RESEARCH ARTICLE

Use of Digital Health Technologies in HealthCare Organization: A System Perspective

Prathviraj Singh Rathore, Dr. B. K. Sharma

Department of Computer Science and Application, Mandsaur University, Mandsaur, Madhya Pradesh, India

ABSTRACT

Healthcare, the world's biggest growing industry, is changing quicker than at any other time. The HealthCare industry is advancing quickly with huge volumes of information and expanding difficulties in cost and patient results. Modernization and change measures are being utilized universally by public and private division associations to meet the developing requirement for remedial services. It involves hospital preliminary administrations, emergency hospital services, hospital administrations, investigative administrations, investigative items, e-Health administration, and diagnostic centers. The main objective of this paper is to show the current scenario of HealthCare organization in India and where Digital Health Technologies stands for these organizations. Early adoption of Digital Health Technologies will improve hospital workflow and better understanding among management and doctors. Computerized advancements are continually developing and finding new applications in HealthCare sector, even while the business is battling with reception and computerized change. Every year new applications rise, yet the fundamental advancements driving them continue as before.

Key words: HealthCare Sector, HealthCare Organization, Digital Health Technology, Tele Radiology and Tele Medicine

INTRODUCTION

According to the WHO, "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."[10] Health assumes a critical activity in human lifestyles and it has end up a worldwide social goal. Healthcare is needed for comprehension of important human conditions and to get the status of improved individual fulfillment.[1] Improving the nature of development is a significant objective of the improvement paradigm in many creating nations.[10] The HealthCare sector (HCS) in India is experiencing a change stage where the patients are moreover stating and wants best organizations.[15] The HealthCare organization (HCO) in few years has rebuilt its administration framework for a demanding domain coming about because of development of the business and expanded competitiveness. The rebuilding has focused on finding successful tactics to satisfy the necessities and needs of the patients.[11]

The administration plays an important role in the progressive setting of the HealthCare Organization (HCO). It utilizes resources, staff, people and Digital Health Technology (DHT) application to perform progressive goals, of which the most significant is patient care and safety.[11] The immersion of Digital Health Technology (DHT) in HealthCare Organization (HCO) to advance with creative and skilled therapeutic framework is required for town and country network. DHT objectives are on demand with a serious need to improve resource progression, schedule appointment/doctors, manage patients, store, pharmaceutical requests, laboratory test orders, and so on. The advancement in HealthCare Organization (HCO) will improve emergency department in strengthening the effectiveness of their authoritative exercises thus predict clinical mistakes, reduce patient waiting time, and upgrading achievement rate in treatment.[1] Now, the Involvement of IT can be seen in vast majority of HealthCare Sector (HCS) whether it is District Hospitals (DH), Community Health Centers (CHC), Sub Health Centers (SHC), Primary Health Centers (PHC), Autonomous Hospitals (AH), Private Hospitals (PH) or Private Clinics (PC).

Address for correspondence:
Prathviraj Singh Rathore,
E-mail: prathviraj.rathore@gmail.com

The Central and State government is on the way of executing Digital Health Technology (DHT) tools, developing infrastructure, and arrange training sessions for staff. The involvement of Digital Health Technology (DHT) will get change the existing HealthCare Sector (HCS) which will have an effect to reduce therapeutic administrations costs and will ready to improve better organizations.[15]
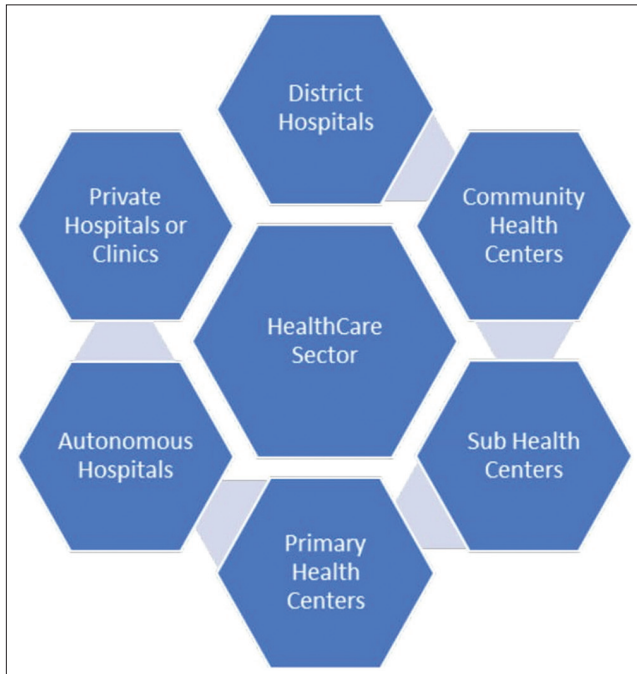

