# Utilization Of Blockchain Technology In Human Resource Management

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| Article Info | ABSTRACT |
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| **Keywords:**<br>Technology,<br>Blockchain,<br>Human Resource Management. | Blockchain, as a decentralized and secure technology, has the potential to address some of the key challenges faced by organizations in managing HR, such as transparency, data security, and process automation. This research aims to explore and analyze the potential use of blockchain technology in the context of human resource management (HR). This research uses a qualitative approach with descriptive methods The research results show that the use of Blockchain technology in human resource management (HR) has a significant positive impact. This technology successfully synchronizes and decentralizes financial records and employee personal data, increasing security, transparency and efficiency in various aspects of HR. Blockchain implementation reduces the risk of fraud, non-transparency and cyber threats in the recruitment process, credential verification, attendance management and financial management. The high security provided by Blockchain, supported by cryptography, makes transactions and payments safer, while the use of this technology provides a solid foundation for efficient and trusted HR management in the digital era. The results of this research highlight Blockchain's strategic role in shaping an innovative and sustainable future for the HR function. |
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## INTRODUCTION

The advantages of globalization in the present age of worldwide interconnectivity are highly notable, particularly in terms of enhancing global consciousness and enabling the transfer of technology across national boundaries (Yi et al., 2020). The interconnectedness of nations on a global scale is crucial in facilitating countries' access to foreign knowledge and skills, fostering international competition by enabling the formation of new businesses in the market, and stimulating innovation through the introduction of foreign technologies (Aslam et al., 2018).

Nevertheless, in the context of globalization, Human Resources (HR) encounters distinct difficulties in a digitally-oriented society. The advent of the digital age has transformed the recruitment environment, resulting in HR professionals devoting a substantial portion of their time to establishing connections, evaluating, and validating candidate resumes (Sugiono et al., 2022). The intricacy of doing credential verification and

Utilization Of Blockchain Technology In Human Resource Management–
Joko Suhariyanto et.al
**110** | P a g e

background checks poses a specific obstacle for firms aiming to mitigate the hazards linked to unfavorable recruiting choices (Sarda et al., 2018).

Contemporary recruiters face difficulties in consolidating candidate profiles from several sources, including direct applications, recruitment agencies, and social media. Resume verification is a challenge in the recruitment process (Sugiono & Hermawan, 2022). The incorporation of blockchain technology presents a hopeful resolution. From 2004 to 2014, the utilization of blockchain technology has demonstrated the capacity to enhance innovation and labor efficiency by utilizing global experience and technology (Han, 2017).

Blockchain technology, when utilized for credential verification, offers numerous benefits, as stated by experts. These benefits encompass decreased expenses and time lags in the hiring procedure, heightened confidence in the genuineness of data, and enhanced mechanization in the recruitment workflow (Han, 2017). Background checks on applicant qualifications are crucial in maintaining the integrity of the employment process. Blockchain is emerging as a disruptive tool in this scenario (Hegadasarti, 2017).

The growing practice of firms utilizing background checks to detect possible inconsistencies in candidate profiles further underscores the significance of integrating cutting-edge technologies (Sugiono et al, 2023). Blockchain technology is becoming increasingly important in streamlining HR methods and ensuring the credibility of candidate credentials, as firms grapple with the problems of the digital world and the demand for effective and reliable hiring processes (Brody, 2010).

Integrating blockchain technology into human resources can significantly expedite the verification of employment-related credentials, hence reducing the time, resources, and expenses associated (Onik et al., 2018). Blockchain technology has the potential to streamline and enhance the verification of credentials in the field of recruiting, hence lowering the time and resources currently allocated to this stage of the recruitment process (Salah et al., 2020). The study will investigate the effects of implementing blockchain technology on the overall efficiency, accuracy, and cost-effectiveness of recruitment methods in the business. Furthermore, we will focus on the offboarding process, examining how blockchain technology might assist in ensuring a seamless transition and adherence to outbound protocols.

This project will explore the future implications of blockchain in HR practices, namely in the development of recruitment and exit channel approaches using blockchain technology. This proactive strategy acknowledges the changing environment in human resources and the necessity to modify recruitment and offboarding techniques to correspond with technological progress. This research seeks to offer understanding into the possible revolutionary impacts of blockchain technology in defining the future of human resources practices. This research ultimately enhances our comprehension of how blockchain technology might fundamentally transform HR procedures, rendering them more effective, safe, and flexible in response to contemporary worker demands.

