Blockchain Technology as Authenticated System for Smart Universities

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Abstract

Many industries and universities are interested in blockchain technology, which is a growing field of interest. The Digital Data Storage System (DDS) consists of many servers (multi-server). Blockchain technology allows data to be copied and authenticated across servers. Many people believe that blockchain is only used for cryptocurrencies, but that's not entirely correct. Bitcoin, one of the most well-known cryptocurrencies, heavily relies on the technology. However, in reality, the use of blockchain is not limited to cryptocurrencies. One way that blockchain technology can be used is for data processing in universities. In this study, the author looks at how it can be used to improve student records, document transactions, and more.The research method used in this study is the "literature review" method.
Keywords: Blockchain, Digital Data Storage System, Universities

1. Introduction

Indonesia is developing its human resources, including those who are more educated. Indonesia's education system is growing very fast in terms of quantity, but it needs to grow faster and with better quality to catch up and keep pace with higher education in developed countries. Law of the Republic of Indonesia No. 20 of 2003 is a conscious and systematic effort in supporting education to create a learning environment and learning process that allows students to gain spiritual strength, independence, and religious character. This is the national education system for gender development activities. Wisdom, noble personality and skills needed for oneself, society, nation and state [1].

The aim of the national education system, with its mission to develop "its own potential", is to make higher education worthy of reflection in a system that inevitably applies. Harmony of the reality of human resources in the industrial era. 4.4. Due to the intense competition between universities in Indonesia, universities are competing to produce a high-tech generation, or graduates who are often referred to as the Industrial Era 4. The Industrial Era 4.0 is a social sector, especially education [2]. Paper, pens and traditional learning tools are being phased out. This is a feature of the industrial era 4. According to Mayling Oey Gardiner and colleagues quoted in the ebook, the turbulent era is certainly the result of research activities and technological innovations that can be a new starting point for universities in Indonesia. If the university is an intermediary between the talents and capacities of each [3].

Blockchain technology is a field of interest to many industries and universities in the world. As a relatively new innovation in computer science, Blockchain is an international, cross-industry and disruptive technology that is expected to fuel international economic growth over the next few decades. Blockchain technology is widely applied in the world of education, because it has the advantage of a decentralized system and strong cryptography that can help universities build infrastructure for archive storage in the form of transcripts, certifications and diplomas.

2. Literature Review

This research was conducted by Abhimanyu Argani and Wahyatma Taraka 2 with the title "Utilizing Blockchain Technology to Optimize Certificate Security in Higher Education". This study explains how an organization implements a certificate system based on blockchain technology. This simplifies processes in real time, makes them precise and secure, and eliminates the need for operations. The presence of blockchain technology-based certificate software makes it easy. Authentication process with automatic data validation. security.

This research was conducted by Qurotul Aini, Untung Rahardja, Nuke Puji Lestari Santoso, Anggun Oktaviani with the title "Blockchain-Based Applications in the World of Education With Systematic Review Methods" discussing Blockchain has a main domain that can bring significant benefits in the form of cooperation and partnerships between educational institutions . Various institutions are testing blockchain as a secure and reliable trust ledger for recording students' school grades. Not only are there ways of applying for a student's certificate, but there are also the skills they acquire and the various learning outcomes they achieve. Therefore, it is necessary to analyze the latest research on blockchain in the field of education. The benefits of implementing blockchain discussed are reducing costs, increasing reliability and transparency, including providing a secure platform for sharing student data.

This research was conducted by Christian Delgado von Eitzen, Luis Anido Rifon, and Manuel J Fernandez Iglesias with the title "Application of Blockchain in Education: GDPR-Compliant and Scalable Certification and Verification of Academic Information". , as well as the protection of personal data, to comply with the European GDPR. With this system, explicit consent of interested parties is given and recorded when the owner submits the blockchain account associated with the issued academic credentials to Education E. If the owner decides to delete the account with SCAccess and revoke access to the third party, he/she must be notified and delete all relevant information online and offline.