Figure 1: Hospitals level in Healthcare sector

DIGITAL HEALTH TECHNOLOGY (DHT) IN HEALTHCARE ORGANIZATION (HCO)

In most of the hospitals, the workplace is manual that is still grounded on paper. Some manual paper works are like: Registration, Out-patient department (OPD), In-patient department (IPD), Admission process, Hospital records, Evaluation looking after, Bookkeeping, Billing system, Claims Settlement, Pharmacy billing and frameworks,Laboratory frameworks, Radiology frameworks, and Monetary issues. Now, some hospitals have a vision to execute and computerize their working. Yet long approach as the vast majority of the hospitals and its staff have fears and along these lines refrain from utilizing IT. Some factors are cost, hesitance to switch, comfort level, absence of workforce and training. In case the hospitals get computerized, it will genuinely support them to address challenges of present-day HealthCare Sector (HCS) and have quality of healthcare services.[15]

Broadly India have emerged as center point of IT and IT empowered administrations which is taken care by the skilled workforce but India has far in assessment of utilization of Digital Health Technology with various countries. It is because of less inspiration of appropriation of framework, tools, and novelty.[8] In recent years, the Digital Health Technology (DHT) determination in private hospitals shows incredible results but in government hospitals the pace is still amazingly moderate, yet Indian government is endeavoring to push HealthCare Organization (HCO) toward the way to grasp Digital Health Technology (DHT). The central and state government is preparing game plan to protect the people of India through the constitutions. The constitutions put conditions on each state to build the desire for living and nourishment level to improve HealthCare Sector (HCS).[15]

The advancement of the IT zone in India, which expects an important activity such as teleradiology and telemedicine has promoted the rise of this division in India. At present tele-radiology has risen quick with an expanding number of hospitals outside the India. These hospitals need guidance and opinion from specialists or doctors on computed tomography scan, magnetic resonance imaging, Magnetic Resonance Angiography, X-rays, Ultrasound, etc., Indian doctors and PH in India are also like this technology. The Indian government started telemedicine facilities in India by Common Service Centre (CSC) Tele Medicine platform, in which patient have to go to the Common Service Centre (CSC) and register himself and consult the doctor about their problem. The doctor is available online from 08:00 Am to 08:00 Pm and prescribes the medicine to the patient online. The printed prescription is given by the Common Service Centre (CSC) Tele Medicine Centre. Number of patients is benefited with this Common Service Centre (CSC) telemedicine platform particularly rural and semi-rural area, where doctors are not easily available and have limited access to appropriate healthcare services for individuals living in these areas. Common Service Centre (CSC) telemedicine is considered to be a solution to this lack of access. The use of advance level key technology to influence HealthCare Sector (HCS) and the percentage of usage these latest technologies to meet the demand of the health sector are shown in Figure 2.[6]

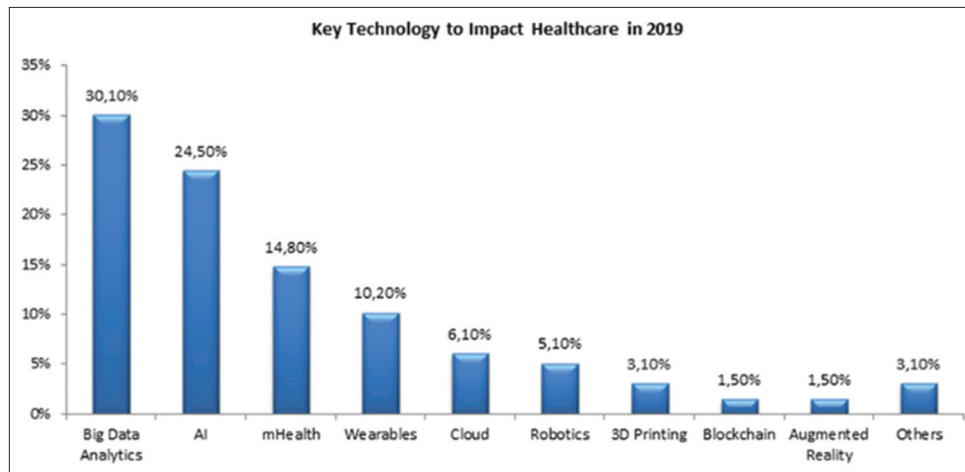The utilization of Artificial Intelligence in massive records investigation for healthcare will help in:[1]

Figure 2: Key Technology to Impact Healthcare in 2019 (FROST & SULLIVAN)

- Monitoring the health conditions, considering the set test results.
- Predictive investigation can be performed dependent on the present and past information.
- Provides a chance to specialists to look and dissect at changed techniques/approaches of treatment.
- Extracting the hidden and unknown facts from the existing health records of patient who has under gone treatment for similar kind of disease.

