


# Chapter 3

## A Systematic Review on Application of Blockchain Technology in Sustainable Supply Chain Management System

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### **ABSTRACT**

*In the recent economic environment and modern business landscape, supply chain management has become increasingly important. Modern supply chains are more complicated because of the globalization of business units, high customer demand, low product life cycle, and geographically disjointed entities competing to serve customers. Currently, business units are more inclined to maintain minimum inventory to avoid storage problems. Therefore, it has become challenging to predict accurate demand and the level of production process. Blockchain technology has emerged as a game changer, transforming the company's monitoring system, to authenticate and safeguard their transactions. Blockchain technology is a modern internet-based digital ledger system that ensures transparency, efficiency, traceability, and security for easing global supply chain management. The main aim of the present study is to focus on the barriers, constraints, challenges, and limitations to applying blockchain technology in sustainable supply chain management.*

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# 1. INTRODUCTION

## 1.1 Backdrop of Study

In the recent economic environment and modern business landscape, supply chain management has become increasingly important. Modern supply chains are more complicated because of the globalization of business units, high customer demand, low product life cycle, and geographically disjointed entities competing to serve customers (Johnson, 2006; Lambert and Enz, 2017). Supply chain management is an essential aspect of the modern business world that consists of upward and downward activities among different organizational stakeholders of the business. Conventional supply chain management has become complicated and challenging in the era of globalization. It is very hard to assess information and control risk in this complex supply chain network owing to globalization, a variety of legal frameworks, and differences in human behavior and culture (Iranov et.al. 2018). During the last couple of years, conventional supply chain management has faced several challenges and issues, like pilferage, fraud, insufficient information about product quality and its overall effect on the environment, etc. The growing complexity of traditional supply chain management leads to the adoption of blockchain technology, a disruptive internet-based digital technology that ensures traceability, transparency, and security of information.

There is a paradigm shift from traditional manufacturing to intelligent, smart, and sustainable manufacturing (Ranganathan et.al. 2011; Long et.al., 2017; Michael, 2017). To achieve comparative advantages over competitors, every business unit is trying to incorporate new technological advancements in supply chain management. Presently, the conventional supply chain network has undergone a remarkable technological transformation to meet the requirements of accuracy, traceability, and transparency. The implementation of blockchain technology can help address the increased complexity of traditional global supply chain management by removing the need for institutional and human intermediaries. Gradually, blockchain technology is gaining momentum and significant attention from different stakeholders in companies because of its considerable potential to revolutionize contemporary supply chain management to ensure traceability, transparency, and security of information (Saber et al., 2019).

Blockchain technology is an emergent game changer, transforming the company's monitoring system to authenticate and safeguard their transactions. Blockchain technology is a modern internet-based digital ledger system that ensures transparency, efficiency, traceability, and security for easing global supply chain management. Blockchain is a distributed database of information shared in public or private ledgers that gives supply chain participants enhanced visibility and transparency

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