

Blockchain Technology and Its Business Context

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ABSTRACT: *Blockchain is the technology that can lead in the next several decades to significant business advancements. It can alter our business understanding and transform our economy. Blockchain is a decentralized and distributed ledger system to provide transparency, data security and integrity, because it is not tampered with or counterfeited. The majority of this Blockchain study focuses on its usage of cryptocurrencies, such bitcoin, and relatively little research has been conducted in other environments or sectors to leverage Blockchain technology. It may be used for numerous purposes in government, banking and finance, accounting and administration of corporate processes. It is more than simply cryptocurrency. Therefore, this research aims at analyzing and exploring Blockchain Technology's potential and problems and their future applications. A wide range of published studies have consequently been thoroughly assessed with their inclusion to the knowledge corpus of the Blockchain. Therefore, this study is a useful basis on which practitioners and researchers will develop their use in Blockchain in future.*

KEYWORDS: *Blockchain Technology, Business, Financial, Network, Process, Smart Contracts, Security, Systems, Transactions.*

1. INTRODUCTION

Blockchain technology is a revolutionary method for the collection and storage of information that is utilized on multiple devices and numerous nodes. One of the most fundamental features of Blockchain is the so-called Ledger that resembles a relation database. A block list of encrypted digital documents is Blockchain. In a linear chronological sequence, each block is then linked to the next block with a cryptographic signature. The last block contains a duplicate of the last transactions. In order to verify or confirm transactions by eliminating a necessity for a third party, all participants utilizing the network computer have to be linked to the shared block or head [1].

Blockchain is used to secure and distribute data in a new and unique way. The elimination from the scattered network of a central facility indicated that non-intermediaries or intermediary services advance dramatically towards a direct transaction. Blockchain can therefore never be modified or deleted alone amongst system participants by consensus. The distributed database cannot be hacked, altered or broken in the same way as the typical central database with a user controlled access mechanism [2], [3].

That is, the data is unchanged and after being recorded on the blockchain, no one, no system administrator can edit or remove it. Each block of data is chronologically tagged with a digital signature. Blockchain Technology, including value for money, items, property ownership, and medical data or voting, may be used in almost any type of transaction. Blockchain does not need transfer of data, saves all transaction data and determines the state from the project's directory. Since Blockchain is a distributed system, it does not function through a single control center with a central control or authority, it has no single failure point. Consequently, with a blockchain database, a firm does not have to monitor security for an expert in information technology [4].

It is worth stressing that Blockchain is a rather young technology, despite these potential. As a result, only a small percentage of situations employ the method. Bitcoins' most efficient implementation of Blockchain technology may be a proven case and shown to be a viable alternative to create an environment without trust and central authority. This essay was focused mostly on the theory and collection of data. Data and soil theories were collected in different ways. For example, there have been comprehensive scans of published works, books, academic journals, conferences, technical reports and the searches of a number of databases using keywords. The aim of this study is to offer an overview of the existing or prospective practical uses of the Blockchain technology [5]. Thus author offer a comprehensive literature study in the next part, to identify current Blockchain uses and explore future practices

1.1 The Concept of Blockchain Technology:

Blockchain Technology is an ever-expanding, cryptographically linked and secure collection of data known as blocks. In general, a previous block hash code of encryption, a time stamp and transaction details are included in each block in order to maintain those transactions. Nakamoto has designed and distributes transaction or event information recording techniques. Blockchain or Distributed Ledger Technology (DLT). Open, secure, decentralized, efficient and cost-effective transactions are recorded [6].

Therefore Blockchain Technology offers: distributed leader, information management decentralization, data security, transparency and integrity, forgery control, efficiency, cheap cost, flexibility, programmable features and no risk of centralized failure in the database. The most important ones are: Blockchain; Public Blockchain; Private Blockchain; (hybrid Blockchain). Each kind has its advantages and limits to meet the requirements of various applications [7].

