

# POTENTIAL IMPACT OF BLOCKCHAIN ON HR AND PEOPLE MANAGEMENT

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**Abstract** - Blockchain is a digitized, decentralized, immutable, ingenious invention of the current world by a person or a group of persons under the pseudonym, Satoshi Nakamoto. Everything that has a value can be recorded into a blockchain ledger and transactions can be done based on the record. People often confuse Blockchain ledgers with Google Docs, where Google docs is a shared ledger and multiple people can access the ledgers at the same time. In Blockchain, the person having the token (or key) only can access the ledger and once transactions are done it is non-modifiable. Blockchain till date hasn't had any failures and is known for its durability and robustness. Even though there are a lot of instabilities in the crypto-currency market in 2017, companies are investing more and more in this technology and have been filing patents throughout the year of 2018. Bitcoin is one application of blockchain and from that application business people can learn and expand how it can be used for different areas. In the recent years, many HR organizations have started using Blockchain for their recruitment, compensation, talent development and performance evaluation. Blockchain ensures transparency, ease in usage, updating ledgers and fraud prevention and fraud detection among all functions of HR. This is only just the beginning. As more and more firms embrace Blockchain, most divisions and departments will intersect their functionalities with the platform, creating a cleaner, simpler, convergent and democratic approach to data, delivery, and process efficiency. This paper focuses on the applications of Blockchain in various industries and how blockchain as a technology is used in HR functions such as recruitment, performance evaluation, talent management and compensation. This paper also discusses the potential pitfalls of Blockchain briefly.

**Keywords:** Bitcoin, Blockchain, HR, Immutable, Ledger, recruitment, competency

## Introduction to Blockchain

In a world of Internet fraud, hacking and malware - having accurate information about a transaction and a way to verify the source of transaction of value is essential. For this to happen, we need to have reliable systems which can be trusted and be tamper-proof. The quality and integrity of the information we are processing can be checked with a technology called blockchain. It is also called as 'Internet of Value' and 'Internet of Transactions'. It acts as a single source of truth that is verifiable, immutable and unchangeable. It is a constantly growing ledger which stores permanent record of all transactions that have taken place in a secure and chronological manner. One unique feature of blockchain is that every transaction is stored in a chronological way one after the other. Blockchain uses cryptographic hashing (SHA 256) for security which creates a hash equivalent for every transaction stored. Every block in a blockchain is cryptographically tied to the next block (that is.) the hash equivalent of the previous transaction is stored in the subsequent transaction. Hence, even if hackers try to add or delete or modify any transaction in the middle of the ledger, they need to generate a hash equivalent for subsequent transaction of the entire block. Blockchain works on principles such as creating value, reliability and building trust through consensus. The first block (transaction) in a blockchain is called Genesis block which was created in 3<sup>rd</sup>, January 2009. New blocks are added approximately every 10 minutes with the latest transactions. The blockchain protocol confirms that every single block added to the blockchain is valid and conforms to the rule of blockchain. Furthermore, each block that is added contains a cryptographic hash number of the previous block thereby forming a blockchain. This ensures the integrity of the blockchain, so that newly added blocks are consistent with the previous blocks.

Blockchain uses digital tokens or colored coins to assign anything to it. For example, if person A has a valuable work of art, he can assign a colored coin to that valuable art. And since, it is assigned to him, the entire network will get to know that the person A has control over the art. And the moment, the person A sells the art to person B, colored coin will be assigned to person B and he will have control of that art and it no longer applies to person A. Blockchain acts as a common digital history in internet. The ideology behind the usage of blockchain is sensitive information of the users will remain immutable and secure.

Bitcoin is one application of blockchain and from that application business people can learn and expand how it can be used for different areas. The Gartner report<sup>1</sup> published on August 2016, "Hype Cycle for Emerging Technologies" ranked blockchain highly in terms of expectations. It indicated blockchain technology has potential to kick-start a platform evolution or revolution within the next 5-10 years. As Don and Alex Tapscott argue in their book, "Blockchain Revolution", blockchain could be the great economic leveler. They see it as a tool to cut down the role of middlemen from our economy and compensate the makers and achievers who truly create value. Many political enthusiasts see blockchain technology as an instrument for transforming the society. The recently launched Cryptoeconomics Lab by MIT is the first academic research institute in blockchain and crypto space collaborating the fields of business, computer science and economics. The lab forecasts that as the market matures, new business models will emerge, and entrepreneurs will discover novel solutions to the funding, revenue and ownership challenges blockchain technology poses.

A report from Thomson Reuters<sup>ii</sup> states that, 225 out of the 406 blockchain patents are filed in china in 2017. It is been observed that both blockchain-specific and cryptocurrency-specific patents are increasing in popularity. Despite the rules or stringent regulations, interest in blockchain technology is growing among companies across the world.

