

# Chapter 11

## Digital Technologies on Health Services: A Systemic Review

**Jude Imuede**

 <https://orcid.org/0000-0002-6385-0112>

*Synthesis Software Technologies, South Africa*

**Kagiso Imuede**

*Deloitte, South Africa*

### ABSTRACT

*Health services are essential for achieving high levels of population health, and providing these services necessitates the need for substantial investments in digital technologies to transform medical care. In terms of medical practitioners' responses to patients' responses, digital technologies have significantly increased operational efficiency. These instantaneous responses rely on billions of interconnected smart devices, such as mobile phones, large online data sets, relatively inexpensive computing resources, and advancements in machine learning and natural language processing. This review takes a systematic approach to examine digital innovations for public health responses to health services worldwide, as well as their impacts, ethics and privacy concerns, and challenges in implementation. The authors project the future of public health to become increasingly digital, and this chapter highlights technologies strengthening the delivery, management, and future preparedness for reliable health services.*

### INTRODUCTION

The variants of emerging technologies used in digitising health services offer transformative improvements in medical care, significantly altering the way problems are diagnosed and the possible combinations of techniques in administering public health. The chapter expands on the understanding that the world is undergoing a digital transformation that necessitates innovations and ambitious research to optimise

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and sustain healthcare delivery. Despite significant progress in recent years, the digital strategy driving an optimal delivery shows no signs of slowing down and is even surging at sky speed.

Health services refer to the various types of healthcare that are available to individuals and communities (ballegaard, hansen, and kyng, 2008; levesque, harris, and russell, 2013). These services can be provided by healthcare professionals, such as doctors, nurses, and other medical staff, and can be delivered in a legally approved health center (bowling, 2014; campinha-bacote, 2002). Health services may include preventative care, such as vaccines and screenings, as well as diagnostic, treatment, and rehabilitation services for illnesses and injuries. It may also include support for mental health and well-being, as well as palliative care for those with terminal illnesses (yang et al., 2017). Access to high-quality health services is essential for maintaining and improving the health of individuals and communities. The author projects the future of public health to become increasingly digital, and this chapter highlights technologies strengthening the delivery, management, and future preparedness for reliable health services.

## **BACKGROUND**

Individualised healthcare is now a reality thanks to the integration of technological advances in the healthcare sector (Alloghani et al., 2018); innovation is occurring on a scale that has never been seen before, especially in the digital sphere. The potential for using digital technologies to improve and promote population health is the integral focus of the world health organization (WHO) in its strategy to accelerate the global attainment of health services at an optimal scale (*Electronic health records: manual for developing countries*, 2006; Jebril, 2020). Aside from this, the use of digital technologies in health services has become universal standard (Dhingra and Dabas, 2020), and there has never been a time when the global population was more connected. The digitisation of health services has had and will continue to have a significant impact on healthcare provisioning. In this perspective, it is critical to evaluate the effects of such digital health services, just as it is with traditional services (Etkind et al., 2017). Decisions about whether to embrace, use, or fund new initiatives should ideally be informed by data on how well they contribute to health system objectives at all levels of the spectrum. Decision-making may not be limited to government institutions, individuals, communities, and organisations, but the sole goal should be to advance and implement digital health initiatives for the benefit of all. The authors recognise the potential value of collaboration in making progress relevant, secure, affordable, transparent, and attainable. As such, digital technology innovators can be valuable strategic partners for invested stakeholders. In this regard, they must strive to pursue intentions that are sufficiently aligned, sustained, and demonstrated to go beyond the initial rush of adopting new technologies. To this end, ethical implementation, accountability, financial engagements, research, and evaluation of digital health outcomes are a minimum prerequisite of variables to be considered (Doshi et al., 2023).

## **IMPACTS AND IMPLICATIONS**

The COVID-19 pandemic has inspired and continues to accelerate trends in electronic health (eHealth) (Mathews et al., 2019), medical product manufacturing, and healthcare service delivery (Li et al., 2020). It has significantly impacted patient care leading to improvements in accessibility and cost. This section

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