Chapter-01

BLOCKCHAIN TECHNOLOGY IN BUSINES NETWORKS

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ABSTRACT

Blockchain technology is being hailed as the next big thing by researchers and engineers alike, with applications ranging from finance to retail to healthcare. Gartner reports that client inquiries on digital currencies and related issues have doubled since August 2015. This article seeks to provide a brief executive description of blockchain technology, how it works, and why it has aroused everyone's interest. Blockchain technology, like the internet, provides a worldwide infrastructure of secure networks that may allow users to conduct transactions in such a way that the middleman is eliminated, lowering the cost of any transaction. The blockchain structure as a whole allows a digital ledger of information to be shared inside a network, across distributed nodes. These distributed ledgers are not controlled by a single authority and may be accessed by all users inside the distributed network. When a user wants to add a value to a transaction in a ledger, the data is encrypted and authenticated by other nodes in the network using cryptographic techniques. A new block of data may be added to the ledger only when the transaction has been validated by a majority of nodes. This ensures that a transaction is safe, auditable, and free of third-party intrusion. Blockchains can be made either public or private. In my research I have primarily focused on Blockchain in financial sector.

Keywords: *Blockchain Technology, Internet, Digitalization, Crypto currency, Bitcoin.*

INTRODUCTION

Blockchain is Associate with Nursing algorithmic program and distributed organization for managing electronic money while not the central administrator among people that ignoramus concerning each other. Originally designed for the cryptocurrency Bitcoin, the blockchain design. This technique was originally represented in 1991 by a bunch of researchers and was originally supposed to timestamp digital documents in order that its's impossible to affect them or to tamper with them virtually sort of a functionary. However, it slipped principally unused till it had been tailored by its Satoshi Nakamoto in 2009 to make a digital crypto currency Bitcoin. currently blockchain could be a distributed Ledger that's utterly hospitable anyone. In 2009, to make a digital crypto currency Bitcoin. which will blockchain could be a distributed Ledger that's utterly hospitable anyone. they need a noteworthy property. Once some information has been recorded within a blockchain, it becomes terribly troublesome to alter it. thus, however will that work? Well, let's take a more in-depth check up on a block. A block contains some information the hash of the block and the hash of the previous block. the information that's keep within the block depends on the kind of blockchain. Blockchain is Associate in Nursing algorithmic program and

distributed organization for managing electronic money while not the central administrator among people that ignoramus concerning each other. Originally designed for the cryptocurrency Bitcoin, the blockchain design. The bitcoin blockchain stores the main points a few dealings like the sender the receiver and also the range of coins. A Block conjointly incorporates a hash, it may be compared to a fingerprint. It identifies a block and everyone its contents and it's forever distinctive, even as a fingerprint. Once a block has been created its hash is being calculated dynamical one thing within the block can cause the hash to alter. The key feature of hashes are they're very helpful once you need to observe changes to blocks. If the fingerprint of the block changes, it's not constant block. The third component within every block is that the hash of the previous block, this effectively creates a amendment of blocks and it's this system that produces a blockchain thus secure. the primary block is termed because the genesis block. If you temper with the second block it'll cause the hash of the block to alter also. it'll build block third and everyone the subsequent blocks are invalid as a result of they do not store a sound hash of the previous block. So, by dynamical one block can build all the blocks invalid. But simply victimization hashes won't stop tempering, recently are in no time and might calculate many thousands of hashes per seconds. One will simply temper with a block and cypher all the hashes of the opposite blocks to form your blockchain valid once more. To overcome this downside blockchains have one thing that is termed "proof-of-work". it's a mechanism that slows down the creation of a brand-new blocks. just in case of bitcoin, it takes close to 10 minutes calculate the desired proof-of-work and add a brand-new block to the chain this makes it terribly onerous to temper with the blocks, because of that, if you temper with one block, you'll ought to calculate the proof-of-work for all the blocks. the safety of a blockchain comes from its inventive use of hashing and proof-of-work. What makes blockchain extremely secure is being distributive rather than being centralized, it uses peer to peer network to manage itself and everybody is allowed to affix it instead of a central entity

LITERATURE REVIEW

Literature and Testimonials play an important role in providing valuable insights into the study. Due to the topic being fresh and futuristic, much of the research is yet to be done. However, this chapter sheds light on the work done in the recent past, companies' predictions and reviews, and testimonials straight from women.Some of the base and supporting Articles and Research are listed below: Nofer, Michael; Gomber, Peter; Hinz, Oliver; Schiereck, Dirk (2017). Blockchain. Business & Information Systems Engineering, 59(3), 183–187. In this paper they have talked about what is blockchain, what is blockchain's functionalities and Implications, Blockchains and Smart Contracts and what is its Application of Blockchain and its future trends. (Nofer et al., 2017) In the

