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OPPORTUNITIES AND RISKS OF IMPLEMENTING THE BLOCKCHAIN FOR UKRAINIAN BUSINESS

The **purpose** of this study is to analyze the potential opportunities and risks of implementing a blockchain for Ukrainian enterprises, as well as to develop proposals for a system of actions for business tokenization. **Methodology.** The main research methods were critical, historical-logical and dialectical analysis and synthesis of socio-economic realities (studied ontological processes and current state of leading modern technologies), axiomatic method and analogy method (using the concept of innovative modernization), media monitoring and benchmarking (when comparing the activities of the largest public companies, the largest companies by market capitalization and startups with the highest rankings in Ukraine and the world to identify high-tech activities of the most powerful countries), desk research (organizing secondary information about blockchain technologies in the US and UK). **Results**. A study of potential opportunities and risks of blockchain implementation for Ukrainian enterprises was conducted. Proposals for the development of a system of actions for business tokenization have been developed. The nature of the blockchain of Ukrainian enterprises related to decentralization processes in society has been established. The ontological and organizational principles of the blockchain in the crypto industry are studied. The experience of using blockchain technology in the USA and Great Britain has been studied. The main projects of Ukrainian ministries and some state institutions, in particular the NBU, on the introduction of advanced world technologies are analyzed. The main advantages of blockchain technology for business in various fields of activity are identified. A parallel was drawn between the activities of the largest public companies, the largest companies by market capitalization and startups with the highest rating in Ukraine and the world. **Practical implications**. These practical recommendations can be applied not only in the Ukrainian business space, but also in the business of countries that have chosen innovative development. **Value / originality**. Algorithmic actions for the introduction of blockchain technology in Ukraine are proposed, taking into account the risks, opportunities and threats of Ukrainian business. **Conclusions.** Proposals for Ukrainian business were presented, including the systematization of basic concepts related to cryptotechnologies, the creation of a register of cryptocurrencies, which will indicate the name and protocol of cryptocurrency, adoption at the official level of a moratorium on the regulation and restriction of the right to conduct business related to cryptocurrencies, improving the legal support for legalization of mining in Ukraine.

Key words: blockchain, business, entrepreneurship, tokenization, technology, information, processes.

Introduction. In 2020, Ukraine adopted the Law on Virtual Assets, which defines the powers of the National Bank of Ukraine in the field of virtual assets, the National Commission on Securities and Stock Market in the field of virtual assets, as well as the State Register of Service Providers with the turnover of virtual assets. In addition, this law also defines the general principles of international cooperation in the field of virtual assets and the powers of state bodies to ensure international cooperation in the field of virtual assets and the procedure for their implementation. In the world, when in 2021 the blockchain is identified as one of the 11-advanced world technologies, the improvement of legal and institutional support for Ukraine's innovative development is the right and quite logical step.

Moreover, due to the acute respiratory disease, COVID-19 caused by the coronavirus SARS-CoV-2, public authorities, educational and research institutes and business institutes are forced to unite and interact more effectively. In early 2021, the Ministry of Digital Transformation and the first and now one of the largest in Ukraine innovation park UNIT.City joined forces and implemented joint projects to create ecosystems and infrastructure for business development in the field of high technology and creative industries, implementing modern online services for business and government interactions.

The National Bank of Ukraine, in particular, the NBU's Strategy and Development Department, took decisive action: in 2020 the National Bank joined the Global Financial Innovation Network (GFIN) to implement Fintech, RegTech, SupTech's development strategy in Ukraine until 2025 and penetrate innovation in the financial sector. The NBU's timely project to develop cashlessness to create a Fintech Ecosystem with innovative financial services and affordable digital services provides for the sustainable development of innovation, the transition to a cashless economy.

