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Digitalization in Healthcare

Executive Summary Report

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Report

PREPARED BY
Pukka Partners

ABOUT PUKKA PARTNERS

Pukka Partners provide customized intelligence solutions to C-suite executives and functional growth leaders, with sound expertise in business research, strategy consulting, advisory, business intelligence, and data analytics.

We offer advisory and actionable insights around public policies, investment tracking along with the obstacles faced by investors, innovation and strategy impact monitoring, identification of industry potential, and technology mapping through comprehensive and standardized research methodology and tools.

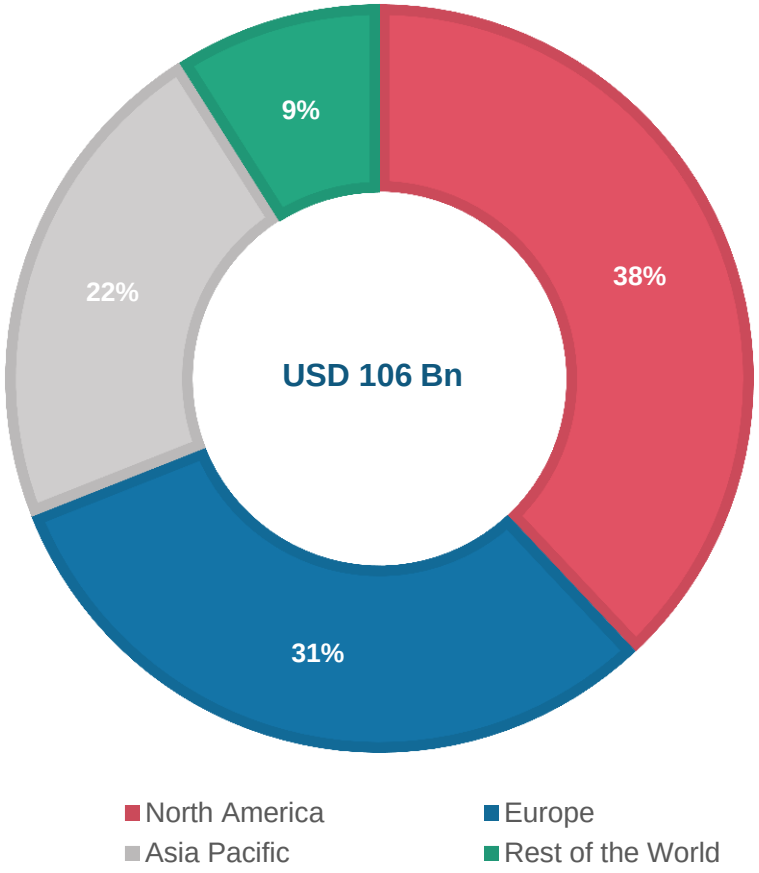
We deploy our solutions to solve prioritized and critical business challenges by leveraging our in-house expertise as well as continuous engagement with industry thought leaders in the business ecosystem.

In a short span of time, our consultants have had the opportunity to engage and deliver domain & sector specific tailor-made strategic projects to top executives and functional growth leaders, empowering them to make informed business decisions.

Our success is directly linked to our client's growth and we ensure to exceed it every time we engage with our existing clients and future prospects. We aim to be a knowledge partner for our customers and gradually become their trusted intelligence provider.

