AWARENESS AND FEASIBILITY OF BLOCK CHAIN TECHNOLOGY WITH SPECIAL REFERENCE TO VARIOUS SECTORS

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Abstract

Digitalization involves exploring business models and platforms using digital technologies, devices or techniques to yield several benefits in various aspects of life. Coming to Block chain, the system works on distributed computing where every bit of information updated between multiple parties is captured by all parties, including the bank. There is not one central server controlling the flow of information updates; this does not complicate or duplicate work. There is no gatekeeper in this case since information flow is open and the third party is a facilitator who witnesses a transaction for you rather than executing it on the behalf of two parties and there is digital trust and this trust is added by multiple parties coming together to make a system come true. In simple terms, authorisation and authenticity of the transacting parties cannot be manipulated. However, the technical and social infrastructure underpinning the technology is still significantly underdeveloped. Numerous technical challenges must be overcome – including performance, scalability, privacy, security, interoperability and governance – if it is to live up to any of its promise. The current research is mainly focused on the feasibility of block chain technology and its awareness in health care, financial services and automotive sector

Key words: Block chain technology, digitalisation, different sectors

INTRODUCTION

A block chain is a unique type of computerised ledger, one that relies on cryptographic techniques and new methods for consensus to capture and secure the data. It is designed to be read by a computer, rather than by the human eye. A block chain is denoted by the following characteristics. The ledger is shared among and worked on by multiple, possibly distrusting, participants, none of which has a single point of control over it. An ever-growing chain of ledger entries links the entire history in such a way as to prevent tampering with or rewriting past records. Digitally signed transactions or instructions indicate intent to record or modify data, or to transfer digital assets. The present study is focusing on awareness and feasibility of block chain technology in different sectors such as automotive, healthcare and financial services.

LITERATURE REVIEW

The term comes from the Byzantine Generals Problem, posed in another paper by the same authors in whom they describe a group of generals, each in command of a division of the Byzantine army, encircling an enemy city (Lamport et al., 1982). The generals must decide whether to attack the city or retreat. To complicate matters, some of the generals are traitors who are trying to sow disagreement, and the loyal generals must all attack or retreat together to avoid losses. The generals communicate by messenger to try to reach agreement on a strategy, and these messengers might be delayed or disappear. This problem maps nicely onto the distributed consensus problem, where the generals are computers, the traitors are faulty computers, and the messengers are data being sent over an unreliable network. By design, a block chain is resistant to modification of the data.

Pease et al. (1980) first posed the problem of consensus in a paper titled "Reaching Agreement in the Presence of Faults". Since then, computer science researchers have developed numerous systems to address the problem under different assumptions about the involved computers and the underlying network. Systems with the strongest safety properties assume that the actors in the system might be Byzantine – which means they might be malicious and try to actively subvert agreement and introduce false data into the system. Such systems assume no limits on how faulty actors might act.

Block chain has been considered as part of the fourth industrial revolution since the invention of steam engine, electricity, and information technology (Chung and Kim, 2016). R. Collins (2016, p. 20) pointed out that "During the initial stages of its appearance, block chain technology was not able to draw a lot of attention". And explained that the that "as Bitcoin continues to run safely and steadily over the years, the society has since become aware of the enormous potential of the underlying technology of this invention in its application to not only crypto currency but also in many other areas.

Block chain was invented by a person using the name Satoshi Nakamoto in 2008 to serve as the public transaction ledger of the crypto currency bitcoin. The identity of Satoshi Nakamoto is unknown. The invention of the blockchain for bitcoin made it the first digital currency to solve the double-spending problem without the need of a trusted authority or central server. The bitcoin design has inspired other applications and block chains which are readable by the public are widely used by crypto currencies.

Block chain technology influenced in the transforming of current Internet from "The Internet of Information Sharing" to "The Internet of Value Exchange." With new capacity it has become a hot topic for more and more enterprises, institutions, countries, and researchers. Many authors, such as (Beck et al, 2016; Jung and Lee, 2017; Szetela et al, 2016) have considered that "block chain technology has been applied in various fields such as crypto currencies in the financial area, which includes Bitcoin, Ethereum, and Zcash, etc". Significant number of organizations and enterprises has been trying to develop platforms based on blockchain technology. Z. Zheng. (2017, p. 9) listed some examples such as "Arcade City, so-called "Uber Killer," ride-sharing company that has integrated its model in Ethereum, including identity and reputation systems. Digital property management company Ubitquity offers secure recording and tracking records built on a block chain platform.

