

UDC 004:330(477+100)

DOI <https://doi.org/10.26661/2414-0287-2022-2-54-04>

DIGITALIZATION OF THE ECONOMY AS A PLATFORM FOR CREATING NEW VALUES IN A TRANSFORMATIONAL ENVIRONMENT

***Cherep O.H., **Babajanov B.A., *Voronkova V.H.**

**Zaporizhzhia National University*

Ukraine, 69600, Zaporizhzhia, st. Zhukovsky, 66

***Urgench State University (Urgench, Uzbekistan)*

cherep2508@gmail.com, valentinavoronkova236@gmail.com

ORCID: 0000-0002-3098-0105, 0000-0001-6878-791X, 0000-0002-0719-1546

Key words:

digitalization, digital economy,
cloud technology,
blockchain economy, investment,
cryptocurrencies, effects,
COVID-19, bitcoin, asymmetry,
encryption, Russia-Ukraine war

The problematic issues of using the digital economy in the real sector are investigated. Trends in the development of the digital economy in Ukraine and countries of the world are determined. Possible scenarios for the development of the digital economy in Ukraine and countries of the world are indicated. The need to use new information technologies is justified to optimize processes and production, reduce transaction costs and modernize their supply chains, which will ensure a high level of competitiveness of countries with developed and developing economy. It has been proven that it is not the ability to use the digital economy to create, store, process and transmit data that will hinder progress if they cannot overcome the structural challenges associated with the implementation of digitalization of the real sector. It is proposed to use asymmetric encryption algorithms – mostly, cryptography simultaneously encrypts and decrypts Blockchain messages, which use public keys as addresses for transactions that can be implemented in the presence of private keys. The modern credit card system is based on secrecy and centralization, which uses closed Internet networks, data centers protected by firewalls, where personal information of the parties is stored.

ЦИФРОВІЗАЦІЯ ЕКОНОМІКИ ЯК ПЛАТФОРМА СТВОРЕННЯ НОВИХ ЦІННОСТЕЙ В ТРАНСФОРМАЦІЙНОМУ СЕРЕДОВИЩІ

***Череп О.Г., **Бабажанов Б.А., *Воронкова В.Г.**

**Запорізький національний університет*

Україна, 69600, м. Запоріжжя, вул. Жуковського, 66

***Ургенчський державний університет (м. Ургенч, Узбекистан)*

Ключові слова:

діджиталізація,
цифрова економіка,
хмарні технології,
блокчейн-економіка,
інвестиції, криптовалюта,
ефекти, COVID-19, біткоїн,
асиметрія, шифрування,
російсько-українська війна

Досліджено проблемні питання використання цифрової економіки в реальному секторі. Визначено тенденції розвитку цифрової економіки в Україні та країнах світу. Зазначено можливі сценарії розвитку цифрової економіки в Україні та країнах світу. Обґрунтовано необхідність використання нових інформаційних технологій для оптимізації процесів і виробництва, зниження транзакційних витрат і модернізації своїх ланцюжків поставок, що забезпечить високий рівень конкурентоспроможності країн з розвиненою економікою та економікою, що розвивається. Доведено, що неможливість використання цифрової економіки зі створення, зберігання, обробкою та передачею даних буде перешкоджати прогресу, якщо вони не зможуть подолати структурні проблеми, пов'язані із впровадженням діджиталізації реального сектора. Розвинуто теорію про прискорення цифровізації економіки з урахуванням пандемії COVID-19, російсько-української війни. Запропоновано використовувати асиметричні алгоритми шифрування – здебільшого криптографія водночас шифрує і дешифрує повідомлення Блокчейн, що послуговується відкритими ключами як адресами для транзакцій, які можна реалізувати при наявності закритих ключів. Сучасна система кредитних карток базується на таємності й централізації, який використовують закриті мережі Інтернет, захищені брандмаузерами центри даних, де зберігається особиста інформація сторін.

