

Blockchain Technology: A Research Review

Dr Javed Miraj¹, IQRA SAMI², Dr.Muhammad Ghazanfar Abbas³, Gul Bibi⁴,

¹Assistant Professor, Department of Management sciences, Lasbela University of agriculture, water and Marine sciences (LUAWMS) javed.meraj@luawms.edu.pk

²Assistant Professors, Department of Management Sciences, LUAWMS. iqrasami@gmail.com

³Assistant Professor, MIR Chakar Rind University of Technology DG Khan m.ghazni@live.com

⁴Depart of management sciences, LUAWMS, Uthal, Balochistan, Pakistan gullkhetran98@gmail.com

Abstract

We are going through an era of emerging new technologies where every day brings innovation in the business world. These technologies are influencing the world of business and also challenging its traditional way; one of them is Blockchain technology, which is known as fourth industrial revolution. After the advent of bitcoin blockchain technology gained popularity as crypto platform. Trustworthiness, transparency, and controlled features of this technology attracted many or almost every organization. Because of its decentralized feature its being used in every sector not just in bitcoins. A huge research is being done on this technology, this paper is based on the liertaure review of blockchain technology, its history, applications in different sectors, how it performs, and at the end future research directions and gap is discussed.

Keywords: Blockchain, smart contracts, consensus, review of literature, applications,

1. Introduction

Satoshi Nakamoto, a mysterious inventor, created block -chain technology in 2008 to operate as the open digital ledger for the crypto money Bitcoins (Le & Hsu, 2021). Block- chain technology is a system which records trasactions on multiple sources or computers in the form blocks; it have a mechanism consensus to enter the transaction into the system and to check the reliability. All the transaction are integrated through a network of peers. DLT, sometimes called BT, is a system that stores transaction records in blocks across multiple computers connected by a peer-to-peer network using algorithms to ensure data integrity. . Bitcoin's underlying engine, known as blockchain technology, has been hailed as one of the most fundamental and significant developments to emerge in recent years. Specifically, BT is set to change the way the businesses are conducted. It will transform the entire ways of conducting dealing by automation. However, it has started to impact variety of industries such as agriculture, finance, commerce, healthcare and transportation, as well as government. it also has the potential to significantly influence future accounting and auditing (Schmitz & Leoni, 2019).

In late 1990's the concept of block chain firstly used by laslie lamport in his paper time parliament. This paper gives the idea of decentralization furthermore in 1991 the block chain used digitally for the signing of documents to avoid any variation in these documents. This evolutionary process of block chain become more familiar in 2008 when it used in crypto currency and published in the paper of bit coin. An anonymous person Satoshi Nakamoto used it in 2009 for the transaction of digital currency (crypto currency) bit coin. Now a days many crypto currencies using the block chain with some variation and modification. (Yaga & Yaga)

Block chain use for digital transaction without any intermediaries which cause to reduce the transaction cost and intervention of third party. The use of block chain in bit coin gained a huge trust and it grows up to 10 billions dollar in 2k16. The chain of blocks increases by using the block chain from transaction to transaction and stores the committed transactions block chain uses several technologies to decentralized the process such as digital signatures cryptographic and distributed senses algorithm. Block chain transactions are task used for public records also known as blocks these records are store and implement for all stake holders which are involved in block chain network.

As bit coin is the best famous and incredible use of block chain without any intermediaries , but beyond this block chain may also be use in financial services such as digital assets , remittances and online payments. In todays world the application and implementation of block chain is being broad day by day and its range is spreading in many industries such as health care, government, manufacturing etc. block chain is not only using in terms of digital currency but also in documentations . goods transforming, digital media transfer. Electronic voting etc.(Monrat et al., 2019)

Block chain in finance will bring more ease in international trade supply chain. As the normal transaction of companies to import and export goods and services takes 3 to 5 months for processing of letter of credit to attest the documentation and create sincerity with stake holders. Block chain change the entire system from documentation to digitalization and improve the security and efficacy of finance process. It will help to reduce the human errors and frauds .