Global Healthcare Digitalization Industry Overview

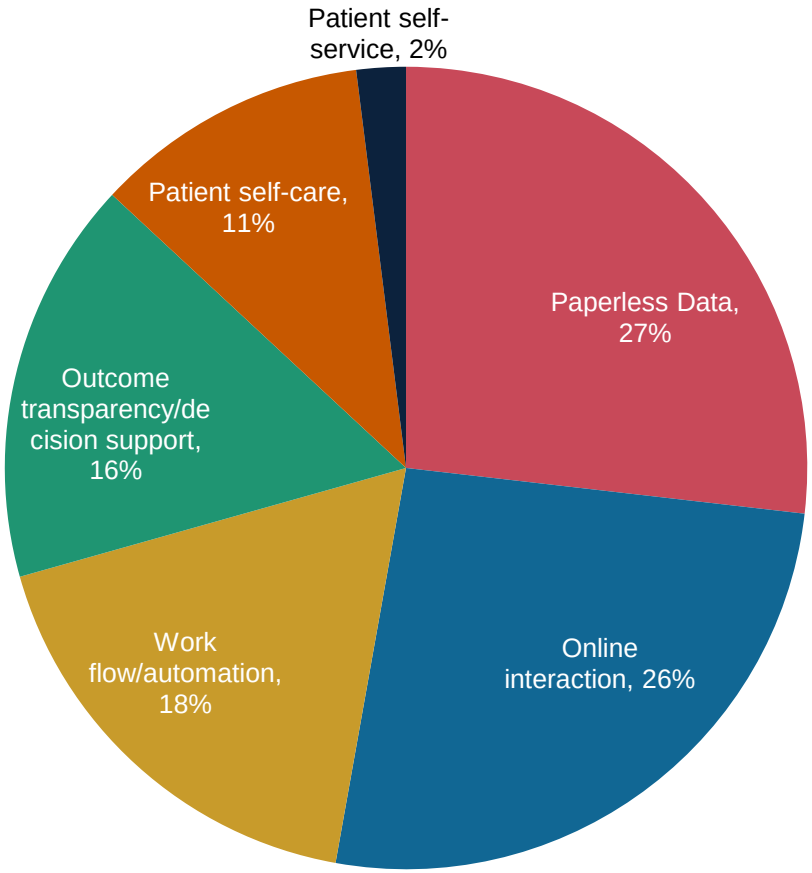
Global Market Share, 2020



- The global Digital Health Market in 2020 was approximately USD 106 Bn. The market is expected to grow at a CAGR of 24% and is anticipated to reach around USD 640 Bn by 2025.
- North America had the highest market share of more than 38.2%, and it is projected to rise at a steady CAGR over the years. Growing healthcare costs advances in coverage networks increased mobile penetration, and rising demands for telehealth care solutions are all driving market growth in the area.
- The China healthcare industry is currently ranked the second largest in the world behind the U.S.
- Asia Pacific is projected to be the fastest regional market. The regional market is growing attributed to increasing smartphone penetration, rising acceptance of smart wearable devices, and an increase in demand for EMRs and EHRs.
- Countries such as Malaysia and Japan have already developed a national warehouse that allows public hospitals to exchange data.
- In January 2020, policy action was initiated in this direction in India, with the release of the National Digital Health Blueprint (NDHB). The blueprint covers the architectural framework and infrastructure requirements to undertake the first essential step in integrating health data across public and private sectors.

Key Applications

Digital Solutions in Healthcare Share by Type, 2020



Major Digital Healthcare Themes

Smart Care

Smart care will improve patient outcomes and lower the cost of healthcare through the use of precision medicine, robotics and medical printing.

Care anywhere

Care anywhere will see healthcare move close to the home, through advances in the connected home and virtual care, which will also help broaden access, especially in maturing economies

