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ROLE OF BLOCKCHAIN

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ABSTRACT

At present, with the rapid development of the Internet structure, the topic of information technology together with the concept of digitalization has become important for enterprises. Arguably, the technological advancements that make digitization possible have contributed to the digital transformation of business models. The concept of digital transformation has surfaced as an area where businesses have been working hard. Digital transformation refers to the overall transformation of a business based on mortals, business processes and technology to provide more efficient and effective services. Therefore, blockchain, known as a disruptive technology, is of great significance for icing on the cake for the digital transformation of enterprises. In this study, some decisions have been made to abandon blockchain technology. Many industries, such as finance, pharmaceuticals, manufacturing, and education, use blockchain operations to benefit from the unique properties of this technology. Blockchain technology (BT) promises benefits in accountability, collaboration, association, identification, trustworthiness and transparency. We also review the literature and promising blockchain-based open intelligence systems to describe the current state of exploration. To this end, we specifically examine these systems for their applicability and contribution to open intelligence, and categorize them according to their primary purpose.

Keywords: blockchain technology; digital metamorphosis; blockchain advantages and challenges

1. INTRODUCTION

Blockchain is one of the most important professional inventions of the last period. It's a definite rich exchange system that changes the way careers work. It is becoming more widespread due to its irrefutable security and ability to provide comprehensive solutions to digital identity problems. Blockchain is used as a digital label. Blockchain is considered by many to be a disruptive core technology. Although many experimenters have realized the importance of blockchain, the exploration of blockchain is still at an immature stage. Therefore, this study reviews the current academic exploration of blockchain, especially in the fields of technology, business, and

economics. Based on a systematic review of literature retrieved from the Web of Science service, we explored the most cited papers, the most productive countries, and the most common keywords. Organizations use Internet technology every day to move their conditions into the digital environment. From this perspective, the networks created by businesses benefit from the technological armature of the moment, creating value for their stakeholders. During digital transformation, businesses produce products that are produced by mechanical and electronic factors, which include the use of complex systems such as trolleys, software, and data warehouses (1).

At a time when businesses try to develop more flexible models and suffer structural changes during digital transformation, the relationships around associations encourage the miracle of organizational change. In the midst of digital invention and transformation, businesses have realized that they need to use digital channels to engage with key stakeholders (2). In performing this digital transformation, businesses use artificial intelligence, inspired reality, the Internet of Effects (IoT), smart contracts, detectors, and more. They utilize many different information technologies. From this perspective, blockchain technology is also one of the entry-level technologies that enterprises can use when undertaking digital transformation.

A blockchain is a participatory database that differs from a typical database in the way it stores information; a blockchain stores data in blocks, which are also linked together through cryptography.

As new data comes in, it is entered into a new block. Once a block is filled with data, it is linked to the previous block, which keeps the data linked together in chronological order.

Different types of information can be stored on the blockchain, but by far the most common use is as a record of transactions.

In Bitcoin's case, the blockchain is used in a decentralized manner, so no one person or group has control - instead, all drugs remain in control.

Decentralized blockchains are inflexible, which means that incoming data is not recoverable. For Bitcoin, this means that transactions are permanently recorded and available for anyone to view.

Blockchain Works

The blockchain thing is to allow digital information to be recorded and distributed, but not edited. In this way, the blockchain is the basis for inflexible checks, or records of transactions that cannot be altered, deleted, or destroyed. This is why blockchain is also known as distributed counting technology (DLT).

2. literature review

Some experimenters have studied the underlying technologies of blockchain, such as distributed warehouses, peer-to-peer networks, cryptography, smart contracts, and protocol algorithms (Christidis and Devetsikiotis 2016; Cruz et al. 2018; Kraft 2016). At the same time, legal experimenters are interested in regulations and laws governing

blockchain-related technologies (Kiviat 2015; Paech 2017). As the old saying goes, scholars from different disciplines have many different logical views and "speak many different languages." This article focuses on analyzing and mining papers in the fields of business and economics. Our goal is to identify key bumps in affiliate exploration (e.g., the most influential papers and journals), and to find major exploration themes for blockchain in our discipline. Furthermore, we would like to offer some suggestions for unborn exploration.

