THE INFLUENCE OF THE NEW GENERATION OF COMMUNICATION ON THE FORMATION OF THE FUTURE ECONOMY

Monograph

Edited by

Irina Tatomyr
Center for Professional Development of Teachers of Boryslav City Council (Ukraine)

Liubov Kvasnii
Precarpathian Institute named of M. Hrushevsky of Interregional Academy of Personnel Management (Ukraine)

eBook **ISBN 978-80-88415-81-7**

OKTAN PRINT
PRAHA 2022

Recommended for publication by the Precarpathian Institute named of M. Hrushevsky of Interregional Academy of Personnel Management (Protocol №10 dated 11.05.2022)

The work was performed within the research topic of the Mykhailo Hrushevsky Precarpathian Institute «Ukraine in the context of world and national modernization processes of statehood and civil society: political, legal, economic, social, psychological and administrative aspects» (Registration number 0119U100492. Date of registration - February 12, 2019)

Reviewers:

Levan Jakeli Professor, Dean of the Faculty of Law of Batumi State University. Sh. Rustaveli (Georgia)

Justyna Krzywkowska Doctor of Law, assistant professor Department of Legal Theory and History Faculty of Law and Administration University of Warmia and Mazury in Olsztyn (Poland)

Yeliseyeva Oksana Doctor of Economics, Professor, Head of the Department of Statistics, Accounting and Economic Informatics of Dnipro National University named after Oles Honchar (Ukraine)

Editors:
Irina Tatomyr PhD in Economics, Associate Professor
Liubov Kvasnii Ph.D in Economics, Associate Professor

THE INFLUENCE OF THE NEW GENERATION OF COMMUNICATION ON THE FORMATION OF THE FUTURE ECONOMY: *monograph*; Edited by I. Tatomyr, L. Kvasnii. Praha: OKTAN PRINT, 2022, 168 p.

The publication is assigned with a DOI number: **https://doi.org/10.46489/TIOTNG-13**

The paper version of the publication is the original version. The publication is available in electronic version on the website: **https://www.oktanprint.cz/p/the-influence-of-the-new-generation**

Passed for printing 11.05.2022
Cover design: *Irina Tatomyr*

eBook **ISBN 978-80-88415-81-7**

OKTAN PRINT s.r.o.
5. května 1323/9, Praha 4, 140 00
www.oktanprint.cz
tel.: +420 770 626 166
jako svou 122. publikací
Výdání první

Contents

1. THE ROLE OF 5 G TECHNOLOGIES IN THE CONDITIONS OF DIGITALISATION OF THE ECONOMY

Sabadash Vira

Doctor of Sciences (Technical Sciences),

Professor of Department of Ecology and Sustainable Environmental management
Lviv Polytechnic National University

E-mail: virasabadash@gmail.com

ORCID ID 0000-0002-6091-4053

Formulation of the problem. In the XXI century. Informational a society in which information and communication technology (ICT) is a crucial feature is defining a new vector for the development of the digital economy. Countries invest more and more resources in information-oriented production, including digital technologies, computer equipment, telecommunication systems and the Internet, because, in the modern world economy,it is a source of competitive benefits. ICT is a classic example of broad technologies application, that is, technologies that give broad a set of significant economic effects outside the industries in which they were developed.

The modern development of info-communications is directed to provide and improve mobile communications and the Internet of Things, at the junction of which info-communication forms of infrastructure are oriented on the world's combined objects around us. Her organisational basis the Internet of Things is becoming, and new info-communication infrastructure is becoming a technical and network platform.

From the growing role of information technologies in conditions of digitisation, the economy is a growing need for a quality network capable of fast and precise execution of tasks set by the new society. The solution to this problem is developing and implementing standard cellular communication fifth-generation (5G). Sphere telecommunication technologies fifth-generation (standards 5G) has decisive value to scale the Internet of Things and Intelligent infrastructures, developing new

consumer systems (smartphones and related services) that provides them with microelectronics, etc. These technologies have enormous opportunities to develop all industries economy and societies. These circumstances determine the relevance and timeliness of the research topic.

Analysis of recent research and publications. Research of information technology market development processes in system world farms in conditions of digitalisation has given attention to leading foreign and domestic economists [1].

Many foreign scientists have been involved in the informatisation of the world. Though they have considered in their scientific works problems of integration of 5G technology into an economic and social environment and its content in exacerbations shopping conflict between the world's largest economies - the United States and China. The research of the professor of the Polytechnic University of the Republic of Korea is devoted to this problem Pack Sanchula, in whose in detail considered influence shopping "Wars" on economy participating countries and on the world economy as a whole [2]. His own, in turn, development of fundamental questions something methodological approaches to processes. The scientific works of Hossein Garcia [11], Qian Liu, Xiaochuan Shi, Xu Van, and Jia Lee focus on analysing the problem of the role of implementation 5G in conflict.

Together with those despite on depth modern scientific developments, insufficient research equals the readiness Chinese economy to implement 5G technologies, and factors of successful implementation innovation in the context of digitalisation indicate the need for further development. At the same time, additional research and systematisation in need risk opportunities and benefits of using mobile technologies communication fifth generation in most attractive industries for the introduction of 5G technologies.

The purpose of the article is to justify the need to implement 5G technology in the PRC and develop scientific and practical recommendations for further development of the digital economy in the PRC. The importance of introducing 5G mobile communications is due to the growing demands on the network, primarily due to the large number of devices that require work on the Internet.

Fifth-generation (5G) mobile networks will be the basis for developing new services and applications, influencing change in many sectors of the economy and, consequently, leading to a radical transformation of our daily lives. The 5G networks will completely change the way of application of mobile devices, and interaction with the end-user network environment. They will allow the implementation of innovative projects such as "Smart Cities", "Intelligent Transport Systems", and "Industry 4.0", transforming existing business models and implementing new ones.

Therefore, the rapid introduction of the 5G network will increase the competitiveness and economic effect, allowing businesses to strengthen their position in technologically advanced areas. 5G is a network for business. It is expected that 5G will be the basis and, at the same time, the carrier of new ecosystems of intelligent interacting machines (devices and sensors with full or limited computing and energy capabilities), which will transform existing economic, business and administrative strategies.

And further elimination of social and cultural divisions [1]. 5G will provide full digital interoperability at every step of our lives, providing an efficient and seamless communications service for business applications and e-government platforms. In particular, the impact of 5G on the automotive industry, public safety, high-tech manufacturing, digital and Internet services, healthcare, financial services, media, video games and the Internet of Things (IoT) is expected to lead to radical changes in our daily lives. With the introduction of 5G, all innovative application scenarios that require very low latency, high data rates, full reliability and mobility, and constant availability of communication services will break the technological barrier, radically changing the existing concept of interoperability with machines. Experts and telecommunications institutions are convinced that 5G will lead to a technological revolution, as virtually everything and everywhere will be interconnected, resulting in significant additional profits for businesses and creating millions of new jobs around the world [2]. 5G solutions will be key in building new technological solutions that will contribute to the formation of a modern information society, a society in which the citizen uses real-time interactive e-government services, advanced e-health diagnostics or even participates in mass cultural events. Using high-quality digital media. 5G will play an important role in the development of new digital technologies that support a large proportion of commercial transactions. Also, a significant number of electronic services offered by public administrations will be based on the new digital network [3,4]. The challenge for 5G will be to integrate vast amounts of data with ubiquitous and efficient access to network infrastructure to provide the public with new digital services and processes that are key to the digital revolution. Using 5G cellular connectivity instead of stand-alone home WLAN configuration and firewall mechanisms will improve user performance and protect devices. 5G networks will allow cost-effective broadband fixed wireless access implementation in closed areas [5].

In 5G networks, narrowband communication will be improved, particularly regarding energy-saving functions. Battery life in IoT devices will reach 20 years.

Mechanisms such as sleep mode (the device is in a state of very low power consumption when it does not send data) and intermittent reception (the device can receive data only at certain times) will be improved in 5G. Another aspect of the remark is that MMTC communications may or may not be closely connected to the 5G network - improved public/subscription platforms will provide this. The p / s concept is a solution implemented using a higher level in the IoT architecture and is based on the subscription of IoT devices within a broader platform so that all communication with the device passes through this platform.

All new 5G services and applications are focused on their implementation and use in the three main usage scenarios identified by the ITU: a) High Delay High-Reliability Communication (URLLC). These solutions will offer very low latency, high reliability and high-reliability availability level. This will apply to critical communications such as remote surgery, autonomous vehicle control (communication between vehicles and between vehicles and infrastructure), industrial control systems (communication between robots), touch Internet or numerous programs for public safety. 4. Fifth Generation (5G) Systems and Networks 63 b) Enhanced Mobile Broadband (eMBB) - These systems will be used, for example, when transmitting multimedia content with high-quality requirements (4K / 8K video, 360 ° video). EMBB transmissions will be characterised by very high data rates, high spectral efficiencies in systems with wide terrestrial coverage and high terminal density. c) Massive Machine Type Communications (MMTC) - This type of system will be designed for mass transmission from/to many low-cost, long-life battery-powered devices aimed at transmitting measurement data in short messages, such as energy meters or sensors. Including those placed, for example, on the human body. Network virtualisation and slicing procedures will be implemented to support all three network segments and 5G traffic. It will be based on the distribution of network resources between patches - functionally separate parts of the network node that serve each type of segment, according to their requirements and protocols used [6].

Network Function Virtualization (NFV) solution allows you to create virtual networks in a software way [7]. This solution uses distributed computing infrastructure (distributed data centres) to dynamically establish such networks. Virtual networks are created based on pre-prepared templates (templates, drawings), which contain a set of functions of the virtual network, their configuration data, and the relationships between them (network topology). NFV technology is the basis of another crucial solution for 5G, namely Network Slicing (NS) technology [8]. This technique uses NFV solutions to build multiple parallel networks that are physically or logically isolated from each other. Network Slice can be created "on-demand" in

the same way as VPNs are currently being developed, but unlike VPNs, it can have much more advanced features (such as computing resources). Network Slice also allows you to create secure (isolated from other traffic) and customised solutions for business customers, the so-called vertical. They may be partially involved in managing their network if they see this as a benefit (for example, by reconfiguring services).

The frequency of radio signals new generation is much higher, which at the same time increases their clarity. It gives to avoid interference and overlap while using several wireless devices. Predictable 5G data rate in the dense urban environment - 95% time from 100 Megabit / s on descending lines communication to 50 Megabit / s on ascending lines communication. It means to transfer a large quantity of information in less than by second but over short distances [9]. It is the shortest range of 5G waves their disadvantage and determines the necessity of installing more towers and transmitters for efficient work, which causes growth costs.

Also, 5G has risks related to cybersecurity; in communication with large volumes of transmission information, potential damage from cyberattacks increases. On counterweight is growing and efficient built-in protection functions. In particular, with the help of authentication systems, operators 5G can identify different devices and send them security updates and posts. Program leaders develop systems that provide data encryption [12].

Despite on listed above shortcomings and risks related to technology mobile communication fifth generation, it is worth noting its importance for the economic and social spheres of life in developing countries and developing countries. Virtualisation minimises the use of physical network management equipment. It is possible to remotely monitor the situation on the roads, ports and railway stations, significantly improving quality logistics operations. Also, coating 5G from a long-term perspective will be able to provide unmanned driving, which should be kept to a minimum number of road transport adventures. Residents of developing countries, which today yet do not have opportunities to have a bank account, will be able to get access to financial services and online education [thirteen]. The accuracy and speed of operation of the devices used in medicine will grow. More of that becomes possible to reduce the negative consequences of storms and tsunamis by using systems premature informing [14].

Using 5G technology is important to condition development for enterprises. Many suppliers of 5G Deployment Services (CSPs) consider that the wider possibilities of the new technology are providing services to producers of goods and services. However, implementation in the business model is accompanied by a

number of problems through unpreparedness enterprises. According to with poll conducted by Nokia and Media Research [15], almost 50% of companies - leaders in the sphere of IT plan to implement 5G today. Media and advertising, production and logistics, retail and energy are the four industries that consider 5G the most attractive. IN the production sphere, 5G maybe to provide full automation processes [16].

One of the most interested in implementation networks in fifth-generation countries is PRC. For estimates,the country's readiness to implement 5G should be analysed through low macroeconomic indexes, which characterise level development information and communication technologies:

1. Network Readiness Index Index, NRI) - includes four subindexes, which are considered technological readiness countries (Technology), social aspect (People), regulatory framework development ICT (Management), and also value information _ products socio-economic sphere.

China's network readiness is much higher than the average level, which determines the foundation of any basis for implementing new technologies.

2. Global index innovation (Global Innovation Index, GII) includes rating countries world by indicator development innovation and evaluates level countries onascale of 0–100. Indicator PRC slightly lags behind representatives of the "Four Asian Tigers » - Republic Korea, Singapore and Hong Kong, but could outdo Japan. Other countries in Asia and Oceania turned out less innovative than China. Results analysis confirm what level of information readiness PRC is sufficient for implementing mobile broadband communication 5G. Its task placement before the largest operators mobile networks, China Mobile Ltd., China Unicom and China Telecom Corp. By last year, insignificant changes quantity of users mobile by phone and subscribers, what uses 4G, the numberof customers, what connected 5G tariffs increased by 25 times.

In addition to individual use by owners of smartphones, 5G technologies are used in telemedicine and health, mass observation (mass surveillance) and public security, cloud streaming, manufacturing, transport and logistics [17]. The legal regulation is the 5G-Plus Industrial Internet Program, released Ministry of industry and informatisation of PRC in2019 [18].

Implementation of technology in many state important areas should be accompanied by appropriate legislation that provides protection and security. IN PRC, this function is performed by the "Guide to creating a foundation data security standards in telecommunications and Internet sectors "(Department of Science and Technology Ministry of Industry and Informatization of the PRC, 2020). Earlier, the ministry accepted some provisions for implementing 5G technologies, namely

Measures to coordinate base station conflicts mobile communication 5G and radio stations (satellitestations in the spectrum of 3000–5000 MHz) [19].

Today completed work with the installation and commissioning of the 5G station internationally Beijing airport. Shenzhen was the first city to implement full-scale use of 5G: there are 46,480 stations in the city, which exceeds the total number of installations in many countries. Other projects of fifth-generation network deployments are in work [20].

But already on this level, PRC is ahead of other countries and ranks first in the number of cities with access to 5G.

A significant role in this large-scale project played company Huawei, one of the largest equipment suppliers, which provides a 5G connection.

In this international market company experiences restrictions. Deployment 5G technology became the culmination of the trade war between the United States and China in 2018. In March 2020, the US Department of Commerce suspended export components necessary for the production of Huawei devices, such as chips, semiconductors, antennas and batteries, which is why the Chinese manufacturer had to look for alternatives to the internal market. Also suspended, selling Huawei smartphones in several countries, making it a share of the world the company's market is insignificant. At the same time, other Chinese companies are among the top five suppliers of 5G smartphones in the world [3].

The reason similar situations became trade warbetween China and the United States (2018), related to concerns The United States, which is due to the growing influence of China on the international economic arena, in particular after advertisement strategy development Made in China 2025, approved with purpose support economic growth, equal life and pleasure need all more educated working forces and technological competitiveness. The USA allows Cisco, Juniper Networks and Qualcomm to increase their competitiveness in the world market. Due to the refusal to supply semiconductors with Asia and to encourage domestic companies to produce in June 2021 p. Senate USA approvedan investment and development plan for $ 170 billion the USA. Also on, 5G technology was allocated 1.5 billion dollars.

Concerned relationships Huawei with government PRC Five Eyes allies (US, UK, Australia, New Zealand and Canada) refuse to importproducts companies, but it may be to limit their access to 5G technologies and delay their development in this field of minimum on two or three years. Technological war and fear USA had a small slight impact on the Asian giant's relationship with Latin America. Some countries obeyed Washington's pressure against using 5G, but the majority continues to lead talks ofits implementation [11].

Huawei invested in Mexico about $ 500 million in in the creation technical support centre. Chile, the most developed country in Latin America in this area, opened the first 5G station in the region, and Brazil announced this year, which will hold the first tender for concluding contracts for its establishment. All indicate that what to 2022 p. all cities and county Brazil will have access to the 5G network and, as in Chile, Huawei can participate in auctions [11].

Thus, China has the opportunity to remain a leader in the production and supply of 5G devices, even with sanctions. However, according to a study conducted by Simon O'Dea (Content Manager Statista Global), by 2025, China's position may deteriorate [9].

Global informatisation and the development of the digital economy have significantly changed the scale of investment projects, both local and global. In particular, China intends to invest about 315 billion euros in the development of the 5G network. According to the signed agreement, China and the EU will jointly develop 5 generations of 5G networks. The European Union has already demonstrated a plan for the development of 5G until 2020, for the implementation of which it is planned to allocate 50 billion euros. The agreement is about the timing of the start of 5G network deployment and how to start developing it. We are also talking about technological developments and adopting a new network standard as soon as possible. The data transfer rate will be more than 10 Gbps. The 5G standard is much faster than the LTE (4G) standard. Similar agreements on the creation of the 5G network were previously signed by South Korea with Japan [15]. The levers of influence in the field of investment in digital technologies are shifting to the East. Wealthy companies in today's developing countries are investing heavily in technology, often outpacing their counterparts in developed markets. Owners and business leaders in developed economies will soon face new competitiveness - aggressive, technologically equipped firms from developing countries [16]. There is an increase in investment in database storage systems, the fastest growing companies will use smart devices to increase their efficiency and productivity, as well as optimise costs. Microsoft [18] has decided to finance "cloud" services worth more than $ 1 billion. According to the company's management, in the near future these services will not only contribute to the development of scientific and technological progress, but also help solve a number of global problems. It is assumed that in the future they will play a significant role in the economic and social spheres of many developed countries.

The company's "cloud resources" will include various non-profit organisations (NGOs), numbering more than 70,000, as well as research centers of leading universities, which conduct effective research in the field of "public interest"

research. According to the company, at the moment, there are more than 900, but their number will only grow in the future. The funds are planned to be allocated in stages over the next three years. Business is moving to a hyper-fast pace of innovation. The ever-changing global market, fueled by a high-growth economy and new technologies, has accelerated the transition from product development to customer response in most businesses [20]. Business intelligence and real-time intelligence will be in demand for faster decision-making and dealing with unexpected market risks and realising sudden opportunities. Traditional sectors of the economy and public administration will also benefit from introducing analytical services based on data sets.

The US-China confrontation is explained primarily by the central role of promising commercial digital technologies, which both parties consider a key element in forming national power. In this context, the question arises as to whether this "technological war" is a general factor or whether the world community is witnessing changes in levels of the strategy of great powers and geopolitical conflicts on perspective.

Positive signals in the international capital market include initiatives of countries on strategic development management based on digital transformations. The Austrian government has announced its intention to achieve a "revolutionary restructuring of energy systems." The plan envisages attracting about 40 billion euros of private investment (under favourable framework conditions), which should go to "green" energy - wind, hydro and solar power plants, network upgrades and energy saving. The head of the Austrian government also announced the creation of several hundred thousand new jobs by 2020, of which about 40 thousand - due to the "greening" of the economy [14].

Conclusions. Implementation and use of networks 5G is a practical activity for implementing a new philosophy development "Innovation, coordination, ecological development, openness and sharing", which can increase network efficiency and operations with capital, i.e. reduce costs and increase profits. At the same time, for ensuring highly efficient coating 5G possible improvement interaction with a user when using high-speed services transmission data pleasure growing needs people in connection, raising the level of IT applications and creating the best environment information services for mass entrepreneurship.

China is a representative of this concept. The Chinese government is interested in developing the economy within Industry 4.0, and so leads active politics introduction of the technologies necessary for the future fifth-generation mobile network. Today 5G is already used in some areas, but this is yet not enough to fully unleash the potential of technology. More of that significant obstacle is aggravation

trade opposition with USA on soil use of 5G technologies and, consequently, limitations sales some large Chinese companies.

Thus, some factors can affect the position PRC on the world market 5G technology how leading manufacturers, namely: whether alternatives have been found in markets sales (in particular, in Latin America) or European countries, will agree to lag in the implementation of 5G as a side effect of sanctions and what will be further actions government PRC is within strategy Made in China 2025.

In order to improve the digital policy, it is possible to offer complex measures which will promote further development of the digital economy in China on the one hand and smooth out possible temporary negative effects caused by transformational processes - on another. Firstly, the priority task is to develop an active market policy labour, primarily related to the retraining of workers, to smooth the transition of labour from industries that are shrinking in the context of digitalisation to growing sectors. An important condition is the development of competition in the digital economy because now, the digital industries that recently arose are characterised by an oligopoly that at some stage maybe brake the development sector. It is necessary to develop an integrated approach to supervision of the financial and technical sector to eliminate existing gaps in the regulatory base. It is important to support the ongoing renewal of the digital infrastructure through public investment. In addition, an extra effort we need to spread the Internet in rural areas (now Internet can use by only 19% rural population) and expand training programs skills use ICT in educational institutions.

REFERENCES

1. Reis, GG, Heidemann, MS, Matos, KHOD, & Molento, CFM (2020). Cell-Based Meat and Firms' Environmental Strategies: New Rationales as per Available Literature. *Sustainability*, 12 (22), 9418. **DOI: 10.3390 / su12229418**

2. Klingelhöfer, D., Braun, M., Quarcoo, D., Brüggmann, D., & Groneberg, DA (2020). Research landscape of a global environmental challenge: microplastics. *Water research*, 170, 115358. **DOI: 10.1016 / j.watres.2019.115358**

3. Radu, C., Caron, MA, & Arroyo, P. (2020). Integration of carbon and environmental strategies within corporate disclosures. *Journal of Cleaner Production*, *244*, 118681. **DOI: 10.1016 / j.jclepro.2019.118681**

4. Mitchell, RB, Andonova, LB, Axelrod, M., Balsiger, J., Bernauer, T., Green, JF, ... & Morin, JF (2020). What we know (and could know) about

international environmental agreements. *Global Environmental Politics*, *20* (1), 103-121. **DOI: 10.1162 / glep_a_00544**

5. Ramón-Jaramillo, S., Sarango-Lalangui, P., Campoverde-Romero, A., & Torres-Zambrano, J. (2017, June). The use of the Oslo handbook in innovative and technological business initiatives. Case: Business initiative Center Precho Ecuador. *In 2017 12th Iberian Conference on Information Systems and Technologies (CISTI) (pp. 1-6). IEEE*. **DOI: 10.23919 / CISTI.2017.7975875**

6. Aragon-Correa, JA, Marcus, AA, & Vogel, D. (2020). The effects of mandatory and voluntary regulatory pressures on firms' environmental strategies: A review and recommendations for future research. *Academy of Management Annals,* 14 (1), 339-365. **DOI: 10.5465 / annals.2018.0014**

7. Maggi, F., La Cecilia, D., Tang, FH, & McBratney, A. (2020). The global environmental hazard of glyphosate use. *Science of the Total Environment*, *717* , 137167. **DOI:** 10.1016 / j.scitotenv.2020.137167

8. Mirzekhanova, ZG (2021). Regional Environmental Programs: Problems of Implementation. *Geography and Natural Resources*, *42* (2), 99-106. **DOI:** 10.1134 / S1875372821020098

9. Günther, SA, Staake, T., Schöb, S., & Tiefenbeck, V. (2020). The behavioral response to a corporate carbon offset program: A field experiment on adverse effects and mitigation strategies. *Global Environmental Change*, *64*, 102123. **DOI:** 10.1016 / j.gloenvcha.2020.102123

10. Asgary, A., Ozdemir, AI, & Özyürek, H. (2020). Small and medium enterprises and global risks: evidence from manufacturing SMEs in Turkey. *International Journal of Disaster Risk Science*, *11* (1), 59-73. **DOI:** 10.1007 / s13753-020-00247-0

11. Umadia Sr, K., & Kasztelnik, K. (2020). The Financial Innovative Business Strategies of Small to Medium Scale Enterprises in Developing Country and Influence for the Global Economy Performance. **DOI: 10.** 123456789/80738

12. Naradda Gamage, SK, Ekanayake, EMS, Abeyrathne, GAKNJ, Prasanna, RPIR, Jayasundara, JMSB, & Rajapakshe, PSK (2020). A review of global challenges and survival strategies of small and medium enterprises (SMEs). *Economies*, *8* (4), 79. **DOI:** 10.3390 / economies8040079

13. Repnikova, VM, Bykova, ON, Stroev, PV, Morkovkin, DE, & Kurbakova, SN (2020). Improvement of approaches to the strategic development management of enterprise. *Entrepreneurship and Sustainability Issues*, *8* (1), 301. **DOI: 10.9770 / jesi.2020.8.1 (21)**

14. Zheng, S., He, C., Hsu, SC, Sarkis, J., & Chen, JH (2020). Corporate environmental performance prediction in China: An empirical study of energy service

companies. *Journal of Cleaner Production*, *266*, 121395. **DOI: 10.1016 / j.jclepro.2020.121395**

15. Bartolacci, F., Caputo, A., & Soverchia, M. (2020). Sustainability and financial performance of small and medium-sized enterprises: A bibliometric and systematic literature review. *Business Strategy and the Environment*, *29* (3), 1297-1309. **DOI: 10.1002 / bse.2434**

16. Liou, RS, & Rao-Nicholson, R. (2021). Multinational enterprises and Sustainable Development Goals: A foreign subsidiary perspective on tackling wicked problems. *Journal of International Business Policy*, *4* (1), 136-151. **DOI: 10.1057 / s42214-020-00080-8**

17. Centobelli, P., Cerchione, R., & Ertz, M. (2020). Managing supply chain resilience to pursue business and environmental strategies. Business Strategy and the Environment, 29 (3), 1215-1246. **DOI: 10.1002 / bse.2428**

18. Richnák, P., & Gubová, K. (2021). Green and reverse logistics in conditions of sustainable development in enterprises in Slovakia. *Sustainability*, *13* (2), 581. **DOI: 10.3390 / su13020581**

19. Rispoli, G., & Olšáková, D. (2020). Science and Diplomacy around the Earth: From the Man and Biosphere Program to the International Geosphere-Biosphere Program. *Historical Studies in the Natural Sciences*, *50* (4), 456-481. **DOI: 10.1525 / hsns.2020.50.4.456**

20. Ndubisi, NO, Zhai, XA, & Lai, KH (2020). Small and medium manufacturing enterprises and Asia's sustainable economic development. *International Journal of Production Economics*, 107971 . **DOI: 10.1016 / j.ijpe.2020.107971**

2. DIGITAL TECHNOLOGIES AS DRIVERS OF DIGITAL ECONOMIC DEVELOPMENT

Liubov Kvasnii
Candidate of Economic Sciences, Associate Professor, Professor of Economics and Management, Ivan Franko Drohobych State Pedagogical University;
Professor of Management, organizations, economics and entrepreneurship, Precarpathian Institute named of Mykhailo Hrushevsky of Interregional Academy of Personnel Management, Drohobych -Truskavets, Ukraine
E-mail: lg_k@ukr.net
ORCID ID 0000-0001-5248-544X

Oksana Vivchar
Doctor of Economics, Professor, Academician of the Academy of Economic Sciences of Ukraine, Academician of the Ukrainian Academy of Technology, Professor, Western Ukrainian National University, Ternopil, Ukraine
E-mail: o.vivchar@wunu.edu.ua
ORCID ID 0000-0001-9246-2226

Galina Sisin
lecturer of Management, organizations, economics and entrepreneurship, Precarpathian Institute named of Mykhailo Hrushevsky of Interregional Academy of Personnel Management, Truskavets, Ukraine;
E-mail: pimaup_ doctorant@ukr.net

Vladimir Mural
Ph.D. in Economics, Professor of the International Personnel Academy, Deputy Institution of the Lviv Regional Council "Sambir Professional Medical College", Sambir, Ukraine
E-mail: v.mural@i.ua

Introduction. The most important feature of modern economic globalization is the transition to a digital economy and the digital transformation of business and management processes. The latter involves the development and implementation of digital strategies and business models for the development of business organizations.

