The Impact factors of Using Blockchain in the adoption of Human Resource R Management in Small and Medium Firms

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Abstract

Blockchain is a relatively new trend that has developed an identity of its own. It is a technology that has the potential to have a significant impact on human resources. Apart from human resources, it has a diverse range of fields in which it has already established a strong presence. It is a decentralized and distributed ledger that is capable of recording not only business transactions, but also all types of information such as data about loans, property rights, and data related to the transaction of any asset. It is decentralized, which means that it can be accessed from any network but cannot be modified, which makes it extremely transparent and even secure. The authors of this paper have attempted to discuss the various fields in which blockchain is used and, most importantly, the characteristics and benefits of blockchain that make it so critical for human resource management departments in organizations. These findings can help government agencies, freight transportation companies, and blockchain service providers strategize for the progress and effective implementation of blockchain, as well as improving overall organizational competitiveness.

1.   Introduction

All economic operations are being digitalized at a rapid pace, and it is projected that this trend will continue in the future years. In 2015, the digital economy accounted for 22.5 percent of global GDP, with that figure predicted to rise to 25.5 percent by 2020. (Brilliantova and Thurner, 2019). Due to the ever-increasing coverage of internet connectivity, the majority of existing digital resources (e.g., servers, data bases, services, or even smart objects, ranging from smart watches to last-generation cars) are connected to the internet (Maesa et al., 2019). Throughout the whole supply chain network, the digitization phenomenon is utilizing new connection models (Queiroz and Wamba, 2019). The supply chain network's business operations have been shifted from manual to electronic communication and processing through the use of information and communication technology systems (Chang et al., 2019). Furthermore, the freight logistics business is undergoing a shift from a centralized and computerized system to a decentralized and digital system. The digitized freight logistics system is based on sophisticated interconnected hardware systems and necessitates the development of new technologies to facilitate the interchange of financial transactions and related data. Decentralized and digitalized logistics systems can be used to create distributed freight logistics markets, which offer financial transparency and make mature supply chain networks easier to manage. These decentralized freight logistics marketplaces necessitate a fledgling distributed ledger technology, blockchain technology, that facilitates peer-to-peer exchange and so aids in overcoming the challenges that decentralized and digitized freight logistics systems face (Schuetz and Venkatesh, 2019).

Blockchain is a decentralised technology, or a distributed ledger system, that can store data of any type, not just financial transactions. It is a critical technology for securing Bitcoin (a cryptographic-based digital currency) is a decentralised, publicly accessible, and immutable ledger. As citizens of the twenty-first century, we rely heavily on technology, which poses a significant risk of identity theft or personal information piracy. However,

blockchain is a type of technology that can be accessed via a variety of different networks, i.e. it is transparent, but it also has the unique property of anonymity. The technical characteristics of block chain technology include decentralization, distrust, agency elimination, chronology, anonymity, group maintenance, open sourcing, programmability, distributed, unchangeable encrypted data, safety, and reliability. In comparison to other open ledger systems, it is extremely secure and convenient.

If the block chain's characteristics are considered and applied to human resource management, the results will be extremely beneficial for the business organization. In numerous ways, for example, recruiting can be simplified, the employee's work can be accurately assessed, and the amount of leave taken by the employee can be easily tracked.

2.   Review of Literature

(BIG DATA: The Arms Race of the Twenty-First Century, 2017) A distributed, publicly accessible, and immutable ledger, commonly referred to as a blockchain, is one of the critical technologies that secures bitcoin (a digital currency supported by cryptographic methods). It is a group of transactions that have been grouped together and posted to the ledger. Each group is referred to as a block, and each block is linked to the next, justifying the name blockchain. A particular user's blockchain contains a record of all the transactions that user has made and can be traced back to obtain detailed information about each transaction. Even the purchasing or selling of an asset, or any transaction involving an asset, can be recorded, and the record includes all of the asset's attributes, which can be used to track down the asset's owner in the event of theft. Normally, this feature is not available in other distributed ledger technologies. Nowadays, bitcoin is used in blockchain technology to avoid the issue of double spending—the issue was that anyone could use the same amount of digital currency in a rational location and at the same time. The use of bitcoin blockchains in numerous organisations has simplified the process by removing the need for a trusted third party while encrypting information about physical assets that previously had to be present.

