

Literature Review on the Use of Digital Technology to Achieve Green Supply Chain Management

Veser Keroo*

Department of Business and Tourism Management, Izmail State University of Humanities, 68600 Izmail, Ukraine

Abstract

The adoption of digital technology in supply chain management has emerged as a pivotal strategy for organizations seeking to enhance their environmental sustainability efforts. This literature review explores the integration of digital technology into Green Supply Chain Management (GSCM) practices. It examines how digital solutions, such as Internet of Things (IoT), blockchain, Artificial Intelligence (AI), and big data analytics, are reshaping the landscape of GSCM. Through an extensive analysis of existing literature, this article sheds light on the advantages, challenges, and future prospects of leveraging digital technology to achieve sustainable and environmentally responsible supply chain operations. Green Supply Chain Management (GSCM) has gained considerable attention in recent years as organizations seek to reduce their environmental footprint while maintaining efficient and effective supply chain operations. The integration of digital technology into GSCM practices has been recognized as a transformative approach to address environmental concerns and promote sustainability. This literature review aims to provide insights into the use of digital technology in GSCM and its impact on sustainable supply chain management.

Keywords: Digital technology • Big data • Organizations

Introduction

The Internet of Things has revolutionized supply chain management by enabling real-time tracking and monitoring of products and assets. IoT devices, such as sensors and RFID tags, provide data on temperature, humidity, location, and more. This data can be used to optimize transportation routes, reduce spoilage, and minimize energy consumption. Blockchain technology enhances transparency and traceability in the supply chain. It allows for the secure recording of transactions, ensuring the authenticity of products and materials [1,2]. Blockchain also enables the verification of sustainability claims, such as fair trade and organic certifications, contributing to trust and accountability in GSCM. AI-powered algorithms and machine learning models help organizations make data-driven decisions for sustainable supply chain practices. Predictive analytics can optimize inventory management, demand forecasting, and energy consumption, ultimately reducing waste and carbon emissions.

Literature Review

The fourth industrial revolution, commonly referred to as Industry 4.0, has transformed the manufacturing and supply chain landscape. Key technologies such as the Internet of Things (IoT), Big Data analytics, Artificial Intelligence (AI), and Blockchain are being leveraged to create more sustainable supply chains. IoT sensors, for instance, can monitor environmental conditions, enabling better tracking of products, reducing waste, and ensuring compliance with sustainability regulations. Big Data analytics plays a pivotal role in GSCM by providing real-time insights into various aspects of the supply

chain. It allows organizations to optimize routes, reduce fuel consumption, and enhance resource allocation. Furthermore, data-driven decision-making can identify areas for improvement in sustainability practices and pinpoint environmental hotspots within the supply chain [3]. AI and machine learning algorithms enable predictive analytics in GSCM. They can forecast demand, identify potential supply chain disruptions due to climate change events, and optimize energy usage. By analyzing historical data, AI can recommend eco-friendly alternatives for sourcing, manufacturing, and distribution [4].

Discussion

The integration of digital technology into Green Supply Chain Management is transforming the way organizations approach sustainability and environmental responsibility in their supply chain operations. While challenges exist, the advantages of enhanced visibility, collaboration, waste reduction, and resilience make it a compelling avenue for sustainable supply chain management. As technology continues to advance, the future of GSCM holds promise in further reducing environmental impact and promoting a more sustainable, circular economy [5,6].

Conclusion

In today's increasingly globalized and environmentally conscious world, the concept of Green Supply Chain Management (GSCM) has gained immense importance. GSCM focuses on minimizing the environmental impact of supply chain activities while maintaining efficiency and profitability. One of the most promising avenues for achieving GSCM goals is the strategic integration of digital technology. This literature review explores the use of digital technology to advance the cause of sustainability within supply chains, highlighting its potential benefits and addressing the challenges and barriers that organizations may encounter along the way. In conclusion, the use of digital technology in Green Supply Chain Management holds great promise for achieving sustainability goals. While challenges such as implementation costs and data security must be addressed, the benefits of reduced environmental impact, increased efficiency, and improved stakeholder engagement make it a worthwhile investment for organizations committed to sustainability. As technology continues to evolve, so too will the opportunities to create greener and more efficient supply chains.

*Address for Correspondence: Veser Keroo, Department of Business and Tourism Management, Izmail State University of Humanities, 68600 Izmail, Ukraine, E-mail: veserk@gmail.com

Copyright: © 2023 Keroo V. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Received: 03 August, 2023, Manuscript No. jbm-23-115338; **Editor assigned:** 05 August, 2023, PreQC No. P-115338; **Reviewed:** 17 August, 2023, QC No. Q-115338; **Revised:** 22 August, 2023, Manuscript No. R-115338; **Published:** 29 August, 2023, DOI: 10.37421/2223-5833.2023.13.512

Acknowledgement

None.

Conflict of Interest

None.

References

1. Liao, Yongxin, Fernando Deschamps, Eduardo de Freitas Rocha Loures and Luiz Felipe Pierin Ramos. "Past, present and future of Industry 4.0-a systematic literature review and research agenda proposal." *Int J Prod Res* 55 (2017): 3609-3629.
2. Ben-Daya, Mohamed, Elkafi Hassini and Zied Bahroun. "Internet of things and supply chain management: A literature review." *Int J Prod Res* 57 (2019): 4719-4742.
3. Chandra, Shobhana and Sanjeev Verma. "Big data and sustainable consumption: A review and research agenda." *Vision* 27 (2023): 11-23.
4. Shrouf, Fadi, and Giovanni Miragliotta. "Energy management based on Internet of Things: Practices and framework for adoption in production management." *J Clean Prod* 100 (2015): 235-246.
5. Edwin Cheng, T. C., Sachin S. Kamble, Amine Belhadi and Nelson Oly Ndubisi, et al. "Linkages between big data analytics, circular economy, sustainable supply chain flexibility, and sustainable performance in manufacturing firms." *Int J Prod Res* 60 (2022): 6908-6922.
6. Kamble, Sachin S. and Angappa Gunasekaran. "Big data-driven supply chain performance measurement system: A review and framework for implementation." *Int J Prod Res* 58 (2020): 65-86.

How to cite this article: Keroo, V. "Literature Review on the Use of Digital Technology to Achieve Green Supply Chain Management." *Arabian J Bus Manag Review* 13 (2023): 512.