breaking the bank. India's story offers some real lessons on how to roll

out digital health for everyone, not just a lucky few. The study looks past just policies and infrastructure and really focuses on people. It's clear that technology alone isn't enough to fix deep-rooted problems in healthcare access and outcomes. Things like digital literacy gaps, spotty internet, worries about data privacy, using AI responsibly, and whether people actually trust digital health systems—all of these shape whether E-Health works or not (Kumar et al., 2022; Mehta & Bhatia, 2023). The real value of E-Health isn't just about putting old processes online. It's about giving patients more control, helping frontline health workers, and making preventive and primary care stronger.

Looking toward 2047, the paper lays out what's next for E-Health in India: smarter diagnostics with AI, more personalized and predictive care, bringing traditional medicine into the mix, and working more closely with the global health community (NITI Aayog, 2023; WHO, 2024). The takeaway? With inclusive policies, strong ethical rules, and steady public investment, E-Health can help India reach its Viksit Bharat @ 2047 goals and stand out as a global leader in fair, sustainable digital health innovation.

*Keywords:* E-Health; Digital Health; Viksit Bharat @ 2047; Ayushman Bharat Digital Mission; ABHA ID; Telemedicine; Digital Public Infrastructure; Health Equity; Sustainable Development; Global Health Governance.

## 1. INTRODUCTION

Healthcare systems across the globe are being reinvented at an extremely fast pace with digital technologies playing a dominant role in the ways in which medical services are delivered, accessed, and managed. The healthcare digitalization journey in India, in particular, has been rejuvenated significantly over the last ten years and has been in line with the national, level initiatives such as Digital India and the developmental vision of Viksit Bharat @ 2047. E-Health, which is basically the total of electronic health records, telemedicine, mobile health apps, artificial intelligence, and digital public health platforms, comes as a significant element in the Indian governments healthcare strategy for making healthcare universal, equitable, and efficient (World Health Organization [WHO], 2023). India's healthcare system has been facing many structural problems over the years, most of which still continue to plague it. These include uneven spread and poor quality of healthcare infrastructure, shortage of healthcare professionals, high payment of healthcare services through one's own pocket, and major disparities between rural and urban areas. Application of digital health technologies can help in addressing these problems by increasing production capacity, lowering transaction costs, and facilitating the provision of continuous care (Kumar & Khanna, 2022). To tap this potential, the Indian

government is implementing several policy and institutional reforms that collectively aim at the creation of a national digital health ecosystem.

The introduction of the Ayushman Bharat Digital Mission (ABDM) has been a landmark milestone in India's digital health journey. ABDM intends to develop a digitally interoperable framework that will link patients, healthcare providers, insurers, and regulators through standardized digital systems. One of the major elements of this program is the Ayushman Bharat Health Account (ABHA), which offers a unique digital health identity to citizens which is linked with their longitudinal electronic health records (NHA, 2024). The number of ABHA IDs generated had crossed 700 million by 2024<sup>25</sup>, which is indicative of the population, wide adoption on an unprecedented scale (MoHFW, 2024). Simultaneously with the creation of digital identities, telemedicine services, especially the e-Sanjeevani platform, have been scaled up very rapidly, thus enabling millions of remote consultations and facilitating, to a great extent, the access to healthcare of the rural and socially disadvantaged communities (Government of India, 2023). These changes are a reflection of a transition from institution, centered healthcare to citizen, centered services via digital platforms and therefore, in line with the core values of accessibility and inclusion.

On a worldwide scale, digital health has been identified as a fundamental factor in promoting sustainable development and building resilient health systems. The WHO's Global Strategy on Digital Health outlines how digital solutions can play a significant role in developing health systems, raising the quality of services, and ultimately achieving universal health coverage (WHO, 2023). Nevertheless, countries have taken markedly different routes. Whereas wealthy nations like the United States and members of the European Union have mostly depended on market, driven or institution, based digital health models, India's strategy focuses on digital public infrastructure, public ownership, and affordability (Singh, 2024).

This article documents India's E-Health transformation over the past ten years, evaluates government data, based achievements, and places India's advances in a global comparative context. Besides that, it considers the issues of equity, governance, and ethics, and sketches the future directions for Viksit Bharat @ 2047.

