

Logistics and Supply Chain Management Using Smart Contracts on Blockchain

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Abstract : The idea of smart logistics is still quite a complicated one. It can be used to market products to a large number of customers or to acquire raw materials of the highest quality at the lowest cost in geographically dispersed areas. The use of smart contracts in logistics and supply chain management has the potential to revolutionize the way that goods are tracked, transported, and managed. Smart contracts are simply computer programs written in one of the blockchain programming languages (Solidity, Rust, Vyper), which are capable of self-execution once the predetermined conditions are met. They can be used to automate and streamline many of the traditional manual processes that are currently used in logistics and supply chain management, including the tracking and movement of goods, the management of inventory, and the facilitation of payments and settlements between different parties in the supply chain. Currently, logistics is a core area for companies which is concerned with transporting products between parties. Still, the problem of this sector is that its scale may lead to detainments and defaults in the delivery of goods, as well as other issues. Moreover, large distributors require a large number of workers to meet all the needs of their stores. All this may contribute to big detainments in order processing and increases the potentiality of losing orders. In an attempt to break this problem, companies have automated all their procedures, contributing to a significant augmentation in the number of businesses and distributors in the logistics sector. Hence, blockchain technology and smart contracted legal agreements seem to be suitable concepts to redesign and optimize collaborative business processes and supply chains. The main purpose of this paper is to examine the scope of blockchain technology and smart contracts in the field of logistics and supply chain management. This study discusses the research question of how and to which extent smart contracts and blockchain technology can facilitate and improve the implementation of collaborative business structures for sustainable entrepreneurial activities in smart supply chains. The intention is to provide a comprehensive overview of the existing research on the use of smart contracts in logistics and supply chain management and to identify any gaps or limitations in the current knowledge on this topic. This review aims to provide a summary and evaluation of the key findings and themes that emerge from the research, as well as to suggest potential directions for future research on the use of smart contracts in logistics and supply chain management.

Keywords : smart contracts, smart logistics, smart supply chain management, blockchain and smart contracts in logistics, smart contracts for controlling supply chain management

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