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A Study on the Transformation of the Indian Healthcare Sector during the COVID-19 Pandemic

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Abstract: ***The COVID-19 problem has hit the healthcare industry hard. On one hand, it was responsible for treating COVID-19 patients, but it also faced a number of obstacles, similar to those experienced by other industries. Throughout it all, the industry has had to constantly innovate and come up with new methods to care for people. There have been significant shifts in consumer tastes and behaviour when it comes to accessing healthcare services. Players in this industry would do well to comprehend these behavioural shifts and alter their methods of operation accordingly. In terms of revenue as well as manpower, healthcare has become one of the fastest growing sectors in India. Due to expanding coverage, efficiency, and increased spending by both public and private sectors, the sector is expanding at a lightning speed. In the future, increasing income levels, more health consciousness, and a shift in attitudes towards preventative healthcare are all predicted to increase demand for healthcare services. Healthcare tourism has grown as a result of reduced cost of medical treatments, drawing patients from all over the world.***

Keywords: COVID-19, Digital Health, Healthcare, Teleconsultation, Telemedicine, Indian Healthcare Sector, Pandemic

I. INTRODUCTION

The COVID-19 pandemic has caused significant interruptions to economic growth and healthcare care, resulting in massive lockdowns and travel restrictions to curb the pandemic. Increasing economic constraints and unfilled population requirements, on the other hand, have compelled governments to reopen institutions. A reactivation must be coupled with protective measures, such as infection prevention and social distancing. This equilibrium has produced an urgent demand for digital transformation in many sectors, allowing workplace flexibility and the continuation of services while guaranteeing acceptable protection to people and avoiding unnecessary human interaction. Health care has been affected on two aspects: the significant impact of COVID-19 on medical, and the indirect impacts of corrective attempts. The indirect impacts are especially relevant now, when many communities recover at various phases, with varying degrees of success. During the COVID-19 pandemic, all health centers had to deal with several similar problems. In general, healthcare organizations had to restructure treatment for current patients to decrease face-to-face office hospital visits, reschedule non-urgent appointments and implement new measures to control the spread of the pandemic. These developments have had an impact on the availability of health services, such as current infrastructure facilities.

Health centers started dealing with an increased number of patient count who were at the risk of COVID-19 or had COVID-19, such as those with having symptoms like breathing difficulties, cold and cough. Medical practitioners had to treat these patients on priority while limiting their interaction with other patients who needed regular care for ailments other than COVID-19. To minimize the threat of health-care-associated spread, these modifications demanded the redesign of processes and infrastructure. Additionally, in response to local illnesses, medical associations had to restructure manpower to meet substantial and rapid surges in clinical demand across multiple regions. Health policy measures, such as isolating individuals arriving from abroad or implementing alternative week split methods to separate health practitioners, compounded the healthcare workforce crisis. These aspects, when considered simultaneously, lead to sudden shifts in demand and capacity. These constraints highlight necessity, and for, digitalization, with the ultimate goals of enhancing the efficiency of fewer healthcare staff, streamlining care with fewer touchpoints, and minimizing time spent in medical centers.

A. Research Background

India has a strong and illustrious history in the health and medical disciplines. The ancient Indian medical healthcare system used an integrated approach to addressing patients. Healthcare in India may be dated directly to the Vedic period, when a depiction of the Hindu god of medicines, Dhanwanthari, emerged. Medical services in India have grown considerably in the last decade. India has made significant advances in the health promotion since independence. Before the spread of the COVID-19 pandemic, healthcare systems in India were accessed physically with face-to-face appointments and consultations.

But with the increase in the spread of the pandemic and introduction of social distancing norms there has been a shift of healthcare systems from traditional to digital which was not the scenario pre pandemic.

Digital health may boost healthcare services through improving individual access to quality healthcare, enhancing public health, and exceeding the expectations of getting or giving care. COVID-19 has rekindled focus on digital health technology among both patients and medical practitioners. The fundamental technological areas are telehealth and artificial intelligence (AI), which are backed by other technology domains like as big data analytics, IOT, blockchain and next-generation infrastructures like 5G. These technological areas are dynamic and may be implemented in a synergistic way to serve the diagnostic demands of a variety of patients in certain environments.

