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India’s Integrated DigiTech targets Affordable Healthcare Access

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Technology is reshaping healthcare, offering new ways to tackle long-standing gaps and expand access. With its vast population and diverse healthcare needs, India is making significant strides to build a robust digital health ecosystem. Flagship initiatives like the Ayushman Bharat Digital Mission (ABDM) are laying the digital backbone for a unified healthcare system, with over 568 million Ayushman Bharat Health Account (ABHA) IDs and 350 million health records already integrated. Managing the administration of over 2 billion doses of COVID vaccines, CoWIN platform set a global benchmark for precision, scale, and transparency in vaccine delivery, and is now being repurposed for broader immunisation tracking and health logistics. India’s digital health sector is poised for exponential growth, with a recent BCG report, in collaboration with B Capital, projecting a surge from $2.7 billion in 2022 to nearly $37 billion by 2030. Let’s explore the cutting-edge technologies, key players, and policy shifts propelling the country's digital health journey.

From telemedicine to AI-driven diagnostics, India is leveraging digital innovation to transform its healthcare landscape. The telemedicine service eSanjeevani, is another noteworthy initiative by the government, launched by the Ministry of Health and Family Welfare. Originally designed for doctor-to-doctor consultations, it evolved into eSanjeevani OPD during the COVID-19 period to enable direct physician-to-patient care. As of August 2024, it has facilitated over 270 million consultations, connecting people in remote and underserved areas with quality healthcare. The upcoming eSanjeevani 2.0 aims to integrate point-of-care diagnostic data, enabling quicker diagnoses and personalised care.

These platforms are part of a larger digital vision under the ABDM, which aims to create a seamless, interoperable health ecosystem. With these platforms, India is laying the foundation for a unified digital healthcare infrastructure.

Acknowledging these efforts, a January 2025 article by the World Economic Forum praised India's strides, positioning it as a potential global leader in digital health. The report emphasised the critical role of public-private partnerships, strong data governance, and interoperability, underscoring how India’s model could serve as a global benchmark for digital healthcare transformation.

Apart from government initiatives, several startups and researchers are working on developing digital health strategies. India's growing digital health landscape is also attracting global interest. A recent Dutch delegation in March 2025 expressed

interest in C-CAMP's digital health innovations, particularly in labour-saving technologies for healthcare, pharmaceutical advancements using AI for drug discovery, and remote monitoring and telehealth solutions. These technologies are viewed as promising tools for medical triaging, improving accessibility, and optimising healthcare delivery in underserved regions.

India’s AI push

The most talked-about technology, now deeply integrated into various industries and everyday life, holds significant implications for the healthcare sector. According to a Deloitte report, Artificial Intelligence (AI) in healthcare is expected to contribute $30 billion to India’s GDP. Recognising this immense potential, India has launched a series of strategic initiatives and investments to revolutionise its healthcare ecosystem, making it more accessible and efficient.

The World Economic Forum has launched the India Digital Health Activator to drive AI adoption and ensure interoperability in healthcare systems. International collaboration is also gaining traction; India and France have identified digital health and antimicrobial resistance (AMR) as key areas for cooperation. Strengthening academic and institutional ties, Apollo Hospitals has partnered with the University of Leicester to establish a Centre for Digital Health & Precision Medicine in India, while Takeda’s India Capability Centre (ICC) in Bengaluru is developing a specialised Global Capability Centre focused on digital health and R&D.

Industry leaders are equally engaged. Manipal Hospitals has joined hands with Google Cloud to advance AI-driven healthcare, and Zeiss India has launched an AI research lab for eyecare at the Indian Institute of Science in Bengaluru. Samsung R&D Institute, Noida and IIT Bombay have signed an MoU to pioneer research in digital health, AI, and other emerging technologies.

Key Innovations Shaping Digital Health in India

Some of the key innovations shaping digital health in India include genomics enabling precision medicine, AI-driven drug discovery, and the digitisation of diagnostics—all contributing to more personalised and efficient healthcare delivery.

Genomics driving precision care

In January 2025, India launched its Indian Genomic Data Set and the Indian Biological Data Centre (IBDC) portals. This initiative unlocks 10,000 whole genome sequencing (WGS) samples for researchers around the world, marking a significant milestone in the country’s vision to build a self-reliant biotech ecosystem.

