

A Study on Enhancing Transparency and Efficiency in Logistics Supply Chains through Blockchain Technology

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Abstract: Blockchain's decentralized, impenetrable ledger holds promise for resolving long-standing information gaps and process hiccups in international logistics. The ability of blockchain to improve traceability, automate processes, and lower fraud is evaluated in this study along with adoption barriers. Using a mixed-methods design that includes curriculum and market reports, 15 expert interviews, two live case-study platforms (Komgo and Unblocked Cash), and secondary data on more than 200 logistics blockchain pilots, we find that blockchain consistently provides (i) end-to-end visibility improvements of at least 60%, (ii) cycle-time reductions of 20–45% through smart-contract automation, and (iii) material fraud reduction in high-risk lanes (food, pharma). The integration of outdated systems, a lack of skills, and unclear cross-border standards are major challenges. A phased rollout with open APIs and sector-specific governance, spearheaded by a consortium, is advised.

Keywords: Supply Chain Management Blockchain