(Block chain: The Fourth Industrial Revolution's Cryptographic Method, 2018) Due to a

The Impact factors of Using Blockchain in the adoption of Human Resource R Management in Small and Medium Firms

lack of competition or a change in the market, there is occasionally a surge in public demand in the supply chain market. Additionally, this is a source of concern for supply chain managers. To meet these demands, they devised some trust mechanisms and centralised enterprises, but they were short-lived due to their numerous disadvantages. Then blockchains entered the fray. Blockchain technology enables decentralised trust-based transactions, as well as coordination and cooperation. Not only can blockchain be used as an accounting system, but it can also be used to solve problems such as random public demand. According to the researchers, supply chain managers must bear in mind the use of block chain in synergy.

(2017) (Riia O'Donnell) The potential impact of blockchain on human resources is virtually limitless. In businesses, the recruitment process takes a long time, and at times, the company must outsource recruiters, and significant resources must be allocated to this task. However, if blockchain technology is used, the process will be more time efficient, as it will take less time to verify all types of documents. Second, the academic credentials and certifications of an individual can be verified, or some outstanding credentials can be discovered that were previously overlooked by other business organisations. Again, the previous performance or job experience of a candidate can be easily accessed through the use of blockchain, as once recorded, it cannot be altered even if the system is hacked or the candidate's previous employer closes. Additionally, if an employee is a foreign national, blockchain enables faster and more cost-effective payroll processing.

(Fincher, Marie, 2019) Blockchains are primarily used to record data. While contractors must wait for manual verification, if we use blockchain to record their invoices, this can be accomplished more conveniently. Numerous companies have biometric attendance systems that also record the time. Later, this information can be used to more easily adjust an employee's leave or determine the number of days he was late, allowing management to act appropriately. The primary function of blockchain technology is to manage financial transactions. If the company pays the employees' salaries, the work can be completed in a more convenient manner.

 (Ashik Ahmed, 2018). Blockchain technology has the potential to transform the way

The Impact factors of Using Blockchain in the adoption of Human Resource R Management in Small and Medium Firms

businesses are conducted. It is capable of creating traditional resumes and career networking websites such as LinkedIn. Rather than a student writing a CV or resume, blockchain technology can generate one for him. This would significantly simplify the recruitment process. Second, the taxation of contract workers is extremely complicated, which can be easily resolved using blockchain technology. The blockchain technology will go through all of the transactions recorded in it and then calculate the tax due.

Not only is blockchain used to facilitate financial transactions, but its features can also be effectively utilised in the human resources department, resulting in a slew of benefits. Its transparency and security distinguish it from other technologies, which is why it is used globally. And, when used in HR effectively, it enables the completion of a large number of tasks in a very convenient manner.

Numerous ways in which blockchain technology can have an impact HR is as follows:

- It has a great impact on recruiting in an organization. Typically, when a company recruits, it must hire external human resource recruiters; this requires a significant amount of time and other company resources to be allocated. Before recruiting a candidate, recruiters must verify his or her credentials, such as a degree, identification documents, and certifications. However, with the help of blockchain, this no longer needs to be verified manually, as all of the candidate's information is already stored in the blockchain. This saves considerable time and thus requires less of the company's resources. As a result, it is an extremely convenient and economical process.

- When all information about a candidate is recorded using blockchain, there is no possibility of degree fraud. The credentials and certifications obtained while obtaining those degrees can be verified, and it will be obvious if they are fraudulent. Blockchain is decentralized but it is really secure, information in it can't be manipulated.

- The blockchain technology is also useful in attendance of employees and time. In the biometric attendance system, blockchain technology is used. For instance, it

281

indicates when an employee entered the workplace and how many days he was on leave. And management can make use of this information.

- Prior to recruiting a candidate, the candidate's performance in his/her previous job can be verified using blockchain. This also helps determine the candidate's level of commitment to their work. Employers can use these methods to ascertain the candidates' personalities and make appropriate selections.

- And, perhaps most importantly, blockchain facilitates the use of bitcoin. Employees can be paid using cryptocurrency on the blockchain, which is an extremely secure method of payment.

The Impact factors of Using Blockchain in the adoption of Human Resource R Management in Small and Medium Firms

There are four ways in which the blockchain changes the characteristics of the value exchange that has been listed below:

- It eliminates the need for a trusted third party to sit between the supplier and the customer during transactions, such as estate agents, travel agents, or banks. For instance, if a customer can book an Uber directly by speaking with the driver, Uber acts as a third party in this case and has no role to play in the aforementioned situation. Similarly, blockchain technology eliminates the third party.

- The blockchain technology is extremely secure because it generates an immutable proof that some type of transaction occurred. It is designed in such a way that once data is recorded, it cannot be altered or changed under any circumstances, making it an extremely trustworthy piece of technology.