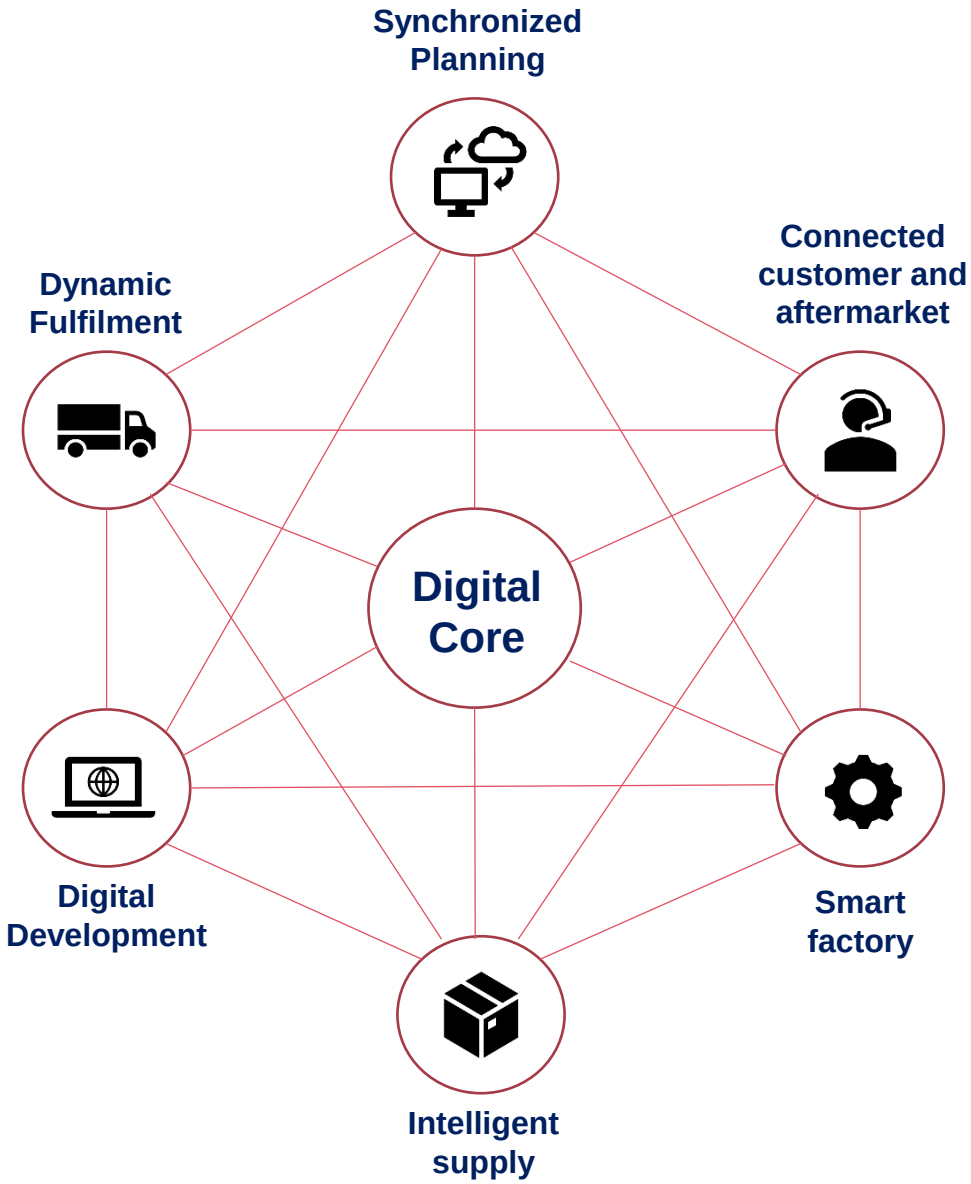
Empowered care

Empowered care, through the development of 'living services' will enable citizens to take a more active role in managing their own well-being and healthcare.

Intelligent health enterprises

Intelligent health enterprises will provide data-driven solutions that enable healthcare workers to maximize their efficiency and allow patient health to be monitored more effectively

Value Chain in Healthcare Digitalization



Traditional, linear supply chain nodes are collapsing into a set of dynamic networks, allowing dramatically increased differentiation

Synchronized planning
Provide significant efficiencies through synchronization

Connected customer
Create seamless customer, engagement from inspiration to service

Dynamic fulfillment
Boost customer service through new levels of speed and agility

Smart factory
Unlock new efficiencies by a more connected, agile, and proactive factory

Digital development
Optimize product lifecycle management with advanced digital tactics

