

Chapter 20

Transforming Global Health Outcomes Through Smart Technology and the SGD Framework

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ABSTRACT

The fastest-ever technological advancements have presented the most incredible opportunity to alter global health, a development that aligns well with the Sustainable Development Goals (SDGs) agenda. We showed how intelligent technologies can directly impact healthcare systems, resulting in advancements relevant to achieving SDG 3 (Good et al.) The third and last of these four goals is to examine the relationships and interconnections between SDG 8 (Decent Work and Economic Growth), SDG 9 (Industry et al.), and SDG 11 (Sustainable). The conversation is purposefully moving toward an eco-systemic architecture that achieves the objective via succession. The report offers a comprehensive view of disruptive technologies, particularly about the global health ecosystem, covering everything from genomics and data-driven diagnostics for personalized medicine to remote patient monitoring (RPM) and the effectiveness of healthcare system management.

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1. INTRODUCTION

The 17 Sustainable Development Goals (SDGs), with its 169 targets, encompass a comprehensive and ambitious pledge to secure humanity an improved future by covering economic vitality, ecological equality, and social responsibility (R. Kumar, Singh, et al., 2023). SDG 3 – One such target is to ensure healthy lives and promote well-being for all ages. Top institutions and industry partners across the globe are grouping at IIT-Guwahati to demonstrate live technologies that help drive large-scale innovation addressing the SDGs leveraging the Industrial Internet of Things (IoT). Cloud computing moves from distraction to essential intelligent technologies such as artificial intelligence (AI), telemedicine, Internet of Medical Things (IoMT), data analytics, and blockchain, changing the face of healthcare and creating top-notch facilities with predictive capabilities. In addition to aligning with SDG 3 (Good Health and Well-being), these advances advance other goals as well, such as goals 9 (Industry, Innovation, and Infrastructure) by enhancing health infrastructure and 11 (Sustainable et al.) because they both bridge the needs of rural/urban community (Mary Joshitta et al., 2023).

The study by (V. Kumar et al., 2021) explored what effects the progress of one SDG may have on the progress of another, referred to as synergistic effects. For example, advancements in health technologies are critical to attaining SDG 3 and concurrently fostering economic growth (SDG 8) and improving infrastructure (SDG 9). Innovative technologies need to be brought into the different sectors, in particular for reaching the SDGs quicker, as (Sharma et al., 2022) also describes for health (Kaur et al., 2024).

In light of worldwide crises like the COVID-19 pandemic, intelligent technologies can potentially revolutionize the healthcare industry. The pandemic made clear how important it is to have robust, technologically advanced health systems that can react to emergencies in global health. As was mentioned in (Unhelkar et al., 2022), cutting-edge medical technology, such as telemedicine and AI-driven diagnostics, was crucial in minimizing the pandemic's effects, guaranteeing continuity of treatment, and facilitating remote health monitoring (R. Kumar, Kandpal, et al., 2023).

Two new technological paradigms, Industry 5.0 and Society 5.0, have the potential to create groundbreaking new opportunities for integrating intelligent technologies into healthcare systems. Industry 5.0 focuses on a sustainable, human-centred configuration of advanced technology and scientific discoveries (Eswar et al., 2023). Simultaneously, Society 5.0 has a shared vision for optimal human empowerment inside relational systems encompassing everything through technology. The goals of smart cities and villages, which employ technology to enhance healthcare, quality of life, and sustainable development, align with both frameworks (Tyagi et al., 2023).

This study looks at how intelligent technology may be applied to achieve the Sustainable Development Goals (SDGs), especially SDG 3, and improve global health (Bhatnagar et al., 2023, 2024; P. Kumar, Taneja, & Ozen, 2024). Through a comprehensive review of the literature and the use of data on healthcare breakthroughs, we propose an aggregative framework that connects the development of intelligent technology to improvements in health outcomes. We also provide a SWOT analysis to help identify this Integrated strategy's benefits, drawbacks, opportunities, and risks. To promote sustainable global health in the future, this study aims to help academics, policymakers, and leaders in the healthcare sector imagine a tech-forward paradigm (K. S. Kumar et al., 2022).

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