### **How is Blockchain used in other industries?**

According to a report by SHRM<sup>iii</sup>, “More than 40 top financial institutions and a growing number of companies across industries are already adopting blockchain, and Microsoft and IBM have made huge investments in the technology.”Blockchain’s potential to change the way how business performs is visible in industries such as insurance, food processing and safety, health, shipping, supply chain, inventory, jewelry, pharmaceuticals, legal and fashion.

Tech behemoths such as IBM, Accenture and Microsoft have already started to build products and applications that will benefit from blockchain technology. Logistics giant DHL is collaborating with Accenture to establish a blockchain-based track-and-trace serialization system worldwide to handle 7 billion unique pharmaceutical serial numbers.

Fintech companies such as JPMorgan, MasterCard and Bank of America is also showing greater interest in this technology by filing for patents every year. Among which, Bank of America owns atleast 45 patents in cryptocurrency-related patents.

Even food Security Company such as Gogo chicken has an interesting patent where lifecycle of poultry will be monitored by facial-recognition system with the help of IoT, Blockchain, artificial intelligence and anti-counterfeiting technology.

In Fashion industry, customers can witness the journey of their garment right from the farm to the shelf. With blockchain technology in place, inventory management and raw material handling becomes simpler and efficient.

Adam Bridgers, attorney with Fisher & Phillips LLP<sup>iv</sup>, notes that blockchains can be public or not; “Companies can create their own private blockchains that never leave their servers.”IBM along with Nestle, Walmart and Dole is taking steps to regulate food safety using blockchain. Thus, the stakeholders of this industry can use the blockchain network to identify contaminated food to their source and can work efficiently on quick removal of foods from their store shelves. Companies such as FedEx, UPS, Maersk, British Airways are few of the other who successfully integrated blockchain technology into their system.

Blockchain also works for the greater good of the society through a project initiated by United Nations in human trafficking and child trafficking. Also, UN send aid to 10,000 Syrian refugees using Ethereum blockchain.

### **Blockchain in HR**

Disruptive technologies are always welcomed by early adopters and innovators. However, the use of block chain technology is not just limited to bitcoins and capital markets, it is also extensively used in all functional departments of an organization. The first one in the queue is the Human Resources department. The effects of blockchain on HR is profound and pervasive. Organizations can create their blockchain solution using smart contracts to confront some of the greatest problems of HR such as authenticating an employee, verifying their performance, checking their background history and managing information across multiple job roles, managers and companies.

HR benefits from blockchain by identifying the problems and areas of inefficiency in their current operations. Processes and activities which require much manpower, time and money may be considered to be appropriate for transformation to blockchain technology which significantly reduces data collection and third-party verification. The immutable and secure feature of blockchain pushes the employers to start evaluate a potential candidate by looking at his credentials and past performance in the relevant field. As for the candidates are concerned, their blockchain ledger will give their employers the feel of their real potential and talent and will help them to properly represent their distinctive capabilities and achievement beyond a recommendation letter.

Many Blockchain-ready HR software companies such as Peoplewave, Vertalo, Job.com, Jobeum and Caerus connections are gaining momentum in Asian countries for their unique proposal of data-driven people management, transparent feedback and verified performance data.

### **Blockchain in Recruitment**

Recruitment is vital function of HR and Blockchain will help the managers to untap new talents. By leveraging Blockchain technology, recruiters can find out more information on the candidates than what is written in their resume. Either be it compliments or criticisms - everything is available in their ledger which cannot be changed, modified or deleted altogether. This facilitates the recruiters to identify highly skilled and competent pool of HR resources. Blockchain also saves recruiters from ‘Resume Polishers’ who exaggerate, overstate or even invent qualifications for themselves to increase the likelihood of their selection.

A survey by CareerBuilder, an online job finder site, states that about 58 per cent of candidates give falsified information on their resume. By deploying Blockchain technology these scenarios may be reduced altogether where organizations can start doing background checks or verify credential of a candidate through blockchain ledger. Once a credential is entered into ledger, it remains locked even if their educational or work institutions have shut down.

For the candidates, blockchain will work as their digitized resume where they can have their ledger for number of degrees completed, certifications, grades, work history, accomplishments, salary, research and innovation and patent details. They can decide and control data of their lives by providing access keys to the company they apply for.

For any employer to verify the authenticity of the certification, the candidate must release an access (key or token) to the entry cross-signed by the certifying institution and once the credential is confirmed within the ledger, the candidate

may then decide who can have access to it. With the trend of gig economy, youngsters are looking for different opportunities and learning experiences. Blockchain will enable them to record and share their personal information in a more trustable way.

