IMPACT OF BLOCKCHAIN TECHNOLOGY ON FINANCIAL SERVICES

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ABSTRACT

This study attempts to shed light on how widely used blockchain technology is in the financial sector and the key issues that have developed as a result. Blockchain is viewed as more appealing by its users than traditional methods, which they perceive as being expensive, opaque, and ineffective. Blockchain technology, when used in the banking sector, enhances the security, quickness, and efficiency of many processes while also reducing costs and raising customer service standards. This technique is still rather new while being inventive and optimistic. The adoption of blockchain technology in the banking and finance sector will hasten transaction processing, reduce the need for paperwork, and boost security. It can therefore enhance consumer experiences and promote safer financial transactions.

Keywords: Blockchain, financial industry, upcoming difficulties, advantages, Bitcoin, banking

DOI Number: 10.14704/nq.2022.20.13.NQ88224 **Neuro Quantology 2022; 20(13):1801-1808**

INTRODUCTION

International logistics are constantly being improved, by both private businesses and national governments. Even still, the global economy could use a boost. The current year saw an approximate 2.2 percent rise in the global GNP. The global COVID-19 epidemic and ensuing economic upheaval have affected 2020. Economic barriers to trade can be reduced by reducing evident frictions like tariffs and quotas, with the majority of the results focusing on cost reduction. ledger system using encryption. This technique, which also promises to minimised costs, wasted time, risk, and stimulate novel business alternatives, could help to lessen these intangible barriers to global trade. Examples include service agreements, overseas payments, and customs paperwork. Businesses are interested in blockchain for reasons other than its financial advantages. Businesses are increasingly embracing blockchain technology, and 41% of those businesses report seeing a positive return on their investment (ROI). The new battlefield is networks, not individual enterprises, and as a result, metrics other than financial soundness are becoming more significant.

LITERATURE REVIEW

In their study, the authors demonstrated how to carry out transactions over a secure blockchain-based network, doing away with the need for middlemen companies. This article is a review that provides information on the uses of blockchain technology in the banking industry as well as their potential. The objective of this research was to provide a summary of the prospective uses and advantages of blockchain technology for the creation of safe banking systems (Chowdhury, Suchana, Alam, & Khan, 2021).

The possible effects of using blockchain technology to the management of the banking and financial sectors were examined by the writers. The objective was to assess the possible benefits that blockchain technology might offer for the management of the account section as well as the fund. The blockchain can be used to ask questions about the past, according to the author's research. These gaps are being filled up and some of the remaining challenges are being overcome by Bitcoin (Eyal, 2017).

In their study, which is concerned with the preservation of data pertaining to the specifics of financial transactions, the authors looked into the usage of Blockchain technology without the use of tokens. In the essay, many components of data sets that have been unjustly stolen are broken down, and a solution to the issue of maintaining the exclusivity of the data contained in them using blockchain technology without tokens is provided. The author concludes by making some recommendations for incorporating blockchain technology's cutting-edge capabilities into current financial systems. The cycle of support for the authenticity and integrity of data on bank exchanges, according to the authors, will be much improved by a blockchain without mining or tokens (Popova & Butakova, 2019).

The study's authors evaluate the challenges and potential advantages of integrating blockchain technology into the banking sector. The possibilities offered by this paradigm-shifting technology are thus given some food for contemplation. Utilizing systems that are more efficient than that currently in use, blockchain technology has the potential to optimised the world's financial infrastructure and lead to sustainable growth. In reality, a number of financial institutions are focusing on blockchain technology right now to promote economic growth and hasten the development of environmentally friendly products (Cocco, Pinna, & Marchesi, 2017).

The authors recommended using the foundational advancement model to first break down and then follow the path of growth. To comprehend the cycle of growth and progress as well as the tactics used to compete for a piece of the financial industry's pie, the model may be applied to any kind of industry. The analysis's findings provided insight into the circumstances in which the vast majority of financial institutions strive to create their own Blockchain banking frameworks. Based on the fundamental advancement model, the studies also show that Blockchain banking currently only has a little vital component (Wesley L. Harris, 2019).

