

# The Future Impact of Blockchain Technology using Decentralization Networks

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## ABSTRACT

In the last decade, Blockchain played a huge role in the real-time life of the financial world and it's going to be the next generation of the Internet. It has its powerful tools where the technologies are mutually distributed into various applications ranging from cryptocurrency, internet of things (IoT) and financial services, etc. The most important thing about Blockchain technologies is decentralization and persistence. Even though this technology has many benefits this is not focused clearly on all perspectives still there is confusion between Blockchain and Bitcoin technology. Moreover, this paper points out the future benefits of blockchain technology and the difference between the two with the enhancement of the smart contract.

**Keywords:** - Blockchain, Smart Contract, Crypto currency, Bitcoin

## INTRODUCTION

Blockchain, the newest catchword in monetary services, chain of blocks is called as BLOCKCHAIN. It can be defined as data information or digital file, hence tempering is not possible. The main aim of this technology is to solve double record problems without using the centralization function. It is used for securing Property, Currency, and some manual contracts without the necessitating of a third party [1]. Some of the third parties are Bank, Register office, and other Government Administration. It will be problematic when data is entered before modification. Sometimes this blockchain technology is called mete technology or a Distributed database technology because databases are not connected directly to a single processor with the help of private key users which can edit their blocks, where cryptography ensures the distributors lists. Blockchain was introduced by Satoshi Nakamoto in the year 2008. In the year 2009, the first bitcoin currency was implemented and served for all transactions in the public ledger. Bitcoin was the first digital currency to solve the electronic files without any centralized server and the results were decentralized using a peer-to-peer network [2].

## THE ARCHITECTURE OF BLOCKCHAIN

Each block contains its information and it is linked with each other for example, a Bitcoin transaction contains the name of the sender and the receiver which is linked to the previous block. The first chain of a block is called Genesis Block and it is liked with the next block. The transaction interfacing is difficult because of cryptography technology and distributed ledger. Companies investing more on this new technology to effectively reduce the cost and the speed of the manpower. Blockchain is developed as a Technology for the cryptocurrency mainstream. All the transactions in the ledger can be monitored but cannot be modified[3].

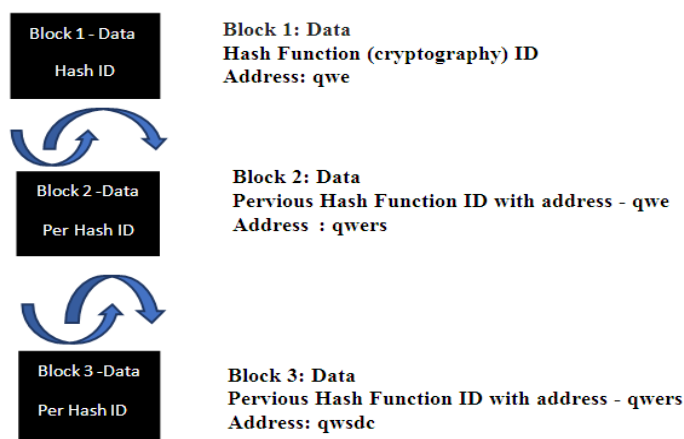


Fig a: Architecture of Blockchain Technology



Thus this technology is called decentralized technology where all the transactions are stored secretly. Without the internet Blockchain, the software won't work. There is no exact definition for blockchain. The public uses the term 'blockchain' to describe many different things, such as smart contracts or virtual currencies, which can be confusing for many people. Decentralization is the major concept behind Blockchain. Most of the time, the blockchain is best described as a DT Decentralized technology or Distributed Digital ledger where transactions are incognito recorded across many different users with the same hash function to the previous hash. It is a record where nobody can alter or delete.

### **A. Importance of Blockchain**

The blockchain can change the way the data is stored, shared, and managed. The most powerful aspects of the technology are the barriers to tampering or deleting information that has been added to the chain. In theory, the blockchain should be more cost-efficient, secure, and quicker than other technologies in use today. It became a big deal when Cryptocurrencies have been a buzzword since Bitcoin launched in 2008. However, the potential of the blockchain has taken off over the past years. There are many potential uses of the blockchain being explored, including Know Your Customer, Anti-Money Laundering, trade surveillance, smart contracts, collateral management, settlement, and clearing, as well as the ability to capture the current ownership of high-value items. What are smart contracts? Smart contracts are agreements that are encoded in a computer program and automatically executed upon certain criteria being met. The obvious advantages of smart contracts include reduced contract execution costs, improved quality, and increased speed. Smart contracts can be stored on the blockchain. Who controls blockchain depends on the type of blockchain, which ranges from permission "where the verification blockchain is preselected by a central authority or consortium" to permission less, where anyone can participate in the verification process. At present, it is the permission less blockchain, that supports Bitcoin, which has been the focus of more media attention [4].

