

عنوان مقاله:

Blockchain-based Traceability System for Indonesian Coffee Digital Business Ecosystem

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خلاصه مقاله:

Coffee is a crucial agricultural commodity in developing nations like Indonesia; so it is important to implement a trustworthy traceability system for the product. However, there are no established guidelines for developing a blockchain-based traceability system that the coffee industry can adopt. Therefore, this study aims to present a Digital Business Ecosystem (DBE) framework and a blockchain-based traceability system prototype for Indonesian coffee. The study process involved a literature review, field observations, and the creation of the proposed frameworks and prototypes using an integrated rapid prototyping method. The proposed DBE framework has three layers: business, digital, and infrastructure, while the prototype has use case diagrams and a model of functional, technological, and transaction flows. The system was validated through deployment tests such as recording-tracking coffee data using Ethereum smart contracts and interplanetary file system. The interconnectivity was verified through a mobile-based user interface design that includes registration and login pages, a main page, a transaction confirmation page, and a traceability page. It was discovered that the proposed framework and prototype have a high potential for real-world implementation due to their ability to effectively address the challenges and promote a positive business community culture while being supported by the mapped DBE layers. Further study is recommended to test and enhance the proposed framework and prototypes and examine the relationship between system development and technology adoption. Moreover, managerial insights were provided to the coffee business community, policymakers, and developers for the successful development of Indonesian coffee DBE with the blockchain-based traceability system.

کلمات کلیدی:

Blockchain, Coffee, Digital Business Ecosystem Framework, prototype, Smart Contract, Traceability

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