B. Purpose Of Research

1) To understand the categorization of the Indian Healthcare sector.
2) To analyze the growth drivers, trends and strategies adopted to curb the COVID-19 Pandemic.
3) To study the various policies and schemes undertaken by the government for facilitating Digital Healthcare.
4) To understand the effectiveness of tele medicine and tele consultation services.

II. REVIEW OF LITERATURE

Alicia Nunez, Arkalgud Ramaprasad & S D Sreeganga (2021) in their study talking about the access to healthcare during the COVID-19 pandemic have found that there is early evidence of racial and socioeconomic differences in the COVID-19-affected population because of decreased access to and usage of healthcare services. It is critical to strengthen methods and implement proactive steps to ensure that access to healthcare is not impeded. Telemedicine can provide continuous follow-up care for complicated patients both now and beyond the epidemic. This virus's health hazard has significant ramifications for the vulnerable population. To meet their individual requirements, proactive solutions must be established. To battle this virus, local governments will need to deploy relevant data and resources. It is critical to have a worldwide picture of the research conducted since the COVID-19 outbreak began. The goal of this project is to map the current literature on healthcare availability following a pandemic. An examination of 131 research journal papers on access to healthcare during COVID-19 reveals topic selectivity and division in the study. The WHO operational guidelines cover measures that go beyond the supply of medications, supplies, and front-line worker assistance. It urges action on functional mapping of health institutions for chronic, acute, and long-term care. The recommendations emphasize the need of timely interventions in episodic disease treatment. They signify having key venues to address episodic care with settings that are ideal for high-volume treatment. The WHO recommendations promote digital modalities for a variety of objectives to preserve basic health services. Today's virtual clinics, with their technology instruments, are easily accessible and used to give care. The fourth motif is isolated and segregated, with a major concentration on two dimensions which is resources and personnel. It emphasizes the repurposing of human, financial, and material resources. The quinary cluster shows numerous aspects of healthcare access paths that have earlier been overlooked in studies. The pandemic has had an impact on the mental health of all demographic groups, including medical staff. The WHO standards on mental health care are vast and incorporate psychological and sociological considerations into providing psychosocial assistance for various demographic segments such as addicts, the elderly, and schoolchildren. They can be utilized to provide a systematic understanding of the problem to further research and provide guidelines, develop a balanced path for both research and practice by systemically analyzing the emphases and gaps in each and analyze the gaps between research and practice in a systematic manner and devise a plan for efficient translation between the two via feedback and learning. For successful access to healthcare during pandemics like COVID-19, research and recommendations must be guided by a comprehensive framework. As demonstrated by the foregoing study, significant changes in research and recommendations roadmaps are possible. A systematic methodology can encourage a systematic approach in addressing the issues of health access during these events.

Sambit Dash, Ramasamy Aarthy & Viswanathan Mohan (2021) in their study talking about the importance and usage of Telemedicine in India amidst COVID-19 pandemic. Indian hospitals halted non-emergency outpatient departments and restricted access to treatments in reaction to the COVID-19 outbreak. In India, telemedicine has shown to be a viable alternative to traditional medical care. The Ministry of Health and Family Welfare published telemedicine policy guidelines shortly after hospital units were closed. According to WHO, telemedicine is distribution of healthcare services and information by Healthcare Workers for identification, curing and halting the spread of disease. In India Telemedicine was initiated by ISRO in the year 2001. Previously, many legal orders in India had hampered the use of tele medics, but it was fully implemented on a large scale due to the COVID-19 pandemic.