## Literature Review
## Blockchain Technology

Blockchain is a digital ledger that stores transactions. The blockchain technology ensures the permanent and immutable recording of every transaction. The mechanism is

Utilization Of Blockchain Technology In Human Resource Management–
Joko Suhariyanto et.al
**111** | P a g e

situated within a publicly accessible database known as a ledger. The ledger is decentralized, with transactions being kept in blocks and disseminated throughout a peer-to-peer network. Each node in the network keeps a copy of the ledger (Nofer et al., 2017). The presence of a secure and easily understandable system renders blockchain technology advantageous across multiple sectors. Blockchain offers numerous advantages, including the assurance of accurate and permanent transactions and simplified transfer of token ownership. As an illustration, the insurance sector employs blockchain technology (Ali et al., 2021).

By leveraging blockchain technology, this industry, which revolves around the maintenance of trust, can guarantee the verification of an individual's identity. Blockchain can be employed to authenticate many forms of data in commercial agreements, including the identification of insured individuals. Consequently, the likelihood of fraudulent activities can be diminished, leading to a decrease in the risk of fraud (Pandey et al., 2019). Blockchain is a decentralized technology that ensures the security and authenticity of digital data through peer-to-peer networks. Blockchain functions as a distributed ledger of transactions via a peer-to-peer network. This ledger chronicles every series of transactions from commencement to conclusion. Every transaction is incorporated into a block, and each block is interconnected with one another (Dai et al., 2017).

The list of transactions is locked in a synchronized manner, and a distinct identifier is appended to each subsequent block, resulting in the formation of an unalterable chain. A block typically comprises the present transaction data and the hash (distinctive code) of the preceding block. Any tampering with a block will result in a modification of its hash, rendering all following blocks invalid. If one of the blocks is tampered with and the hashes of all following blocks are recalculated, there is a potential for the blockchain to be hacked. In order to address this issue, a solution known as proof of work (POW) has been introduced (Gervais et al, 2016).

## Human Resources Management

Human resource management plays a crucial role in the proper utilization and organization of human resources inside firms, enabling them to operate efficiently and productively in order to achieve their goals. Kosali (2021) stated that human resource management encompasses a range of responsibilities pertaining to the acquisition, training, development, motivation, organization, and retention of people within a corporation. Ferris et al (1999) asserted that managers overseeing human resources must prioritize tasks such as recruitment, employee retention, employee development, ensuring compliance, and enhancing organizational capabilities.

The primary objective of Human Resource Management (HRM) is to efficiently oversee personnel in order to cultivate a workforce that yields reciprocal advantages. Human Resource Management (HRM) is a specific area of management that is dedicated to the administration and development of human resources within an organization (Rihan, 1998). The human resource management function encompasses various activities that have a significant impact on a company's overall work environment. These activities include planning, recruitment and termination of employees, administering benefits, conducting performance evaluations, providing rewards and facilitating career development, organizing

Utilization Of Blockchain Technology In Human Resource Management–
Joko Suhariyanto et.al
**112** | P a g e

training and development programs, ensuring occupational safety and health, promoting effective leadership, and enhancing productivity.

## METHOD

This study employs a qualitative methodology utilizing descriptive techniques. The data gathering methodology involves conducting a literature review, specifically focusing on past research that is relevant to the subject being investigated (Anggito & Setiawan, 2018). A literature review is a systematic investigation in which the study topic is extracted from a variety of sources, including books, scientific journals, and research papers. The author employs pertinent prior research to conduct a rigorous analysis of knowledge regarding concepts and scientific discoveries by referencing diverse literature on the application of blockchain technology in human resource management. The data analysis was conducted using a descriptive qualitative approach, following Milles and Hubberman's interactive model, which has three stages: data reduction, data analysis and testing, and conclusion drafting and verification.

## RESULTS AND DISCUSSION

Many companies are currently showing great interest in the transformational potential that blockchain technology has in changing the paradigm of everyday Human Resources (HR) and recruitment functions. With its decentralized distributed database system, blockchain has become the preferred choice for many companies around the world. The use of blockchain allows companies to accelerate, manage and improve various aspects of existing recruitment and HR functions. The advantages of blockchain's decentralized capabilities, such as high data security and transparency, provide solutions to overcome the challenges faced by HR departments. Thus, blockchain is not only an effective tool for increasing operational efficiency, but also for creating a more trusted and innovative HR environment in various global companies.

### Recruitment Function

Due to the time and resource commitments associated with traditional talent acquisition methods, businesses are frequently forced to outsource the task to talent management organizations or other third parties. The disadvantages of employing a talent management organization, however, include expensive fees and frequently issues with visibility and collaboration. Furthermore, the intricacy of this procedure raises concerns about productivity.

