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EXPLORING BLOCKCHAIN INNOVATIONS IN BANKING SERVICES, FINANCIAL SERVICES AND FINTECH SOLUTIONS

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ABSTRACT

Blockchain has become a pivotal tool for optimizing various operations. Companies that invest in blockchain capabilities are poised to gain a competitive edge in the long run. Bitcoin serves as a prominent example of blockchain technology in action. Bitcoin is a decentralized peer-to-peer digital currency, and its transactions are recorded on a blockchain. The banking sector, in particular, is leveraging this technology to enhance products, improve customer services, and boost operational efficiencies. Blockchain technology holds the potential to revolutionize the banking, financial services, and FinTech industries by lowering operational costs, significantly improving the digital customer experience, and enhancing data security. Aim of this paper is to highlight the changes of banking and financial services and fintech solution through application of blockchain technology.

INTRODUCTION

Since its inception in 2008, blockchain has become a pivotal tool for optimizing various operations. Companies that invest in blockchain capabilities are poised to gain a competitive edge in the long run. Bitcoin serves as a prominent example of blockchain technology in action. Bitcoin is a decentralized peer-to-peer digital currency, and its transactions are recorded on a blockchain. This underlying technology not only supports bitcoin transactions but can also be used to record virtually any type of transaction, demonstrating its versatility and wide-ranging applications.¹ Bitcoin, the first cryptocurrency, was introduced in 2009 to address the inefficiencies, high costs, and vulnerabilities of the traditional banking system. Bitcoin allows online payments to be made directly between parties without the need for an intermediary.

¹ Gupta, M. (2018). 'Blockchain for dummies' (3rd ed.). Hoboken, NJ: John Wiley & Sons.

Blockchain's distributed ledger technology not only supports Bit-coin transactions but also has numerous other potential applications beyond crypto-currency . Bitcoin leverages blockchain technology to record transactions securely. In this system, blockchain acts as an operating system, on the other hand, Bitcoin is one of its many applications.

The banking sector, in particular, is leveraging this technology to enhance products, improve customer services, and boost operational efficiencies. Blockchain technology holds the potential to revolutionize the banking, financial services, and FinTech industries by lowering operational costs, significantly improving the digital customer experience, and enhancing data security. Blockchain technology offers numerous advantages that can address various challenges across different fields, making it a powerful tool for innovation and efficiency improvement in the financial sector and beyond.

According to McKinsey, the implementation of blockchain is anticipated to save cross-border payments approximately \$4 billion and \$1 billion in retail banking operating costs. Additionally, it is expected to cut regulatory fines by \$2-\$3 billion and reduce annual fraud losses by \$7-\$9 billion.²

BLOCKCHAIN: CONCEPTUAL FRAMEWORK

The term 'blockchain' derives from its operational structure in which blocks of data linked together to form a chain. Each block in the chain contains a hash (a unique digital signature), the hash of the preceding block and a ledger of all valid transactions. This configuration ensures that each block is securely connected to the previous one, creating an absolute and tamper-proof record known as the blockchain .

Two key features of blockchain are decentralization and immutability. Decentralization means that the transaction records are distributed across all participants in the network rather than being stored in a central ledger. This peer-to-peer network communication communication removes the necessity for middlemen, leading to quicker and more economical processes. Meanwhile, immutability guarantees that once a transaction is logged on the blockchain, it remains unchangeable.. Any necessary updates are made through new transactions that are appended to the existing ones, ensuring transparency and security. Transactions are validated by multiple computers within the network, ensuring their integrity and making them resistant to

² <https://www.everestgrp.com/banking-industry/the-future-of-blockchain-in-banking-and-financial-services-and-fintechs-blog.html>

tampering. This decentralized verification process builds a strong foundation of trust among users, as it guarantees the authenticity and security of each transaction.³

Understanding how blockchain works involves grasping five fundamental concepts: a network of nodes, tokens, structure, consensus mechanisms, and rules.

Network of Nodes: The network consists of individual participants, or nodes, which are computers that validate and record transactions. These nodes are interconnected, and the integrity of the network is strengthened by the number of nodes participating. The greater the number of nodes, the more robust and secure the network becomes.

Tokens: Tokens, often referred to as digital currencies or crypto-currencies, represent ownership of value within the network. These tokens can symbolize money or any type of asset and are used to facilitate the exchange of value between participants.

Structure: The blockchain itself is an ordered series of transactions. Each block within the chain is linked to the previous block, forming a continuous and unbroken chain of data records.