The future of this springing sector is questionable due to a lack of defined policy or law, as well as a criminal negligence ruling. It was because of the pandemic that there was a clear perspective in this sector. Several telemedicine guidelines were released by the Medical Council of India in collaboration with NITI Aayog. Video, audio, and texting were included as three modalities of communication in these guidelines, with allowances for their usage by practitioners. Telemedicine's success in India is heavily dependent on infrastructure. As of December 2019, there were a total of 500 million smartphone users in India but the internet penetration, on the other hand, was just 36% of the total population. In rural India, just 28% of females use the internet. A significant increase in capacity and improved infrastructure might create an appealing market for private operators. The efficiency of telemedicine is dependent on certain abilities, some of which differ from those necessary in a typical face-to-face medical setting. There is a necessity to add new types of training for both aspiring doctors as well as those currently in practice. Competencies such as successful remote examination, handling of unforeseen events and interpersonal skills will be required for effective digital communication and appropriate webside manners. Indian Government developed its own telemedicine and teleconsultation service known as eSanjeevani on August 9th, 2020, which is a part of the Digital India initiative. The main motive behind this service is to connect large and small healthcare centers in remote India. Practitioners in many geographical regions used video conferencing to diagnose and treat patients. With roughly 3 million consultations via the eSanjeevani platform as of 17 March 2021, India has been dependent on this strategy for providing non-COVID necessary healthcare. Many illnesses, which account for more than 60% of all natural deaths among Indians, may be treated with a strong telemedicine infrastructure. However, India's success would be limited until the country's socioeconomic determinants of health are successfully addressed. Approximately 1000 patients had used the program by August 20, 2020, five days after it was launched. The government's ongoing efforts to expand the use of telemedicine in the face of the COVID-19 pandemic hold promise for alleviating India's dire healthcare constraints.

In their study focusing on whether digital healthcare is the only possible solution during the outbreak of COVID-19, Aditya Kapoor, Santanu Guha, Mrinal Kanti Das, Kewal C. Goswami & Rakesh Yadav (2020) have talked about the numerous digital healthcare solutions utilized during the pandemic. Systems like Digital DHIS2 can aid in the acquisition of information on high-risk travelers entering the nation from high-risk countries, allowing for active COVID-19 surveillance. Various governments throughout the globe are collaborating with agencies to create such systems to collect demographics, symptoms, and contact information at all entry points. Thus, relevant data can subsequently be made available to the health officers in their relevant geographical areas. Not just that, even drones are being utilized to spray disinfectants on impacted places such as bus and train terminals. While home quarantine and social distancing are important in containing the virus and minimizing community spread of the COVID-19 pandemic, digital and telemedicine services can play a vital role in fighting it.

Globally, measures are being taken in this direction, including the development of virtual chatbots to allow Health Care Workers to assess and communicate with patients virtually. Cardiac scanners, electronic thermometers and stethoscopes, ECGs, pulse oximeters, blood pressure machines, respiration rate and breathing frequency detectors, and have all been authorized under a new FDA regulation. According to recent Indian guidelines, a Registered Medical Practitioner may give telemedicine consultation to patients from anywhere in India while adhering to the same professional and ethical rules and standards as conventional in-person treatment. Stand-alone diagnostic booths capable of performing off-site COVID-19 testing to reduce exposure to healthcare personnel and preserve the usage of PPE can be utilized. The use of digital epidemiology tools to find trends predicting the onset, progression, and recovery of COVID-19 infections is an intriguing strategy for persons under home quarantine. Without a physical hospital visit, digital epidemiologists can monitor and send information such as temperature, heart rate, and, if necessary, oxygen saturation to the Health Care Workers. There is a service on Alexa named "My Day for Seniors" which focuses primarily on the senior citizens population, who may be electronically checked for potential COVID-19 symptoms by responding to daily surveys. Dissemination of information about COVID-19 infection to the public can be done to create free interactive chat services to help the public understand about key COVID-19 topics.

AskNivi, an application which started in mid-2019 in India, is an AI-based consumer interaction site that was primarily tasked with reproductive health counselling but is currently being expanded to incorporate COVID-19-related talks. Another service, Aarogya Setu, a smartphone application developed by the Indian Government connects health care services with the public to alert people about COVID-19 threats and possible solutions.

Digital technology platforms that connect administrative authorities with Health Care Workers can aid in the establishment of interactive two-way communication. Utilizing an existing digital health technology system and growing and adapting it to changing healthcare demands emphasizes the need of government sponsorship, monitoring, and co-ownership of digital health systems in handling such pandemics.

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III. RESEARCH METHODOLOGY

To address the key research objectives, this research has adopted qualitative method conducted by observing and analyzing already present information. This research framework constitutes of a combination of previous research and associated work explaining the impact of COVID-19 on the Indian Healthcare sector and how the pandemic has assisted in the paradigm shift from physical hospital visits to Digital Healthcare, Telemedicine and Teleconsultation. This study employs a descriptive research design to understand the categorization, growth drivers, trends, and strategies to battle the COVID-19 pandemic and understand the implementation and usage of Teleconsultation and Telemedicine in India during the COVID-19 pandemic.