Block chain is a collection of distributed ledger algorithms that may be used to safeguard and monitor virtually anything of value, including money transfers, personal health information, and real estate ownership. The essence of block chain systems is the age-ancient methodology of the global accounting register. Simply put,It is an automated ledger that keeps history of entire types of proceedings performed in a group of peers. The equipment is said to "remove the middle man" through certain types of digital asset transactions intead transfers. Another secure and decentralized medium(*Miah et Al., 2019*). Information can never be deleted once it is included in the ledger open and block chain greatly save cost and improve the efficiency, which is confirmed beside the agreement of the mainstream of user(*Lewis, 2015*).

Block chain technology is a technology which provide the records of transactions as well as gives the company records of revenue. an asset which physically exist such as (car ,cash ,land) or those which not exist physically e.g. (copy rights, patents ,branding) means it provides check and balance to all the debited and credited occur on block chain network. It help in decreasing the risk and cutting costs for all debited and credited involved in block chain network.

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BT is a distributed network system for the Internet that uses encryption. In peer-to-peer networks, tasks are dispersed and shared among network participants using a distributed application architecture. In addition, the ledger where the information is recorded is maintained identically by each participant in the network. All transactions recorded since the establishment of the ledger are included in these ledgers. BT offers a triple-entry registry method that offers confirmation transparency as a nominal solution for participants which is to be tested. However, BT adds a shared ledger to the conventional double-entry bookkeeping method instead of just a third entry. Unlike keeping discrete transaction ledgers (double-entry bookkeeping), a block chain ledger tracks accounting transactions for the same parties to the transaction. By creating a network of interconnected, long-term accounting records where trust is transferred from a third party to all users of the block chain network. A somewhat single change in the general ledger (such as the transfer of assets to alternate network participants) is visible to everyone in the network because all network claimants are always in contact with the same set of common ledger records. To make changes, the rules of the consensus protocol must be followed. The consensus protocol uses mathematical techniques and requires the consent of network users to implement changes. Without consensus, the entry in the network's ledger is automatically rejected. As a result of its distributed architecture and consensus process, BT offers a superior way of managing the ledger of transactions that have been recorded. Each new record is cryptographically linked to a chain of already existing blocks. Any attempt to change previous transactions would require the process at a more rapid rate to change the entire linked blocks. Technically speaking, it is difficult, which makes BT immutable and unreachable for fraud. The requirement of independent audit confirmation of the organization's economic accounts and the possibility of

fraud, are said to be removed by BT which are the drawbacks of double entry bookkeeping (Schmitz & Leoni, 2019).

2. Review of Literature

2.1 Introduction to Block-chain technology

Block chain technology is a dynamic collection of documents known as blocks that are connected together via encryption. Every block with in series has a connection towards the block that came before it, known as the parent block, which is effectively a cryptographically hash number. The genesis block, which has no parent block, is the initial block on a blockchain. Block content, which contains a list of payments, and block headline make up the majority of the block chain's architectural form. Serial number, preceding block hash, Merkle root, timestamp, difficulty goal, and nonce are among the elements included in the block header. Additionally, a sole draft created utilising a Merkle tree and hashed with a safe technique, like the SHA-256 hash mechanism, is published. The digestion will discuss the reliability of the antecedent proof. The information in every individual block cannot be changed retrospectively once it has been published without also changing all blocks that come after it, which needs agreement from the most of of the network. By another terms, the blockchain is immune to data architecture changes. The algorithms, like PoW employed in bitcoin, ensure the blockchain's consensus process. It ensures that every node in the network may verify a new block (Le & Hsu, 2021).

Blockchain is a collection of distributed ledger algorithms that may be used to safeguard and monitor virtually anything of value, including money transfers, personal health information, and real estate ownership. The essence of blockchain systems is the age-ancient methodology of the global accounting register. Simply put, It is an automated ledger that keeps history of entire types of proceedings performed in a group of peers. The equipment is said to "remove the middle man" through certain types of digital asset transactions instead transfers. Another secure and decentralized medium (Miah et al., 2019). Information can never be deleted once it is included in the ledger open, which is confirmed beside the agreement of the mainstream of users (Lewis, 2015).

