

BLOCKCHAIN TECHNOLOGY- AN OVERVIEW AND ITS APPLICATION ON HR PRACTICES OF ORGANIZATION

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Abstract:

Globalisation brings in broader opportunities for the organizations to adopt newer technologies to be competitive in the market. Human Resources (HR) does operation of connecting with Global talents and they act as the face of the organization to the outside world. Any error or delay in their process creates adverse effect. The emergence of Blockchain technology and its use on crypto assets has helped it to grow in a staggering 50% when compared to 2020 and is expected to grow at a CAGR of 67%, The current Market Cap of Blockchain Market is 3 billion USD. Blockchain technology allows the person to do the transaction directly with each other. Since Blockchain technology offers more security and more storage many Companies majorly finance sector and IT Sector have started adopting the Blockchain technology on their Organizational process. The purpose of this study is to understand the concept of Blockchain and its implementation in day-to-day HR Practices. It also studies the HR's opinion on using Blockchain on their Activities like Recruitment, Skill Mapping, Performance Management and Data Validation. This Study made an attempt to give solution on managing some of the core HR process with the integration of Blockchain.

Introduction:

A Blockchain is a digital or virtual ledger that records transactions based on information in way that makes it hard to hack or change the data it has. Blockchain technology allows the person to do the transaction directly with each other. Blockchain technology will completely renovate the traditional firm systems, thus enables its application on various areas and sectors (Wang et al., 2017). Some of the Big companies identified the use of blockchain technology and have started adopting it in their companies, some of the companies are Microsoft, Starbucks, Paypal, NVIDIA, SQUARE and more. There is an increased pressure forced on organizations to integrate technology into entire business areas to deliver more value to their clients (Papadopoulos et al., 2020). Human Resource is a department where many transactions get recorded in a day and this involves more important jobs like Skill Mapping, Payroll Processing etc. This Paper has made an attempt to identify those areas where the Blockchain technology can be implemented in HRM and HR's View and their readiness to adopt Blockchain technology.

Keywords: Blockchain Technology; Blockchain Recruitment; HRM; e-HRM; HR Process; Skill Mapping; Integrated Blockchain HRM;

Literature Review:

The developments happened in blockchain technology continue to impress leaders across industries with data security and data integrity features (Dunham, 2017). Blockchain is a shared, decentralized, distributed ledger, non-Modifiable which facilitates recording of transactions and tracking assets in a business network (PwC 2017a; Gupta, 2017; Hsiao et al., 2018). Blockchain technology has evidenced to be a disruptive technology that attracts attention of not only researchers and practitioners, but business organizations as well (Hughes et al., 2019). HR Professionals play a main role in providing consultancy to the organisation as a "change transformation agent," and associates of its leadership make actual behavioural alterations influencing organisational efficiency (Deshler, 2016). Blockchain can identify potential hazards and can be used in handling information collection and information, An instance is using a blockchain ledger since it is a reliable instrument for verifying the history of the applicants (Aishwarya, 2018).

Blockchain Technology- An Overview:

