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IMPLEMENTATION OF BLOCKCHAIN TECHNOLOGY IN HUMAN RESOURCE– CHALLENGES AND OPPORTUNITIES WITH REFERENCE TO IT SECTOR

SHRUTHI. K¹, Dr. M. KAVITHA²

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Abstract

The Blockchain is a distributed database that stores all transactions or digital events called Blocks. These transaction data are saved as blocks in Blockchain and are shared among the parties who maintain the blocks. The parties involved in the network/system analyse, verify, and store each Block. Each block contains the information of a single transaction as well as the previous block's hash key.

Blockchain serves as the foundation for digital cryptocurrencies such as Bitcoin. Blockchains are highly secure by design, and the technology ensures immaculate record keeping. Bitcoin, a decentralised digital money, shall be traded peer-to-peer without the involvement of any third party. Blockchain will be used to protect other sectors such as financial transactions, identity management, food traceability, medical records, and even voting processes.

Electronic payments have made a significant breakthrough in the Indian banking sector and will continue to develop as new innovations in system advancements are introduced. Slowly Electronic staff management is replacing paper-based processes, saving time and money. Implementing blockchain technology can also promote transparency, and the sector is making considerable progress in this regard.

Blockchain ensures essential aspects of trade, ownership, and trust, causing a disruptive intervention in the entire management model. Constructive and critical investigation of this technology in the context of India will yield fresh perspectives on how it should be used. This paper will discuss the current level of Blockchain adoption in the IT sector, as well as the difficulties and opportunities that exist in this domain.

Keywords : Blockchain, human resource, IT sector, Encryption.

¹Ph.D RESEARCH SCHOLAR, DEPARTMENT OF COMMERCE, VELS INSTITUTE OF SCIENCE TECHNOLOGY AND ADVANCED STUDIES, janyashruthi@gmail.com

²CORRESPONDING AUTHOR, PROFESSOR & RESEARCH SUPEVISOR, DEPARTMENT OF COMMERCE, VELS INSTITUTE OF SCIENCE TECHNOLOGY AND ADVANCED STUDIES, kavitha.sms@velsuniv.ac.in

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INTRODUCTION

The details of each transaction are distributed as blocks to all computers in the network through blockchain technology. The network computers validate the block and add it to the chain. This chain serves as a permanent record of all activities that cannot be altered. These transactions cannot be altered without the knowledge of all parties/computers involved in maintaining the chain. Blockchain in human resources will give a great tool for speedier and more transparent record keeping. Despite the fact that the technology appears to be difficult, with cryptography, distributed databases, network of computers, and so on, the user interface implementation will be simplified for ease of use. Furthermore, Blockchain makes it nearly hard for a hacker to manipulate the stored transaction data, and it removes any errors and duplicates that may occur as a result of process gaps.

In its most basic form, blockchain enables strangers to trade currency in digital contexts. Blockchain, in essence, delivers confidence in untrustworthy settings without the requirement for a trusted central authority.

Blockchain technology is most known for its application in safeguarding cryptocurrency infrastructure (e.g., Bitcoin) and assuring secure financial transactions without the assistance of a bank or middleman. In contrast, technology examines a landing in the human resources field, which will surely impact how HR professionals handle massive amounts of personal data and apply various HR procedures. We already have various HR concerns where blockchain technology could help with authenticating identification and competencies.

REVIEW OF LITERATURE

Satoshi Nakamoto (2008) presented Bitcoin as a technology platform that permitted a peer-to-peer electronic transfer of cash between two parties without the use of a financial middleman. This sparked the idea of using Blockchain for secure transactions.

Melanie Swan (2015) explains how a Blockchain platform can be used to implement a decentralised database that will hold a public ledger of transactions involving tangible entities such as financial transfers, inventory logistics, and property registration details, as well as intangible entities such as health care and election processes.

According to Harsha Gandhi et al. (2019), the hash function utilised in Blockchain is tamper-proof due to public key encryption and provides greater security with improved mobility and reduced time.

OBJECTIVES OF THE STUDY

The primary goal is to investigate the present deployment of Blockchain in human resources and to comprehend its difficulties and prospects. A poll is also used in the study to determine public approval of Blockchain.

SCOPE OF THE STUDY

This study helps us understand the benefits and challenges of integrating blockchain technologies in human resources, as well as the respondents' perceptions of blockchain technology. Blockchain technology's impact on work-life balance is being studied.

LIMITATIONS OF THE STUDY

The poll may only cover Chennai-based IT firms. The survey was only sent to 50 HR personnel from IT organisations. Because the study's time duration is limited, it may not be able to cover the entire spectrum.

RESEARCH METHODOLOGY

The primary sources of research are survey questionnaire responses. The poll included

a simple random sample size of 50 Chennai residents. This sampling methodology is a tried-and-true way for gathering response data from a diverse population. This strategy saves time and money, however the effectiveness of the survey is dependent on the demographic chosen. The acquired data was processed using the chi square test, and the results were correctly analysed and interpreted.

