

Chapter 4

Blockchain Technology and the Future of Smart and Safe Workplaces

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ABSTRACT

This chapter presents the applications of blockchain technology within workplace settings and guides future research and organizational adoption. This is achieved through a bibliometric analysis of literature sourced from Scopus and Web of Science between the years 2017-2024. The findings indicate a significant increase in publications on blockchain applications in workplaces since 2019, indicating the technology's rising relevance and potential in workplace contexts. The thematic analysis identifies key areas where blockchain technology is expected to have a substantial impact, including knowledge management, smart workstations, human resource management, confidential information sharing and storage, and optimized workplace communication. This study proposes five key areas for future research: testing existing prototypes in various workplace applications, evaluating regulatory and ethical compliance, and investigating the social and environmental impacts of

DOI: 10.4018/979-8-3693-6289-1.ch004

1. INTRODUCTION

The concept of Industry 4.0 is evolving toward Industry 5.0, where the human aspect is at its core (Gutiérrez et al., 2022). Today's work environment is characterized by a mix of individuals with varied backgrounds and long-term aspirations, the expansion of the gig economy, adaptable workspaces, and changing priorities (Pandey, Grima, Pandey, & Balusamy, 2023). To succeed in this rapidly changing digital environment, continuous innovation and a focus on human needs are vital (Avanzo, 2021). Moreover, the evolving nature of work necessitates a strategic shift towards an innovation-driven, human-centric economy, requiring restructuring and forward-thinking approaches. In recent years, blockchain technology has emerged as a disruptive force with transformative potential across various sectors, including workplaces. Various research works highlight and propose several applications of blockchain technology in workplaces, revealing both direct and indirect implications for employees and companies (Kaswan, Dhanda, Dhatteval, & Balusamy, 2023; Kok & Palaniappan, 2023; Rahman, Azam, & Sanjida Chowdhury, 2022). Blockchain is a decentralized, distributed ledger technology that securely records and verifies transactions across a network of computers. Unlike traditional centralized databases controlled by a single entity, blockchain operates on a network where each participant (node) maintains a copy of the entire record (Dwivedi et al., 2024). Moreover, transactions recorded on the blockchain are time-stamped forming an unalterable series of transaction records. This decentralization and immutability enhance security (Kayikci & Khoshgoftaar, 2024), reduce the risk of data manipulation (Duan et al., 2020), and prevent fraud (Le et al., 2019), Positioning blockchain as a practical solution for diverse workplace applications, including communication (Li, Su, Li, Zhang, & Wang, 2020), knowledge transfer (Selvi A, B, Rajan Y, & Geetha, 2023), monitoring health-related issues (Bandi & Fellah, 2022a; Kendzierskyj, Jahankhani, & Ndumbe, 2021), human resource management (Ramachandran, Babu, & Murugesan, 2023; Wang et al., 2017), and more.

This has led to a few studies reviewing the research on the role of blockchain in workplace operations. Nevertheless, these reviews have primarily focused on the impact of blockchain on workplace outcomes rather than examining the workplace environment itself. This review represents the first attempt to examine blockchain technology within workplaces by considering the workplace as a central focus (to the best of our knowledge). It is important to acknowledge that prior research has explored blockchain's role in specific workplace benefits such as change management (Tiron-Tudor, Deliu, Farcane, & Dontu, 2021), employee performance management

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