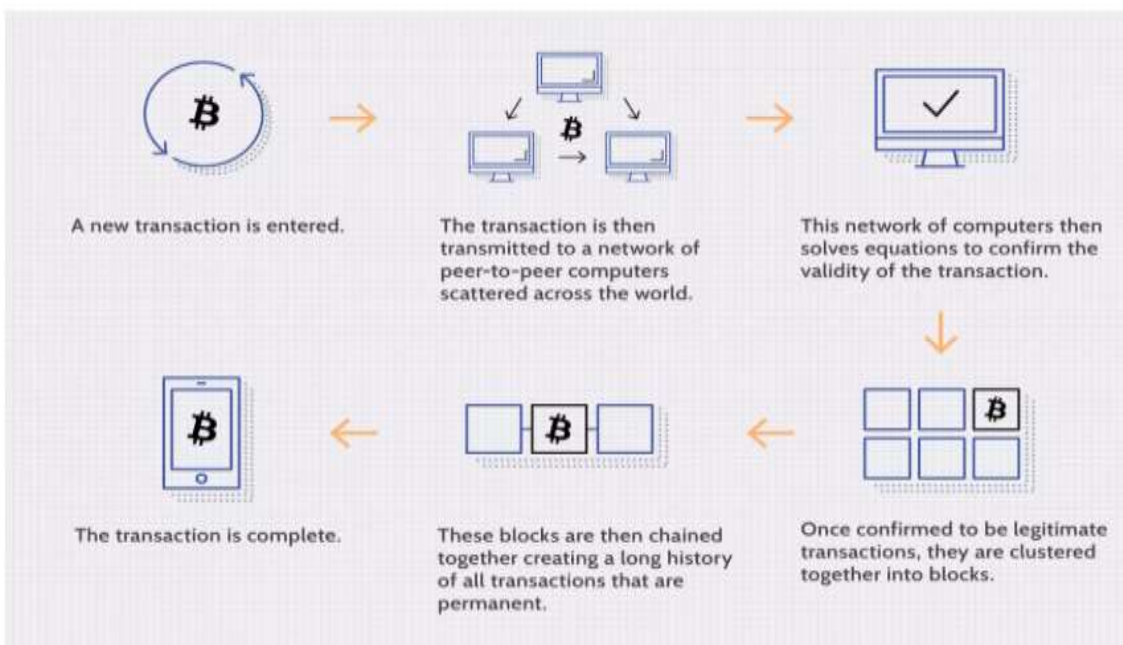
Currently the Blockchain Market accounts for 3 billion US Dollar and is expected to grow 39.7 billion Dollar by 2025 which is a whopping 67.3% CAGR. North America dominated the Blockchain market with over 38% of revenue in 2020. Most of the revenue came from financial sector.

Attractive Growth Opportunities in the Blockchain Market



Figure 1: Project Market Growth of Blockchain

Blockchain’s are specific type of database and it differs from other database as it stores the information in blocks and then they are chained together. Once the New data comes in it gets filled in the fresh block and then it gets chained into the previous block which makes the data arranged in chronological order. It may be complex to understand, to understand it better the below diagram explains the storage process of blockchain which stores bitcoin.



Source: Investopedia

Figure 2: Pictorial Representation of Blockchain Operation

Key Elements of Blockchain:

1. **Distributed Ledger Technology:** All the Participants in the network have access to the distributed ledger and its transaction records. With this shared ledger, Duplication of transaction can be eliminated.

2. **Immutable Records:** Even though all the participants in the network has access to the ledger, No changes or deletions can be made once the information is recorded. If error occurs, A new transaction has to be made to reverse the error.
3. **Smart Contracts:** To Enhance the speed of the transaction, Set of rules called a smart contract is stored in the blockchain and will be executed automatically. A Smart contract can define conditions for corporate bond transactions.

Benefits:

1. **Security:** Data Security is maintained as consensus from the parties in the network required for all the transactions. The information is recorded permanently, Not even the System Administrator has access to delete the information.
2. **More Efficiency:** Most of the operations waste effort on duplicating the record keeping and third-party data transactions. With DL(Distributed Ledger) time wasting record will be removed.

HR Process:

Human Resource Department is like heart of an organization. More documentary works and transaction happens in this department, right from hiring the employee to monitoring the employee HRM performs various functions. Most of the big companies have adopted specific software like SAP, Workday etc for recording the HR Process and which has resulted in higher efficiency and time reduction.

Some of the major HRM Process considered in this paper are:

1. **Data Validation:** Candidate's genuineness is verified in this process. Before becoming an employee in the organization, the candidate's certificates like academic and non-academic qualifications will be verified. This step takes most chunk of the time in HR Process.
2. **Skill Mapping:** Skill Mapping is the most critical and important part of HR Process. This involves matching the candidate's skill with organization or projects skill requirement. If the Skill mismatch happens total work system collapses as the employee may not be able to understand what is required out of him.
3. **Recruitment:** Recruitment involves with hiring the potential candidates to the organization. It has many process starting with preparing Job Description to Induction.
4. **Performance Management:** Managing the Employee's performance against his KPP (Key Performance Parameter) has to be done every year and promotions or salary hikes are given based on the performance against his target.