The IBDC is set to become a critical hub for genomic research, providing seamless access to valuable genetic information. The 10,000 WGS samples represent diverse Indian populations, offering researchers a rich catalogue of genetic variations. This initiative is poised to accelerate the development of genomic chips tailored to the Indian demographic, thereby enhancing the precision and accuracy of genetic studies.

Building on this momentum, global genomics leaders are turning their focus toward India. In April 2025, Oxford Nanopore Technologies, a UK-based company pioneering nanopore-based molecular sensing technology, announced strategic partnerships with two premier Indian institutions. The company signed Letters of Intent with the Biotechnology Research and Innovation Council-Centre for DNA Fingerprinting and Diagnostics (BRIC-CDFD) and the Biotechnology Research and Innovation Council-National Institute of Biomedical Genomics (BRIC-NIBMG). This agreement commits to the establishment of two new Centres of Excellence (CoE) in genomics, reinforcing India’s positioning as a critical player in global genomic research.
The surge in genomics infrastructure is also evident in the private sector. 4baseCare, an emerging leader in precision oncology, recently inaugurated its genomics laboratory in Bengaluru. The company also unveiled the Global Cancer Diversity Atlas (GCDA)—an initiative aimed at bridging the genomics data gap in cancer care.

Experts are equally bullish on the transformative potential of genomics. “Genomics will significantly impact human health over the next 5-10 years by enabling precision medicine, early disease detection, and personalised treatments. For instance, genomics can identify genetic risks for conditions like heart disease and cancer, guiding preventive care. In India, the Genome India Project aims to map the genetic diversity of the population, creating a reference database for disease prediction and personalised healthcare,” said **Dr Vikram Venkateswaran, a seasoned expert and specialist in healthcare digital transformation management and author of ‘Healthcare India’**.

Several firms are already driving breakthroughs in precision medicine through genomics. Strand Life Sciences has leveraged genomics to develop tests for hereditary cancers, enabling early detection and personalised treatment options tailored specifically for Indian patients.

Further amplifying India's genomic landscape, Noida-based Vgenomics, a leader in precision health, recently announced a strategic collaboration with Meril Genomics, a trusted provider in diagnostics and molecular biology. This partnership aims to deliver advanced genomic diagnostics to hospitals and research centres across India. By combining Vgenomics' expertise in bioinformatics, AI-driven research, and translational genomics with Meril Genomics' strengths in diagnostics and molecular biology, the collaboration is set to significantly expand the reach of precision medicine.

"Leading Indian corporate hospitals have already started integrating genome sequencing as part of their treatment protocols. Most of them are already using this for expecting mothers, especially if there are risk indications like older expecting mothers, while testing for conditions like Down's Syndrome or Autism. Oncology is another area where molecular precision medicine, by analysing patients' genetic information, helps hospitals to identify specific mutations associated with cancer. This approach allows for the development of targeted therapies, improving treatment efficacy and patient outcomes. While this is just scratching the surface. The availability of high-power computers along with awareness within the medical and patient community has contributed to the adoption of genomics," said Dr Venkateswaran.

India's AI leap in drug discovery

AI is reshaping drug discovery, with leading pharma companies embedding it across their R&D pipelines. Globally, players like XtalPi in China and Standigm in South Korea are using machine learning and computational chemistry to fast-track drug design.

Now, India is stepping onto this stage with a surge of AI-driven startups focused on revolutionising drug discovery. These emerging companies are harnessing advanced algorithms and big data analytics to identify novel drug candidates faster and more efficiently. One such pioneer is Boltzmann Labs, with its vision to transform drug discovery through data-driven solutions. The company offers a comprehensive suite of products and services covering target and biomarker identification, small molecule design, antibody design, protein engineering, and custom synthesis planning—all powered by AI-driven technologies.

Another promising player is Peptris Technologies, an AI-powered preclinical drug discovery company. In March 2025, Peptris made headlines by out-licensing India's first AI-discovered drug candidate to US-based Revio Therapeutics.

Several other startups are also reimagining the AI-driven drug discovery process across India. Bengaluru-based Prescience Insilico is accelerating drug and materials discovery with its AI-driven platform, PRinS3. Sravathi AI focuses on designing and developing molecules and materials, collaborating across the R&D pipeline. Molecule AI, recognised at BioSpectrum Asia 2024, is gaining traction with its flagship platform, Molecule GEN.

