

THE PRACTICAL ROLE OF BLOCKCHAIN IN THE EFFECTIVE MANAGEMENT OF EMPLOYEES

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ABSTRACT

Today, it is rare to find a field in which digital technologies have not entered, and certainly the field of human resources management is not an exception. It is a technology called blockchain or block chain. This article discusses the process of blockchain work and how it helps managers to improve the quality of employees' performance in the company, in this way, employees can work according to their abilities and the company's desires, without worrying about the misuse of data. Promote themselves.

In this research, an attempt is made to evaluate the effect of using blockchain technology, which has unique characteristics, on aspects of human resource management such as recruitment and selection system, training and development, service compensation and payment, performance evaluation and communication that can be The effect of this technology should be investigated. On this basis, we have tried to use the available sources (books, articles, publications and virtual findings) and interpret them with a descriptive method. In this way, we have sought help from technical professors. According to the intended goal, the impact of new technology and the fourth revolution, i.e. data technology (Blockchain) on the effectiveness of human resource management has been discussed from various angles. The writing arrangement of the article is as a review and promotional article describing and expressing the effectiveness of blockchain in human resource management.

Keywords: Blockchain, human resources management, new technology.

1.0 INTRODUCTION

Currently, human resources are the most valuable assets of the company. Human resource development is an effort that is done by having skills, work ability and loyalty to a company or organization to form quality personnel. Quality human resources is to participate in the development of employees and increase the knowledge of employees in specific fields. This affects the individual performance productively. In an effort to increase work productivity, various things are related to the development of human resources, for example, the use of

technology called blockchain. Blockchain technology, with all its merits, is not a new technology in itself, but a combination of technologies that work with each other in a new way. Modern technology has enabled people to communicate directly and maintain trust between people no matter how far apart they are.

Blockchain is a database that provides a service for storing a collection of data that is constantly growing or increasing. Blockchain is a potential technology behind Bitcoin because it can solve the problem of achieving transparency from source to destination. Blockchain is often known as Bitcoin digital currency, it was originally created to monitor Bitcoin transactions. Over time, blockchain technology has evolved and has now entered the human resource industry as companies have begun to use blockchain to facilitate human resource functions.

And using this technological revolution is one of the prerequisites for improving organizational management. In order to face this period of transformation, organizations need to increase their skills or develop the required skills. There is no doubt that businesses will be affected by the rapid development of technology. In companies, blockchain can help managers improve their performance. According to Wang et al. (2020), with the adoption of blockchain technology, security will improve. Meanwhile, the management system in organizations becomes freer and can be an effective solution for managing employees. But how is this procedure (effective management of employees) possible through blockchain? This is a question that will be investigated in this article.

Blockchain is a new form of data organization and services that has emerged in recent years and creates a new data validation system, encrypts and exchanges all types of data (Sun and Zhang, 2020). This technology is useful for a group of people who do not trust each other but are looking for coordination and cooperation in a coherent decision-making process and want to find a common platform for sharing information (Sarkarodigaran, 2020). Different definitions have been provided for blockchain technology, each of which has described different angles and aspects of this issue; But all these definitions reach a general concept, which is simply a distributed and decentralized ledger blockchain, which has the ability to store a large amount of information related to various transactions, and all this stored information is available to all members of the network. (Nilfroshan Vayazi, 2019).

Since 2008, when the blockchain concept was established by "Satoshi Nakamoto" as the main component to support digital currency-Bitcoin transactions, this technology is known as a public ledger for exchanges that solves the problem of double payment with public key encryption by combining peer-to-peer technology. has done. Of course, there are a series of detailed rules that control how to validate the block and ensure that the block is not changed or destroyed, and provide the algorithms and computing infrastructure for creating, inserting, and using blocks for blockchain technology (Zhao et al., 2016). In fact, blockchain is basically a decentralized, distributed, shared and immutable database ledger that registers assets and performs transactions through a peer-to-peer network. Blockchain has smart blocks of a chain of data that are time-stamped and verified by miners. This technology uses elliptic curve cryptography and SHA-256 hashing to provide strong cryptographic proof to confirm the validity and integrity of data (Khan & Salah, 2018).

