Chapter 1
Digital Innovation in Healthcare

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ABSTRACT

Digital innovation is an ongoing strategy that has drastically transformed businesses, communications, economies, and other facets of daily life. One of the domains that has seen a major technological shift is the healthcare system. This much needed change is encouraged and supported as it brings a plethora of merits for both workers and patients. However, numerous experts strongly believe that healthcare's digital transformation still has pitfalls to be dealt with. The transition to digital transformation is a difficult task because of healthcare's reliance on legacy technologies, as well as serious regulatory problems and security issues. This is why the aim of this research is to define digital healthcare and the most recent innovations to emerge from it. In addition to that, this research will highlight the challenges hindering digital healthcare from reaching peak performance and suggest some possible solutions for those as well. Finally, the authors think the results will be helpful in showcasing the major pitfalls of digital transformation in healthcare.

INTRODUCTION

As a result of the rapid growth of digital technology, nearly every area of human endeavor has undergone transformation in the past several decades. There has been and will continue to be considerable speculation about the implications for human health as well as the positive and negative repercussions of these changes (Abernethy et al., 2022). Digital health, which was first defined by Seth Frank in 2000, primarily includes internet-based software and media aimed at enhancing medical connectivity, commerce, and content. The phrase "digital health" has grown to cover a far wider range of scientific ideas and technological advancements, including telemedicine, wearables, mobile apps, analytics, and eHealth (Tecco, 2017). Furthermore, the use of digital health technology in medicine is expanding significantly to encompass diagnosis, therapy, clinical decision support, care administration, and care delivery.

Digital healthcare is being given great importance, with nearly $6 billion invested in the digital health sector in 2017, up from $4.4 billion in 2016 (Rock Health, 2018). The proliferation of wearable sensors and mobile health apps is hastening the influence of digital health on patient care. Consumers

can now download more than 318,500 health-related mobile applications, and more than 200 new ones are released every day.

According to the website of the US Food and Drug Administration (FDA): "Digital technology has been driving a revolution in health care, from artificial intelligence and machine learning to mobile medical apps and software that assist the clinical decisions clinicians make every day. The use of digital health tools has the potential to significantly improve individual patient care by enhancing the correct diagnosis and treatment of disease" (Sutner, 2021).

The monitoring of health parameters as well as other related uses are supported by the use of computing platforms, software, connectivity, and sensors in digital health technologies. These new technologies provide a useful complement to medical products like drugs, devices, and biologics, which are frequently used to treat patients with short-term or long-term health problems like diabetes. They could also be used to research or develop medicinal items (RetinaRisk, 2019).

According to the FDA, through data access, digital tools are giving healthcare professionals a more comprehensive picture of patient health while also allowing patients greater control over their own health. Digital health presents real opportunities to increase productivity and improve medical outcomes. These technologies offer new opportunities for assisting in prevention, early identification of life-threatening diseases, and management of chronic ailments outside of traditional health care settings. They can also enable consumers to make better-informed decisions about their own health. Digital health technologies are laden with a myriad of benefits. Hence, they are being used by providers and other stakeholders to: cut back on inefficiencies; improve access; lower expenses; and give patients more individualized medical care (FDA, 2020).

Although healthcare digitization is a tremendous advancement, it still has a number of challenges to overcome, just like any other evolutionary transformation. For customers, security and privacy are major concerns. Data processing is the main challenge facing the digital healthcare sector because hospitals and comparable platforms collect a lot of sensitive data. Digital healthcare has significant cybersecurity challenges, just like any other digital platform. Digital services must satisfy their customers. Last but not least, some medical professionals prefer using more conventional techniques and are unwilling to adopt digital health technologies (Zakariah & Aldakheel, 2021).

Through our research paper, we tried to answer the following questions:

Q1: What is the definition of digital healthcare?
Q2: What are the major breakthroughs that digital innovation has brought to the healthcare system?
Q3: How did COVID-19 change eHealth?
Q4: What are the main pitfalls of healthcare digitization?
Q5: What are the suggestions that may help remedy the hurdles of the digital transformation of the healthcare system?

Therefore, the aim of our study is to (1) define the meaning of digital healthcare, (2) provide examples of the most significant digital transformations in the medical field, (3) investigate the impact of COVID-19 on ehealth, (4) identify the major issues associated with healthcare digitization, and (5) develop some solutions to the challenges that such initiatives face. This literature review has been conducted on the most recent and most updated references on digital innovation in the medical field published in indexed journals, official sites, and research papers. The paper is organized as follows: Section 2 offers

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