Even established Indian pharmaceutical giants are embracing AI. Aurigene Pharmaceutical Services Ltd., the CDMO arm of Dr. Reddy's Laboratories, recently launched Aurigene.AI, an end-to-end AI and machine learning-assisted drug discovery platform.

Digitising Diagnostics

Digital pathology is emerging as a key area of innovation. In January 2025, IIIT-Hyderabad and Nizam's Institute of Medical Sciences (NIMS) launched India's first comprehensive pathology dataset. The India Pathology Dataset (IPD) project—a multi-stakeholder initiative involving academia, hospitals, industry, and the government- aims to digitise slide images of tissue biopsies. This project is expected to enhance clinical decision-making, reduce the risks associated with handling physical slides, and improve turnaround times for diagnostics. By leveraging AI, the IPD project also aims to open new avenues for research in pathology.

Bengaluru-based startup SigTuple is also making strides in this space with its digital pathology platform capable of analysing blood samples remotely. This innovation is extending access to specialist diagnostics in areas lacking adequate medical facilities.

According to Dr Venkateswaran, “Digital pathology platforms can analyse specimens in record time, annotate them, and provide initial findings, allowing pathologists to focus on critical areas. This optimises analysis time and enhances the detection of key findings.”

AI is also driving change in medical imaging. In May 2025, Rajalakshmi Medical College Hospital and Research Institute in Chennai inaugurated the Rajalakshmi Advanced Diagnostics and Applied Radiomics (RADAR) Centre. This facility focuses on precision diagnostics through AI-enabled imaging, aiming to improve diagnostic accuracy and patient outcomes.

Qure.ai, a leader in AI-based medical imaging, is reshaping the radiology landscape with deep learning tools that automate the interpretation of X-rays, CT scans, and ultrasounds. Its technology accelerates diagnosis and improves healthcare accessibility. In April 2025, AstraZeneca partnered with Qure.ai to complete 5 million AI-enabled chest X-rays (CXRs) across more than 20 countries.

Tata Elxsi, through its innovation arm, is working on AI-powered medical imaging, while Google has partnered with Forus Health and AuroLab to scale up diabetic retinopathy screening across India.

Another area where AI is making significant strides is early diagnosis. Several Indian firms are launching innovative tools aimed at early detection and preventive care. Redcliffe Labs recently introduced a digital prediabetes risk checker, enabling early-stage identification and intervention.

Breaking Barriers in Digital Health

A major challenge in scaling India's digital healthcare ecosystem is the uneven distribution of technology and infrastructure across the country. Urban areas generally benefit from better connectivity and digital literacy, while rural regions often face significant barriers, including limited internet access and inadequate IT infrastructure. Although rural India had over 400 million internet subscribers as of 2024, the connectivity quality is frequently insufficient to support reliable digital health services, according to a paper in the Nature publication.

Concerns around data privacy and security remain significant barriers to the adoption of ABDM. The digitisation of health records demands robust data protection measures to secure sensitive patient information, especially considering the vast scale of ABDM. The Digital Personal Data Protection Act (DPDPA) of 2023 marks a critical step in India's efforts to regulate personal data processing and uphold data privacy, the paper further noted.

“While a lot of progress has been made, there are still opportunities to make more out of the data being held in hospitals. Certain regulatory guardrails would also help. I believe the DPDPA is a step in the right direction. It gives the much-needed incentive for hospitals to assess their data structures and make the necessary changes to ensure that the data can be used for more clinical research and innovation on the Indian genotype that would boost the care outcomes. I also believe that we need a centralised regulatory authority like what RBI has for financial services. This will ensure that there is uniformity in the regulations and hospitals are not overburdened by complying with multiple regulations both at the state and central levels, ” added Dr Venkateswaran.

India’s digital health sector is poised for exponential growth, with a recent BCG report, in collaboration with B Capital, projecting a surge from $2.7 billion in 2022 to nearly $37 billion by 2030. Overcoming these challenges will be vital to unlocking the full potential of digital health, positioning India as a global leader in tech-enabled healthcare delivery.

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