

Blockchain for Supply Chain: Technology and Revolution for Education and MSME Businesses

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Article Info

Article history:

Received 2 January 2026

Revised 5 January 2026

Accepted 8 January 2026

Keywords:

Blockchain, Supply Chain, Technology, Education, MSMEs Businesses

ABSTRACT

The supply chain of Indonesian MSMEs (Micro, Small, and Medium Enterprises) faces classic problems such as lack of transparency, weak audit trails, and difficulty in accessing financing. At the sametime, the education sector is not yet ready to produce human resources who are competent in modern logistics technology such as blockchain. This study uses a qualitative approach with a library research method. The data analysis technique used is qualitative content analysis with a thematic approach. The results of the study show that: 1). The Foundation of Blockchain Technology and Its Application Model in Modern Supply Chain Systems is that blockchain, as a secure and immutable distributed ledger, provides a foundation of trust and transparency for modern supply chains. With the integration of IoT and Smart Contracts, this technology enables real-time asset tracking and process automation, reducing inefficiencies and manual errors. 2). The Transparency and Sustainability Revolution: The Impact of Blockchain on Operational Efficiency and Trust in the MSME Supply Chain is that for MSMEs, blockchain becomes an empowerment tool by creating verifiable product records, increasing consumer trust, and opening access to premium markets. 3). Blockchain Integration in Education Curricula: Preparing Competent Human Resources for the Logistics 4.0 Era is that to support technology adoption, education must adapt. Curricula need to integrate logistics knowledge, blockchain technology, and entrepreneurship. Project-based learning methods and practical simulations, supported by collaboration with industry. 4). Business Models and Adoption Strategies: Roadmap for Blockchain Implementation for MSMEs in the National Supply Chain Ecosystem is that blockchain implementation for MSMEs requires a collaborative approach through sectoral consortia to share costs and resources.

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