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Impact of Blockchain Technolgy in the Financial Sector

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ABSTRACT: Blockchain has the potential to radically transform the financial services industry by lowering the costs and complexity of financial transactions, making the unbanked world a viable new market,and improving transparency and regulation.When it comes to transforming financial services, blockchain technology has been one of the biggest accelerations to build security in different services, such as trade finance, insurance, banking, the stock market, and asset management. This paper outlinesdifferent financial industry use cases expected to be radically transformed using blockchain technology.

KEYWORDS: Blockchain, Finance, Transactions, Technology, Cryptocurrency, Applications, Banking, Trade

I. INTRODUCTION

Blockchain is a technology for building decentralized digital ledgers, allowing for sharing information among many parties in a safe and unchangeable way. It is an open and a distributed ledger that records transactions between two bodies effectively and permanently. It is a digital ledger of transactions recording information in such a way as to be hard to hack or alter. All transactions in the distributed ledger are recorded in every computer on the robust network of computers.

As every transaction must be confirmed by many network nodes and recorded across the distributed ledger, there is no chance of manipulating or tampering with information. A large number of nodes must validate and confirm the originality of new data before the block can be added to the ledger. Each block can only store limited information, so new blocks are constantly added to the blockchain, creating a chain.

After the computer verifies the transaction, it is added to a blockchain block. Once a block is created, a requested transaction is broadcasted to a peer-to-peer network of computers known as nodes, verifying the transaction. Initially, when a user creates a transaction on a given network using the technology, a block is created, representing the creation of the transaction.

Using blockchain, the two parties in the transaction can confirm and execute anything without working through a third party. Because of its decentralized nature, all transactions can be transparently seen by owning an individual node or using blockchain visualizers, allowing anyone to view transactions occurring in real-time.

By spreading identical copies of the database over an entire network, blockchain makes the system extremely hard to hack. A decentralized network like blockchain makes it impossible for anyone to conduct fraudulent transactions. Centralized systems traditionally require the approval of a regulatory body, such as the government or bank, for transactions; however, in blockchain technology, transactions are made through a user consensus, which results in more seamless, secure, and faster transactions.

Transactions or information on the blockchain platform can be tracked from the departure point to the point of arrival from all users within the chain. Blockchain allows a secure way for individuals to transact with one another directly, without an intermediary, which includes the government, banks, or other third parties. This decentralized, peer-to-peer distributed ledger technology makes records of any digital assets transparent and non-mutable while working without involving third-party intermediaries.

Blockchain is the core technology that powers many cryptocurrencies - such as Bitcoin and Ethereum - but its unique method for recording and securely transferring information has broader applications beyond cryptocurrencies. While it is popularized by the growing usage of bitcoin and other cryptocurrencies, blockchain technology has promising applications in legal contracts, real estate deals, health records, and many other sectors where authorization and recording of a set of actions or transactions are needed. Other industries, including health care, government, and tech, are pursuing other uses for blockchain to allow for secure data sharing, such as personal health information, digital

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assets like downloaded entertainment, and real estate deeds.

Some digital assets are secured using cryptographic keys, like cryptocurrencies, within blockchain wallets. A blockchain can record cryptocurrency transactions, ownership of an NFT, or a DeFi smart contract. In the world of cryptocurrencies, secure reference digital identities are digital signatures used for authorization and transaction tracking.

In this paper, we exhibit three different use cases in Blockchain technology can likely gain momentum in the years to come, significantly impacting the financial sector.

II. BLOCKCHAIN IN INSURANCE

Blockchain technology has the potential to codify business rules and automate claims processes via smart contracts by enabling individual policyholders and insurers to track and manage physical assets digitally. Smart contracts using blockchain technology can transform paper contracts into programmable code, which helps to automate claims processing and compute liability within the insurance of all parties involved. Insurance policies, when executed as smart contracts on the blockchain, automatically perform programmed claims by processing actions, which can automate the transmission of information between insurance companies and other parties. Using blockchain technology, complex transactions regarding premiums and losses can be updated simultaneously in insurers and reinsurances computer systems, eliminating the need to reconcile books across institutions for every single claim.

On-demand insurance players can leverage blockchain to efficiently maintain records from policy creation until the point of cancellation. Executing reinsurance policies using blockchain technology could help reinsurance companies distribute capital more effectively and underwrite insurance policies, providing excellent stability for the multi-trillion-dollar global insurance industry. A PwC report estimates blockchain could help the insurance sector save as much as $10 billion through increased operational efficiency.

Blockchain is being adopted by many insurance organizations looking to streamline transactions. Blockchain could combine with other technologies, particularly smart contracts, to allow insurance companies to automate processes and develop innovative products. By connecting blockchains, the smart contracts built on them, and decentralized oracles, the fundamental infrastructure of the insurance sector can be upgraded to address transparency issues, optimize the whole insurance process, and make insurance available to deprived consumers around the world.