The authors highlight the benefits of blockchain technology for commercial banks from the perspectives of charging activity, cross-line instalment activity, and the commercial banks' resource securitization business. The development of blockchain technology has the capacity to lower transaction costs for both parties while also increasing the operational effectiveness of the activities of commercial banks and executives (Wu & Duan, 2019).

The blockchain innovation was examined by the study's authors as an example of a creative development in the area of financial administration. Financial management organisations will generally see the development of blockchain technology as a lesser necessity owing to the lack of a technique of significant value, according to the authors of a study that was based on interviews with 12 different suppliers of financial management services. They believe that in order to assess whether or not a firm would profit from a new form of technology when it is adopted, they should take into account competent techniques of investigation when faced with new forms of technology and development, such as blockchain (Dozier, 2019).

This article's main goal is to show how the development of blockchain technology may lead to the disruption of current action plans and to examine how this can happen. Recent technology developments like blockchain may be one of the factors that influence the formulation of the action plan. Near the end of this document, it is suggested that users track developments in this area to prepare for potential business interruptions (Li, 2018).

The authors of this study make a proposal for the use of blockchain technology to interact with loans, checks, and evaluations of improvement projects within the Brazilian Development Bank. The plan simplifies the distribution of public funds, enhances manual procedures, reduces operating expenses, and generates data that can be used to support a comprehensive analysis of the advantages brought about by the bank's credit. After underlining the difficulties in implementing the aforementioned proposition, this paper also discusses what should be feasible in terms of a development cycle using blockchain technology and blueprints that have already been successfully finished (Arantes, 2018).

THEORY OF BLOCKCHAIN

Blockchain technology uses a decentralized ledger and is a form of distributed ledger technology (DLT). Each block in the "chain of blocks" comprises digital data with a time stamp and a hash, which serves as a unique identifier for every block in the chain. Since its inception, financial services have been considered the ideal application for blockchain technology. The technology attracted a lot of attention in 2009 when it was used to create the crypto currency Bitcoin. The distinct characteristics of blockchain technology have the potential to greatly benefit the finance sector.

Traditional Database	Blockchain Base Distributed Ledger
• Central authorities transfer actual value between two parties	• Distributed nodes that maintain a shared source of information
• Multiple intermediaries required to facilitate of assets and create trust	• Trust enabled by cryptographic algorithm

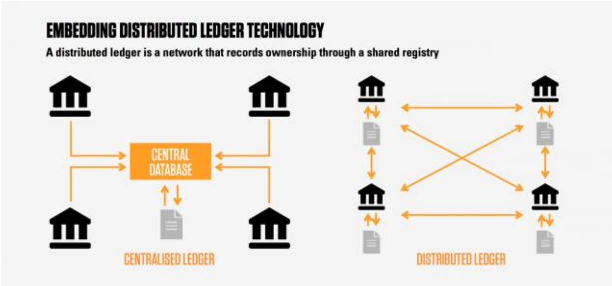

FIGURE – 1

ADOPTION OF BLOCKCHAIN

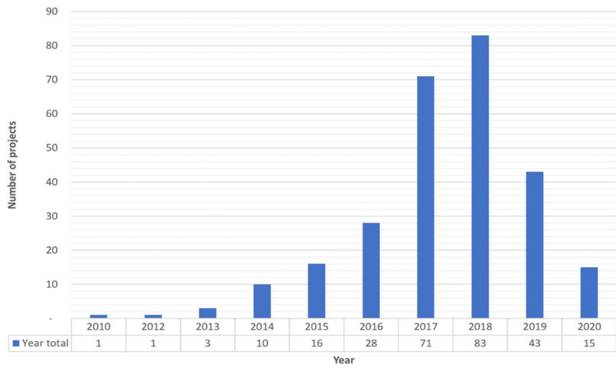

FIGURE – 2

Bitcoin transactions are kept up to date using the blockchain technology in an expanding, continually linked structure. As a result, as Bitcoin becomes more widely used, the Bitcoin blockchain also becomes more important, as shown by the rise in the number of blockchain wallet users over the past few years. Depending on the approach they choose and their level of proficiency in spotting windows of opportunity, this technology poses both a chance and a risk for banks. Cost savings would be one of the first and most obvious impacts. These days, every bank has a number of servers set up where the data they have is replicated with that of other different banks and organisations.