Figure 3: Process of HR in an Organization

Blockchain based recruitment:

Recruitment involves screening the candidates, collecting references, scheduling interviews, conducting background checks and so on. These tasks are repetitive and using blockchain these

repeated tasks can be automated. Automated Referencing, Assessment Tools and Feedback tool from technical interview panel allows recruiters to collect information within seconds.

Blockchain technology can be used to produce a chain of personal records and information when applying for jobs. When screening candidates, recruiters can easily access an individual's public blockchain for past work experience, contact information and other personal data required throughout the process. This use of blockchain technology will definitely expand the candidate experience, allowing job seekers to create a particular account of their experience and information that could be used across all job applications.

This verifiable chain of data would also help in eliminating the time and concerns associated with manually sourcing this information resulting in optimised costs and vigorous recruitment.

There are many benefits which blockchain recruitment could enjoy,

- Biometric ID verification will authorize validity of candidates
- Generalised or Standardised resumes will ensure quality of CV content over its layout
- QR Codes on every candidate profile help in recording and tracking their professional development and add it straight into their profile
- There will be lesser referencing requirement which infers that whole recruitment process and on-boarding process will be faster and cheaper.
- It will be GDPR (General Data Protection Regulation)-compliant. While information on the Blockchain cannot be deleted, the platform will be able to retract candidate data.
- It will ensure security since it is on the blockchain, the information is secure and it cannot be changed or altered. At no point the system can fail or be compromised.

Data Validation Using Blockchain:

Due to Large number of applicants, Bigger Organizations sign third-party contracts for verification services. Smaller Organizations spend more time by verifying the candidature on their own. Distribute Ledger (DL) Technology will help the HR Professionals for certificate validation. Blockchain technology is still very early in some industries but it is the most secure data record to verify a potential candidate's education and work experience The accurate data which staffing agencies can retrieve from candidates, the candidate can be matched to the right jobs. Most importantly, storing the information and actually placing ownership in the hands of the employee always has a chance to minimize the risks data-privacy regulations.

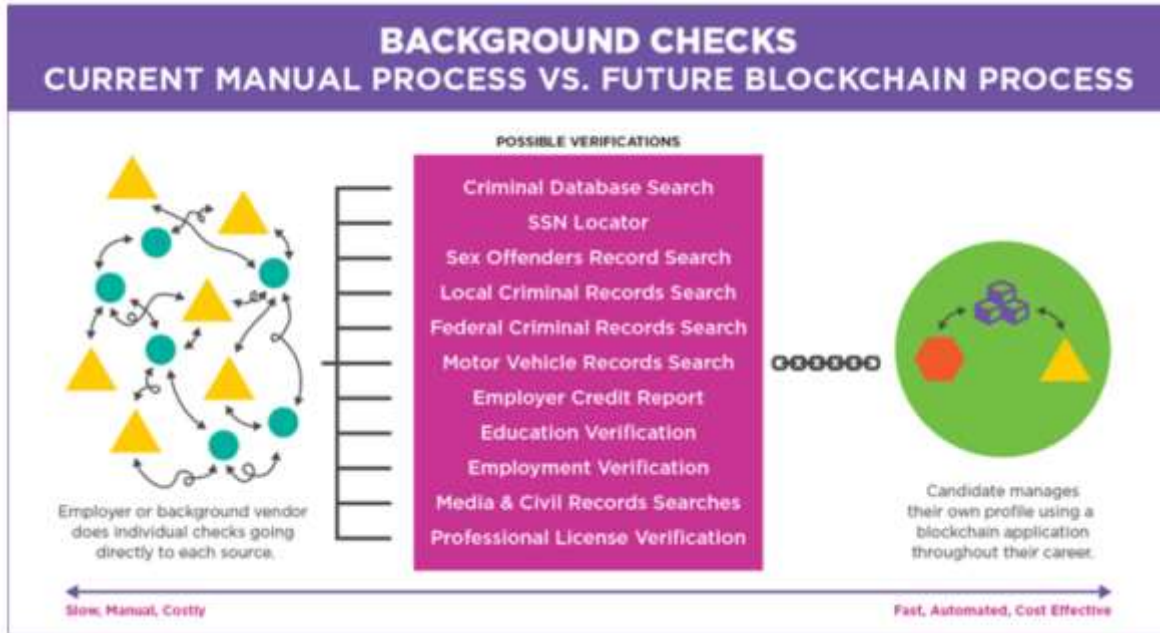
Skill Mapping- Using Blockchain:

