Chapter 11
Information Retrieval in Business Industry Using Blockchain Technology and Artificial Intelligence

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ABSTRACT

Industry 5.0 promotes automation in an optimized way. Collaboration with blockchain technology and artificial intelligence helps to enrich Industry 5.0 with its quantifiers and qualifiers. In the business industry, information plays an iconic role. When we consider the issues of storage and retrieval, we need to think about blockchain technology where the data will be stored and shared in a secure way. Here, the data will be distributed across the network in an encrypted format; hence, the original data can be viewed only by the owner of the data. Blockchain stores the information in the form of blocks. Every block has three sections. The first section holds the hash value of the previous block, the second one holds the information to be stored in a block, and the third one holds the hash value of an upcoming block. It does not allow an intruder to hack or modify the data without user's knowledge as these blocks are interconnected on both the sides with their hashes. This synergy of technologies brings supremacy in the field of business industries which will be discussed in this chapter.

INTRODUCTION

Industry 5.0 is a new construction model where the cornerstone lies on the interactivity between the human and machine. This interaction must resolve the manufacturing complexity of the future in tackling the growing customization through an enhanced robotized production. We can strongly believe that,

machines will take over all the tedious and repetitive tasks whereas human will be handling the creative portion of a task along with the responsibility of supervising machines to lift the quality of production across the globe (Melnyk et al., 2019). In many cases, we come across situation where the personal data are getting hacked and misused or finding trouble with a central server. In order to avoid such circumstances, the authors are advising to store the confidential records in a blockchain based platform. This can also be termed as decentralized cloud which promotes data access from anywhere in the world. As the transactions are stored as blocks, each block contains certain storage potentials. All these blocks are chained together in a corresponding order. When it gets filled in, it reaches another block. The generated hash values are entirely different for different data. Even a small change in the original data will reflect a drastic difference in the hash value. This makes the intruders more difficult to identify the original data. Hence, authors define it as "all the blockchains are databases but not all the databases are blockchains". Usage and collaboration of blockchain technology and Artificial Intelligence, brings out the best in business industry.

Section I presents a detailed view about this chapter. In section II, authors briefly explain about industry 5.0 and its advantages. In section III and IV, let us understand about the technologies like Blockchain and Artificial Intelligence. Integration of Blockchain and AI can be seen in section V. Benefits of merging these technologies in information retrieval can be focused in section VI. Finally, conclusion will be presented in section VII along with the benefits of synergizing technologies like Blockchain, AI and Internet of Things.

INDUSTRY 5.0 AND ITS ADVANTAGES

Industry 5.0 is an insurgence in which human and machine reconcile and realizes the ways to work together to refine the effectiveness of the production. Few people believe that this industry 5.0 might replace humans in all the industrial activities in our near future. But the truth is, it reduces the difficulties that human face in their day-to-day life. It provides a complete background support in order to make the task simpler to the human beings. Industry 5.0 also helps in doing repetitive task for many numbers of times. Industry 4.0 highly promotes digitization and automation with certain drawbacks like complex and overpriced software, replacement of people's job by machine, experts for robotic communication and so on. All these are resolved in Industry 5.0 to bridge the technical gap between the common people. It also advocates zero-waste production by reducing the waste material expenses and waste management fare. Also, it highly relies on personalization from mass customization.

Industry 5.0 will reach its peak when the 5G network is coupled with technologies like IoT-Internet of Things (including Industrial IoT), Artificial Intelligence (AI) increases the level of automated production (Bryndin, 2020). Also, integrating with Big data, blockchain technology, cloud and fog computing takes the industry into further reach by promoting automation.

The following are the advantages of imposing Industry 5.0(Digitalya, n.d.).

Highly Focused Maintenance Plan: So far, we have applies preventive maintenance in prior revolutions whereas industry 5.0 works in predictive maintenance.

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