Blockchain is often referred to as the digital currency Bitcoin, as it was originally created to monitor Bitcoin transactions. Over time, blockchain technology has evolved and has now

entered the HR industry, and many companies have begun to use blockchain to facilitate HR functions. Basically, blockchain is a distributed database system that allows an exchange of data or information. Other records that are encrypted and guided by a consensus mechanism. Specifically, in processing and verifying transactions in the ledger, blockchains use encryption. In this way, data protection and Coding in a blockchain can improve transparency, efficiency, and trust in information sharing. Additionally, blockchains can improve access to comprehensive and reliable records of education, skills, training, and performance through its ability to maintain and control access. In the workplace, they can create a significant potential in the relationship between the work parties (Bloch, 2020).

In general, there are four main dimensions for blockchain:

- It is designed for distribution and synchronization between entire networks
- In blockchains, there are smart contracts that are agreed upon by the participants in advance and stored in the blockchain and managed automatically without the intervention of a third party.

To verify a valid transaction, peer-to-peer (P2P) networks have been built and there must be compatibility between all related parties that serve to maintain transactions.

- Finally, the transactions that are agreed upon and recorded cannot be changed because they provide the origin of the assets, which means that the existence of each asset is possible based on its entire life cycle records. Blockchain takes the ledger with transaction details and instead of placing it on a specific central server of organizations, it distributes it in the P2P network, so it can solve the high management costs and the problem of hacking. (the same).

2.0 LITERATURE REVIEW

2.1 Human resources management

According to Gary Dessler, "The human resources management unit is responsible for all the activities and policies related to the organization's employees, among the various management tasks. More precisely, attracting new colleagues, training them, evaluating the performance of employees and rewarding them, and in short, creating a healthy and fair environment for employees, are among the responsibilities of this unit.

It should be noted that human resource management has faced changes since its inception and its duties have been added day by day to create more added value for the organization. Among the factors that have led to the expansion of the role of human resources management are: rapid changes and developments and the complexity of the environment, government control over the health and safety of the work environment, avoiding discrimination in employment, paying sufficient and fair salaries and wages, higher expectations of the workforce. From work conditions, women's entry into the cycle

Kari (Sadat, 2016). The resulting changes in organizations that have occurred due to internal and external reasons have caused this transformation in human resource management. Among the external pressures that have caused changes in the organization are new technologies.

Therefore, changes in the organization have also led to changes in human resource management (Ulrich, 1997).

The role of human resources has changed from the administration of personnel affairs in the 20th century to the role of a strategic business partner for the organization in the 21st century, which seeks to develop employees and attract talents (Tait and Kavangah, 2009), and this view of human resource management is The title of business partner has caused the emergence of strategic human resource management (Watson, 2009).

Performance evaluation and management: Companies are looking for talents outside their borders. As blockchain reduces contract costs, it enables companies to create and develop new relationships beyond their borders. The development of blockchain and smart contracts reduces transaction costs and creates new fast and dynamic business models. It is even possible to store performance indicators on the blockchain network, such as the employee's promotion or the reason for leaving the organization. The organization can also use the power of blockchain to track outsourced work to employees by having a verified and tracked record of all activities performed. This independent matter increases transparency and trust between employers and employees. Blockchain will enable employers to track the number of working hours, scheduled meetings and attendance and the progress of projects. This can make performance-based pay easier. The use of this technology plays a significant role in increasing accountability while maintaining confidentiality. Some companies use cryptocurrencies as an incentive.

Blockchain technology can also help to standardize the job profile that leads to quality improvement and recording and tracking the career progress of employees over time (Ashrafi and Ebrahimi, 2020).