IV. DISCUSSION

A. Indian Healthcare Sector amid COVID-19 Pandemic

1) Categorization of Indian Healthcare Sector: The healthcare industry in India is categorized into 6 segments namely:

a) Hospitals: Hospitals are further categorized into two segments namely Government hospitals and Private Hospitals. Medical facilities, district health centers, and general units are all included in Government hospitals category while nursing facilities, as well as mid-tier and prestigious autonomous hospitals, are included in the Private hospitals category.

b) Pharmaceuticals: Production, separation, refining, filtration, and package of chemical compounds for use as human or animal pharmaceuticals are all part of this process.

c) Medical Supplies and Devices: It comprises of entities that specialize in the production of medical devices and resources, such as surgical, dentistry, ophthalmologic, orthopedic, and laboratory equipment.

d) Health Insurance: It includes insurance coverage and a medical compensation program that covers a person's hospitalization costs incurred because of illness.

e) Diagnostics: It includes organizations and labs that provide quantitative and diagnostic solutions, such as blood sugar levels, thyroid levels, full body analysis etc.

f) Teleconsultation: With the introduction of Teleconsultation, patients can now avail healthcare and pathological services at the ease of their own convenience without having to visit the hospitals. They can now select doctors based on their experience and reviews and consult them from anywhere.

g) Telemedicine: When it comes to Telemedicine, there are a lot of possibilities in terms of tackling the issues of healthcare provision in rural and distant locations, as well as a lot of additional uses in the medical field in terms of education, development, and administration.

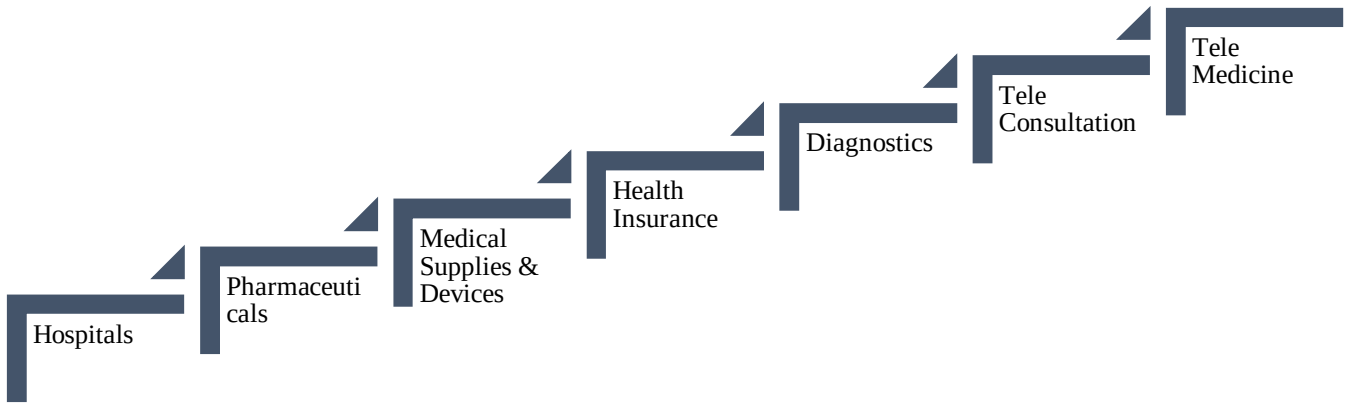

Fig. 1 Indian Healthcare Sector Categorization

2) Growth Drivers for the Indian Healthcare Industry:

a) Increasing Demand: Accessibility to healthcare services, increasing salaries, constantly evolving health trends, as well as an increasing older population has led to an increase in demand for healthcare infrastructure in our country. Health tourism is on the rise because people are focussing on better wellbeing and preventative diagnostics.

b) *Schemes and Policies:* The Indian Government has introduced policies that favor FDI in the private industry. Customs duty and other charges on life-saving devices are being slashed. The National Rural Health Mission (NRHM) has set aside $10 Bn for medical facilities. Along with that, the government has also introduced the National Health Insurance Mission which aims to provide coverage to the whole population.

c) Support and Focus: In India, Research and distribution operations are being enhanced. The healthcare infrastructure in India has begun to utilize modern day equipment and technologies. Not just that, India has also started aiding and assisting projects at a global level.

d) *Mergers and Acquisitions:* FDI and private industry developments are increasing in India with a lot of M&A prospects abound. Foreign companies are establishing R&D facilities and institutions in our country.

e) *Increase in Income Levels:* As one's income rises, so does one's capacity to seek medical and ancillary services. India's per capita GDP is anticipated to rise from US$ 1,761.63 in 2016 to US$ 3,277.28 in 2024.

f) *Changing Demographics:* The shifting demography of our country will result in increased healthcare costs. This trend is expected to continue as the older population is anticipated to grow from 98.9 million to almost 168 million by 2026.

