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### **Blockchain and its Impact on Internet Banking and Commerce**

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#### **Description**

Blockchain technology, once primarily associated with cryptocurrencies like Bitcoin, has evolved into a revolutionary tool with the potential to transform various industries. Among these, internet banking and commerce stand out as sectors poised to benefit significantly from the integration of blockchain. Blockchain is a decentralized, distributed ledger technology that securely records transactions across multiple computers. Each block in the chain contains a list of transactions and is cryptographically linked to the previous block, ensuring data integrity and transparency. This structure makes blockchain inherently secure and resistant to tampering, offering a trustworthy platform for various applications beyond cryptocurrencies.

## **Benefits of blockchain in internet banking**

One of the most significant advantages of blockchain technology in internet banking is its enhanced security. Traditional banking systems are vulnerable to cyberattacks and fraud due to centralized data storage. Blockchain's decentralized nature ensures that data is distributed across a network of nodes, making it exceedingly difficult for hackers to compromise the system. Additionally, the cryptographic techniques used in blockchain add an extra layer of protection, ensuring that transactions are secure and verifiable.

Blockchain's transparent nature encourages trust among users. Every transaction recorded on the blockchain is visible to all participants in the network, creating an immutable audit trail. This transparency is particularly beneficial in banking, where trust is important. Customers can verify transactions independently, reducing the need for intermediaries and enhancing overall trust in the banking system.

By eliminating intermediaries and streamlining processes, blockchain can significantly reduce operational costs in internet banking. Traditional banking transactions often involve multiple intermediaries, each adding their own fees and delays. Blockchain's peer-to-peer nature allows for direct transactions, reducing costs and improving efficiency. Smart contracts, self-executing contracts with predefined conditions, further automate processes and reduce administrative overhead.

Traditional banking transactions, especially international ones, can take several days to process due to the involvement of multiple parties and regulatory checks. Blockchain enables near-instantaneous transactions by verifying and recording them in real-time. This speed is particularly advantageous for cross-border payments, where delays can impact business operations and customer satisfaction.

## **Impact of blockchain on e-commerce**

E-commerce platforms can leverage blockchain technology to provide secure payment options for their customers. Traditional online payment methods are susceptible to fraud and chargebacks. Blockchain-based payments, on the other hand, offer enhanced security and irreversible transactions, reducing the risk of

fraud. Cryptocurrencies, powered by blockchain, provide an alternative payment method that can be particularly appealing to tech-savvy consumers.

Blockchain's transparency extends to supply chain management in e-commerce. By recording every step of the supply chain on the blockchain, businesses can provide customers with verifiable information about the origin and authenticity of products. This transparency helps combat counterfeit goods, ensures ethical sourcing, and enhances consumer trust.

Blockchain can revolutionize loyalty programs and rewards in e-commerce. Traditional loyalty programs often suffer from fragmentation and lack of interoperability. Blockchain allows for the creation of token-based loyalty programs that are transparent, secure, and easily transferable across different platforms. Customers can accumulate and redeem rewards seamlessly, enhancing their overall shopping experience.

### **Challenges of implementing blockchain in banking and commerce**

The regulatory environment surrounding blockchain technology is still evolving. Governments and regulatory bodies are grappling with how to classify and regulate blockchain-based assets and transactions. This uncertainty can pose challenges for banks and e-commerce platforms looking to adopt blockchain, as they must navigate a complex and changing regulatory landscape.

Despite its advantages, blockchain technology faces scalability challenges. The process of verifying and recording transactions across a distributed network can be resource-intensive and slow, particularly for large-scale applications. As the number of transactions increases, the blockchain can become congested, leading to delays and higher costs. Addressing these scalability issues is crucial for the widespread adoption of blockchain in internet banking and commerce.

Integrating blockchain technology with existing banking and e-commerce systems can be complex and costly. Legacy systems may not be compatible with blockchain, requiring significant upgrades or replacements. Additionally, the lack of standardized protocols and interoperability between different blockchain platforms can complicate integration efforts. Businesses must invest in the necessary infrastructure and expertise to ensure a smooth transition to blockchain-based systems.

## **Future prospects of blockchain in banking and commerce**

Central banks worldwide are exploring the development of digital currencies using blockchain technology. Central Bank Digital Currency (CBDC) aim to combine the benefits of digital payments with the security and trust of traditional fiat currencies. The introduction of CBDCs could revolutionize internet banking by providing a secure, efficient, and widely accepted digital payment method.

Decentralized Finance (DeFi) is an emerging trend that leverages blockchain technology to create open and permissionless financial systems. DeFi platforms offer a range of financial services, including lending, borrowing, and trading, without the need for traditional intermediaries. This democratization of finance can enhance financial inclusion and provide new opportunities for individuals and businesses.

Efforts are underway to develop interoperability solutions that enable seamless communication between different blockchain networks. These solutions aim to address the fragmentation and scalability issues currently facing blockchain technology. By enabling interoperability, businesses can leverage the full potential of blockchain across various applications, including internet banking and e-commerce.

Blockchain technology holds immense potential to transform internet banking and commerce by enhancing security, transparency, and efficiency. Its impact is already being felt, with numerous applications emerging in secure payments, supply chain transparency, and loyalty programs. However, challenges such as regulatory uncertainty, scalability, and integration with existing systems must be addressed for widespread adoption. As the technology continues to evolve, future trends such as CBDCs, DeFi, and interoperability solutions promise to further revolutionize the landscape. Businesses that embrace blockchain technology and adapt to its changing dynamics will be well-positioned to thrive in the digital economy.