2.2 Compensation and payment

By using blockchain technology, rewards can be meaningful for people. Traditional reward systems are often ineffective because the value of these points and records of achievements are trapped in a closed place and unusable in the outside world. By using blockchain technology, points and achievements will be useful in the real world and can be a more effective tool for motivating employees. Send and receive payment funds immediately and securely anywhere in the world. The use of blockchain improves the efficiency of auditing because it enables auditors to realize the potential of the accounting profession by reducing maintenance costs and creating a secure environment and better adaptation of audit offices. increase Blockchain can reduce the intensity of the organization's control over workers, which means ending the costly legal challenges that result in large costs for large companies. Blockchain affects the payment system, including cross-border payments, international expenses and tax liabilities, and significantly reduces the costs of paying the wages of the cross-border workforce and by automating the payment process. Increases productivity. Currently, calculating the tax of contract workers is a complicated matter. With blockchain, it is possible to calculate taxes automatically and more accurately. From deducting to calculating the annual tax burden for workers and their employers, which is a difficult task, blockchain technology can help. Blockchain is a fair and accountable system where nothing is lost. Blockchain can track incomes and purchases and estimate the tax rate based on the amount of income and in real time. There is no longer any need to wait until the end of the year or spend hours on personnel calculating these figures. Blockchain along with data mining techniques can be an advantage

for the compensation sector where rewards, payments or events can be processed without any problems. A Pew Research Center study of the average hourly earnings of full-time and part-time workers in the United States found that women earned about 18 percent less than men in 2017. Blockchain can help to solve this wage gap by clarifying salaries and job performance. Salaries and rewards, if placed in an open blockchain structure, will help strengthen transparency (the same.)

2.3 Training and development

The application of this technology in education and development from the aspects related to the sharing of educational records, reliable records of career progress for the promotion of employees. It records the training and productivity of people at work (immutable and integrated). Also, it is possible to pay educational rewards through cryptocurrencies in a limited and unlimited way through the network. The network database can find the required personnel depending on the job needs and at the same time suggest ways to the employees to improve their knowledge and skills. In addition, this database can provide useful information about the needs of the organization and the specific training that employees or potential candidates need to meet. , criminal records, sex crime records and even driver's license.

Nursana et al. (2020), in an article entitled "A blockchain-based solution for effective management of employees" examined the application of blockchain in several areas, firstly about the function of blockchain in the performance of employees who used it in Three topics of the human resources department, marketing and finance are under contract review. Also, in a topic, the ability of blockchain in improving the quality of employees' performance has been investigated and its effects have been discussed, and it has been concluded that by owning data in any field of work in the blockchain network, employees can be informed of each other's performance results. and share their opinions to find work

experience in the company and exchange opinions with others, and in this way, the company can develop human resources in an effort to improve the quality of human resources performance, and blockchain can be used to change the systems of a The company used a tool to provide facilities for employees to share information so that the company's employees have equal knowledge and skills, and explained that by using blockchain, data is stored securely and cannot be changed, and companies waste less time. and by using this technology, in case of fraud in one of the supply chain processes, it will be easier to identify it (Ashrafi and Ebrahimi, 2020).

3.0 RESEARCH HISTORY

In relation to the above, experimental research has been done both inside and outside the country, some of which are mentioned below.

Onik et al. (2020), in an article entitled "A technique for hiring and managing human resources using blockchain technology for Industry 4.0" presented a practical model for attracting and hiring human resources in accordance with the fourth generation of the industrial revolution. And has presented a model including different stages of algorithm implementation and in the following a case study about the model in two universities in South Korea and Bangladesh, 60% of the statistical community expressed a positive opinion about it. In the end, the

comparative analysis of the factors: the amount of memory used, time, cost, quality, security and decentralization with the current recruitment system, which except for the cost factor, which can be justified in the long term, has positive effects for the changes of this Agents predicted.

Ramandana et al. (2020) in an article entitled "Blockchain technology to support the recruitment and selection of employees in the 4.0 industrial revolution" to the development of the concept of blockchain and the application of technology in the field of human resources management, especially in the process of recruiting and selecting employees and the merits of management based on this technology compared to traditional methods, and the benefits that have been examined in the areas of potential employee registration, potential employee selection, faster decision-making, and hiring employees in a more correct position and context.

Kim et al. (2020) in an article titled "Privacy Protection in a Distributed Ledger Framework for Global Human Resources Records Management" presented a model for secure management of human resources records under blockchain technology and presented a solution and framework in it. based on blockchain with smart contracts. They also included the privacy of employee records depending on the features that can be shared in the design of the model. They classified the information in four levels of confidentiality and examined the mathematical model and the implementation steps of the designed model. Also, the feasibility of implementing the model has been investigated in terms of measurement capability, security and confidentiality of information, and the results of the model have been evaluated as efficient in terms of implementation.

