

Chapter 2


Digital Health

Innovations in Advancing Telemedicine for Sustainable Healthcare Delivery and Business Optimization

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ABSTRACT

This paper explores the transformative role of digital health innovations, focusing on telemedicine as a key driver for sustainable healthcare delivery and business optimization. It examines how telemedicine is enhancing accessibility, reducing healthcare costs, and improving patient outcomes, particularly in underserved areas. The study highlights the integration of telemedicine with AI, big data, and

DOI: 10.4018/979-8-3373-1534-8.ch002

remote monitoring to streamline healthcare services, increase operational efficiency, and optimize resource allocation. Furthermore, it discusses the business optimization benefits of telemedicine for healthcare providers, such as reduced overheads, expanded service offerings, and improved patient engagement. The research also addresses the challenges in implementing telemedicine, including regulatory barriers and data privacy concerns, while providing recommendations for its effective integration into sustainable healthcare systems.

INTRODUCTION

Digital health tools have changed how healthcare works. They help improve patient care. They also make healthcare services more efficient. Digital health means using technology to treat illness, manage risks, and support good health. It includes tools that use information and communication systems. One important tool is telemedicine. It helps people in remote or underserved places get medical care. Telemedicine has become a major part of modern healthcare. This paper explains how telemedicine supports long-term, sustainable healthcare. It also shows how it improves business practices in healthcare. Telemedicine becomes even more powerful with advanced tools. These include Artificial Intelligence (AI), Big Data, and remote monitoring. Together, they make healthcare faster, better, and more affordable (Attah et al., 2024). This study focuses on six main ideas. These are telemedicine, AI in healthcare, Big Data, remote monitoring, sustainable healthcare delivery, and business optimization. Telemedicine lets doctors treat patients without meeting in person. They use video calls, mobile apps, and other digital platforms (Morelli et al., 2024).

AI and Big Data make telemedicine better. They help with predictive analytics. They also personalize healthcare and manage patient data well. Remote monitoring systems allow doctors to watch patients continuously. This reduces hospital visits. It also improves treatment results. Sustainable healthcare means care that is affordable, easy to access, and good for the environment. It aims to create long-term positive results. Business optimization in healthcare means making operations more efficient. It also includes offering more services and improving patient involvement. These steps help reduce costs and increase profits for healthcare providers (Akinola & Telukdarie, 2023). Figure 1 shows the different tools for monitoring digital health.

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