Chapter 14
The Role of Digital Technology in the Sustainability Strategies of SMEs

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ABSTRACT

The discourse around sustainability and decarbonization has largely overlooked SMEs, despite their crucial role in the global economy and significant collective emissions. SMEs need focused research and policy attention to address sustainability concerns. The accelerated adoption of digital technologies supports sustainability efforts, enhances competitiveness, and enables product customization. However, there is a gap in understanding how effectively these technologies advance SMEs' sustainability objectives. This study, through a systematic literature review, reveals that adopting ICT, social media, big data analytics, IoT/IIoT, AI, business management programs, and cloud computing is crucial for SMEs to enhance sustainability and achieve sustainable development goals (SDGs).

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1. INTRODUCTION

The earth is currently confronting substantial environmental, social, and economic challenges, and the Small and Medium Enterprises (SMEs) have the potential to contribute significantly to addressing these challenges through integrating and embracing resourceful sustainability strategies by leveraging digital technologies (Nejati, et al., 2014; Piccarozzi, et al., 2022). The adoption of sustainability strategies is increasingly crucial across all sectors, including SMEs, due to their significant impact on economic development. SMEs are recognized as pivotal drivers of economic growth, job creation, and competitiveness through their promotion of innovation and the establishment of new ventures (Mago & Modiba, 2022; Raihan, 2024). While sustainability issues receive widespread coverage in media and government discourse, the integration of sustainability practices within SMEs is progressing slowly, and the urgency of addressing sustainability challenges, highlighting the potentially severe consequences if these issues are neglected. Immediate and practical actions are needed from all operating companies irrespective of their nature and size to mitigate these consequences (United Nations, 2022).

Moreover, SMEs encounter difficulties in effectively planning, managing performance, and measuring their actions and operations (Garengo and Bernardi, 2007; Sardi et al., 2020; Cavicchi et al., 2023). These challenges are compounded when SMEs attempt to monitor and implement sustainability practices. A major issue is the lack of alignment between their strategic goals and the management control systems they employ (Garengo et al. 2005). Additionally, inherent characteristics of SMEs pose obstacles to effectively monitoring and reporting sustainability-related information (Girella et al. 2019). These factors collectively contribute to the struggles SMEs face in integrating sustainability into their operations and demonstrating their commitment to sustainable practices effectively. On this ground, it is crucial for organizations to have effective integration of digital technologies within corporate sustainability strategies to effectively address sustainability challenges and goals. According to Raihan (2024) and Reiter (2024), a significant barrier to progress in sustainable development is the insufficient integration of digital technology into corporate sustainability management. Scholars have observed that while many managers recognize the importance of adopting a strategic approach to corporate sustainability (Kitsios et al., 2020), mere awareness is often inadequate. Strategy serves as a crucial managerial tool aimed at guiding businesses to achieve their objectives and move closer to their long-term vision (Angwin et al., 2020).

Furthermore, SMEs play a crucial role in contributing to climate change and environmental degradation, as they are responsible for a substantial portion of carbon dioxide emissions and pollution, accounting for approximately 60% and 70%, respectively. (European Commission 2022; International Trade Center, 2021). This