- Blockchain is associated with a concept known as smart contract. The business transaction is recorded in this by verbalising it and codifying it. In other words, the information that is recorded can be converted to computer code and stored and replicated on the system, all while being monitored by the network of computers that runs the blockchain.

- Due to the fact that blockchain technology does not require any bills, receipts, reconciliation, or other transactional components, there is no need for a back office in blockchain. When there is no requirement for a back office, significant money is saved globally, amounting to nearly 4 trillion USD.

3. Research Methodology

Research Methodology: A total of 45 structured questionnaires were sent to the government agencies, freight logistics firm. 29 questionnaires were selected randomly using computer generated program.

4. Survey Instrument

Survey Instrument: The survey questionnaire was developed based on previous studies. Five-point Likert scales ranging from strongly agree, agree, neutral and disagree to strongly

disagree were used to measure the items. The scale measured Technological factors (TFs), Institutional factors (TFs), Organizational factors (OFs). Survey instruments were modified and reworded to meet the requirements of the current study (Radianti et al., 2020; Sprenger & Schwaninger 2021).

5.   Research findings

This section presents Profile respondents, Instrument Reliability and data Analysis.

5.1   Profile respondents (firms Industry)

The researchers checked the properties of the sample population by the Frequency distribution test. The outcomes of Table 1 shows the dominance of men over women, the sample consisting of Gulf region staffs. The sample consist of 62.0 % were men and that 38% of them were women. The table also shows that respondents with age between 25-35 55 years old are 55.2%, 44.8% were between 36 to 46 years, (See Table 1).

Table 1: The Demographic Profile of the Respondent

Characteristic	Number of respondents	Percentage of samples (%)
Gender		
Male	18	62
Female	11	38
Age		
25-35	16	55.2
36-46	13	44.8
Education		
Bachelor's degree	21	73
Postgraduate degree	8	27
Years of experience		
6-12	17	58
Above 12	12	42

Roles		
Director, Strategy	12	41.4
Information Technology manager	10	34.5
Financial manager	4	13.8
General manager	3	10.3
Firm size (number of employees)		
20-100	23	79
101-200	6	21

5.2 Instrument Reliability

The researchers used the Reliability Analysis, with Cronbach's alpha coefficient to test the reliability and consistency of the questioner. The instrument is considered to be reliable if its coefficient value is equal to or more than 0.7. The outcomes of Table 2 shows that for all the research instruments the coefficient value were more than 0.70. The value for UB and FG was0.711and 0.798respectively, which show that all instruments used in the questionnaire are highly consistent and reliable (see Table 2)

Construct	No of Items	Item deleted	Cronbach's Alpha Coefficient
Technological factors (TFs)	6	None	0.781
Institutional factors (IFs)	8	None	0.795
Organizational factors (OFs)	7	None	0.788

5.3 Data Analysis

Data Analysis: In the present study, SEM was used to test the conceptual model framed for behavioral intention in adopting MTLE. The application of SEM includes causal modeling

or path analysis, which aided in examining the causal relationships between different variables, confirmatory factor analysis, correlation structure models and so on. AMOS was used for the analysis of confirmative factor analysis (FL), composite reliability (CR) and Average Extracted Variance (AVE). Table 1 shows the instrument reliability.

Table 1: Instrument Reliability

Constructs	F.L	C.R	AVE	C.A
TFs 1	0.78	0.78	0.63	0.88
TFs 2	0.85			
TFs 3	0.88			
TFs 4	0.84			
TFs 5	10.78			
TFs 6	20.76			
IFs 1	0.76	0.86	0.69	0.83
IFs 2	0.77			
IFs 3	0.79			
IFs 4	0.85			
IFs 6	10.81	0.90	0.64	0.78
IFs 7	20.85			
IFs 8	30.89			
OFs1	0.85	0.76	0.62	0.77
OFs2	0.87			
OFs3	0.88			
OFS4	10.71	0.83	0.61	0.75
OFS5	20.72			
OFS6	30.75			
OFS7	40.76			
OFS8	40.78			

6.   Conclusion

This study demonstrates the enormous impact that blockchain technology can have on human resource departments within organisations. The capabilities and advantages of technology cannot be overlooked. Not only can blockchain technology be used to record transactions, but it can also be used in corporate human resources departments. It simplifies, costs less, is more efficient, and is also more convenient in terms of time. Globally, blockchain technology is widely accepted due to its decentralised nature, security, immutability, and transparency. And if this technology is implemented globally in human resources, it will result in a revolution in the corporate world as a whole. The findings obtained by this study can be used as a key guideline to the industry and practitioners in their practices of business development.

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