2.2 Blockchain technology types

2.2.1 Permissioned

Throughout such case, in order to enter any portion of the blockchain, users must first obtain authorization by the relevant company or ethereum - based holder. By instance, reading a blockchain could prevent us from carrying out no more activities within the block. . The two kinds of permissioned block chain are as described in the following: (Singh & Kumar, 2022)

2.2.2 Private Blockchain

it is a kind of blockchain where the information is kept privately within a sole company (Setyowati et al., 2020). It is entirely permissioned, as well as every node which wants to connect must become a part of such a specific group. The private blockchain is practical & frequently used for unique company options to trace the transit of information among several offices. Ripple and Hyper ledger are two samples of private blockchain (Singh & Kumar, 2022).

2.2.3 Consortium blockchain

A private and the federated block chain, commonly referred to as a consortium blockchain, are quite similar. A regulated customer group is part of this "semi-private" network. It is viewed as a verifiably synchronised, fully transparent, and distributed ledger that records data transfers among users (Singh & Kumar, 2022). Due of this, hardly many nodes within the block chain network are able to possess consensus privileges (Setyowati et al., 2020).

2.2.4 Permission less

A blockchain with no access issues is straightforward and easy to use. Everyone and anything can participate in it without asking approval, as the names imply (Singh & Kumar, 2022).

2.2.5 Public blockchain

A blockchain that is open to public access is known as a public blockchain. All may take part in the procedure of reaching consensus and therefore can immediately review and validate transactions in the public blockchain system (Setyowati et al., 2020). Crypto ecosystems including Bit coins, Ethereum, and numerous others are a handful of the widely used examples of block - chain implementation (Singh & Kumar, 2022). bitcoin block chain privacy and trustworthiness are ensured using crypto authentication because the block chain technology does not rely upon a central server infrastructure (Setyowati et al., 2020).

3. History and evolution of Block-chain

The very first individual to describe a block-chain like system was Chaum in his Doctoral thesis from 1982 (Guo & Yu, 2022). There is not much of a block chain's past. Earliest stage of computerized ledger (BT) was introduced during 1991 by way of Stuart Haber and W. Scott Stornetta with their work on a cryptographically secure blockchain where no one could forge document timestamps. In 1992, they extended their strategy to integrate Merkle trees, allowing design to receive multiple paper/record in a block (Miah et al., 2019). Szabo created the "bit gold" distributed online money system in 1998 (Guo & Yu, 2022). Furthermore, Satoshi Nakamoto founded the blockchain as we currently know it in 2008. Satoshi issued a document on blockchain in 2009 which includes entire details of the machinery and since then the advancement of BT has come far through several executions (Miah et al., 2019).

Buterin suggested Ethereum in his whitepaper from the year 2013. Fundraising for Ethereum's creation began in 2014, so on July 30, 2015, the network officially launched. In contrast to all the previous block-chain projects that concentrated on creating altcoins (coins

that really are comparable to Bitcoin), Ethereum allows users to communicate through trust-free decentralized apps within its own block-chain, signalling the birth of blockchain 2.0. In many other terms, Ethereum was created for a decentralized system for data storage together with smart contracts, which are brief computer programmes, whereas Bitcoin was created for a public ledger. The Ethereum 2.0 networking update intends to improve the network's speed, durability, productivity, and safety. from 2020 to 2022: Three stages of the renovations occurred (Guo & Yu, 2022).

A Hyperledger technology, transparent block-chain technology, was introduced by the Linux Foundation in 2015. Unlike Cryptos, Hyperledger block-chain platforms are designed to construct corporate block-chain (Guo & Yu, 2022).

4. Working mechanism of block-chain technology

Let's see how BT has worked before since the days of Bitcoin's popularity. Transactions are protected by electronic sigraty. The recipient has general encryption key to send private transactions. The receiver uses the sender's private key to electronically sign the trade dealing. Cryptocurrencies such as bitcoinowners necessarilyverify possession of the key secret in the power of attorney to use the currency. For a successful transaction, the recipient of digital money must utilize the disseminator shared key to confirm the sender's identity, the signature, and possession of the secret key. When a business deal occurs, it is talked through entire bitcoin nodes, that is a requirement first do proven plusrecorded. Authorization is required for each transactionprior to being recorded in the shared blockchain.to keep a record of dealing on BT , a node have to prove two items.

