

Chapter 10

Farm-to-Table Tech: Traceability and Transparency in Food Production

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Abstract

This research analyzes existing food traceability systems and identifies opportunities for development as it explores at how blockchain and digital technologies affect the food supply chain. It also focuses at how blockchain technology may work with other cutting-edge innovations like Web 3.0 and Industry 4.0. The application of blockchain technology in agriculture is reviewed in this chapter, with a focus on how it might improve product traceability, reliability, and regulatory compliance. Current trends and future research objectives are additionally discussed. According to the research, there exists an excellent association between subjective norms and people's desire to accept Blockchain-based food traceability systems (BFTS), although attitudes and perceived control have a greater impact. The research focuses into the incorporation of blockchain technology into supply chain management within the agricultural industry, emphasizing the barriers encountered in real-world execution even with the progress made in theoretical domains and the industry's adjustment to smart agriculture.

Keywords

Agri-Food Supply, Decentralized Traceability, Blockchain-Based Food Traceability, Precision Farming

1. Introduction

Agriculture is becoming more interested in blockchain technology, especially in domains like crop accreditation, insurance, finance, agribusiness, and food security. In underdeveloped countries, where farmers struggle to make ends meet while living in affluent countries is easy, it can help with supply chain management challenges ^[1]. Food security, waste reduction, and adulteration are the three primary objectives of agriculturally based food visibility and traceability systems, which track food throughout its full path. They offer consumers with real-time insights to ensure they purchase reliable, fresh, and

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