Consensus Mechanisms: This process involves all nodes within the network reaching a consensus on which transactions are legitimate and accurately reflecting the current state of the ledger. This agreement ensures that the ledger remains consistent and trustworthy across the entire network. There are two primary types of consensus mechanisms:

Proof-of-Work (PoW): In PoW, nodes (also called miners) must add new blocks to the blockchain to solve complex mathematical problems to. This mechanism makes it extremely difficult for any third party to alter the transactions since it would require outperforming the entire network. This is the mechanism used by Bitcoin.

Proof-of-Stake (PoS): In PoS, the ability to create new blocks is determined by the ownership of tokens. Nodes with a higher number of tokens have a greater chance of being selected to add new blocks. This method is generally more energy-efficient than PoW.

Rules: These are the protocols that govern communication and operation within the blockchain network. They define how transactions are verified, how new blocks are created, and how nodes interact. The rules ensure that the system operates smoothly and securely .

³ Attaran, M., & Gunasekaran, A. (2019). *Applications of Blockchain Technology in Business: Challenges and Opportunities*. Cham, Switzerland: Springer International Publishing

By integrating these five concepts, blockchain technology ensures a secure, transparent, and efficient way of recording and verifying transactions across a decentralized network. This structure not only makes blockchain a powerful tool for financial transactions but also for various other applications where security and transparency are paramount.⁴

Types of Blockchain

Before implementing blockchain technology, it is crucial for businesses to understand the different types of blockchains and choose the one that best suits their needs. The differences between the types can significantly impact the system's effectiveness in various business models.⁵ There are three primary types of blockchain:

Public Blockchain: A public blockchain operates in a fully decentralized manner, allowing anyone with the required resources to participate. Its main objective is to remove the need for intermediaries, thereby facilitating direct peer-to-peer transactions. This openness enhances transparency and trust, as all participants have equal access to the blockchain and can independently verify transactions. Examples of public blockchains include Bitcoin and Ethereum, which are open for anyone to use. In a public blockchain, each transaction is verified by the network before it is recorded, ensuring a high level of security. Although public blockchains can be slower and more expensive than private ones, they still offer significant improvements over traditional recording systems.

Private Blockchain: It is known as a permissioned blockchain, requires participants to obtain permission from a central authority to perform tasks. Unlike public blockchains, private blockchains are not fully decentralized and are controlled by an intermediary. Each transaction must be verified by this central authority before being recorded. Private blockchains are generally faster and cheaper than public blockchains and are particularly suitable for corporate governance and business models. They have the potential to greatly increase efficiency and reduce operational costs. An example use case for private blockchains is an online voting system.⁶

⁴ [https://www.infosysconsultinginsights.com/wp-content/uploads/2016/10/Infosys Consulting_HHL_Blockchain.pdf](https://www.infosysconsultinginsights.com/wp-content/uploads/2016/10/Infosys_Consulting_HHL_Blockchain.pdf). Accessed on April 22, 2020.

⁵ <https://medium.com/blockchain-review/the-difference-between-a-private-public-consortium-blockchain-799ae7f022bc>. Accessed on July 15, 2020.

⁶ <https://medium.com/blockchain-review/the-difference-between-a-private-public-consortium-blockchain-799ae7f022bc>. Accessed on July 15, 2020.

Consortium blockchain is a sub-category of private blockchain. While it shares many characteristics with private blockchains, it is owned and operated by a group of entities rather than a single organization. This collaborative approach can be beneficial in industries where multiple organizations need to work together and share information securely.⁷

THE IMPACT OF BLOCKCHAIN ON BANKING

Over the past two decades, rapid advancements and innovations in technology have disrupted nearly every industry. The banking sector, traditionally resistant to change due to stringent regulations and compliance requirements, has also been significantly impacted. Technologies such as Automated Teller Machines (ATMs), electronic clearing services, electronic fund transfers, online banking, real-time gross settlement systems, mobile banking, debit and credit cards, have revolutionized customer interactions with banks.

Historically, the banking industry has served as a mediator in financial communication, providing the necessary trust for the flow of funds. As technology has advanced, banks have continually adapted their operations to incorporate new innovations. Blockchain technology represents the latest evolution in this ongoing process, offering the potential to further streamline banking operations, reduce costs, and enhance security. By adopting blockchain, banks can maintain their pivotal role in the financial system while embracing new efficiencies brought about by this cutting-edge technology.