Literature review. Both domestic and foreign scientists have studied the issues of considering digital technologies and their impact on digital transformation processes in the activities of firms and organizations. Popovych-Pantych, Semechenko and Vasylych define digital transformation as a complex, dynamic, continuous and in the digital age necessary process of transformation of all organizational aspects, supported by strategically developed integrated application of modern digital technologies, which should lead to a new business model. and positioning the customer at the center of all activities and decisions made by the organization, all in order to create conditions for improved innovation, better market position and, thus, improve overall business results [3]. Ismail, Hatter, and Zaki define digital transformation as the process by which companies combine more new digital technologies to achieve high productivity and sustainable competitive advantage by transforming a variety of business dimensions, including business model, user experience, and business operations [4]. However, given the impact of transformation processes on the world economy and the activities of firms in some countries with their own characteristics of transformational change, the issue of digital technologies as drivers of the digital economy need further study.

Results. The development of the digital economy requires an appropriate infrastructure, which includes the following segments: physical and technological, institutional and regulatory, educational, security and business infrastructure. The group of physical and technological infrastructural conditions includes all the components that in the physical sense in the developed Internet environment contribute to the functioning of the digital economy. In general, they can be divided into two groups. The first group consists of cable networks, which can be divided into: telephone networks (xDSL - Digital Subscriber Line) - networks based on copper cables, new generation networks (FTTx) - networks based on optical cables, networks of cable operators (networks based on coaxial cables) , hybrid optical coaxial networks (HFC).

The second group consists of wireless networks in which different types coexist, such as: GSM / GPRS / EDGE - second generation mobile networks, UMTS / HSDPA / HSPA - third generation mobile networks, Wi-Fi - wireless local area networks, WIMAX - fixed. wireless access, LTE - fourth and fifth generation mobile networks (4G and 5G). Institutional and regulatory infrastructure of development is the regulatory framework of the digital economy, namely: institutional mechanisms and legal norms relating to the definition of digital society development policy.The educational infrastructure of the digital economy includes a high level of information literacy of the general population, as well as a significant number of IT professionals who have been trained in special training programs (new technologies, open source,

databases and intelligence, software engineering, web programming and web design). internet marketing).

The business entrepreneurship infrastructure of the digital economy involves understanding and promoting the culture of technological self-employment, ie the concept of technological entrepreneurship. The most important infrastructural factor in the digital economy is digital technology, which involves the use of digital resources (technologies, tools, applications, and algorithms) that effectively find, analyze, create, transmit, and use digital goods in a computing environment. Digital technologies can be classified into four categories that are not mutually exclusive [1].The first category includes digital technologies that help increase efficiency (for example, cloud computing); to the second - technologies to increase the connection between people and objects / things (for example, the Internet of Things); to the third, technologies to increase trust in intermediation / transactions (for example, the so-called blockchain technology), as well as technologies to increase process automation and decision-making (for example, artificial intelligence).

We consider it expedient to characterize the main determinants of digital business transformation. The challenge of responding to the technological trends listed above and remaining competitive in the face of the growing penetration of digital technologies calls for the transformation of the digital business. By digital transformation we mean the process that begins from the moment when the organization begins to think about the introduction of digital technologies in all areas of business, and continues until their full integration. According to the definition of the Global Center for Digital Business Transformation, digital business transformation is: "organizational change through the use of digital technologies and business models to improve business efficiency" (Wade, 2015) [2]. This is a continuous process that is not always easy, but without which doing business in today's world is gradually becoming impossible.

There are numerous examples of organizations that are intensively using digital technologies to create new value for users, such as General Electric, Nike +, Netflix, Uber, Airbnb, Booking, PayPal and others. This has led to devastating changes in many sectors of the economy, from agriculture and industry, through trade, tourism, catering, banking and financial services to education, science, culture, information and health. Pointing to the importance of transforming the digital business, many authors point out that digital technologies such as mobile devices, social networking, cloud computing, the Internet of Things, and big data analytics are being used to improve user experiences, operating processes, and business models.

Thus, intellectual assets are transformed under the influence of investment and used in production conditions a form of intellectual capital.

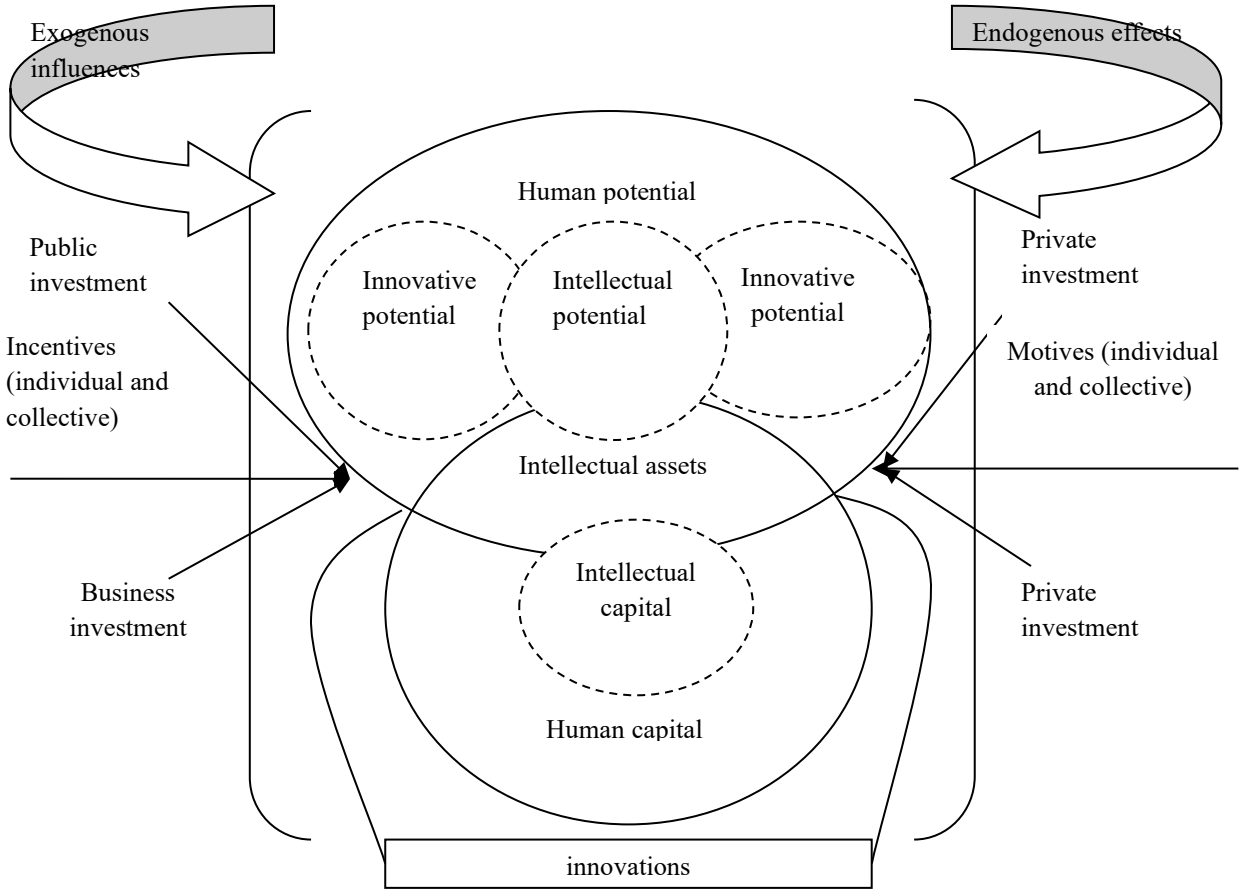

Fig. 1. Logical and structural scheme of formation and use of intellectual assets of human potential [5, p. 48]

We consider it appropriate to supplement this classification by transforming the experience of employees and the transformation of business models. The transformation of users' experiences of the organization's products and services points to the fact that digital technologies are changing the way we create value for our customers. In the digital age, customers are networked and interact with each other, thus changing their attitudes toward a particular business as well as toward each other.

Due to the nature of digital technologies, digital education is a continuous process - based on the concept of lifelong learning. People, their knowledge, skills and creativity are the main drivers of information society development. Security infrastructure is related to the security of online transactions (ordering, payment for goods and services, payment of bills, money transfer). An issue that is important

today in the digital economy is the issue of Internet security, data protection, privacy and intellectual property.

Today, customers are constantly in touch with each other and influence each other, thus building the reputation of different companies and brands. Their use of digital tools is changing the way they find, evaluate, buy and use products, and share, interact and stay in touch with brands. As access to online information expands, as do the many choices and channels available to them, customers are becoming more powerful and their expectations higher. As a result, customers have become the main force driving the digital transformation of all industries [1]. Bonne and Westerman talk about experience design, consumer intelligence and emotional involvement as dominant elements in the transformation of the user experience) [5].

The transformation of the company's operating processes includes the automation of production, research and development, as well as distribution. Digital technologies, such as cloud computing, the Internet of Things, and big data analytics, increase the potential of employees in a variety of functional areas. Increasing work from home, real-time customer relationship decision-making, and other implications of digital technology enable and accelerate production capability decisions to meet customer needs.Transformation of business models occurs through digital modification of business (transformation of physical products into digital by adding digital content to existing products and services), creation of new digital businesses, new businesses based on digital product development and implementation of new digital solutions and, consequently, redefining organizational borders) and digital globalization (global digital integration of enterprises).

The transformation of employees' experience is through the perception of change and the acquisition of knowledge, innovative behavior and skills of employees to use digital technologies that will give companies a sustainable competitive advantage in the future. Companies are considering using robotics and other digital technologies to increase employee productivity and productivity, as well as to make people work faster, smarter and safer.

The transformation of the digital platform as a form of digital business models is closely linked to the development of digital ecosystems, ie they are a key element around which successful digital ecosystems are built [6]. An ecosystem can be seen as an established network of values, where the roles of participants are intertwined and where interconnected stakeholders achieve common development.

Practice shows that modern competition is no longer between individual companies, but between networks of companies. Many of these networks of companies are intertwined around digital platforms, which, by bringing together

many stakeholders, enable the creation of so-called digital ecosystems. The following corporate strategic directions, defined by digital transformation, are relevant.

Faced with numerous problems of digital transformation, companies have realized the need to manage complex efforts to formulate and implement a strategy of digital transformation that will meet the new digital reality [4, p. thirteen]. Adequately formulated digital transformation strategy is a driving factor of management and a critical factor of success in the process of digital business transformation. From a business perspective, the digital transformation strategy aims to transform products, markets, business processes and organizational aspects through digital technologies. In this regard, it should be emphasized that this strategy is cross-functional, as it affects all activities and functions in the company. This fact requires the concept of a new strategy, called digital business strategy, which through corporate strategy, often called general, will have an impact on the business and functional strategies of the company [3].

It is well known that corporate strategy seeks to answer the question of what business the company is engaged in, while business strategy answers the question of how to compete in a particular industry, business or industry.Functional strategy indicates a way to gain a competitive advantage through specific operational or business functions. Therefore, the strategy of corporate digital transformation should answer the question of what digital products it offers, as well as what digital markets a particular organization serves. The process of digital transformation of business, considered in terms of strategic implications, involves the formulation of corporate strategic directions of digital transformation, ie the way of digital transformation of companies. This process should be comprehensive, lead to change not only the company's proposals, ie. in products and services, as well as business processes, organizational and cultural change, and changes in digital market positioning.

Given the breadth and depth of change, some authors rightly point out that a corporate strategic approach to the digital transformation process in a company is not only desirable but necessary, using a strategy approach rather than technology. digital transformation. Digital business transformation implies the existence of companies that are able to change their growth strategies very quickly and create completely new business models by offering products or services that were not previously on the market (Spremic, 2020).Namely, in strategic management it is well known that companies use corporate strategy to determine the following dimensions of their business: business in which the company is present (structural portfolio); breadth of production program for business (business portfolio); activities in value chains in which competencies will be created and used; the links between activities and

resources that require a focus strategy to achieve synergies; geographical area, in terms of the procurement and sales market in which they will be sold.

The corporate strategy of the company level determines the company's attitude to growth, ie whether the company will follow the path of dynamic growth, slow or negative growth. According to the criterion of growth potential, corporate strategies are divided into strategies of growth, stabilization and departure. Growth (expansion) strategies differ depending on whether the company finds resources for growth in the existing structural portfolio or outside it. If the company seeks resources to grow within the narrower limits of the existing structural portfolio, the company formulates and implements some strategies to intensify efforts (market penetration, market development and product development). Otherwise, the company chooses one of the diversification strategies (related and unrelated). This classification was provided by Igor Ansoff in the 1980s (Ansoff, 1987) [7] and remains relevant to this day. It serves as a starting point for the classification of digital corporate strategic directions. Namely, the strategic drivers of the transition to digitalization, as in Ansoff, are two-dimensional. On the one hand, there are drivers related to the product, which may not be digitized or digitized. On the other hand, when it comes to measuring the market, we can also distinguish two categories of drivers, ie those that focus on the physical (existing) and digital market.

The paths of digital transformation most often lead through a digital product development strategy and a digital market development strategy, so that the initial corporate strategic direction of growth can be a platform development strategy.Before that, market penetration or intensification, as in Ansoff, emphasizes that the existing product (production program) conquers the existing market as much as possible, ie uses the best opportunities that exist in the already serviced market. Penetration implies that the company must develop by increasing the production and sale of existing products in the existing market, ie to increase market share.

Alternative strategic directions are the development of new digital products, as well as the development of new digital markets. The digital product development strategy provides a business option that aims to increase the company's overall sales by modifying existing products or introducing digital products in existing markets. Namely, newly created digital products differ from traditional physical products in that their reproduction is much faster and cheaper.

When talking about the possibility of using digital technologies in the development of new and modification of existing products, the authors often use the term "smart, connected products" (Smart, Connected Products) [8]. These products, in addition to physical components, which include mechanical and electronic parts, have so-called "smart" components (sensors, microprocessors, software, operating

system, user interface) and "connection" components (ports, antennas, protocols). Thanks to these devices, networking and data collection, these products can provide monitoring, control, optimization and autonomy, namely: monitoring (conditions, operation, use, and environment) and control (which ensures the operation) product and personalization of user experience) allow you to optimize the operation and use of the product to increase product productivity and enable preventive diagnostics, maintenance and repair. All three of these elements ensure the autonomous operation of products and self-coordination with other products and systems. We believe that these products create a set of new strategic solutions for companies: a way to create and maintain value, a way to enter into relationships with traditional partners and ensure competitive advantage.

The company is motivated to go in this direction of development to meet the needs and requirements of network customers and to respond equally to the actions of competitors, and thus adjust its offer to what the competitor offers.Companies in this area are realizing their innovation and digital potential. Two successful examples of well-known companies that have implemented a digital product development strategy are General Electric and Netflix. On the one hand, General Electric, one of the world's leading companies with around 200,000 employees, is no longer a manufacturer of critical infrastructure such as pipelines, turbines, aircraft engines, etc., but a provider of a wide range of services. General Electric began the digital transformation of the business back in 2012, using the slogan Digital Company is also an industrial company.

The digitalization of the business was based on more than $ 1 billion in investments in the installation of sensors (Internet of Things) in industrial plants, infrastructure, turbines, aircraft engines and all other devices manufactured and sold worldwide, keeping records of all these devices. On the other hand, Netflix is an example of a successful digital product / service strategy. In just ten years, Netflix has transformed its growth strategy from a company that sells and rents DVDs online to the world's largest online streaming service, leaving behind Blockbuster, cable operators and television. Thanks to the penetration of data left by users, Netflix knows what users are watching on which device, how often, when they pause and when they stop, what they are looking for, and based on this creates a partnership strategy and individual strategy for each of its users. The strategy for the development of digital markets emphasizes that the existing product (production program) enters the digital markets. Digital markets, as markets supported by technology infrastructure, allow the exchange of goods and services in the online environment.

Digital markets support some of the traditional functions of the market, such as partner identification, product search, price negotiation, terms of sale, and trading, payment, delivery, and customer support in supporting and resolving product issues. This is a low-risk area, as existing digital products enter connected markets. Market development involves the expansion of digital markets, as the company has the human and other intellectual resources to implement this strategy. The main weapon of a company with this direction of development should be intensive investment in digital marketing [9, p. 65]

Thus, in our opinion, the development of the platform can serve as a starting point for corporate strategy. The idea of platforms as corporate strategies originates from the economic theories of bilateral markets developed by Jean Tyrol, winner of the Nobel Prize in Economics in 2014, Professor of Economics at the University of Toulouse, and Jean-Charles Rochet, Professor of Banking, Finance and Insurance at the Institute and Finance at the University of Zurich. They worked on the study of pricing policy and competition in markets where one business serves two different types of interdependent customers [10]. They found that both parties are often price sensitive and that in successful markets one group often subsidizes the other (for example, an advertiser covers the cost of media for consumers and sellers cover the cost of credit card transactions for customers who use them). Bilateral market theory, on the other hand, has led to the general realization that the same effects can be seen in markets with more than two types of customers (e.g., Visa and Mastercard mergers, not just credit card customers and accepting merchants). also banks that provide loans to customers). This has led to a more general concept of multilateral markets.At the same time, the theory shifted from focusing on market dynamics (for example, who will pay for what to keep the balance with others) and began to consider companies that provide these dynamics (ie, what distinguishes Visa or MasterCard and what are success factors). In business economics, the term for this strategy is a multilateral platform or platform [9, p. 67].

Guided by Ansoff's diversification strategy, Verhoeff and others define this strategy as platform diversification used by large successful platforms seeking to enter new digital markets with new digital products [11]. Diversification of the platform envisages a corporate strategic direction, when the company's management, instead of building business elements and trying to attract customers to use their products, builds ecosystems where customers cooperate with each other. Instead of paying for a service, customers and products get value. The result is a growing platform as more people use it. In addition, this strategy assumes that management sees resources for enterprise development in a heterogeneous (diversified) digital

production or digital services program that will be located in existing and, especially, in new digital markets, both in existing activities and in new ones. activities.

Thus, we can talk about the possibilities of developing a connected and unrelated platform, similar to Ansoff's strategy of connected and unrelated diversification, where related diversification means that the company expands its digital range of products that in a certain way related to existing but not related. involves companies entering a new area of digital business. The most accurate description of what constitutes a platform has been identified by Andrew Hagiou and Julian Wright, who believe that a platform is a business that creates value by facilitating direct interaction between two or more different clients [12].This definition points to several important characteristics of the platform. First, the platform must serve two or more different parties or types of customers (eg, buyers and sellers; developers and consultants; sellers and card / bank holders, etc.). Second, the platform should allow these two (or more) parties to interact directly with some degree of independence.

Third, although the platform does not dictate interactions, they do take place and are facilitated through it. Examples of how several different platforms bring together different types of customers and create value by facilitating their interaction are: Airbnb (owners and tenants), Uber (freelance drivers and travelers), PayPal (account holders, retailers and banks), YouTube viewers. and video developers and advertisers), Google search (search engine users, site authors, and search advertisers). Uber provides taxi services, not by buying vehicles and hiring drivers, but by providing a platform that connects drivers who already have their own vehicles with people nearby who need transportation. Popular platforms can often be described as evidence of a "rental economy" (leasing assets through Airbnb), or a "resale economy" (selling used goods through eBay), or a "sharing economy". Transport via Uber). Business platforms are everywhere and exist in a wide range of activities: retail, media, advertising, finance, gaming, mobile programming, business applications, home appliances, catering, transportation, education, employment and job search, and more.

David S. Evans and Richard Schmalenze distinguish four types of platforms: exchange platforms, transaction systems, advertising tools and hardware / software standards [13]. Exchange platforms connect two different groups of clients for direct exchange of values, where each group is attracted by the quantity and quality of the other party. There is a well-known example of digital exchange that can connect buyers and sellers of goods (as eBay does) as well as services (as Booking does). Transaction systems mediate between different parties and facilitate payments and

financial transactions. This service is provided by both credit and debit card issuers, bringing together cardholders, merchants and banks. The new digital payment system Apple Pay is based on this model [9, p. 71]. In the case of advertising media, the platform usually plays an additional role in creating media content that will be attractive to customers. When the value of content attracts an audience, the platform charges advertisers who present their message to the same audience. Hardware and software standards as platforms provide a single standard for designing products that will enter the market to ensure their compatibility and meet customer needs. Today's smartphone market is roughly divided between Apple's iOS and Android from Google. Both of these operating systems are software platforms that compete and try to attract as many software developers as possible who will continue to build applications; in addition, Android serves as a hardware platform for mobile phone manufacturers such as Samsung, which seek to compete with Apple's iPhone.

It should be noted that this list can easily lead to the development of a new business that does not fit into any of these four types of platforms. However, these categories provide a useful way of thinking about the differences between existing business platforms.

Conclusion. The digital transformation of business has become a must for today's organizations. The problem of digital transformation of business has become the subject of interest of management theorists and practitioners only in the last few years, so there are few theoretical contributions in this area. The ultimate goal of digital business transformation is to create added value for the business. The introduction of a large number of digital technologies in the organization alone will not bring the expected benefits. Organizations can make this goal more feasible by defining a clear, comprehensive digital transformation strategy that should highlight key digital benefits. Studies of digital transformation from a strategic point of view, ie taking into account important elements in the formation and implementation of corporate strategic directions of digital transformation, are quite rare. The paper points out that potential corporate strategic directions of digital business transformation begin with market penetration, digital product development strategy and digital market development strategy. The further path of digital transformation leads to the construction of digital platforms created by mutual cooperation of numerous and networked stakeholders for the joint creation of a product or service.

REFERENCES

1. Berman, J. S., & Bell, R. (2011). Digital transformation: Creating new business models where digital meets physical. IBM Institute for Business Value.