3) *Trends steering the Indian Healthcare Sector:*

a) Shift of focus from Contagious to Contagious Diseases - With rising modernization and concerns associated with modern-day metropolises, almost half of all in-patient beds are now used to treat lifestyle illnesses, resulting in increased need for specialized treatment. Traditional health concerns have been replaced in India by chronic conditions. High cholesterol, high blood pressure, obesity, poor food, and alcohol are the leading causes of chronic illnesses.

b) Increased focus on Tier II and Tier III cities - Vaatsalya Healthcare was among the first healthcare chains to target tier II and tier III areas for development. The government has slashed healthcare taxes during the first five years to promote and facilitate construction of hospitals in certain these cities.

c) Rising popularity of Telemedicine - In India, the field of telemedicine is rapidly growing. Large hospitals like Apollo and AIIMS have embraced telemedicine and joined into several public-private partnerships (PPPs). According to a report by EY in partnership with the Indian Pharmaceutical Alliance in September 2020, the local telemedicine industry is predicted to reach US$ 5.5 billion by 2025. eSanjeevani which is a telemedicine facility by Health Ministry that enables patient-to-doctor and doctor-to-doctor consultations from the comfort of their own homes, has reached 12 million teleconsultations by September 21, 2021.

d) Inclination towards Artificial Intelligence - People can now speak directly to physicians and experts for the best-in-class treatments, thanks to the growing use of AI-based technologies. It may also solve difficulties for patients, surgeons, and hospitals, as well as the healthcare sector. Tata Trust's Indian Health Fund (IHF) confirmed the incorporation of two AI start-ups namely TrakItNow Technologies and Stellar Diagnostics. TrakItNow Technologies is an IoT and AI-based solution in progress with enormous power to impact mosquito-borne illnesses.

e) Introduction of CoWIN - A new COVID-19 vaccine delivery digital platform named 'CoWIN' which is a consumer-friendly smartphone application for capturing vaccination data was introduced in December 2020. CoWIN was made open source for all nations in July 2021. Approximately 76 nations have expressed an interest in using the CoWIN platform to administer their national COVID-19 immunization efforts.

f) Coverage and availability of Health Insurance - In India, health insurance is gaining traction. In FY 2020-21, gross direct premium revenue covered by medical insurance firms increased 13.3% year on year to Rs. 58,572.46 Cr. The government declared the 'Pradhan Mantri Garib Kalyan Package Insurance Scheme in June 2021 for Healthcare Workers combatting COVID-19. All healthcare practitioners, including community health workers and private health workers, are covered under the insurance system, which offers full personal accident coverage of Rs. 50 lakhs.

g) Technological Advancements - Uttar Pradesh declared its intention to install automatic drug distribution devices in June 2021 to strengthen the country's primary health sector and medical centers. AstraZeneca India signed agreements with Docon Technologies, a Bangalore based health start-up, in June 2021 to help automate 1,000 health centers across India by incorporating personalized electronic health records in clinics to provide practitioners with significant exposure to a patient's comprehensive medical history.

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4) *Policies And Schemes by Indian Government:* The Government of India has taken up various initiatives and introduced several policies to strengthen our healthcare sector.

