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항만과 해운산업의 블록체인 활용 동향과 전망에 관한 연구

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Trends and Prospects of Blockchain Applications in Ports and the Maritime Industry

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Abstract

The maritime and port industry plays a pivotal role in global logistics, supporting essential trade infrastructure worldwide. However, this sector faces significant challenges, including inefficiencies stemming from complex supply chain structures and fragmented information sharing. The adoption of blockchain technology offers a potential solution by enhancing data integrity, transparency, and operational security. This study examines current blockchain applications within maritime and port operations, emphasizing benefits such as document digitization, real-time cargo tracking, cost reduction, and increased trust among stakeholders. Notable examples include blockchain-based smart contracts and platforms like Maersk's TradeLens, which illustrate how blockchain can simplify logistics processes and improve trustworthiness. Despite its advantages, barriers such as high implementation costs and lack of standardization persist. This research highlights blockchain's potential to transform port logistics and suggests strategies for overcoming these challenges, contributing to sustainable and efficient global trade.

Keywords: Blockchain, Maritime Industry, Port Operations, Digital Transformation, Smart Contracts, TradeLens

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