Chapter 4
Introduction to an Smarter HCI for Employees

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ABSTRACT

The evolved business ecosystem in Industry 5.0 requires every individual to interact with computers daily. Combined intelligence combines human and computer intelligence to align for teaming up a smarter team, reaping better organizational benefits. HCI involves AI, IOT, machine learning, neurocognition, NLP, generative AI, RPA, social robotics, etc., accentuating the need for humans to contribute equally to creating team synergy. Actual human-computer interactions require a mature environment to enable easy adoption by employees. Our research paper proposes a conceptual framework listing the various drivers and inhibitors affecting employees' decisions toward adopting intelligent computers at the workplace. The implications of the research paper can be mapped under the UN's 8 and 9 sustainable development goals. The proposed conceptual framework will give a complete understanding of the significant factors required for consideration for the successful adoption of intelligent computers by employees.

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1. INTRODUCTION

Digital human-employee and human-employee interactions are part of the modern workplace (Baptista et al., 2020). Industry 5.0 has tremendously transformed human-computer interactions in the workplace, by obtaining sustainable solutions to the problems encountered in Industry 4.0 (Abdel-Basset et al., 2024; Pereira et al., 2020). Artificial intelligence, Machine learning, Internet of Things, Neurocognition, RPA, Generative AI, AI algorithms, Smart human computer interactions in an evolved sustainable work environment have embarked on Industry 5.0, as a solution to problems foreseen during Industry 4.0 (Bousdekis et al., 2025; Gelayol & Sepehr, 2024). The sociotechnical environment within the organization requires employees to be the enablers, enabling the creation of value through intelligent human-computer interactions (Makarius et al., 2020). The application of intelligent technology, such as generative AI, has a significant impact on an individual's behavior and cognitive abilities, which necessitates effective management. (Mohammed et al., 2024). Technological advancements and adaptations in Industry 5.0 have prominent significance on sustainable business and aligning a human-centric approach to intelligent technologies, leading to robust economic development (Gelayol & Sepehr, 2024). The field of human-computer interactions, along with artificial intelligence, creates an interactive intelligent system for the benefit of the users and business (Nazar et al., 2021). Human intelligence and computer intelligence need to complement each other to achieve the desired work goal, creating collaborative intelligence (Di Pasquale et al., 2023b). Lean management, achieved through lean automation, human sharing, and interacting with smart computers, is vital for team and company performance; therefore, companies are vouching for having a smart team comprising with right skills and competence, supporting collaboration and interactions with computers (Tortorella et al., 2021). Organizations for enhancing their business performance are largely dependent on collaborative intelligence gained through smart computers and their interactions with humans who are equally intelligent and competent to work with them, rather than relying only on humans (Blaurock et al., 2024). Industry 5.0 has made it mandatory for businesses to implement and integrate the adoption of intelligent computer interactions with human employees (Passalacqua et al., 2022). However, there are many challenges and opportunities that human employees may perceive while working with smart computers, which can substantially impact their behavior and eventually impact the team and organization performance (Gurcan et al., 2020). Human employee acceptance and adoption of smart computers for intelligent work and interactions are crucial for business success (Sony & Mekoth, 2022). Prominent drivers and inhibitors specifically determine the actual adoption and implementation of HCI (Malik et al., 2020). There are many factors explored related to employee adoption and behaviour towards HCI (Gkinko, 2022; Malik et