TABLE I

SR NO	Government Initiative	Description
1	IMI 3.0	IMI 3.0 stands for Intensified Mission Indradhanush 3.0. Various states and UTs started enforcing IMI 3.0' campaign in March 2021, with the goal of reaching out to pregnant women and children who were ignored or left out of the usual vaccination program because of the COVID-19 crisis.
2	NNM	NNM stands for National Nutrition Mission. Over 100 million individuals are projected to benefit from this initiative, which will be implemented across all states and districts. The government declared intentions to begin 'Mission Poshan 2.0' in the Union Budget 2021-22, which would unite the 'Supplementary Nutrition Program' with the 'Poshan Abhiyan' to boost dietary results throughout 112 aspirational districts.
3	Vision 2035: Public Health Surveillance in India	This initiative aims to enhance the level of readiness at all levels by strengthening the information exchange mechanism between the Center and the states for successful disease prevention.
4	Ayushman Bharat	The Ayushman Bharat initiative was intended to enable universal health care and financial risk security for all citizens, as well as to provide excellent and economical fundamental health care. In India, nearly 76,663 Ayushman Bharat-Health and Wellness Centers were functional as of September 2021.
5	PMJAY	PMJAY stands for Pradhan Mantri Jan Arogya Yojana. In the Union Budget 2021-22, the government declared a six-year disbursement of Rs. 64,180 Cr for the healthcare industry to focus on strengthening the National Health Mission.
6	Telemedicinal Schemes	Mr. Rajnath Singh, our defense minister, unveiled the Services e-Health Assistance & Tele-consultation i.e., SeHAT OPD platform in May 2021 to provide health care to members of the armed forces and veterans.
7	NHS	NHS stands for National Health Mission. Under the Union Budget 2021-22, the Indian government authorized the extension of the National Health Mission with a funding of Rs. 37,130 Cr.
8	Aatmanirbhar Swasth Bharat Yojana	The government suggested in Budget 2021 that the country's capability for healthcare institutions be strengthened, which included access ports for aircraft. Under the Aatmanirbhar Swasth Bharat Yojana initiative, it aims to improve public health departments at 32 airports by simplifying the air transportation of pharmaceuticals throughout the country.
9	PMSSY	PMSSY stands for Pradhan Mantri Swasthya Suraksha Yojana. This initiative was granted Rs. 3,000 Cr in the Union Budget 2020–21. In August 2019, the Indian government authorized phase III of the project with the permission to build 75 new medical colleges in the country.
10	Ayushman Bharat Digital Mission	PM Narendra Modi announced the Ayushman Bharat Digital Mission in September 2021 with an aim to link hospitals throughout the country digitally with e very person having a digital health ID, and their medical files will be digitally safeguarded because of this.
11	NDHM	NDHM stands for National Digital Health Mission. Mr. Narendra Modi, the Prime Minister of India, inaugurated the NDHM on August 15, 2020, with the goal of developing the country's effective digital health infrastructure. As of May 2021, the platform has produced 11.9 lakh Health IDs, with 3,106 doctors and 1,490 institutes registering.

5) Strategies adopted to fight COVID-19

a) Immunization against COVID-19 – Covaxin by Bharat Biotech and Covishield by AstraZeneca, Serum Institute of India are the two vaccinations that have been widely administered in India to battle COVID-19. Over 89 Cr COVID-19 immunization doses have been delivered throughout the nation as of September 30, 2021. India made a record on September 17, 2021, by administering 2.5 Cr COVID-19 doses in a single day.

b) Vaccine exportation - While addressing at the international COVID-19 conference in September 2021, PM Narendra Modi stated that India is sharing its vaccine supplies with 95 nations and UN troops. He further added that with enhanced manufacturing, India will export COVID-19 vaccinations to other countries as well.

c) Strategic Partnerships - Biocon Biologics Limited formed a collaboration agreement with Serum Institute Life Sciences in September 2021. The agreement is likely to help India solidify its reputation as a top vaccine production house. The Telangana government, in collaboration with NITI Aayog and Apollo Hospitals, will implement the 'Medicine from the Sky' initiative in September 2021. This initiative would open the path for drone delivery of life-saving medications and vaccines to remote places.

d) Affordable Healthcare - To cut costs, private industry participants are making their manufacturing more efficient and exploiting economies of scope. Narayan Hrudayalaya (NH) is one such instance, wherein health services are available at a low cost. NH minimizes costs by increased buying of essential medicines, increased operations through high bandwidth utilization and low turnover, and effective Human Resources training.

e) Diversification - Delivering a variety of healthcare and wellness services under one label has proven to be quite prominent. Healthcare providers in the sector are attempting to distinguish themselves by offering a variety of services under one roof as it is handy for patients and anyone looking for medical services.