Timeline projects of the Ministry of Education and Science in 2020-2021 were the launch of educational series (on personal data protection, cybersecurity, cyberbullying); FOP registration and taxes; online registration, registration of the child online, signing of documents; digital tax number, passport, student, insurance policy, etc. The Ministry of Digital Transformation, which is in charge of digitizing the country, has already developed a roadmap for digital assets. For Ukraine, recognizing blockchain operations means showing the world its fintech ambitions as an effective way to attract foreign investment, as cryptocurrency owners are looking for ways to convert them into material resources.

Literature review. Problems of research of the state with the application and regulation of blockchain in the world are characterized by the continuity of search and high interest. However, so far some issues have not received a complete and proper scientific solution, and therefore require additional theoretical justification and methodological elaboration.

The foundation of the modern blockchain technology concert is based on the results of research by Alex and Don Tapscott, Vigna Paul and Michael Casey, Melanie Swan, Chris Skinner, Nathaniel Popper [1-4]. The need for innovative development, digital transformations and prospects for the creation of a national digital platform in Ukraine and blockchain technologies was emphasized by V.S. Bilozubenko, N.M. Bunyak, O.S. Vyshnevskyi, A.S. Halchynskyi, V.M. Heiets, T.B. Seredyuk, M.V. Moklyak [5]. Technological trends in entrepreneurship and industry of the future have been studied in the works of K. Kelly, A. Ross, I. Khanin, O. Shelest, J. Kutov, I. Samokhodskyi. The impact of the digital economy on business transformation was also studied by V.G. Andreieva, P.L. Hrynko, S.V. Kolyadenko, R. Hicks and others.

The purpose of the article. The main task of this study is to analyze the potential opportunities and risks of implementing a blockchain for Ukrainian enterprises, as well as to develop proposals for a system of actions for business tokenization.

Results and discussions. Blockchain is a technology that is a chain of «blocks» that are combined into an operation in a special distributed register, turns a stable idea of security and transparency of processes. The emergence of blockchain technology is directly related to the development of the Internet and the invention of electronic money. Since the early 1990s, researchers have been looking to create a decentralized payment system that would allow users to send money to each other in an atmosphere of complete trust. The ideas embedded in modern blockchain platforms were first formulated by Nick Sabo in 1998. In his e-mail newsletter, he described the theory of the bit-gold protocol, the main ideas of which were later used for Bitcoin. A year earlier, Adam Beck outlined the concept of the Hashcash protocol, which was in fact a model of the Proof-of-Work consensus mechanism. However, at that time the vast majority of users did not yet have high-speed Internet access and hard drives of sufficient capacity, so these ideas did not find much support. Their implementation was postponed until 2008, when an unknown user under the pseudonym Satoshi Nakamoto published a technical description of its «digital cash» protocol, and in January 2009 the first blocks were generated in a new network called Bitcoin.