These difficulties can be solved with the use of blockchain technology. Early and transparent confirmation of candidate information and related claims is possible. This lowers the need for third parties to physically verify information like resumes, grades, credentials, talents, and work experience, and it also saves a large amount of money on back-office investments.

Additionally, as blockchain technology generally streamlines back-office recruitment procedures, it positively affects the quantity of recruiters needed, leading to notable efficiencies. Reducing the number of stages needed for candidate information verification and validation can save operating expenses and the amount of time needed to find, evaluate, and

Utilization Of Blockchain Technology In Human Resource Management—
Joko Suhariyanto et.al
**113** | P a g e

hire qualified candidates. This breakthrough opens the door for more innovative and successful solutions in the digital age by boosting productivity and streamlining the hiring process.

## Identity Verification

Identity verification and difficulties connected to bias, lack of transparency, and prejudice against candidates pose significant challenges in the recruitment process. Companies are presently utilizing blockchain technology in human resource management to address these challenges and conduct thorough identification verification. According to a survey, about 51% of individuals who adopt blockchain technology utilize this platform specifically for the purpose of doing identity verification using digital data. This approach verifies the candidate's identification by comparing it with data held in reputable institutions.

Thoroughly analyzing an individual's expertise and background enables easier decision-making about qualification claims and wage calculations. This allows the HR team to optimize their time allocation, prioritizing activities that might enhance the company's value. In a straightforward situation, a person possessing a degree certificate may encrypt and securely store that information on a blockchain, so facilitating the verification process. This strategy not only reduces the risks associated with fraudulent identities or inaccurate information, but also accelerates the overall recruitment process. By implementing blockchain technology, firms can enhance precision, openness, and impartiality in the management of human resources, while introducing novel efficiency to the realm of recruitment.

## Referral Process

Over the years, the employee recommendation process has experienced notable advancements, and currently, blockchain technology stands as the foremost answer to revolutionize it once more. This cutting-edge technology facilitates the storing of precise data pertaining to a candidate's job history, which can be easily accessed and assessed by the Human Resources (HR) staff. Employing blockchain technology in the employee recommendation process significantly mitigates the risk of document fraud and the fabrication of counterfeit credentials. Through the decentralized storage of reference data, this technology enhances transparency in the process of reference analysis. The data stored in a blockchain is reliable and can be authenticated, hence minimizing the possibility of errors or uncertainties in employee reference assessments.

In essence, the utilization of blockchain technology guarantees that talent acquisition conducted by enterprises attains the utmost degree of precision. HR can enhance recruiting decisions by facilitating convenient and secure access to accurate employment information. This technology enhances both the efficiency and the general reliability of the personnel referral process, hence improving the integrity and quality of the recruiting process inside an organization.

## Attendance Management

The utilization of blockchain technology in Human Resources (HR) procedures has intriguing prospects, including the capacity to securely store and encrypt employee biometric data upon entering the workplace. The company's employment management system can securely retain attendance data, including unique fingerprints, IDs, and other information,

Utilization Of Blockchain Technology In Human Resource Management—
Joko Suhariyanto et.al
**114** | P a g e

while ensuring synchronization. By inputting all employee attendance information into the blockchain, HR departments may obtain complete transparency into up-to-the-minute data. This enables them to precisely monitor attendance and effectively handle wage-related issues. Integrating an employee attendance system with blockchain technology will guarantee the precision of each data entry, hence minimizing the likelihood of conflicts arising between employers and employees.

This solution offers a significant benefit in terms of enhanced transparency and precision in managing employee attendance. By employing robust encryption measures, the potential for data modification or distortion can be greatly diminished. This instills HR with the assurance to make more informed decisions pertaining to payroll, disbursements, and claim resolution. Furthermore, the utilization of blockchain technology in these attendance systems contributes to the establishment of a more equitable work environment. The utilization of verified and unchangeable data enhances transparency in payment and claims processes, hence diminishing the likelihood of inequality or unfairness. Hence, blockchain technology enhances both operational efficacy and reinforces integrity and equity in employment connections, thereby fostering a more reliable and adaptable work atmosphere.

### Increased employee productivity

Companies can realize substantial productivity enhancements by integrating blockchain technology, which enables them to check the talents and aptitude of potential employees for certain roles. Employing an optimal equilibrium in talent acquisition tactics through the utilization of blockchain technology enables firms to alleviate the onerous task of sourcing individuals who align with their specific organizational requirements. By enhancing the ability to locate suitable personnel, overall productivity is heightened.

The implementation of blockchain technology enhances the efficiency of several Human Resources (HR) tasks, including payroll management, tax deductions, and PF calculations. The implementation of blockchain technology in this scenario aids in minimizing administrative tasks for HR staff, allowing them to allocate more attention towards activities that contribute to corporate expansion and customer involvement. By reducing administrative constraints, organizations can optimize resource allocation, so ensuring both efficiency and accuracy in these operations.