BUSINESS INTELLIGENCE (BI) IN HEALTHCARE

Business Intelligence (BI) is the collection of systems and tools used to examine organization data, data mining and data visualization to assist organization with making more statistics decision.[16-18] Business Intelligence (BI) tools perform information investigation and make reports, dashboards, outlines, graphs, and diagrams to provide clients about the idea of the business. Healthcare is an essential branch where productivity is helpful in sparing lives. Today, Business Intelligence (BI) has ended up being one of the allegorical lifelines in the healthcare field. Business Intelligence (BI) permits healthcare organizations to gather Big Data situated in a wide scope of spots and view it in BI dashboards to uncover imperative business experiences, monitor KPIs, and lift monetary and operational greatness. The most ideal approach to value the job of Business Intelligence (BI) in the healthcare world is to take a glance at how healthcare industry can use Business Intelligence (BI) solutions. Business Intelligence (BI) solutions

for healthcare organizations have developed from something worth considering to a prerequisite. By incorporating Business Intelligence (BI), healthcare suppliers can get knowledge required to limit cost, increase income, and improve patient safety while clinging to the set guidelines. With the ability to acquire positive effects on everybody the part, including patients, clinical experts, and administrators, Business Intelligence (BI) is a basic segment that permits healthcare organizations to achieve both money related and clinical achievement.[19]

Importance of Business Intelligence (BI)

Business Intelligence (BI) can assist organizations with settling on better decision by indicating present and historical information inside their business setting. Analyst can use Business Intelligence (BI) to give execution and contender benchmarks to make the organizations run smoother and more productively.[20]

A couple of ways that Business Intelligence (BI) can assist organizations with making more brilliant and information driven choices:

- Improved decision-making
- Optimize activities
- Compare information with competitor
- Track operations
- Analyze patient conduct
- Predict achievement
- Identify approaches to expand benefit.

HEALTHCARE ORGANIZATION (HCO)

Healthcare is one of the dynamic areas which impact the lives of everybody. The Indian

HealthCare Sector (HCS) driven by government, trust and private organization, in which private organization is on a high development direction and has advanced altogether in ongoing time span. The high demand of HealthCare Organizations (HCO) has been dependably taking off in the country, with each class of the overall population mentioning better quality and care of healthcare which has realized persistent improvement of the therapeutic administrations industry. Regardless, healthcare game plan in our country remains vile and challenges in access to and availability of significant healthcare suffer which is essentially a result of less government utilization to the portion.[9]

In India healthcare is generally a "Sickness" industry signified by many diseases, examined by insufficient and profoundly divided provider foundation, taking into account a population that desires to spend out of its pocket for the significant majority of its medicinal services desires, but at the identical time does not have a confirmation of getting best consideration.[13] The present healthcare administrations model in India have to be advanced and should push a stage ahead as far as innovation to give wonderful wellness to the patients.[1] The connection among health and advancement is usually strengthening while at the same time health adds to financial turn of events, monetary turn of events, thus, will in general improve the health status of the people.[10] However, in India, Digital Health Technology is quite minimal related to the general people in country.[1]

The healthcare framework is a blend of government, trust, and private parts are India's national healthcare framework tries to give an extensive cluster of administrations to all and at no expense, however battles to do as such. Civil – Hospitals in the system which pass on key cutting-edge of HealthCare Organizations (HCO), District Hospitals and Tertiary Hospitals facilities that can give significantly specific techniques in urban territories – are financed by states government and the central government and run by state governments. Healthcare professionals are utilized as government workers and allotted out to hospitals. The nature of general healthcare services suppliers differs essentially across states and among provincial and urban territories.[12]

HEALTHCARE ORGANIZATION (HCO) IN INDIA

Figure 3: Types of administration in Healthcare organization

The facilities in HealthCare Organizations (HCO) can vary from hospital to hospital. Fundamentally, there are three different types of administration in hospitals. They are: Line administrations, staff administrations, and helper administrations. The line administrations incorporate out-patient department (OPD), in-patient department (IPD), emergency department (ED), intensive care unit (ICU) and operation theaters (OT). The staff administrations include nursing, food, laundry, test center, and radiology. The helper administrations contain registration, indoor care records, stores, transportation, mortuary room, and security.[11]

The general stages in the hospitals for patient treatment are, it may vary from hospital to hospital:

1. Registration
2. Diagnosis
3. Admission
4. Treatment
5. Discharge.

With deficiencies out in the public hospitals, private hospitals have grown rapidly to meet rising wants and wages. Private hospitals are dominate service provider today.[12] At the high completion of the market, the private segment has world class workplaces.