Intelligent supply
Reduce costs through new advanced technologies, models, and capabilities

Healthcare Industry 4.0 – (1/2)

Continuous Monitoring

Continuous monitoring of health vitals with intelligent analytics to notify a member of lifecare network when needed

Retail Clinics

Provide people with convenient access to routine care with information connected and synchronized across the ecosystem

Connected Home

Access to my health information enriched with insights to help simplify decisions and actions

Auto Patient Access

Intelligent personal devices become an extension of the patient facilitating automated access and information sharing

Virtual Care Circles

People receive real-time information and notifications that allow for more meaningful and productive interactions with doctors

Omni-channel Experience

Personalized digital health hub supports people in improvement and maintenance of health seamlessly across interactions to make healthcare simple

Intelligent Treatments

Treatment plans are customized based on people's personas and continuously learn based on individual actions

Me, My Data & I

Intelligent personal devices become the centre to help people improve and maintain their health throughout their life

Augmented Wayfinding

Intelligent machines on people and facilities communicate to provide smart assistance in physical clinical settings

Seamless Financing

Health finances paid seamlessly behind the scenes with ongoing care coordinated

Intelligent Machines

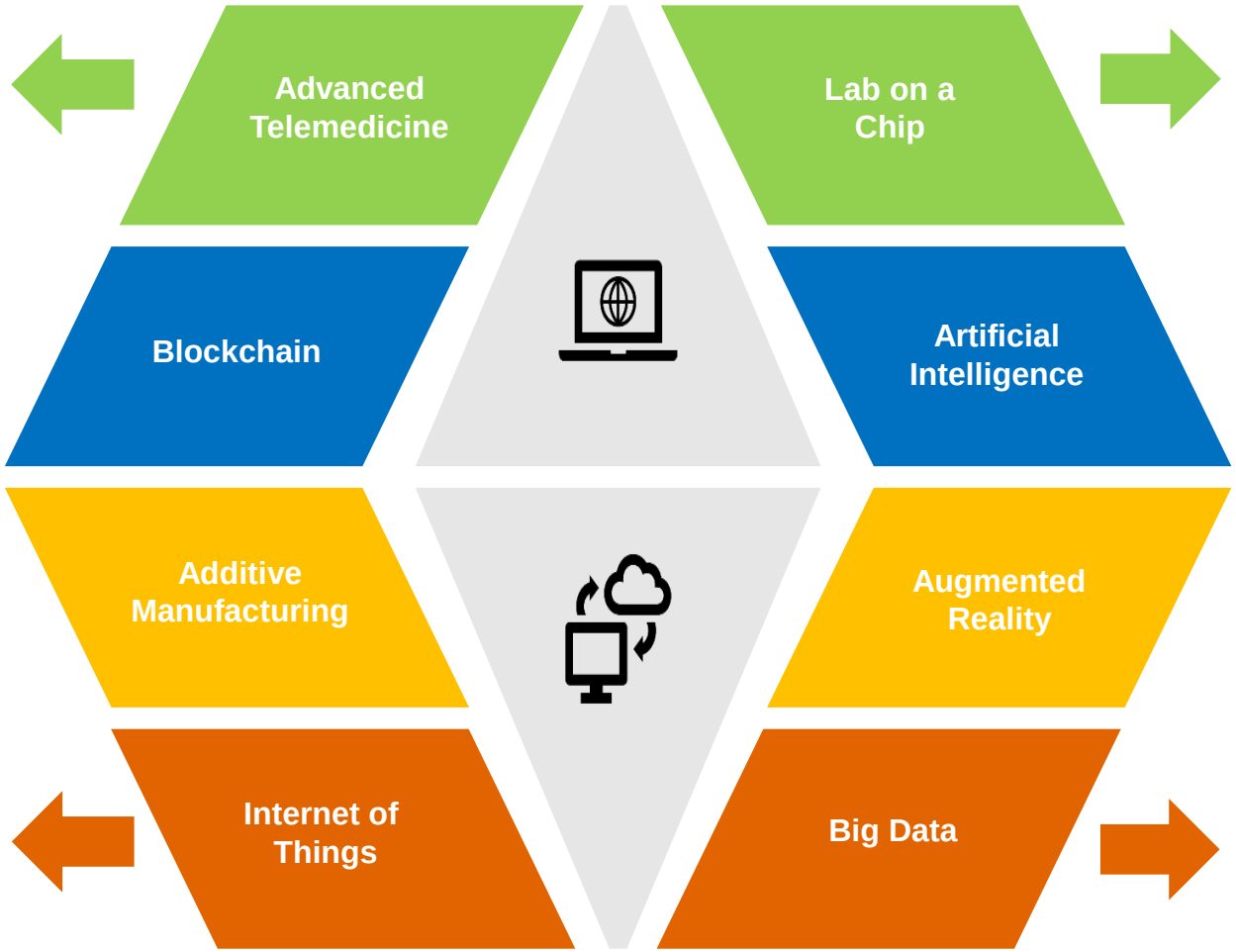
Transparent, real-time updates on people's relevant data allow virtual care teams to refine treatment and improve outcomes for their patients

