Chapter 12
Mitigating Risks and Barriers for Promotion and Implementation of Technologies in E-Healthcare

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ABSTRACT

The current era is moving towards digitalization of the system in every aspect, be it in manufacturing, automobile, or service sectors. This long way in digitalization has been done by overcoming a lot of barriers in their path. The healthcare sector is no exception to this and has also shifted to the ideology of moving to digitalization. This chapter discusses how the healthcare sector is adopting digitalization and the presence of internet of things (IoT) in the healthcare system. The barriers for implementing IoT in healthcare are identified and have been clustered under different categories with each being discussed in detail for better understanding of how it stands as a barrier to implementing IoT in the healthcare sector. The drivers for implementing IoT in healthcare are also identified and grouped accordingly. With a detailed study on barriers and drivers, this chapter helps to identify the key barriers and drivers that are to be addressed while implementing IoT in healthcare systems for a smooth transformation from conventional medical care to e-healthcare.

1. INTRODUCTION

With the growing intrusion of technologies in all sectors, it is apparent that healthcare sector needs to be upgraded with the same, for the betterment of healthcare workers and patients. Internet of things have diversified its impact in different sectors, right now with its influence turning up now in the healthcare. This is an ecosystem which would integrate physical objects with software and hardware. The Internet of things is clearly a major technological advancement in computing and communication field. It is defined as a network with unique addressable and interoperable with the help of radio frequency especially like RFID. This helps in connecting with a sophisticated network which is uniquely identifiable to connect to a server with effectively provided with suitable service. In the forthcoming years more 25 billion things will be connected to the internet which would help to derive the volume of data and knowledge extracted from the data to be processed to make intelligent decisions independently to provide necessary services. Although IoT has been developed and introduced several years back but its major influence is over the mobile devices and with the wireless connectivity. For several years the manufacturing industries have been tried to utilise machine to machine communication using the technology such as RFID and sensor networks. With the growing aging of population there is a shortage with resources and rising medical brings the need for tailored IoT systems to address the challenges in the healthcare. IoT is playing an important role in self-management of an individual. The adoption of the IoT paradigm in the healthcare system could bring several opportunities to the medical IT, and researchers believe that it could significantly increase the healthcare services relationship with the patient. Also, it could contribute in constant and methodical innovation improvement. The concept had been introduced recently in different fields and since then has seen an exponential progression. Many studies have shown up with different models in various fields and how it would turn up the approach for self-improvisation. Currently the technology has been used in the healthcare system for simple function such as indicating measured data and storing those data temporarily. In order for effective implication of the healthcare system, two function needs to be assessed, one is application network protocol and intelligent service. The growing population in both urban and rural areas have increased the need for development of IoT systems. The patient care workflow can be automated by IoT and with next-gen healthcare facilities, healthcare mobility solution can be provided. IoT in healthcare enables interoperability, machine-to-machine communication, information exchange, and data movement that make healthcare service delivery effective. Further, pandemics like Covid-19 which has shaken up the healthcare sector and has taken a huge burden on healthcare workers, it's indicative that technologies of Industry 4.0 (I4.0) needs to be implemented if not on a larger scale, for creating a well-ordered health system. On a simpler term, the future e-health system signifies that scenario of doctors meeting the patients themselves is not that far. Previous outbreaks like Spanish flu which happened way back in 1918, revealed that during health crisis, healthcare systems across the globe were stretched too thin to operate properly and had made workers and people with treatable health conditions to suffer disproportionately more. Even though the healthcare system at present is far more advanced than it was in 1918, current pandemic of Covid-19 is no exception, and has inarguably resulted in even tougher situation for many developed countries. Outpatient services were closed due to capacity issues which made it difficult for people who have routine check-ups and chronic health condition to visit the hospital with fear of getting infected. Yet, some hospitals came up with "Internet + Healthcare" strategy using interoperability consortium and were able to manage the system without becoming too thin. Consultation through online was boosted by various telemedicine platforms which provided comprehensive mental support to health workers and general public. There involves a lot of

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