Mapping the candidate's skill with the exact requirement is a big task for HR as it involves specific technology which only technical experts are aware. Blockchain has a potential to track everything from where it originated. Internet of Things (IOT) is a combination of software and network that enables the exchange of data between the objects. The application of blockchain makes historical readings nearly impossible to interfere with. Another Advantage of Blockchain is that, it can be used for spatial verification (i.e) it can track people where they are and when they made transaction. In the same way, The implementation of blockchain technology allows HR leaders to understand their employees' skills, strengths and access to their learning records. It also helps them to view the skills of all the potential candidates who have shared their details, thus enabling the HR leaders to be prepared for the future (PwC, 2015). Transition validity (retaining the records by major nodes) feature of the blockchain will help to positively influence HR professionals in the adoption of effective skill mapping.

Blockchain integrated Performance Management:

Performance Management is an important record keeping activity and should be implemented as a private ledger. Every year a block is created with the current year goals, targets accepted with all required measures. This block can be accessed by all the members in the organization to add feedback and give appreciation or suggest for areas of improvement. When an assignment is allocated, corresponding manager can add a block which can be validated by the line manager. When the assignment is completed, the assignee (Manager) will provide feedback for that block. If there is

any deviation, the validation process will prompt the same. At the end of the year, all blocks would have been validated and the block can be seen by everyone. This reduces any new documentation and by analyzing various blocks a true feedback can be given to the employee. This will definitely provide a greater employee experience as there is transparency in the process and possibility of reduced bias or subjectivity. Final feedback can also be recorded in the same blockchain which again can be validated.



Source: Cielotalent.com

Figure 4: Traditional vs Blockchain process of Background check of candidates

Data Analysis:

As per the above Study, 4 factors were considered to know the opinion or view of HR on Blockchain technology. Chi Square Test was conducted to find the significant difference between the view on blockchain and traditional HR Practices.

1. Data Validation
2. Recruitment
3. Skill Mapping
4. Performance Management

Null Hypotheses:

- H0: There is no significant difference between HR View on using Blockchain technology and traditional HR practice on Data Validation
- H1: There is no significant difference between HR View on using Blockchain technology and traditional HR practice on Recruitment
- H2: There is no significant difference between HR View on using Blockchain technology and traditional HR practice on Skill Mapping
- H3: There is no significant difference between HR View on using Blockchain technology and traditional HR practice on Performance Management

Research Design and Sampling Method Used:

Total Samples Collected	148
Respondents Average Age	34
Average Career Level of Employees	Manager
Main Focus area of Questionnaire	Awareness of Blockchain Technology and its Application in current HR Practices
Sampling Method	Snowball Sampling

Sector Considered	Service Sector
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Table 1: Respondent Statistics**Research Results:****Blockchain Technology vs HR Traditional practices on Data validation:**

Variable	Blockchain	HR Traditional Practices	Can't Say
Verifying the Academic Qualification or data of Employees	70.9%	25.3%	3.8%
Getting the Employees Previous Employee Data and Skill Certificates	79%	13.4%	7.6%
Data Validation Access and Sharing the information	69.3%	22.8%	7.9%
Cost Saving	82.1%	15.4%	2.5%
Data Security	73.2%	24.2%	2.6%

Table 2: Data Validation Response**Result Inference:**

Chi Square Test was conducted at significance value of 0.05 and the Chi Square Statistic value is 20.291. The p-value is 0.009289. Since $p < 0.05$, Alternate Hypotheses is accepted. There is significant difference between the opinion of HR's on Blockchain vs HR Traditional Practices on Data Validation.