In short it is an open, distributed ledger that can record transactions between two parties efficiently and in a verifiable and permanent way. For use as a distributed ledger, a block chain is typically managed by a peer-to-peer network collectively adhering to a protocol for inter-node communication and validating new blocks. Once recorded, the data in any given block cannot be altered retroactively without alteration of all subsequent blocks, which requires consensus of the network majority.

Although block chain records are not unalterable, block chains may be considered secure by design and exemplify a distributed computing system with high Byzantine fault tolerance. Decentralized consensus has therefore been claimed with a block chain.

OBJECTIVES

- To study about awareness of senior officials on the feasibility of block chain technology in financial, healthcare, automotive sectors
- To analyse respondents viewpoint in connection with the risk and benefit of application of the above technology
- To study their view point on digital currencies and its implications

RESEARCH METHODOLOGY

This study is more of a descriptive nature. The study collected data from interview and mailing questionnaires in connection with the research area. The sample size mainly consists of senior official of financial securities trading concern, hospitals and automobile sector. Random sampling technique is used in the study. Data collected from senior officials of hospitals, automobile and securities trading firm. 30 Samples containing 10 from each sector is included (three senior officials of all respective sectors). Primary data is also collected by way of interview with officials of stock exchange Secondary sources include articles, magazines, journals etc

RESEARCH HYPOTHESIS

Hypothesis 1

H0: There is no significant relationship between awareness of block chain technology and its feasibility in financial, health and automotive sector

HI: There is significant relationship between awareness of block chain technology and its feasibility in financial, health and automotive sector

Hypothesis 2

H0: There is no significant relationship between application and feasibility of block chain technology in the above three sectors

H1: There is significant relationship between application and feasibility of block chain technology in the above three sectors

Hypothesis 3

H0: There is no significant relationship between the officials' opinion on transparency and cyber security of block chain technology application

H1: There is significant relationship between the officials' opinion on transparency and cyber security of block chain technology application

ANALYSIS AND FINDINGS:

Correlations1   **Table 1**

		AWARENESS	Feasibility
AWARENESS	Pearson Correlation	1	-.601[**]
	Sig. (2-tailed)		.000
	N	30	30
Feasibility	Pearson Correlation	-.601[**]	1
	Sig. (2-tailed)	.000	
	N	30	30

Source :survey data

**. Correlation is significant at the 0.01 level (2-tailed).

Interpretation:

There is significant relationship exist between awareness of block chain technology and its feasibility between different sectors

Correlation   **Table 2**

		FEASIBILITY	Application
FEASIBILITY	Pearson Correlation	1	-.442[*]
	Sig. (2-tailed)		.014
	N	30	30
Application	Pearson Correlation	-.442[*]	1
	Sig. (2-tailed)	.014	
	N	30	30

Source :survey data

*. Correlation is significant at the 0.05 level (2-tailed).

Interpretation

There is significant relationship between feasibility and application of block chain technology between officials of different sectors

Correlations3   **Table 3**

		Transparency	Cyber security
Transparency	Pearson Correlation	1	-.552[**]
	Sig. (2-tailed)		.002
	N	30	30
Cyber security	Pearson Correlation	-.552[**]	1
	Sig. (2-tailed)	.002	
	N	30	30

Source :survey data

**. Correlation is significant at the 0.01 level (2-tailed).

The officials of automotive, healthcare and financial services states that there is significant relationship exist between their concern for cyber security and transparency while implementing block chain technology

SUGGESTIONS:

- Automotive consumers could use the technology to manage fractional ownership in autonomous cars.
- In financial services, improving transparency faster, cheaper settlements would happen which would save lakhs in transaction cost.
- In health care patients encrypted health information will be shared with multiple users without privacy breaches
- Steps to be taken to overcome the challenges of complex technology, regulatory implication, competing platforms and implementation challenges
- If effectively utilised block chain enhances market efficiency in all the three sectors where goods or services happening in a fraction of a second. The current practice of exchanging goods and services may however over only by days and included more intermediaries. This can lead to errors, delays, additional costs and unnecessary risks. Block chain technology, if implemented, by overcoming its challenges may bring competitive advantage in the industry

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