Table 1

TOP-10 largest startups and companies in the world and Ukraine, 2020

№	Startups with the highest rating *	The largest public companies in the world	The largest companies by market capitalization	The largest Ukrainian companies
1	Coinbase (2012), cryptocurrency (bitcoin), fin-tech, digital mobile (USA)	ICBC (1984), banking (China)	Saudi Arabian Oil (Saudi Aramco) (1933), oil, gas (Saudi Arabia)	«Metinvest» (2006), metallurgy
2	Hotmart (2011), digital marketing, marketplaces, Software (Brazil)	China Construction Bank (1954), banking (China)	Apple (1976), electronics, information technology (USA)	ATB (1993), retail
3	Canva (2012), web design, graphic design, photo editing, web applications (Australia)	JPMorgan Chase (1789), banking, finances, investment (USA)	Microsoft (1976), Software (USA)	Kernel (1995), agrosphere
4	Telegram (2013), instant and text messaging, security, cybersecurity, mobile, social networks (Russia)	Berkshire Hathaway (1955), finances, insurance, high-tech industrial products (USA)	Amazon Inc. (1994), retail, sales and online shopping (USA)	Fozzy Group (1997), retail
5	Coursera (2012), Edtech, education, entrepreneurship, Internet (USA)	Agricultural Bank of China (1951), banking (China)	Alphabet Inc./ (Google) (2015/1998), Internet services, video hosting, applications (USA)	DTEK Energy (2005), FEK
6	Giphy (2013), Internet, photo sharing, search Engine (USA)	Saudi Arabian Oil Company (Saudi Aramco) (1933), oil, gas (Saudi Arabia)	Facebook Inc-A (2004), social networks (USA)	«ArcelorMittal Kryvyi Rih» (1934), metallurgy
7	IFTTT (2010), services, information, technologies, Internet (USA)	Ping An Insurance Group (1988), insurance (China)	Tencent (1998), technology (China)	Myronivsky bakery product (1998), agrosphere
8	Buffer (2010), Twitter, automation, social networks (USA)	Bank of America (1998), banking, finances (USA)	Alibaba Group (1999), retail, sales and online shopping (China)	«TEDIS Ukraine» (2010), Wholesale, FMCG
9	WeChat (2012), Mobile, mobile applications, social networks (China)	Apple (1976), electronics, information technology (USA)	Berkshire hath-A (1839), finances (USA)	«Zaporizhstal» (1933), metallurgy
10	Duolingo (2011), E-learning, education, Internet, language learning (Guatemala)	Bank of China (1912), banking (China)	Visa Inc-class A (1958), finances (USA)	«Epicenter K» (2003), retail

Source: author's development according to [6-9].

* by the largest startups we mean companies that are relatively new, continue to scale and show rapid growth and occupy the highest positions in the ranking of The Startup Ranking; under the largest Ukrainian companies – private companies with the highest revenue (according to Forbes)

The use of blockchain in the crypto industry is seen as the main area of technology. In addition, the blockchain system is used in banking, payment services, the public sector (government services, real estate registers, electronic voting, etc.), financial services, logistics, healthcare and other areas.

The parallel between the activities of the largest public companies in the world, the largest companies by market capitalization and startups with the highest rating is shown in Table 1. In Ukraine, unfortunately, the largest companies are concentrated in the metallurgy, trade and mining industries.

The US experience is interesting and useful for studying the possibilities and threats of blockchain implementation in Ukrainian business practice. In the last two years alone, more than 200 laws have been proposed in Congress to regulate and study blockchain technology. The Law «On Budget Appropriations – 2021» contains instructions on the study of the promotion of blockchain technology, for which there are three stages:

1 general stage:

– 1 year after the adoption of this law, a strategic analysis of the state of both the blockchain industry and the impact of the industry on the United States economy will be conducted, ie there will be a grouping of industries list of federal agencies with jurisdiction over industrial sectors and their experience (issues of competence in blockchain regulation);

– identifying the resources of federal agencies that exist for small business consumers to evaluate the use of blockchain technology;

2nd stage of market research and technology supply chain:

– assessment of risks to the market and supply chain;

– consider the ability of foreign governments or third parties to use the supply chain about risks to US economic and national security;

– identify risks arising in the long-term trend;

Stage 3 of Congress reporting includes:

– the results of a study conducted on the above points;

– indicating the growth of the United States economy through the safe development of technology;

– development of a national strategy for the promotion of technology in the world is supported by the development of legislation that can facilitate the introduction of blockchain technology.

Other bills proposed by Congress on blockchain are in the process of being approved or drafted, and have the goal of setting up oversight committees to study blockchain technology.

The example of the United Kingdom shows that the UK authorities generally emphasize the consumer risks of cryptocurrency, but at the same time there is a comprehensive welcome of innovation, as it offers new technology.

The Financial Control and Supervision Authority (FCA) regulates the types of cryptocurrencies that function as stocks or investments. Currently, cryptocurrency exchanges must register with the FCA and comply with anti-money laundering rules.

At the same time, reports of potentially high return on investment have raised public concerns about user safety.

