вогненебезпечних речовин і матеріалів (паливно-мастильних, розчинювачів, фарб тощо) на робочих місцях забороняється.

Приміщення, роботи в яких пов'язані з виділенням горючого пилу, повинні мати гладкі поверхні приладів опалення, а технологічне обладнання - місцеву витяжну вентиляцію. Виготовлення металевих конструкцій декорацій і реквізиту зварюванням слід здійснювати у окремому приміщенні, яке може бути розташоване в будівлі театру або концертного залу.

Останнім часом у нашій країні відбувається процес модернізації освітньої системи. Ці зміни відбуваються за трьома основними напрямками: входження до світового освітнього простору; пошук нових засобів і методів формування творчої особистості; подальша інтеграція освітніх факторів (школи, родини, суспільства). Однією з педагогічних технологій, яка спрямована на покращення та розвиток конструювання одягу, є метод творчих проектів або проектно-технологічний метод [2].

Перевага проектно-технологічного методу, в порівнянні з попередніми, насамперед полягає в тому, що учні під час цієї діяльності більш активно залучаються до самостійної, практичної, планової та систематичної роботи, в них виховується прагнення до пошуку шляхів створення нового або більш якісного вдосконалення існуючого виробу (матеріального об’єкта), формується уявлення про його майбутнє застосування; розвиваються моральні та трудові якості учня, мотиви вибору професії.

Список використаних джерел:

1. Беспалько В. Педагогика и прогрессивные технологии обучения. Х., 2000. 336 с.
2. Пелегейченко В. Умови організації проектної діяльності. *Відкритий урок.* 2009. № 4. С. 22–25.
3. Симоненко С.Н. Некоторые теоретико-методологические аспекты изучения визуального мышления. *Наука і освіта*. 2008. № 1-2. С. 107–111.
4. Якимчук Б.А. Образне мислення в процесі розв'язання творчих задач з креслення [Текст] : дис... канд. психол. наук: 19.00.01 / Якимчук Борис Андрійович; Ін-т психології ім. Г. С. Костюка АПН України. К., 1998. 204 л.
5. Як працювати з художніми акриловими фарбами URL : https://karkar.com.ua/%D0%91%D0%BB%D0%BE%D0%B3?journal_blog_post_id=33

IMPLEMENTATION OF BLOCKCHAIN TECHNOLOGIES TO ENSURE SECURITY IN THE INFORMATION SPACE

Debre V. S.
Kharkiv

This article discusses the relevance of blockchain technologies as a tool for security in the information space. This topic is important because the latest informational technology advancements are developing fast enough to maintain and develop the safe use of this technology in various fields, namely in the financial and banking sectors. Moreover, the development these technologies allows modern society to use modern cashless payments and enter into contracts online. The issue of this article is important in today's world, giving the trends of globalization and is of great importance at the level of development of modern informational technologies. After all, in today's world the process of transition to a post-industrial society is impossible without the implementation of these innovations.

Keywords: blockchain, informational space, paypal, smart contracts, security

The number of cryptocurrencies illustrates Blockchain’s importance, currently exceeding 1900 and growing. Such a growth pace could soon create interoperability problems due to the heterogeneity of cryptocurrency applications. Fran Casino, Thomas K. Dasaklis and Constantinos Patsakis researched this topic and found the following theses. The landscape is rapidly evolving as blockchain is being used in other fields beyond cryptocurrencies, with Smart Contracts (SCs)

playing a central role. SCs defined in 1994 as: «a computerized transaction protocol that executes the terms of a contract», allow us to translate contractual clauses into embeddable code thus minimizing external participation and risks so therefore providing high level of expanding information. In particular, blockchain-based systems supporting SCs enable more complex processes and interactions so they establish a new paradigm with practically limitless applications.

Information technology is an industry on the rise, and business structure, job growth, and emerging technology will all shift in the coming years. Current trends are improving and presenting new functions in fields like medicine, entertainment, business, education, marketing, law enforcement, and more. Still, other much-anticipated technology is only now coming on the scene. At first sight it's clear and obvious, that Bitcoin used and uses standard technologies which are available for over 20 years. Then you realize that you don't know very much about Blockchain and there so many dimensions you didn't think off in the first place – until you are completly convinced to truly understand the matter. But that point is probably just the start of a new cycle exploring, realizing importance of informational security.

