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Blockchain as an effective monitoring and quality assurance tool in the transportation of human donor kidneys for transplantation

The supply chain system for organ donation is flawed with unethical practices, operational bottlenecks, inefficiencies, and mishaps. These result to tragedies and sometimes death. When organs are donated, they need to be preserved with the right solution, at the right temperature and must be transported then transplanted to the recipients within a time frame. Also, the organ needs to be sourced from a disease-free donor, who is a perfect match to the recipient. This must be done through legal and ethical organ donation processes therefore there is a need to monitor if legal, contractual and conditional requirements are adhered to.

The two striking features of decentralization and immutability makes Blockchain a standout technology for the purpose of this research. The combination of Blockchain technology and supply chain management could be beneficial because supply chain management has to do with the efficiency and effectiveness of the flow of money, information, goods/services to the economy at large.

Furthermore, supply chain systems are heavily multi-partied and multilinked, this prompts the need for transparency which has to do with accessibility and openness of the system while traceability has to do with identifying components and chronological order of supply chain transactions and operations. The condition of organs needs to be tracked while the transportation and logistics information need to be traceable. Blockchain is easily a go to solution due to its immutability feature and decentralized nature, but research needs to be done to discover how this can be practically implemented. Some questions that come to mind are what type of blockchain network can be used? Is there any other technology that can be complemented with Blockchain technology to actualize a traceable and trackable environment example A.I or IOT? What limitations could the implementations face? What best practices can be used for a successful implementation? and some others.

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