2. Wade, M. (2015). Digital business transformation. Lausanne: Global Center for Digital Business Transformation. From Global Center for Digital Business Transformation.
3. Popović-Pantić, S., Semenčenko, D., & Vasilić, N. (2019). The influence of digital transformation on business performance: Evidence of the women-owned companies. Ekonomika preduzeća, 397-414.
4. Ismail, H., Khater, M., & Zaki, M. (2017). URL: https://cambridgeservicealliance.eng.cam.ac.uk/. From Digital Business Transformation and Strategy: What Do We Know So Far?
5. Карпенко А.В. Розвиток інтелектуальних активів людського потенціалу: теорія та практика : монографія. Запоріжжя: ФОП В. В. Мокшанов, 2018. 510 с.
6. Valdez-De-Leon, O. (2019). How to Develop a Digital Ecosystem: a Practical Framework. Technology Innovation Management Review, 43-54.
7. Ansoff, I. (1987). *Corporate Strategy.* London: Penguin.
8. Porter, E. M., & Heppelmann, E. J. (2014). How Smart, Connected Products Are Transforming Competition. *Harvard Business Review*, 64-88.
9. Rogers, D. L. (2016). *The Digital Transformation Playbook: Rethink Your Business for the Digital Age*. New York: Columbia Business School Publishing.
10. Rochet, Jean - Charles, Tirole, Jean (2006). Two – sided markets: a progress report, *The RANDJournal of Economics*, Vol. 37, No. 3, 645-667.
11. Verhoefa, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Qi Dong, J., Fabiana, N., & Haenlein, M. (2021). *Digital transformation: A multidisciplinary reflection and research agenda. Journal of Business Research*, 889-901.
12. Hagiu, A., & Wright, J. (2015). Multi-Sided Platforms. *International Journal of Industrial Organization*.
13. Evans, D. S., & Schmalensee, R. (2008). Markets with Two-Sided Platforms. *Issues in competition law and policy*.

3. MODERN TRENDS AND MODELS OF DEVELOPMENT OF RETAIL TRADE IN THE DIGITAL ECONOMY

Olena Tsvirko
Doctor of Sciences (Economics), Professor
Chief Researcher of the Department of Macroeconomics and Public Administration,
Black Sea Research Institute of Economy and Innovation, Odessa, Ukraine
E-mail: etsvirko07@gmail.com
ORCID ID 0000-0003-3391-942X

Valentyna Misiukevych
Ph.D. (Economics), Associate Professor,
Associate Professor of Entrepreneurship, Trade and Exchange Activities,
Higher Educational Institution of Ukoopspilka
"Poltava University of Economics and Trade", Poltava, Ukraine
ORCID ID 0000-0002-3051-9677

Nataliia Trushkina
Ph.D. (Economics), Senior Researcher, Corresponding Member
of the Academy of Economic Sciences of Ukraine,
Full Member of a Scientific Organisation
"The Center for Ukrainian and European Scientific Cooperation",
Senior Research Fellow of the Department of Regulatory Policy
and Entrepreneurship Development,
Institute of Industrial Economics of NAS of Ukraine, Kyiv, Ukraine
E-mail: nata_tru@ukr.net
ORCID ID 0000-0002-6741-7738

Introduction. The rapid transition to digital technologies is accelerating the process of digitalization of retail development in the context of globalization. This is due to the use of large databases, blockchain, hybrid forms of activity, the formation of digital platforms and infrastructure, the intensification of e-commerce [1-12].

Thus, digitalization can be seen as a modern challenge to the functioning of retail markets; the process of radical changes in the format of business, from product / service development to logistics customer service [13-15] with the help of

information and communication technologies and systems [16-22]. This is confirmed by the research of the consulting company KPMG, which found that the key global trends in retail are the evolution of business models [23-27]; philosophy and purpose of the enterprise; rethinking the cost of doing business [28-35]; customer orientation [36-37].

Literature review. Generalization of scientific literature on commerce, marketing, logistics shows that foreign and Ukrainian scientists pay considerable attention to:

definition from different scientific points of view of the essence and content of the concepts of "logistics services" (M. Christopher, M. Hryhorak, N. Khtei, Ye. Krykavskyi, J.-J. Lambin, K. Melnykova, K. Pek, K. Tankov); "logistics service" (A. Aranskis, O. Bakhurets, L. Berry, B. Burkynskyi, U. Chrąchol-Barczyk, N. Chukhrai, J. Coleman, Van der Heijden, M. Jedliński, N. Knofius, Yu. Leonova, M. Litvinenko, V. Lysiuk, I. Meidutė-Kavaliauskienė, D. Peppers, F. Reichheld, M. Rogers, G. Rosa, W. Rydzkowski, A. Serikbekuly, R. Sousa, S. Suieubayeva, J. Tschohl, D. Yergobek, M. Zijm, S. Ziyadin); "customer-oriented approach" (I. Alarm, P. Fader, H. Gebauer, T. Hennig-Thurau, Yu. Karieieva, C. Kowalkovski, M. Oklander, I. Pavlenko, Ch. Perry, P. Petrychenko, I. Prodan, N. Riabokon, Yu. Riznyk, D. Zakharchenko, A. Zinkevych);

applied aspects of the application of digital technologies in the activities of enterprises (including to improve the management system of relations with consumers) and substantiation of scientific and methodological approaches to assessing the effect of their implementation (O. Afanasieva, A. Amaral, L. Barreto, N. Briukhovetska, I. Bulieiev, D. Buhaiko, H. Dzwigol, M. Fedoruk, O. Hutsaliuk, Yu. Kharazishvili, S. Kniaziev, A. Kwilinski, V. Liashenko, O. Nykyforuk, T. Pereira, K. Shaposhnykov, L. Shyriaieva, O. Vyshnevskyi, V. Vyshnevskyi, Yu. Zaloznova);

study of world experience in the formation and operation of retail chains; identification of the main trends in the development of global and Ukrainian retail markets; substantiation of institutional and conceptual bases of transformation of e-commerce business models taking into account the crisis conditions of the COVID-19 pandemic and in the context of ensuring sustainable development (V. Apopiy, N. Avramenko, A. Berher, S. Bestuzheva, R. Buhrimenko, L. Chernyshova, O. Deryvedmid, T. Futalo, T. Gushtan, A. Haleta, I. Hohniak, N. Ilchenko, M. Ilyina, L. Ivanenko, A. Kashperska, O. Kavun-Moshkovska, T. Kharchenko, H. Koptieva, O. Kot, V. Kozub, R. Krygan, O. Kukhar, V. Kutsenko, V. Lisitsa, B. Markov, L. Martynova, T. Murovana, O. Mykhaylenko,

Ya. Ostafiychuk, Y. Palamarenko, N. Popadynets, N. Proskurnina, K. Pugachevska, O. Shaleva, D. Shishman, Yu. Shpuleva, V. Shvestko, V. Sokolovskaya, R. Tolpezhnikov, T. Tolpezhnikova, I. Tsaruk, N. Volkova, O. Yevseytseva, V. Zharnikova).

However, despite the wide range of research on this topic, the theoretical and methodological issues of e-commerce market development and consumer relations management in accordance with global trends and challenges related to changing paradigms of marketing management, digitalization of business processes and the intensive use of digital technologies. Therefore, the purpose of this study is to analyze and summarize current trends and models of retail development in the digital economy.

Results. Online retail (or e-commerce) channels account for a significant share of the structure of global retail markets. Most companies have begun to implement the omnichannel model, which aims to seamlessly integrate offline and online channels. In addition, the buyer has become more demanding. Thus, the survey showed that faster delivery was the main aspect through which buyers from around the world switched to online shopping (11.2% of respondents). According to the estimates of the UN Conference on Trade and Development, global retail sales of goods and services in 2022 will amount to 26.7 trillion dollars USA. This is 13.3% more than in 2018 (23.6 trillion dollars). The rating of key “players” in the retail sector is as follows: US – 5.6 trillion dollars (20.1% of the world volume); Europe – 3.91 (14.6%); China – 2.06 (7.7%); India – 1.2 (4.5%); Mexico – 0.35 trillion dollars (1.3%).

A report by Global Powers of Retailing 2022, prepared by consulting firm Deloitte, noted that the total revenue of the world's 250 largest retailers in fiscal year 2020 was 5.11 trillion dollars USA. This is 5.2% more than in 2019. The largest share among trade areas is consumer goods, which are sold quickly at a relatively low price. They account for 66.4% of the rating companies' revenue. This is followed by consumer goods (e.g., household goods, electronics, sporting goods) and leisure goods, which account for 21% of company revenue. At the same time, the American retailer Walmart retained the status of the leader of the rating. Amazon and Costco were also among the top three retailers (*Table 1*).

Table 1 – Top 10 major global retailers

Company	Country	Revenue for fiscal year 2020, *million US dollars*	Revenue growth in 2020 compared to 2019, *%*
Walmart Inc.	USA	559.15	6.7
Amazon.com, Inc.	USA	213.57	34.8
Costco Wholesale Corporation	USA	166.76	9.2
Schwarz Group	Germany	144.25	10.0
The Home Depot,Inc.	USA	132.11	19.9
The Kroger Co.	USA	131.62	8.3
Walgreens Boots Alliance, Inc.	USA	117.71	1.5
Aldi Einkauf GmbH & Co. oHG and Aldi International Services GmbH & Co. oHG	Germany	117.05	8.1
JD.com, Inc	China	94.42	27.6
Target Corporation	USA	92.40	19.8

Sourse: Deloitte. Global Powers of Retailing 2022.

According to a study by Deloitte, most of the companies in the ranking have developed strategies for environmental, social and corporate governance (ESG). The environmental performance of these companies, as well as the commitment to sustainable brand development in general, is a key part of the business strategy of retailers. The report shows that 55% of consumers say they prefer products or services of environmentally responsible brands. And 32% of such consumers are willing to pay more for environmental goods or services.

According to Statista, the volume of electronic retail sales in the world will grow every year. The value of this indicator will be 5.69 trillion dollars in 2022 or 21.3% of global retail sales. In 2014-2021, the volume of retail trade using digital technologies increased 3.7 times or from 1.34 to 4.93 trillion dollars USA. If we consider Ukraine, it should be noted that the country also has a growing trend in the development of retail trade. According to the State Statistics Service of Ukraine, the turnover of retail trade in comparable prices increased 2.6 times in 2010-2021. During this period, the retail turnover of trade enterprises in comparable prices increased 3.7 times (*Table 2*).

The number of wholesale and retail enterprises that had access to the Internet increased by 8.8% in 2017-2019. The number of enterprises in which the website provided customer service opportunities increased by 13.8%; supply of products and

services online – by 15.2%; formation of orders for goods and services online – by 20.7%. The number of companies purchasing customer relationship management programs increased by 41.2%. In 2017-2019, the number of trade enterprises that received orders via the Internet for the sale of products or services increased by 2.4%, and those that purchased products or services via the Internet – by 18.8% (*Table 3*).

Table 2 – Dynamics of indicators of development of retail trade in Ukraine

Years	Retail turnover, *UAH billion*		Retail turnover of trade enterprises (legal entities), *UAH billion*	
	at actual prices	at comparable prices	at actual prices	at comparable prices
2010	529.9	492.5	274.6	254.7
2011	649.2	566.0	333.1	294.5
2012	767.0	668.7	383.3	343.5
2013	838.2	771.8	409.1	386.3
2014	901.9	990.0	438.3	487.0
2015	1018.8	1284.7	478.0	605.1
2016	1175.3	1126.8	556.0	532.1
2017	815.3	765.5	586.3	553.1
2018	930.6	876.3	668.4	631.8
2019	1094.0	991.8	793.5	712.3
2020	1201.6	1116.7	868.3	810.0
2021	1443.3	1303.8	1044.4	941.7

Source: compiled from information and analytical materials of the State Statistics Service of Ukraine.

However, according to statistical analysis, the share of sales in the field of wholesale and retail trade through information systems in the all-Ukrainian volume decreased in 2018-2019 by 20.8 percentage points. The share of sales of commercial enterprises decreased from 4.7 to 3.7% of the total (*Table 4*).

In order to optimize the commercial activity of retail trade and automation of trade networks, the following information systems are used: BI (Business Intelligence) and ERP (Enterprise Resource Planning). These systems are aimed at managing suppliers, procurement schedules; inventories and sales forecasting; assortment of shops; terms of sales, markups and pricing; sales channels; contract activities; customer service processes; timely response to changes in market conditions; formation of an effective supply chain management strategy; development and implementation of sales, communication and marketing policies.

Table 3 – Number of wholesale and retail enterprises that use information and communication technologies

Indicators	Years		
	2017	2018	2019
Number of enterprises that had access to the Internet	9876	10759	10742
Number of enterprises that used the Internet for:			
- sending or receiving e-mails	9732	10634	10639
- obtaining information about goods and services	8943	9846	9910
Number of enterprises in which the website provided opportunities:			
- customer service	2224	2508	2532
- delivery of products and services online	817	942	941
- formation of orders for goods and services online	1428	1670	1724
- monitoring the status of placed orders	1211	1422	1462
- personalized content of the website for regular or repeat customers	1155	1337	1349
Number of companies that used social media for:			
- receiving customer feedback or providing answers to their questions	1916	2322	2493
- attracting customers to the development or innovation of goods and services	1307	1546	1667
Number of enterprises that bought cloud computing services	1165	1376	1439
Number of companies that purchased customer relationship management software	330	384	466
Number of enterprises that received orders via the Internet to sell goods or services	902	914	924
Number of enterprises that purchased goods or services via the Internet	2023	2288	2404

Source: compiled from information and analytical materials of the State Statistics Service of Ukraine.

Tasks solved by BI-systems of business analytics are divided into areas: analytical (calculation of indicators and statistical characteristics of business activities based on information from databases); data visualization (visual graphic and/or tabular presentation of available information); data collection from various sources and their analysis.

The industry solution for data analysis and company activities provides the retailer with such opportunities as: transition to any level of detail – from “high-level picture” to detailed level; user-friendly interface, very easy to use; information tabs / windows, the ability to switch between indicators: operational analysis of information from different angles, for the required periods; use of different filters for the head: application for both one report and for all displayed panels on the monitor screen,

switching between different units – selling price, cost, SKU; the relationship of analytical panels when changing/analyzing under different sections; flexible search engine for reports, KPIs, charts; drill-down capabilities in business intelligence reports; opportunities to share reports with colleagues; flexibility to configure your supervisor panels; export report data in various formats.

Table 4 – The volume of sold products (goods, services) obtained from trade through websites or applications

Indicators	Years	
	2018	2019
Total sales of all types of economic activity, *UAH billion*	228.0	292.7
including in the sphere of wholesale and retail trade, *UAH billion*	128.5	104.1
Share in the all-Ukrainian volume of sold products, *%*	56.4	35.6
Share in the total volume of sold products of enterprises, *%*	4.7	3.7

Source: compiled from information and analytical materials of the State Statistics Service of Ukraine.

Retailer BI Systems Business Analytics Toolkit: 1) *Web platform*: availability of up-to-date business intelligence from around the world, on any device, with a single user interface; 2) *Big Data*: focused database and use of own data warehouse; 3) *iOS and Android*: native mobile applications for all smartphones and tablets; 4) *All-in-one platform*: pre-built information panels, intelligence mode, self-service, publisher and alert mechanism; 5) *Integration*: consolidation of information from any source; ability to import data from different sources; 6) *Open architecture*: the ability to create / refine your own panels / reports / KPI; 7) *Real-time KPI*.

The branch decision for automation of a trade network covers: management of groups of shops in a cut of assortment / pricing / suppliers; manual ordering of products; order with quantity offer; automatic ordering; copying orders; consolidated orders for suppliers, based on orders from outlets; the ability to enter or conduct transactions with negative or zero quantity / prices, restrictions on changing dates; acceptance of goods with the creation of the order; acceptance of goods by existing order; acceptance of goods with modification of quantity and price; acceptance of goods with more / less quantity than ordered; acceptance of commodity items with packaging; acceptance of artificial / weight goods; transfer between warehouses; transfer between outlets; tracking of goods on the basis of batches; expiration tracking; control of goods on the road; balance management in the context of each point; correction of balances with the possibility of indicating different types of causes of corrections; recalculation in terms of goods / suppliers / groups of goods / outlets; blocking balances; conducting scheduled recalculation; centralized

management of basic data; automation of processes of interaction with suppliers; point of sale management; automation of procurement and work with procurement budgets; retro bonus management; automation of processes of work with suppliers' budgets; automated solution for working with the range; pricing management (retail, wholesale); automation of work with shares; sales management; order flow management; category hierarchy and tree management; automation of packaging work processes; equipment management from suppliers; contract management (commercial, payment, service); automation of cost calculation; wholesale sales; automation of inventory management and movement of goods; return management to suppliers; credit notes and reminders management; import management; commission sales management; managing own production in the store; reconciliation of suppliers' accounts; setting up work-flow for entering basic product data; setting up a work-flow for assortment management; setting up workflow to create orders; centralized reporting on various processes.

Conclusion. Based on the above, we can conclude the following. The intensity of the use of information systems and digital technologies, digitalization in the organization of business processes, increasing the volume of e-commerce require the search for fundamentally new approaches to the transformation of business models of retail. As a result of the research, it is established that in modern business conditions it is advisable to develop and implement a digital strategy for managing commercial activities of commercial enterprises based on the concept of interaction marketing, network theories and stakeholders, which should include the following elements:

- use of information tools and digital channels (types of CRM systems, electronic platforms, software products, various versions of digital channels);
- formation of a qualitatively new culture of marketing communications (integration of digital channels of marketing communication into a single system);
- directions of improving the quality of customer service (formation of customer-oriented thinking; reorientation to the customer in the development of products and services; comprehensive modernization of business processes; digitalization, machine learning and robotics to increase the speed and efficiency of business processes; optimization of organizational management structure; customer behavior, creating a digital customer profile that is managed in the Customer Data Platform, creating a “smart” chatbot based on artificial intelligence; optimizing retargeting);
- formation of omnichannel environment (integration of all digital channels, retail outlets and back-office into a single information space, ie the use of omnichannel as a key tool of customer-oriented model of partnerships with consumers).

The key trends that will affect the development of retail in the digital economy include:

- *growing environmental awareness of the buyer* (according to a survey conducted in 2021 by research company Forrester, almost half of online consumers in the US when buying goods pay attention to energy-efficient labels. More than 60% of adult online shoppers in France, 49% in the UK Britain and 41% in the US prefer to buy environmentally friendly products);

- *active support for the closed-loop economy* (for example, IKEA actively uses renewable and recyclable materials in its production, planning that by 2030 their overall figure will be 100%; according to experts, many consumers like to buy used goods because they are unique and these purchases are in line with today's popular concept of responsible consumption, and this trend will continue to develop in the coming years);

- *return in comfort or "Return can not be left!"* (according to Forrester, the availability and convenience of the return service directly affects consumer choice. Many online shoppers surveyed said they prefer sellers who offer free return shipping, as well as those who return money using the initial form of payment. who are interested in buyers, it is necessary to seriously work on improving the return service: increase the number and consider the location of return points; optimize processes and simplify the design, as well as internal processing of return flows in logistics);

- *the growing role of artificial intelligence* (with the growth of information that becomes available to consumers, as well as the desire of retailers to provide personalized conditions to their customers, artificial intelligence (AI) is becoming increasingly popular. In the next few years, AI will be used to form the range, personalized offers, management of mass sales, increase the accuracy of sales forecasting);

- *personalization* (digitalization, data collection and processing solutions open up great opportunities for the retailer to implement a personalized approach to planning advertising campaigns and promotions. Personalization helps the customer feel valuable and increases loyalty, which becomes especially important in high competition);

- *focus on long-term partnerships* (one of the ways to increase the effectiveness of promotional sales is the transformation from monobrand to multibrand promo; retailers and brands will establish long-term partnerships to not only ensure the flexibility of their business and attract new customers, but also make effective promotions for existing customers);

- *strengthening the role and importance of e-commerce* (according to EVO research, sales in the e-commerce market have increased by more than 40% since the beginning of the pandemic. The upward trend will continue. Therefore, retailers planning to develop online sales channels should pay attention on: 1) website design (according to statistics, 38% of buyers leave the site if it looks unattractive or inconvenient to use); 2) optimization of the site for mobile devices (over 59% of Google customers surveyed said that the ability to shop from smartphones is crucial in choosing a brand and seller); 3) the speed of loading the site and the work of programs – critical success factors (research has shown that sites that take more than 4 seconds to load the page, can lose up to 25% of online sales); 4) the use of video to demonstrate the product (according to Wyzowl research, 69% of respondents would prefer to watch a short video to learn about a product or service. And only 18% would choose textual information); 5) the use of chatbots (according to a study by Global Market Insights, by 2024 the global chatbot market will reach 1.34 billion dollars);

- *contactless shopping technologies* (allow to make purchases with a minimum of touch. They became especially popular during the pandemic, when many buyers seek to minimize their social contacts. facilitating the shopping process and increasing the level of its satisfaction);

- *development of own brands* (in recent years, there has been a tendency to grow own brands (OB), while in Ukraine the growth of OB is faster than in European countries. Nielsen, in 2017 the share of OB sales in Ukraine was 11.7%, in 2021 – 15.4%, and by 2025 is expected to increase to 22-25).

Thus, the introduction of information systems and digital technologies for the management of retail chains and automation of business activities allows: reduce operating and management costs by 15%, administrative costs – by 30%, commercial costs – by 35%; reduce the insurance level of inventories, the sales cycle of goods; increase the turnover of funds in the calculations, inventories, delivery times on time; to increase the coefficient of readiness of goods for sale, the quality of the range; ensure control over business processes at all levels, transparency of the procurement process, more accurate cost accounting; optimize the movement and distribution of logistics flows.

Prospects for further research are to substantiate the conceptual provisions and develop practical recommendations for the digital transformation of logistics activities of commercial enterprises.

References

1. Kwilinski, A., Trushkina, N. (2019). Development of digital marketing in conditions of transformational change. *Research and Innovations*: collection of scientific articles (pp. 170-173). New York: Yonona Publishing.
2. Tryfonova, O., Trushkina, N. (2019). E-commerce as an effective form of organization of logistics activities of enterprises. In: Nestorenko, O., Pokusa, T. (Eds.), *Modern Technologies in Economy and Management*: collective scientific monograph (pp. 397-406). Opole: Publishing House WSZiA w Opole. (in Ukrainian)
3. Trushkina, N. V. (2019). Modern trends in the development of digital marketing in the context of globalization. *International Scientific-Practical Conference Global Marketing: analysis and challenges of our time*: Conference Proceedings (Georgia, Batumi, May 16-17th, 2019) (pp. 118-121). Batumi: Batumi Shota Rustaveli State University, National Institute of Economic Research. (in Ukrainian)
4. Kwilinski, A., Trushkina, N. (2019). Features of digital marketing in the context of informational economy. In: Ekkert, M., Nestorenko, O., Szynk, M. (Eds.), *Modern innovative and information technologies in the development of society*: monograph |(pp. 158-165). Katowice: Wydawnictwo Wyzszej Szkoly Technicznej w Katowicach. (in Ukrainian)
5. Trushkina, N., Bezpartochna, O., Shkrygun, Yu. (2020). Priority directions for development of digital marketing in the conditions of globalization. In: Bezpartochnyi, M. (Ed.), *Pandemic Economic Crisis: Changes and New Challenges to Society*: scientific monograph (pp. 227-238). Sofia: VUZF Publishing House "St. Grigorii Bogoslov".
6. Trushkina, N., Bezpartochnyi, M., Shkrygun, Yu. (2020). E-commerce in the conditions of digitalization of business processes. In: Bezpartochnyi, M., Riashchenko, V., Linde, N. (Eds.), *Strategies, models and technologies of economic systems management in the context of international economic integration*: scientific monograph (pp. 245-256). 2nd ed. Riga: Institute of Economics of the Latvian Academy of Sciences.
7. Trushkina, N.V., Serhieieva, O.R., Shkrygun, Y.O. (2020). Kontseptualni pidkhody do vyznachennia poniattia «elektronna komertsiia» [Conceptual Approaches to Defining "E-commerce"]. *The Problems of Economy*, 4, 231-240. https://doi.org/10.32983/2222-0712-2020-4-231-240. (in Ukrainian)
8. Misiukevych, V.I., Trushkina, N.V., Shkryhun, Yu.O. (2020). Elektronna komertsiia u hlobalnomu tsyfrovomu prostori: novi vyklyky ta napriamy [Electronic commerce in the global digital space: new challenges and directions]. *Formuvannia systemy vnutrishnoi torhivli Ukrainy: teoriia, praktyka, innovatsii* [The formation of the system of internal trade of Ukraine: theory, practice, innovation]: a collective monograph (pp. 150-162). Poltava: PUET. (in Ukrainian)

9. Bezpartochna, O., Misyuckevich, V., Trushkina, N. (2021). E-commerce trends in the digital economy. In: Tatomyr I., Kvasnii Z. (Eds.), *Artificial intelligence as a basis for the development of the digital economy*: textbook (pp. 367-376). Praha: OKTAN Print s.r.o.
10. Kwilinski, A., Zaloznova, Yu., Trushkina, N. (2021). Digital marketing as an effective tool for improving the quality of customer service. In: Tatomyr, I., Kvasnii, Z. (Eds.), *Artificial intelligence as a basis for the development of the digital economy*: textbook (pp. 360-367). Praha: OKTAN Print s.r.o.
11. Trushkina N. (2021). Tsyfrovyi marketynh v umovakh hlobalnoho informatsiinoho prostoru: teoretychni pidkhody [Digital marketing in the global information space: theoretical approaches]. *Věda a perspektivy*, *5*(5), 62-74. https://doi.org/10.52058/2695-1592-2021-5(5)-62-74. (in Ukrainian)
12. Khrapkina, V., Trushkina, N. (2022). Zastosuvannia shtuchnoho intelektu u tsyfrovomu marketynhu [The use of artificial intelligence in digital marketing]. In: Tatomir, I.L., Kvasniy, L.G. (Eds.), *Behavioral economics: from theory to practice*: interdisciplinary textbook (pp. 300-311). Truskavets: POSVIT. (in Ukrainian)
13. Trushkina, N. (2019). Transformation of customer relationship management in the digital economy. In: Nestorenko, T., Wierzbik-Stronska, M. (Eds.), *Digital economy and digital society*: monograph (pp. 311-316). Katowice: Wydawnictwo Wyzszej Szkoly Technicznej w Katowicach. (in Ukrainian)
14. Trushkina, N.V., Shkryhun, Yu.O. (2021). Kontseptualni pidkhody do vyznachennia suti y zmistu termina «kliientskyi dosvid» [Conceptual approaches to defining the essence and content of the term "client experience"]. *Věda a perspektivy*, *4*(4), 125-138. https://doi.org/10.52058/2695-1592-2021-4(4)-125-138. (in Ukrainian)
15. Trushkina, N., Shkryhun, Yu. (2022). Lohistychne obsluhovuvannia yak vazhlyvyi element kliientskoho dosvidu [Logistics service as an important element of customer experience]. *Věda a perspektivy*, *2*(9), 100-111. https://doi.org/10.52058/2695-1592-2022-2(9)-100-111. (in Ukrainian)
16. Zaloznova, Yu., Trushkina, N. (2018). Information technologies as a tool for management of the logistic activity of enterprise. In: Nestorenko, T., Wierzbik-Stronska, M., Jendrus, R. (Eds.), *Innovation technologies in Economy and Society*: monograph (pp. 165-178). Katowice: Wydawnictwo Wyzszej Szkoly Technicznej Katowice.
17. Tryfonova, O., Trushkina, N. (2019). Application of information technologies in logistic activities of enterprises. In: Bezpartochnyi, M., Britchenko, I. (Eds.), *Conceptual aspects management of competitiveness the economic entities*: collective monograph (pp. 161-172). Przeworsk: WSSG, vol. 1.
18. Kwilinski, A. (2019). Implementation of Blockchain Technology in Accounting Sphere. *Academy of Accounting and Financial Studies Journal*, 23(SI2), 1-6.