Virtual Care Team

First point of contact to coordinate care and support for people in times of need. Simple, secure access to care in real-time with reliable healthcare professional

Healthcare Industry 4.0 – (2/2)

- Telemedicine took a great leap forward during the Covid-19 pandemic.
- Virtual visits will continue to be used as a way to increase access to primary care and urgent care, as well as to improve collaboration with clinics, long-term care facilities, dialysis centers, and mental health services.



- Researchers at Stanford University recently developed what they call “a lab on a chip” based on CRISPR enzyme Cas12.
- About half the size of a credit card, it contains a complex network of channels smaller than the width of a human hair and can deliver a coronavirus test’s results in under 30 minutes. With a lab on a chip, that testing can be done quickly, safely, cheaply, and more efficiently.

- A system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers and the ability to transfer data over a network without requiring human-to-human or human-to computer interaction.
- Big data, i.e. dealing in a structured manner with large quantities of data, makes it possible to derive information that is relevant for decision-making purposes. This can then generate goal-oriented knowledge in the shortest possible time for use in a problem-oriented and problem-solving manner.

Trends in the Healthcare Digitalization

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Artificial Intelligence

- Chatbots and virtual health assistants are AI-based technology that patients are becoming familiar with. Chatbots can fill a multitude of roles from customer service representatives to diagnostic tools and even therapists.
- But the real power of AI can be best observed in areas like precision medicine, medical imaging, drug discovery and genomics. For instance, analyze thousands of pathology images of various cancers to provide highly accurate diagnoses and predict the best possible anti-cancer drug combinations.

Big Data

- Numerous companies have been utilizing predictive analytics models by gathering key patient vital signs, along with other observations from devices, to make decisions about the overall health of patients.
- Medtronic and IBM created a mobile personal assistant application that provides real-time glucose insights for individuals with diabetes. This helps understand the links between glucose readings & lifestyle choices

VR/AR/ MR

- Paring this technology with medical devices has many practical applications in the medical world.
- VR devices can create virtual training worlds where doctors or surgeons can practice their craft in a way that looks and feels real without having to use a real patient.
- AR can be used to overlay X-rays on patients to give surgeons what is akin to x-ray vision to help them be much more accurate during surgery.

Wearables

- Wearables such as glucose monitors, exercise trackers and wearables for mental health are becoming popular among consumers because of their ease of usage.
- These devices offer measurements of body temperature and a pulse oximeter, as well as of vitals such as electrocardiography (ECG), blood pressure and heart-rate.