Blockchain Technology and Digital transformation

Blockchain technology, which is constantly mentioned with the advent of Bitcoin, is a technology that allows the transmission of data and means for a variety of purposes and keeps records of sales in a secure digital realm (3).

Blockchain technology is a medium of trust that leverages the ubiquity of mathematics and cryptography to surface without a central authority. In simple terms, a blockchain structure is viewed as a computer network in which computer owners form the introductory building blocks (4) of the network structure. This is why blockchain is seen as an advanced invention of decentralized information technology.

As shown in Figure 1, there are three different systems: integrated, decentralized, and distributed. The skeleton of blockchain technology is then contained in a distributed system that does not require a central authority. From this perspective, it can be said that blockchain technology will bring important results for digital transformation with its distributed structure.

On the other hand, it has been pointed out that digital transformation is the generation of new business models, processes and systems through the use of technology to provide further competitive advantages and achieve advanced effectiveness (5).

At present, the concept of digital deformation is an issue that is almost relevant to both academia and business. With the industrialization of fields such as education, banking, and especially business administration, the process of digitization has accelerated.

It can be said that the integration of digital technologies such as social media, corrosion operations, business analytics and grounding systems has had a transformative impact on information processing. While companies that have not yet reached sufficient maturity in the use of digital technologies have limited opportunities, companies with sufficient experience in the field will produce inventions with digital strategies in a metamorphosis (6).

In another study, it was explained that the integration of force chains through blockchain technology could enable a disruptive transformation of digital force chains and networks. The rapid development of blockchain technology is thus the result of a new document exchange, and its

bookkeeping, security and smart contract platforms and software connectors provide tools for building cost-effective and flexible networks (7) . Blockchain technology has been met with great interest around the world, a particu-larly its structure, which has been erected without being dependent on any central authori-ty. The fact that this technology is an open- source structure helps to design different blockchain platforms, and the dependable operation of the system has enabled numerous applica-tions similar as smart contracts to be designed. In addition to these, blockchain technology has numerous specialized and structural features that can be employed in realizing digital trans- conformation. These features are included in the study by pertaining to the current literature.

The main features of blockchain technology are as follows

Distributed Ledger Technology: The structure of the blockchain is in the form of a distributed database, and this database is scattered among bumps. The architectural structure of the blockchain allows actors to partake a tally created as peer-to-peer replication in each sale (8).

Consensus and Proof of Work (PoW) : Although the conception of Proof of Work has a certain value, it's a delicate piece of data in terms of time and cost. The targeting of these data should be controllable in a simple way. This system is constantly used in blockchain technology (9).

Decentralized: In this structure, deals can be carried out in a distributed structure with the methodical structure handed by blockchain technology, en-crypted with cryptography only between the receiver and the transmitter and also singly from any authority (10).

Peer to Peer (P2P) : Network Individual bumps allow data to be stored by transmit-ting data directly to each other in an end-to- end network, without using any central system for the parties to communicate with each other (3).

3. METHODS

First of all, after the comprehensive literature review bandied within the compass of the exploration, the exploration, the advantages of blockchain technology in realizing digital metamorphosis and the situation analysis were estimated. Also, challenges that may arise in the transi-tion to blockchain technology while performing digital metamorphosis are bandied.

While realizing all these exploration objects, one of the qualitative exploration styles thatsemi-structured interview was used. In this environment,semi-structured interviews were conducted with further than one expert in the field of blockchain.

These results plant in the exploration were estimated and bandied in the light of the information attained from the interviews.

3.1 Blockchain Technology Advantages in Digital Transformation

While icing the digital metamorphosis, blockchain

technology has some announcement- edges and results for the businesses. According to thesemi-structured interviews with the blockchain experts, the blockchain advantages are as follows

- Increase event and document trustability
- Figure competitive advantage
- Track orders across multiple touch points
- Optimize operations and processes
- Ameliorate productivity per train
- Manage documents digitally
- Access new data sources
- Ameliorate system integrations like IoT, EDI, AI,etc.
- Expand digital collaboration
- Sale integrity and visibility

3.2 Challenges When Enforcing Blockchain Technology in Digital Transformation

The blockchain is called as a disruptive technology, and as we all know that block- chain is also a new technology, there are some challenges in using and applying the blockchain technology within businesses. According to thesemi-structured interviews with the blockchain experts, the blockchain challenges are as follows