19. Trushkina, N. (2019). Development of the information economy under the conditions of global economic transformations: features, factors and prospects. *Virtual Economics*, *2*(4), 7-25. https://doi.org/10.34021/ve.2019.02.04(1).
20. Kwilinski, A., Trushkina, N. (2019). Digital transformation of the global economic system. *Science and Society*: collection of scientific articles (Belgium, Namur, March 29th, 2019, University of Namur) (pp. 20-23). Namur: Fadette Editions.
21. Kwilinski, A., Trushkina, N. (2019). Digital transformation of business processes of enterprises in the context of globalization. *Science and Innovation*: collection of scientific articles (Austria, Steyr, May 30, 2019, Fachhochschule Oberosterreich) (pp. 12-15). Steyr: Shioda GmbH.
22. Hutsaliuk, O.M., Havrylova, N.V. (2020). Vplyv marketynhovykh, finansovykh ta tsyfrovykh tekhnolohii na rozvytok infokomunikatsiinoi sfery yak skladovoi innovatsiinoi infrastruktury [Influence of marketing, financial and digital technologies on the development of infocommunication sphere as a component of innovation infrastructure]. *Visnyk ekonomichnoi nauky Ukrainy – Herald of the Economic Sciences of Ukraine*, *2*(39), 166-171. https://doi.org/10.37405/1729-7206.2020.2(39).166-171. (in Ukrainian)
23. Sandiuk, H., Lushpiienko, Yu., Trushkina, N., Tkachenko, I., Kurganskaya, E. (2019). Special Procedures for Electronic Public Procurement. *Journal of Legal, Ethical and Regulatory Issues*, 22, 1-6. Retrieved from https://www.abacademies.org/articles/special-procedures-for-electronic-public-procurement-1544-0044-22-SI-2-351.pdf.
24. Grygorak, M., Trushkina, N. (2020). Introduction of purchase management information systems and partnership relations with suppliers. In: Nestorenko, T., Mikos, P. (Eds.), *Contemporary Issues of Digital Economy and Society*: monograph (pp. 206-213). Katowice: Publishing House of Katowice School of Technology. (in Ukrainian)
25. Kwilinski, A., Zaloznova, Yu., Trushkina, N., Rynkevych, N. (2020). Organizational and methodological support for Ukrainian coal enterprises marketing activity improvement. *E3S Web of Conferences,* 168, Article 00031. https://doi.org/10/1051/e3sconf/202016800031.
26. Hryhorak, M., Trushkina, N., Popkowski, T., Molchanova, K. (2020). Digital transformations of logistics customer service business models. *Intellectualization of Logistics and Supply Chain Management*, 1, 57-75. https://doi.org/10.46783/smart-scm/2020-1-6.
27. Trushkina N. (2022). Lohistychna systema: do pytannia terminolohii [Logistics system: to the question of terminology]. *Věda a perspektivy*, *3*(10), 84-96. https://doi.org/10.52058/2695-1592-2022-3(10)-84-96. (in Ukrainian)

28. Sumets, O.M., Kyzym, M.O., Syromiatnykov, P.S., Kozyrieva, O.V., Tsvirko, O.O. (2019). Financial flows in the logistics systems of industrial enterprises. *Financial and credit activity: problems of theory and practice*, *3*(30), 165-175.
29. Kashchena, N., Solokha, D., Trushkina, N., Potemkin, L., Mirkurbanova, R. (2019). Use of multi-agent simulation modeling for predicting the sales of wholesale trade companies. *Journal of Management Information and Decision Sciences*, *22*(4), 483-488.
30. Koev, S.R., Tryfonova, O., Inzhyievska, L., Trushkina, N., Radieva, M. (2019). Management of Domestic Marketing of Service Enterprises. *IBIMA Business Review*, 2019, Article 681709. https://doi.org/10.5171/2019.681709.
31. Trushkina, N. (2019). Organizational-economic mechanism of management logistic activity of enterprise: essence and structure. *Strategies for sustainable socio-economic development and mechanisms their implementation in the global dimension*: collective monograph (pp. 117-125). Sofia: VUZF Publishing House "St. Grigorii Bogoslov", vol. 3.
32. Hutsaliuk, O.M., Havrylova, N.V., Kotlubai, V.O. (2021). Suchasni osoblyvosti upravlinnia ryzykamy v konteksti stratehichnoho rozvytku pidpryiemstva [Modern features of risk management in the context of strategic development of the enterprise]. *Visnyk ekonomichnoi nauky Ukrainy – Herald of the Economic Sciences of Ukraine*, 1(40), 74-79. https://doi.org/10.37405/1729-7206.2021.1(40).74-79. (in Ukrainian)
33. Hutsaliuk, O., Bondar, Iu., Sedikova, I., Filipishyna, L. (2021). Research of the level of technological and managerial maturity at the enterprises of the aviation branch of the national economy from the point of view of safety. *Knowledge management competence for achieving competitive advantage of professional growth and development*: collective monograph (pp. 225-237). Riga: BA School of Business and Finance.
34. Tsvirko, O.O., Trushkina, N.V. (2022). Tsyfrova lohistyka yak instrument pidvyshchennia efektyvnosti diialnosti AT «Ukrzaliznytsia» v umovakh didzhytalizatsii [Digital logistics as a tool to increase the efficiency of JSC "Ukrzaliznytsia" in the context of digitalization]. *Vyklyky ta perspektyvy sotsialno-ekonomichnoho rozvytku zaliznychnoho transportu – UKRPROFZT 2021 [Challenges and prospects of socio-economic development of railway transport – UKRPROFZT 2021]*: materials of the II International Scientific and Practical Conference (Kyiv, November 3, 2021) (pp. 47-49). Kyiv: State University of Infrastructure and Technology. (in Ukrainian)
35. Tsvirko, O., Trushkina, N. (2022). Lohistychna infrastruktura: sutnist i rol u zabezpechenni staloho rozvytku natsionalnoi ekonomiky [Logistics infrastructure: the essence and role in ensuring sustainable development of the national economy].

Moderní aspekty vědy: XIX. Díl mezinárodní kolektivní monografie (str. 258-279). Česká republika, Jesenice: Mezinárodní Ekonomický Institut s.r.o. (in Ukrainian).

36. Trushkina, N.V., Rynkevych, N.S. (2019). Kliyentooriyentirovannost: osnovnyye podkhody k opredeleniyu [Client-Centricity: the Basic Approaches to Definition]. *Business Inform,* 8, 244-252. https://doi.org/10.32983/2222-4459-2019-8-244-252. (in Russian)
37. Trushkina, N. (2020). Kliyentooriyentovanyy pidkhid do lohistychnoho servisu v umovakh informatsiynoyi ekonomiky [The Client-Oriented Approach to Logistics Service in the Information Economy]. *Business Inform*, 6, 196-204. https://doi.org/10.32983/ 2222-4459-2020-6-196-204. (in Ukrainian)

4.DIGITAL TRANSFORMATION OF EMPLOYMENT

Svetlana Rudakova
Ph.D. (Engineering),
Associate professor of socioeconomics department
and personnel management
National Economic University named after Vadym Hetman
E-mail: svetlana.rudakova.home@gmail.com
ORCID ID 0000-0002-0623-6140

Liudmyla Shchetinina
Ph.D. (Economics),
Associate professor of socioeconomics department
and personnel management
National Economic University named after Vadym Hetman
Email: sludval@ukr.net
ORCID ID 0000-0003-1519-0647

Natalia Danylevych
Ph.D. (Engineering),
Associate professor of socioeconomics department
and personnel management
National Economic University named after Vadym Hetman
Email: danylevych.nataliia@kneu.edu.ua
ORCID ID 0000-0002-2321-0487

Introduction. The transition to the information society, which continues to take shape against the backdrop of changes in communication technologies and motivation of working behavior of people, leads to significant transformations in labor relations, namely the emergence of "remote relations" between employers and employees. Such relations are part of the process of decentralization of labor in space and time, i.e., the process of forming a flexible labor market. The latest information technologies with rapidly growing potential and rapidly falling costs become the main factors of development, which opens up great opportunities for the emergence

of new forms of labor and employment in both individual enterprises and society as a whole.

Literature review. A review of scientific publications shows that there are many studies of such an arrangement as remote employment. At the same time, the authors' approaches to its evaluation differ significantly. Gerasimenko G.V. [1] provides an author's interpretation of remote employment, substantiates the status of a remote worker, determines the features of the workplace of a remote worker, and offers a meaningful content of the employment contract and conditions for remote work. In another work, the group of authors [2] examines remote employment as one of the forms of atypical (non-standard) employment in the new conditions of the country and also proposes legislative regulation of legal relations that arise between employee and employer in remote employment. Plekhov D.O. [3] substantiates the need for the remote work format labor relations to be regulated at the state and society levels. Maliar D.V. [4] considers telecomputing as one of the leading forms of virtual employment, which is facilitated by the flexible forms of employment: freelancing, zero contract, mini-work as well as by appropriate forms of staff borrowing: subcontracting, temporary staffing, staff leasing, outsourcing. Vonberg T.V. [5] substantiates the relevance of the transition to remote employment of employees of companies under quarantine restrictions.

Results.

McKinsey & Co estimates that by 2030, 400 to 800 million people (between 15% and 30% of the world's workforce) will be out of work through the development of artificial intelligence and automation. Many of the operations that workers perform today have the potential to automate. According to McKinsey, about 60% of all occupations have at least 30% of activities that can be automated with modern technology. There are other estimates, for example, according to the European Commission, about 50% of current jobs in the world can theoretically be automated, which means that human labor in some processes will not be needed [6].

Among all atypical forms of employment, the most uncertain legally and economically are remote employment, freelance, and home-based work. Let's highlight the criteria by which these atypical forms differ from each other:

- freelance is a form of employment that involves the civil contracts between the customer and the contractor to perform work that requires high or medium qualifications, contractor’s own equipment, no involvement of the organizations in business processes, using modern information and communication

technologies, and which is subject to face-to-face contacts between the subjects of contracts in order to create a product (result) of labor;

- home-based work is a form of employment that involves the employment contract between the employer and the employee to perform work that requires any qualifications, the contractor's own or employer's equipment, involvement in business processes of the company, the use of modern information and communication technologies or no need for it, which is subject to face-to-face contacts between the subjects of contracts in order to create a product (result) of labor;

- remote employment is a form of employment that involves the employment contract between the employer and the employee to perform work that requires high qualifications, the contractor's own or employer's equipment, an involvement in business processes of the company, using modern information and communication technologies which has no of face-to-face contacts between the subjects of contracts in order to ensure the processing and creation of the product (result) of labor [7].

Table 1 — The most popular specialties of remote employment in Ukraine according to the data for 2020

Name of specialty	**Quantity of applications, pers.**
Web programming	106 441
Website design	105 255
Database development	90 236
Flash animation	70 676
Technical translation	36 878
Copywriting	25 826
Website promotion	15 297
Banner design	14 996
Editing	13 101
Content management systems	9 071

The influence of modern digital technologies significantly changes the state of the labor market and the demand for certain specialists, the conditions of organizing the remote employment. The wages and social security are transformed and become individualized. Employees' dependence on employers is decreasing, their work is shifting into the digital space, which requires constant acquiring of new knowledge and skills in working with modern technologies [8].

The spread of the latter is facilitated by the availability of high-quality human potential in our country, which is characterized by a propensity for innovation, mobility, and the ability to adapt to new working conditions. According to the largest Ukrainian remote labor exchange "Weblancer", the most common vacancies for telework are web specialists, designers, data processing specialists, and marketing specialists (Table 1).

Remote employment has taken a prominent place among other types of employment and has become a full-fledged livelihood for millions of people in the developed world. In the United States in 2021 remote employment accounted for about 21% of all of the employed, in Europe telework accounted for more than 8% of workers (Fig. 1).

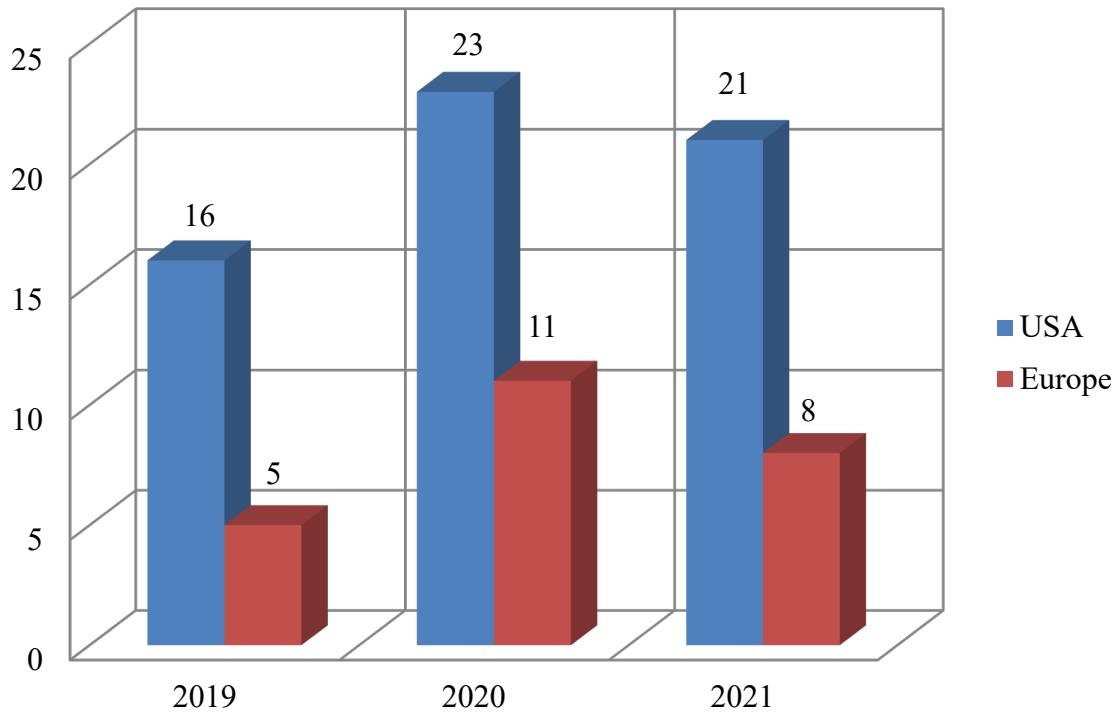

Figure 1. Dynamics of the share of remote employment in the world in 2019-2021, %.

Source: *own data*

Currently, the scale and pace of remote employment spread are very high, especially due to the COVID-19 outbreak and war in Ukraine. It should be noted that before these challenges, a relatively small part of the world's population worked remotely on a permanent basis. For example, the ILO estimates that 8% of the world's workforce, or about 260 million workers, worked from home. According to European Community of Steel and Coal Statistical services, the Netherlands and Finland had the largest share of remote workers in the EU (14% of employed people who normally worked from home in 2021), followed by Luxembourg and Austria (where 12% and 10% worked from home respectively) (Fig. 2).

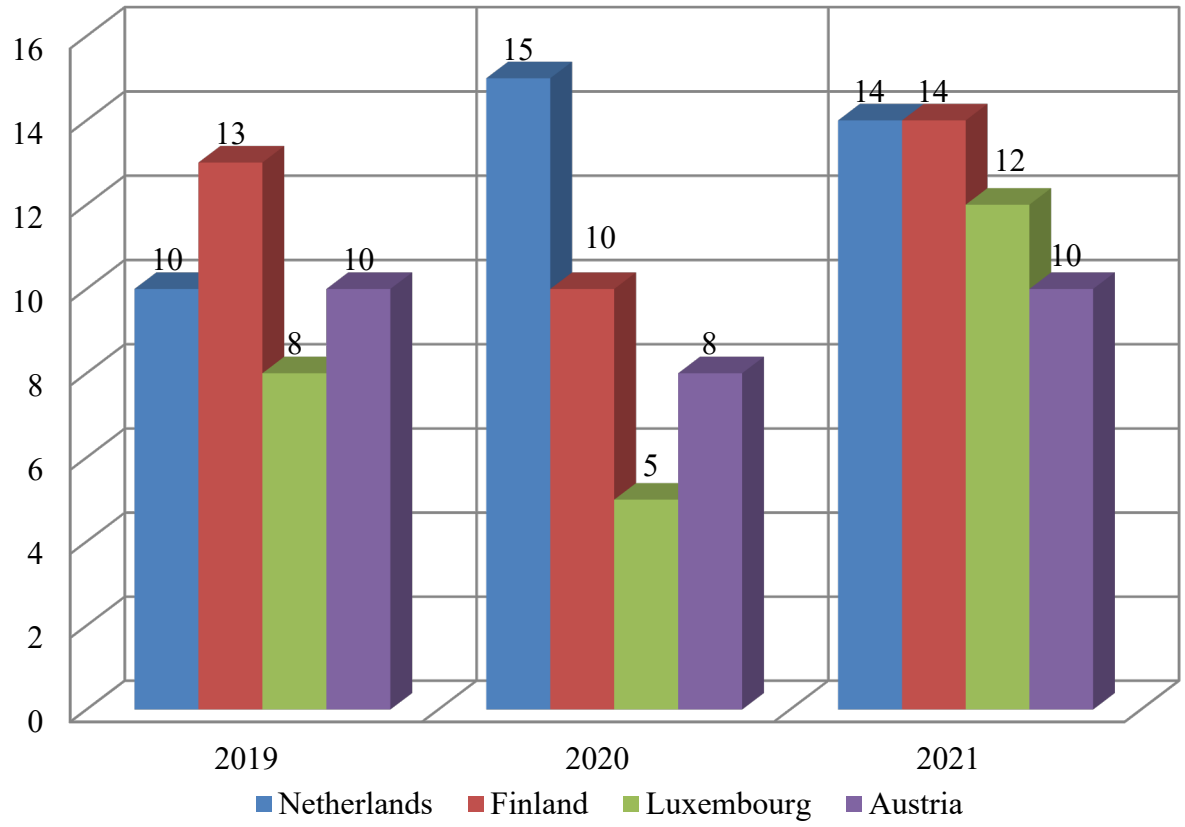

Figure 2. The share of remote workers in EU member states in 2019-2021, %.
Source: *own data*

Note that about 24% of all working Americans worked remotely at least part of the time in 2020 (according to The Office of Labor Statistics), and only 7% of employees in the United States were able to work remotely on a regular basis (according to the National Compensation Survey (NCS) conducted in 2021. Office of Labor Statistics).

In general, according to a study “Global State of Remote Work” (Owl Labs, 2020), more than half (56%) of companies worldwide, as of 2020, provided employees with the opportunity to work remotely.

A survey conducted by Insight Express and Sonic Wall showed that remote work increases productivity. In addition, the study identifies the following important factors of the impact of telework on the development of society, country, individual firms, and individuals:

- for society: reduction of environmental pollution; ensuring access to work for people with disabilities; reducing the number of migrant workers, increasing social stability;

- for the state and regions: the opportunity to increase the efficiency of land use, which was used for offices; reduction of transport problems; the ability to more evenly distribute the human resources of various regions, using the remote resources. As a result of the difference between incomes and prices in central and far regions, both corporations that save on wages without reducing employee efficiency and workers with higher incomes without increasing the transportation costs, higher prices, etc. achieve better economical results;

- for the company: a significant reduction in the cost of office space, its equipment, and its use; recruitment; an arrangement of workplaces; provision of information media; reduction of labor costs during downtime; the flexible size of staff depending on the current needs of the company; an increase of the share of profit in the price of goods; increase of labor productivity, up to 40%, due to the absence of office barriers, unnecessary meetings, loss of time for moving; expansion of markets; reducing the level of risk for the organization and its dependence on external problems;

- for the individual: economic (expansion of opportunities determined by the global network of useful connections and contacts, efficiency and breadth of access to the necessary information); organizational (reduction of material costs and time spent on transport; expanding employment opportunities); social (opportunities to maintain professional skills during, for example, maternity leave or study, flexibility of working hours).

Remote employment is now used in practice by both huge corporations that save huge sums of money by using cheap but high-quality labor, and companies that consist of one person (most often — companies involved in software development or services in Internet business) who do not have the financial and managerial ability to hire full-time staff.

There are a lot of approaches to highlighting the advantages and disadvantages of remote employment, some of which are listed below.

One of the approaches is that hiring a remote worker is not limited by geographical scope, so you can:

1. To find easier and faster the right specialist to perform any task. The choice of employees on the Internet is much wider than in a particular location, especially if it is not a metropolis. Moreover, the current level of development of the Internet allows the employer to assess the work performed by a potential employee earlier. Specialized freelance websites usually feature a wide range of professionals. It is more practical to look for a person who is able to perform a non-trivial complex task in his professional community. It is most convenient to use specialized professional forums (programmers, designers, translators, etc.).

But the problem is that such people are not always looking for work. Therefore, the customer interested in a particular specialist often has to post proposals for work. Another option is to find a professional who is not looking for a job, but in which the customer will be confident is social networks (eg, LinkedIn, Instagram, Facebook, etc.).

Today, in Western countries, at least 10% of companies consider social networks not only an effective way of marketing but also an indispensable tool for finding young professionals.

2. Significantly reduce the cost of the project. First, by moving part of the business to low-cost developing economies, since a specialist from India or Ukraine is usually willing to work for much less money than from Western Europe or, even more so, the United States. Second, there is no need to pay for additional work and bear the cost of its technical equipment, which reduces the cost of maintenance and upkeep, operation of parking, canteens, and more. Moreover, it is not uncommon in small companies related to the online business that all professionals work remotely, respectively, the need for an office completely disappears.

Another approach presents other positive aspects of the use of remote work:

1. Increasing employee productivity. Remote work avoids standard office environment interruptions of the work process and psychological stress on the team. Even when transferring an employee to partially remote work, the number of leaves "For personal reasons" is significantly reduced.

2. Remote work allows you to make the life of the employee more comfortable, which in the long run contributes to the retention of the workforce. As for female employees, transferring them to remote (or partially remote) work during pregnancy is often the only alternative to their complete break up with the team for a long time. In addition, remote work can be used for motivational purposes. Using a flexible schedule gives the employees the opportunity to feel like the master of their work and rest hours. The person sets the mode of his working day, according to

which he is at work only at a convenient time, the rest of the tasks are performed remotely.

3. Ability to respond quickly to market needs because the use of remote work allows you to quickly and with less financial cost to find a specialist for a pilot project to assess how this company will develop.

4. Ability to operate 24 hours a day by involving remote staff from different time zones. For example, the creation of a call center on this principle significantly improves the quality of interaction between the company and customers, without requiring additional costs to pay employees for the night shifts. Remote employment may also include the activities of so-called distributed working groups. With their help, the company, which uses several similar groups of specialists in different time zones, organizes continuous round-the-clock work on urgent projects.

All these factors can increase the efficiency of the organization and gain significant competitive advantages.

However, the use of remote workers has a number of disadvantages:

1. Working with remote projects requires managers with extensive experience in managing remote workers because managing people remotely is a difficult task. Standard approaches to leadership and management are generally not applicable to remote employment. Not all managers, even with extensive experience in a standard office, are confident that they can manage projects remotely. Accordingly, they do not believe in the similar abilities of their subordinates, so they categorically oppose the transfer of employees even to part-time work from home, arguing that working from home will reduce the productivity of the person. Moreover, managers are afraid of losing control of the work process.