Journal Blockchain for Industry 4.0: A Comprehensive Review, Bhodke, U., Tanwar, S., Parekh, K., & Khanpara, P. (2020, April 17). The authors have beautifully presented the current state-of-the-art solutions in the blockchain technology for the smart applications. Then, they have illustrated the reference architecture used for the blockchain applicability in various Industry 4.0 applications. Then, merits and demerits of the traditional security solutions are also discussed in comparison to their countermeasures. Finally, they provided a comparison of existing blockchain-based security solutions using various parameters to provide deep insights to the readers about its applicability in various applications. (Bhodke et al., 2020)

RESEARCH OBJECTIVE

GENERAL – In my research I have tried to understand what is blockchain, what is the logic behind blockchain, what are the features and benefits of blockchain, new and upcoming trends of blockchain, which all business networks are adopting it and why they are adopting it. What are the unique benefits and featured of blockchain, why business networks are so keen on adopting it?

SPECIFIC –

- To **Understand** the basic concept of blockchain technology and business networks.

- To **Analyse** why business networks are using it in their systems – what are the advantages and disadvantages of using blockchain technology.

- To **Identify** is blockchain how it is used in business networks, which kind of additional security it is providing to the business network, what is the USP of blockchain technology.

- To **Evaluate** to what extent a business network can use the blockchain technology in its system.

- To **Conclude** should blockchain be used in business networks, is it safe to use it as blockchain is a decentralized peer to peer network, what are the limitation of blockchain technology.

RESEARCH METHODOLOGY

Research methods used in this study are: -

- Discussion and Communication with my guide and who have knowledge about the topic

- Use of Internet to find relevant data online to understand the concept

- Finding and analysing Research papers, journals, articles, trending news

- Using Primary Data for information and understanding

- Using data from business networks which are using the concept of Blockchain in their ecosystem

Data Analysis/ Findings & Discussion

On the basis of relevant literature, the main focus of blockchain technology in business networks can be summed up into seven parts: entity identification, privacy risk analysis, network portrait, network visualization, transaction pattern recognition, market effect analysis, illegal behaviour detection and analysis.

CONCLUSION

Blockchain technology is a new technology that has piqued the interest of many experts. From the standpoint of data analysis, this research presents a three-layer model. Based on this model, this paper examines the blockchain data structure, data types, and data structure and data structure and data structure and data structure and data structure and data structure and data structure and data structure and data structure and data structure and data structure and data structure and data structure and data Smart contract operation principle It also explains the seven issues and their interrelationships.

Analysis of blockchain data

Recommendations/ Suggestions

Today Blockchain has the potential to save businesses of all sizes a lot of money by enhancing operational efficiency and creating new business models. At least a few years before the blockchain is widely adopted across all sectors. The manufacturing industry must adopt blockchain technology if it is to be successful. Using blockchain technology to securely and accurately exchange information when many people are involved is a lot easier than using other technologies. In the same way that Facebook's value grows as more relevant stakeholders join, the value of a community also increases. A network effect occurs when a large number of supply chain participants adopt a new technology. The value of blockchain technology grows over time as more supply chain participants adopt it. Both parties will need to recognize the benefits of blockchain-based collaboration in order to gain the support of stakeholders. Because of the complexity of legacy systems and regulations and laws in place, it is difficult for stakeholders to integrate new systems.

The study and application of techniques Industry-specific blockchain standards and regulations are also a source of concern. The nature of competition in the manufacturing industry makes multiple private permissioned blockchains more likely than a single blockchain-based system. Many public blockchains are inevitable in the future. Standards and agreements will be necessary for interoperability between different blockchains. The first blockchain consortiums, such as BTA, are now emerging to meet this challenge (Blockchain in Transport Alliance, or an alliance of blockchain companies in the manufacturing industry). Blockchain technology must advance in order to overcome current technological limitations. Companies face particular difficulties when moving from a pilot to a full-scale deployment. There are new solutions being developed to address scalability and latency issues in some blockchain implementations. For some applications, the amount of energy and computing power needed can be a problem (such as large-scale, public cryptocurrency networks). To fully utilize the blockchain, these issues must be addressed. Any industry's digital transformation is subject to the influence of a wide variety of factors. Blockchain necessitates working with a wide range of stakeholders, making a collaborative mindset even more important. It is important for organisations to cultivate an openness to the new possibilities presented by blockchain technology. Before implementing blockchain-based solutions in their organisations, IT managers should be aware of a few things. When it comes to defining roles and answering critical questions about governance, stakeholders from different organisations must collaborate (e.g., on process transformation, development of the solution, active versus passive participation). For maximum benefit, it is important to incorporate collaboration and coopetition into a blockchain transformation. There are many hurdles to clear with blockchain, but none of them are insurmountable. "Even though this technology is still in its infancy, it has already had a significant impact on the world.

Despite its youth, blockchain technology is showing great promise in a variety of industries, including retail, life sciences and healthcare, automotive, manufacturing, and energy. After that, we'll take a look at some of the most promising blockchain applications.

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