In recent years, the implementation of blockchain technology has increased significantly in both the banking sector and the emerging FinTech industry. Legacy banks and even governments are starting to embrace this technology. Blockchain is also making waves through decentralized finance (DeFi) and decentralized applications (DApps), promising to revolutionize how financial services are delivered.

Central banks worldwide are also exploring blockchain for central bank digital currencies (CBDCs). As reported by the Bank for International Settlements, approximately 40 central banks are investigating or planning to investigate blockchain for this purpose. A CBDC is a government-issued digital currency intended to complement the existing money supply, either for general payments or restricted to banks and financial institutions. The Bank of England pioneered the exploration of distributed ledger technology (DLT) in 2014, followed by central banks in Canada, Singapore, Japan, Sweden, Germany, and others. The Bank of France, which began testing blockchain in 2016, now uses it to process SEPA Credit Identifiers (SCIs), facilitating faster and more efficient information sharing via smart contracts. Similarly, the

⁷ <https://dragonchain.com/blog/differences-between-public-private-blockchains/>. Accessed on July 15, 2020.

National Bank of Cambodia is nearing the final stages of deploying blockchain technology for domestic payments, positioning itself as one of the first countries to implement this technology on a national scale.⁸

Blockchain is a distributed ledger technology that records transactions in a immutable, secure, and cryptographically protected manner. It allows for the transfer of money between parties without the need for third-party verification. This is achieved by creating a network of interconnected computers, or nodes, each storing copies of transaction data that cannot be altered or deleted. This ensures the authenticity and security of financial transactions, making blockchain an invaluable tool for online financial activities.

Despite the banking sector's initial resistance to technological disruption, it now faces fierce competition from FinTech companies. FinTech, a term combining "finance" and "technology," refers to companies that leverage cutting-edge technologies to offer financial services. These services include trading and investment, payments, digital currencies, clearing and settlements, and more. FinTech firms are rapidly innovating and providing high-quality financial services that often surpass traditional banks in efficiency and user experience. FinTech companies typically focus on niche services, allowing them to offer more specialized and effective solutions compared to traditional banks. They are perceived as a significant threat to banks because they provide faster, cheaper, more reliable, and transparent services. For example, while cross-border payments through traditional banks can take 1-5 days and cost between \$40-\$50, FinTech companies offer faster and more cost-effective alternatives. Additionally, FinTech firms provide quicker clearing and settlement processes, further enhancing their appeal.

The banking industry was among the earliest to recognize the transformative potential of distributed ledger technology (DLT), the foundational technology behind blockchain. DLT provides a secure framework for operating a decentralized digital database, which is particularly well-suited to the banking sector's requirements for security, transparency, and efficiency. This technology allows for secure and tamper-proof transaction recording, streamlining operations and enhancing trust in the financial system. The technology's ability to provide a secure, transparent, and efficient way of recording and verifying transactions has the likely to be a game-changer for the industry.

By integrating blockchain technology, banks can enhance the security and efficiency of their operations, reduce costs, and improve customer trust. As the banking sector continues to evolve

⁸ http://www3.weforum.org/docs/WEF_Central_Bank_Activity_in_Blockchain_DLT.pdf.

with technological advancements, blockchain could play a pivotal role in shaping its future, driving innovation, and maintaining competitiveness in an increasingly digital world.

The banking industry has long been a cornerstone of trust for financial transactions, managing everything from bank deposits to trading, custody, insurance, and settlement processes. Customers rely on banks to handle their transactions securely and fairly, paying for the trust and services provided. However, the traditional banking system is often repetitive, costly time-consuming. To tackle these challenges, numerous prominent banks, including central banks, are investigating the incorporation of blockchain technology into their current systems. The goal of this integration is to substantially lower back-office operational expenses by enhancing efficiency, reducing the need for intermediaries, and minimizing errors and redundancies in transaction processing and record-keeping. FinTech startups, leveraging blockchain and other advanced technologies, are challenging traditional banks by offering cost-effective, faster, and more transparent services, particularly in the payments sector. As competition grows, blockchain has become a critical focus for banks worldwide [Casey et al., 2018] .

POTENTIAL IMPROVEMENTS IN THE BANKING INDUSTRY THROUGH BLOCKCHAIN TECHNOLOGY

Blockchain technology holds unlimited potential to transform the financial industry, particularly in banking and financial markets, which are heavily dependent on technology. Its application spans various functions within the financial sector, offering efficiency, cost reduction, transparency, and the elimination of third-party intermediaries. Blockchain technology holds important promise for enhancing various critical aspects of the banking industry. Following are some of the key areas where blockchain can bring transformative benefits:

Cost Reduction: Blockchain technology can notably reduce costs for banks by enabling faster transaction processing and eliminating the need for mediators who typically charge fees for their services. By streamlining transaction processes, banks can achieve lower operating costs, enhancing their overall efficiency and profitability.