- Basically, the digitalcurrency belongs to the customer. It is proved by proving an e-signature.
- Payer is ready having enough electronic currency to complete the operation. It can be proved through reviewing each documented operation in the payer's account(Priyadarshini, 2019).

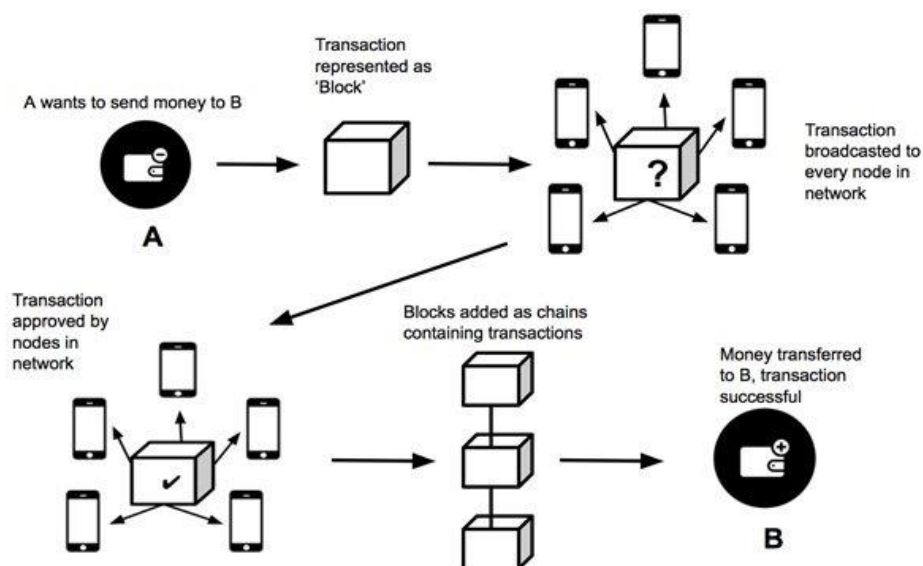


Figure 4 shows the financial transaction using Blockchain technology. Source: (Priyadarshini, 2019).

Although the proposed method has eliminated many problems, one problem remains unresolved. Multiple blocks could have been generated for modified nodes at any given time. Multiple blocks can reach modified devices called as node for modified topics. Here, queries are figured out via a math riddle that could be predictable within the BT assuming that could resolve the certain math question. Called as proof of work for the reason that block node has to prove that adequate resources were involved in solving the puzzle (Priyadarshini, 2019).

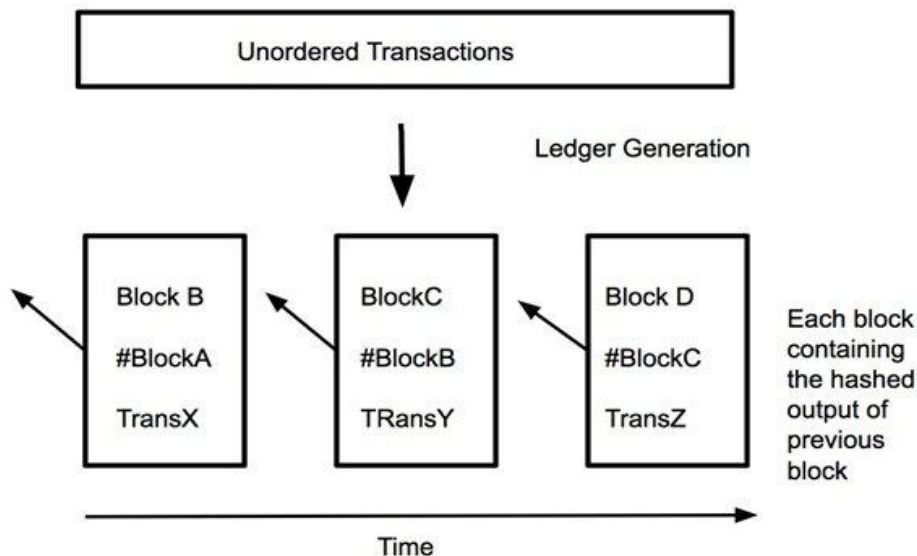


Figure 6 shows Blockchain generation from the unordered transaction. Source: (Priyadarshini, 2019).