## 2. LITERATURE REVIEW

The existing literature on digital health points out both the revolutionary potential and the problems in the implementation. WHO (2023) characterizes digital health as the deliberate and comprehensive use of information and communication technologies in health and health-related areas with a focus on interoperability, equity, and governance. Research works about India point out the necessity of national, level digital frameworks. Sharma and Bhatia (2021) state that ABDM is a move from scattered digital initiatives to a single ecosystem approach. In the same vein, NITI Aayog (2022) states that digital health platforms have the potential to drastically cut inefficiencies and better the targeting of public health interventions.

Studies based on data of telemedicine adoption in India show that it has brought about access and cost benefits, especially during the pandemic of COVID, 19 (Reddy et al., 2022). Nevertheless, scholars point out that various forms of digital exclusion related to connectivity, literacy, and gender still exist (Banerjee & Duflo, 2021). Cross, country studies show that while developed countries are at the forefront of AI, driven precision medicine, India's advantage is in its digital solutions that are not only scalable but also low, cost and can be used in low, and middle, income countries (LMICs) (Singh, 2024). Issues related to data privacy and ethical governance has also been widely discussed in the literature. Bhatia and Jain (2023) argue for strong consent mechanisms and cyber security measures to be put in place to keep people's trust. In general, the literature indicates that a successful digital health transformation depends on the alignment of technology, policy, and human, centered design.

## 3. HISTORICAL CONTEXT (2017–2025)

### 3.1 Policy Foundations:

- National Digital Health Blueprint (2020) laid the framework for integrated digital health systems emphasizing interoperability and scalable platforms across public and private sectors.
- Pradhan Mantri Digital Health Mission (PMDHM) (2021) — later rebadged as Ayushman Bharat Digital Mission (ABDM) — launched to provide unique digital health IDs (ABHA IDs) to every citizen and enable secure exchange of health data.

- Integrated Disease Surveillance and Health Information Platforms laid the groundwork for real-time data, critical during the COVID-19 pandemic and for future preparedness.

### 3.2 Implementation Milestones

- ABHA IDs have expanded significantly — as of August 2025, about 79.91 crore ABHA IDs created, indicating deep penetration into the population.
- Major digital tele-health services such as e-Sanjeevani have facilitated over 43 crore tele-consultations, greatly expanding rural and remote access.
- State models (e.g., Uttar Pradesh’s Health Digital Public Infrastructure) demonstrate real-time digital integration of hospitals, OPD registrations, digital prescriptions, and lab report delivery via messaging — benefiting over 240 million people.
- Healthcare institutions like AIIMS Bhubaneswar have led in digitizing and linking patient records, showing institutional leadership in digital adoption.
- Innovative platforms like Eka Care digitized 110 million records, advancing private and public synergy.

### 3.3 Objectives of the Study

- The present study has been undertaken with the following objectives:
- To examine the evolution of E-Health initiatives in India during the last decade (2015–2025) under major national digital health programmes.
- To analyze the role of digital public infrastructure in improving accessibility, efficiency, and inclusiveness of healthcare services in India.
- To assess recent government data and policy outcomes related to digital health adoption, telemedicine, and health data integration.
- To compare India’s E-Health model with selected international experiences in developed and emerging economies.
- To identify key challenges related to equity, ethics, data privacy, and digital divide in the implementation of E-Health systems.
- To explore future prospects and strategic directions of E-Health in achieving the goals of Viksit Bharat @ 2047.

## 4. RESEARCH METHODOLOGY

The present study adopts a descriptive–analytical research design, focusing on the evolution, current status, and future trajectory of E-Health in India under the vision of Viksit Bharat @ 2047. The methodology is primarily based on secondary data analysis, supplemented by comparative and interpretative approaches.

### 4.1 Data Sources

Data have been collected from:

- Official government portals and reports of the Ministry of Health and Family Welfare (MoHFW), National Health Authority (NHA), and Ayushman Bharat Digital Mission (ABDM)
- Policy documents such as the National Digital Health Blueprint
- International reports from the World Health Organization (WHO) and peer-reviewed journals
- Published research articles, working papers, and conference proceedings
- Authenticated media and economic reports for recent statistics and trends

### 4.2 Analytical Framework

The analysis is structured across three dimensions:

- Temporal analysis of E-Health initiatives in India (2015–2025)
- Comparative analysis between India and selected global digital health leaders
- Thematic analysis focusing on access, equity, efficiency, governance, and sustainability

Qualitative interpretation has been used to assess human-centric and ethical dimensions, while quantitative indicators support trend analysis and future projections.

