Chapter 6
Evaluating the Role of Industry 5.0 in Achieving Sustainable Development Goal 3: "Good Health and Well-Being"

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ABSTRACT

Industry 5.0 is on the horizon representing a big change, focusing on combining advanced technologies with a people-centred approach. Industry 5.0 incorporates technologies such as artificial intelligence (AI), big data analytics (BDA), the Internet of Things (IoT), machine learning (ML), robotics, and virtualization to pave the way for innovative ways of doing things. The goal is to attain equilibrium between humans and machines, all while ensuring our growth occurs in an environmentally sustainable manner. In healthcare, Industry 5.0 aspires to build resource-efficient and user-friendly solutions. In this chapter, we explore how Industry 5.0 can work together with Sustainable Development Goal 3 – Good Health and Well-being by

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analysing the optimal use and the collective potential of numerous technologies that might aid in achieving the targets of SDG 3. We examine the optimal utilization of various technologies to attain the objectives of this goal.

1. INTRODUCTION

The Industrial Revolution had a profound impact on how companies and society operated. With advancements in digital technologies, manufacturing techniques underwent substantial modifications. The focus changed from mechanical engineering and steam power in Industry 1.0 to electrical engineering in Industry 2.0, which brought large-scale assembly lines and electric power systems, revolutionizing industries and people's lives. Industry 3.0 marked the integration of electronics, computers, and information technology into production processes and was superseded by Industry 4.0 with the automation of industrial operations, propelling us to a new level of production efficiency and now making headway for Industry 5.0.

The convergence of Industry 5.0 and the Sustainable Development Goals (SDGs) marks a crucial juncture in the global industrial landscape, blending technological innovation with socio-environmental responsibilities. Industry 5.0, an evolution of Industry 4.0, envisions a future where technological advancements not just improve efficiency but also contribute significantly to achieving sustainable development goals. Unlike its predecessors, Industry 5.0 responds actively to global sustainability challenges. Its emphasis on a human-centric approach prioritizes the well-being of the workforce, aligning with the overarching objective of the SDGs, which is to ensure that no one is left behind. In the face of post-pandemic complexities and disruptions in supply chains, Industry 5.0 becomes crucial for steering toward a more inclusive and sustainable future through resilience, sustainability, and collaborative efforts. Industry 5.0 acknowledges the potential of the industrial sector to contribute to societal goals beyond mere job creation and economic growth. It aspires to transform production into a resilient source of prosperity by adhering to the planet's limits and placing the well-being of industry workers at the forefront of the production process. (Nielsen & Brix, 2023).

The next section discusses Industry 5.0 with the Sustainable Development Goals. We also discuss Industry 5.0 and Sustainable Development Goal 3 of Good Health and Well-being. In the later section, we deeply analyze the integration of Industry 5.0 technologies and how it could help to achieve SDG 3 while also focusing on the challenges and barriers in the implementation. Finally, we conclude the study with a brief discussion of future research opportunities.

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