Chapter 55
Advanced Cyber Security and Internet of Things for Digital Transformations of the Indian Healthcare Sector

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ABSTRACT

Cybersecurity is not just about fortification of data. It has wide implications such as maintaining safety, privacy, integrity, and trust of the patients in the healthcare sector. This study methodically reviews the need for cybersecurity amid digital transformation with the help of emerging technologies and focuses on the application and incorporation of blockchain and the internet of things (IoT) to ensure cybersecurity in the well-being of the business. It was found in the study that worldwide, advanced technology has been used in managing the flow of data and information, India should focus on maintaining the same IT-enabled infrastructure to reduce causalities in the nation and on the other hand improve administration, privacy, and security in the hospital sector. Depending on the network system, resource allocation, and mobile devices, there is a need to prioritize the resources and efforts in the era of digitalization.

INTRODUCTION

As per available reports spending of the Indian government on healthcare is estimated to be 1.5% of the total GDP which is low as far as the population of the nation is considered. The spending of the government in the healthcare sector is too low in comparison to other nations. The healthcare sector theaters a pivotal part in the accomplishment and prosperity of a nation, so the government should devote

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considerable resources to the upliftment of the living conditions of people. The government has taken various steps to improve the present condition of the healthcare sector by framing policies such as the National Health Policy 2017 focused on plummeting infant mortality rate and providing access to good quality healthcare services to the people of the nation. The current situation in the country is alarming and the COVID-19 pandemic had forced nations to rethink the present health care infrastructure as the government alone will not be able to cope up with the present situation (Jain & Lamba, 2020). It need support from the big industrialists to fasten the process of developing the infrastructure for the COVID-19 patients. The time has come where a nation can sustain only based on investment in the well-being care sector due to drastic changes in the environment, pollution level, and modern living habits. The well-being care sector is one of the most important pillars of the Indian economy as it supports the rest of the sectors in smooth functioning.

A healthy nation will be able to face any pandemic and will emerge out of being a winner in the period of disguise. The health care sector is one of the most important pillars of the Indian economy as it supports the rest of the sectors in smooth functioning. A healthy nation will be able to face any pandemic and will emerge out of being a winner in the period of disguise. With the advancement in information and technology, every sector has get influenced to some extent. The need for data management and organization has paved the way for evolving know-hows such as Blockchain and the Internet of Things (IoT) (Miraz et al., 2020; Aich et al., 2019). Blockchain is the technology that integrates healthcare and data. The distinguishing features of blockchain such as transparency, data attribution, accurate and reliable reporting and data analytics help in resolving rigorous data management issues in clinical trials (Omar et al., 2020; Rathee, 2020; Fekih & Lahami, 2020; Fekih et al., 2020). The healthcare sector shown tremendous improvement such as patient retention, data integrity, privacy and regulatory compliances due to adoption of blockchain advanced application. The peculiarities of advanced technology such as Blockchain and how it improved the operations in the healthcare domain with the assistance of its key features and innovative applications. The major risks and opportunities related to technology adoption have also been discussed in the study.

The impact of COVID 19 on the economy of different countries has been studied and it was analyzed that COVID 19 had seriously impacted the healthcare sector (Attia et al. 2019; McGhin et al., 2019; Epiphaniou et al. 2019; Hasselgren et al., 2020). The use of advanced tools and applications such as Artificial Intelligence (AI), Internet of Things (IoT), Unmanned Aerial Vehicles (UAVs) and Blockchain etc., helps in reducing the influence of contagion on the environment (Chamola et al., 2020).

The Healthcare sector is the most important domain of a nation's prosperity. Data and health integration can solve many difficult problems in the healthcare sector. It facilitates exchange and dealings in the database that can be shared across authorized operators. It is peer-to-peer disseminated ledger know-how. It consists of majorly three components which are namely distributed network, shared record, and digital transaction. Blockchain technology ensures that no one can change any information or record and that can be done with the permission of all authorized operators in the system. Blockchain is the most used technology to assemble scattered data and at the critical time, it serves its purpose at best (Abdellatif et al., 2020; Ray et al., 2020). This technology has brought many changes in the well-being sector and in the way, data is managed in the hospital industry. The availability of crucial data at the right point in time has saved many lives (Alladi et al., 2019). Looking at the outdated healthcare infrastructure, emerging technologies have raised the expectations from blockchain and the Internet of Things (Hussein et al., 2019). Emerging technologies such as the Internet of Things (IoT), blockchain, artificial intelligence, machine learning, and big data all together have brought a drastic change in data