Robotics

- Selective Compliance Articulated Robot Arm (SCARA) robots can be easily mounted on a tabletop and fit well in small confined spaces; this is typical of a medical device manufacturing facility.
- In February 2021, Siemens Healthineers introduced Corindus, a robotic system, to drive cardiovascular interventions with robotic assistance

Blockchain

- Blockchain has many uses in healthcare security and can be used in medical devices to securely store and transfer patient data.
- It would keep a public record of every transaction and give an almost un-hackable code to each record that can only be accessed when the appropriate people are given the code. It is one of the best ways to protect all the personally identifiable data these devices collect.

Drivers of Healthcare Digitalization

Power Shifting to the Consumer

Customers wield the wherewithal to shape their healthcare experiences through technological and structural changes.

Start-up Innovations

Industry newcomers, well-funded startups, nonhealthcare companies and digital giants are disrupting the established order with promises to transform healthcare.

Government Interventions

The volatile political, legislative, regulatory and competitive landscape challenges require healthcare delivery organizations (HDOs) to develop agile and adaptable business and IT strategies.

Medical Innovations in Therapy, Diagnosis and Care Delivery

The healthcare industry is starting to test compensating medical care based on other factors as a result of digitalization. The structure of the way patient care is given, measured and reimbursed is changing.

Adoption of VBC payment

The adoption of value-based care (VBC) payment models continues to progress, albeit slowly, while reshaping healthcare delivery organization priorities and approaches to sustaining viability

Opportunities in Healthcare Digitalization

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Growth Despite Covid-19

Despite Covid-19, the Healthcare Digitalization industry is expected to grow at CAGR 24% p.a., over the 2020-2025 period.

Wonders of AI

AI is predicted to bring $150 Bn dollars in annual savings for the US healthcare economy by 2026. Startups are already jumping on this opportunity; the number of active AI startups has increased 14-fold since 2000.

The rise of on-demand healthcare

Consumers want things at their own convenience, on their own time, and wherever they happen to be. More than four Bn people globally are on the Internet and they want access to healthcare facilities on their fingertips.

Tapping Rural Markets

Digitalization of healthcare would enable deeper penetration of healthcare services into rural regions, hence increasing access to medical care in remote regions.

Improves Efficiency of Healthcare System

Advancement and Digitalization of medical facilities would help reduce time to set up new healthcare centers and improve the operational efficiency of existing ones.

Prevalence of Diseases

Rapid increase in the prevalence of infectious diseases as well as the increasing prevalence of chronic diseases will support the global healthcare market's growth.

Strategic Focus of Market Players

- Increasing organization's ability to identify and assimilate innovations for the purpose by addressing organization barriers limiting efficacy.
- Accelerating digital initiatives by demonstrating the business value of IT in enabling growth objectives such as new digital business models.
- Moving experimental organizational approaches for innovating in artificial intelligence (AI) and discrete digital medical technologies to a formal and mature organizational strategy.
- Preparing for a "borderless" industry by adopting a digital platform architecture that engages the broader health ecosystem for value creation and delivery.
- Amplifying digital leverage by modernizing data and analytics architecture.
- Supporting the macro trends of population health and value-based care by prioritizing investments around data, analytics, and the patient experience.

Notable Developments in Healthcare Digitalization

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- February 2021, HCL Technologies, and Alteryx, Inc., a leader in analytic process automation (APA), announced a global strategic alliance to help companies across the globe succeed in their analytics automation and digital transformation priorities.
- One of the most important technologies behind telemedicine apps is WebRTC, an open-source API-based system to connect web browsers with mobile applications. This can enable useful features like text and video chat, screen sharing, and file transfer.
- MIT and Harvard researchers have utilized machine learning to track trends in mental health. Their AI model analyzed thousands of online Reddit messages to find that topics of suicidality and loneliness had nearly doubled.
- IBM Watson Health introduced Digital Health Pass, a blockchain certification solution. This will allow companies to privately check the health status of their employees.
- BlueDot, an application developed by a company from Toronto, Canada, was a major pioneer in early warning systems for identifying pandemics such as COVID-19. BlueDot was the first to publish a paper that predicted COVID-19's spread worldwide.
- February 2021, Philips announced that it completed the acquisition of BioTelemetry, Inc., one of the leading U.S.-based digital health companies involved in remote cardiac diagnostics and monitoring.