In particular,

a) Public Blockchain enables everyone to handle a transaction that is visible and anonymous. A completely decentralised Public Blockchain, like bitcoin. There being no main failure point, the system operates on the basis of a user consensus. Nevertheless, without discovering the participants, public blockchain is vulnerable to system attack, for example, and an attacker might reconstruct and correctly chain the blocks modified;

b) Private blockchain, secrecy in transactions, publicly inaccessible data, but Members known. Without an invitation or permission to a participant, the member may not read or write the blockchain on a private network. Big organizations with authorizations established by many Blockchain participants generally utilize private Blockchain. For example, a Blockchain private network, such as customers, employees and providers and a hybrid Blockchain Consortium, may be used for this Bank;

c) The consortium Blockchain is a hybrid idea for Blockchain. The utilization of that architecture enables firms or institutions to transmit data with their own Blockchain networks between consortium participants such as banks, institutions and other enterprises.

2. LITERATURE SURVEY

F. Glaser *et al.* presented in the article that the launch of Bitcoin in 2009 introduced not just Cryptocurrencies and new financial digitalization, particularly in the payments industry, but also a new generation of creative and digital currencies-built technology. In general, decentralized contracting systems might change the nature of how companies, organizations and individuals are established and interact with each other. Decentralized consensus systems, decentralized applications and intelligent contracts give the conception and technological basis for the construction of predefined, incorruptible protocols and agreements for human behavior and connectivity. But the techniques and implementation are highly complex and practitioners and academics from other disciplines are struggling to identify and access these concepts, not familiar with cryptography, networking or decentralized networking. Crypto 2.0 classifies and analyses emerging technologies to overcome this breach by building a broad taxonomy of decentralized consensual systems, enabling academics and practitioners to take up a further degree of innovation beyond cryptocurrencies [8].

T. Ahram *et al.* presented in the article that Efficiency, innovative goods and intimate relationships between consumers globally have been created through proper use of the mobile Internet of Things (IoT), social media, analytic and cloud technologies and the digital world to give models for improved decision making. Blockchain has recently released and changed a new perspective on digital systems safety, resilience and efficiency. Bitcoin, although first popular, is more than a foundation of cryptocurrency. It gives a safe way to trade any kind of goods, services or transactions. Increasingly, industrial progress depends on reliable connections, however rising regulation, cybercrime and fraud have hindered development. In order to solve such problems, Blockchain would allow more flexible value chains, faster product innovations, better customer relations and faster integration into IoT and cloud technologies. Further With a trustworthy contract followed up without the participation of third parties and that cannot add direct value, Blockchain supplies reduced trading costs. It enables smart contracts, obligations and agreements with strong, inherent cyber security safeguards. This essay aims at breaking down the ground in numerous industrial applications where the use of Blockchain technology is shown and proved. Using International Business Machines (IBM) Corporation Blockchain a healthcare chain application is codified and developed. The ideas may then be extended to a range of companies including banking, government and manufacturing [9].

2.1. Blockchain Technologies Applications:

This section contains various practical applications of Blockchain Technology in a number of fields. The following categories categorized applications in intelligent contracts, the government, the financial sector, the accounting and the administration of business processes.

2.1.1. Smart Contracts:

A smart contract is a contract-funded electronic protocol. Single but built to run in the gates of environment in Blockchain Intelligent contracts are a normal contract. Thus, in the IT industry, such agreements are typically termed intelligent contracts. The goal of a smart contract is to secure the fulfilment of a party's obligations. The goal is to remove Blockchain middlemen for third-party transactions. This third party maintains and carries out contracts historically and develops trust between all parties involved. Intelligent contracts can therefore overcome moral hazard concerns, such as strategic default, and cut verification and enforcement costs substantially [10].

A major field in which Blockchain is applied in the development of fully automated, free-of-human intelligent contracts is its application. Smart contracts automatically allow repeating transaction operations or specified relevant transactions. The contractual terms between the contracting parties should be verified, performed and enforced automatically via Blockchain. These agreements are called Smart, since they may be implemented or implemented partially or fully.

