

The Impact of Blockchain Technologies on The Financial Sector and Society

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ABSTRACT

Among today's financial technology leaders, blockchain technology is a hot topic. Digitalization trends have fundamentally revolutionised and reshaped business procedures, entire companies, and even entire industries. Even if the world economy was previously operated on fiat currencies, the introduction of Bitcoin and the blockchain has brought a lot of upheaval to the world of finance. The impact of blockchain on the financial industry and society as a whole is discussed in this article. Blockchain technology is thought to be the most recent breakthrough in the financial sector, which places a premium on trust. Blockchain technology is a decentralised and coded security system that allows for the creation of new digital services and platforms using this developing technology. Because all transactions are recorded in blockchain from the maker to the buyer, introducing the blockchain ecosystem will actually benefit the economy. This article aims to add to that body of knowledge by examining blockchain technology's potential applications, as well as its limitations, in areas where social impact intersects, such as human rights. This article focuses on the advantages and disadvantages of blockchain technology in the financial sector. It purposefully minimises technological features in order to focus on the financial sector's and society's implications of technology.

Keywords: Blockchain, Financial Sector, Society, Blockchain Benefits, Blockchain Challenges

Introduction

Financial technology (FinTech) is the "marriage" of finance and technology. Trading is the most important aspect of the business, and trading activities rely on trust. By using financial tools and techniques, trust can result in prosperous businesses. An essential part of the financial system that is utilised to assess a user's trustworthiness is a trust-rating platform. The traits of "Blockchain" make it possible for people to establish trust more rapidly and have the ability to alter the financial system (Pilkington, 2016).

The blockchain sector has to be better understood by the financial markets. Blockchain technology is a radical and disruptive new method of conducting all types of Internet transactions. The introduction of the blockchain environment will actually improve economics. All transactions are tracked from the manufacturer to the buyer. It enables contracting parties to track assets and agreements using a standardised protocol, thereby streamlining many in-house verification processes. Smart contracts have the potential to automate laws and statutes, which could significantly improve the efficiency and

transparency of government services. Transactions are broadcast to the Bitcoin network, where their validity is independently verified by peers. Participants do not have to be humans in order to participate; they can be autonomous agents that operate independently of human intervention. Almost no day goes by without a news article predicting either a prosperous future or a tragic demise for cryptocurrencies. It has the potential to be used for both legitimate and malicious purposes, such as hosting illegal content and activities. This article investigates whether it can aid in the reduction of online surveillance, censorship, and human rights violations.

Objective of the Study

The use of Blockchain technology in financial services is the exclusive focus of this study. The main objectives are:

- To identify the current application of blockchain technologies in Financial services sector.
- To study the strengths and weaknesses of blockchain in financial sector
- To identify the impact of blockchain technology on society.

Methodology

This paper examines the relationships between Blockchain technologies in relation to financial sector and ensuing societal changes. To determine how Blockchain technology would affect society, this study conducted conceptual and documentary analysis of peer-reviewed journals, publications, and other authoritative documents on these topics.

Blockchain Technology

In layman's terms, the technology deals with blocks (uniquely identified, linked transaction records) in a chain. Blockchain, a rapidly evolving financial technology, is changing the way people

conduct business (Antonio and DiNizo, 2018). The most important advancement is the distributed trust provided by. Blockchain technology eliminates the need for a trusted third party to facilitate transactions, lowering the cost of trading and shortening the transaction time. The key development is the distributed trust provided by Blockchain technology, which eliminates the need for a reliable third party to process transactions, lowers trading costs, and shortens trade cycles (Staples et al., 2017). As a result, it is expected to kickstart the industrial and commercial revolutions and promote global economic reform.

Because the Bitcoin protocol is open source, anyone can use it to create their own P2P money version. The ability of blockchain technology to store data immutably without relying on a central authority is what distinguishes it. It has the potential to replace intermediary and central entities with code that reliably connects users.

Key Features of Blockchain

• Decentralization

Decentralized ledgers automatically and in real-time record transactions, reducing the possibility of fraud. Without a middleman, each participant in the blockchain has access to the database and can see the history of transactions (Tapscott and Tapscott, 2017).

• Users' anonymity

Users can communicate with the network using the created address, and private user data is not stored centrally (Zheng et al., 2018). However, it cannot ensure absolute privacy protection due to intrinsic limitations.

• Consensus mechanism

Because there isn't a single trusted agent in the network, a consensus technique is used. Controlling more than 51% of the network's accounting nodes enables the creation of records

that do not exist (Huang et al., 2019).

