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# Designing Bidding Systems in Supply Chain Management Using Blockchain Technology

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**Abstract.** Recently, problems related to the supply chain have attracted the attention of logistic companies and various researchers. The attractiveness of the supply chain lies not only in the optimization of conventional administration costs, but also in its legality, transparency and trust. The article describes how to implement a bidding system. This bidding system is used to select carriers for e-commerce sites. Blockchain's smart contract with its transparency and precision can help improving cost efficiency for existing supply chains.

**Keywords:** Bidding · Supply chain · Blockchain technology

## 1 Introduction

In 2020, the SARS-CoV 2 epidemic breaks out and leads to the bankruptcy of 35% of businesses worldwide [1]. However, many companies in the e-commerce sector benefit from the epidemic. Amazon increases its market capitalization by 570 billion USD in 2020 [2]. Alibaba posted revenue of 114.31 billion yuan, 7% higher than the average forecasted by analysts from a Bloomberg survey. This shows that the trend for online shopping is rising and becoming the main method to shop for daily needs.

When completing orders on e-commerce sites, customers sometimes have the option to choose shipper so that they can pick their preferred delivery service or the one with the cheapest fee. However, these options are quite limiting for the customers and lack fairness for the shippers. This leads to an increased cost for customers.

Smaller carriers in a small area face difficulty when competing nationally. But if an order meets their capacities, there may be a better price for that single delivery. For example, in remote provinces where major carriers have not built a complete freight chain, small carriers cannot connect with customers. This is due to the location of e-commerce sites. It is hard to cooperate when there is not enough trust. Blockchain

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