Some of the intelligent contract applications in Blockchain are:

- Management of contracts - Management of contracts for companies validating contractual information that may be of significant benefit to companies of every kind, especially in the technical and construction industries, Blockchain Technology offers a solution. This would allow firms to optimize the performance of their supply chains, review suppliers and reach better values and shorter periods utilizing Blockchain technology for contract management.
- Entertainment - Blockchain provides a transparent transfer of royalties in real-time distribution to all those working in the music and movie sectors.
- Healthcare - The health industry has employed Blockchain technology before. Intelligent contracts may be used to maintain tabs between medical payers, providers and pharmaceutical firms. Intelligent contracts for each payer and every provider may be developed and then kept in their digital records by healthcare experts.
- Insurance - The insurance sector of Blockchain Technology is new and over \$2 billion is expected to be spent on fraud and compliance each year. The whole value chain using Blockchain technology has great potential. Certain insurance products may be automated using smart contracts. Capturing the identification and policies for consumers can reduce error, disregard and identify fraud.
- Blockchain Internet of Things (IoT) is a networked Internet system, mechanical or digital computers, things, animals, or people with distinct identities that may transfer data from human to human or from human to computer over a network. It allows data to be collected and exchanged, sensors, software and language shared.
- Students expect to reach 20.4 trillion of IoT devices by 2020. By employing this number of devices in the future, the System might show vulnerabilities such as network security, performance, and cost. Blockchain Technology deals with the aforesaid problems and enhances IoT connectivity. The device network will enable smart contracts to be performed seamlessly, safely and autonomously only if the given criteria have been met. It encourages better automation, cheaper transfers that do not require transactions, scalability or security from external parties, since all devices may be operated by Blockchain with one interface.

2.2. Blockchain Technology for Implementing E-Government:

E-government building utilizing blockchain technology, cryptocurrency tools and smart contracts is conceivable. An intelligent agreement with a number of methods of interactions and procedures between citizens and the State can build a distributed directory with legally permitted data. The source code reduces the risk of unauthorized modifications and ensures that the contract algorithm is carried out in all phases and network nodes alone. This would allow the use of Blockchain technology, fraud prevention, confidence-building between public opinion and the state, and the improvement of public sector performance for state documents, E-voting, public procurement auctions and registrations.

Blockchain's current initiatives are being initiated in various countries, such as the US, China, the United Kingdom, Sweden, the Netherlands, the United Arab Emirates and Estonia, to examine its possibilities in the public and government sectors. Researchers have demonstrated that some potential benefits, such as confidence and openness, are particularly relevant to developing countries since they are more prone to corruption, fraud and lack of confidence than affluent countries.

Finally, e-government employing Blockchain technologies and intelligent contracts will be made possible. Bureaucracy by Blockchain Technology will be significantly reduced, the paperwork will be omitted, transaction costs will be reduced, officials totally regulated and fraud eradicated, and therefore business performance will be increased in the public sector.

2.3. Blockchain Technology for Financial Industry:

Blockchain is a key technology which can reduce transaction costs and rearrange the economy considerably. Harvard Business Review said that Blockchain Technology is doing what the Internet has made financial institutions accessible to the media. Blockchain was first created as the backbone of Bitcoin, the most popular digital decentralized money in Nakamoto. Blockchain has the capacity to address a wide variety of data, information and money exchange problems, which are particularly beneficial to financial activities and organizations. Blockchain may be used by financial institutions and banks to handle sensitive information and provide secure, low-cost, minimum risk services. Scholars emphasized Blockchain's importance in financial settlements and improved reliability of financial reporting. Similarly, experts argued that Blockchain technology is capable of changing economic sectors and numerous advantages that lead to decreased transaction prices.

The major platforms of Blockchain development in the financial sector are now hyper leaders, the open-source industry consortium that was formed by the Linux Foundation. Ethereum has been launched in 2013 as a bespoke platform. By February 2018, there was over \$400 billion in market capitalization for over 1,500 cryptocurrencies, including over \$150 billion in value for Bitcoin. Finally, in comparison with existing infrastructures and legacy systems of financial organizations, Blockchain Technology has achieved promise. Blockchain addresses the challenges of many financial industries and dramatically increases the performance of its company, for example trade finance, intelligent assets, payments and intelligent contracts.