ESG Tracking and Energy Conservation: The transparent and interconnected nature of blockchain data, especially when combined with IoT technology, can correctly track carbon emissions. This capability allows firms to monitor and report on Environmental, Social, and

Governance (ESG) mandates more effectively. Such precise tracking is crucial for both regulatory compliance and for meeting corporate sustainability goals.

Transparency and Permissioned Blockchains: Blockchain technology enhances transparency by providing real-time records of all transactions within an organization. Each transaction is recorded in a block, which contains information about previous blocks, forming a secure and transparent chain of records. A permissioned blockchain offers additional security by restricting access to authorized users only. These users can perform specific functions granted by the ledger administrator and must identify themselves to make changes. This structure ensures that sensitive data is accessible only to those with the necessary permissions, thereby enhancing data security and integrity.

User Experience: User experience is paramount in banking applications. Blockchain-based applications, particularly decentralized applications (DApps), can offer a more intuitive and user-friendly interface. These applications are designed to facilitate seamless peer-to-peer interactions, making transactions quicker and more straightforward for customers. Fraud Prevention Blockchain's use of cryptography ensures the authenticity and integrity of data. The immutable and transparent nature of the blockchain ledger means that once data is recorded, it cannot be distorted or deleted. This immutability prevents any single point of failure from compromising the records, significantly reducing the risk of fraud and unauthorized alterations.

Security Benefits: Beyond fraud prevention, blockchain technology aids banks in tracking asset ownership as they move between different financial institutions. This tracking capability helps ensure that asset transfers are legitimate and properly authorized, providing better control over access to assets and preventing unauthorized transactions. By verifying the legitimacy of changes before they are recorded, blockchain enhances the overall security of financial transactions.

USE OF BLOCKCHAIN TECHNOLOGY IN BANKING AND FINANCIAL SERVICES:

Blockchain technology offers numerous applications within the banking and financial services industry, enhancing efficiency, security, and transparency across various processes. Here are some key use cases:

Know Your Customer (KYC): Another significant application of blockchain in banking is in the Know Your Customer (KYC) process. Currently, the average time taken by banks to complete the KYC process is around 26 days.⁹ KYC is a mandatory process that involves verifying the identity of clients to prevent money laundering and terrorist financing. Banks must record and verify customer details before conducting any financial transactions, as governed by legal frameworks.¹⁰

Presently, customers must submit their details to each bank separately, and the data is stored in centralized systems accessible only to the respective bank. This redundancy creates inefficiency and increases the workload for both customers and banks. Blockchain technology can address these issues by storing customer data in a block, which can be shared securely across multiple banks. This method ensures that once a customer's information is verified and stored on the blockchain, it can be accessed by other banks, eliminating the need for repeated KYC processes.¹¹

Recording Transactions: One of the primary applications of blockchain in banking is the recording and verification of transactions. Blockchain allows banks to mechanize their back-office operations, reducing manual errors and increasing efficiency. This automation can lead to significant cost savings for businesses by minimizing the need for manual checks and reconciliations.

Trade Finance: In the era of international trade, blockchain can streamline the extensive paperwork and reduce the risk of fraud or scam. Banks are leveraging blockchain to manage documents required for trade transactions, such as letters of credit, contracts, import/export licenses, bills of lading, and insurance certificates. On the other hand, by digitizing these documents and making them accessible on a shared ledger, all involved parties can monitor the transaction in real-time, ensuring the data is secure and tamper-proof.

Banks play a crucial role in facilitating global trade through necessary financial support to ensure the smooth flow of goods across borders. The World Trade Organization (WTO) estimates that trade finance has supported approximately 80-90% of global trade. Trade finance encompasses various financial instruments and products, with one of the most common being the Letter of Credit. A Letter of Credit is a document issued by a bank on behalf of a buyer,

⁹ Petrov, D. (2019). The impact of blockchain and distributed ledger technology on financial services. International Scientific Journal "Industry 4.0", Issue 2.

¹⁰ https://www.bankingsupervision.europa.eu/press/publications/newsletter/2018/html/ssm.nl180516_2.en.html.