However, the fundamental principles of a technology that captures events securely are the same regardless of who has control. Blockchain has received a lot of positive press about how the technology is going to reform the financial industry but there's a long way to go before it's widely implemented across financial services. Recent exploitation of poorly written smart contracts shows that there is still work to do in making some of the applications of blockchain mainstream. Blockchain's real-world uses today include Bitcoin, provenance, and land registry. Future potential uses, such as the digital industry, corporate industry, insurance, health, supply chain management, and logistic contract management, and smart execution, are still being perfected.

### **B. Blockchain – Future Applications**

The interest in blockchain has grown rapidly. In theory, the technology can cross boundaries and remove inefficiencies caused by third parties, logistics, or a whole host of other obstacles. The potential of the blockchain is so powerful that major banks are partnering to invest and develop the technology.

In overseas, banks are investing in research and proof of concept projects to explore the possibilities of blockchain technology. As with any new technology, there are challenges to overcome from a legal, regulatory, and political perspective. In financial service, malware Security provides high protection and secure service to fit the blockchain technology into a management environment, that is far more than exchange and proof of value [5].

The philosophy of blockchain technology is a combination of networks and it contains algorithms and cryptography techniques. This model contains distributed decentralization algorithms and peers to peer network that uses elements like automation security and decentralization. Using distributed database synchronization, the elements of blockchain can be stored, and updated, and distributed mutually.

In this type of technology, the data can be transferred from one node to another where people can find only the address of that particular id's. In this technology, there is no centralized authorities or centralized system for connecting the employees who are transforming their data through nodes since there are no desired rules. The Blockchain socially works according to the rules of its panel members in a smart contract [6].

### **C. Smart Contract**

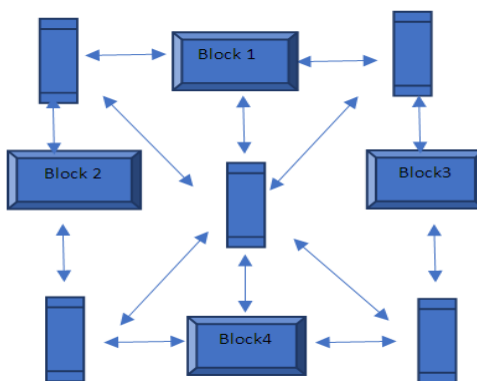
Is a type of system program used for executing this technology automatically to enforce the stack holders to follow certain rules and regulations. The smart contracts are completely predefined program accepted and designed by the agreed stack holders. The transactions with the stack holders must be mutually accepted by the customers in many ways where the blockchain technology is secured and when the transaction is approved, it will be encrypted and the link will be added with the address of the previous transaction.

Hence the transaction data are not stored in the single system and peer to peer networks hackers will find more difficult in hacking a single data. This opportunity makes more investor invest in smart contract program where each block of nodes contain individual data of a particular stack holder which are transparent to all public blockchain holders and it is unchangeable. In this decentralized mechanism, a consensus algorithm is highly used for security.

Proof of work is random mechanism used for security and when it generates errors, those errors are called the nonce. It accepts the network participant and identifies the miners to complete the data in a block. This makes the miners ensure the proof of stack which is protected with hackers [7].

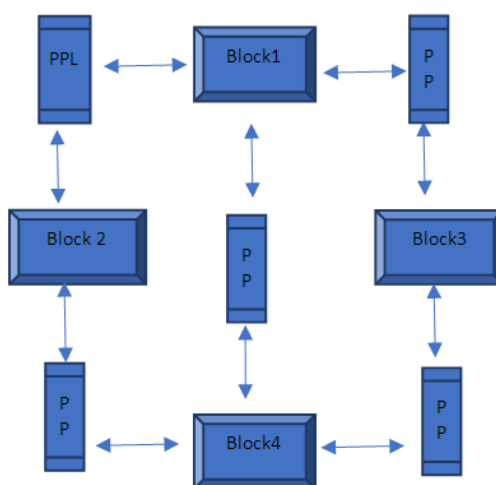
### EDIFICES OF BLOCKCHAIN

Public and private are the two types of blockchain constructions in mining. In the public blockchain, all the clients in the network can access the consensus algorithm through peer to peer. The transaction is mutually undertaken by the system admin hence it can be synchronized throughout the node where anyone can enter inside the node and can verify. In a public blockchain, nodes are not restricted but in a private blockchain, nodes are restricted.



