NEW JOB POSITIONS AND RECRUITMENT OF EMPLOYEES SHAPED BY BLOCKCHAIN TECHNOLOGIES

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Abstract: *Blockchain as a new tech trend with dynamic development has the real potential to change every industry and company. In this paper are examined the impacts that blockchain has on human resource management – establishment of new job positions and changes in the recruitment process. Application of blockchain technologies in organizations creates not only new technological jobs and positions, but also new jobs and positions in other professions. Due to blockchain technologies, recruitment process will be less time consuming with lover cost and with increased overall quality of recruitment.*

Keywords: *recruitment, new job positions, selection, blockchain*

INTRODUCTION

Throughout the history, technology was the key factor in the organization of working processes and activities of any company [13]. Some of the newest technology trends that shape processes and activities of human resource management are: the internet of things, artificial intelligence, intelligent applications, big data and blockchain [25]. Blockchain is defined as a shared, distributed ledger, that uses a set of nodes to maintain data structure, organized in blocks. There are strong beliefs that blockchain technology will reshape the way businesses are done, as Internet did almost three decades ago [17].

The aim of this paper is to examine how blockchain impacts on appearance of new job positions and recruitment process. The first part of the paper defines blockchain technology and its key characteristics, while other parts of the paper examine the new job positions for working with those technologies and how they impact on recruitment process.

BLOCKCHAIN TECHNOLOGY: DEFINITION AND KEY CHARACTERISTICS

By reviewing the literature, many definitions regarding blockchain can be found. Some of them are very hard to understand, in some are missing the important characteristics of blockchain, while some of them are incomplete. The simplest way to define blockchain is to represent it as a database that consists of a physical chain of fixed-length blocks with N transactions, where each of N transaction added to a new block is validated before insertion [2]. A word „block" is used to describe record, while blockchain represents a chain of records which are stored across a large number of networked independent computers. In fact, blockchain represents „distributed ledger of transactions implemented as data batched into blocks where each block references

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and identifies the previous block using a hashing function which forms an unbroken chain (blockchain)" [2, p. 6]. One of the most complete definition states that blockchain is a decentralized database system that contains sequential, cryptographically linked blocks of digitally signed asset transactions, managed by a consensus model [20].

Satoshi Nakamoto got his job by inventing Bitcoin in 2009, the world's first decentralized digital currency that allows users to transfer funds to each other through a network from any place in the world. Bitcoin and other cryptocurrencies have been launched and stimulated the need for new type of companies which will provide various blockchain services [11].

Blockchain can be observed and analyzed through three different categories, Blockchain 1.0, Blockchain 2.0 and Blockchain 3.0 (see Table 1).

Table 1: Blockchain categories

Category	Description
Blockchain 1.0	Currency – the deployment of cryptocurrencies in applications related to cash.
Blockchain 2.0	Contracts – economic, market and financial applications using the blockchain that are more extensive than simple cash transactions: stocks, bonds, loans, mortgages, titles, smart contracts.
Blockchain 3.0	Applications beyond currency, finance and markets – in the areas of government, health, science, literacy, culture, art.

Source: Adapted from [21]

Beside Blockchain categories presented in Table 1, there are announces of Blockchain 4.0. Seele platform that promotes unity in the blockchain space with platform that enables cross chain communication and brings harmony into blockchain [16]. Seele is the blockchain platform created to solve the scalability, security and efficiency problems found in current blockchain networks with the final aim to build the Internet of Value for the future [29].

Potential advantages and benefits that can be achieved by adopting blockchain technology have been noticed by many companies [17]. Blockchain has the potential to reshape and completely transform business strategies and operating models of the companies [2], [21]. It can be used to increase efficiency of global supply chains, financial operations, asset ledgers, social networking, human resources, production, research and development, etc. Furthermore, blockchain may be used in activities that are time-consuming, repetitive in their nature and/or involve much human effort and cost [7].

Human resource management may be completely changed and reshaped due to the application of blockchain technology. For that reason, the aim of this paper is to analyze the impact of blockchain technologies on the establishment of new job positions in organizations and recruitment process.

NEW JOB POSITIONS ESTABLISHED DUE TO THE BLOCKCHAIN TECHNOLOGY

Any organization that implements new technologies must have employees with necessary knowledge and skills for working with those technologies [14]. Blockchain technologies require employees which know how to use them in a proper way for specific organization. The process of implementation of blockchain technologies requires leadership, but also various skills of professionals who can develop the appropriate blockchain strategy.

The first thing that has to be done is to identify employees in organization that are interested in new blockchain technology and to consult entire IT team regarding all benefits and implications. Good practices of other organizations are also very useful in the process of implementing of new technologies [22].

Many companies which started to implement blockchain technologies firstly used services from consultancy companies that are established with the purpose to help organizations in those implementations (for example Accenture, IBM, KPMG, Microsoft, Consensys, Chainsmiths) [24]. Other companies that want to do this implementation on their own are aware that forming a blockchain implementation team is a key factor needed for success. It is important to emphasize that knowing blockchain from technological perspective is not enough – it is necessary to know how to apply those technologies in organization in order to create new value [3].