Implementing blockchain in HR administration leads to enhanced transparency and precision of the accessible information, which is an additional benefit. By maintaining well-documented evidence of abilities and qualifications, the potential for errors in personnel management can be significantly reduced. This fosters a more streamlined, agile, and reliable work environment, hence enhancing overall organizational effectiveness and efficiency. Thus, the use of blockchain not only optimizes HR operations, but also fosters growth and innovation across multiple facets of the firm.

### Secure Transactions and Data Protection

Blockchain technology is primarily utilized for financial transactions and activities that necessitate utmost dependability and security. Nevertheless, under certain circumstances, the data that is transmitted, either to the receiver or within a system, may include personal information such as account details, employment background, financial records, or

Utilization Of Blockchain Technology In Human Resource Management–
Joko Suhariyanto et.al
**115** | P a g e

information related to the capital market. By leveraging the capabilities of Blockchain, the future aims to ensure robust cyber security for sensitive data transactions, making it highly challenging for third parties to compromise or gain unauthorized access to them.

The incorporation of cryptographic technology in Blockchain is crucial in enhancing security measures. This offers substantial advantages for both companies and employees, guaranteeing that transactions or payments conducted through these systems are not only secure, but also devoid of any potential risks. Hence, Blockchain offers an additional level of security essential for safeguarding sensitive information and guaranteeing its authenticity.

Furthermore, the utilization of Blockchain in Human Resources (HR) activities not only minimizes potential risks but also effectively mitigates data breaches. This technology enables companies and employees to carry out transactions with assurance that their personal data is securely safeguarded, hence minimizing the risk of security and confidentiality breaches. Therefore, the implementation of Blockchain technology in HR not only enhances operational efficiency, but also enhances trust and security in information management, which holds significant importance for both enterprises and individuals.

## Fraud prevention for cyber threats

Blockchain revolutionizes the management of extensive and continuous financial records as well as highly confidential personal information of employees. The imperative engagement of Human Resources (HR) in effectively overseeing this activity fosters a robust synergy between HR and Blockchain technology. This technology has the capability to synchronize and decentralize all financial records with high volume, as well as employee personal data that necessitates utmost protection.

By utilizing the attributes of decentralization, Blockchain is converted into a robust platform for keeping financial and personal data in a manner that is not only efficient but also very secure. Information held on the Blockchain is not merely records, but crucial data that plays a substantial role in deterring perilous fraudulent activities. Each transaction or financial record can be checked for ownership and validity through a transparent and distributed process.

The implementation of Blockchain technology's decentralized data distribution offers an extra level of safeguarding against the prevalent cyber threats that enterprises frequently encounter. Efforts to mitigate risks such as lack of transparency, cyber threats, and fraudulent transactions can be enhanced for greater effectiveness. Blockchain offers heightened security and transparency, ensuring the integrity of data and instilling confidence in firms and employees when it comes to handling and preserving vital information. The integration of HR and Blockchain enables enhanced, dependable, and safeguarded administration of financial and personal data in the current digital age.

## CONCLUSION

The application of Blockchain technology in Human Resources (HR) functions has a significant positive impact on various aspects of human resource management and business processes. With its ability to synchronize, decentralize, and secure financial records and employee personal data, Blockchain addresses classic challenges faced by HR departments.

Utilization Of Blockchain Technology In Human Resource Management–
Joko Suhariyanto et.al
**116** | P a g e

The high security and transparency provided by Blockchain helps reduce the risk of fraud, non-transparency and cyber threats in HR management. Recruitment processes, credential verification, attendance management, and financial management become more efficient and reliable. By adopting this technology, companies can minimize administrative costs, increase data accuracy, and strengthen the integrity of business processes. In addition, Blockchain brings innovation in addressing specific HR issues, such as identity verification, employee reference processes, and data security. The use of cryptography in Blockchain provides an additional layer of security that makes transactions and payments safer and risk-free. With the synergy between HR and Blockchain technology, a more efficient, transparent and trustworthy HR environment is created. This not only supports business growth, but also increases employee satisfaction and creates a solid foundation for HR management in this digital era. As time goes by, the potential application of Blockchain in HR continues to grow, indicating its strategic role in shaping the future of human resource management.

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Utilization Of Blockchain Technology In Human Resource Management–
Joko Suhariyanto et.al
**117** | P a g e

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Utilization Of Blockchain Technology In Human Resource Management–
Joko Suhariyanto et.al
**118** | P a g e