That is why, our work should be considered to be relevant and useful, for all people, either scientists in cryptography or people working on the farm. This problem is worth to be taken into consideration on all levels of its adoption.

Innovations in IT change internal company processes, but they are also altering the way customers experience purchasing and support – not to mention basic practices in life, like locking up your home, visiting the doctor, and storing files.

One of the biggest innovations that has happened to the humanity throughout recent decade is the system of blockchain. Hence, information technology and its advancements can not be seen in any perspective without mentioning blockchain.

The research of Swan M., Usenko A., Iansiti M., in which problems of implementation of blockchain technologies in modern metaspace are described and analyzed. This article is devoted to necessity of implementing of blockchain system in banking and financial sector. The topic of blockchain is relevant since the study in the perspective area of economic development and priority directions of development of the banking sector [1, 2, 3].

Blockchain-is a system that allows you to input additional data without changing, replacing, or deleting anything**.** In the influx of shared data systems like cloud storage and resources, protecting original data without losing important information is crucial. Although most people think of blockchain technology in relation to cryptocurrencies such as Bitcoin, blockchain offers security that is useful in many other ways. In the simplest of terms, blockchain can be described as data you can only add to, not take away from or change. Hence the term «chain» because you're making a chain of data. Not being able to change the previous blocks is what makes it so secure. In addition, blockchains are consensus-driven, so no one entity can take control of the data. With blockchain, you don't need a trusted third-party to oversee or validate transactions.

Several industries are involving and implementing blockchain, and as the use of blockchain technology increases, so too does the demand for skilled professionals. In that regard, we are already behind.

Each day we hear about Blockchain and its ability to transform the banking industry. Although most articles focus on Retail Banking and Asset Management, Wealth Managers should carefully follow the development of this breakthrough technology and consider potential benefits and impacts of Blockchain on their business models. It demonstrates that Blockchain is becoming a reality, it is definitely transforming the IT infrastructure, informational technology trends and service offerings of all financial institutions, and thus will transform Wealth Management in itself.

Hyped as the next great thing in the financial services industry, beyond: consortiums of large banks, central banks, regulators as well as FinTechs are heavily engaged in the development of Blockchain technology to unlock the full potential of the distributed ledger technology. Current efforts are concentrating on technology in Retail Banking and Asset Management operations, focusing on the development of innovations in transparency and auditability. However, Blockchain brings along advantages and disadvantages for the Wealth Management industry [4].

Taking into consideration the tremendous market interest and investment inflows, Blockchain technologies are developing faster than existing ones, such as the internet. Once becoming mainstream, it has the potential of transforming the IT infrastructure and service offerings of all financial institutions.

Nonetheless, we are still in a phase of experimenting and, similar to the development of the internet twenty years ago, only time will tell to which applications this new technology will add value to. Wealth Managers have taken an observation role and have understood the benefits and the impact of Blockchain on their business model. Yet, decision makers should start looking at existing operating models and shift towards a participatory role over the coming years. This approach, has already been successful with automated investment platforms and is expected to have similar effects with the use of Blockchain.

Blockchain is a technology that did not exist prior to its discovery. This makes it an invention rather than a discovery. It combines some advanced mathematical concepts and numerical techniques. One of such concepts is the problem of the byzantine generals (or byzantine agreement problem) which solves the filtering of fraudulent information. A further mathematical concept is the asymmetric key cryptography (In fact the mathematical algorithm behind it). The special technological advantage of this is a secure exchange and safekeeping of legal information. Since written contracts will become obsolete by this technology, it can be anticipated that legal departments, notaries and all public offices will be able to simplify their business. A certain reluctance against this development will arise. While this seems to be the most revolutionary aspect of the blockchain, its popularity rather stems from its application as a currency for instance in the bitcoin. Payment processes have a huge importance in modern societies as credits and therefore liquidity is the grease of the economy. Liquidity is provided by currencies. Before we tackle this subject, we would like to compare the invention of the blockchain to other big discoveries, which have brought progress to mankind [5].

In order to appreciate sufficiently the impact, which the blockchain technology will have to our life, let me rank it with other technologies, which had a similar impact in other areas. It is easier to estimate, in how far the blockchain will penetrate our daily life, when we compare it to other technologies, which already have succeeded and established their role in the technical world.