6) Barriers to adoption of Digital Healthcare

a) Lack of strong and secure infrastructure and policies to support the digital healthcare systems has been the biggest barrier to adoption of Digital Healthcare.

b) Since digital healthcare system makes use of online portals and mobile applications to medicines or to contact any medical practitioner, it might be quite challenging for people in the remote areas to access it due to unavailability of smart phones, and internet connectivity.

c) There is a digital divide when it comes to urban and rural India as the content is not available in regional languages and there is a lack of digital literacy in the remote areas.

d) Shortage of trained staff that are tech savvy and sound with the digital ecosystem have caused a hinderance in the operations of the digital healthcare ecosystem.

B. Telemedicine and Teleconsultation

Telemedicine and Teleconsultation has the possibility of enhancing the provision of knowledge and access to care, thereby extending the territorial coverage of health systems. Asynchronous consultations save operational expenses as compared to synchronous real-time appointments since data are collected from patients and securely preserved in readiness for assessment by the health practitioner at an earliest convenience.

These do not need specialized consultations and are not hampered by the unexpected events of real-time consultation appointments, such as debugging technological difficulties with patients while other patients stand in line. Some areas provide tele-ophthalmology solutions that are both asynchronous and synchronous. Just before COVID-19, significant and relatively more cost-effective frameworks were developed and tested, leveraging digital services.

The pandemic has transformed patients and physicians' perspectives, particularly in primary healthcare, which is now delivered remotely or digitally to over half of the patients.

When we first discovered about a particular virus in China, we instantly began talking about the proper use of digital medical technology, and a slew of new technologies were swiftly accepted, and curiously, not just by medical experts but also by the general population.

Telemedicine options have been around for many years, but the Covid-19 outbreak last year brought in their era. The terrifying necessity to safeguard medical personnel and other patients from the pandemic caused remote technology to rise from being a far-fetched notion for the treatment of rural places.

C. Transformation of the Healthcare System in India due to COVID-19

The Indian healthcare sector employed 319,780 individuals in 2019, making it the fourth-largest employer in the country. The Indian healthcare industry is predicted to triple in size between 2016 and 2022, rising at a CAGR of 22% to reach US$ 372 billion in 2022, up from US$ 110 billion in 2016. More than 89 crore COVID-19 vaccine doses had been delivered across the country as of September 30, 2021. The hospital equipment industry is predicted to reach US$ 11 billion by 2022, owing to an ageing population, increased health tourism, and lower healthcare service expenses. Between 2017 and 2022, India's healthcare industry is predicted to create 2.7 million new employment, or more than 0.5 million new roles every year. By 2022, the Indian government intends to boost the spending on healthcare to 3% of GDP. India's health services will be strengthened with the help of public health surveillance. The government set aside Rs. 35,000 crores in the Union Budget 2021 for COVID-19 vaccinations in 2021-22. The surge in healthcare expenditure was boosted by increased adoption of health insurance. India's public spending on healthcare as a proportion of GDP was 1.2% in Budget 2021. From 0.83 million in 2010, the number of allopathic practitioners with accredited medical credentials affiliated with state medical councils and national medical councils rose to 1.27 million in July 2021.

D. Opportunities and Future of Indian Healthcare Sector

India has undertaken strategic interventions in the National Health Mission and nationwide disease control initiatives over the years to ensure that everyone has access to high-quality medical services. The increasing middle class, along with the soaring burden of emerging diseases, is driving greater importance for health insurance. With rising demand for inexpensive and high-quality treatment, medical insurance penetration is projected to grow in the subsequent years. By 2025, India will require an additional 3 million beds to accomplish the goal of 3 beds per 1000 persons. Furthermore, by 2030, India will have 1 physician per 800 patients. To address the rising demand for healthcare, an additional 1.54 million physicians and 2.4 million nursing staff would be needed. By 2025, the healthcare sector is predicted to provide 58,000 employment opportunities. By 2030, it is anticipated that over $500 Bn would be spent on healthcare system. By 2027, healthcare's proportion in GDP is predicted to jump to 19.7%.

The requirements for health care professionals are evolving as a response to changing consumer preferences. With a rising desire for alternative non-traditional healthcare settings, clients are gradually opting to have their medical requirements serviced virtually or from the safety and comfort of their own houses.