The key job positions that are necessary in organizations that use or plan to use blockchain are [15]:
Blockchain Developer / Engineer with appropriate level of technical knowledge and experience in helping companies to develop blockchain platforms.
Blockchain Project Manager who has the role and responsibility to organize and coordinate blockchain development in organization, and to engage all employees in implementation and usage of those technologies.
Blockchain Designer who is responsible for user interface and visual design of blockchain solutions, with the aim to design user-friendly interface that nurture trust among users.
Blockchain Quality Engineer has responsibility to maintain and ensure all aspects of quality in blockchain development framework according to quality assurance (QA) standards.
Blockchain Attorney / Legal Consultant with the role to examine and analyze all legal questions regarding how activities and processes and conducted, but also to establish new legal framework.

Furthermore, other job positions regarding blockchain technologies appeared. Some of those positions are: Blockchain Tech Researcher / Marketer, Blockchain Concept Developer [18], Blockchain Analyst, Blockchain Research Scientist, Blockchain Architect, Blockchain Backend Engineer, Blockchain Algorithm Engineer, Staff Blockchain Engineer [26]. In some companies exists the position of Blockchain Intern for well-established developers and programmers who want to learn blockchain as new technology [19].

Implementation of blockchain technologies in organizations creates not only many new technological jobs and positions, but also new jobs and positions in other sectors and departments.

Demand for blockchain knowledge and skills is in rise [3]. It is estimated that above 1.500 blockchain startup companies are now looking for new employees, along with a well-established and known ICT companies [9]. Observing the period from November 2015 to April 2018, blockchain jobs have gone by 63% on Indeed, while LinkedIn shows 2.527 search results for blockchain developer jobs in the USA [11].

Job positions regarding blockchain technologies impose that employees can work from home, as a freelancer, or full-time in office [6]. Salaries for job positions that include blockchain technologies are from 10 to 20% higher than salaries offered in a job in companies that do not use blockchain [5].

IMPLICATIONS OF BLOCKCHAIN TECHNOLOGY ON RECRUITMENT OF EMPLOYEES

A few years ago, even imagining a marketplace where candidates could only provide one verifiable set of records to employers was a really hard. With blockchain this can be a reality because those technologies will revolutionize the way candidate data are managed [4].

Verification of candidate information is very time-consuming task in the recruiting process because it can be very challenging to verify all working and education history of the candidate. Using blockchain will allow human resource managers to quickly examine education, working experience and specific certifications of candidates. The recruitment process will be more digital and less paper based [12].

Recruiters which use blockchain have strong and powerful tool that can be used in order to search and integrate at one place all information about candidates [8]:
Education Verification
Media and Civil Record
Professional License Verification
Employer Credit Report
Sex Offenders Record
Local Criminal Record
Motor Vehicle Record

Blockchain technologies make all employment history available at one place - where candidates have worked, what they have done on their previous jobs, but also their key performance indicators, promotions, reasons from leaving and changing the companies. On that way, the procedure of verification previous employment history and references is much less time consuming and some of the collected and summarized information can be used for talent management and acquisition [1]. Furthermore, this will reduce the risk of fraud while examining candidate's verification [10].

Some of the other impacts that blockchain may has on recruitment process are [23], [28]:
Standardization of career profiles of candidates which consequently improves the quality of resume content;
Easier recording and tracking of career development with QR codes on candidate's profile;
Easier validation of the content of higher quality candidates and transparency - on the one hand for recruiter who knows that gets the most ideal and qualified candidate, and on the other hand for candidate who may be confident that possess the right qualification and skills for the job [27].

Safety of information and data are ensured and there is a minimum or not at all chances of data compromising.

The recruitment process will be less time consuming and cheaper because reduced referencing requirements.

Better overview of potentials for employee mobility during recruitment process (international expenses, tax liabilities, cross-border payments).

Recruiters are not the only ones that benefit from blockchain technologies, but also the candidates. They can manage their profile and entire career using blockchain applications.

CONCLUSION

Blockchain, as a new tech trend with dynamic development, has the real potential to change every industry and company. In this paper are examined the impacts that blockchain has on human resource management – establishment of new job positions and implications on the recruitment process. Some of the new job positions that are established in organizations due to blockchain are: Blockchain Developer / Engineer / Architect, Blockchain Project Manager, Blockchain Designer, Blockchain Quality Engineer, Blockchain Attorney / Legal Consultant, Blockchain Tech Researcher / Marketer, Blockchain Analyst, Blockchain Research Scientist, Blockchain Backend / Algorithm Engineer. Regarding recruitment process, there are many benefits among which are easy verification of candidate information, standardization of career profiles, easier recording and tracking of career development. Consequently, the recruitment process will be less time-consuming, less paper-based, with lover costs, while at the same time recruitment professionals can be more efficient, effective and productive.

Blockchain in the recruitment process is still in development stage, but it is sure that it will have significant effects and benefits for human resource managers and candidates. Any aspect of further investigation of the impact of blockchain technologies on human resources may be of great benefit not only for human resource managers, but also for all employees who work with those technologies or plan to work with them in the future.

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