## 5. RESULTS AND DISCUSSION

### 5.1 Growth of Digital Health Infrastructure in India

The results indicate a rapid expansion of India’s digital health infrastructure, particularly after 2020. The scale of adoption achieved in a short time is unprecedented for a country of India’s size.

Indicator	2015	2020	2024–25
Digital Health IDs	Nil	Pilot stage	70+ crore ABHA IDs
Telemedicine Consultations	Minimal	COVID-driven surge	43+ crore (eSanjeevani)
Digitally Registered Health Facilities	Limited	Fragmented	3.5+ lakh
Linked Digital Health Records	Negligible	Early adoption	45+ crore
Health Insurance Digital Claims	Manual	Partial	National Health Claims Exchange

Table 1: Growth of Key Digital Health Indicators in India

The data clearly indicate a transition from the experimental use of digitization to its full, scale deployment across the population. An increase in telemedicine consultations is a clear example of digital platforms solving the problem of access to health care during and after the pandemic. Moreover, the growth of telemedicine was not limited to the urban areas only as the use in rural and semi, urban areas indicates a reduction in the gap in access to healthcare.

### 5.2 Impact on Access, Efficiency, and Equity

One of the most significant outcomes of E-Health adoption has been improved access to healthcare services, especially for marginalized populations.



Figure 1 (Conceptual): E-Health Impact Pathway in India

E-Health platforms have facilitated greater access to healthcare by reducing geographical barriers and transaction costs. Digital consultations have particularly benefited women, elderly patients and individuals living in remote areas by providing them with continuity of care. On the other hand, the findings also reveal disparities in digital literacy and connectivity, therefore technology alone can not completely address these deeply rooted inequalities.

### 5.3 India in Global Comparison

India’s digital health model differs fundamentally from those of developed economies.

Dimension	India	USA	EU Countries
Digital Health Model	Public digital infrastructure	Market-driven	Regulated public-private
Coverage Scale	Population-wide	Institutional	National/regional
Cost to Users	Mostly free/subsidized	High	Moderate
Data Ownership	Citizen-centric (consent-based)	Provider/insurer-centric	Regulated
Replicability for LMICs	High	Low	Moderate

Table 2: Comparative Overview – India vs Selected Countries

India's focus on digital public goods, interoperability, and citizen consent positions the country to be a role model for other low, and middle, income countries. The USA and EU are the leaders in advanced AI and precision medicine, but India is the leader in scalability and affordability.

### 5.4 Emerging Technologies and Future Readiness

The study finds increasing integration of:

- Artificial Intelligence in diagnostics and radiology
- Predictive analytics for disease surveillance
- Digital platforms for traditional medicine systems
- Wearable and mobile health technologies

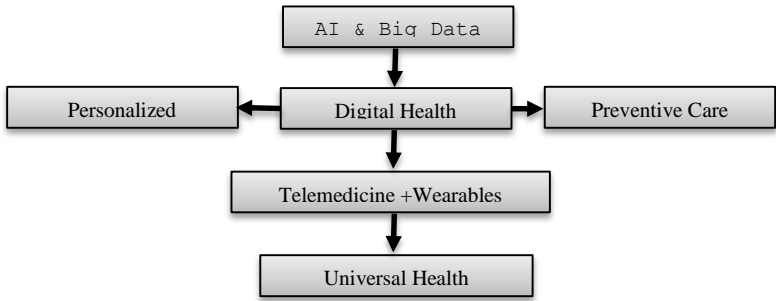


Figure 2: Future E-Health Ecosystem (India @ 2047)

India is moving away from the traditional model of reactive healthcare and is instead adopting models that are more predictive and preventive. Yet, ethical issues such as algorithmic bias, misuse of data and the ignoring of the needs of the digitally illiterate populations are among the major ones. Technological progress without strong governance could lead to greater inequality.

### 5.5 Key Challenges Identified

Nevertheless, the research uncovers that the obstacles which have been capitalized on the most still exist:

- Digital divide (both in terms of connectivity and literacy)
- Issues around data privacy and cyber security threats
- Resistance to change among healthcare professionals
- Separation between states and institutions
- The necessity for more robust legal and ethical frameworks

These difficulties highlight the significance of human, centered governance thus the expansion of technology, centrism should be avoided.