- Scalability
- Sequestration and Security Issues
- Sale and Process Performance
- Software Problems and Cyber Attacks
- Fork Issues
- Encryption and Quantum Computers
- Challenges for Financial Application
- Lack of Knowledge and Specialized Human Coffers
- Lack of Blockchain Need Analysis for Businesses
- High Investment Cost
- High Energy Consumption
- Lack of Legal Regulations

3.3. Blockchain Technology Perpetration Challenges and Way for Businesses

In terms of applying blockchain technology to certain sectors and businesses, some situations can be stressed, similar as managing operation and adaption processes. With the disadvantages of being new in technology and the lack of mortal coffers with sufficient product, businesses should first decide what different and new requirements they've for the classical systems workflows. Also, businesses should decide how they can meet these requirements by using blockchain technology.

When a business wants to use blockchain technology in its current business process-es, there are certain way and processes. According to thesemi-structured interviews with the blockchain experts, the blockchain operation way and processes are as follows

- First of all, it should be determined in which sector it operates and how numerous suppli-ers, distributors and resource druggies are working within this process or product.
- It should be determined from which suppliers the raw accoutrements needed forpro- duction or process are carried, which processes they go through and which checkups these suppliers are subordinated to in which countries.

- Determining which platform (like Microsoft Azure, Ethereum, Hyperledger,etc.) to use and how numerous druggies and authors will be included in the network to establish the blockchain network.
- Determining how druggies will be included in the network or system from a specialized point of view.
- How to manage the keys needed for penetrating to the network, whether an ID in-frastructure is demanded and where these IDs will be stored.
- In addition, determining in which blockchain structure (on/ off blockchain) the data and deals of the network will be stored in terms of security.
- Determining the network's secret operation structure.
- Eventually, according to the architectures to be used when managing smart contracts, it's necessary to determine which of the evidence of work (PoW), Proof of Stake (PoS) and Evidence of Authority (PoA) mechanisms will be used.

4. DISCUSSION

Digital metamorphosis is a comprehensive and disruptive metamorphosis that will affect all operations of businesses, suppliers, client and hand relations, value chains, business processes, business models, organizational structure, leadership under-standing and working styles. So, the significance of the conception of digital metamorphosis is adding forbusinesses.The major places of block chain technology are

Translucency

Because of the decentralized nature of Bitcoin's blockchain, all deals can be transparently viewed by either having a particular knot or using blockchain explorers that allow anyone to see deals being live. Each knot has its own dupe of the chain that gets streamlined as fresh blocks are verified and added. This means that if you wanted to, you could track Bitcoin wherever it goes.

Bitcoinvs. Blockchain

Blockchain technology was first outlined in 1991 by Stuart Haber andW. Scott Stornetta, two experimenters who wanted to apply a system where document time prints couldn't be tampered with. But it was n't until nearly two decades latterly, with the launch of Bitcoin in January 2009, that blockchain had its first real- world operation.1

The crucial thing to understand then's that Bitcoin simply uses blockchain as a means to transparently record a tally of payments, but blockchain can, in proposition, be used to immutably record any number of data points. As bandied over, this could be in the form of deals, votes in an election, product supplies, state identifications, deeds to homes, and much further.

Presently, knockouts of thousands of systems are looking to apply blockchains in a variety of ways to help society other than just recording deals — for illustration, as a way to bounce securely in popular choices. The nature of blockchain's invariability means that fraudulent voting would come far more delicate to do.

Blockchainvs. Banks

Blockchains have been heralded as being a disruptive force to the finance sector, and especially with the functions of payments and banking. Still, banks and decentralized blockchains are extensively different.

To see how a bank differs from blockchain, let's compare the banking system to Bitcoin's perpetration of blockchain.

Banking and Finance

Maybe no assiduity stands to profit from integrating blockchain into its business operations further than banking. Fiscal institutions only operate during business hours, generally five days a week. That means if you try to deposit a check on Friday at 6p.m., you'll probably have to stay until Monday morning to see that plutocrat hit your account. Indeed if you do make your deposit during business hours, the sale can still take one to three days to corroborate due to the sheer volume of deals that banks need to settle. Blockchain, on the other hand, noway sleeps.