¹¹ <https://search.proquest.com/docview/2247499893?accountid=10007>.

promising to pay the seller the purchase amount on the due date. If the buyer fails to pay, the bank guarantees payment.¹²

Capital Markets: Blockchain technology has significant potential to revolutionize the capital market trading system. The current system involves numerous intermediaries, including investment banks, brokers, investors, and credit agencies, each maintaining their own ledgers and updating them independently. This leads to a cumbersome process that is both time-consuming and costly.¹³ By implementing a common blockchain platform, participating companies can perform transactions in real-time, enhancing efficiency and transparency.

Syndicated Loans: Blockchain technology can simplify the complex process of managing syndicated loans. By using self-executing contracts with terms directly written into code—banks can standardize contracts and automate processes from loan inaugurated to repayment and monitoring. Such automation can reduce administrative overhead and enhance the efficiency of managing syndicated loans.

Financial Reporting and Compliance: Banks and financial institutions are required to regularly submit reports such as tax returns, audits, and other financial statements to meet regulatory standards. This reporting process is critical for fraud control and anti-money laundering activities but is often labor-intensive and time-consuming. Blockchain technology can automate these reporting processes, saving significant time and resources. By recording and updating transactions automatically, blockchain eliminates the need for extensive paperwork, easing the burden on both banks and regulatory bodies.¹⁴

Global Payments: Blockchain enables banks to access, store, and update data on a protected digital ledger, facilitating easier information sharing among multiple parties. This eliminates the requirement for manually matching data across various databases. Blockchain-powered global payments can be completed with in no time rather than days and at a significantly lower cost compared to traditional international payment methods. The use of cryptography in blockchain also provides an additional layer of security for these transactions.

¹² http://www3.weforum.org/docs/WEF_Central_Bank_Activity_in_Blockchain_DLT.pdf.

¹³ <https://search.proquest.com/docview/2247499893?accountid=10007>.

¹⁴ Petrov, D. (2019). The impact of blockchain and distributed ledger technology on financial services. International Scientific Journal "Industry 4.0", Issue 2.

Automating Processes: Banks can use blockchain technology for automating various processes through smart contracts. These self-executing agreements eliminate the need for intermediaries in business transactions, saving both money and time for the parties involved. Smart contracts can be used for payments for services or goods, automated rebates, licensing of intellectual property, and minting of non-fungible tokens (NFTs).

Tracking of Assets: Beyond recording transactions, blockchain can track assets such as real estate or gold. By using a decentralized network of computers to verify ownership rights, blockchain offers a more efficient and secure option to traditional methods like paper documentation or bank records.

Authentication: Blockchain technology can provide robust authentication services for documents, including contracts and loans. By verifying the authenticity of these documents on a blockchain, banks can ensure they are valid before processing, reducing the risk of fraud and enhancing trust in the transaction process.

OBSTACLES TO ADOPTING BLOCKCHAIN TECHNOLOGY IN THE BANKING SECTOR

While the future of blockchain technology in banking appears promising, several significant challenges must be addressed for its practical application. Without overcoming these hurdles, the full potential of blockchain cannot be realized. Below are some of the key challenges:

Lack of Perceptive and Distrust: Lack of understanding and widespread mistrust is one of the main barriers to adopting blockchain technology in the banking industry. Many banks are uncertain about the potential cost savings, security benefits, and regulatory implications of blockchain. Overcoming these barriers will require time, education, and gradual implementation to build confidence in the technology.

Integration Challenges: Integrating blockchain technology into banking systems and processes presents significant challenges. Banks may face compatibility issues and a lack of in-house expertise, making the integration process far from seamless. These obstacles can hinder the smooth adoption of blockchain and require considerable investment in training and technology upgrades.

Scalability Concerns: Scalability is another major concern for banks considering blockchain. While blockchain has the potential to handle numerous transactions, banks need assurance that

it can scale to meet their large-volume transaction needs. If a blockchain platform cannot manage the required traffic, it becomes impractical for banking applications.

Need for Standardization: The need for standardization poses a further challenge. There is no universally accepted solution as blockchain technology is in its early stages now. Each bank may need to develop a customized system, which can be both time-consuming and expensive. This lack of standardization can delay widespread adoption and increase implementation costs.

Regulation: One of the primary challenges is regulation. Blockchain's foundation in decentralization makes it difficult to regulate, and achieving a fully decentralized system is nearly impossible. There must be some degree of authority to oversee financial institutions. Currently, blockchain lacks comprehensive national or international regulations. Governments are actively seeking ways to regulate blockchain, but the legal framework remains ambiguous. This uncertainty raises questions about who will act as an authority during crises. Without a regulatory authority, there is no one to mitigate economic shocks, potentially leading to financial instability. Regulators need to grasp the full picture before blockchain can be widely implemented. Additionally, the lack of regulation complicates the resolution of disputes between financial institutions, hindering rapid adoption.