Problem statement

The digital economy may accelerate the recovery from the pandemic, but governments must ensure its inclusivity starting today. In the mid-1990s, technology enthusiasts predicted that the rapid spread of the Internet and supercomputers would create new efficiency, innovation, and economies of scale. However, the digital footprint in the world has grown exponentially since then. Global IP traffic today IP-traffic is almost 150,000 GB per second compared to 100 GB per day three decades ago. Ubiquitous data and connectivity is expected to reach close to 60 zettabytes in 2020 and nearly triple by 2025, powering the new economy.

The purpose of the article is to justify the expediency of using the digital economy in the real sector in the context of COVID-19 and the Russia-Ukraine war.

Analysis of recent research and publications

The study of the problem of forming a strategy for digitalization of economy as a platform for creating new values in a transformational environment is extremely relevant. It is the relevance of the investigation of this problem that determines the great interest of scientists in further research. Foreign and domestic scientists paid attention to this issue in their scientific works, namely: Satoshi Nakamoto [1], Alex Tapscott [2], Don Tapscott [2], Kibets D.V. [3], Kohut Yu.I. [4], Prykhodko I.V. [5], Savchuk S.S. [6]. The concept of blockchain economy as an economy of a new type in the conditions of digitalization is of great importance, since the emergence of a new currency and payment network requires its research as an innovative problem. The concept of blockchain economy is still quite unexplored, as it is only born and discussed in the scientific works of scientists, on Internet forums, governments of the world and on the pages of the media. Problematic issues of blockchain economics are devoted to publications on sites [7] and [8]. Therefore, we believe that our research is relevant and timely.

Results

The digital economy generates serious negative external effects, in particular accelerating climate change. Despite attempts by some technology firms to adjust their actions, they are still considered one of the most unstable and environmentally harmful in the world. To meet the demand for equipment, they are increasing the production of rare earth minerals and other precious metals such as cobalt. Technological redundancy and planned obsolescence contribute to the emergence of waste. Most alarmingly, the expansion of Internet services consumes about one-tenth of the world's electricity production.

The transition to cloud technologies contributes to increased energy consumption and carbon dioxide emissions, in particular in coal-fired power plants. The servers, cooling systems, storage, and networking devices of some of the world's largest data centers consume more than 100 MW of electricity, equivalent to 80,000 households in the U.S. Today, more than 7 GW is used for bitcoin mining alone, which is equivalent to seven nuclear power plants. It

is established that the annual carbon emissions during the creation of cryptocurrencies range from 22 to 29 million tons of CO₂, which is equivalent to a small country like Jordan [9].

In addition to social and environmental problems, the digital economy is developing faster than the real economy. Depending on how it is defined, its total value may be 11.5 trillion US dollars, or 15% of world GDP. Researchers believe that by 2040 this figure could rise to 37 trillion US dollars, or 26% of GDP. Countries whose share of the economy depends on information and communication technologies – from Finland and Ireland to Singapore and South Korea – are particularly well positioned. Countries with developed economies and developing economies will benefit if they can use new technologies to optimize processes and production, reduce transaction costs, and modernize their supply chains. But it will hinder progress if they fail to overcome the structural challenges associated with creating, storing, processing and transmitting data. And the boom in the digital economy could collapse if it doesn't become more sustainable [10].

The COVID-19 pandemic is accelerating the digitalization of economies almost everywhere. The unprecedented shift to remote work and the explosive growth of online content and consumption are contributing to a surge in data. As more and more people replace video conferencing with business trips, communication platforms and data providers thrive. But the pandemic is also exacerbating inequalities within less connected and hyper-digitized societies in the context of the development of the digital city model as a factor in creative development [11].

Countries that lack digital resilience and market power are lagging behind. Ensuring a more equitable global digital economy requires development of flexible government regulations, mandatory general broadband, professional development of employees, and introducing social protections to more equitably distribute profits and minimize losses. Global and regional agreements on better management of cross-border flows of information, regulation of competition and taxation and assuring privacy demand the development of concepts of the information (digital) economy [12].