Mirzapour and Noorani (2020), in an article entitled "The use of blockchain in human resources management" examine the applications of blockchain technology in employment processes such as verification of work records, background checks, and verification of credentials, which can lead to cost reduction. evaluation and management of performance that helps the participation of the parties in updating the skills and knowledge of employees and the fact that the information obtained from the blockchain process can be a source for policy makers to determine competency standards among employees. It has also discussed its impact on improving the development of workforce quality and information transparency.

Rezaei and Atai (2020), in an article entitled "A new blockchain-based solution method for effective employee management" with the aim of developing a blockchain framework for managing the performance of employees and their career development in a specific organization, to investigate the applications of this technology. Management of employee performance has been discussed and explained that it can be the process of identifying and analyzing the skills, knowledge and attitude of employees, transparency of data along with providing access opportunities for employees and managers of the company without abuse and to track the performance records of each employee. To be an effective employee.

4.0 RESEARCH METHOD

This is a promotional review article that descriptively tries to answer the research questions. Access to available resources through the library and virtual space has been done as much as possible. In this article, most of the information is obtained through books and articles.

4.1 Research findings

Application of blockchain in human resource processes

Due to the global development and the increase in the volume of activities of organizations and the development of the duties of managers and human resources officials of organizations, time and cost have become an important principle than before. This technology is one of the reliable ways to provide a platform for simplifying work methods and making available more time for human resources to deal with issues and communicate with stakeholders.

Hiring cycle: It includes communication, screening and interview, initial offer, background check, on-boarding and off-boarding, which includes spending time, money, human resources and administrative work. Therefore, the main issue is how to ensure that accurate and reliable data is provided by applicants and to minimize the time and cost of the process. Some experts have confirmed that blockchain bridges the trust gap in employment. There are cases where some job applicants send fake applications with fake documents as well as references, awards, promotions, etc. and exaggerate their credentials to increase their chances of employment. Amazon (2014) pays its employees \$5,000 as a termination fee for each termination of their employment contract. It means that organizations are willing to pay large sums just to get rid of their bad hires. It showed that 74% of employers have made bad hires (Rhemananda, Simbolon, and Fachrunnisa, 2020). Careerbuilder survey also 45 skills The percentage of workers did not match their claims at the time of starting work and 33% lied about their qualifications (careerbuilder. 2017). Many offer inflated resumes in addition to fake graduation certificates, endorsements, promotions, etc. In most cases, recruiters only contact the last employer to avoid wasting time This arrangement will leave them unaware of possible negative work records. Some organizations also use human resources agencies to verify this information. However, the verification process may be costly and time-consuming such as the problem of finding a reliable third-party agency that protects the personal information of job seekers and the organization.

Sarda et al. (2018) use blockchain technology to improve current work history verification processes, reduce the time required to prepare previous work history and approve them, reduce labor costs for providing records, and reduce the risk of entering fake information. Considered effective (Sarda, P, et al., 2018). Usually, job applicants provide the employer with the contact information of a suitable person to research their background. Therefore, it is not possible to find undisclosed or negative information in the applicant's resume. Blockchain enables organizations to verify candidate records through a distributed ledger. The candidates themselves can also access or create and monitor their records, educational certificates, training and work history through the distributed ledger (Aishwarya, 2018).

In 2016, it was reported that social networks allow people to create and upload their profiles without proper verification in a Human Resource Management Association report. One finding shows that social media has caused an 84% increase in recruitment and an 82% increase in passive job applicants. Deploying a distributed ledger in academic organizations can help recruiters inquire about teaching skills. The data can be confirmed by the distributed office between the employment parties, whether the person himself, a private or public institution. Blockchain helps initial verifiers to reduce time and cost and accelerate the job matching process.

