


Chapter 4

Enhancing Business Intelligence Through AI-Driven Integration of Sustainability Metrics via ESG Factors

Shanmuga Pria

 <https://orcid.org/0000-0003-1117-3831>

University of Technology and Applied Sciences, Oman

Iman Al Rubaie

University of Technology and Applied Sciences, Oman

Venkatavara Prasad

University of Technology and Applied Sciences, Oman

ABSTRACT

In recent years, the imperative for businesses to integrate Environmental, Social, and Governance (ESG) factors into their decision-making processes has become increasingly evident, reflecting a broader societal shift towards sustainable practices. This transition is driven by a recognition of the interconnectedness between business operations and environmental and social impacts, to create long-term value for all stakeholders. The framework underpinning AI-driven integration elucidates how machine learning algorithms and natural language processing can be leveraged to address these challenges. To address these challenges, the framework offers recommendations for policymakers and regulatory bodies to promote the adoption of AI-driven integration for ESG factors. By fostering an enabling environment that incentivizes sustainability-oriented decision-making,

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polymakers can accelerate the transition towards a more sustainable and resilient economy. By embracing AI technologies, organizations can navigate the complexity of ESG factors

INTRODUCTION

The adoption of Environment, Social, and Governance (ESG) goals and regulations has surged in recent years, driven by government policies and international initiatives aimed at addressing pressing social and environmental challenges (Rabhi et al., 2023). This trend has profound implications for global social and economic landscapes, necessitating a reevaluation of existing corporate governance, reporting processes, and information technology (IT) infrastructures. As organizations grapple with the implications of these changes, numerous IT-related challenges emerge, prompting the academic community to embark on new research endeavors to address them effectively.

One of the central challenges confronting organizations is the need to develop information processing and distribution infrastructures capable of supporting their ESG goals and compliance requirements. The complexity of ESG regulations and the evolving nature of international accords pose significant questions for organizations. They must consider whether these developments will necessitate changes to established corporate governance and reporting processes, and whether they will require the adoption of new IT infrastructures or the adaptation of existing assets. Moreover, organizations must grapple with concerns surrounding data trustworthiness, both internally and externally, and seek ways to support the expansion of ESG measures to encompass emerging risks such as the governance of artificial intelligence (AI) and software supply chains (Rabhi et al., 2023).

Navigating these challenges requires a multidisciplinary approach, bringing together expertise from various academic disciplines such as computing, information systems, business, risk management, and compliance. ESG-related challenges cannot be addressed adequately through a single disciplinary lens; instead, they demand collaborative efforts that leverage diverse perspectives and methodologies (Rabhi et al., 2023).

In response to these challenges, there is a growing recognition of the need to transition from qualitative to quantitative approaches in supporting organizations' ESG goals. Existing information management practices, often qualitative in nature, have demonstrated limitations, resulting in high costs and inaccuracies (Rabhi et al., 2023). Embracing digital transformation technologies and harnessing the power of big data analytics offer opportunities to create new ways of supporting emerging

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