Environmental Engineering and Management Journal

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BIG DATA APPLICATIONS IN SUSTAINABLE SUPPLY CHAIN OPERATIONS MANAGEMENT: A SYSTEMATIC LITERATURE REVIEW

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Abstract

Supply chains (SCs) are vulnerable to the complex and turbulent market environments, and stringent environmental regulations pose new challenges to improving SC sustainability. The application of big data (BD) technologies could help reshape SCs to address societal challenges in achieving sustainable development towards Industry 5.0. It is imperative for academics and practitioners to evaluate how BD applications can result in sustainable supply chain operations management (SSCOM). To achieve this, this article conducted a literature review of 102 relevant studies. The review relied on a literature analysis framework that revealed four applications areas of BD technologies: marketing, decision-making, forecasting and performance analysis. Few studies have provided a systematic review of the current research status of BD applications in the field of SSCOM, let alone focusing on sustainability. BD technologies can help monitor marketing transitions, support better decision-making and forecasting, and improve performance. The research evaluates the effects from a practical perspective, particularly at the operation level of supply chain management (SCM), and resolution of SSCOM problems. Additionally, the study would promote future explorations in the study area based on the proposed future research directions. The research findings provide a holistic understanding towards sustainability of BD technologies applications in the SSCOM.

Keywords: big data technologies, emerging technologies, sustainable strategy, sustainable supply chain management

Received: October, 2024; Revised final: April, 2025; Accepted: April, 2025

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