BLOCKCHAIN IN INDIA

The Mahindra Group and global IT solution provider IBM have declared their aim to develop a cloud-based Blockchain-backed supply chain finance application that has the potential to redefine the country's supplier-to-manufacturer financing transaction system. Bajaj Electricals revealed the use of Blockchain in smart contracts for vendor and supplier finance. With the help of Yes Bank, IBM, and Cateina Technologies, a fintech start-up. The Government of Andhra Pradesh's Land Records Department and Transport Department have just deployed a Blockchain trial. The Telecom Regulatory Authority of India (TRAI) is in the midst of deploying Blockchain to manage annoying spam phone calls and messages, maybe the first of its type in the telecom sector. The UIDAI's Aadhar project is without a doubt the most extensive use of demographic and biometric technology undertaken by any government agency to date.

CHALLENGES

Blockchain is a sophisticated technology that necessitates a high level of technical knowledge to implement and maintain. Tech hurdles may stymie blockchain technology's mainstream adoption and prevent potential consumers and developers from engaging with it. The complexity of blockchain might potentially lead to implementation problems and inefficiencies. Due to the high computing needs required to validate transactions, blockchain networks can be slow and inefficient. As the number of

users, transactions, and applications grows, blockchain networks' ability to process and validate them in a timely manner gets stretched. As a result, blockchain networks are challenging to deploy in applications requiring rapid transaction processing speeds.

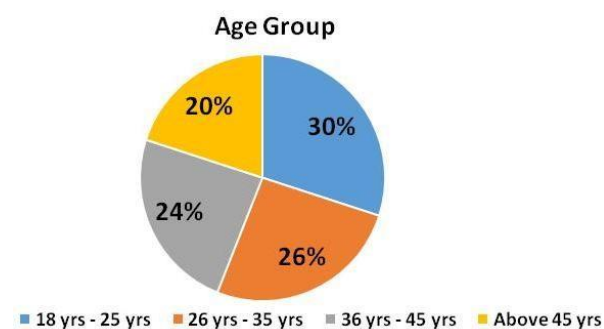
OPPORTUNITY

Implementing blockchain-based solutions to some HR issues will be a gradual process. The first wave, which will almost certainly incorporate blockchain-based candidate verification, is a straightforward use case. Another possibility is real-time employee payments, which are less spammy because we can regulate our career profile. The second wave of blockchain-at-work technologies may concentrate on boosting talent markets, increasing the visibility of employment, and matching employees and jobs. It could also be about boosting market confidence.

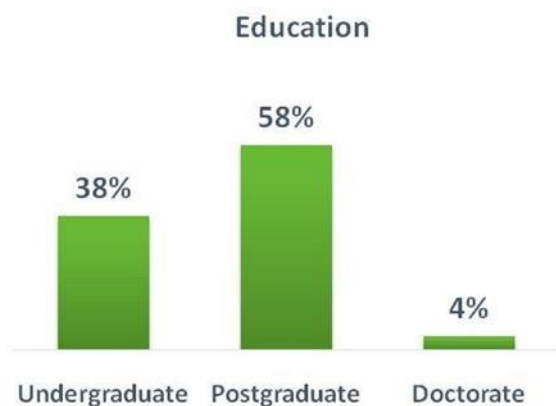
DATA INTERPRETATION

A. Demography Status of population

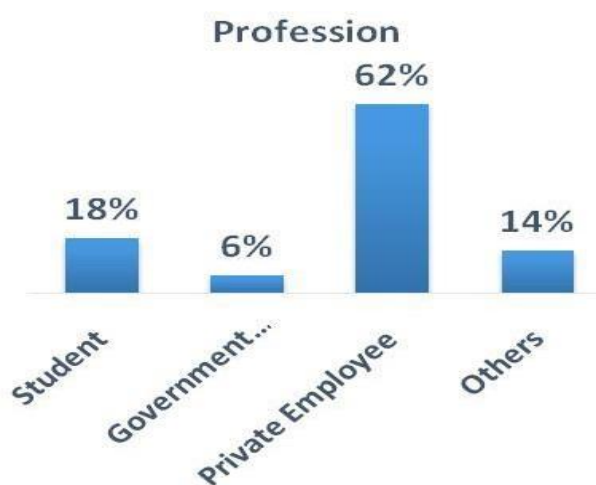
Figure – 1: Demography status



Interpretation: According to the graphs, 56% of the 50 respondents are between the ages of 18 and 35, while 44% are beyond 35.



Interpretation: The survey included 58% of Postgraduate respondents and 38% of Undergraduate respondents.



Interpretation: Sixty-two percent of the respondents were Private Employees.

Data Analysis & Interpretation (Chi-Square)

Table – 1: Age & Digital Identity - Chi-Square Test

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16.182a	12	.183
Likelihood Ratio	15.109	12	.236
Fisher's Exact Test	12.275		
Linear-by-Linear Association	.386c	1	.534
N of Valid Cases	50		

Interpretation: According to the chi square table, the link between age and digital identity is 0.183. This shows that the variables have a weak positive association. As a result, the null hypothesis H1 (no substantial difference between age and digital identity) is rejected.