The potential of the blockchain technology is comparable to that of the laser in optics. A laser produces light of best quality by giving a perfectly homogeneous and coherent beam of light of a specific wavelength. This makes it extremely valuable in spectroscopy, printing and surgery or even cutting of steel. Yet it does not replace a standard source of light. The laser rather extends the use of optical methods to areas, which are inaccessible with standard sources of light. This seems to hold as well for the blockchain. For instance in its application as a currency there are certain limits, which make it unattractive for substituting standard payment processes. This is not only connected to the relatively high cost of performing a simple payment with a bitcoin - it is also related to the time a payment process with a bitcoin consumes. The validation of a new transaction in the hash lasts up to ten minutes. This is certainly to long for standard purchases, but comparably fast for transactions between bank accounts.

Another way of its development is the CRISPR/CAS-method is a technique of gene modification, which was invented in 2012 by Emmanuelle Charpentier and Jennifer Doudna and has a comparable impact on gene engineering. Gene manipulation certainly existed prior to this technology, since for centuries it has been the objective of all breeding. CRISPR/CAS is the first technique, which admits the precise edition of the genetic code in specific positions. Gene manipulation with the CRISPR/CAS-method is not a process of trial and rejection but even though the effect of any gene manipulation cannot be predicted exactly, at least the intended modification of a certain DNA-sequence is deterministic. This exactness makes it comparable to the blockchain. Furthermore, there is a vast number of possible applications - in deed as many as useful modifications of the genetic code in species are conceivable.

Crypto currencies apply blockchain to the payment process. Its advantage over standard payment methods is the absence of a clerk as a third regulatory party. This reduces the cost of a

transaction with respect to cross-border transactions executed with Credit Cards, PayPal or comparable international systems [6].

However, the cost varies with the time the transaction takes for confirmation. This time lies below the average transaction time of the abovementioned payment methods (Of course, it has to be compared to the time the amount arrives at the selling party's account, not the time until the purchase has been confirmed.) Thus, the short processing time of international payments is another advantage over the standard payment methods. This does not hold for the cash or electronic payment with local currencies. In the case of private direct debit payments, banks often take the transaction costs. Therefore, the superiority of payments with bitcoins seems to be limited to the abovementioned international payment methods. Other aspects have to be considered like use of crypto currencies for illegal financial transactions but in general, the advantages of bitcoin payments seem to overrule the disadvantages for international transfers.

The idea of electronic contracts based on the blockchain generalizes easily to the concept of «Smart Contracts». A smart contract is a computer protocol intended to digitally facilitate, verify, or enforce the negotiation or performance of a contract. One important generalization is the timely separation of the signing of the contract and its execution. The electronic execution will then happen automatically without further interference of an individual. There are a couple of applications like the execution of future transactions like coupon payment or expiring of a call or put option, and also in cases of inheritance or settlement of goods or any kind of warrants or authorizations whose execution is deterministic under certain events. Nowadays notary's offices sign and guarantee such contracts [7].

If the number of present applications of Blockchain technology is abundant, the same holds to a higher extend for the number of conceivable future applications. Since this is not the focus of this article, we just want to address one of the most surprising applications, which has the potential to revolutionize our society, i.e. DAO or decentralized autonomous organizations sometimes also referred to as DAC or decentralized autonomous companies.

A decentralized autonomous organization is composed of actors, who are subject to a set of rules imposed by a computer program, which is agreed upon and trusted by all actors and unchangeable by authorities, others than the actors or an exclusive board of stakeholders. The rules and agreements are encoded in a blockchain, such that it persists and cannot be manipulated or obscured retroactively. If the payment process and the set of rules, which organizes the workload is well defined in this register, all administrative processes turn to be automatic. Its execution is guaranteed by smart contracts sitting on top of this organization. In order to keep this a flexible organization it is certainly necessary to implement a board of stakeholders who do not intervene into the actual operating process but who review the set of rules and are allowed to change them accordingly to a predefined presumably democratic process.

The essential point of this setting is the confidence, which the actors put into the set of rules encoded in the blockchain. This replaces the role of a centralized organization as it happens with companies until today. The trust on which bases all human interaction is transferred in the case of a DAO from an individual or authority or supervisor board to a predefined set of rules encoded in the text of the blockchain. This transfer of trust to a depersonalized organ is what has stimulated the thinking of a virtual reality, which superposes in a type of digital hyperspace reality, in which human actions take place. More precisely, it shows some aspects of gauge field theories in modern physics [8].