They want their medical practitioners to follow proactive measures. Progressive firms in the industry are already identifying these patterns and devising measures to resolve them using technology. We anticipate that medical decision making will become far more consolidated in the future. Many of the activities will be relocated to a virtualized environment or to individuals' households, with digital innovations connecting them. Firms that embrace these developments and see them as possibilities to progress will prosper, but those that reject the shift and merely wait for the pre-COVID reality to recover will discover the going tougher over time.

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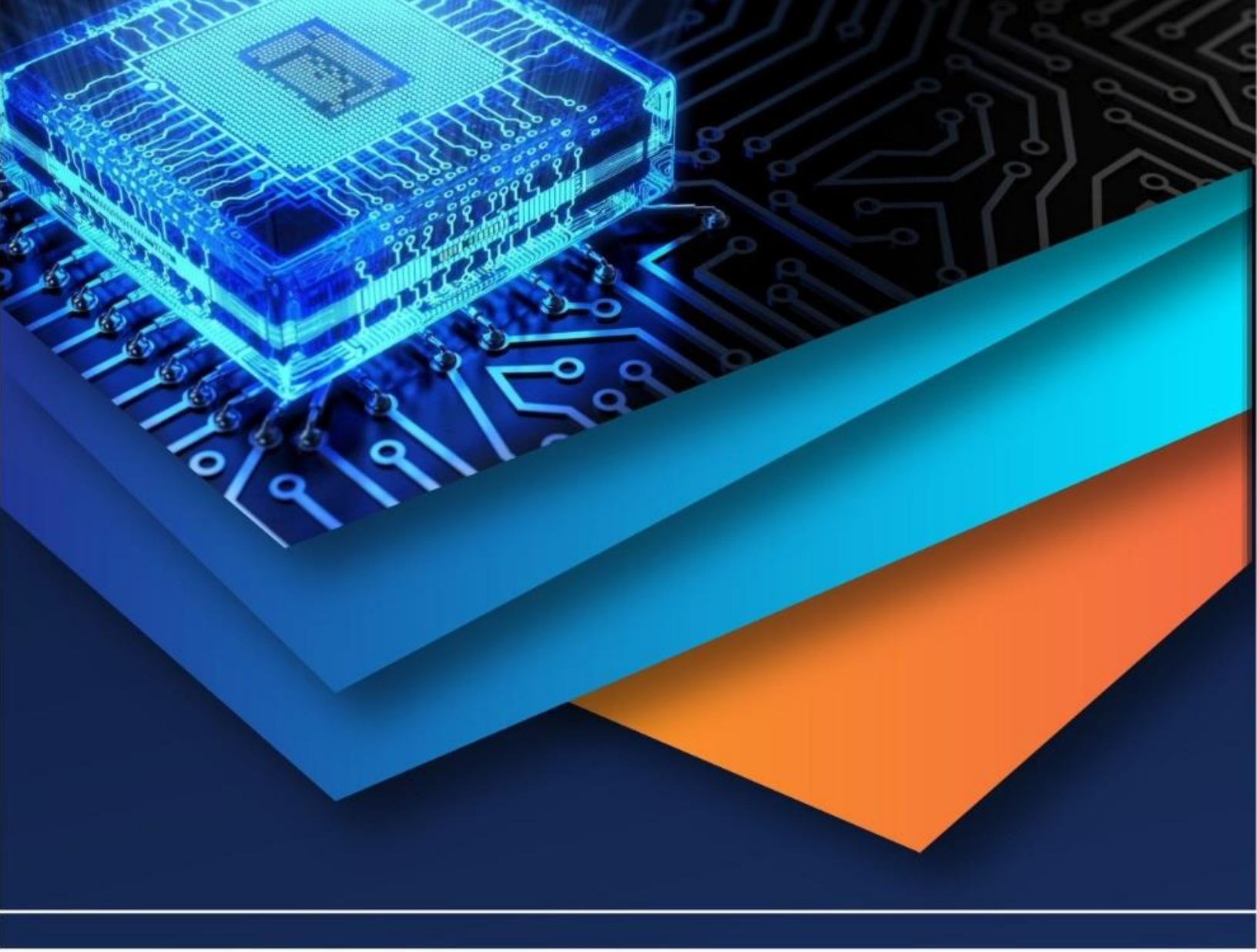

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