Given the experience of Western companies, we can say that “insufficiently” well-organized remote work on the scale of the whole company causes losses, not profits. In addition, it turned out that some professionals who have proven to be excellent professionals working in the office, after a short period of increasing efficiency and productivity at the remote work, stop working with the same diligence, and in order to avoid delays in the project they must be returned to office [9].

2. The feeling of the workflow disappears. Employees feel that they do not have a manager or that their work is not real, so they often miss deadlines or leave the project altogether.

There are a number of tasks, the effectiveness of which significantly increases if the contractor and the customer work closely together. Most often, the team spirit and the internal motivation of the team, which should be created by the team leader through personal contact with the workers, play an important role. In addition, in the process of communication, a person receives a large amount of information non-

verbally, so when using e-mail, messengers, etc. there appears often a problem of misunderstanding. The only solution to this problem is video calling. With its professional use and the ability for group video conferencing and remote training of employees, it significantly increases the effectiveness of communication.

3. Due to the lack of direct contact between employees and management, the corporate culture is eroding, and it is simply pointless to expect freelancers to comply with the corporate standards.

4. For companies in which the remote employee works in full compliance with the labor code and with the use of state-owned means of production, the problem of employee's responsibility for the safety of company equipment is also obvious. Moreover, the question arises about the physical safety of the employee and the compliance of his workplace with medical safety standards. Informational security also may become problematic. Of course, when an employee uses a home computer and standard data transmission systems, the problem of responsibility for the confidentiality and preservation of official information is obvious. There is also a risk of the dishonesty of the remote employee. But this is a relative factor, as office espionage is not uncommon.

5. When working remotely, people are significantly limited in meeting their needs in social contacts, creative expression, and public recognition, which can reduce their work motivation.

6. Large-scale transformation of employment requires the expansion of state intervention in the social and labor sphere and the development of new mechanisms for its regulation. There is an urgent need to regulate virtual migration processes (income taxation, legal registration of labor relations, transformation of financial and tax reporting).

In addition, the use by companies of remote work in the daily practice, brings their employees many social and economic benefits, significantly improving their quality of life, including:

1) performance of labor function in a virtual environment with the use of information and communication technologies;

2) flexible work schedule, which means the ability to optimize working hours, as well as the self-determination of the employee's rest time;

3) free choice of workplace and calm working atmosphere, which allows for the reduction of the likelihood of conflict with colleagues and (or) management and the ability to resolve family problems, for example, the need to take care of children;

4) the opportunity to work without a long-term employment contract in case of the unwillingness of the employees to commit themselves to long-term forms of cooperation as an employee or employer.

Distance employment in Ukraine has negative features inherent in unstable work, which, in contrast to the positive, will be common to both the employee and the employer. In particular, such features are the complexity of personnel records, and certification; difficulties in the transfer and dismissal of a teleworker; the uncertainty of the status of the remote workers, and, as a consequence, their legal and social vulnerability.

Although many legislative changes regulating the procedure for establishing remote employment both on a general basis and during the war and epidemic have been adopted today, the difficulties of legal regulation of labor relations with the remote workers in Ukraine remain quite relevant.

The inability to regulate the employment of remote workers in the world and Ukraine limits their autonomy, dignity, and security. In particular, the main legal problems of remote employment include lack of settlement of this issue in accordance with the needs of public relations; issues with an employment contract, its form, and content in remote employment; the problem of ensuring equal rights of remote workers with other workers; the problem of compliance with labor protection requirements for remote workers; the problem of determining the place of work; information security problem; the problem of establishing and accounting for working time and its payment; the problem of combining remote work with other types of employment; the problem of participation of remote workers in trade unions; the problem of stimulating the development of remote employment.

At the same time, it should be noted that remote work today is becoming a full-fledged alternative to visiting the office five (and often six) days a week for almost all professionals working in the field of knowledge work. Distance employment is an intermediate link between a tight office schedule and self-employment.

Conclusion. Therefore, remote work requires urgent and adequate legal regulation that can provide decent social protection for remote workers. The war, the global pandemic, and the conditions of quarantine have shown the demand for such an employment format as remote work. We are confident that this form of professional activity will only gain popularity in the long run, and accordingly, this issue needs additional legislative regulation. First, it will ensure the labor and social rights of many citizens who carry out their activities in the form of remote work. Second, the corresponding reform will have the function of both social security of employees and fiscal function, as a high-quality regulatory framework in the field of remote employment will increase revenues to the state treasury. Third, a quality regulatory framework will stimulate the development of small and medium-sized businesses, which are unable to create a significant number of jobs directly in the

office but can pay wages to employees who work directly from home through telecommunications networks. Digitalization creates new forms of employment, in particular informal employment, will have an impact on the structure of working time, a qualitative component of professionals, which will affect the formation of a new policy on wages and social protection of workers.

REFERENCES

1. Herasymenko H.V. (2018). Dystantsiina zainiatist yak fenomen sotsialno-trudovykh vidnosyn. [Remote employment as a phenomenon of social and labor relations]. *Innovative economy*, 7-8, 91-96. from: http://inneco.org/index.php/innecoua/article/view/320.
2. Yurovskaya V.V., Ostroglyad D.A., Chernyavskaya D.S., Tselikovskaya O.A. (2021). Dystantsiina zainiatist: suchasnyi stan ta perspektyvy rozvytku. [Remote employment: current state and prospects of development]. *Juridical scientific and electronic journal*, 4, 346-349. DOI https://doi.org/10.32782/2524-0374/2021-4/85.
3. Plekhov D. O. (2020). Dystantsiina zainiatist yak odna z form trudovykh vidnosyn v umovakh sohodennia. [Remote employment as one of the forms of labor relations in today's conditions]. *Subcarpathian Law Herald.* 5(34), 84-87. DOI https://doi.org/10.32837/pyuv.v0i5(34).652.
4. Maliar D. V. (2019). Dystantsiina zainiatist: peredumova, forma proiavu ta naslidok rozvytku tsyfrovoi ekonomiky. [Remote Employment: Precondition, Form of Manifestation and Consequences of the Development of the Digital Economy]. *Business Inform*, 10, 165-171. DOI: https://doi.org/10.32983/2222-4459-2019-10-165-171.
5. Vonberg T. V. (2020). Dystantsiina zainiatist pratsivnykiv: novi vyklyky ta mozhlyvosti. [Remote Employment: New Challenges and Opportunities]. *Business Inform*, 4, pp. 259-265. DOI: https://doi.org/10.32983/2222-4459-2020-4-259-265.
6. Ukraina 2030E — kraina z rozvynutoiu tsyfrovoiu ekonomikoiu. (2021). [Ukraine 2030E is a country with a developed digital economy]. Available at: https://strategy.uifuture.org/kraina-z-rozvinutoyu-cifrovoyu-ekonomikoyu.html.
7. Herasymenko O. O., Shchetinina L. V., Rudakova S. G. (2017). Dystantsiina zainiatist: suchasni trendy v orhanizatsii ta oplati pratsi. [The Remote Employment: Current Trends in the Organization and Remuneration of Labor]. *Business Inform*, 11, pp. 233-239. from: https://www.business-inform.net/export_pdf/business-inform-2017-11_0-pages-233_239.pdf.
8. Rudakova, S., Shchetinina, L., Danylevych, N. and Varshava, D. (2021). Tsyfrovizatsiia vidnosyn u sferi zainiatosti: svitovyi dosvid ta yoho implementatsiia v Ukraini. [Digitalization of employment relations: world experience and its

implementation in Ukraine]. *Galician economic journal*, vol. 73, 6, pp. 43-54. https://doi.org/10.33108/galicianvisnyk_tntu2021.06.043.

9. Lukyanova Natalia, Oksana Zaitseva. (2021). Pandemiia koronavirusu: pravovi mekhanizmy zakhystu trudovykh ta sotsialnykh prav pratsivnykiv. [Coronavirus pandemic: legal mechanisms protection of labor and social rights employees]. International Renaissance Foundation. Kyiv. from: http://rv.dsp.gov.ua/wp-content/uploads/2021/02/lhsi_pandemya_koronavrusu.pdf.

5.GENERATION Z: TRANSFORMATION OF THE MODERN LABOR MARKET IN THE CONDITIONS OF DIGITALIZATION

Oleksiy Stupnytskyy
PhD (Economics)
Professor of the Department of International Business
Taras Shevchenko National University of Kyiv
E-mail: a.stupnitsky@ukr.net
ORCID ID 0000-0002-5508-5625

Olena Pryiatelchuk
Doctor of Sciences (Economics)
Professor of the Department of International Business
Taras Shevchenko National University of Kyiv
E-mail: pryyatelchuk@gmail.com
ORCID ID 0000-0002-5222-452X

Volodymyr Verhun
Doctor of Sciences (Economics)
Professor of the Department of International Business
Taras Shevchenko National University of Kyiv
E-mail: vergun.va@gmail.com
ORCID ID 0000-0002-9784-5557

Yevhen Bevzyuk
Doctor of Sciences (History)
Professor of the Department of Country Studies
Uzhhorod National University
E-mail: evbevzuk@gmail.com
ORCID ID 0000-0003-0191-7905

Introduction. The modern world labor market of the last decade has been undergoing large-scale transformations caused by the emergence of new industries and professions, cardinal shifts between online and offline areas of activity, global changes in the demographic structure of the labor force, and the increasing role and

importance of Generation Z as a social community. The integration of Generation Z into the labor market significantly changes the priorities in choosing a profession and working conditions, in relations and in cooperation between employers and employees, and, surely, introduces ambiguous trends in traditional areas of employment. Nowadays Generation Z, gradually identifying its business opportunity in the global labor market, is fundamentally changing the existing structure of labor relations due to its cognitive and psychological characteristics.

Literature review. The term "Generation Z" is widely used in economic literature in the context of the theory of cyclic change of generations and patterns of life phases of social development (childhood, youth, maturity, and old age). It was first introduced into scientific circulation in the early 90s in the USA by demographer N. Howe and historian W. Strauss [1]. Initially, this term was not the conceptual base of classic academic economic science which has clear definitions and is based on empirical research. It belonged to the field of "eco-sociology". A significant contribution to the development of the “generational theory” was also made by American scientists M. Prensky (who introduced the term “digital natives” - the “DigitalNative” generation) [2], J. Twenge (who described the specifics of modern teenagers - "iGen") [3], as well as C. Seemiller and M. Grace, who proposed a methodology and analytics for studying the relationship between the development of modern education and the needs of Generation Z [4]. Their common basis is the historical context that determines the behavior of the individual: groups born in the same period (generational cycles are 15-20 years) have similar socio-psychological traits that are universal for the entire generation. However, the economic component of the problem of adaptation of the labor market to the new "generational" challenge of the digital "Z-class" and the development of effective systemic scenarios in the models of regulation and management of the labor market remains one of the most significant due to both socio-technological and uncertainty factors in the future structure of labor relations in the countries of the world economy.

Results. It is generally recognized that global digital transformation defines the business landscape of the modern world economy, stimulating investment by companies in the development of process management of innovative potential based on sustainable business models. The DNA of Innovation trend and the expected vector of digital transformation in general, according to the report “Global Trends 2030: Alternative Worlds” [5], suggests both the genesis of the basic directions of DARQ technologies (artificial intelligence, cloud technology and blockchain data analytics) and the speed of creating integrated corporate platforms that provide the

ability to freely combine digital technologies and involve a wide range of employees in the processes of design, architecture and new business models (the so-called "democratization of digital transformation"). However, the common understanding is increasingly associated with the fact that it is not just about pooling resources to scale the application of technologies and the adoption of ecosystem business models, but more about the specific relationship between technology and human capital (based on sustainability and ensuring technology priorities), as well as development Generation Z talent as a tangible business value of Industry 4.0.

Indeed, digitalization, forming new creative and knowledge-intensive industries, changes the fundamental concept of employment, creates new conditions in the labor market, which in the modern scientific community is called the gig ecomony. Today, the United States is the most developed gig economy of the modern world: according to various estimates Generation Z amounted to about 60 million people in 2020 (it's up to 50% of the employed worker). It is quite an impressive indicator compared, for example, with the EU countries (30%) [6]. Generation Z is significantly different from all previous ones. At the same time gig employment because of the technological revolution suits most effectively the digital generation. Today traditional employment no longer corresponds with the new form of labor because it is mainly based on the binary system "employee-employer", where it is the employer who determines all working conditions. In turn, gig employment is the most appropriate way for Generation Z to fulfill their needs.

According to some studies, by 2025, 27% of the active labor force of the modern world economy will be represented by Generation Z (40% of all consumers), which will become both the dominant group of the global labor market and the driving force behind transnational culture [7]. And although the identity of Generation Z is still being formed, it is extremely important for marketing economists, sociologists, and employers today to understand its role and the specifics of the problems that the modern labor market will face. In addition, companies need to find a way to approach Generation Z at a time when Generations X and Y's skills are not in demand and competitive in the present.

The "generational approach" is most often used by marketing economists to sell goods to different target audiences. In the same time sociologists look at generations through the prism of historical context and demographic processes. The modern typology of "generational cycles" (according to the classification of generations by Pew Research Center [8]) is as follows:

- Baby Boomers (1944-1964), who are characterized by a rethinking of traditional values, loyalty to cultural change, moderate conservatism, optimism, team spirit, ambition, thrift.

- «Generation X» (Gen X) (1964-1984) demonstrates high technical literacy, independence, pragmatism and self-reliance, informality of views, distrust of the authorities due to the drastic changes experienced and, as a result, apoliticality and skepticism.
- «Generation Y» (Gen Y or Millennials) (1984-2005) highly values freedom, civic duty, and morality, is passionate about new experiences and self-development, matures later, lives longer with parents, does not consider private property an important value, but prefers immediate reward, is characterized by naivety and the ability to obey.
- «Generation Z» (Gen Z or "digital natives") (2001(05)-2017(25)) feel free, independent (not accepting hierarchies and not recognizing authorities), prefer computers to books, text messages over mobile phone conversations, online communication. They are tied to many devices, trust the information published by friends, as well as the recommendations of bloggers and opinion leaders (the concept of "Word of Mouth"). Representatives of Gen Z are characterized by thoughtfulness, the ability to multitask, motivation, straightforwardness, frugality, and isolation. They are individualists, do not work well in a team, do not trust other people's experience, prefer explanations/instructions in work (simple/understandable rules of behavior and career building, short-term individual tasks), constructive analysis of priorities and successes/misses in the form of gamification, information technologies with opportunities for creative self-realization.
- «Generation Alpha» (Gen Alpha) (2010(25)?-2025(45) according to M. McCrindle [9]) – is a driving force of progress in the 21st century. Representatives of this generation are more balanced, positive, less aggressive, convinced that the main thing in life is harmonious relations between people (open to the way of life and thoughts, and not to structures, confessions, and organizations). Both interesting work related to the latest technologies and mobility and cooperation based on encouragement (as opposed to non-economic coercion, threats, and punishments) are very important for them.

At the same time, it’s necessary to understand that the time boundaries of generations are very flexible (for different countries they are shifted by five or six years or more), which is associated, firstly, with different rates of industrialization and economic development experienced by social and political changes. Secondly, with the stage of the so-called "demographic transition" (change in birth and death rates), the reproduction of the population is reduced to a simple replacement of generations, and not to an increase in numbers. Generation Z is the first generation, consisting of children of three generations of parents (Baby Boomers, Gen X and Gen

Y), a relatively small part of Generation Z are children of younger Baby Boomers (Stacy Wood), and the youngest are children of Generation Y. Predominantly parents of Generation Z are Gen Xers who have stepped back from the rigid, controlling style of "helicopter parents."

The current analysis highlights five key characteristics of Generation Z (also known as “post-millennials”) who will enter adulthood this decade and replace millennials (Generation Y), who were at the forefront of marketing and advertising five years ago.

✓ Firstly, the emerging Generation Z today is much more entrepreneurial than previous generations. Its representatives prefer to start their own business and seek to create their own influence in society and the business world. So, today more than a quarter of the US population (25.9%) are representatives of Generation Z who strive to start earning money on their own early (76% of young people hope to turn their hobby into the main source of income, while for Generation Y this figure is about 50%), they dream be self-employed and ready to compete with Generation Y: 61% representatives prefer to become private entrepreneurs rather than civil servants. They actually claim to be a generation that: a) wants to influence the organizational structure in a comprehensive way - tends to seek employers with a similar “on demand” culture and a do-it-yourself mentality, b) prefer having their own workspace, c) are digital natives, d) prefer offline workplace communication and a flat (horizontal) organizational structure (which implies corporate “face-to-face communication”, “zero paper business” and preference for alternative options for the growth of professional competencies [8].

✓ Secondly, Generation Z is different from Generation Y, with an increased interest in significant global events related to environmental and social issues. It is the most intelligent generation regarding ESG factors of all previous generations. Today, 60% of Gen Z “global citizens” want, for their work to have an impact on the surrounding reality (39% in generation Y), about 25% of teenagers aged 16-19 speak at serious international conferences and are active as volunteers, and one of the most popular career areas is social entrepreneurship.

✓ Thirdly, most Gen Z post-millennials live online, prefer video search engines and digital platforms, numerous digital communication tools for instant messaging to face-to-face communication. If for representatives of Generations X and Y the emergence and development of social networks, smartphones and search engines was evidence of the beginning of the digital revolution, then Generation Z was already born in it and prefers: 1) global information with a high degree of processing, 2) round-the-clock news cycles, 3) confidentiality of personal information

on social networks (according to research, more than 80% of Gen Z will share personal information with their pets rather than at work with their boss [10]).

✓ Fourth, postmillennials of Gen Z expect to have to work harder than previous generations, while if millennials of Gen Y (and even X) are optimistic about their Baby Boomer parents, times of prosperity and opportunity, then Gen Z is realistic due to "optimistic skepticism" and "straightforwardness" in decision-making practice. Generation Z will not respect the boss just because he has long been working longer and is older. They rather evaluate how he effectively organized the workflow. Already today, company managers should consider that new non-standard methods of personnel management are needed to motivate and retain the talents of Generation Z.

✓ Fifth, the representatives of Generation Z prefer more often (than previous, older generations) to directly influence the decisions of governments, rather than business, enterprises, and individuals (70% of Gen Z believe that governments should do more to solve local and global problems [11]). At the same time, Generations X and Y have more trust in individuals and their foreign counterparts than members of Generation Z.

Today, new digital technologies are being born and developed along with Generation Z, who take the Internet more seriously, use social networks pragmatically, turning blogs and games into a serious business. Their worldview and values were formed in 2000-2010, and due to the absence of strong economic and political upheavals, representatives of Gen Z are called "children of stable zero". Further socio-political events in 2010-2020 (economic stagnation, terrorism, civil protests, military conflicts), which they witnessed at an older age, generated in them a skeptical attitude towards state institutions, distrust and social absenteeism. Therefore, they do not divide culture into high and mass, but only the “culture of the moment”, when any trend becomes a culture without value judgments, and subcultures have moved into the digital space, turning into a set of interests that most often have nothing to do with each other. This is largely due to the development of modern technologies, which has changed the very principle of information perception, reducing it to two simple principles - “like / dislike”. At the same time, there was a growth in gaming culture, which led to the fact that gamification penetrated many areas of real life (it is important to be inside the game flow and maintain an optimal balance between the complexity of tasks and the skill of the person himself). Such mindset of Generation Z extends to work, school, and other areas of life with a focus on “geniuses” who have made a “super breakthrough” (the most obvious example is the career of Steve Jobs). Gamification has also had a significant impact on language culture – in communication, Generation Z actively

uses “mixed cultural code” and “hyper-language” in their speech, which is fully spoken with the help of memes, stickers, and gif-images.

Currently, Generation Z lives in the era of metamodernism, which is characterized by "minecraft mechanics of creation" with a ready-made set of blocks, functions, and solutions from the legacy of other generations and modernized into "their own". It is a content creator from parsed rethought fragments, in which the boundaries between online and offline activity are quite blurred. Thus, the content of video bloggers is positively perceived by 44% of Generation Z, while this figure for other generations is 31% for Generation Y and 27% for Generation X [12].

Postmillennials of Gen Z, firstly, do not accept the authoritarian style of relationships on the part of state, commercial and educational structures (including their representatives), which is one of the determining factors of consumer behavior (except for the need for information and the requirement for instant access to it). Secondly, they are more focused on meeting social, cognitive, aesthetic and communication needs. Thirdly, they highly appreciate the guarantees of confidentiality and security of communication with their friends and relatives (they use Snapchat and Whisper applications with round-the-clock anti-geolocation systems and anonymous platforms for social networks), stability, peace of mind and comfort [13]. At the same time, self-realization and self-actualization, achievement of success and social recognition in society are the most significant factors for Generation Z. The “tech savvy” of the latter in the context of the widespread use of the latest information and digital technologies has led to the formation of differentiated multitasking.

The following statistics are eloquent: more than half of Z-users spend up to 10 hours online with mobile devices; one user has an average of 37 mobile applications on the phone, not counting the pre-installed ones; on average, 12 applications are used per day, while 80% of the time is used within the five most relevant applications (primarily Facebook, Chrome, YouTube) [14]. At the same time, Generation Z perceives information using clip thinking - the perception of information content in the form of short, rapidly changing frames (“highly developed 8-second filter”), which contribute to a high reaction rate and rapid perception and processing of information. This implies instant satisfaction of information requests and large/semantically complex texts. Undoubtedly, this quality helps to quickly navigate and carry out a purposeful search for the optimal decision-making algorithm in crisis situations, which is an important quality in the future professional activity of Generation Z.

Hyperactivity based on the ability to concentrate on certain tasks, autism (own perception of the world of digital resolution, surround sound, three-dimensional

graphics, and virtual space), non-standard approach to acquiring new knowledge and skills are the main socio-psychological characteristics of Generation Z [15]. As for communicative behavior, it has several features. First, it requires constant feedback and mandatory communication for Gen Z through a visual language-picture (using emoticons and stickers) that replaces text. Secondly, it is based on the speed and reliability of information transfer, which are important factors when users choose a social network platform. While Generation X has influenced the music industry and the Internet economy, Generation Y has changed the entertainment industry from video to television, and Generation Z is today transforming education, technology, and finance. Gen Z sees the analog world and the digital society as a whole, has excellent hard skills, but also uses soft skills - creativity, prudence, responsibility, the ability to listen and hear your interlocutor, critical thinking and comfortable communication.

This generation is extremely competitive, determined, and hardworking, with a spirit of competition and a desire to grow professionally. In addition, some Gen Zers become successful entrepreneurs and gain real business management experience even before entering universities. Indeed, “competition” for them (unlike Generation Y and even more so X, who are accustomed to teamwork) is paramount. On the one hand, they tend to be financially conservative and, as a rule, look for jobs with a predictable and stable income and using fintech applications. On the other hand, they create their own brand in social networks and try to reflect those features that are important to them in real life, strive for individualization, avoiding “boring” work, and friendliness towards others.

From a demographic point of view, representatives of Generation Z believe that it is initially important to create their own well-being, and only after that it is necessary to think about having children. The family is not their main priority. An individual status is more impotant. So, for 43% their personal achievements such as education or professional success – are the main priority. 42% are aware of themselves through hobbies or entertainment, and for only 15% the family has a value. According to Bank of America analytics, 65% of Gen Zers see themselves as owners of their own business in the next 10 years, and the growing “economic power” of digital Gen Z is a defining trend within the modern world economy: Gen Z incomes will grow by more than 400% within next decade (up to 33 trillion dollars) and by 2030 will amount to ¼ of all incomes of the world economy, exceeding the purchasing power of Y-millennials [16]. In terms of wealth (6.1 trillion dollars), representatives of Generation Z are still inferior to the previous generations: Generation Y (26.4 trillion dollars), Generation X (22.2 trillion dollars), especially the Generation of Baby Boomers (65.3 trillion dollars). However, according to

forecasts, Generation Z will be able to turn into the richest generation in history over the next 20 years, especially after the Baby Boomers transfer their capital to them (already in this decade they will be able to inherit over 60 trillion dollars from their parents).

The opportunities and threats of the modern world have shaped Gen Y and Gen Z with a different approach to life - Generation Y follows the belief that they "live only once", therefore they try to get the maximum, enjoy life and are ready to take risks for the sake of vivid impressions. Representatives of Generation Z are more practical (70% will choose a physical product, not a momentary impression), based on the availability of any information, they do not just dream, but believe that they can change the world for the better (65% of respondents), believe that they deserve more than they have. They are self-confident and believe that others (brands, colleagues, subscribers) will take them seriously and help them to achieve their goals (72% of the surveyed representatives of Generation Z) [17, 18].