2.4. Blockchain Technology and Real Time Accounting:

Compared with other companies, some of whose advances in Blockchain technology are significantly affected, the digitalization of the accounting system is still at an early stage. The usage of Blockchain enhances the audit efficiency, as the auditors raise the potential of their accounts by reducing maintenance expenses, guaranteeing an extremely safe climate and reconciling books. Blockchain guarantees audit traceability, automated accounting and reconciliation, monitoring of asset ownership and authentication.

Blockchain Technology can provide a support to accounting by offering an interlocking accounting system in particular by placing the company's transactions directly into a joint register. Since all entries are distributed and sealed, actions are almost difficult to modify or remove. Similarly, all entries are electronically and encrypted when approved by a notary. Furthermore, any accounting information with a time stamp may always be recorded using Blockchain technology to prevent modifications. The full Joint Company Register is then available to customers, suppliers, shareholders, bank creditors or any other interested party. Accounts, balance sheets or income statements may thus always be made available, and nobody needs to rely on the firm's quarterly financial statements that improve the company's business success.

For security, all transactions with an encrypted hash code are numbered, with a unique 64-digit alphanumeric signature for each transaction. The hash code unchanged and shows the transaction, thus ensures more security. Blockchain would consequently provide additional data security and authenticity in so much as data stored in a Blockchain cannot even be modified by the system management. Therefore nowadays the essence of accounting and auditing is redefined by Blockchain Technology.

3. DISCUSSION

3.1. Challenges and Barriers of Blockchain Technology:

Despite the huge potential advantages of Blockchain for e-government, accounting, banking and many other technologies, literature presents a range of challenges and limits that need to be resolved. The challenges and

hurdles address technological problems such as usability, interoperability, security, computer efficiency and Blockchain Technology storage capacity. Many studies have identified cyber security issues and hazards. Experts argued that the blind faith, safety and performance of Blockchain developers are important challenges and drawbacks for Blockchain Technology. Blockchain Technology also fails to comply with international laws and standards. Furthermore, due of the rising demand for interoperability between large industries, like banking, technology needs to be interoperable with many old systems. The connection with existing systems is a key challenge since existing systems and processes cannot be eliminated entirely and significant adaptations need to adapt to existing traditional systems.

Moreover, Blockchain Technology isn't suited for large transactions because of the complex verification process. All transactions in Blockchain Technology will need a cryptographically hash code, a 64-digit alpha number signature, requiring high computer power and time consumption digitally to label each transaction.

In addition some scholars argue that the value for Blockchain adoption should be evaluated carefully in public or private services, because the expense of the creation, operation and maintenance of Blockchain technology might outweigh the benefit. However, the immature nature of the technology itself underlines all existing technological problems with the use of Blockchain technology. This may be seen as something typical in all new technology presentations. In conclusion, Blockchain's adoption might lead to organization, including strategic, structural and cultural changes. This change demands the engagement and commitment of its members in order for the organization to exist and to increase its performance and efficiency.

4. CONCLUSION

Blockchain Technology has high value and potential for resolving data integrity problems, improving transparency, improving safety, preventing fraud and ensuring theoretical secrecy of evaluations. Blockchain Technologies is an area in which Blockchain technology may bring about change in finance, accountancy, electronic government, insurance, entertainment, trading platform, healthcare, internet, law firms and others. Blockchain Technology has a large potential, because technical innovation and applications can bring economic and social advantages, to develop innovative solutions in line with the sector where it is used. However, deploying Blockchain technology in many industries might be very costly. Company investments must relocate or transfer legacy systems. Initially, if organizations adopt Blockchain technology, companies will have to create a single platform to manage such a hybrid architecture of application, integrating Blockchain and traditional systems. They must thus increase understanding of Blockchain Technology's worth, potential and risks. The approach was therefore only implemented in a limited number of situations to such systems.

Therefore, Blockchain Technology cannot replace obsolete systems or old applications rapidly. However, Blockchain may certainly be a further application to old systems and might lead to the production of new systems in the near future. Finally, additional study in this field of Blockchain Technology is needed to further develop the maturity of the industry, as it is still on the exploration stage and many technical and legal issues are still unresolved. Therefore, this study is a useful basis on which practitioners and researchers will develop their use in Blockchain in future.

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