5. Crypto contract

The characters that are embedded on the blockchain or any equivalent disseminated set-up are called smart contracts. Predefined actions are executed once they are initiated by means of a BT operation in addition verified on the system. A smart contract will always work as intended by all parties as the terms are maintained on the blockchain, which can help resolve trust issues between parties. Before Bitcoin and blockchain technology was born, the word "smart contract" as well as the concept behind it were very well established. Szabo (1994) described it as a part of an electronic business deal process which fulfills regulatory requirements just like conditions of paying, security, and enforceability, thereby reducing the need for limited trusted intermediaries (Ante, 2020).

On Blockchain, data is publicly and indestructible, and predefined operations are launched immediately. (Ante, 2020).

6. Mechanism for Consensus

An algorithm that allows transactions or records on a decentralized ledger to reject false records is called a consensus mechanism. The method is executed every time a new block is

added to an already existing blockchain, so the blockchain is only updated as an additional ledger. The rationale for this criterion is to prevent malicious actors from modifying the registry as they would consider the effort (or loss) to be unprofitable (Insight, 2021). One method to obtain a agreement of like mindnesstool is the consent mechanism algorithm(Yang, 2018).

Without third-party verification, how participants can authorize transactions and prevent malicious artists from imposing false and misleading information?

Considerable effort has gone into computer technology to connect information to the ledger. Many other consensus mechanisms have been created since the birth of bitcoin. Each has its own characteristics that govern the properties of the link network(Insight, 2021).

7. Applications of blockchain technology

Because of its enormous scope across many industries and areas, block chain has drawn increasing amounts of research attention ever since invention of bit coin (Le & Hsu, 2021). According to “A survey on blockchain technology and its security” by Guo & Yu, 2022its applications are as follows;“cryptocurrency, the Internet of Things (IoT) (safety and privacy, e-business, etc.), finance (stock exchange, financial services, P2P financial market, crowdfunding, etc.), and reputation systems (web community, academics, etc.),Defense, mobile applications, supply chain, automotive, agricultural sector, identity management, voting, education, law and enforcement, asset tracking, digital records, intrusion detection, digital ownership management, pr, healthcare, insurance, copyright protection, energy, society applications (blockchain music, blockchain government). It is anticipated that blockchain technologies would be used in an increasing number of use cases” (Guo & Yu, 2022).

In this paper some of the main applications of blockchain technology are described in detail

7.1 Dubai office and smart governance

Uae is utilising block chain and spending mostly in Smart Office to convert local govt from a provider to a service facilitator. On several dimensions, it is subsidising the adoption of block-chain technology. To build block chain industry dubai is promoting business and services on blockchain finally to comletely provide the example of electronic govt on blockchain technology (Guo & Yu, 2022).Distributed ledger technology, can help with smart governance ensuring complete openness and data data integrity in public involvement.Distributed ledgers may be incorporated into delivering public services using smart contract technologies, improving regional & local productivity (Balcerzak et al., 2022).

7.2 Healthcare

The ability for decentralized ledger technology to change the way that medical services are provided. The handling of clinical information and medicine tracking are two areas where block chain can be employed. The medical business is plagued by a severe issue with