Today, the growth of entrepreneurship in various markets is achieved precisely through platform employment, which stimulates representatives of Generation Z to open their own micro-business and start early entrepreneurial activity. Currently, they are one of the drivers of international business development due to their entrepreneurial nature and its involvement in the idea of being independent and the need to realize oneself. This Gen Z entrepreneurial nature is expressed in their desire to create companies on their own, interact with partners and work for themselves – more than half of digital generation gig workers (53%) prefer to "be their own boss" and see it as an advantage of gig employment. According to Global Entrepreneurship Monitoring (GEM), about 40% of gig workers plan to create their own business, and ¼ are owner-managers of a new or established business [19]. Therefore, by starting their business on a platform without a corporate headquarters, thinking globally and decentralized, having the necessary highly specialized experience and knowledge, representatives of digital Generation Z successfully develop flexible and independent rules for their own business using the latest technologies.

The concept of labor flexibility for Generation Z includes two areas - workplace flexibility (the ability to work where the employee wants) and work flexibility (the ability to establish and maintain their own work schedule). Thus, only 1 in 5 Gen Zers agree to stay in their job for more than 4 years, 46% of Gen Z workers are freelancers, and 73% (of those 46%) are freelancers by choice. In fact, flexible work is a major catalyst for Gen Z's work-life balance (more than 65% of digital Gen Z in the US explain the need for flexible work for a better organization in life). According to a study, Generation Z prefers to work at home (42% of respondents), using such

workspaces as coworking (10%) and public places (cafe, restaurant) - 15%; at the same time, only 12% of respondents agree to work in the office [20].

Working through a specialized online service remotely predetermined the formation of a trend of geographic mobility, and as gig employment develops, remote work and study are becoming a new norm for most of the working population. Geographical mobility in relation to gig employment is a natural habitat for Generation Z at every stage of the life cycle (from recruitment and onboarding to daily work experience) - a gig worker carries out commercial activities in an IT company from Canada, and at the same tie he is physically located in Spain or the USA. In the professional environment of Generation Z it has been called "digital nomadism", which is directly related to the independence of one's location from the performance of work tasks, which is the main difference between gig employment and traditional one. Today 19% of Generation Z are representatives of this form of work, which provides the opportunity to combine work and travel (according to a study by Booking.com, 67% of digital Generation Z want to travel around the world). The change in labor relations leads to the fact that, according to various estimates, 70% of the global workforce will work on online platforms by 2025 [21], and it confirms the growing popularity of geographic mobility, since the ability to move around the world and work "from home" is a convenient form of organization of labor activity.

At the same time, Generation Z is a sophisticated and rather pragmatic consumer, everywhere looking for profit and quite comfortable interaction with applications for micro-investments based on neural networks. Today, the so-called SuperApps are popular among Generation Z - all-in-one applications and services (retail, banking, etc.) that combine financial digital services with game mechanics. 62% of Generation Z are accustomed to intuitive tools for solving creative problems and create their own content on their own. Moreover, video blogging has become the most attractive and popular profession for them, and 37% of respondents dream about their career on YouTube [22]. At the same time, people of Generation Z have a more responsible attitude to money, they know how to save and are a potential client base for banks. They adopted the idea from Generation Y that work should be interesting, enjoyable, and meaningful. According to a survey conducted by Zety Company among representatives of Generation Z, 95% of respondents noted that the value of their employment is important to them; more than 70% would accept a pay cut to do more meaningful work; 61% will choose to work for an organization/company whose goal goes beyond making a profit.

The desire to be independent from anyone and anything, as well as to have a relatively high level of earnings, shifts the focus of Generation Z to new Internet

professions, such as an SMM manager, targetologist, visualizer, content maker, story maker, etc. and emerging integral infrastructures with unique specializations (blogging, streaming, eSports, etc.) [23]. The attractiveness of these areas is easily explained: the accelerated stage of training and the minimum level of corporate obligations, which, paradoxically, provides higher wages in the short term compared to offline work.

Leading international consulting companies have conducted several large-scale studies of the consumer behavior of Generation Z, due to the specifics of the general and consumer socialization of this segment of the labor market (NRF, Young & Younger, MAGRAM Market Research, together with the international communication agency PBN Hill+Knowlton Strategies). Indeed, as there will be a generational change among consumers over the next 5 years and Generation Z will gain more and more positions among the clients of many companies, it is important to adapt a corporate marketing strategy to the needs of a new consumer audience. Today, the uniqueness of each Gen Z consumer is a global driver for the development of new products and services, pushing marketing towards not only more differentiated segmentation, but also more customization and collaboration of brands across a wide range of markets and destinations. Microsoft, Apple, Amazon, AliExpress, Facebook, Uber, and many other technology companies, using "disruptive innovation" both changed the labor market, and transformed the usual "classic" model line of consumption of goods and services. Here there are some features of the representatives of Gen Z, highlighted by different sources [24]:

- representatives of Generation Z are less focused compared to Gen X and Gen Y on advertising content (in particular, they hold attention on the brand for an average of 8 seconds, while the previous Gen Y has this figure of 12 seconds);
- multitasking: Gen Zers can interact with five screens (devices) at the same time, while Millennials of Generation Y switch between three;
- representatives of generation Z are more independent - they accept rules, but not restrictions, and a small “bonus” is now much more important for them than a big benefit later; they generally do not participate in brand loyalty programs and do not tacitly accept what is offered to them from brands.

Today, marketing communications companies must work in a completely new environment: Generation Z listens to music online instead of buying music CDs, reads news on social networks instead of buying print newspapers, watches YouTube videos instead of subscribing to cable or satellite TV. It uses the Internet for information, entertainment, communication, and relaxation, spends time on shopping websites or apps, and increasingly makes purchases via smartphone. Generation Z

uses Android smartphones (62%) and iPhones (19%), and this trend points to the fact that a new kind of customer competition will take place on mobile devices.

Thus, according to Ipsos Comcon research, 25% of respondents aged 13-20 check information on social networks every 30 minutes, 30% spend online from 3 to 5 hours and 27% spend more than 5 hours a day on social networks. If we talk about key technologies and approaches to digital marketing, then the “comfortable” digital environment is in trend today: multi-screen, artificial intelligence, and technology of social services of augmented and virtual reality (66% of representatives of Gen Z do not imagine existence outside the digital environment) [25]. Therefore, it is important for businesses today to choose the optimal performance strategy using the potential of Big Data technology - a mix of channels and tools that ensure maximum efficiency of investments in marketing. This optimizes key business processes, reduces regulatory risks, opens new opportunities for monetization and creating products that will meet the current consumer preferences of Generation Z in the best way.

Existing research shows that direct advertising for Generation Z is ineffective (more than 40% of advertising on the Internet is blocked if it does not correspond to the content of the site, although advertisers have increased their budgets by 114% for the creation and placement of video ads in digital4 over the past two years). According to research by PriceWaterhouseCoopers, 55% of Internet users will watch an ad more than once (according to likes and followers) if it is interesting and relevant to the content of the site (mostly materials containing interesting facts and useful tips). Thus, the driver of the effectiveness of ad campaigns is advertising intended for display on mobile devices, the average annual growth rate of which is 18-20%, and investments in this sector in 2021 amounted to $171 billion [26].

Totally the following circumstances are important for Generation Z.

Firstly, advertising brands must be transparent, original, funny, and open; and forms of experimentation must motivate Zers' attention in the context of sensual "reasons for rallying" and awareness of the importance of the work being done. At the same time, considering the decrease in the threshold of concentration of attention, the advertising message should, on the one hand, be presented in the language that is most understandable to the target audience Z and be quite simple. On the other hand, it is supplemented with various symbolic components (emojis, emoticons) and visual elements (pictures, infographics, mini videos) for associative perception/memorization of content, which contributes to its memorization. In addition, the design (the stylistic design of the product and its components) must be functional, appropriate and in line with the minimalist trend that attracts Generation Z. Today, every second representative of generation Z makes branded purchases in foreign online stores (eBay, Amazone, AliBaba, AliExpress, Asos, etc.).

Secondly, Generation Z consumers trust the contemporary consumer peer more than the producer. Since they do not have a particular need for advertising, the unification of the communication system involves providing the opportunity to share opinions with each other, leave comments, ask questions, and conduct their own research - learn about the brand for themselves and make independent decisions. According to the study by FutureCast, 77% of Generation Z respondents are attracted to ads that show real people in real situations (the reality of life, often not ideal) [27].

Thirdly, money for Generation Z is an opportunity, the key to freedom of action and the embodiment of ideas. Public authority is not associated with the material wealth of an individual, but with the number of followers on Instagram. In fact, money is a resource that makes it possible to get new positive experiences and sensations, to use non-standard means of event content, to spend time interestingly and actively (festivals, unusual sports, outdoor fitness, etc.), using recreation and entertainment models in the direction of the development of the social environment. In this case experience turns into a special social currency [28]. Hence there is the increased interest in various kinds of "stories" that are posted on personal pages with the ability to share with friends and a wider audience. Therefore, to be successful, Gen Z advertising content must: a) have very specific characteristics, b) be both concise and informative, c) be visually rich but not overloaded, d) be personalized and engaging.

In general, Gen Zers are knowledgeable and savvy consumers who are skeptical of advertising and marketing but appreciate design, quality, atmosphere, speed of service (the "impatient" consumer category). They actively use the Internet resources and social networks to find the necessary information on the best deals on the market, compare products from different manufacturers, find out real-time reviews of competitors, prefer to buy unique, branded, and fashionable products that match their image and lifestyle. At the same time, 44% of Generation Z make spontaneous purchases, since visiting shopping and entertainment centers is one of the forms of leisure for them.

Therefore, today, when demonstrating the individuality of their product, companies seek to ensure maximum presence in the information space. This creates the illusion of two-side communication with the target audience of Generation Z by moderating company groups on social networks, building communication through agents of influence that are part of this dialogue. Authenticity of the experience and "two-side conversation" with the brand (the "humanization" of the brand) are also important since the demand of Gen Zers' consumer does not want to communicate with a faceless company. This happens because representatives of Generation Z use the visual content of the Internet (social networks such as Snapchat, Instagram, and

Facebook), receiving information quickly, carefully filtering it. In general, modern marketing can be effective if it is based on a combination of both traditional targeted offline marketing (standard tools for market research and product advertising - print, radio, television, and poster advertising, etc.) and online marketing - the company's activities associated with the use of various Internet resources and focused on consumer preferences of Generation Z [29].

Today, Generation Z is making significant adjustments to completely familiar patterns of behavior and life, consistently and confidently setting a qualitatively different rhythm and creating new trends in all areas and sectors of the economy. Hedonism is rapidly bursting into the “top 3” of the main qualities of young workers of Generation Z, replacing the universalism of Generation Y (Millennials). The principle “it’s not me who controls the work, but the work controls my life” is completely denied by the representatives of Generation Z. They are ready to give up big money for the sake of interesting inspiring projects, not only easily move to a new job, but also choose a new field of activity; they are zealous about personal space, highly value the social responsibility of companies and environmental management. And although they are not ready to work full-time with clear functionality and control, and salary expectations are almost always significantly overestimated with insufficient experience and lack of necessary competencies, it is the challenges, the possibility of self-realization and the balance between work and personal life in the conditions of alternative forms of employment (freelancing and gig-employment) that are the basis of effective work activity of Generation Z.

Therefore, today businesses must: a) learn to accept the new way of thinking of Generation Z, b) be flexible, considering large-scale systemic changes (cultural and operational), c) create and demonstrate corporate social-responsible behavior, d) support cultural diversity and alternative employment opportunities [30]. Therefore, when analyzing the structure of consumer preferences of Generation Z representatives and developing business strategies, companies need to proceed from the fact that the concept of brand loyalty is practically inapplicable to them. First, you should focus on mobile marketing (mobile versions of the site, mechanisms for constant interaction through social networks, including resolving all kinds of conflicts with consumers, etc.) and SMM (design, convenience, individuality, brand functionality and reliability, honesty, and transparency manufacturing company).

Conclusion. The dynamics of the modern labor market in the context of digitalization with the entry into the labor activity of Generation Z is characterized by a rapid increase in the number of new professions (mainly due to freelancers) and the expansion of remote formats of entrepreneurial activity. The fundamental social

trends of Industry 4.0, including the nature of the emerging labor and professional relations of representatives of Ggeneration Z in the labor market, generate a "generational core", which determines both a generational mission, which is essentially formed mentality, and complex phenomena of consciousness and behavior. Today, marketers, when implementing adaptive strategies, judge the preferences of the representatives of the technological Generation Z mainly based on the analysis of their operating environment, hypotheses, surveys, and purchase history. When hiring representatives of Generation Z, the employer must face, on the one hand, the rejection of a pronounced corporate hierarchy (equal relationships in the team are more important than career prospects), the importance of the content value of the work, the desire for creative self-expression and solving creative problems.

On the other hand, they should face the desire to solve various tasks in the context of cost-benefit efficiency without personal presence, preferring remote employment (flexible work schedule). If a company has outdated computers and does not invest in innovation, has a low ethical management style, and uses unethical work practices, it will not be an attractive employer for Generation Z. Also, the employer must be prepared for the fact that Generation Z has a great need to compete and prove its superiority in the practice of making non-standard decisions, which almost always leads to conflicts in the workplace. At the same time, competition offers the transforming job market the specific digital opportunities of Generation Z, thereby creating a demand for uniqueness.

REFERENCES

1.Strauss W., Howe N. (1991) Generations: The History of America's Future, 1584 to 2069. – 1st edition. – New York: Harper Perennial. – 540 p.

2.Prensky M. (2001) Digital Natives, Digital Immigrants Part 1 // *On the Horizon*, Vol. 9, Issue 5. P. 1–6.

3.Twenge J.M. (2017) iGen: Why Today's Super-Connected Kids Are Growing Up Less Re-bellious, More Tolerant, Less Happy–and Completely Unprepared for Adult-hood–and What That Means for the Rest of Us. New York: Atria Books. – 352 p.

4.Seemiller C., Grace M. (2015) Generation Z Goes to College.1st edition, San Francisco: Jossey-Bass. – 320 p.

5.Global Trends 2030: Alternative World – URL: http://www.nkibrics.ru/system/asset_publications/data/53c7/b3a1/676c/7631/400a/0000/original/Global-Trends-2030-RUS.pdf?1408971903

6.Generation Z is stressed, depressed and exam-obsessed // *The Economist*, 2019. – URL: https://www.economist.com/graphic-detail/2019/02/27/generation-z-is-stressed-depressed-and-exam-obsessed

7.The Future of Time. A global study fielded by Adobe Document Cloud. August 2021. – URL:https://www.adobe.com/content/dam/dx-dc/us/en/pdfs//the-future-of-time.pdf

8.Pew Research Center. On the Cusp of Adulthood and Facing an Uncertain Future: What We Know About Gen Z So Far. 2020. – URL: https://www.pewresearch.org/social-trends/2020/05/14/on-the-cusp-of-adulthood-and-facing-an-uncertain-future-what-we-know-about-gen-z-so-far-2/

9.McCrindle M. Understanding Generation Alpha – URL: https://generationalpha.com/wp-content/uploads/2020/02/Understanding-Generation-Alpha-McCrindle.pdf

10.Generation Z: How millenials are different and what we should know? *InvestGlass,*July 8, 2021 – URL: https://www.investglass.com/ru/generation-z-how-millenials-are-different-and-what-we-should-know/

11.Generations X, Y, Z and the Others. – URL:http://socialmarketing.org/archives/generations-xy-z-and-the-others/

12.Petro G. Gen Z: New Gender Norms, Fake News, Frugality And The Rise Of Retail's Next Power Generation. – URL: https://www.forbes.com/sites/gregpetro/2018/10/14/gen-z-new-gender-norms-fake-news-frugality-and-the-rise-of-retails-next-power-generation/?sh=4a390b2b7382

13.Исследование Google: что круто для поколения Z. Intalent. – URL: http://intalent.pro/article/issledovanie-google-chto-kruto-dlya-pokoleniya-z.html

14.Barr C. Who are Generation Z? The latest data on today's teens. Theguardian. – URL: https://www.theguardian.com/lifeandstyle/2016/dec/10/generation-z-latest-data-teens

15.Higa D. Meet Generation Z: The Digital Natives. Kaohana. – URL: http://kaohana.windward.hawaii.edu/2016/02/meet-generation-z-the-digital-natives/

16.Why Gen Z Doesn't Want To Work For You // *Forbes.* – URL: https://www.forbes.com/sites/forbestechcouncil/2021/08/11/why-gen-z-doesnt-want-to-work-for-you/?sh=6b1ed3cb159c

17.Jagaciak A. Shifts from Generation Y to Generation Z. – URL:https://medium.com/the-future-of-things/shifts-from-generation-y-to-generation-z-43c353730b72;

18.Patel D. 8 Ways Generation Z Will Differ From Millennials In The Workplace. – URL:https://www.forbes.com/sites/deeppatel/2017/09/21/8-ways-generation-z-will-differ-from-millennials-in-the-workplace/?sh=54f68ae576e5

19.Hart M., Bonner K., Heery L., Prashar N. and Levie J. (2018) Global Entrepreneurship Monitor (GEM) Monitoring Report, Aston Business School, Queen's University Belfast и University of Strathclyde, Business School – 77 p.

20.Aecf.org. Social Issues That Matter to Generation Z. – URL: https://www.aecf.org/blog/generation-z-social-issues

21.Aecf.org. What Are the Core Characteristics of Generation Z?. URL: https://www.aecf.org/blog/what-are-the-core-characteristics-of-generation-z

22.YouTube, Instagram and Snapchat are the most popular online platforms among teens. – URL:https://www.pewresearch.org/internet/2018/05/31/teens-social-media-technology-2018/pi_2018-05-31_teenstech_0-01/

23.Новик Ю. (2022) Как рынок труда меняется под запросы поколения Z, «*HB Бизнес*». –URL:https://www.facenews.ua/columns/2022/338305/

24.Patel D. (2017). 5 Differences between marketing to Millennials vs. Gen Z. // *Forbes*, Nov. 27 – URL: https:// www.forbes.com/

25.Uniquely Generation Z: What brands should know about today's youngest consumers. – URL: http://www.935.ibm.com|services|us|gbs|thoughtleadership|uniquelygenz|?lnk=ushpv18f2&lnk2=learn

26.Marchex Study Finds: Generation Z Consumers Most Impatient, Quickest-to-Curse, Yet Most Likely to Call Businesses of Any Demographic. – URL:http://www.investors.marchex.com|phoenix.zhtml?c=175199&p=irol-newsArticle&ID=2230020

27.Generation Z and Its 3 Most Important Consumer Behaviors. – URL: http://www.precisiondialogue.com/generation-z-consumer-behaviors/

28.Портрет современных потребителей: на смену Миллениалам приходит Z. Sostav. – URL: http://www.sostav.ru/publication/portret-sovremennykh-potrebitelej-na-smenu-millenialam-prikhodit-pokolenie-z-27485.html

29.Shay M. Move Over Millennials: Generation Z Is The Retail Industry's Next Big Buying Group // *Forbes.* – URL: https://www.forbes.com/sites/ibm/2017/01/12/move-over-millennials-generation-z-is-the-retail-industrys-next-big-buying-group/#399760e02f0a

30.‘True Gen’: Generation Z and its implications for companies,November 12, 2018. – URL:https://www.mckinsey.com/industries/consumer-packaged-goods/our-insights/true-gen-generation-z-and-its-implications-for-companies

6. ROLA CYBERPRZESTRZENI PODCZAS PANDEMII I STANU WOJENNEGO W ŻYCIU WSPÓŁCZESNEJ MŁODZIEŻY

Bohdanna Gwozdecka
Doktor Zakładu Prawa, Socjologii i Politologii
Państwowy Pedagogiczny Uniwersytet imienia Iwana Franki w Drohobyczu, Ukraina
e-mail: bogdankauafm@gmail.com
ORCID ID: https://orcid.org/0000-0003-2240-3508

Maksym Yachechak
student II roku
Instytut Fizyki, Matematyki, Ekonomii i Innowacyjnych Technologii
Państwowy Pedagogiczny Uniwersytet imienia Iwana Franki w Drohobyczu, Ukraina
e-mail: *mistikmaks80885@gmail.com*
ORCID ID: https://orcid.org/0000-0003-4168-3795

Wstęp. Wraz z rozwojem nowoczesnych technologii nie można sobie wyobrazić nowoczesnego życia w sieci bez tych środków komunikacji. Zwłaszcza dziś na tle wojny w naszym kraju, pandemii Covid-19, kiedy praca, nauka, komunikacja i po prostu codzienność nabierały kształtu w sieci. Tym samym sytuacja, która powstała w wyniku szybkiego rozprzestrzeniania się choroby i ograniczeń kwarantannowych, była impulsem do aktualizacji działań w Internecie. Komunikacja, praca i relaks w cyberprzestrzeni nie są już tak dziwne jak kilka lat temu, ale są powszechne.

Obecnie istnieje wiele sieci społecznościowych, skrzynek e-mail i usług przesyłania wiadomości, platform, wśród których każdy może lub już wybrał tę, która jest dla niego wygodna i odpowiednia. Pandemia Covid-19 dostosowała swoją komunikację, szczególnie dla młodych ludzi i ruchliwej populacji (studentów i uczniów, ze względu na potrzebę kształcenia na odległość, pracowników różnych dziedzin itp.), przenosząc nas z przestrzeni fizycznej do wirtualnej.

Ale nawet jeśli nie brać pod uwagę pandemię Covid-19, większość ludzi, którzy preferują cyberprzestrzeń, to młodzi ludzie w wieku od 14 do 34 lat, to

większość ludzi, którzy tworzą wiele społeczności, z którymi można się komunikować, chociaż ich młodsi „następcy nie pozostają w tyle, ponieważ większość dzieci spędza znacznie więcej czasu w wirtualnym świecie niż ludzie starsi. W niniejszym opracowaniu chcemy zwrócić uwagę na cyberprzestrzeń, jej rolę w czasie pandemii i stanu wojennego, wpływ na młodzież, zalety i wady.

Analiza najnowszych badań i publikacji. Wiele opracowań poświęcono cyberprzestrzeni, a zwłaszcza jej wpływowi na życie codzienne. J.Heizing zbadał temat gier, ich zalety i wady, a T. Wakulicz zwrócił uwagę na uzależnienie od Internetu. Również N. Semenow, I. Tytarenko, E. Szylowa badali sieci społecznościowe, ich dystrybucję, zalety i wady w swoich artykułach naukowych, O. Szelomowska zajmowała się tematem gier, W. Pileckyj rozważał ich czynniki cyberzależności i metody eliminacji, działa poświęcone anonimowym forom K. Zadyraki. Wszystkie te badania dowodzą, że komunikacja wirtualna ma zarówno dobre, jak i złe strony. Cel artykułu. Przeanalizować rolę cyberprzestrzeni podczas pandemii Covid-19 i stanu wojennego, jej wpływ na dzisiejszą młodzież, zalety i wady.

Przedstawienie głównego materiału.

Dzięki rozwojowi technologii, które miały na celu możliwość komunikowania się na odległość, otrzymaliśmy technologię „Internet” – system sieci łączących komputery ze sobą lub po prostu „sieć sieci”. Dzięki tej technologii wszyscy ludzie na ziemi, którzy posiadają komputer, laptop, smartfon, tablet lub jakikolwiek inny gadżet oraz dostęp do Internetu, mają możliwość wejścia w wirtualną przestrzeń, w której znajduje się wiele informacji, różnych usług, np. jak słuchanie muzyki, oglądanie filmów lub czytanie artykułów, książek i sieci społecznościowych, gier komputerowych i komunikatorów.

Przestrzeń wirtualna jest dzisiaj równoległą rzeczywistością przestrzeni fizycznej. Aktywnie wpływa na współczesne relacje społeczne, tworząc tym samym nowe paradygmaty interakcji człowieka ze światem. Na przykład w cyberprzestrzeni człowiek może zarówno zyskać, jak i stracić różne role, przezwyciężyć samotność lub stać się obiektem zastraszania.

Jak zauważa I. Tytarenko: „Internet, czyli rzeczywistość wirtualna można dziś nazwać jednym z ważnych czynników socjalizacji młodzieży. Przyswajanie wzorców zachowań, norm i wartości kulturowych zachodzi zarówno w sieci, jak i w realnym społeczeństwie, ale tutaj musimy pamiętać o różnorodności środowiska wirtualnego i reprezentowanych w nim kultur (wraz z tymi uformowanymi w przestrzeni wirtualnej)” [1, 128].

Obecnie najbardziej potrzebną częścią cyberprzestrzeni są programy wideo i konferencyjne, które są wykorzystywane jako środek nauczania na odległość, pracy, spotkań, negocjacji biznesowych itp., na tle pandemii Covid-19 i obecnego stanu wojennego w naszym kraju. Są to takie programy jak Skype, Google Meet, Discord, Zoom i inne, które pozwalają komunikować się przez mikrofony i widzieć się nawzajem przez kamery internetowe. Każda platforma zapewnia własny zestaw funkcji, ale ma też swoje zalety i wady.

Młodzi ludzie często tworzą w takich serwisach własne kanały komunikacji, które można powiązać z tematem, np. kanały gier fabularnych, gier komputerowych czy prostej komunikacji, gdzie zarówno małe, jak i wielkie grupy. Najczęściej jeden kanał łączy różnych nieznajomych, którzy mają wspólne zainteresowania lub biznes, poznają się i spędzają razem czas.