The Massachusetts Institute of Technology of US have initiated a Digital certificates Project wherein they have built an ecosystem for creating, sharing and verifying blockchain-based educational certificates. Their Digital certificates which have codebase as cert-schema, cert-issuer and cert-viewer are registered on the blockchain ledger, tamper proof and cryptographically signed.

HR is one arena where fraud is evident in a series of ways such as forged or altered documentation to completely fabricated documents like school credentials or previous employment records. Another example is foreign documents that are mistranslated, improperly representing the original or changing the context altogether. On the same note, Japan based Recruit Technologies has announced a strategic alliance with ascribe to bring blockchain technology to HR industry to increase transparency and focus more on HR credentials fraud. They are working on developing a prototype resume authentication database and will be using Bigchain Database to overcome scalability issues in traditional blockchains. LaborX, the first blockchain-powered job platform in the world by Chronobank emphasizes on utilizing a permanent credential system, smart contracts and a transparent token marketplace.

### **Blockchain in Compensation**

Block chain along with data mining techniques will be a boon for compensation department where benefits, events or payments can be processed without much hassle. Once the probationary period is completed by an employee, block chain will automatically trigger for his increase in salary. Even handling international employees payroll will be benefitted from this technology by cross-border payments and reduced tax liabilities. Using Bitcoin, the role of intermediary banks and other financial institutions can be avoided and fast processing of payments can be done within few hours. It also reduces much paperwork and number of receipts processed for every transaction, thus resulting in reduction of back-office overheads and sustainability.

US based Bitwage provides frictionless invoicing to deliver international wages to employees and contractors with an option of choosing among 25 different currency accounts. They assist international payments by handling the conversion of bitcoin to local currencies. Japan based GMO Internet which provides web-related services including Bitcoin exchange announced that they will pay the part of their employees' salaries in bitcoin if they want. Similarly companies such as Chronobank, Dana crowdfunding, Fairley, SC 5are using blockchain-type technology to allow organizations to pay their contract workers without going to third party. Similarly for cross-border payments, IBM has proposed a new blockchain banking solution that allow financial bodies to allow for fast transaction.

### **Blockchain in Talent Management**

Employers can create a trustworthy comprehensive blockchain record of their talent workforce which will include their competencies, training, performance assessment and behavioral traits. By using Artificial Intelligence and People analytics tools organizations can map the right people for the right job, thus encouraging a competency based work culture in the organization.

### **Blockchain in Performance Evaluation**

With the help of block chain technology, employers can create performance blockchains, where evaluations and reviews about each employee will be noted. This will help the future recruiters to know the real potential of the individual they are recruiting. Blockchain's positive influence on employee's productivity will benefit the startups and medium enterprises who has to incur huge cost in recruiting the right talent for their job roles. Also blockchain ensures fraud prevention and HR cyber security for employees as well as private contractors.

### **Potential pitfalls of Blockchain**

The immutable, secure and verifiable technology of Blockchain is the current need of every HR department. But for that to happen, we need to have digitized economy where all the aspects of an economy are connected together and digitized. Necessity of uniformity of digital certification by all universities is the first step in implementing HR Blockchain so that credential scan be easily updated and verified. For example, if every jobseeker had a blockchain ledger where all their credentials are stored, it would significantly speed the education background check process, but if only a handful of universities provide that data in blockchain, it doesn't add much value to the process. Also, it is important to ensure that all employees have an updated ledger at any point of time.

There are few other problems as well related to blockchain such as people's resistance to change, security of data, people's fear of storing their certificates in new technology, computer and internet illiteracy of few people, difficulty in using blockchain, issues of token – missing, lost, theft and the like.

The major problems that Blockchain companies face majorly is the shortage of blockchain experts to build tools. As the demand for the technology increases day by day, very few people are qualified in building the technology. Researcher Bridgers wonders "whether blockchain will present similar problems to those we see today with social media. Companies sometimes encounter information they shouldn't have while viewing candidates' social media accounts; the same could happen with blockchain data. "Will we be asking whether we should ask candidates for access to blockchain in the future?" We'll also have to shift our thinking about sharing information, Bridgers said; "In addition to having the tech, we

have to have the cultural readiness to go there." With all things put in place very soon we will see the real applications of Blockchain in HR and how it eases the life of human beings.

### Conclusion

Blockchain is one such technology which can be used across all industries. The major applications are so far seen in logistics, fashion, food processing, manufacturing and capital payments industry. HR benefits from blockchain by identifying the problems and areas of inefficiency in their current operations. Mapping the right employees to the right jobs at the right time is the mantra of HR department. Rather than just using instincts, it is the right time to shift to technology based recruitment and create a happy and contented workforce. This constructs a positive impact on business results too with increasing innovative ideas, productivity and smart work. Blockchain the companies to regain momentum against their competitors by leveraging innovative technology. There are already over 1200 patents on this technology and in the coming years blockchain technology along with bitcoin may open new doors for business.

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