Thus, the Central Bank of England provided a definition of cryptocurrencies. Cryptocurrencies are a digital medium of financial exchange. They are designed to overcome some of the perceived limitations of existing currencies and approaches to financial transactions. The word «crypto» in their name is due to the use of cryptographic encryption methods – that is, electronic methods of encrypting information and security.

Also, some of the conclusions and recommendations provided by the UK Treasury regarding the operation and use of blockchain technology are as follows:

– the slow, expensive and energy-intensive process of verifying transactions is characteristic not only of Bitcoin, but is also a fundamental feature of cryptocurrencies based on public decentralized blockchains. This may ultimately limit the extent to which cryptocurrencies and blockchains can replace ordinary money and payment systems;

– there are a number of examples of blockchain use in financial services and supply chain management. The committee supports good innovation, but notes that the blockchain should not be used for itself. Most likely, the government and industry need to determine what problems exist and consider whether the blockchain offers the most appropriate solution. The Committee recognizes that blockchain technology can have the potential to address issues of lack of trust in data integrity, and can be a more effective way to manage certain types of data in the long run, offering a higher level of security than centralized databases;

– due to their volatility, cryptocurrencies are especially dangerous, especially for inexperienced retail investors;

– usually investing in cryptocurrencies is through exchanges, but some of them can be hacked, resulting in a significant amount of money lost by customers;

– the FCA's stern warning to consumers about ICOs indicates that they pose significant risks to investors. But other than drawing attention to the risks, the FCA can do little to protect people from fraud or loss of money. This is due to the fact that most ICOs do not promise financial returns, but instead offer future access to a service or utility, which means that they go beyond the regulatory perimeter.

Obvious advantages of blockchain technology for business:

1. Decentralization – there is no server in the chain. Each participant is a server that supports the entire blockchain.

2. Transparency – information about transactions, transactions is stored and presented in the public domain. This data cannot be changed.

3. Theoretical infinity – theoretically the chain can be supplemented by records to infinity.

4. Reliability – Blockchain node consensus is required to write new data. Thus, transactions filter and record only legitimate transactions. It is not possible to replace the hash.

5. Versatility – blockchain can be used in various spheres of life: in the financial sector, law, real estate, insurance.

Experts identify several areas of application of the blockchain, worthy of special attention. First of all, this is the financial and banking sector, for which most blockchain applications are currently being developed. The list of blockchain-based technological solutions that can revolutionize the financial system is quite large. These are interbank settlements, settlements between legal entities and individuals, payments, securities, credit histories. The financial services market is the largest market capitalization industry worldwide, with inefficient processes such as paperwork, asymmetric information, and vulnerable centralized systems abounding in the global financial system, which ultimately increases costs and delays for consumers. Every year, 45% of financial intermediaries, such as payment networks and stock exchanges, suffer from fraud. If blockchain technology replaces only a small proportion of such transactions, including peer-to-peer transactions in other sectors, it could dramatically increase the efficiency of the financial sector. Not surprisingly, IBM, Microsoft and other blockchain developers who have announced the provision of services based on this technology, mainly focus their efforts on the financial sector.

The most well-known applications of this technology are bitcoin and cryptocurrency remittances. Bitcoin is even better known than the blockchain technology on which it is based, and it was its emergence that revealed the potential of distributed registry technology and identified other areas of its practical application. Although the hype surrounding the bitcoin-based consumer goods industry has cooled somewhat, blockchain technology remains attractive due to the lower costs it can offer parties in global peer-to-peer transactions. Startups around the world continue to compete for the right to become a trading application for bitcoins. For example, the bitcoin startup

Circle, although it has stopped allowing users to buy and sell cryptocurrencies directly, is building a protocol that will allow digital wallets to share values through a blockchain.