Problemem z takimi usługami są nieprzyjemni użytkownicy, których można spotkać w różnych społecznościach, co może np. popsuć nastrój, poniżyć lub po prostu znudzić. Takich użytkowników można anulować, zablokować lub zignorować, wtedy tracą zainteresowanie Tobą i znikają z widoku.

Innym poważnym problemem jest phishing, rodzaj oszustwa, w przypadku którego zaufani lub nieuważni użytkownicy sieci mogą uzyskać poufne informacje, dane osobowe klientów lub zaatakować zagrożeniami, złośliwym oprogramowaniem i witrynami internetowymi. Wszystkie uzyskane informacje zostaną wykorzystane do szkodliwych i złośliwych celów.

Portale społecznościowe. Najpopularniejszą częścią cyberprzestrzeni są sieci społecznościowe. Dziś pełnią głównie rolę mediów, trampoliny do spotkań i komunikacji. Termin sieci społecznościowe może być rozumiany jako wiele różnych rodzajów stron internetowych i programów, z których pierwszymi były tablice obrazów lub jak nazywano je „Chans” (od słowa Chanell), a także „Anonimowe fora”. Za nimi powstały sieci społecznościowe, w takiej formie, w jakiej je dzisiaj widzieliśmy, a później programy, które tę sieć wspierały.

Tablice z obrazkami lub po prostu anonimowe fora to najstarsza forma sieci społecznościowych, w których ludzie mogą dzielić się informacjami. Wszystko odbywało się anonimowo, przynosiło to zarówno wady, jak i zalety. Zaletą było to, że miałeś prawie całkowitą swobodę myślenia (ze względu na anonimowość) i nie ujawniałeś swoich danych osobowych, w przeciwieństwie do nowoczesnych sieci społecznościowych.

Aby opublikować „wątek” (łańcuch publikacji) lub komentarz wystarczyło podać swój adres e-mail, aby potwierdzić tożsamość i hasło na wypadek usunięcia publikacji. Wadą było to, że ludzie mogli pisać, co chcą i nie ponoszą żadnej

odpowiedzialności, lub odwrotnie, eksponując informacje na wyświetlaczu, byli poddawani „nalotom”, zarówno w cyberprzestrzeni, jak iw prawdziwym życiu. Mimo to tablice graficzne wspierały wirtualną socjalizację. Rozpoczynali pomysły, tworzyli zespoły, a każdy uczestnik mógł pomagać sobie nawzajem w rozwiązywaniu problemów związanych zarówno z wirtualnym, jak i rzeczywistym życiem.

Anonimowe fora w jakiś sposób angażują jednostkę w życie społeczne. Ze względu na rolę swego rodzaju nastoletnich grup, substytut lub dodatek do tego, co w poprzednim stuleciu nazywano „ulicą”, pewien obszar komunikacji między młodymi ludźmi, pozbawiony kontroli rodzicielskiej i instytucji edukacyjnych i wychowawczych. Warto zauważyć, że do Internetu migrują wszystkie inne sfery życia społecznego.

Jedną z takich stron są anonimowe fora z umiarkowaną moderacją. Na takich forach można wymieniać świeże wiadomości, rozmawiać o problemach nastolatków, narzekać na znęcanie się w szkole czy niepowodzenia w romantycznych związkach.

Szczególnie takie wirtualne przestrzenie stają się istotne dla „wygnańców”, nastolatków, którzy nie mogą znaleźć dla siebie miejsca w zwykłych firmach offline. Takie nastolatki, oprócz prawdziwej, często doświadczają cyberprzemocy, dlatego wygodniej jest im komunikować się w warunkach anonimowości, gdzie można ukryć swoją tożsamość. Nieprzypadkowo bitard jest jednym z głównych bohaterów folkloru anonimowych forów, jest aspołecznym pustelnikiem, spędzającym większość życia na tablicach obrazkowych [7, 24].

Sieci społecznościowe stały się bardziej ustrukturyzowane i rozpowszechnione, rozwój zmierzał w kierunku otwartej komunikacji, a nie anonimizacji, jak to miało miejsce w przypadku tablic z obrazkami, a sama struktura zmieniła się z tematów i wątków na społeczności i prywatne wiadomości. Na portalach społecznościowych jest więcej użytkowników niż na anonimowych forach, ale krąg komunikacji wielokrotnie się zmniejszał, gdyż teraz komunikacja jest dostępna tylko dla zarejestrowanych użytkowników i tylko z osobami, z którymi jesteś połączony (dodany jako znajomi, posiada ID, pseudonim, pozwolenie na korespondencję itp.), trudniej było znaleźć coś, co Cię interesuje. To również znacznie zmniejszyło wpływ nieadekwatności społeczeństwa, ponieważ ucierpiały na tym „kadzie” ze względu na ich wolność, która ograniczała się do znacznie bardziej rygorystycznych zasad w sieciach społecznościowych.

Sieci społecznościowe zajmują najwyższy poziom w wirtualnej komunikacji młodych ludzi. Według M. Semenova, dziś 20 ze 100 najpopularniejszych witryn na świecie to klasyczne sieci społecznościowe [9]. Ponad 4,5 miliarda ludzi korzysta obecnie z Internetu, a liczba użytkowników serwisów społecznościowych

przekroczyła granicę 3,8 miliarda. Już prawie 60% światowej populacji korzysta z Internetu, a najnowsze trendy sugerują, że do połowy tego roku ponad połowa światowej populacji będzie korzystać z sieci społecznościowych [10]. Ponad połowa tej liczby to ludzie młodzi, głównie w wieku 18-35 lat. Potwierdza to badanie Global Digital 2021, które wskazuje, że udział ten wynosi 27,3% [11].

Sieci społecznościowe zajmują najwyższy poziom w wirtualnej komunikacji młodych ludzi. Według M. Semenowa, dziś 20 ze 100 najpopularniejszych witryn na świecie to klasyczne sieci społecznościowe [9]. Ponad 4,5 miliarda ludzi korzysta obecnie z Internetu, a liczba użytkowników serwisów społecznościowych przekroczyła granicę 3,8 miliarda. Już prawie 60 % światowej populacji korzysta z Internetu, a najnowsze trendy sugerują, że do połowy tego roku ponad połowa światowej populacji będzie korzystać z sieci społecznościowych [10]. Ponad połowa tej liczby to ludzie młodzi, głównie w wieku 18-35 lat. Potwierdza to badanie Global Digital 2021, które wskazuje, że udział ten wynosi 27,3% [11].

Sieci społecznościowe i ich oddziały są wystarczająco dobrym sposobem na komunikowanie się i wyrażanie siebie na odległość, tak jakby łączyło się z kimś. Jeśli chcesz opublikować swoją pracę, możesz skorzystać z galerii społecznościowych, odtwarzaczy wideo; komunikować się, poznawać, dzielić się czymś - sieciami społecznościowymi, społecznościami, tablicami z obrazkami; zobacz innych, dyskutuj – usługi wideo itp. Ale użytkowanie nie zawsze przynosi dobre wrażenia i emocje, problemy z nimi są dość powszechne.

Głównym problemem jest niebezpieczeństwo wycieku informacji. Jak wspomniano powyżej, tablice obrazkowe były anonimowe, co stanowiło ogromną zaletę bezpieczeństwa, ale jednocześnie bardzo niebezpieczne, ponieważ inni mogli używać ich zarówno do dobrych uczynków, jak i do złych lub niebezpiecznych działań. W sieciach społecznościowych nie ma takiej ochrony, a coraz więcej informacji można uzyskać po prostu zaglądając na stronę. Niebezpieczeństwem takiego działania jest wykorzystanie danych przeciwko użytkownikowi lub dla osobistych korzyści.

Drugim problemem jest zależność od sieci społecznościowych. Podobnie jak w przypadku alkoholu, nikotyny, hazardu czy narkotyków, możesz przyzwyczaić się do wirtualnego życia towarzyskiego, spędzając w nim większość swojego rzeczywistego czasu. Oczywiście zdarzają się wyjątki, kiedy ludzie po prostu zamykają się z powodu braku przyjaciół, szukają emocjonalnego komfortu, trudności w nawiązywaniu kontaktów towarzyskich w prawdziwym życiu, ale najczęściej wynika to z prostej chęci bycia stale online, bo może coś przegapić ważne, chęć pokazania swojego życia w ogóle, poczucie winy lub potrzeba ciągłego odpowiadania lub komunikowania się ze wszystkimi znajomymi online

Istnieją różne autorskie definicje „uzależnienia od Internetu”, ale ogólnie obejmuje ono: 1) uzależnienie od komputera; 2) uzależnienie od Internetu; 3) zależność od komunikacji wirtualnej. Naukowcy definiują uzależnienie od Internetu jako formę destrukcyjnego zachowania, które wyraża się w chęci ucieczki od rzeczywistości i sztucznej zmiany swojego stanu psychicznego poprzez skupienie się na zasobach Internetu. Termin „wirtualne uzależnienie” jest czasem używany jako termin ogólny do opisu uzależnienia od sieci i gier komputerowych [13].

Podobnie jak w prawdziwym świecie, problem nękania pozostaje. Jeśli komuś nie podobają się Twoje treści, a nawet tylko Ty, może wyrazić wszystko, co myśli, ponieważ wirtualny świat daje pełną swobodę wypowiedzi (która oczywiście podlega prawu, ale większość ludzi też tego nie powstrzymuje jako normy moralne i etyczne).

Rozumieją, że nie ma odpowiedzialności, więc nie ma ograniczeń i można robić wszystko. Molestowanie w świecie wirtualnym różni się od świata realnego, ponieważ nie może dochodzić do kontaktu fizycznego, ale zadurzenie psychiczne może czasem być jeszcze poważniejszym urazem, zwłaszcza dla młodych ludzi, dla których opinia innych jest najważniejsza. Ale wszystkie negatywy w sieciach społecznościowych muszą zostać odfiltrowane, ponieważ większość ludzi robi to tylko dla zabawy i zabawy, gdy odbiorca odczuwa ich negatywny wpływ.

Kiedy nękanie ma miejsce w Internecie, możesz zostać zaatakowany wszędzie, nawet we własnym domu. Może się wydawać, że nie ma wyjścia. Konsekwencje mogą trwać długo i wpływać na człowieka na różne sposoby: psychicznie – uczucie smutku, depresji, a nawet złości, poczucie bezsensownej sytuacji; emocjonalnie – poczucie wstydu, utrata zainteresowania tym, co kochasz; fizycznie – uczucie zmęczenia (brak snu) lub objawy takie jak ból brzucha i ból głowy [12].

Poczucie wyśmiewania lub nękania może powstrzymać ludzi przed rozmowami lub próbami rozwiązania problemu. W skrajnych przypadkach cyberprzemoc może nawet prowadzić do samobójstwa [12].

Gry komputerowe. Gry komputerowe są kolejnym warunkiem przebywania w cyberprzestrzeni i formą socjalizacji, a mianowicie online lub wspólnego przejścia. Jako środek komunikacji nie można ich ignorować, gdyż według firmy badawczej DFC Intelligence w 2020 roku w gry na różnych platformach i w różnych gatunkach grało 3,1 miliarda osób, co stanowi 38,7% ogólnej liczby osób [2] . Za ich pomocą, a także portali społecznościowych, można komunikować się z innymi, ale w zdecydowanej większości będą to zupełnie obcy z różnych stron świata, którzy mają „misję gry”, czyli zadanie zlecone przez sama gra. Nie wyklucza to możliwości nawiązania nowych znajomości lub komunikacji. Ponadto większość graczy gra ze znajomymi, tworzy drużyny, co prowadzi do bliższej komunikacji. Komunikacja

skupia się na celu gry, ale nie ogranicza się do niego, ponieważ gracze często komunikują się na tematy całkowicie przeciwstawne do zadania.

Ponieważ większość młodych ludzi gra w gry, mają tendencję do gromadzenia grup, „klanów", „gildii" lub po prostu grup ludzi, którzy mają wspólne zainteresowania. Takie „komuny" są szczególnie rozwinięte w grach RPG (RPG, JRPG), grach opartych na przetrwaniu lub kreatywności (Survival, Sandbox). Zjawisko to występuje również w Competitive Shooters w postaci drużyn e-sportowych o różnym poziomie wyszkolenia, które grają w różnych turniejach (ponieważ gry te zbudowane są na komunikacji) oraz „Weekendowych Firm", które składają się z różnych osób, idą razem odpocząć po pracy i porozmawiać.

Ponadto każda gra ma swoją grupę fanów, tzw. „Społeczność", która jest obecna wszędzie. Rozpowszechniają informacje i newsy na jej temat, zachęcają innych do zabawy, tworzą modyfikacje, alternatywne historie, recenzje, powiązane treści, uruchamiają kanały komunikacji do dyskusji, dzielenia się lub sparingów, a nawet tworzą cały system do tworzenia własnej historii. gier fabularnych opartych na fabule. Wszystko to łączy społeczeństwo, które kocha tę grę wideo, a nawet po prostu gra w nią dla zabawy lub rozrywki, tworząc miejsce do komunikowania się, omawiania zainteresowań i wspólnego spędzania czasu.

Gra komputerowa, być może największa ze wszystkich rodzajów gier, pomaga zjednoczyć graczy w stabilne i długotrwałe grupy, które istnieją nawet po zakończeniu gry [6, 225]. J. Geising pisał, że „partnerów w grze łączy poczucie przebywania w swoistej wyjątkowej pozycji, wspólna praca nad ważną sprawą, oddzielenie od innych, wykraczanie poza ogólne normy życia. Te uczucia zachowują swoją magiczną moc daleko poza czasem gry" [5, 23]. Istnieją również specjalne gry na czacie, takie jak VR-Chat lub Playstation Home, w których możesz stworzyć swojego „awatara", czyli wygląd swojej postaci, lub wybrać gotowe. W tych grach nie ma sensu, są one przeznaczone do komunikacji, gdzie można omówić pewne kwestie lub po prostu porozmawiać. Oczywiście większość odbiorców takich gier to młodzi ludzie, którzy przyjeżdżają tam, aby pokazać swoją pracę (w postaci różnych awatarów, obiektów), porozumieć się, spotkać lub po prostu pobawić się z przyjaciółmi, a nawet nieznajomymi.

Takie gry skupiają się na nowych znajomościach. Są często używane jako alternatywa dla Zoom, Google Meet, Skype i innych programów konferencyjnych. Ponadto nie musisz wybierać gier czatowych, aby zastąpić te usługi. Możesz wybrać jedną z wielu gier wieloosobowych, tak jak zrobiła to brytyjska firma, organizująca spotkania biznesowe w Red Dead Redemption 2 [3], lub szkoły w Szwajcarii prowadzące część lekcji w Minecraft Education Edition [4].

Gry to sposób na relaks, oderwanie się od realnego świata, pogawędki i spędzanie czasu ze znajomymi, sposób na poznawanie nowych ludzi, ale z tym też są problemy. Pierwszym problemem jest lekkomyślne spędzanie czasu w grach wideo, które może prowadzić do uzależnienia, tzw. hazardu. W większości przypadków nie wynika to z czasu spędzonego przy komputerze, takim jak alkohol, nikotyna czy narkotyki, ale z psychologicznej potrzeby odizolowania się od złych czynników, zwłaszcza społecznych. Ponadto gra pozwala poczuć się jak bohater, który może robić wiele rzeczy lub zanurzyć się w tym świecie, takim jak książki lub filmy. W nich jesteś wolny i możesz zrobić wszystko.

Ostatnio można spotkać coraz więcej osób zbyt uzależnionych od komputerów, internetu, wszelkiego rodzaju gier itp. To są uzależnienia psychologiczne. Innymi słowy, jest to bolesna namiętność, nieodparta chęć ciągłego lub od czasu do czasu korzystania z określonego narzędzia lub zrobienia czegoś, aby doświadczyć przyjemnych przeżyć lub złagodzić dyskomfort psychiczny [8, 2].

Drugim problemem jest negatywne społeczeństwo w grach, a mianowicie online. "Toksyczni" – ludzie, którzy tworzą złe środowisko do komunikacji i reagują na każde krzywe słowo, które jest wypowiedziane na ich korzyść, kontynuują i wywołują kontrowersje. "Gryfy" – ludzie, którzy celowo ingerują w innych, bezskutecznie. "Cheaters" – osoby, które wykorzystują programy firm trzecich na swoją korzyść i szkodę innych, psując rozgrywkę. Znęcanie się nie jest wyjątkiem. Chociaż niektórzy używają gier jako ochrony przed złą socjalizacją, nawet tutaj nie są całkowicie chronieni przed złymi czynnikami, przed którymi się ukryli. Wszystko to oczywiście zależy od gry wideo, ponieważ koncentracja takich osobników będzie większa w gatunkach konkurencyjnych, a mniej w gatunkach przypadkowych. Wszystko to wynika z faktu, że wszyscy gracze rozumieją, że nawet jeśli skrzywdzisz innych, nic nie dostaniesz (chyba że złamiesz zasady samej gry, w której konto gry może zostać zablokowane lub zamrożone).

Niektórzy przełamują w ten sposób wszystkie swoje negatywne emocje, niektórzy nie mogą żyć bez skandalu i robią to dla zabawy, a niektórzy po prostu nie mieli dobrego dnia. Wszystko to można zignorować, ale młodzi ludzie są najbardziej podatni na wpływ takich podżegaczy, który dotyka zarówno ich samych, jak i całego zespołu (jeśli gra jest zespołowa/konkurencyjna).

Podsumowując wszystkie fakty, można powiedzieć, że cyberprzestrzeń stała się integralną częścią życia współczesnego młodego człowieka. Wraz z rozwojem technologii pojawiły się nowe wirtualne typy relacji, takie jak: casualowe (przypadkowe spotkanie w Internecie, bez konkretnego celu), epistolarne (romantyczna korespondencja e-mailowa), emocjonalne (rozmowy serdeczne, randki

w pociągu), intymne (zdrada moralna w celu zaspokojenia potrzeb seksualnych osoby) i naturalne (poszukiwanie drugiej połowy dla dalszego obecnego małżeństwa). Problemem takich relacji jest większa swoboda wypowiedzi i działania rozmówcy oraz przyzwyczajenie się do tego typu relacji, z niemożnością tworzenia prawdziwych relacji, a także nawyk kłaniania się, który może przywiązać się do osoby w prawdziwym życiu [16]. Zdarzały się też przypadki małżeństw ludzi z wirtualnymi postaciami, tak jak w Japonii mężczyzna poślubił wirtualną piosenkarkę Hatsune Miku, z którą komunikuje się za pomocą specjalnego urządzenia, wirtualnego asystenta holograficznego, który powtarza ludzkie zachowanie za pomocą specjalnego systemu programów [14].

Albo facet, który powtórzył „wyczyn" – na bohaterach gry wideo, symulatora randkowego o nazwie Love Plus, Nene Agasaki [15]. I to nie z zaburzeń psychicznych, ale z problemów z socjalizacją w realnym świecie. Wesela można urządzić w grze wideo [18], a nawet wziąć w niej ślub [17], intymność można osiągnąć przez wideo, a nawet korespondencję w formie gier fabularnych [19], można poznać różne osoby na całym świecie, rozmawiaj z nimi lub graj razem. Rozwój świata wirtualnego nie pozostaje w tyle za realnym, a pod pewnymi względami nawet go przewyższa. Wszystko to ma swoje wady i zalety, przede wszystkim moralne, ale mimo wszystkich problemów staje się częścią naszego życia, zwłaszcza młodych ludzi, którzy spędzają dużo czasu w wirtualnym świecie.

Wnioski. W tej pracy rozważano wspólny temat współczesności – wirtualną przestrzeń w komunikacji współczesnej młodzieży. Szczególną uwagę zwrócono na takie tematy jak programy komunikacji wideo i ich powszechne wykorzystanie na tle stanu wojennego i pandemii Covid-19 w codziennym życiu młodych ludzi; portale społecznościowe na tablicach graficznych, jako najpopularniejsze, ich wykorzystanie przez młodzież i niebezpieczeństwa związane z użytkowaniem; gry komputerowe jako składnik społeczny, jego społeczność, jej zalety i wady, angażowanie młodzieży w socjalizację w grach; cyberzależność od sieci społecznościowych i gier komputerowych jako problem naszych czasów, jego geneza; wirtualne relacje jako dzisiejsze realia.

Wraz z rozwojem technologii pozyskaliśmy technologię Internetu, a teraz, jakiś czas po jego pojawieniu się, cyberprzestrzeń wyłania się jako samowystarczalna rzeczywistość, w której komunikacja jest jednym z najważniejszych elementów. Podstawą tej hierarchii jest młodzież, która wciąż się kształtuje, zarówno pod wpływem realnego, jak i wirtualnego społeczeństwa, w którym występują zarówno zalety, jak i wady, które mogą pomagać i szkodzić. Z tego powodu nie można zaniedbywać badań i rozwoju tej struktury, gdyż młodość jest motorem przyszłości, a

cyberprzestrzeń to część przyszłości, którą należy uzupełnić, minimalizując zagrożenia użytkowników.

Biblografia:

1. Титаренко І.О., Шилова Є. Соціальна робота з молоддю в умовах поширення соціальних Інтернет-мереж – Електронний ресурс. Режим доступу: https://ela.kpi.ua/bitstream/123456789/3236/1/22_tit.pdf

2. 3,1 миллиарда человек играют в видеоигры – это почти 40% населения земли – Електронний ресурс. Режим доступу: https://www.eurosport.ru/e-sports/story_sto7842155.shtml

3. Британская компания начала проводить рабочие встречи в Red Dead Redemption 2 – Електронний ресурс. Режим доступу: https://www.playground.ru/red_dead_redemption_2/news/britanskaya_kompaniya_nachala_provodit_rabochie_vstrechi_v_red_dead_redemption_2-721833

4. Minecraft в школе: как дети учатся с помощью популярной игры – Електронний ресурс. Режим доступу: https://osvitoria.media/ru/experience/minecraft-v-shkole-kak-dety-uchatsya-s-pomoshhyu-populyarnoj-ygry/

5. Хейзинга Й. Homo ludens. Опыт определения игрового элемента культуры / пер. В. Ошиса // Хейзинга Й. Homo ludens. В тенизавтрашнего дня. – М. : Прогресс, 1992. – 464 с.

6. Шеломовська О. Особливості сучасних ігрових комп'ютерних практик (на прикладі населення м. Кам'янське) – Електронний ресурс. Режим доступу: https://www.google.ru/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwie5vqJrrT0AhXjpIsKHSfkBDAQFnoECAsQAQ&url=https%3A%2F%2Fperiodicals.karazin.ua%2Fssms%2Farticle%2Fdownload%2F10207%2F9728%2F&usg=AOvVaw0uHUfAwhPFJPhRREV4m4gJ

7. Задирака К. І. Культурно-соціальні функції анонімних форумів – Електронний ресурс. Режим доступу: http://ekmair.ukma.edu.ua/bitstream/handle/123456789/12329/Zadyraka_Kulturno_sotsialni_funktsii.pdf?sequence=1&isAllowed=y

8. Пілецький В. Комп'ютерна залежність та її вплив на сучасних підлітків – Електронний ресурс. Режим доступу: http://194.44.152.155/elib/local/1074.pdf

9. Семенов Н. Все о социальных сетях. Влияние на человека. Проблема социальных сетей – Електронний ресурс. Режим доступу: http://www.seonews.ru/columns/vse-o-sotsialnyih-setyah-ivliyanie-na cheloveka-problema-sotsialnyih-setey

10. До середини року більш як половина населення світу буде користувачами соцмереж – Електронний ресурс. Режим доступу: https://www.ukrinform.ua/rubric-technology/2870117-do-seredini-roku-bils-ak-polovina-naselenna-svitu-bude-koristuvacami-socmerez.html

11. Соцмережі-2021: ТікТок старшає, Facebook — переважно жіночий, а стрічку ми гортаємо 400 мільйонів років – Електронний ресурс. Режим доступу: https://hromadske.ua/posts/socmerezhi-2021-tiktok-starshaye-facebook-perevazhno-zhinochij-a-strichku-mi-gortayemo-400-miljoniv-rokiv

12. Кібербулінг – що це та як це зупинити? – Електронний ресурс. Режим доступу: https://www.unicef.org/ukraine/cyberbulling

13. Вакуліч Т. Психологічні чинники запобігання Інтернет залежності підлітків : автореф. дис. ... канд. психол. наук : 19.00.07 / Т.М. Вакуліч / Центр. інст. післядип. педаг. освіти АПН України. – К., 2006. – 21 с.

