

Chapter 8

Smart Contracts as a Third Party Coordinator: Tools for Implementing Agreements in E-Business Management

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ABSTRACT

One of the important issues in the field of contract implementation is the security and speed of contract implementation in a way that can gain the trust of the contracting parties. In response to this challenge, one of these tools are smart contracts, which compared to other types of electronic contracts have features such as high speed and security and low cost in forming the contract. Smart contracts are currently used in various fields such as finance, law, banking, stock exchange, blockchain, government, industry, charity, etc. These contracts have many advantages, such as

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reducing costs, increasing speed, improving security, eliminating intermediaries, and preventing fraud. In simpler terms, smart contracts have taken over the task of making transactions with tools, the most important of which is the blockchain platform. Hence, in this research, the framework of using smart contracts in the field of e-commerce is discussed and the advantages, disadvantages, how to apply, successful experiences, and perspectives for the future of these contracts are presented.

1. INTRODUCTION

The contemporary shift towards digitalization within businesses and supply chains, facilitated by the integration of Industry 4.0 technologies, gives rise to significant strategic concerns and economic consequences. The adoption of these technologies has gained popularity in recent years, owing to the perceived advantages they offer and their pivotal role in the realm of digital technology (Ivanov and Dolgui, 2019). Nevertheless, it is imperative to conduct a more in-depth examination of businesses and supply chains to gain a comprehensive understanding of these swift and escalating developments. This analysis should focus on discerning whether Industry 4.0 technologies indeed offer tangible operational benefits and genuine market prospects (Liu and De Giovanni, 2019). Additionally, it is of utmost importance to scrutinize whether their adoption is merely a contemporary trend influenced by ongoing technological advancements and stimulated by government development initiatives, rather than a substantive integration resulting in tangible advantages. In any event, it is evident that firms and supply chains necessitate a thorough examination of the strategic shifts in behavior that are essential for the appropriate selection and utilization of Industry 4.0 technologies. Furthermore, it is crucial to make precise evaluations of the economic ramifications of such technology integration and to prudently assess the broader implications it holds for the entire supply chain.

Blockchain, as a decentralized ledger technology, serves as a robust means for securely, persistently, and verifiably recording value exchanges among parties. It constitutes the foundational technology for cryptocurrencies like Bitcoin and Ethereum. While blockchain's initial utilization was predominantly in financial transactions, its scope has since expanded, encompassing diverse industries. Supply chain management represents one of the notable domains where blockchain finds practical application. Supply chains, given their intricate nature with multiple stakeholders and diverse business transactions, encounter various challenges, including issues related to transparency, traceability, risk management, disruptions, trust-building, and reputation development. Blockchain technology introduces the prospect of addressing these challenges via the incorporation of smart contracts. Smart

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