Thus, governments and companies will need to invest in sustainable digital transformation not only to thrive, but also to survive the twenty-first century which is accompanied by the COVID-19 pandemic, the Russian-Ukrainian war. With the right combination of incentives, oversight, and investment, the blockchain economy can play a key role in the recovery of the post-COVID-19 economy and the Russian-Ukrainian war, as well as the potential growth of small and medium-sized businesses in low-income countries. This will require large expenditures and a greater reallocation of the critical infrastructure that enables the services and applications that drive the digital economy. Most importantly, public and private actors will also need to develop mindsets to adapt to, benefit from, and minimize risks from digitization [13].

There are the remaining barriers to the creation of the Digital Single Market. The Digital Single Market (DSM) is included in the initiative of the Single Market Act adopted

by the European Commission (EC). This issue had already emerged in 1990 and was raised again in 2010, emerging after the 2008 crisis, which acted as a catalyst for action. The crisis created an opportunity to put the single market first on the agenda and was aimed at addressing two issues: financial oversight and economic coordination. This gave a new dimension to the market. The proposal for the DSM was created in accordance with the Commission's strategy called «Digital Agenda for Europe» in the context of the policy guidelines of the second Barroso Commission, which pointed to the need to remove obstacles to the introduction of the European market as an attempt to restart the digital single market. This strategy was similar to that used for the domestic market in 1985 and focused on one of the weaknesses of the latter, namely the fragmentation of the national digital market.

Building on Monty's report, the «On the Way to the Single Market Act» report details 50 proposals to reform the CU by the end of 2012. First, an interesting approach is to focus on analyzing the short-term and long-term relationships between Bitcoin and cryptocurrencies and stock indices. Secondly, they can be reproduced by improving statistical methods and using other cryptocurrencies and stock exchange indices to demonstrate the reliability of the results achieved. Thirdly, different time series methods can be applied to predict the behavior of cryptocurrencies. COVID-19 accelerates the transition to digitalization, but also increases the foresight gap between countries [14].

The potential impact of blockchain technology – distributed ledgers – on society and the global economy is extremely important because they promise to always have an optimistic impact [15].

Conclusions

Thus, the digital economy platform and new value creation helps companies use blockchain economy technologies to be versatile in the face of the challenges of disruptions and create new digital business models for a new post-COVID normal that expedites the need for flexibility, adaptability and transformation. Industry structures and business models are crumbling, and the digitalization of the economy is accelerating. Bitcoin

is a method of undisputed transactions that is based on a widespread accounting system on the Internet. Asymmetric encryption algorithms – for the most part, cryptography simultaneously encrypts and decrypts messages Blockchain uses public keys as addresses for transactions that can be implemented with private keys. The modern credit card system is based on secrecy and centralization, which is used by closed Internets, firewall-protected data centers where personal information of the parties is stored. Bitcoin's public ledger of transactions is collected in blocks approximately every ten minutes, from the current block to the creation block laid down by the anonymous bitcoin inventor Satoshi Nakamoto. Bitcoins are not a real currency [16], but they serve as a measure for transactions permanently registered on the blockchain. This currency can become a global alternative to fiat money when the monetary system suffers from the actions of national governments and states. Distributed ledgers called blockchain have the ability to safely digitize many current operations in the economy and finance, as well as in legal and public services. Blockchain can be defined as a decentralized public ledger that records transactions between users continuously, securely, and verifiably. Without a doubt, the financial sector is a leader in the implementation of blockchain technology. Blockchain is rapidly revolutionizing the global economy. The potential impact of blockchain technology – distributed ledgers – on society and the global economy is extremely important, as they promise to always have an optimistic impact. In fact, the potential benefits of blockchain are not only economic, but the technological capabilities of blockchain are being used by specific groups to solve real-world problems. Blockchain technology and all its forms continue to develop rapidly. It is widely recognized that the future of blockchain technology looks bright and attractive in part because governments, developers, firms and investors are investing heavily in an effort to spur innovation and applications. The opportunities that blockchain offers need to be developed and intelligently managed, controlling unintended consequences and risks. So, blockchain is a technological breakthrough that has the potential for global digital change and the formation of a blockchain economy.

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