The potential applications of blockchain technology are apparent across the entire value chain in insurance, i.e., from the underwriting and pricing of products to the selling and distributing of products, through the continuous administration of products, to claims processing. Blockchain technology helps the insurance industry to dramatically transform operations, providing myriad benefits in the form of cost reduction, better customer experiences, increased productivity, increased transparency, and much more.

Blockchains' capacity to build trust within the ecosystem via public ledgers and robust cyber security protocols has positive implications for today's future multi-trillion-dollar growth in insurance. Blockchains' ability to secure confidential information is particularly appealing for an industry heavily dependent on data mined at the intersection of healthcare, labor, and private lives. Organizations with many stored records needing to move information around and share itcould benefit from using blockchain technology, including insurers, banks, hospitals, and governments.

Blockchain shared-ledger technology could advance fraud detection by aggregating claims data among insurance companies. Communication among the relevant parties to an insurance claim may also improve with distributed ledger technology. Blockchain smart contracts can create immutable data based on an insurance policy owner’s record, which could instantly approve or reject any claims submitted to an insurance company.

It could lower administrative and operational costs by automated verification of a policyholder’s identity and the contract’s validity, the record-keeping of claims and data by third parties, and the disbursement of claims via blockchain-based payment infrastructures or smart contracts. Blockchain technology can achieve substantial efficiencies, transparency, faster payments, cost savings, and fraud prevention while permitting data sharing in real-time among multiple parties in a trusted way.

Currently, the insurance industry is heavily centralized, and introducing new structures powered by blockchains has the potential to change the industry dramatically.

III. BLOCKCHAIN IN TRADE FINANCE

Trade finance is one area most likely to benefitfrom blockchain technology, becoming cheaper, faster, and more convenient. In the trade finance industry, blockchain could provide technical

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infrastructure for processing vast amounts of data rapidly, efficiently, and safely while connecting various individual stakeholders via decentralized networks. Through blockchain, this space can realize optimizations that the industry has been demanding, leading to greater levels of transparency across the supply chain while meeting critical requirements of speed and cost reduction.

Blockchain can streamline processes, make goods trackable, ensure the security of payments and funding, ease digital authentication for quality and origin certification, allow the sharing of information in real-time at various stages of the transaction, and help to improve how relevant public and private services work. Blockchain technology will also enable stakeholders to create digital ecosystems more easily in which banks, nonbanks, and fintech players can cooperate to build new solutions and deliver value.

Trade finance is one sector in which developers are already heavily involved in developing blockchain-based solutions. Still, trade finance is also one where legal issues are complicated, being subjected to jurisdictions from several regulatory bodiesinvolved with a long chain of parties with differing priorities and concerns.

Blockchain technology addresses these drawbacks by digitizing, optimizing, and reducing the trade finance process, making it more transparent, efficient, and accessible. Historically, making meaningful technical improvements in trade finance has been challenging for various reasons, including the number of stakeholders located worldwide and the complexity and volume of business transactions. While many blockchain initiatives have successfully developed technologies and engaged partners, few have been able to demonstrate that they have what it takes to significantly impact the trade finance industry enough to warrant the changes in governance involved with implementing their systems.

The extended value chains associated with international trade involve huge, complex areas like logistics, transport, customs, finance, and managerial processes among firms, all of which can be simplified through the adoption of blockchain. Barclay and the pioneering start-up Wave were the first organizations to use blockchain technology for global trade transactions.

IV. BLOCKCHAIN IN BANKING

Blockchain technology can be a significant disrupter in the Banking sector. While some financial institutions may hesitate to adopt blockchain technology, others have recognized the implications that blockchain has on the world's financial industry. Large financial institutions, from investment banks, stock exchanges, and central banks, are starting to work on their blockchain-based solutions to stay ahead of the curve with this innovation.

A few major banks are already turning to blockchainand leading the way in adopting innovative technologies. Blockchain is already changing payments andwill likely see more major bank services built around blockchain. By adopting blockchain, banks could broaden their service offerings and introduce new products.

By offering blockchain-based technology, banks could enable customers to use digital footprints as unique IDs stored in the distributed ledger.

Blockchain use cases could prove to be ground-breaking in different areas of banking. Blockchain is the latest technology that is making its presence felt in the Fintech landscape, and it has already brought about disruption in financial industries.

Blockchain technology could enable more comprehensive and uniform access with the potential to reduce costs associated with financial services by including collaboration among financial institutions and standardizing processes throughout the financial sector. Through proper government regulation and partnerships between the public and private sectors, legal uncertainties that are common in this space could be clarified, and the banking industry could scale up the use of blockchain technology to deliver more effective and safe products and services to new and existing customers. Blockchain can offer opportunities for creating safe and reliable financial products and drive innovation within the banking sector. Using blockchain for securities transactions can significantly eliminate the need for intermediaries. Blockchain-based transfers can save banks time and money, and consumerscould also benefit.