The messaging techniques are used to synchronise the data held in one bank's database with that of another. A shared ledger with this duplicate information might be used by many banks, which would result in enormous savings and more flexibility in some processes that currently require validation. Additionally, the supply could be expanded. Numerous present processes may be sped up and automated. There would be a great deal more clarity and definition regarding client needs. It would be conceivable to provide brand-new goods and services that are currently impossible to obtain because of their intricacy. In this regard, applications like smart contracts, which are event-oriented programmes of code that can process data and receive, store, and send securities, are now being researched within shared ledgers.

THE WORLD'S BLOCKCHAIN MARKET

By 2032, the North American regional market will be the largest in the world, with a predicted CAGR of 33.9%, bringing in 55 billion USD. Due to businesses' increasing embrace of blockchain technology, the regional market is growing.

Regions	CAGR (2022-2032)
United States	33.9%
United Kingdom	33%
China	33.4%
Japan	32.9%
South Korea	32.2%

Leading Region in the Blockchain Market

The implementation of payment and wallet solutions, smart contracts, and digital identity detection solutions by the government, retail, and BFSI sectors makes the use of blockchain technologies necessary. In addition, one of the key factors driving regional market expansion is the growing use of cryptocurrencies by North American consumers (Future Market Insights, 2022). In India, there are 666 start-ups focused on blockchain in financial services. The top ten most thrilling ones are listed below (Tracxn, 2022).

TABLE – 1

Sr. No	Company	Description	Location	Funding
1.	CoinSwitch	App-based platform for trading in cryptocurrency	Bangalore	USD 302M
2.	CoinDCX	App-based exchange platform for cryptocurrency	Mumbai	USD 247M
3.	Strip Finance	Collateralized and liquidity protocol for NFT and liquidity	Hyderabad	USD 41M
4.	Vauld	Financial services for cryptocurrencies	Bangalore	USD 28M
5.	Lysto	Provider of blockchain protocol for verifying digital identity in games	Bangalore	USD 15M
6.	InstaDApp	Provider of crosschain for DeFi	Hyderabad	USD 12M
7.	Guardian Link	Decentralized protocol for NFT Commerce	Chennai	USD 12M
8.	Skeps	Online marketplace and enabler for point-of-sale financing for merchants and lenders	Gurgaon	USD 10M
9.	NAKAD	Blockchain-based marketplace for supply chain financing	Delhi	USD 7M
10.	Unocoin	Online exchange platform for cryptocurrency	Bangalore	USD 7M

BLOCKCHAIN'S PART IN FINANCE

The financial services industry is expected to be worth $2.6 trillion by 2022. Every day, the global financial system handles transactions totalling trillions of dollars for consumers who number in the billions. Even if it has achieved new heights, the financial sector has long been plagued by the same set of issues. These challenges, which range from the high cost of numerous stakeholders to delays, pointless paperwork, and data breaches, have been the main driver of significant annual losses in the industry.

For financial intermediaries including stock exchanges, money transfer services, and payment networks, PWC estimates a 45% annual economic crime rate. Blockchain technology may be able to solve some of the issues with the global monetary system. The application of blockchain technology in the banking industry is referred to as "Blockchain in Finance." The advancement of blockchain technology has several potential benefits for the financial services industry. The emergence of decentralised finance has also been facilitated by the banking sector's usage of blockchain technology (DeFi is a form of financing that does away with the need for middlemen by using smart contracts and blockchain technology (Akash, 2022).

In 2020, over 30% of the global blockchain market is expected to be accounted for by the banking industry. Nevertheless, process manufacturing received 11.4% of all blockchain investments. Over the next few years, it's anticipated that investment in blockchain-based solutions would increase gradually on a global scale. Blockchain's distributed ledger technology fosters confidence between buyers and sellers in financial transactions, particularly when cryptocurrencies are involved.