- **Execution/Smart Contract**

Algorithms and rules can be used by users to initiate transactions between nodes (Tapscott and Tapscott, 2017). If certain conditions are met, users can also run programmes. This is known as an 'execution,' which is a type of smart contract. Programs known as smart contracts run autonomously on blockchains. The main intended uses (such as financial instruments) permit access to data from outside the blockchain (such as market quotes). Because of this, reliable data feeds that can accommodate a variety of data requirements will be crucial for smart contract ecosystems (Zhang, F., Cecchetti, E., Croman, K., Juels, A., & Shi, E. 2016).

Blockchain Technology Limitations

Blockchain is a distributed peer-to-peer system in which anyone in the network can read transaction records and update the database with new information. Some issues, such as scalability, security, privacy, and latency, can be raised, and financial markets are still struggling to find solid solutions. Algorithms and rules can be used by users to initiate transactions between nodes (Tapscott and Tapscott, 2017). If certain conditions are met, users can also run programmes. This is known as an 'execution,' which is a type of smart contract.

- **Scalability**

Ethereum is a well-known open-source, public, Blockchain-based computing platform. More than a million smart contracts are active on Ether, claim Chen et al. (2018). The reason is due to the limited capacity of processing millions of transactions in a short period of time.

- **Security**

Blockchain-based platforms for bitcoin and Ethernet have been repeatedly stolen since 2009, costing around 600 million yuan in total. According to Zheng et al. (2018), Blockchain is

vulnerable to assaults from selfish, collusive miners. Despite its undeveloped technological state, blockchain technology has demonstrated unmatched practicability and originality in the capital market (Cong and He, 2019).

- **Privacy Leakage**

The issue of privacy leaking is quite serious and affects the security of user information. Numerous examples illustrate similar phenomena, such as Barcelo's (2014) demonstration of how a user's profile might be reflected in a Bitcoin transaction. Although numerous strategies have been put forth to increase the Blockchain's anonymity, the issue has still not been fully resolved.

- **Energy Consumption**

Big data applications can have greater execution and storage costs than the long-term storage costs of electronic money transfers and transaction data (Staples et al., 2017). According to Price (2018), the amount of computational power required to execute Blockchain is increasing quickly. The bitcoin system uses a significant amount of electricity. In fact, terawatt-hours of electricity are needed for just one bitcoin transaction.

Ethical Issues for Blockchain

- **Privacy**

Clarifying ownership and limiting double-spending require transparency, yet users want their privacy (Drescher, 2017). Addresses of participants, transaction values, timestamps, and sender signatures are all included in transactions. This enables data mining to collect user information by tracking transaction flows.

- **Regulations and law**

Australia, the US, South Korea, Switzerland, China, the UK, Japan, Singapore, Hong Kong, and Canada are paying considerably greater attention to regulating blockchain due to its

increasing use in order to prevent fraud and other illicit actions that harm customers' interests and the market (Till et al., 2017). Cryptocurrencies are viewed as illicit currency by some governments. Only roughly 110 countries allow the most popular Bitcoin to be used without restrictions (Price, 2018)

- **Cybercrime**

Since public blockchains do not require participant authentication, they provide difficulties for laws governing money laundering, terrorism financing, and tax evasion. Every transaction is pseudonymous, therefore any object can be used for good or bad depending on who is utilising it.

Blockchain Technology in Financial Sector

As a result of increased regulation and a lack of economic growth, a worrying situation has developed for financial service providers. Blockchain has gained popularity in recent years due to its potential to automate and streamline processes, eliminate manual back office labour, save time, increase transparency, and improve security (Walker, Burton, & Cantara, 2016). The establishment of digital payments has been hampered by a lack of trust. With the help of radical decentralisation, distributed transaction platforms provide a solution to this problem. The goal of new payment systems based on blockchain technology was to reduce cash payments, but banks balked. This setup is also seen as a safe and secure way to handle consumer payments.

The platform strategy's pricing, openness, and other aspects were directly influenced by the competing goals. The emergence of DLT coincides with the rise of the shadow banking trend. To implement ledgers and accounting systems, financial organisations must rely on costly back-office processes. Customers of all financial institutions can securely share the results of the core KYC review thanks to DLT.

This new technology is still in its infancy, and it faces numerous challenges and limitations. Large international financial giants have rushed to lay out the field and invest resources in technology development and experimentation, but it has a comparative advantage in supporting decentralised autonomous organisations (DAOs).

Advantages for Financial Sector

Blockchain technology helps the financial sector cut costs and save money on labour while also being safe, secure, decentralised, transparent, and more. The financial sector is aware of how disruptive blockchain technology is for creating new revenue, enhancing end-user experience, improving process performance, and increasing company operating risk. According to a report by Jupiter research, banks could save up to \$27 billion by the end of 2030 on cross-border settling transactions, which would represent a more than 11% cost decrease.

Disadvantages for Financial Sector

Due to the majority of blockchains' inability to send and receive data from other blockchain-based systems, they operate in isolation and do not interact with other peer networks, which causes an interoperability problem.