There are arguments that trust in an abstract organization realized by the blockchain is not possible. De Filippi suggests an additional "layer of trust" called Backfeed, which rewards the actions taken by the participants. Ultimately, this is nothing but a system of rewards and enablement provided by smart contracts, which is based itself on an additional blockchain system. Therefore, it does not exhibit a new quality, but applies blockchain on an additional layer, which depicts human interaction.

Conclusions**:** In conclusion, Blockchain is one of the most perspective areas of modern technology in financial transactions, hence further disclosure of experience with this technology is

needed in the world together with identifying promising areas of blockchain technology in the functioning of financial institutions. All transactions are anonymous, therefore this ensures maximum protection of the confidential data of users.

Literature:

1. Svan M. Blockchain: Blueprint for a new economy. 2015 URL : https://sapcoin.net (дата звернення: 05.05.2020).
2. Усенко А. Перспективы blockchain для бизнеса и украинской экономики. URL: https://home.kpmg.com/ua/ru/home/media/press-releases/2018/06/perspektivi-blockchain-dlya-biznesa-i-ukrainskoi-ekonomiki.html. (дата звернення: 07.03.2020).
3. Marco Iansiti, Karim R. Lakhani The truth about blockchain. Harvard Business Review. 2017 URL : https://enterpriseisersproject.com (дата звернення: 03.10.2020).
4. Tapscott D., Tapscott A. Blockchain revolution: how the technology behind bitcoin is changing money, business, and the world. 2016 URL: https://insightinvestment.com (дата звернення: 02.04.2020).
5. Zibin Zheng, Shaoan Xie, Hong-Ning Dai, Huaimin Wang, Xiangping Chen Blockchain challenges and opportunities: International Journal of Web and Grid Services (IJWGS), Vol. 14, No. 4, 2018. p. 355–357.
6. Satoshi Nakamoto, Bitcoin : A peer-to-peer electronic cash system, 2008 URL: https://bitcoin.org/bitcoin.pdf (дата звернення: 03.04.2020).
7. Future of transaction processing and smart contracts on the internet of money. Banking Beyond Banks and Money. URL : https://arxiv.org (дата звернення: 01.04.2020).
8. Charles Baden-Fuller, Stefan Haefliger «Business Models & Technological Innovation» Long Range Planning 2013. p. 419–426.

ПІДГОТОВКА МАЙБУТНІХ УЧИТЕЛІВ ТРУДОВОГО НАВЧАННЯ ТА ТЕХНОЛОГІЙ З ВИКОРИСТАННЯМ ОСНОВНИХ ЗАСАД БЕЗПЕКИ ЖИТТЄДІЯЛЬНОСТІ

Дебре О.С.
м. Полтава

Анотація. У статті висвітлено актуальні питання забезпечення безпеки життя та діяльності майбутніх учителів трудового навчання та технологій; проаналізовано поняття «культура безпеки життєдіяльності» та висвітлено її структуру; досліджено функції і фактори, що впливають на формування культури безпеки життєдіяльності студентів педагогічних вищих навчальних закладів; розглянуто педагогічні умови формування культури безпеки життєдіяльності особистості вчителя трудового навчання та технологій.

Ключові слова: безпека життєдіяльності, культура безпеки життєдіяльності, навчальний процес, безпека, трудове навчання, технології.

Оволодіння населенням України культурою безпеки життєдіяльності розглядають як гостру соціальну проблему співробітники Національного інституту стратегічних досліджень проблеми впровадження культури безпеки в Україні Д. С. Бірюков, О. О. Мартюшева, Ю. М. Скалецький, Л. Д. Яценко. О. І. Запорожець досліджував основні функції та особливості культури безпеки життєдіяльності. До проблеми визначення актуальності й особливостей формування культури безпеки життєдіяльності звертається дослідник-педагог М.О. Зоріна [3].

Для вірної оцінки проблеми формування культури безпеки життєдіяльності у студентів педагогічних вищих навчальних закладів необхідно висвітлити актуальні питання забезпечення безпеки життя та діяльності фахівців у різних галузях діяльності та проаналізувати поняття “культура безпеки життєдіяльності”. Для встановлення педагогічних умов формування культури безпеки життєдіяльності студента варто дослідити структуру культури безпеки життєдіяльності особистості, її функції і фактори, що впливають на формування культури безпеки життєдіяльності майбутніх фахівців. Одним із основних факторів забезпечення стабільності соціально-економічного розвитку країни є культура