falsified medicines. According to statistics from the Healthcare Research Grants organisation, 10% to 30% of the pharmaceuticals sold in underdeveloped nations are fake. Since every operation committed to the public ledger is permanent and electronically thumbnailed, making it feasible to monitor a product and rendering the knowledge prevent tampering, block-chain can be a solution to this issue (Monrat et al., 2019). Personal sensor information was safely saved for actual tracking and medical treatments with the use of distributed ledger technology (Le & Hsu, 2021). Keeping track of patient data security is among the hospital sector's top priorities. This current approach for keeping track of health files lacks accessibility and confidentiality. Throughout its unchangeable distributed ledgers, block-chain may now provide a framework for the synchronization of health files across various medical institutions in addition to data security aspects (Monrat et al., 2019). As clients may see their therapy records, there is a far lower chance that a clinician would make mistakes or act carelessly over the course of therapy. However, because of the presence of all client necessities and the inability of altering them without sides' consent, this may avoid unwarranted and unjust litigation brought by patients towards medical professionals (Hassani et al., 2023). A ledger system for validating patients IDs was developed by the Estonian state in collaboration with Guardtime, a digital security company with Dutch roots. Each and every resident received a digital wallet that connects their EHR information to their ledger identification (Angraal et al., 2017).

7.3 Finance

by using blockchain in banks claims that using fewer resources—such as hard disks to keep their information or the extra electricity needed to maintain operating not just to expense bankers greater money than using a ledger to create records, but will also use fewer resources overall. This will thus benefit environment because there would be less electrical energy and waste use (Xu et al., 2019). For the purpose of identifying banking crime and combatting criminal activity, many novel ledger based solutions have been developed (Le & Hsu, 2021).

The use of a letter of credit (LC) by financial institutions as a means of sending money during the trading financing procedure has been shown to be useful for reducing hazard. Through streamlining LC, block chain technology may be able to solve these problems by lowering management overhead and trading costs. When the trade item is handed over to the buyer, the cryptographic agreement may be modelled in accordance with the particular terms stated in the LC here between provider and customer, guaranteeing payment. This approach could lessen the legal uncertainties and informational inconsistencies that increase the time and expense of LC changes (Monrat et al., 2019).

7.4 Stock market

In stock market All processes take longer than three days to execute and finish because of the participation of middlemen, the legal processes, and functional trading confirmation. Players in the financial markets, such as dealers, supervisors, agents, and the capital market, must undergo a laborious procedure as a consequence. Block chain technology could be the answer in this case. De centralization and digitalization can improve the share market, it is able to

lower costs. it may also be used effectively for deal clearing and closing whilst reducing the tedious documentation associated with the deal, the exchange of rightful possession, and the safe post-trade procedure (Monrat et al., 2019).

7.5 Energy industry (microgrids)

With block-chain assistance, solar energy retention will become a grid construction element inside the decentralised, bi-directional electricity grid (Le & Hsu, 2021). Microgrids are among the key areas where block chain technology is used in fuel projects. A localised network of interconnected and controlled electricity generation generators and loads is known as a microgrid. Its goal is to increase the accuracy and effectiveness of electricity generation and consumption. The grid storage elements in infrastructure built and controlled by various organisations or energy suppliers can also be used as microgrids producers or sustainable energy plants. The consumers and industries can also produce and sell energy to the grid. Microgrids can employ smart contracts to ease, store, and confirm electricity purchasing and selling deals. The systematic articulation of planned levels of power mobility, the verification and traceability of request reply deals, and the equilibrium among power production and consumption may all be achieved with crypto contract (Monrat et al., 2019). Block chain concepts combined micro-energy production allow for the prospect of society energy exchange (Le & Hsu, 2021).

7.6 Shipping and delivery

Blockchain-enabled internet track and trace frameworks may be employed to supplement existing corporation supply chain administration platforms. Data visibility among shipping companies, the suppliers, and effective cargo control are accomplished by using distributed ledger as well as intelligent contracts. Additionally, a decentralized system built on the ledger with a compensation package enables correctly delivering fixes to destination gadgets via wireless sensor networks and Internet of Things (IoT) settings. A broad architecture for developing a trustworthy, decentralised guarantee of delivery mechanism that assures trust and accountability has described, relying upon that public block chain Ethereum platform. For robot services, a ledger delivery structure also was suggested (Le & Hsu, 2021).