The blockchain system relies on proof-of-work, which requires a lot of computing power to validate and secure the entire network while also solving difficult mathematical riddles.

Social Impact of Blockchain Technology

From a social standpoint, we'll go over the various sectors that are being impacted by blockchain in this section. This section contains data from the Standard Blockchain for Social Impact study.

- **Agriculture**

The main objective is to improve three important aspects of the agricultural supply chain.

Transparency, traceability, and efficiency are all areas where improvements can be made. As a result, farmers will have better access to consumers. This is made possible by blockchain technology's efficiency and transparency.

- **Democracy and Governance**

By exchanging address data, the government can use the technology to address security concerns. Users will also be able to vote on the blockchain, which will make their votes countable and traceable. Because there is no single point of failure, governments can use it to conduct legitimate crowdfunding campaigns.

- **Climate Change and Environment**

By using peer-to-peer transmission, blockchain can help improve and give people the ability to create micro-grids. Every aspect of this industry must be optimised with millions of dollars in transactions. This technology could have an impact on the climate, energy, and environment.

- **Health**

Blockchain technology can be used to manage the pharmaceutical supply chain and improve digital health records. It provides a decentralised, efficient, and secure solution for healthcare organisations.

- **Aid and Philanthropy**

The best examples of social impact are the philanthropy and aid sectors. Due to significant inefficiencies, aid and philanthropy are currently not being put to their intended use. This can be addressed using blockchain, which can assist non-profits in gaining confidence in their

Blockchain Social Impact Projects

- **The Blockchain Coalition** - The Blockchain Coalition is a non-profit organisation that assists in the development of blockchain solutions that are tailored to address environmental and social issues. It is aligned

with the Sustainable Development Goals of the United Nations.

- **Consensys** - Consensys manages the Consensus blockchain for social impact and NGOs. Their goal is to make the world a better place by putting in the necessary effort to help projects dealing with environmental and social issues succeed. They're enlisting the help of the Ethereum community to assist social entrepreneurs, non-governmental organisations, and investors. The goal is to achieve global goals for sustainable development.
- **Accenture** -When it comes to blockchain for social impact, Accenture is also forthright. Their goal is to use blockchain technology to make a positive social impact. To assist them in improving their chances at social projects and collaborating with governments, non-governmental organisations, and businesses to make the world a better and more sustainable place.

Role of Blockchain in Social Impact Initiatives

- **Preventing fraud and lowering risks**

Corruption is a serious problem, especially in government. This is made possible by the use of insufficiently transparent traditional anti-corruption solutions. The best way to solve this is to use tamper-proof and incorruptible blockchain technology.

- **The administrative costs have been reduced.**

Smart contracts can be used to manage financial and legal intermediaries on the blockchain. Automation is always beneficial and makes dealing with monotonous or non-creative aspects simple for everyone.

- **Accountability and Transparency**

Thanks to blockchain technology, charities can now be held accountable and transparent.

Charity scepticism is well-known among the public. Donors, on the other hand, can be confident in their blockchain investments. They are able to see the results of their efforts.

- **Crossings of the border that are more efficient**

International transactions are always needed by charities. It can take anywhere from one to three days to send money. If charities use blockchain technology, they can use digital currencies that can be transferred over a network without the need for a central authority.

- **The accessibility of the site has improved.**

This is fantastic news for charities and non-governmental organisations (NGOs) that assist people of all backgrounds. It also eliminates the need for double-transfer, saving time and money on both settlement and costs.

Conclusion

A significant increase in the use of technology could result in a significant shift in the nature and quantity of "white-collar" work. Peer-to-peer transactions and smart contracts could take over some of the work of intermediaries and contract lawyers. The Bitcoin blockchain was responsible for electricity consumption equivalent to Ireland's in 2014. While more energy-efficient algorithms and hardware could be developed, blockchains' energy intensity may become a growing issue. Using this type of blockchain is part of a larger trend that is eroding trust in and power over traditional institutions. Blockchain technology holds the promise of restoring some of the internet's earlier spirit. It can contribute more effectively and efficiently to user authentication, automatic data encryption, and data access history recording. Distributed architectures hint at a future in which business models are based on the non-transparent monetization of user data. Blockchain technology is a decentralised network that has a lot of potential in the financial services industries.

Gaining a more comprehensive understanding of Blockchain technology and its potential requires an open mind and a willingness to embrace change. Many current operations in economics and finance, as well as legal and government services, can be securely digitised using distributed ledgers. The realisation that blockchain technology will bring a radical shift, particularly in financial assets, is growing. The blockchain's potential benefits go beyond economics, and it is already being used to solve real-world problems. The future of Blockchain technology appears bright and appealing, thanks in part to the way governments, developers, firms, and investors are investing. The possibilities that blockchain presents must be wisely developed and governed. It is expected to have such a large impact on financial industry and society that some countries and corporations are already preparing for it.

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