

Aerospace supply chains using blockchain technology: implications for sustainable development goals

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Abstract

Purpose – The interconnectedness of supply chain processes in the aerospace industry requires companies to operate with excellence and the ability to provide robust technologies such as blockchain technology (BCT) to aid supply chain productivity. This paper aims to examine the existing practices of aerospace supply chain management, identify how BCT is used in the aerospace supply chain and whether it affects environmental sustainability.

Design/methodology/approach – The qualitative research approach was used, and an online interview with informants was undertaken to collect data.

Findings – The findings demonstrate that BCT has a diverse function in achieving sustainable development goals.

Practical implications – The manufacturing sector can be strengthened by successfully deploying BCT in aerospace supply chain management. It contributes to achieving sustainable development objectives by introducing transparency to the system and bolstering market position. BCT enables organisations to gain a competitive edge by attaining innovative operational excellence in the face of the complexity of the supply chain environment.

Originality/value – The findings can serve as a guide for anticipating the effectiveness of BCT in aerospace supply chain management.

Keywords Sustainable development goals (SDG), Green economy, Industry 4.0 (IR4.0), Qualitative research, Aerospace supply chain, Operational excellence

Paper type Research paper

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Introduction

Supply chain management (SCM) experts are obliged to form a distinctive business approach, including using the emerging Industry 4.0 technology for competitiveness. Blockchain technology (BCT) is one of the powerful tools used to manage supply chains (SC) as it has higher efficiency, improved accuracy and faster data sharing (Ahmad *et al.*, 2021; Kumar *et al.*, 2022a, 2022b). Additionally, there is a quick acceptance of BCT across diverse industries such as automotive (Xu *et al.*, 2022), health care (Yadav *et al.*, 2023), agricultural (Chatterjee *et al.*, 2023), logistics and SC (Sundarakani *et al.*, 2021). It facilitates the company to handle numerous resources and allocated activities (Dutta *et al.*, 2020) and makes the present business process extra effective, visible and fair. The adoption of BCT acceptance has started since the current innovations in digital technologies took place (Fernando *et al.*, 2022a, 2022b, 2022c; Javid *et al.*, 2021), followed by businesses derived from blockchain-based solutions, involving freight, manufacturing, automotive, aviation, finance, technology, energy, health care, agriculture, food, logistics and transportation and education (Jadhav and Deshmukh, 2022). Distinctive SC structures or groups occur in each

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