## 6. INCLUSIVE AND HUMAN-CENTRIC PERSPECTIVES

### 6.1 Access and Equity

Digital health should be the tool to enable citizens most notably women, rural folks, the elderly, and language minorities in the following ways:

- Affordable internet along with digital literacy
- Tele-counselling services in 20+ regional languages
- Designing intuitive user interfaces and ensuring privacy

Such features go hand, in, hand with the Digital India as well as Viksit Bharat's strategies of prioritizing inclusion before innovation.

### 6.2 Ethical and Privacy Considerations

While digital health is opening up access, these things should be kept in mind, among others:

- Consent, based data sharing
- Robust cyber security
- Clear legal frameworks on data ownership
- It is crucial to focus on these aspects so that no one gets left out or their data misused.
- Human-centric design and policy will build trust and sustain adoption.

### 6.3 Strategies for Inclusive and Sustainable Transformation (2026–2047)

- **Governance and Policy:** Implementing a comprehensive national policy that holistically accounts for privacy, consent, and the ethical use of AI. Establishing a federated data governance model involving states and civil society participation.
- **Infrastructure and Connectivity:** Provide broadband connectivity to rural health centers. Cloud, native scalable systems capable of real, time analytics.
- **Workforce and Capacity Building:** Healthcare workers should be trained on the use of digital tools.AI, powered diagnostics to support and enhance human capabilities
- **Public, Private Collaboration:** Fast track startups and med, tech innovation. Set standards for interoperability and safety. Such initiatives would create a sustainable and resilient digital health ecosystem.

## 7. FUTURE PROSPECTS TO 2047

Dimension	Expected Status
<b>Digital Health Coverage</b>	Universal ABHA IDs, interoperable records
<b>Telemedicine</b>	Standard of care across rural and urban
<b>AI Diagnostics</b>	Routine AI-assisted triage and prediction
<b>Global Collaboration</b>	India as standard-setter for LMIC digital health
<b>Health Equity</b>	Narrowed gap between urban and rural outcomes

Table 1.3 By 2047, India’s digital health ecosystem could achieve:

India’s trajectory positions it as a global leader in digital health, not just by scale, but by inclusive design and ethical governance.

## 8. CONCLUSION

This research reveals that India's Health journey of the last decade is indicative of a deep structural change in the healthcare system rather than just a mere technology upgrade. The country, in fact, has established a unified, inclusive, and scalable health ecosystem through various initiatives such as ABDM, ABHA IDs, telemedicine platforms, and digital health registries. The study results indicate that there have been quantifiable improvements in the dimensions of access, efficiency, and system responsiveness, notably for the disadvantaged communities. Globally, India is unique in its population, scale, public ownership of digital infrastructure, and focus on consent, based data governance. Though developed countries are at the forefront of advanced technological innovations, India's blueprint is a feasible route towards an equitable digital health transformation in settings with limited resources.

At Viksit Bharat @ 2047, E, Health is capable of becoming the foundation of the whole national development given that it is firmly based on the principles of ethics, inclusiveness, and human dignity. It is important that technology should be the tool that helps in delivering compassionate care instead of becoming the reason that replaces it.

## 9. POLICY RECOMMENDATIONS

- Strengthen Digital Inclusion
- One of the ways to promote digital equity is to extend networks of broadband as well as digital literacy programs and interfaces that support multiple languages, so as to guarantee that everyone gets the same educational opportunities.
- Establish Robust Data Governance
- Put in legal frameworks that unambiguously define data privacy, consent, and cyber security, and are in line with worldwide best practice standards.
- Invest in Human Capital
- One angle to the digital skills gap is to train healthcare professionals in digital tools and facilitate hybrid care models that integrate technology and human touch.
- Ensure Ethical AI in Healthcare is Uphold
- Develop national guidelines for the transparent, unbiased, and accountable use of AI in diagnostics and decision, making.
- Promote Public, Private Collaboration
- Support innovation with public oversight to ensure affordability and interoperability.
- Use Global Leadership

- Arrange the India as a knowledge hub for digital health solutions in developing countries through international partnerships.

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