By eliminating laborious paperwork, blockchain-based commerce finance has the potential to simplify the whole transaction process. By turning towards blockchain technology and developing applications in a decentralized manner, banks would have the opportunity to enable people involved in the business of trade finance with a chance to conduct transactions more transparently and efficiently. Banking institutions can leverage blockchain to automate their processes.

When it comes to Blockchain Finance, central banks and commercial banks worldwide could all utilize the new technology to process payments and possibly even issue their digital currencies. Many mainstream financial institutions

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embrace blockchain outside the digital currency sphere to streamline operations and reduce costs. Payments are emerging as the first and most important blockchain use case for any bank or financial system.

Blockchain is said to impact practically all aspects of the financial system. The most disruptive use cases are in cross-border payments and transfers, stock exchanges, clearance and settlement, commercial and supply chain financing, regulatory reporting, compliance, and smart contracts. The practical uses promised by blockchain are numerous, with prototypes being developed in supply chain finance, treasury, project financing, investment banking-related transactions, B2B cross-border payments, and payments for small businesses.

Blockchains, both public and private, have the potential to be deployed across various use cases within the financial industry, opening new sectors of banking services, which will benefit banks and customers alike by enabling faster, cheaper, safer, and more inclusive transactions. Blockchain has become crucial for banks to deliver quick customer resolutions via effective banking systems and processes. Blockchain allows banks to monitor and maintain their decentralized ledgers in their public networks instead of dependent on custody services and correspondent banks.

The ecosystem for a blockchain-based bank would be one of intense cooperation, in a more open banking environment, not just with other banks but with various third parties along the financial chain. By creating trust among third-party entities and making it easier to share information via previously unavailable means, blockchain could allow for cooperation among financial institutions and enhance the banking sector's role as a trusted facilitator. While financial intermediaries serve beneficial social functions, through blockchain technologies and smart contracts, we may be able to solve major inefficiencies of the traditional offerings by financial services intermediaries' scorekeeping in the economy, establishing instantaneous exchanges and evidence in decentralized or distributed networks, potentially narrowing the role of the intermediary.

The tamper-proof, decentralized, and immutable nature of the blockchain makes it perfect for lowering costs and optimizing all activities, ranging from payments to asset trades, securities issues, and retail banking to clearance & settlement.

This technology can be a disruptive, game-changing innovation that has the potential to shake the banking landscape over the next few years. Blockchain is yet another stage of technology and particularly in the banking industry, to evolve. Benefiting from technologies like blockchain requires widespread changes to mindsets and practices across the human networks within banks that conduct transactions, from employees to customers to the end-user.

As blockchain plays a more significant role in electronic commerce, the banking industry has slowly adopted the technology. According to CB Insights, blockchain and decentralized ledger technology have the massive potential to disrupt the $5 trillion-plus banking industry by de-intermediating banks' core services. One of the potential disruptors in today's banking industry comes from applications that rely on blockchain technology, a tamper-proof distributed ledger system at the heart of cryptocurrencies like bitcoin. Blockchain might appear to be something that could drive banks out of business, but looking closely, we can see that blockchain offers myriad opportunities and could be a critical differentiator.

CONCLUSION

Blockchains, both public and private, have the potential to be deployed across various use cases within the financial industry, opening up new sectors of financial services, which will benefit banks and customers alike by enabling faster, cheaper, safer, and more inclusive transactions. With the potential to reduce costs associated with financial services, including collaboration among financial institutions and standardizing processes throughout the financial sector, blockchain technology could enable wider, uniform access for financially excluded individuals in other ways. Through proper government regulation and partnerships between the public and private sectors, legal uncertainties that are common in this space could be clarified, and the banking industry could scale up the use of blockchain technology to deliver more effective, safe products and services to new and existing customers.

With the recent change in governmental attitudes toward blockchain and cryptocurrencies, the time is suitable for the financial sector to re-examine blockchain technology and leverage blockchain to enhance existing products and services byproviding new, more convenient products and services.

Two of the most significant developments with blockchain that need to be observed are improvements to the processing of transactions and the ability for interoperability, which should make blockchains even more beneficial to financial institutions.

Blockchain has been making steady progress in the payments space, intending to transform the transactions landscape. Particularly complicated transactions in financial assets may benefit from blockchain becauseautomated settlements using smart contracts are controlled by non-corruptible business rules. As major players in the banking and financial industries perform tests to uncover innovative use cases and opportunities, we will start seeing more blockchain-based solutions to make financial products and services transparent, affordable, and trustworthy.

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