Blockchain Technology vs HR Traditional practices on Skill Mapping:

Variable	Blockchain	HR Traditional Practices	Can't Say
Understandability of Skill	66.9%	28.3%	4.8%
Speed	51.3%	42.6%	6.1%
Easy to Plan on L &D Strategies	58.1%	37.5%	4.4%
Cost	34.3%	52.3%	13.4%
Identification of sub skill over core skill during mapping	72.4%	22.2%	5.4%

Table 3: Skill Mapping Response**Result Inference:**

Chi Square Test was conducted at significance value of 0.05 and the Chi Square Statistic value is 1.638. The p-value is 0.423. Since $p > 0.05$, Null Hypotheses is accepted. There is no significant difference between the opinion of HR's on Blockchain vs HR Traditional Practices on Skill Mapping.

Blockchain Technology vs HR Traditional practices on Recruitment:

Variable	Blockchain	HR Traditional Practices	Can't Say
Ease of Sourcing the Candidate Profile	43.3%	44.2%	2.5%
Cost	74.3%	22%	2.7%
Third Party dependency	59.8%	27.7%	12.5%
Background Verification	55.6%	21.1%	23.3%
Speed	61.4%	32.9%	6.7%

Table 4: Recruitment Response**Result Inference:**

Chi Square Test was conducted at significance value of 0.05 and the Chi Square Statistic value is 64.11. The p-value is 0.0012. Since $p < 0.05$, Alternate Hypotheses is accepted. There is significant difference between the opinion of HR's on Blockchain vs HR Traditional Practices on Recruitment.

Blockchain Technology vs HR Traditional practices on Performance Management:

Variable	Blockchain	HR Traditional Practices	Can't Say
Frequent and real time feedback	41.2%	38.1%	20.7%
Reduce Bias	62.8%	31.5%	5.7%
Timely Feedback	61.1%	36.2%	2.7%
Accessibility	36.8%	54.4%	8.8%
Cost	33.3%	58.4%	8.3%

Table 5: Performance Management Response**Result Inference:**

Chi Square Test was conducted at significance value of 0.05 and the Chi Square Statistic value is 10.08. The p-value is 0.0067. Since $p < 0.05$, Alternate Hypotheses is accepted. There is significant difference between the opinion of HR's on Blockchain vs HR Traditional Practices on Performance Management.

Discussion & Findings:

From the total 148 Samples collected from HR's from different IT organizations, Their view on the 4 factors were analysed which includes (Skill Mapping, Recruitment, Data Validation and Performance Management). The above factors are compared in terms of HR's view on Blockchain integrated HR practices over Traditional HR Practices. From the inferences, It is found that except for Skill Mapping, All the other 3 factors had significant differences from which we can conclude that on successful implementation of Blockchain technology in HRM Practices, The companies can take advantage on its competition with other companies by enjoying the benefits of blockchain.

Conclusion:

According to a survey conducted by Deloitte on 2019, 53% of the companies say that Blockchain Technology has become a priority for their organization, which is 10 percent higher than previous year. Digital Assets like Bitcoin and Ethereum have also started gaining traction as the investors have started investing in cryptos which also makes Blockchain technology more important as the Crypto assets are stored in Blockchain. Paper works and repeated tasks in HR Department are higher hence many companies are using many software to enhance the speed and accuracy of the department so that they can keep their workforce happy, Blockchain is one such technology which addresses all the problems like Speed, Accuracy, Security etc. Even though, Blockchain has many advantages over other technologies It has certain challenges which needs to be addressed. The foremost challenge will be regulatory (i.e.) who will regulate this Blockchain as of now there is no regulation. Very High Energy Consumption, which lead to ban of Crypto assets in countries like China. Lack of Adequate skillsets for the current Workforce, Blockchain is still new and individuals must go through lot of training before working into it and the trainers available are very less. These challenges have to be overcome by Blockchain companies to make it strong future technology not only in HR but also in every part of the organization. Blockchain will definitely become an integrated tool in the organization which is very imminent in short duration.

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