Security and Privacy: Despite blockchain being considered one of the most secure technologies available, concerns about data security and privacy persist. Private blockchains offer better solutions for security and privacy, but institutions still have high concerns, while in public blockchains, all involved parties have access to data, increasing the risk of data misuse. The technology needs thorough testing before deployment.¹⁵

Cost and Efficiency: Finally, blockchain technology faces challenges related to cost and efficiency. These factors largely depend on the type of blockchain used and the participants in the network. One inefficiency arises from the need for all nodes in a network to authorize each transaction. As the number of nodes increases, security improves, but transaction speed decreases. Total cost of recording transactions on Bitcoin's blockchain is estimated to exceed

¹⁵ Guo, Y., & Liang, C. (2016). Blockchain application and outlook in the banking industry. *Financial Innovation*, 2(24)

\$600 million annually, with costs rising as user numbers grow. Companies must carefully evaluate these costs before implementing blockchain technology.¹⁶

Lack of Understanding and Trust in Technology: Despite its potential, there is a considerable lack of understanding and trust in blockchain technology. Many people and organizations are not fully aware of what blockchain is and how it functions. Without this understanding, new ideas and investments cannot be effectively explored. Bridging this knowledge gap is crucial for blockchain's implementation in the banking sector.

TRANSFORMATIVE POTENTIAL

Blockchain has the potential to revolutionize global payments by providing a streamlined process that is faster and more transparent for customers. Instead of relying on multiple intermediaries, blockchain connects two parties directly, allowing transactions to be completed within hours rather than days. This direct connection and the self-initiating nature of blockchain transactions can substantially lower operational costs and enhance the overall efficiency of the payment process.¹⁷ Its key advantages include cost reduction, efficiency, transparency, and the elimination of intermediaries. By automating record-keeping and transaction management, blockchain can enhance transaction speed and reliability. Moreover, the elimination of third-party fees and brokers can lead to substantial cost savings. Blockchain's use of cryptography ensures trust and security, providing real-time transaction information to all parties involved, thus enhancing transparency.

While blockchain technology presents several hurdles for the banking industry, its potential benefits make it a worthwhile investment. By addressing integration challenges, scalability issues, and the need for standardization, and by collaborating with service providers, banks can leverage blockchain to transform their operations and maintain a competitive edge in the digital age.

To overcome these inefficiencies, banks are experimenting with blockchain technology to create a more efficient and cost-effective solution. Blockchain enables direct international payments between banks without the need for intermediaries. Transactions are recorded on an immutable ledger accessible to all parties involved, ensuring transparency and security. By

¹⁶ <https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/Innovation/deloitte-uk-blockchain-full-report.pdf>.

¹⁷ Petrov, D. (2019). The impact of blockchain and distributed ledger technology on financial services. International Scientific Journal "Industry 4.0", Issue 2.

eliminating the middleman, blockchain can significantly reduce both the cost and time related with cross-border payments traditionally managed via SWIFT.¹⁸

CONCLUSION

While blockchain technology presents certain challenges, including a lack of understanding, integration difficulties, scalability concerns, and the need for standardization, its potential benefits make it a promising tool for the banking industry. By addressing these challenges and strategically investing in blockchain, banks can significantly improve their services, reduce costs, and enhance customer experiences, positioning themselves as leaders in the digital age.

Blockchain technology offers transformative potential for the capital markets and financial reporting sectors. By increasing efficiency, reducing costs, and improving transparency, blockchain can address many of the current system's inefficiencies. As banks and financial institutions continue to explore and implement blockchain solutions, the financial industry is poised for significant advancements in operational processes and regulatory compliance. Blockchain technology holds immense potential to transform various aspects of the banking industry. By streamlining processes like trade finance and KYC, blockchain can reduce costs, enhance efficiency, and improve the overall customer experience. As banks continue to explore and implement this technology, they are likely to discover even more innovative applications that could reshape the financial landscape. Addressing these challenges is essential for the successful integration of blockchain in the banking sector. Only by overcoming these obstacles can banks fully leverage the benefits of blockchain technology.

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¹⁸ Isaksen, E. M. (2018). *The Future of Cross Border Payments*. (Master's thesis, University of Stavanger).

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