HYPOTHESES OF THE STUDY

H₁: There are no significant differences between age & digital identity.

H₂: There are no significant differences between age & digital records.

H₃: There are no significant differences between age & secured voting.

H₄: There are no significant differences between age & health care.

H₅: There are no significant differences between age & digital payments.

H₆: There are no significant differences between age & insurance.

H₇: There are no significant differences between age & smart contracts.

Table – 2: Age & Digital Record - Chi-Square Test

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.255a	9	.199
Likelihood Ratio	13.593	9	.138
Fisher's Exact Test	9.845		
Linear-by-Linear Association	.050c	1	.824
N of Valid Cases	50		

Interpretation: According to the chi square table, the association between age and digital records is 0.199. This shows that the variables have a weak positive association. As a result, the null hypothesis H2 (no significant difference between Age and Digital records) is rejected.

Table – 3: Age & Secured Voting - Chi-Square Test

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.518a	9	.105
Likelihood Ratio	15.368	9	.081
Fisher's Exact Test	12.140		
Linear-by-Linear Association	2.925c	1	.087
N of Valid Cases	50		

Interpretation: According to the chi square table, the association between age and secured voting is 0.105. This shows that the variables have a weak positive association. As a result, the null hypothesis H3 (no significant association between age and secured voting) is rejected.

Table – 4: Age & Health Care - Chi-Square Test

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.903a	9	.443
Likelihood Ratio	5.148	9	.821
Fisher's Exact Test	5.782		
Linear-by-Linear Association	1.334c	1	.248
of Valid Cases	50		

Interpretation: According to the chi square table, the link between age and digital identity is 0.443. This shows that the variables have a weak positive association. As a result, null hypothesis H4 (no significant association between age and healthcare) is rejected.

Table – 5: Age & Digital Payment - Chi-Square Test

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.544a	12	.403
Likelihood Ratio	16.240	12	.180
Fisher's Exact Test	12.854		

Linear-by-Linear Association	.702c	1	.402
N of Valid Cases	50		

Interpretation: According to the chi square table, the association between age and digital payments is 0.403. This shows that the variables have a weak positive association. As a result, the null hypothesis H5 (no significant association between age and digital payments) is rejected.

Table – 6: Age & Insurance - Chi-Square Test

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.522a	12	.485
Likelihood Ratio	12.498	12	.407
Fisher's Exact Test	9.977		
Linear-by-Linear Association	4.237c	1	.040
N of Valid Cases	50		

Interpretation: According to the chi square table, the link between age and digital identity is 0.183. This shows that the variables have a weak positive association. As a result, null hypothesis H6 (no significant association between age and insurance) is rejected.

Table – 7: Age & Smart Contract - Chi-Square Test

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.149a	12	.486
Likelihood Ratio	11.921	12	.452
Fisher's Exact Test	9.647		
Linear-by-Linear Association	.046c	1	.831
N of Valid Cases	50		

Interpretation: According to the chi square table, the association between age and smart contracts is 0.486. This shows that the variables have a weak positive association. As a result, the null hypothesis H7 (no meaningful association between age and smart contracts) is rejected.

FINDINGS OF THE STUDY

The survey analysis highlighted three key causes.

The first aspect is talent acquisition; how quickly they can concentrate on good talent recruiting over the internet; 44% believe that the present systems that we have are superior; nevertheless, 56% believe that even though blockchain technology is needed for improvement, they believe that it must be enhanced.

The second element is awareness; just 34% and 40% are aware of Blockchain and

Bitcoin, respectively, indicating that more awareness of technology/process is required.

The third component, acceptance, has 26% of respondents agreeing that Blockchain is required for human resource management, with 5% strongly agreeing that Blockchain makes the work of human resource managers easier, saving time and money.

CONCLUSION

Blockchain's future is nigh, and banking

isn't the only business affected. Despite its origins in the cryptocurrency sector, blockchain is making inroads into the sphere of labour. Blockchain technology offers a wide range of possible uses, including the disruption of employment, payroll, taxation, benefits administration, data storage, and many other areas. Despite current pricing and scalability challenges, the case for blockchain HR is compelling. As they manage human capital in a competitive hiring climate, HR professionals must prioritise openness and confidence in corporate procedures. While the technical performance of blockchain technology is undeniably impressive, such as its ability to encrypt and deliver pinpoint accuracy, the success of blockchain will ultimately be determined by how effectively it can instill confidence and transparency into an organization's processes. Blockchain is an unstoppable force over which no one has any control. It's already wreaking havoc on a number of firms. Blockchain-enabled businesses are now securing their position in an ever-changing ecosystem. In reality, if firms do not invest in this technology, they will face a greater crisis.

SCOPE OF FURTHER RESEARCH

This study determined the scope of Blockchain acceptability in a number of relevant domains. Future academics will be able to discover chances to improve Blockchain understanding and usage. The study only looked at one geographic location; future research should look at other areas to better understand the behavioural characteristics of diverse populations.

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