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Exploring the Interplay of Corporate Social Responsibility, Green Supply Chain Management, and Big Data Analytics

Pathways to Enhanced Firm Performance and Competitive Advantage

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Introduction

Green Supply Chain Management (GSCM) is vital for addressing economic, social, and environmental concerns within organizations, ultimately fostering sustainability (Wang et al., 2020). The concept of GSCM extends beyond product manufacturing and distribution to include the early stages of product design and usage (Novitasari and Agustia, 2022). This holistic strategy enables companies to maximize profits and enhances resource utilization and ecological efficiency (Wang et al., 2020). In order to enhance our understanding of GSCM, we must examine questions related to its development and outcomes regarding Corporate Social Responsibility (CSR). Examining both the antecedents and consequences of GSCM through the lens of CSR can offer valuable guidance for companies seeking to adopt GSCM practices, ultimately leading to improved firm performance (Wang et al., 2020). The impact of economic growth can be measured through CSR practices, requiring a mature CSR strategy that incorporates environmental consciousness from all stakeholders (Sánchez-Infante Hernández et al., 2020).

On the other hand, supply chain risk management is an important topic for academics and practitioners, with disruptions in supply chains on the rise. This has led to an interest in Supply Chain Resilience (SCR) and its impact on competitive advantage (CA). SCR refers to a supply chain's capacity to recover its regular operations reasonably after being interrupted by external factors such as natural disasters or political unrest. The aim is to prevent such disruptions from causing prolonged or harmful effects on the supply chain's performance (Dubey et al., 2021).

Simultaneously, there has been a growing interest in using big data analytics (BDA) to inform organizational decision-making and improve sustainable performance. Many businesses are accelerating their BDA projects to gain a competitive edge, with studies highlighting the importance of BDA infrastructure that is adaptable, compatible and connected. The accumulation of data has prompted many companies to develop analytical tools such as BDA to glean valuable insights and inform decision-making, leading to improved supply chain performance (Dubey et al., 2021; Mohit and Sadeghi, 2021).

Overall, CSR has gained significant attention in recent years as firms are increasingly expected to take responsibility for their impact on society and the environment. Further, GSCM has emerged as an effective tool for addressing environmental concerns in supply chain management. Moreover, BDA has the potential to enable firms to understand customer needs better and improve decision-making processes. Therefore, exploring the relationships between these three concepts and their impact on firm performance and CA can provide valuable insights into how firms can create sustainable business models while staying competitive in a rapidly changing business landscape. The proposed hypotheses shown in Figure 1 provide a framework for

investigating these relationships and can contribute to developing evidence-based strategies for firms to enhance their performance and gain a competitive advantage.

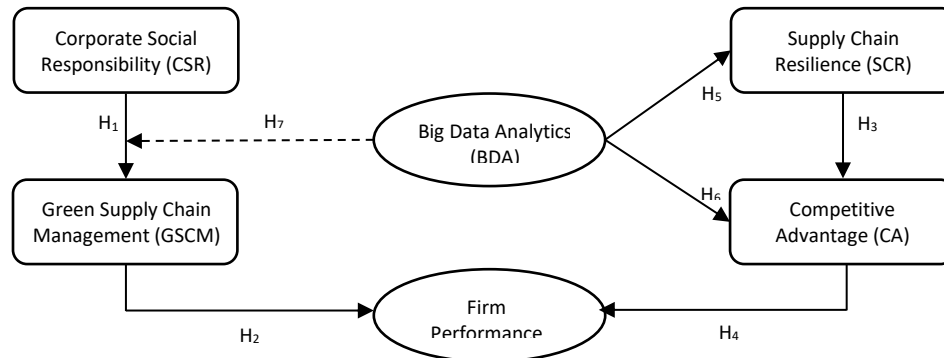


Figure 1. The proposed Model

Methodology

To investigate the relationship between various hypotheses (Figure 1), researchers surveyed employees in Iran’s automotive manufacturing industry and collected data. The items used for measuring different constructs were adapted from previous research (i.e., Zhu et al., 2022; Dubey et al., 2021; Wang et al., 2020), but they were slightly altered to fit into the context of automobile production. The questionnaire incorporated a five-point Likert scale that ranged from “strongly disagree” to “strongly agree.” The researchers employed partial least squares structural equation modeling (PLS-SEM) analysis using Smart-PLS v4 software to determine the association between the specified constructs. SEM is a powerful technique that enables researchers to examine complex relationships between variables and predict outcomes accurately (Kante and Michel, 2023). In this article, we chose to use PLS-SEM due to its suitability for predicting outcomes in complex models with latent variables.

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