Chapter 2
Smart HR 4.0 With Impact of Technology Advancement and Industry 4.0 on HR Practices

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ABSTRACT

This study emphasizes the significance of Smart Human Resources 4.0 (Smart HR 4.0) and the effects of Industry 4.0 and technological advancements on HR practices. The developments of Smart HR 4.0 in the HR field are also demonstrated in this chapter, emphasizing planning, organizing, staffing, directing, and controlling. Consequently, exploratory relationships among Smart HR 4.0, technology advancements, and Industry 4.0 are presented based on a systematic review. The chapter discusses the role of Smart HR 4.0 as a recent industrial entry into the human resources field was discussed in this study. A pool of 65 research articles published between 2014 and 2023 from top-tier peer-reviewed journals were considered for further understanding and investigation. In order to successfully navigate the obstacles of the Industry 4.0 revolution, an organization would need a strong Smart HR 4.0 strategy. Emerging technologies like the internet of things, big data, and artificial intelligence will automate most HR processes, creating leaner and more effective HR teams.

1. INTRODUCTION

"Industry 4.0" refers to "smart" and networked production systems designed to observe, anticipate, and interact with the physical world to make decisions that support production in real time. It can increase production productivity, energy efficiency, and sustainability. Decreasing downtime and maintenance expenses boosts production (Pillai and Srivastava, 2022; Rana et al., 2019). According to Shamim et

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al. (2016), Industry 4.0 ushers in smart factories and businesses' innovation. Businesses use Industry 4.0 technologies to increase productivity and efficiency (Puhovichova & Jankelova, 2022). The field of human resource management is not exempt from Industry 4.0, as various HRM verticals are being updated and automated due to its rise (Sivathanu and Pillai, 2018).

Industrial Revolution 4.0 led to Smart Human Resource 4.0 (Smart HR 4.0). In order to manage human resources across all generations effectively, industry 4.0 technologies are used (Rana et al.,2019; Sivathanu and Pillai, 2018). In order to manage next-generation employees effectively, Smart Human Resources 4.0 (SHR 4.0) is a new concept that is developing as a part of the broader 4th Industrial Revolution. It is characterized by innovations in digital technologies like the Big Data Analytics Internet of Things, artificial intelligence technologies systems (AI), and fast data networks like 4G and 5G (Hecklau et al., 2016). The objectives of "smart HR" are to assist the development of a high-performing staff, link human resources initiatives with the broader company plan, and improve employee satisfaction (Munsamy et al., 2019; Verma et al., 2020).

One area where smart HR 4.0 is likely to have a significant impact is talent management. With the help of predictive analytics and AI, smart HR 4.0 will identify the skills and competencies most in demand in the labor market, allowing organizations to quickly adapt to changing workforce needs. In recent years, the human resources (HR) field has significantly transformed due to technological advancements and the rise of Industry 4.0 (Pillai and Srivastava, 2022). This transformation has led to the emergence of "smart HR 4.0," which refers to using digital technologies and data-driven approaches to improve HR processes and decision-making. Research in this area has focused on exploring the influence of Industry 4.0 on HR and the benefits and challenges of adopting these technologies.

Compiling a complete list of essential competencies for work in a digitalized and networked society was observed, and even though each profession has unique requirements, human resource development must meet the identified competencies that are gaining importance (Verma et al., 2020). In addition, all detected competencies were grouped into a radar graphic, allowing the user to comprehend the criteria imposed on particular competencies (Hecklaua et al., 2016). In the second section of this work, a broad application approach for the competency model was explored briefly. It demonstrated how the model may evaluate and cultivate an employee's competencies to face future issues.

Another research lays forth a theoretical structure for organizational performance using dynamic capabilities developed due to Smart HRM 4.0 practices (Pillai et al., 2022). Industry 4.0 is an upcoming domain in the industrial revolution that is widening daily. Several types of research have been done and are in progress regarding several areas under Industry 4.0. Similarly, researchers have concluded that transitioning to Industry 4.0 requires a great change from traditional human resource practices to keep up with the demands of such a volatile industry and market (Gupta et al., 2019; Puhovichova et al., 2022).

While most of these researches have concluded that the Human resource management process must undergo major changes soon, there is a significant research gap in the techniques and methods required to adapt to the demands of Industry 4.0. Hecklaua et al. (2016) proposed a comprehensive list of essential competencies for a job in the modern digital and interconnected world. These competencies provide a list of skills one must acquire to survive in the human resource market during the upcoming industrial revolution. Also, there have been some controversies and conflicts concerning different authors on whether Smart HR 4.0 brings more jobs to the human resource management team or cuts down and reduces the workload (Brozzi et al., 2020; Dıaz-Chao et al., 2021).

Sivathanu et al. (2018) have concluded that the upcoming technologies, such as AI and Data, will automate most of the typical HRM processes, leading to leaner human resource management teams.