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Blockchain technology and its roles in the accounting system

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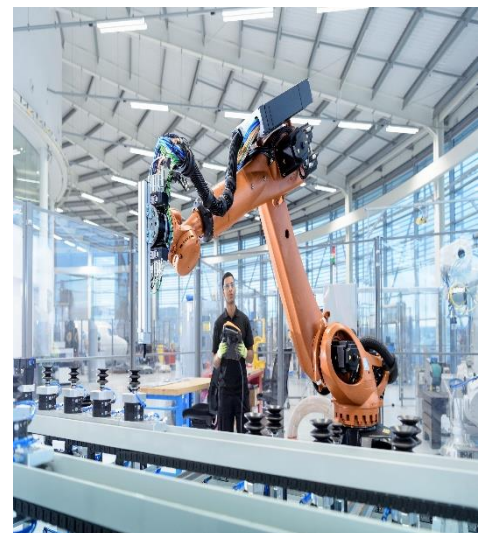
Blockchain, a revolutionary technology, is not just a digital ledger. It's a decentralized and distributed system that ensures data integrity and transparency. Unlike traditional databases, blockchain operates through a network of nodes, each with a complete copy of the ledger, decentralizing control. This unique structure allows participants to directly verify transactions without intermediaries, enhancing transparency and trust. Transactions are organized into blocks, linked chronologically to form a chain, with each block containing multiple transactions added in a linear order. Consensus mechanisms like Proof of Work (PoW) or Proof of Stake (PoS) validate transactions, fortifying the blockchain's security and tamper-resistant nature.

Transactions on the blockchain are transparent to all participants, enhancing accountability. While data may be encrypted or anonymized, the transaction records remain public, fostering trust within the network. Blockchain employs cryptographic techniques to secure data, with each block linked to the previous one through a cryptographic hash, preserving the integrity of the entire chain. Once a block is added, altering it necessitates consensus among most of the network, making the blockchain resistant to unauthorized modifications.

Blockchain technology finds various applications beyond cryptocurrencies—for instance, smart contracts and self-executing agreements encoded with specific terms leverage blockchain's capabilities. Ethereum, a notable blockchain platform, stands out for supporting smart contracts. Moreover, in supply chain management, blockchain enables transparent tracking of goods, minimizing fraud risks. Additionally, blockchain can revolutionize voting systems by ensuring tamper-resistant processes, which are vital for maintaining the integrity of elections. Furthermore, blockchain enhances data security within healthcare by securely storing and sharing patient records among authorized entities, fostering interoperability. Lastly, in finance and banking, blockchain streamlines transactions, offering speed and security while reducing reliance on intermediaries and potentially cutting costs.

Blockchain technology is evolving, and its potential applications are vast. Research and development are ongoing to address scalability and energy efficiency challenges. Blockchain technology has the potential to revolutionize accounting systems by introducing transparency, immutability, security, and efficiency. Here are some critical roles of blockchain in accounting systems:

- ✚ **Transparent and Immutable Ledger:** Blockchain provides a transparent and immutable ledger of transactions. Once a transaction is recorded on the blockchain, it cannot be altered or deleted, ensuring the integrity of the accounting records. This transparency and immutability reduce the risk of fraud and errors in financial reporting.
- ✚ **Real-Time Transaction Recording:** Transactions recorded on the blockchain are updated in real-time across all nodes in the network. This enables accounting systems to access up-to-date and synchronized financial data, improving the accuracy of financial reporting and decision-making.
- ✚ **Eliminates intermediaries:** Blockchain technology eliminates the need for intermediaries in financial transactions, such as banks or payment processors, offering a promising avenue for cost savings. This potential for reduced transaction costs can bring about a positive change, benefiting businesses and individuals conducting financial transactions.
- ✚ **Streamlined Auditing Processes:** Auditing processes can be streamlined using blockchain technology. Auditors can access a transparent and immutable record of transactions, reducing the time and resources required to verify financial data. This also enhances the credibility of financial statements, as auditors can independently verify the accuracy of the data.
- ✚ **Transaction security:** With its robust cryptographic techniques, Blockchain technology provides a fortress of security for transactions and data stored on the ledger. This enhanced security feature instils confidence by protecting financial data from unauthorized access, tampering, or cyberattacks, ensuring the integrity of accounting systems.
- ✚ **Automated Smart Contracts:** Smart contracts, which are self-executing contracts with the terms directly written into code, can automate accounting processes such as invoicing, payment processing, and reconciliation. This reduces the need for manual intervention and minimizes the potential for human error.
- ✚ **Improved Traceability and Accountability:** Blockchain enables traceability of transactions from inception to completion, providing a complete audit trail of financial activities. This improves accountability within organizations and facilitates compliance with regulatory requirements.
- ✚ **Enhanced Cross-Border Transactions:** Blockchain facilitates cross-border transactions by eliminating the need for intermediaries and reducing transaction times and costs. This is particularly beneficial for multinational companies conducting business in multiple jurisdictions.



Blockchain technology is not just a buzzword. It has the potential to revolutionize accounting systems, introducing transparency, efficiency, security, and automation to financial processes. However, for widespread adoption in the accounting profession, challenges such as scalability, regulatory compliance, and interoperability must be addressed. The future of accounting is here, and it's blockchain.

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