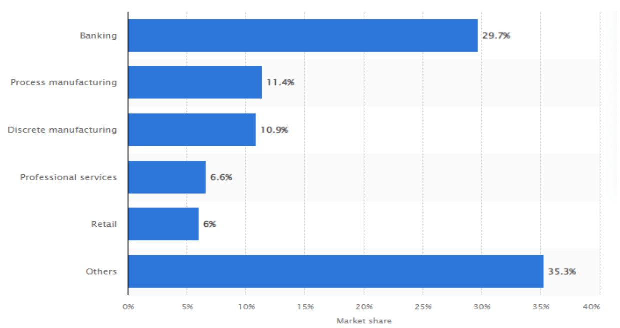

FIGURE - 3

Ledger technology is popular in the financial industry because it provides answers to many of the problems now plaguing the sector, particularly in the areas of security and efficiency. As a technology platform, blockchain is still in its early stages, making predictions about its final shape difficult. Professionals may disagree on the optimal way to employ this technology, but they generally concur that the global market will grow quickly in the next years. By 2022, only 10% of firms are predicted to be employing blockchain technology, which is expected to remain a modest adoption rate. But after that, the technology will have a period of fast growth during which it will ingratiate itself into a number of industries. In 2020, the value of the global blockchain market was $3.67 billion. Even if that doesn't seem like much today, given the expected growth rate, it eventually will. The predicted CAGR is 82.4% between 2021 and 2028. This means that almost every component of the global infrastructure will eventually employ blockchain technology.

The RBI, the central bank of India, is investigating potential applications of Blockchain in the financial industry. Mahindra and IBM are collaborating to create novel techniques for managing and improving supply chains as part of their cooperation. The State Bank of India (SBI) has collaborated with other commercial banks and financial institutions to test Blockchain-based applications. More financial organisations have made intentions to use Blockchain technology, including Yes Bank, Axis Bank, and ICICI Bank. Introducing BCT into India's banking and financial institutions would take place in three stages, according to a whitepaper produced by the Institute for Development of Research and Business Technology (IDRBT). In order to digitise the Indian Rupee (INR) using BCT, the Reserve Bank of India (RBI) must (a) implement and test proof-of-concepts (PoCs) for usage in interbank transactions, and (b) launch the necessary initiatives (Ministry of Electronics and Information Technology, 2021).Although implementing blockchain technology has many advantages and prospects, there are also certain difficulties involved.

Financial institutions are constantly under danger from fraud. Information may be taken while a digital payment is being processed by banks and payment processors. Blockchains use cryptographic algorithms to process and record transaction blocks. Financial institutions might use this cryptography to reduce their exposure to risk. The greatest points of failure have been eliminated thanks to blockchain, and the most crucial data middlemen, such as the system operators, have been eliminated as well. Additionally, it enables the execution of secure application code that cannot be breached or be used for fraud. As a result, altering or hacking blockchain technology is very impossible.

When a system has a greater TPS than the industry standard, it is scalable. By providing a business solution, it contributes to the improvement of the main net's dependability, global accessibility, and security. Additionally, it enables cooperation between the public and private chains.

Everyone on the network has access to a single source of truth thanks to blockchains. Additionally, it makes use of shared procedures, norms, and standards.

While maintaining the company's privacy and secrecy, blockchain technology increases the efficiency, trust, and transparency of the financial industry. By providing unique mechanisms for data privacy protection that are targeted toward the market to each layer of the programme, blockchain enables the sharing of some data in business networks.

Given that blockchain is frequently referred to as the "digital ledger," its transparency may also make it much simpler for individuals in business networks to reach mutually beneficial agreements, maintain data properly, and collaborate. By occasionally allowing network activity to spike, blockchain ensures that performance is higher. Additionally, a private and hybrid network allows for hundreds of transactions per second. Blockchain makes business reasoning more efficient and easier to trust, which helps automate business logic. Additionally, it facilitates the creation and application of smart contracts, including deterministic software and irrevocable contracts.