A. Patient Safety

HealthCare Organization (HCO) is emerging as a strong improvement rate. Understanding safety and moderate healthcare have risen as significant concerns everywhere throughout the world and even more so among the developing countries. Over the most recent multi decade, despite the fact that Indian healthcare services have taken jumps as far as turning into a hospital, the transmission framework both government and private, keeps on

staying tricky to the segment of society with high healthcare service's needs.[3]

Various good atmosphere balances have been created in the fields of healthcare and patient safety. The physical appearance of a shielded environment in hospitals has been found to consolidate hospital administration support for safety programs, absences of hindrances to safe work practices, availability of PPE kits, irrelevant conflict, tidiness of work site, extraordinary correspondence, and safety related feedback. A positive and safe work environment has been significantly interrelated to diminished risk of work and injury.[4]

B. Quality of Care

The extension in lifestyle related infections and diseases has prompted a developing interest for quality healthcare benefits consistently. Unfortunately, India's healthcare foundation has been not able to stay up with the interest.[14] Ideally, evidence of the effect of care models on quality and patient prosperity would similarly be a primary thought in powerful decision-making. The care model directed by a variety of factors, for instance, money related issues, activity feelings, and the ability to enroll and hold staff.[7]

Expanding our knowledge of how working conditions influence healthcare manpower and the resultant dangers of mistakes and nature of administrations for patients is vital to the HealthCare Organization (HCO), especially the individuals who oversee or regulate hospitals and set arrangements that influence the authoritative working conditions. The key components of working conditions are staffing levels, working hours, physical condition, work process plan, and authoritative culture on the nature of care gave to patients.[5]

CHALLENGES IN HEALTHCARE ORGANIZATION (HCO) AND OPPORTUNITIES

The principle challenges standing up to people in general HealthCare Organization (HCO) today are as following:[2]

1. Insufficient infrastructure as compared to the population.
2. Less availability of doctors in rural areas.
3. Insufficient workforce in hospitals.

4. The quality of care and service is not up to mark.
5. Doubtful nature of administrations.
6. Proper facilities are not available in small towns.
7. High cash-based consumption in hospitals.
8. Unmanageable patient burden, in case of emergency.

There are various gaps in the Indian HealthCare Sector (HCS) and incredible healthcare is in unprecedented short stock, which shows a huge opportunity. Along these lines Indian healthcare administrations part addresses a game plan to change the open entryway into potential, with the goal that social area in addition to the general economy prospers. Because of expanding medical tourism industry and more prominent medical preliminary exercises in India, there is a need to update the administration gauges and gives the best in class offices to bring the administration levels comparable to worldwide measures. This changed viewpoint has made brilliant open doors for the entrepreneurs to give truly necessary administrative and monetary help.[10]

The growing interest, the rise of assumed private group of actors and the immense project needs in the HealthCare Sector (HCS). In last couple of years, there has been developing interest among remote group of actors and non-citizen Indians to enter the Indian healthcare services showcase. There is additionally developing eagerness among local and global commercial organizations, private value reserves, financial speculators, and banks to investigate project openings over a wide scope of fragments. Healthcare administrations is a social section, where choice to use and worth is as serious as the need to have further effort.[10] There are number of chances in fundamental healthcare services just as in partnered administrations to give successful and proficient healthcare administrations such as Medical Council of India (MCI) enduring Emergency healthcare assistance as one of the strong points, there are tremendous open doors for work force around, like: Nurses, Paramedics, Technicians, and Emergency medical specialists. In this manner, specialist hospitals either with single or multispecialty are additionally made for communities.[15] Healthcare is critical area of human capital and the opportunity to enter India's HealthCare Sector (HCS) is incredibly engaging.

CONCLUSION

The paper presents a short point of view toward India's HealthCare Sector (HCS) and the current scenario of IT and its burdens. The HealthCare Sector (HCS) pioneers hoping to improve the dissemination of new technology ought to consider approaches to more likely normalize their execution and utilization of Digital Health Technology (DHT) to drive across the board selection and advantage from new highlights. Seeing the circumstance government is working and updating the establishment and outfitting them with Digital Health Technology (DHT). It is further support to control and keep up the idea of health organizations, Lab examination, favorable decision, treatment, and care. Anyway, there has been basic advancement in the therapeutic administrations structure in India over last couple of years. Despite these progressing steps, the healthcare system remains inadequate in giving basic least thought as ensured in the Indian Constitution. Without innovation arrangements the HealthCare Sector (HCS) cannot accomplish its maximum capacity as there would be instances of richness and lacking limit of particular administrations at different areas. This can be accomplished with the assistance of Digital Health Technology (DHT) and hence helping our own economy to be at the top.

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