Blockchain in the process of searching and selecting and finding qualified candidates by enabling peer-to-peer communication not only simplifies the flow of information in the recruitment process, but also reduces costs by eliminating intermediaries, while maintaining the principle of confidentiality. He does. What is very important? Candidates' work and professional records can be verified in a non-tamperable way with real information through a blockchain network. One of the important aspects and one of the unique features of blockchain during the exchange of information is the inevitable trust by eliminating the third party. Finally, this technology reduces operational costs and improves the efficiency of transactions by reducing the role Intermediaries and removing obstacles can be recognized as a facilitator of the recruitment process.

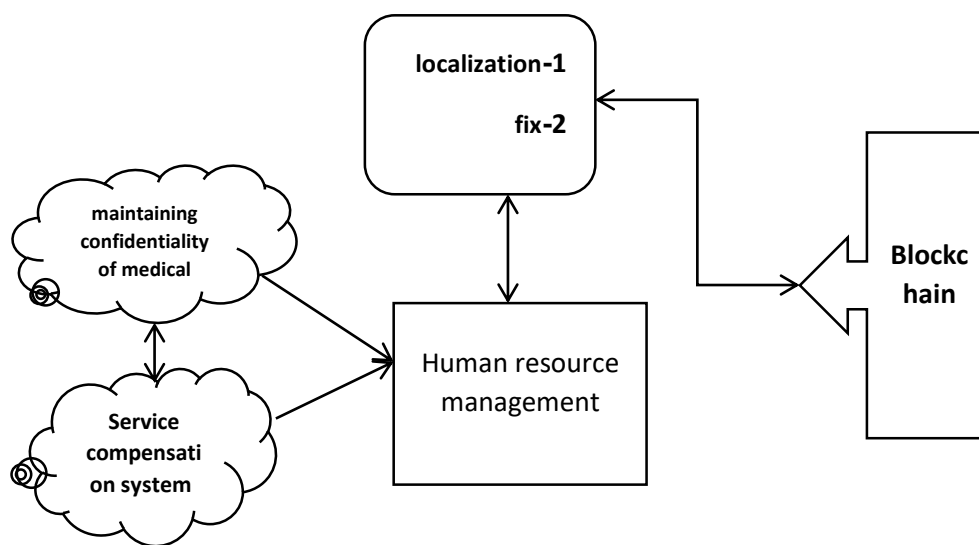


Figure 1: Blockchain Performance and its Impact on Human Resource Management Functions (Source: Author)

5.0 CONCLUSION

"Blockchain automates the core of everything," said Vitalik Buterin, the founder of Ethereum. "Instead of removing the taxi driver from the process, blockchain removes Uber and allows taxi drivers to work directly with customers." Blockchain has increased transparency, responsibility and accountability among value chain networks and therefore creates more flexible value chains. Blockchain is one of the technologies of the project that will undergo tremendous changes in every field, and the field of human resource management is no exception.

Blockchain provides valid and approved information, certificates, job records, skills and competences of useful volunteers to the requesting companies, and after checking and validating the daily records of the individuals, it ranks them and finally It helps companies and organizations in hiring the best and most suitable people. Blockchain has caused the elimination of prejudices, open and hidden discrimination, prejudices and lack of abilities in monitoring employees and provides the possibility of getting the most qualified people for the organization. It also makes the recruitment process transparent and the process and reason for removal. or provides employment for job seekers. Also, when an employee leaves the company

and is hired in a new place, the new company can easily learn about the person's work history and validate it.

Based on blockchain technology, employees can turn their skills, training and experience into valuable documents. By using data analytics, companies can accurately and effectively match people to roles. This issue can be very important, because in the fourth industrial revolution, skill needs have changed.

Using blockchain's ability to support the behavioral and cultural changes that are about to occur in organizations and the workforce is essential, and the benefits of a portable and up-to-date "value passport" will increase for both organizations and employees, because the trend towards The digital economy continues and younger people frequently change jobs or choose portfolio careers. After all, with the younger generation, who are generally more comfortable about sharing personal information than their predecessors, blockchain provides them with the opportunity to do this in a safer and more reliable way.

The use of blockchain in the performance of employees related to their related fields improves the quality of human resources and company performance, the management system in organizations becomes freer and can be an effective solution for managing employees.

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