Micropayments are one of the most promising areas of blockchain use. The development of appropriate blockchain-based applications has made such payments possible and practical. This will allow you to effectively monetize social networks, as well as make them an alternative way to pay for small jobs, such as filling out surveys, etc. Financial market analysts also believe that micropayments can be a very profitable and promising project in the business world. Thus, the financial company Wedbush Securities forecasts the size of the bitcoin micropayment market at $ 925 billion. until 2025.

The introduction of blockchain technology at Ukrainian enterprises should have a positive impact on the sphere of receiving payments (including micropayments) and on the implementation of settlements and money transfers (including cross-border transfers). The main advantages of using blockchain technology in these areas are:

– reducing the risk of fraud;
– increase the speed of transactions and turnover;
– the possibility of conducting transnational settlements at minimum commissions;
– automation of work and elimination of the need for intermediaries;
– reduction of costs associated with time and costs for delivery of documents;
– optimization of internal processes of enterprises.

An additional advantage of the blockchain is the ability to work offline (with the past state of the registry), ie all information is always available, regardless of whether there is currently the Internet or not. At the same time, periodic online database synchronization is enough to maintain its relevance.

Making payments is not the only area where blockchain technology is increasingly used. However, it is in the financial sector of the economy that many experiments have been observed recently: projects and various solutions based on this new technology are emerging, and appropriate consortia of financial institutions are being created. The world's financial and IT giants (UBS, Barclays, Citigroup, IBM, Microsoft, etc.) are investing hundreds of millions of dollars in research and implementation of the blockchain, which once again proves the viability of this technology and trust in it.

Especially high expectations from the blockchain in combination with other technologies. According to IBM experts, the blockchain will be the basis for easier interaction between devices, when everyone controls their own roles and behaviors, which will create an Internet of decentralized, autonomous things and, consequently, democratize the digital world. In addition, the blockchain as a universal digital register facilitates a variety of transactions between devices, such as registering a new device, authenticating remote users and contacting to share with other devices. The decentralized nature of the blockchain is attractive for Ukrainian enterprises based on the blockchain. It is expected that many new blockchain-based functions will emerge in the field of legal services, which should be supported by modern laws and legal institutions. For example, intellectual property rights that may be publicly available through a distributed register, land cadastre and document management, public records for voter registration, and census data.

Another potential benefit is the protection of confidential data, such as passport and bank card details, social security numbers, dates of birth, addresses and driver's license numbers, and more. According to analysts, personal information is the main target of hackers. But cyber-attacks can be reduced or prevented by deploying blockchain technology. Another possible benefit is reduced costs and increased efficiency. Using a blockchain can reduce data redundancy, simplify processes, reduce the burden on auditing, increase security, and ensure data integrity.

Thanks to blockchain technology in Ukraine, any member of the supply chain can access the required document in real time and see all the changes that occur with its status on a regular basis. Of course, this transparency makes it possible to immediately identify ineffective links and further the opportunity to correct them as soon as possible. This leads to long-term cost reductions and real-time solutions. Blockchain technology opens up new opportunities for Ukrainian companies in

supply chain management, including real-time decisions that can be made by all participants in the chain. For example, a Ukrainian company that knows in advance that the supply contains only part of the ordered goods may reschedule and gain access to its own stock, order goods from another supplier or review the price. With this in mind, you can redirect the container to another warehouse or free the containers in the warehouse, on the vehicle or on the platform to reduce costs. In the event of a discrepancy, each affected party in the supply chain will be notified.

Blockchain can be organically included in the field of copyright and related rights (patents). In the future, based on this technology, it is possible to create a platform for intellectual property trading – a platform that is a symbiosis of a trading platform and a book with records of rights holders. The most obvious object of trade on such a platform is online music (music files provided to the listener through online services). Blockchain technology, which allows you to track each record (event), will also help in the field of health care: medical institutions, patients and interested organizations will be able to get a secure channel for sharing medical histories, medical records, prescriptions and certificates. In Ukraine, the blockchain will be successfully used in the system of open auctions for the sale of property and open tenders for procurement.