**Fig b. Block chain ledger are shared socially and it is transparent to all Clients. All the Device in this network can access spontaneously and Permissions.**

The node in the private blockchain is always validated by the private organization. Here the transactions are highly secured and the efficiency of data will be validated for every transaction. The level of privacy in private blockchain makes high secure and it makes the investor more comfortable based on the business model. This type of technology is more used in the private sector where it is very fast and secured in services. Bitcoin, Ethereum, and Hyperledger are three types of new technologies used by the clients. In this paper, we have given a brief introduction to the technology and application that are used in blockchain mining.



**Fig c. Private Blockchain Users need access code for entering the Blocks and It is password protected ledger (PPL).**

People think blockchain technology is known for bitcoins but it is not the same. All the transactions in this technology are distributed manually and the transaction is encrypted and immutable. Hence, some of the other application will get the benefit of this technology and is used to transfer digital money from one wallet to another. It is observed that no

third parties can hack this system since it is properly implemented and the source code is reliable, transparency, and secure.

### **BLOCKCHAIN ASSEMBLIES**

The blockchain structures will vary from operation to operation. The program is designed and verified by distributors where the data can be viewed by an independent party inside this distributed ledger. The redundancy of each system running on blockchain applications is a diversity of parties. The flexibility makes the system more comfortable who are working on continuous algorithms on the same platform. In this technology, it creates a collaboration within the entities and the database are mutually shared across the systems. The distributed form of cryptography technique makes the data visible to all third parties but using hash functions the data inside the block cannot be hacked. These features make this technology more secure and reliable. This technology will not consider who operates the operation because this is not a single server program. Thus, this idealistic program was followed by the stack holders.

#### **Future projects areas in blockchain applications**

Logistic and supply chain management system, Telemedicine, Edge computing, Extracting distributed Energy Investment management system.

### **CONCLUSION**

This paper has discussed about the Decentralization Techniques along with Distributed ledger network using Private and Public Blockchain concept and its future projects. In this study, it is evident that the construction of Blockchain technology is used for improvising and securing the fraudulent challenges using smart contract without considering the third parties.

### **REFERENCES**

- [1] F. Schorsch and B. Scheuermann, Bitcoin and beyond: A technical survey on decentralized digital currencies, IEEE Communications Surveys & Tutorials, 18 (2016), 2084– 2123.
- [2] Vitalik Buterin,—Ethereum and The Decentralized Future". Future Thinkers Podcast. 2015-04-21. Retrieved 2016-05-13.
- [3] Satoshi Nakamoto, —Bitcoin: A Hou, —The application of blockchain technology in e-government in china,|| in ICCCN. IEEE, 2017, pp. 1–4
- [4] B.E.Dixon and C. M. Cusack, —Measuring the value of health information exchange,|| in Health Information Exchange. Elsevier 2016, pp. 231–248.
- [5] J. Richardson, Ethereum vs. Hyperledger, [Online] <http://goo.gl/64a3Gg> [26] Wall Street Firms to Move Trillions to Blockchains in 2018, IEEE Spectrum, Sept. 2017, [Online] <http://goo.gl/bhr3Ck> (Eriřim: 1 řubat 2018).
- [6] Walid A., Nicolas S., 2017, " Blockchain technology for social impact: opportunities and challenges ahead", available: HTTPs 10.1080/23738871.2017.1400084
- [7] A. Gervais, G. O. Karame, K. Wust, V. Glykantzis, H. Ritzdorf, and S. Capkun, —On the security and performance of proof of work blockchains,|| in Proceedings of ACM SIGSAC Conference on Computer and Communications Security (CCS'16), pp. 3–16, New York, NY, USA, 2016.
- [8] S. Nakamoto, Bitcoin: A Peer-to-Peer Electronic Cash System, Feb. 24, 2013. (<http://bitcoin.org/bitcoin.pdf>).
- [9] J. Singh, —Cyber-attacks in cloud computing: A case study,|| International Journal of Electronics and Information Engineering, vol. 1, no. 2, pp. 78–87, 2014
- [10] Dusko K., 2018, " Impact of Blockchain Technology Platform in Changing the Financial Sector and Other Industries ", available :[http://repec.mnje.com/mje/2018/v14-n01/mje\\_2018\\_v14-n01-a18.pdf](http://repec.mnje.com/mje/2018/v14-n01/mje_2018_v14-n01-a18.pdf)
- [11] Azaria A, Ekblaw A, Vieira T, Lippman A. Med Rec: using blockchain for medical data access and permission management. International Conference on Open and Big Data (OBD). Vienna, Austria: IEEE; 2016:2530