Blockchain technology was designed from the beginning of Bit coin to transfer money from point A to point B decentralized. As blockchains have developed, they have been able to significantly speed up and reduce the cost of transactions. A notable example of this is Ripple, a business that exploits blockchain technology for its Ripple Net global payments network. Transactions on Ripple Net take five seconds to complete and only cost a few cents. With the release of Ethereum in 2015, blockchain technology advanced significantly. It was the first blockchain to use smart contracts, or agreements that take over on their own when certain criteria are satisfied. Companies spend a lot of effort on contracts because they are a significant component of the financial services sector. A contract that operates independently might get this process along very quickly. Smart contracts, for instance, might be used by an insurance provider to speed up the claim submission procedure. The blockchain's built-in codes would automatically review any claims submitted by clients. The smart contract would be executed and the client would receive payment if it is valid.

Most financial institutions must conduct an identity verification process with their clients in order to prevent fraud and money laundering. It costs money and takes time to do this, but that's how business is. Customer data may also be kept on a blockchain that various financial organisations could make use of. A business would add the data on a new client to the blockchain after the "Know Your Customer" (KYC) process with that client is complete. Financial firms can utilise blockchains to retain records and submit reports to regulatory bodies since they maintain a record of transactions that cannot be modified.

THE DIFFICULTIES OF BLOCKCHAIN IN FINANCE

Blockchain technology is still being developed and is very young. But because things are always changing, it has a lot of problems. The government is still far behind. As a result, the government may need to set up rules to monitor blockchain and the companies that use it. Changes to data are not allowed with blockchain. This is advantageous, but if certain financial institutions need to make changes to their current databases, they can run into problems. Businesses will need to rearrange their procedures in order to prevent the need to edit data after embracing blockchain technology. Challenges with When blockchains are unable to share and use data held on other blockchains, interoperability results. They are therefore unable to communicate with one another. Blockchain networks must give priority to interoperability research and execution in order to assure widespread adoption. It can take time and money to make the conversion to blockchain technology. This is because there aren't many skilled blockchain developers available. Some smaller financial institutions might be reluctant to make further system enhancements as a result. To the extent that they can facilitate quick, transparent transactions, blockchains must be widely adopted. This is particularly true in the financial sector more so than in other industries, where inter-company cooperation and the requirement for a standard protocol for financial transactions make this a must. For instance, all the other institutions involved must have blockchain technology deployed if a bank wants to transfer money using blockchain.

DIRECTIONS FOR THE FUTURE

While there are many limits on the banking business, many financial institutions are starting to see the potential of cryptocurrencies and blockchain technology. As important players in these industries conduct trials to identify new use cases and opportunities, researchers believe that blockchain-based solutions for transparent, open, and reliable financial transactions will become more common. Blockchain technology has the highest potential for usage in the healthcare and financial sectors. The technology's main advantage is cybersecurity. Undoubtedly, in the near future, blockchain technology will drastically change the Indian economy. The attempt to enhance the government's fundamental services and eliminate the significant difficulties they have faced for a time will greatly benefit from it. According to estimates, the blockchain market would be valued $176 billion by 2050. As a result, India is expected to be elevated to a whole new level in the future as a result of the adoption of blockchain technology, which will aid in its rapid rise in global rankings.

CONCLUSION

The potential for blockchain-based solutions in the future are essentially endless. Businesses in the financial services and fintech sectors will encounter new difficulties as the blockchain revolution gains traction. These include identifying issues that necessitate creative solutions rather than merely formulating remedies to already-existing issues. Businesses who adopt blockchain technology and fintech will have a competitive advantage. Blockchain technology has already proven to be effective in a number of sectors, including retail, healthcare, real estate, and others; therefore, investing in the creation of blockchain software has the potential to be very profitable. Blockchain technology innovation will be fuelled by the Internet of Things (IoT), which is revolutionising numerous industrial sectors. A secure environment will be created, paperwork will be eliminated, and transaction times will be cut in half as a result of the adoption of blockchain technology in the banking and financial industry. It can improve customer satisfaction and contribute to safer data transfers.

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