In the field of sale and lease of state property in Ukraine today introduced a system of decentralized online auctions e-Auction 3.0. The technology-based blockchain auction became the world's first example of the state using a decentralized horizontal system to privatize and lease state property, create licenses, and more. According to the project developers, the architecture of the blockchain auction can significantly reduce the likelihood of corruption risks. This is achieved through the transparency of bidding, the lack of human influence in the auctions, as well as attracting the maximum number of participants, as the platform allows anyone to participate in auctions and run their own access points to public bidding. All information on lots related to the lease or sale of property is available online to all interested parties.

In the long run, it is possible to include blockchain technology in the fiscal system of Ukraine to store information necessary for the formation of tax returns, and further – to create a decentralized base for taxation. In some countries, such as Norway, there have been attempts to implement a system in which the citizen pays directly for the repair of a particular road. But the advent of blockchain can make the implementation of such a project as technological and easy to implement.

Therefore, the following key barriers to the development of blockchain technologies at Ukrainian enterprises can be identified:

– low bandwidth (Bitcoin network is now maximized to 7 transactions per second, for comparison, VISA carries 2000, and Twitter – 5000 transactions per second);

– long delay (it takes about 10 minutes to complete a single transaction to complete a Bitcoin blockchain transaction, while VISA takes only a few seconds to complete);

– bandwidth size and width (Bitcoin network has a limit on the number of transactions that can be processed if the blockchain needs to control more transactions, size and bandwidth issues need to be resolved);

– security issues (now the main threat to the blockchain is a «51% attack»), when an attacker can roll back transactions by printing alternate blocks and guaranteed to deny what happens in a regular blockchain, so one object will have full control over most of the hash – set at the network level and will be able to manipulate the blockchain);

– energy consuming bitcoin mining.

Ukraine is among the Top 14 countries in the world for the introduction of blockchain technologies, and cryptocurrency is 2.5% of GDP – $ 2.5 billion. The introduction of blockchain in Ukrainian business processes requires significant knowledge in many areas, such as security, law, decentralized management, and companies that choose to use the blockchain will be forced to completely change their historical structure, whose traditional business processes do not correspond to the idea of the blockchain, as well as trying to integrate the blockchain into outdated streams of value and system, face investment or that technology does not suit them.

Risks associated with the development of blockchain in Ukrainian enterprises include the following:

1. Risks associated with the human factor. According to the theory of socio-cultural innovations and socio-psychological model, the priority of human relations in innovation management is a priori established. The so-called general signaling theory, which is a theory-tool for studying information processes in human-operator activities, serves to study the processes of information interaction between man and machine, according to which inevitably there are new security threats to the blockchain. For example, any business that seeks to interact with a blockchain system must interact via computer or automated systems. When a user interacts with a computer, there is a risk that the credentials to access the systems may be stolen or hacked. This only happens at the endpoints, which makes the blockchain vulnerable.

2. Underdeveloped standards. Each technology has standardization. This means that it is easy for companies around the world to implement this technology and use it around the world. Currently, the blockchain does not have proper standards due to rapid growth. Ultimately, this poses risks to security, privacy and compatibility.

3. Unstable price of cryptocurrencies. Cryptocurrency prices are one of the biggest problems. Bitcoin that uses blockchain technology can have high jumps that are unpredictable to investors and, conversely, fall sharply, posing a serious risk to investors. Obviously, prices are volatile, and this is one of the risks associated with traders betting on a project or cryptocurrency that uses a blockchain project.

Among the advantages of implementing blockchain technology in Ukrainian enterprises are:

– security and two-level identification of users with private and public keys, as well as digital signatures;

– successive chains prevent unauthorized changes in information;

– with the help of high-level programming languages allows you to create business logic that helps in making management decisions [11].

Conclusions. The material presented in the article in the order of logical presentation and content reveals the author's approach to assessing the potential opportunities and risks of blockchain implementation for Ukrainian enterprises.