7.7 Voting

Block chain technology may be used in a variety of industries like a remedy towards the issues that a process may also have. Election is a prime example of this issue. However, it was discovered that certain platforms had wireless access special software by a significant U.S. vote counting vendor. This programme made it possible to change votes after they were totaled. Such occurrences undermine public confidence in Usa's electoral process. data indicates that just about 25% of Americans are convinced their votes are being tallied. Cryptography would address this problem by creating a shared ledger which would guarantee all votes are tallied because each candidate must possess the same record as that used to tally the results (Monrat et al., 2019).

7.8 Supply chains

With the popularity of blockchain transparency, It has led to an increase in the use of distributed ledger technology for distribution network data exchange. For instance, VeChain's "cold-chain" transport system utilizes technology to keep track of the operational details for open, controlled, safe, and trustworthy information exchange, while IBM has developed public blockchain ledger data exchange tools for distribution networks including an emphasis on transportation. Like an anti fake strategy, Makerchain proposes merging distinct chemical identity information to bitcoin. Company 4.0, that tackles technological challenges in the industrial systems, uses bitcoin technology for safeguard smart factory. Again from standpoint of the production line and goods lifecycle administration, smart contracts is utilized to attain durability (Guo & Yu, 2022).

Additionally, blockchain may offer a viable option for the manufacture of fashionable clothing. To guarantee data transparency of the plasma cold chain as well as to lower blood transmission time in unique circumstances, a novel ledger solution was created. With the Gcoin ledger, visible data information in the medication distribution network is improved (Le & Hsu, 2021).

7.9 Accounting

The global economy will undergo dramatic transformations through many businesses and domains. Among the most important are efficiency and better and more thorough accountability, together with a secure environment for finance and accounting, transparency of procedures, low risk and resistance to external threats. The year 2016 was a remarkable witness to the massive investment in the industry, which peaked at around USD 1 billion. As a result, market analysts predict another massive increase into the efficiency of accounting on blockchain in a period of 5 years. Finance and technology related companies are the biggest givers towards the growth of BT. This increase can mostly be attributed to the trusted real-time updates enabled by blockchain technology in decentralized public ledgers. This allows businesses to see the entire history of all transactions in this ledger, enabling them to provide timely, trusted and accurate updates that reduce man made fault when combining difficult data by numerous foundations (Demirkan et al., 2020).

The development of Blockchain technology offers innovative financial accounting concepts that significantly improve data accuracy.

First, businesses can upload their underlying documents to a public Blockchain, which then uses seamless contracts to automatically create ledgers and financial reports. Smart contracts will reflect the accounting policies and assumptions used by businesses and will be documented forever. Valuation, presentation and disclosure in financial accounting are substantially changed by this process (Yu et al., 2018).

Second, because the accounts are made on block chain it can reduce the threat of working faults and blunders.

Third, after the data is published on the public blockchain, there will be thousands of backups because all transactions are accessible to all network users when they use them for financial accounting. The accounting and reporting process will be more visible and traceable as a result of being confirmed and (Yu et al., 2018).

7.10 Auditing

Certified auditors currently have access to a diverse range of manual and computerized forms for bank reconciliation, account balances, reflective journals, ledger accounts statements, and accompanying spread sheet files. Thus in context of block - chain, certified auditors be able to closely relate to live information over and done with only read nodes on the blockchain. It can allow the auditor to gain the data needed on behalf of the audit in a consistent also repeatable format.(Bible et al., 2017).

For auditors, it is possible to create software to continuously audit companies using blockchain, e.g. if they record a key type of transaction for the industry. This can eliminate a lot of audit preparation and physical data mining that are time-consuming for unit. Audit on blockchain can minimize the risk of time difference between; when the transaction held, and when it was recorded in the books of the firm; it's the drawback of using manual audit. when performing regular real-time testing. Thanks to the digitization made possible by blockchain, auditors can use more computerized and electronic benefits. For example, they can use these tools to automatically notify stakeholders of unusual transactions virtually. Documents like receipts, deals, vouchers can be be saved in a block chain. Certified auditors access to these documents can reduce time while doing the audit of the firm. This can lead to a detailed audit on daily basis; but the auditor can use his/her expertise to inspect the trasactions. audit creation. Financial report. In addition, for areas of automation development, internal data integrity controls should also be evaluated and checked for all financial reporting related causes. (Bible et al., 2017).

