

Blockchain Traceability in Healthcare: Blood Donation Supply Chain

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Abstract—To support effective supply chain management (SCM) is a challenging issue for healthcare sectors. In healthcare, the requirements of blood to be fulfilled on demands are always directly or indirectly connected to its supply chain. For that, an effective blood supply chain system is required in which blood relevant information will be traceable at each stage of the blood supply (e.g., from donor to blood recipient), with trust and safety in testing, storage, and distribution phases and to keep the privacy of each donor. This study uses a Blockchain Ethereum platform as a solution to leverage traceability in the blood donation supply chain (BDSC). Blockchain is a highly efficient, decentralized, and peer-to-peer distributed technology deploys to provide end-to-end traceability, safety, immutability, and security in the BDSC ecosystem. As a part of this study, a role-based smart contract solution is used to define the access per each role, which therefore assists to ensure traceability and security of information in the BDSC ecosystem.

Keywords—Supply chain management, Blockchain, Blood donation supply chain, smart contracts.



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