This research was conducted by Untung Rahardja, Eka Purnama Harahap, Dennies Dwi Christianto with the title "The Effect of Blockchain Technology on the Authenticity of Diplomas". This is an increase of Rp, Rp 492.5 trillion. 4.6 TRAPBN (State Budget Plan) for 2019, Education Industry with 123 Laboratories (State Universities) and 4,547 PTS (Private Universities) in Indonesia, with a total of 4,670 PT (Universities) The teaching is very interesting. Created by blockchain technology. They are easy and cheap to fake, but their authenticity is difficult to verify, but as many types of fraud were detected during the hiring process, including a 25% fraud rate in the form of title infringement, the number of unskilled workers increased in some places.

3. Findings

Seeing the development of various technologies from time to time, various studies before today must be kept in mind. The world of education, even society in general, does not believe that today's technology is moving that fast. In addition, it is also necessary to implement facilities and infrastructure to help talents obtain data and information, the amount of data and information that needs to be retrieved quickly, the mindset of talents to become users and user creation. The ability to develop resources is certainly an important role that must be supported by universities.

Understanding the learning that is happening today is considered less helpful because it cannot produce competitive talent in today's workplace like ours. We need to know that in the Industry 4.0 era, technological knowledge is the key to being able to compete on a global scale. market. How HR can create new and amazing things nationally and internationally, as well as

for 4,004 users. Kadarsyah Suryadi predicts that by 2030, 50% of employees will be dominated by computers. And there is evolution, and change is accelerating. Therefore, the program that we must implement is very important. The need for integration of research programs with Industry 4.0, namely: 1. The growth of websites and online sales will be more intense in the coming years. Even today, the online market is still dominated by e-commerce sites.

That's the challenge. How can HR master scheduling? With so much data and information available online, there is what is commonly known as big data, and if left unchecked, HR will overwhelm you. Compete in the field of data analysis. As mentioned above, this app has come to help a lot of people, for example routes and plans. Some internships and certain levels require specialists in the field of artificial intelligence. In short, software can be considered to help people. And to create a generation that is ready to face the next era, we need human resources who can develop flexible and sustainable soft skills systems in line with the development of Industry 4.0 which will continue to develop after 2030.

Marmolejo said the job market requires a different set of skills than those offered by the higher education system. [21] As shown in Figure 2, it would be beneficial to combine these four aspects if HR could apply them. The link between education and work needs to be balanced with technological advances that are currently developing. This can reduce the number of unemployed without the appropriate skills.

As shown in Figure 3, graduates need a new direction in higher education to be competitive. Therefore, the 4.0 program is a combination of curriculum and industrial revolution 4.0, and is the setting of a set of plans, objectives, content, learning materials and implementation guidelines.

Technology-based learning activities focus on increasing relevance. Education and human resources work for better education. Stand out in the global market. There are three ways to prepare graduates to compete in this Industry 4.0 era: data, technology, and people. These three things are closely related to the four problems mentioned above. Among them are people who have the ability to understand information (big data) in the industrial era 4.0, who need to understand the performance of a technology called artificial intelligence, and lastly, softness and skills sustainability. system. Developing human resources to be able to compete in the global market [22].

4. Conclusion

Progress in the Industrial 4.0 era, especially in the world of education, is a challenge faced by universities to improve the quality of education management. When Indonesia needs to improve the skills of its workforce with digital technology. (4) Years are considered unnecessary if graduates do not have soft skills to compete in the global market. For this reason, it is necessary to evaluate Curriculum 4.0 applying four skills, including programming, data analysis, artificial intelligence capabilities, and a flexible and sustainable soft skills system to produce superior quality graduates while ensuring the highest quality. Education in the Industrial 4.0 era. In addition to building the four skills, universities need to adapt the learning methods used by different institutions to create harmony in the quality of education. 0 is a combination of curriculum and Industry 4.0 which provides guidelines for implementing a set of plans, objective regulations, content, learning materials, and learning-based activities. technology. world market. Curriculum innovation in Curriculum 4.0 can not only produce skilled talents in their fields, but also guarantee the quality of online higher education in Indonesia's 4.0 industrial era.

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