Currency

Blockchain forms the bedrock for cryptocurrencies like Bitcoin. TheU.S. bone is controlled by the Federal Reserve. Under this central authority system, a stoner's data and currency are technically at the vagrancy of their bank orgovernment.However, the customer's private information is at threat, If a stoner's bank ishacked.However, the value of their currency may be at threat, If the customer's bank collapses or the customer lives in a country with an unstable government. In 2008, several failing banks were bailed out — incompletely using taxpayer plutocrat. These are the worries out of which Bitcoin was first conceived and developed.

Using cryptocurrency holdalls for savings accounts or as a means of payment is especially profound for those who have no state identification.

Healthcare

Healthcare providers can work blockchain to securely store their cases'medical records. When a medical record is generated and inked, it can be written into the blockchain, which provides cases with the evidence and confidence that the record can not be changed. These particular health records could be decoded and stored on the blockchain with a private key, so that they're only accessible by certain individualities, thereby icing sequestration.

Property Records Still, you'll know that the process of recording property rights is both burdensome and hamstrung, If you have ever spent time in your original Archivist's Office. Moment, a physical deed must be delivered to a government hand at the original recording office, where it's manually entered into the county's central database and public indicator. In the case of a property disagreement, claims to the property must be conformed with the public indicator.

Smart Contracts

A smart contract is a computer law that can be

erected into the blockchain to grease, corroborate, or negotiate a contract agreement. Smart contracts operate under a set of conditions to which druggies agree. When those conditions are met, the terms of the agreement are automatically carried out.

Pros and Cons of Blockchain

For all of its complexity, blockchain's eventuality as a decentralized form of record keeping is nearly without limit. From lesser stoner sequestration and heightened security to lower processing freights and smaller crimes, blockchain technology may veritably well see operations beyond those outlined over. But there are also some disadvantages.

Pros

- Advanced delicacy by removing mortal involvement in verification
- Cost reductions by barring third- party verification
- Decentralization makes it harder to tamper with
- Deals are secure, private, and effective
- Transparent technology
- Provides a banking volition and a way to secure particular information for citizens of countries with unstable or underdeveloped governments

Cons

Significant technology cost associated with mining bitcoin

Low deals per alternate

History of use in lawless conditioning, similar as on the dark web

Regulation varies by governance and remains uncertain

Data storehouse limitations

Benefits of Blockchains

Delicacy of the Chain

CONCLUSIONS AND FUTURE WORK

As an important emerging technology, blockchain will play a role in many fields. Therefore, we believe that issues related to the market-based operation of blockchain are crucial to both academic and social practice. We propose several promising directions for exploration. The first important direction of exploration is to understand the mechanisms by which blockchains affect commerce and request validity. Another implicit exploration direction is to isolate protection and security concerns. The third concerns how digital currencies are managed and how cryptocurrency requests are regulated. The fourth implicit exploration direction is how to deeply integrate blockchain technology with financial technology. The final piece is cross-chain technology — if everyone has their own blockchain system, then experimenters and inventors must also find new ways to alter data. This is the key to realizing the Internet of Value. Therefore, over time, cross-chain technology will become more and more important.

Businesses can benefit a lot from blockchain technology. Therefore, we suggest that when an enterprise has the conditions of agreement and crowdfunding, data storage and sharing, force chain operation, intelligent transaction, etc., the operation of blockchain can be considered.

In this environment, all that is needed to prepare a useful digital transformation roadmap is for businesses to know what type of transformation they are aiming for. In this study, requirements and assessments are also made for the role and impact of blockchain technology in digital transformation for businesses. Therefore, as a result of semi-structured interviews with blockchain experts, the advantages and operational challenges of blockchain technology releases were identified for the digital transformation of enterprises. Furthermore, the way the blockchain works is determined for businesses.

From these results and evaluations, blockchain technology certainly has many advantages for businesses, but there are also some operational challenges for those businesses that stay for the sake of results. For such cases, businesses initially determine their blockchain needs analysis and roadmap. They should follow exactly and give the inner workings of the association.

For future workshops, the operation of blockchain technology in smart contracts can be studied. Smart contracts are one of the most suitable areas for implementing blockchain technology.

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