


Chapter 3

Artificial Intelligence and Corporate Sustainability: Impacts of AI on Promoting Sustainable Business Practices

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ABSTRACT

This study explores the interplay between AI and sustainable business practices, focusing on its dual economic and environmental benefits. It examines AI's role in optimizing resources, reducing operational costs, and promoting regulatory compliance while other important aspects. The analysis highlights AI's potential to transform industries by enabling green product development, fostering digital transformation, and addressing the growing demand for corporate environmental responsibility. Despite its advantages, challenges such as technological adoption barriers and ethical considerations, including workforce impacts and data privacy, are also addressed. By addressing these gaps and advancing the understanding of AI's real-world impact, the research offers theoretical insights and practical recommendations for companies aiming to implement AI technologies effectively, thereby positioning themselves as leaders in environmental and economic resilience. The findings contribute to the broader discourse on integrating AI into strategies that align innovation with sustainability goals.

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INTRODUCTION AND LITERATURE REVIEW

This study aims to explore how Artificial Intelligence (AI) can assist companies in implementing more sustainable business practices, mitigating environmental impacts, and maximizing operational efficiency.

The primary objective of this review chapter is to build a theoretical foundation for the research by examining the latest literature on the impacts of AI in promoting sustainable practices in the business sector. Specifically, the review will address three central themes: the concept of corporate sustainability and its current relevance; the role of AI in businesses and its main applications; and how AI can be directed to support sustainable business practices. Based on this framework, the review will explore challenges, barriers, and future perspectives, providing a comprehensive view of AI's use in sustainability efforts.

This literature review will focus on studies directly relevant to the research question of this thesis, addressing AI's role in promoting sustainable business practices. Given the broad range of approaches and applications of AI, the review will concentrate on research conducted after the SARS-CoV-2 pandemic. This temporal scope ensures that the study considers recent developments and focuses on emerging technologies and innovative practices addressing current challenges and opportunities.

The literature review is divided into seven main sections, each covering a key theme related to the research. The initial section discusses the concept of corporate sustainability, focusing on studies that define and operationalize this idea, particularly concerning environmental, social, and economic aspects. Subsequently, the review will address AI's main applications in the business context, examining its role in automation, data management, and process efficiency. The third section will explore AI's specific impact on promoting sustainable business practices, analysing its contributions to resource management, supply chain optimization, and carbon footprint reduction.

Next, the review will discuss corporate compliance with environmental regulations, highlighting AI's role in monitoring and ensuring adherence to standards. In the fourth section, the review will synthesize the economic and environmental benefits of adopting AI technologies, emphasizing their potential to reduce costs and increase efficiency while promoting sustainable practices, such as reducing carbon emissions and responsibly using natural resources. The review will then address the challenges and limitations of adopting AI for sustainability, identifying technological, economic, and ethical barriers. The final sections will explore future perspectives and gaps in the literature, emphasizing the need for qualitative studies examining the long-term effectiveness of AI technologies for corporate sustainability.

1. CORPORATE SUSTAINABILITY

1.1 Definition and Evolution of the Concept

Corporate sustainability is a dynamic concept that continuously evolves with technological innovation, particularly with the advancement of AI, which offers new opportunities and challenges for resource management and compliance with environmental regulations (Stock & Seliger, 2021). However, this concept has historically held different meanings, evolving and adapting alongside humanity's progress. Below are some definitions of corporate sustainability over the years:

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