

Enhancing Farmer's Visibility and Information Sharing in Agriculture Food Supply Chain: A Conceptual Block Chain Framework and Review

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Abstract

Agriculture Food Supply Chain (AFSC) is an economic backbone for many emerging countries and significantly contributes to direct or indirect employment. Due to the lesser engagement of critical members, particularly farmers, the visibility of AFSC is lower than that of other supply chains. Presently, Farmers are predominantly affected by intermediaries and are always relying on intermediaries for several reasons, including rapid perishability of their products, lack of transportation, and conventional infrastructure to sell their products through markets. Hence, they are not aware that the other side of the market. Especially, demand and price information at the sales end of the market. Ultimately, farmers are not able to make a decision on their products because of the above-said reasons. Moreover, the poor technological adoption is also unable to help them aware. In recent years, blockchain is a technology that is widely used in many supply chains for tracking and transparent information sharing. In AFSC, blockchain is said to be a visibility enabler, because it makes secure and dynamic information sharing between the members. Hence, it enhances the transparency among the members of AFSC. This study reveals the challenges in AFSC and examines how blockchain solutions can improve the AFSC's visibility, particularly for farmers. Herein, the blockchain-based framework will be developed to enhance the visibility in terms of information sharing between the members of AFSC. This proposed blockchain framework will eliminate the AFSC's centralized structure and farmers' reliance on intermediaries. Its efficient exchange of data through the smart contract from the market to the farmer, helps the farmers to receive their profit completely and be aware of real-time data to manage their post-harvest activities. Through this study, it will be shown that the welfare of farmers is improved by the blockchain-based information sharing framework. Further, it enables the farmers to make some decisions such as storage, pricing, upcoming cultivation plans.

Keywords: Agriculture food supply chain; Supply chain visibility; Information sharing; Blockchain;