It was stated that the introduction of blockchain technology is only becoming widespread among Ukrainian companies. Businesses are beginning to estimate the cost of storing their own information and providing transparency in building a customer-centric approach with high-level databases such as blockchain technology. Those companies that started implementing in the early stages of technology development, have the opportunity not only to use the existing algorithm, but also to modify it, creating a new, more developed product that can compete in the market. Yes, many companies are becoming suppliers of cloud blockchain technologies, which allows them to make quite high profits and explore a new niche in the Ukrainian market. Clustering has shown that companies with implemented blockchain technology have a high level of profitability and can be more stable in the market in the event of existing or possible crises. Thus, Ukrainian companies should use the experience of foreign companies and develop in this direction, which will significantly improve the quality of the company's work and eliminate high risks of information loss, especially in the field of security.

The main proposals for domestic business can be as follows:

– definition of basic concepts related to cryptotechnology;

– creation of a register of cryptocurrencies, which will indicate the name and protocol of the cryptocurrency;

– adoption at the official level of a moratorium on the regulation and restriction of the right to engage in business related to cryptocurrencies;

– improvement of legal support for legalization of mining in Ukraine, inclusion of this activity in the national classifier, ie creation of Classification of economic activities, which can be added to the activities of private individuals or LLCs, and which will relate to the use of blockchain technology, data processing and smart contracts in distributed registers. According to him, ordinary

citizens, like ordinary entrepreneurs, will be able to pay taxes at a certain rate. In turn, this step should reduce the pressure from the authorities on the crypto community.

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МОЖЛИВОСТІ ТА РИЗИКИ ВПРОВАДЖЕННЯ БЛОКЧЕЙНУ ДЛЯ УКРАЇНСЬКОГО БІЗНЕСУ

Проблема. *Безперервність наукових пошуків та високий інтерес науковців і практиків досі не отримали повного та належного науково-методичного вирішення проблеми уникнення ризиків та загроз і отримання суттєвих переваг й можливостей від упровадження блокчейн технологій на вітчизняних підприємствах.*

Мета. *У статті визначено потенційні можливостей та ризики впровадження блокчейну для українського бізнесу.*

Методологія. *Основними методами дослідження були критичний, історико-логічний та діалектичний аналіз і синтез соціально-економічних реалій (при вивченні онтологічних процесів та сучасного стану застосування передових технологій), аксіоматичний метод та метод аналогії (при вивченні концепції інноваційної модернізації), моніторинг ЗМІ та бенчмаркінг, кабінетне дослідження (при аналізі вторинної інформації про блокчейн технології в США, Великобританії, Норвегії).*

Результати. *Встановлено характер блокчейну українських підприємств, пов'язаний із децентралізаційними процесами у суспільстві. Досліджено онтологічні та організаційні засади блокчейну у криптоіндустрії. Вироблено пропозиції з розробки системи дій для проведення токенізації бізнесу. Проаналізовано основні проєкти українських міністерств та деяких державних інституцій, зокрема НБУ, щодо впровадження передових світових технологій. Визначено основні переваги блокчейн-технології для бізнесу різних сфер діяльності. Проведено паралель між видами діяльності найбільших публічних компаній, найбільших компаній за ринковою капіталізацією та стартапів з найвищим рейтингом в Україні та світі.*

Наукова новизна. *Запропоновано алгоритм упровадження технології блокчейн з урахуванням ризиків, можливостей та загроз для українського бізнесу.*

Висновки. *Розроблено пропозиції для українського бізнесу, зокрема щодо систематизації основних понять, пов'язаних із криптотехнологіями, створення реєстру криптовалют із зазначенням назви та протоколу криптовалюти, запровадження на офіційному рівні мораторію на регулювання та обмеження криптовалют, удосконалення нормативно-правового забезпечення щодо легалізації майнінгу в Україні.*

Ключові слова: *блокчейн, бізнес, підприємництво, токенізація, технології, інформація, процеси.*