For reported transactions, blockchain also can be used as the home to verify the transactions; by just referring to the ledgers of BT which are already recorded. By this the auditor does not need to check the supporting documents or evidences. The audit environment will save money by automating this audit process. Currently, it takes about 10 minutes to verify a low-value transaction on the Blockchain because only one block needs to be verified. The more immutably linked transactions there are on the chain, the more additional blocks or blocks they must pass before the transaction is considered verified. A high value transaction usually takes about an hour (6 blocks) to verify. Contrast that with the general routine based dealings where the operation takes “a month” or “more” to be verified. This fake real-time blockchain verification can affect the audit process. Auditing firms will be able to conduct online reviews continuously throughout the audit period instead of year-end (or mid-term) audits. (Psaila, 2017).

According to Deloitte Deutschland, “fully automated audits could become a reality at the end of the blockchain journey”. One of the main views of audit automation is that the assessment

of the assertions in the financial statements, can also be favorable from a temporary point of view (Psaila, 2017).

8. Future directions

After reviewing the literature we found some areas where not much research is done before. We give some future research agendas and directions to be researched.

Supply chain: To further grasp the advantages of blockchain technology for a particular business, future studies should examine certain food systems. Future studies may take into account the various viewpoints of all supply chain participants using the ledger. One research that included interviews with agriculture, distributors, shopkeepers, and purchasers would better understand the benefits and drawbacks of distributed ledger technology on ecology and present a more complete picture. Finally, further research is needed to determine whether block chain might improve food chain networks' environmental practices (Friedman & Ormiston, 2022).

Understanding how blockchain technologies affect an optimal corporate framework, method of business, and leadership approach is crucial for particular enterprises. Determining whether crypto can address market distortions triggered by inequality and how it can improve market productivity & social assistance is crucial for the industry in general. More academic study will be necessary to comprehend the methods by which bitcoin affects business and market performance.

We must give confidentiality and data breaches more consideration. Even if all ledger exchanges are private and encoded, there remains a chance that the information might be compromised.

In blockchain crypto has much popularity but still many questions arise that how to manage it and earlier study concentrated on factors influencing the popularity of ICOs, we think that future studies will examine how to control cryptocurrencies as well as the ICO industry.

after reviewing literature We think blockchain technology has the potential to be applied widely in a variety of financial sectors, including banks, financial markets, online financing, and others. Advanced ledger tech and direct investment will remain a fruitful area for study (Xu et al., 2019).

The structure of BT's cybersecurity characteristics and its consequences for businesses' privacy require more study. Further studies are needed to explore Business 4.0's elements, including cloud technology, the Internet of Things, The proposed RAMI 4.0 may be the subject of future study (Reference Architectural Model for Industries) (Kitsantas, 2022).

For accounting on blockchain future research questions can be: Which kinds of financial accounts, and to what expense, may be stored using a block - chain? So how would

Automation audits synchronise network data? Which structures and patterns are possible with crypto and Artificial intelligence (Han et al., 2023).

Latest projects in the healthcare industry might involve systems for exchanging genetic data and telemedicine data protected by blockchain technology.

some forms of electronic signature utilised in bitcoin blockchain are not legally binding and cannot be applied toward justice system. Our careful investigation revealed here exists zero remedy for the legitimacy of the sign. To address this crucial issue, a brand-new network security using innovative concepts has to be suggested (Le & Hsu, 2021).

9. Conclusion

Blockchain technology is a distributed ledger technology which is emerging as a fast growing technology in the every field. Its characteristics like transparency, immutability, and trust have attracted almost every business. In recent years much research is conducted on this technology our review paper aimed to go through all the relevant papers and research articles of blockchain technology to finally make a review of literature to it. By reviewing literature we discussed that what is blockchain technology? Its introduction, types and different consensus algorithm and smart contract. Furthermore, we discussed the small review of history how blockchain performs? its applications, and lastly the future directions are given to further explore the topic.

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