

Supply chain information coordination based on blockchain technology: A comparative study with the traditional approach

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ABSTRACT

Blockchain technology has subverted traditional supply chain operational models and transformed information interactions along supply chains. This paper examines the impact of blockchain technology on supply chain information collaboration and operating costs. This paper develops a three-level supply chain model based on blockchain technology that incorporates retailer sensitivity to information. First, the manufacturer's profit function is developed, and the optimal information-sharing quantity and supply chain pricing decisions are analysed. Then, cost models for both the traditional supply chain and the novel supply chain using blockchain technology are developed and the impact of blockchain technology on supply chain operating costs is determined. The results demonstrate that blockchain technology can effectively reduce supply chain operating costs. In addition, this study has an interesting finding that if blockchain adoption is valuable for the supply chain, the quantity of information-sensitive should be moderate. Too many or too few information-sensitive retailers can reduce the value of the blockchain's use. This is because blockchain implementation will increase the privacy concerns of supply chain companies.

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