India Advantage

- India digital transformation in healthcare market is expected to grow at a noteworthy CAGR during the forecast period. Factors such as growing demand from various industries, adoption of new technologies, among others are expected to drive the digital transformation in healthcare in India. The healthcare sector as an industry is expanding rapidly in India and has not been as severely impacted by the economic slowdown as some of the other industries.

- India, one of the biggest emerging markets, is currently an important destination for Foreign Direct Investment ("FDI"). Moreover, the digital health mission announced by the government is an ambitious plan to address India's public health crisis. The key components of the mission include a health ID, telemedicine, health records, and health registry, along with digi-doctor and e-pharmacy services.

- Electronic Health Records (EHRs) of citizens are envisaged to be created for ensuring continuity of care and other associated benefits. In addition, Major I.T. initiatives by the Ministry of Health & Family Welfare include various mHealth initiatives for improving efficiency and efficacy of public healthcare across the country under the digital India program. This is expected to further fuel the market demand for digital transformation in healthcare in India.

- National Digital Health Blueprint is an extension of the National Health Policy of 2017 (NHP 2017) which envisages the goal of attainment of the highest level of health and well-being for all at all ages, through increasing access, improving quality and lowering the cost of healthcare delivery. The key principles of NHP 2017 include universality, citizen-centricity, quality of care and accountability for performance. The policy lays significant emphasis on leveraging digital technologies for enhancing the efficiency and effectiveness of delivery of all the healthcare services.

Conclusion

Increasing investment of medical technology companies in research & development and favourable scenarios provided by regulatory authorities for their approval is expected to boost the Digital Healthcare Industry in the future.

With economic changes, an ageing population and higher prevalence in chronic diseases, the healthcare sector has seen a dramatic increases in costs. As a result, the industry has had to adapt to these pressures, readjusting its focus to efficiency and quality. Digital technologies provide a solution to this. Not only patients, but also healthcare providers have much to benefit from digital healthcare. Digital technology has transformed the way we live our lives. Consumers have encountered big changes in the healthcare industry. Accessing sources of information has become barrier-free and limitless. New technologies have revolutionized the healthcare industry. They will support patients along their entire journey, transforming the way they stay and keep connected to their healthcare professionals. Apps and wearables are the enablers that provide patients with 24/7 user-friendly solutions. These technological devices increase patient engagement and provide patients with more personalized care options.

In today's interconnected world, health is no longer an internal matter for any one nation. Digital health is fast emerging as one of the most defining trends of this decade and will have a profound influence on geopolitical and socioeconomic realities in the future. India must play a more proactive role in influencing global policies and governing principles to navigate its way around new questions and conundrums arising from this disruptive trend.

The National Digital Health Blueprint is not a silver bullet for immediate relief, considering the limitations of the current state of India's healthcare, i.e. weary infrastructure and resource shortages. However, it will make India better-prepared to achieve sustainable development goals in an inclusive manner, and to face black swan events such as the ongoing Covid-19 onslaught. With a regulatory framework and an ecosystem to embrace digital therapeutics and diagnostics, along with telemedicine, the Blueprint will be a tremendous opportunity for India to leapfrog decades of failures in its health report.

By 2022, medicine is expected to be fully predictive, preventive, personalized and participatory. Insights from human genetics, precision and personalized medicine will transform healthcare, bringing value through innovative biotechnology and requiring the healthcare system to move away from looking at the average patient to looking at the individual patient. Technology will reshape the current healthcare model. The new model is finally moving away from reactively treating illness to proactively promoting wellbeing and prevention. This is not only good for patients, but also reduces cost of care significantly to release the pressure on the healthcare systems themselves.

THANK YOU

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