14. 35-ти летний японец женился на виртуальном персонаже – Електронний ресурс. Режим доступу: https://gamemag.ru/news/132771/35-letniy-yaponec-zhenilsya-na-virtualnom-personazhey

15. В Японии парень женился на персонаже компьютерной игры – Електронний ресурс. Режим доступу: https://www.rbc.ua/ukr/digests/v_yaponii_paren_zhenilsya_na_personazhe_kompyuternoy_igry09122009

16. Віртуальні стосунки: види, плюси і мінуси, поради фахівців – Електронний ресурс. Режим доступу: https://presa.com.ua/psykholohiia/virtualni-stosunki-vidi-plyusi-i-minusi-poradi-fakhivtsiv.html

17. «Пока вайп не разлучит нас...» Свадьбы в онлайновых играх – Електронний ресурс. Режим доступу: https://m.igromania.ru/article/20309/Poka_vayp_ne_razluchit_nas_Svadby_v_onlaynovyh_igrah.html

18. Пара не смогла провести свадьбу из-за карантина, но друзья устроили им церемонию в игре – Електронний ресурс. Режим доступу: https://www.computerra.ru/264049/para-ne-smogla-provesti-svadbu-iz-za-karantina-no-druzya-ustroili-im-tseremoniyu-v-igre/

19. Віртуальний секс: що це і коли варто зупинитись? – Електронний ресурс. Режим доступу: https://franyk.com/ua/article/244341-virtualnyy-seks-shcho-ce-i-koly-varto-zupynytys

7. MAIN DIRECTIONS OF STATE REGULATION OF DIGITALIZATION IN UKRAINE

Anna Blakyta
D.Sc. (Economics),
Professor, Head of Department
Department of Economics and Finance of an Enterprise
State University of Trade and Economics, Kyiv, Ukraine
E-mail: blakita_anna@ukr.net

ORCID ID 0000-0001-7843-7120

Iryna Vavdiichyk
PhD (Economics),
Associate Professor of
Department of Economics and Finance of an Enterprise
State University of Trade and Economics, Kyiv, Ukraine
E-mail: irunavavdijchuk@ukr.net

ORCID ID 0000-0002-2787-0327

Introduction. Reforming Ukraine's economy and integrating the national market into the world economic system requires the introduction of modern information systems and technologies in the activities of domestic companies. Peculiarities of public relations that arise in the digital environment must be taken into account during the regulatory and institutional support of the economic sphere. The state has a key role to play in supporting the digital economy.

Literature review. In the article Shtets T. [1] it is proved that the experience of developed countries shows the importance and priority of implementing state regulation of the digital technology sector in the following leading strategic areas: creating conditions for better access to world technologies; creation of institutional frameworks that would guarantee equal conditions of access and activity in the digital market; and implementing actions aimed at growing the digital economy and

ensuring effective, socio-economic development. It is determined that the achievement of these strategic objectives is ensured in the world through the implementation of leading mechanisms: institutional and legal mechanism that forms the institutional and legal framework, creates a legal framework for the implementation of digitalization of the economy; the economic mechanism is aimed at economic stimulation of digitalization processes; the organizational mechanism of which ensures the introduction of soft incentive regulation and state administration of digitalization processes, creates conditions for the free development of the digital market; and socio-psychological mechanism, which plays an important role in the implementation of digitalization processes, as it aims at mass introduction of skills and digital knowledge and forms a social, market environment for digital economy.

V. Yudin's research [2] is devoted to innovations in the composition of economic relations in the context of digitalization and related problems of legal regulation. The peculiarities of the subject and object composition of such relations are considered. Problems of settlement of economic relations in the conditions of digitalization are analyzed.

Oksana Vinnyk's article [3] is devoted to defining the role of the state, its economic and legal policy on digitalization in the field of management. The author determines the optimal ratio of self-regulation and state regulation of digitalization. The article defines the relationship between self-regulation and state regulation regarding the digitalization of the economy. Taking into account the positive foreign experience of regulation and the needs of society in the social direction of the economy, the proposed ways to improve the legal regulation of digitalization in the perspective of state economic and legal policy in Ukraine.

Consideration of the main aspects of digital economy development and determination of its role in the general system of socio-economic relations and increasing the country's competitiveness was carried out in the work of Chukhrayeva N. [4]. The author identifies the main areas of state support for digital technologies.

The study [5] is devoted to the analysis of the main tasks and powers of government agencies that regulate the process of digital transformation. An assessment of the compliance of the directions of digital transformation of the essence and content of the process of introduction of digital technologies in business processes, processes of public administration and everyday life of citizens is given. Legal, organizational, economic and psychological methods of state regulation of the process of digital transformation and some means of their implementation are considered. The problems and shortcomings of the mechanism of digital transformation of the management of the national economy development are

identified, measures to eliminate them are proposed and the expected results from their implementation are outlined.

Results. The current stage of development of many countries, including Ukraine, is associated with the need to move to a new model of economic development. In order for Ukraine to occupy a worthy place among developed countries in the global digital economy, special attention must be paid to the opportunities for the development of the digital economy. One of the main directions of digitalization in Ukraine is the introduction of elements of e-government.

Digital economy ("new economy based on data and digital technologies") - a multicomponent and milestone in its development, which affects virtually all aspects of political, social, economic life and leads to the dominance of digital technology over analog, thereby creating added value and value in relevant life, production processes, products and services [6].

In the publication of the Organization for Economic Cooperation and Development (OCED) [7], the term "digital economy" is used to refer to markets that operate on the basis of information and communication technologies (ICT), which are used to trade information, digital goods or the provision of services via the Internet.

Digital transformation means the integration of digital technologies into all areas of the economy. This integration leads to fundamental changes in the way citizens, businesses and organizations operate, how they provide value for themselves, their employees, customers, partners, achieving their own and common, economic and social goals faster, cheaper and with new quality.

With a systematic state approach, digital technologies stimulate job creation, increase productivity, economic growth and quality of life of Ukrainian citizens.

Thus, the Digital Agenda of Ukraine [8] and the Concept of Development of the Digital Economy of Benefits and Society of Ukraine [9] formulate the basic principles of digitalization. Adherence to these principles is crucial for the creation and implementation of digital technologies and the enjoyment of these benefits.

Principle 1. Digitalisation should ensure that every citizen has equal access to services, information and knowledge provided on the basis of information and communication and digital technologies.

Principle 2. Digitization should be aimed at creating benefits in various areas of everyday life. This principle includes improving the quality of health and education services, creating new jobs, developing entrepreneurship, agriculture, transport, protecting the environment, promoting poverty, preventing disasters, ensuring public safety, and so on.

Principle 3. Digitalisation is a tool for economic growth by increasing efficiency, productivity and competitiveness through the use of digital technologies. This principle presupposes the achievement of digital transformation of economic branches, spheres of activity, acquisition of new competitive qualities and properties.

Principle 4. Digitalisation should promote the development of the information society and the media. Creating content, primarily Ukrainian, in accordance with national or regional needs contributes to social, cultural and economic development, as well as strengthening the information society and democracy in general.

Principle 5. Digitalization should focus on international, European and regional cooperation in order to integrate Ukraine into the EU, enter the European and world markets.

Principle 6. Standardization is the basis of digitalization, one of the main factors in its successful implementation.

Building only on Ukrainian standards of digital systems, platforms and infrastructures to be used by citizens, businesses and the state for participation, competition and success in the global economy and open markets is unacceptable. Exceptions may be relevant programs in the field of defense and security, in which the application of other standards (national, interstate) is justified.

Principle 7. Digitalisation should be accompanied by an increase in trust and security.

Information security, cybersecurity, protection of personal data, privacy and rights of users of digital technologies, strengthening and protection of trust in cyberspace are, in particular, prerequisites for simultaneous digital development and appropriate prevention, elimination and management of associated risks.

Principle 8. Digitalization as an object of focus and integrated public administration.

The main tasks of the state on the way to digitalization of the country are to correct defects of market mechanisms, overcome institutional and legal barriers, launch digital transformation projects at the national level and attract relevant investments, stimulate the development of digital infrastructure.

The state must take on the roles of leader and experimenter; regulator and defender; promoter of digital transformations in Ukraine.

Recently, national programs for the transition to the digital economy have been adopted in many countries. The OECD has developed a list of measures needed for the successful implementation of the digital order by governments: development of a digital government strategy, complemented by an action plan and impact assessment tools; defining the structure that provides the political mandate, authority and resources for the development and coordination of the implementation of the

digital strategy; updating the regulatory framework; funding the development of key tools for working with digital technologies (eg digital identification, common data services, common business processes) and their active implementation in the public sector; development of skills in working with digital data and technologies in the public sector; promoting and enforcing digital standards in order to offer a more coherent, compatible and sustainable digital government infrastructure (eg standardized business case model, service standards, data compatibility); implementation of policies to support the development of public sector data management, as well as promoting the strategic use of data and new technologies in the public sector; development of a strategy of open state data (within the general structure and policy of data management) with the involvement of external stakeholders to manage each stage of the value chain of open state data [10].

Strategic programs and directions of action of governments of different countries have their own characteristics, but there are several areas that can be applied to most countries. Such areas are the creation of modern communication infrastructure, data storage and processing centers; promoting the free exchange of information; expanding the range of information and communication services; introduction of new intelligent networks, platforms and technologies; development of electronic commerce; removal of restrictions that hinder doing business; stimulating entrepreneurial initiative and financing in ICT; providing benefits to small and medium-sized businesses; increasing the level of information security and users' trust in Internet services; training and improving general computer literacy. The main areas in which information and computer technology is most widely used are smart cities, agriculture, logistics and public administration; digital healthcare; intelligent energy networks and transport systems; financial services.

In 2015 The EU adopted the Digital Single Market Strategy for Europe [11], which emphasized the need to ensure more efficient access to services, create the right conditions for the development of networks and services and maximize the growth potential of the European digital economy.

The World Bank Group notes that there are already institutions in the EU responsible for general policy at the regional level, including for ensuring international competition in the telecommunications and information technology market, investing in digital infrastructure and security, as well as in pan-European research programs [12].

The implementation of the Digital Single Market Strategy for Europe has unfolded and continues within the framework of already established pan-European institutions and governance structures [13].

In Ukraine, the process of implementing Industry 3.0 has not yet been completed. Even the level of automation in Ukrainian industry is still below average. The loss of leading industries has undermined the basis for the development of related machine tools, toolmaking, metrology, materials science, and industrial chemistry.

Issues of digital technology development should be represented in government programs, especially those related to public services, small and medium enterprises, consumer market, health care, the creation of information and analytical systems to provide them, and so on. However, the regulatory framework for regulating the process of building the digital economy in Ukraine is underdeveloped, in particular, the legislative coverage of issues related to the digital economy is extremely superficial. The nature of the interaction of the participants in this process has not been determined, which hinders the formation of legislation in another area, including strategic planning documents.

Digitization is the second priority section of the updated Government Action Program [14]. Among the measures the program provides: development of administrative services and their digitalization; digital transformation of priority industries and spheres of public life; ensuring access of citizens and businesses to quality and convenient public services without corruption risks; ensuring the translation of the most popular public services into electronic form. In addition, this document provides for fast and convenient provision of public services in the centers of administrative services, optimization of procedures for the provision of public services; development and expansion of the network of administrative service centers and increase in the number of services provided in such centers; settlement of the issue of providing payment for administrative services by introducing uniform principles for determining the amount of the administrative fee for the provision of administrative services, the procedure for its payment and use; introduction of a system for monitoring and evaluating the quality of public services; development of public electronic registers, their optimization and centralization of support, formation of basic public electronic registers and introduction of electronic interaction; ensuring reliable protection of information in public electronic registers and creating an effective system for combating cyber threats, ensuring the protection of personal data in accordance with European standards; development of e-democracy tools, in particular the creation of an online platform for the interaction of executive bodies with civil society institutions, the development of electronic identification methods, new mechanisms for qualified electronic signatures; raising citizens' awareness of available public services, including electronic ones. Also, this document provides for the promotion of IT business by attracting investment capital for the development of

IT business, other sectors of the creative economy by creating available tools to attract investment and the introduction of a special legal regime; Ukraine's accession to the EU Digital Single Market by obtaining Ukraine's internal market regime with the EU in the field of telecommunications services and gradual integration into the EU Digital Single Market; development and implementation of state policy on virtual assets.

The implementation of the requirements of digitalization, as a modern trend of economic and social development, to some extent contributes to the presence of prerequisites for digitalization at the state and sectoral levels, as well as at the level of individual households and citizens.

Opportunities that can be provided by the state to implement the prerequisites for digitalization include: creation and / or improvement of the necessary regulatory framework, state participation in electronic interaction with all actors, ensuring simultaneous digitalization of society, which involves the penetration of digital relations. all levels of interaction of its participants - from personal to public. The dominance of low-tech sectors in the economy, or digitization of disparate segments - public services, public procurement, medicine, finance, education, retail, etc. in the presence of weak import-dependent production and reproduction system in the country will not have a significant health impact will give a significant economic effect, compared with that which could provide a fundamental transformation of industries under the influence of elements of the Fourth Industrial Revolution. Therefore, it is important for Ukraine to review its strategic priorities, re-evaluate its industrial policy and realize new challenges in order to overcome the growing backlog in the industrial sphere, which in light of irreversible transformation processes in Industry 4.0 can directly affect the efficiency of the digital economy and create insurmountable gaps. competitiveness of created products and services in Ukraine and the world.

In addition, three main directions for Ukraine are set out in the comprehensive policy document «Digital Single Market for Europe» [15]: better Internet access for consumers and businesses; creating appropriate conditions for the regulation of advanced digital networks; building the digital economy through investment, interoperability and standardization.

The need to integrate the digital markets of the Eastern Partnership countries into the single European space is caused by the emergence of the initiative "Harmonization of Digital Markets (HDM)" [16], in the implementation of which Ukraine is also involved.

Ukraine's lag behind developed countries is explained by the peculiarity of the economic model, in which the agro-industrial complex occupies a significant place; too slow pace of digital technology implementation; the need to overcome the gap in the development of scientific and technical base, compared with post-industrial countries.

Institutional obstacles are the main obstacles to the development of digital transformations in Ukraine. These include low activity of government agencies in implementing the Concept of Digital Economy and Society; inconsistency of relevant legislation with global challenges and opportunities (progressive draft laws have not yet become laws); inconsistency of national, regional, sectoral strategies and development programs with digital opportunities. The first step towards the introduction of digitalization in Ukraine was the development of the Concept for the development of the digital economy and society of Ukraine for 2018-2020 [17]. The concept envisages measures to implement appropriate incentives for digitalization of the economy, public and social spheres, awareness of existing challenges and tools for digital infrastructure development, acquisition of digital competencies, and identifies critical areas and projects of digitalization, stimulating the domestic market, use and consumption of digital technologies. . The main goals of digital development are: accelerating economic growth and attracting investment; transformation of economic sectors into competitive and efficient; technological and digital modernization of industry and creation of high-tech industries; accessibility to citizens of the benefits and opportunities of the digital world; realization of human resources, development of digital industries and digital entrepreneurship.

The main objectives of the concept are: formation and development of digital skills and digital competencies in society, which will contribute to the development of digital economy and society, as well as the development of e-democracy and human capital; ensuring legal regulation on the formation of state policy in the field of digital skills and digital competencies of citizens; development of comprehensive changes to the legislation that will ensure the definition of digital education, digital skills and digital competencies in the spheres of public life; definition of the system and description of the components of digital competence (digital competence framework), as well as requirements for the level of digital skills and digital competences of different categories of workers, in particular in professional standards; ensuring coordination of actions at the level of executive bodies on the development of digital skills and digital competencies; creation of indicators for monitoring the state of development of digital skills and digital competencies; raising public awareness of the dangers of the Internet [17].

The Verkhovna Rada of Ukraine adopted a number of bills aimed at developing digitalization policy and strengthening state regulation in this area: Law on Personal Data Protection, Law on Electronic Commerce, Law on Electronic Documents and Electronic Document Circulation, Law on Electronic Digital Signature ", Law" On Basic Principles of Cyber Security of Ukraine ".

Following the increasing attention of state bodies to the problem of digitalization and the launch of a program to promote digitalization, a number of digital information platforms aimed at providing public services online have been created and are successfully operating in Ukraine.

The Ministry of Digital Transformation of Ukraine was established in Ukraine. The Ministry is the central body in the field of electronic trust services, which ensures the formation and implementation of state policy in the field of digitalization, digital development, digital economy, digital innovation, e-government and e-democracy, information society development, IT industry development [18]. The competence of the department includes issues of open data, development of national electronic information resources, development of broadband Internet and telecommunications infrastructure, e-commerce and business. Another area of the agency's work will be the provision of electronic and administrative services, as well as electronic trust services and electronic identification. Its functions also include the development of regulatory and technical documentation for digital transformations, the function of the general state customer of the National Informatization Program and other state digitization programs.

Conclusion.

The role of the state in the implementation of the digital economy can be seen on the one hand as a regulator that implements norms, principles of functioning in the digital economy, controls and verifies methods of their use, makes technological changes that strengthen digital relations between society and government. On the other hand, the state can use information technology directly in providing its services. The task of the state is both to provide favorable conditions conducive to digitalization and to create opportunities for their implementation.

Legislators do not pay attention to the relations with the participation of virtual entities, especially the regulation of economic competition with their participation and the use of Internet platforms. for the misuse of digital technologies, as well as managing the risks posed by such technologies.

But, first of all, the state must decide on a new direction of state economic policy to ensure the social direction of digitalization of public relations in general and the economy, in particular, with the appropriate consolidation of new provisions in

the Economic Code of Ukraine on: content; goals of state regulation of digitalization relations (ensuring social orientation with a dual purpose: stimulating the positive properties of digital technologies, their achievements and preventing their abuse, dishonest use); the means to be used; principles of combining state regulation with self-regulation in new digitalized areas, more thorough knowledge of which is possessed by their subjects and organizations; digital rights of citizens, businesses and society as a whole and relevant priorities in the event of a conflict between the digital rights of different individuals (for example, consumer citizens and the economy as a whole); basics of the legal status of virtual entities and the legal regime of virtual assets; requirements for the electronic form of communications, including contracts; features of state regulation of economic competition, taking into account the emergence of virtual enterprises, Internet platforms, the need to protect the rights of consumers of electronic services; the impact of digitalization on legal liability.

REFERENCES

1. Shtet, T. (2019). Svitovyi dosvid vprovadzhennia mekhanizmiv derzhavnoho rehuliuvannia rozvytku sektora tsyfrovoi ekonomiky [World experience in implementing mechanisms for state regulation of the digital economy] // Retrieved from: https://snku.krok.edu.ua/vcheni-zapiski-universitetu-krok/article/view/149 [in Ukrainian] DOI: https://doi.org/10.31732/2663-2209-2019-53-84-89
2. Yudin, V. (2021). Rehuliuvannia hospodarskykh vidnosyn v umovakh tsyfrovizatsii ekonomiky [Regulation of economic relations in the context of digitalization of the economy] // Retrieved from: http://pgp-journal.kiev.ua/archive/2021/4/17.pdf [in Ukrainian] DOI: https://doi.org/10.32849/2663-5313/2021.4.16
3. Vinnyk, O. (2020). Tsyfrovizatsiia v rakursi derzhavnoi ekonomiko-pravovoi polityky [Digitization in the perspective of state economic and legal policy] // Retrieved from: http://pgp-journal.kiev.ua/archive/2020/8/11.pdf [in Ukrainian] DOI: https://doi.org/10.32849/2663-5313/2020.8.10
4. Chukhraeva, N. (2019). Implementatsiia zasad rehuliuvannia tsyfrovoi ekonomiky Ukrainy [Implementation of the principles of regulation of the digital economy of Ukraine] // Retrieved from: https://ndipzir.org.ua/wp-ontent/uploads/2019/Ryha_09.10.19/Ryha_09.10.19_28.pdf [in Ukrainian]
5. Pustovarov, A. (2020). Formuvannia mekhanizmu tsyfrovoi transformatsii upravlinnia rozvytkom natsionalnoi ekonomiky [Formation of the mechanism of digital transformation of management of development of national economy]

// Retrieved from: http://www.visnyk-econom.uzhnu.uz.ua/archive/34_2020ua/38.pdf [in Ukrainian] DOI: https://doi.org/10.32782/2413-9971/2020-34-36

6. Digital economy and information and computer technologies // Retrieved from: https://www.kmu.gov.ua/storage/app/uploads/public/602/581/51d/60258151d2896461958259.pdf [in Ukrainian]
7. OECD Digital Economy Outlook 2015. // Retrieved from: http://www.oecd-ilibrary.org/ science-and-technology/ oecd-digital-economy-outlook2015_9789264232440-en
8. Digital Agenda of Ukraine – 2020 // Retrieved from: https://ucci.org.ua/uploads/files/58e78ee3c3922.pdf [in Ukrainian]
9. On approval of the Concept of development of digital competencies and approval of the action plan for its implementation // Retrieved from: https://zakon.rada.gov.ua/laws/show/167-2021-%D1%80#Text [in Ukrainian]
10. Strengthening Digital Government. – OECD // Retrieved from: https://www.oecd.org/going-digital/strengtheningdigital-government.pdf.
11. Shaping the Digital Single Market. – European Commission, // Retrieved from: https://ec.europa.eu/digital-single-market/en/ policies/shaping-digital-single-market.
12. Digital Agenda of the Eurasian Economic Union until 2025: prospects and recommendations // Retrieved from: http://www.eurasiancommission.org/ru/act/dmi/SiteAssets/% [in Ukrainian]
13. The European Union on the road to a digital single market. - Economics of the XXI century // Retrieved from: https:// cyberleninka.ru/article/n/evropeyskiy-soyuz-na-puti-k-edinomu-tsifrovomu-rynku/viewer.
14. On approval of the Program of Activities of the Cabinet of Ministers of Ukraine // Retrieved from: https://zakon.rada.gov.ua/laws/show/471-2020-%D0%BF#Text [in Ukrainian]
15. EU digital single market. – EU4Digital // Retrieved from: https://eufordigital.eu/ru/discover-eu/eu-digital-single-market
16. Harmonization of Digital Markets with the EU // Retrieved from: https://nkrzi.gov.ua/index.php?r=site/index&pg= 206&id=7235&language=en.
17. The concept of development of digital competencies // Retrieved from: https://zakon.rada.gov.ua/laws/show/167-2021-%D1%80#Text [in Ukrainian]
18. Issues of the Ministry of Digital Transformation // Retrieved from: https://zakon.rada.gov.ua/laws/show/856-2019-%D0%BF#Text [in Ukrainian]

8.MAIN TRENDS OF DIGITALIZATION OF UKRAINIAN ECONOMY

Iryna Vavdiichyk
PhD (Economics),
Associate Professor of Department of Economics
and Finance of the enterprise
State University of Trade and Economics
E-mail: i.vavdiychik@knute.edu.ua
ORCID ID 0000-0002-2787-0327

Oksana Kondratiuk
PhD (Economics),
Associate Professor of Department of Economics
and Finance of the enterprise
State University of Trade and Economics
E-mail: *o.kodratyuk@knute.edu.ua*
ORCID ID M-8559-2016

Victoria Laptieva
PhD (Economics),
Associate Professor of Department of Economics
and Finance of the enterprise
State University of Trade and Economics
E-mail: *v.lapteva@knute.edu.ua*
ORCID ID 0000-0001-8218-7953

Iryna Stoianenko
PhD (Economics),
Associate Professor of Department of Economics
and Finance of the enterprise
State University of Trade and Economics
E-mail: *i.stoyanenko@knute.edu.ua*
ORCID ID 0000-0002-1775-9473

Introduction. The digital economy is the driving force of accelerating the economic development, increasing the productivity of the industry, creating new

markets and curtains. It also opens up new possibilities for old growth. However, the accelerated economic development is within the reach of those lands and economic associations, as if to systematically develop the foundations and mechanisms of leadership in the digital economy. To this end, the development of problems and features of the digital economy is modern and relevant.

Literature review. To date, a large number of works have been devoted to the study of the problems of digitalization of the economy. The digital economy is the driving force of accelerating economic development, increasing productivity, creating new markets and industries. It also opens up new opportunities for sustainable growth. However, the acceleration of economic development is achieved by those countries and economic associations that are systematically building the foundations and mechanisms of leadership in the digital economy. Therefore, research on the problems of development and features of the digital economy is modern and relevant. Researchers such as Goldfarb Avi and Catherine Tucker assess the impact of digital technology on economic activity and the reduction associated with the introduction of digital technology costs [1].

Moskalyk, R., & Moskalyk, L. [2] devoted their research to the theoretical foundations of digitalization of the world economy, focusing on the channels of digitalization's impact on economic growth. The main findings are that early studies of the impact of digital technologies on economic growth have not been able to fully explain the strong correlation between digitalisation and productivity, mainly due to the limited availability of statistics in the past. Recent research has shown that digital technologies can have a positive impact on productivity through channels such as robotics, stand-alone machines and intelligent systems, automated maintenance planning, and innovative materials that reduce costs and processing time. It is argued that an effective, comprehensive policy to promote digitalization at various levels can have an important impact on the economic and social goals of the country, and recommendations are given to address the «digital divide».

Ragulina N. devoted her research to the study of theoretical aspects of the digital economy and informatization, its features, problems and development trends in Ukraine [3]. The necessity of transition of economy from traditional format to digital in the conditions of global informatization is investigated in the work.

The work of Sokolovska O. [4] is aimed at studying the current stage of the information society of Ukraine, which under the influence of new technologies has clear signs of transition to a digital society. The article proves that the widespread use of mobile devices in the lives of social individuals dramatically changes the interaction between public authorities and stakeholders. The article argues that not all

administrative processes and procedures can be automated during digital transformation. The authors prove that a positive example of the development of the foundations of the digital society at the regional and local levels is becoming a factor in the digitalization of all public administration bodies of Ukraine. In the realities of Ukraine, the introduction of digital technologies, including artificial intelligence, is a guideline for the Government's strategic goals for the long term. Positive experiences of digital society development at the regional and local levels can be a driving force for promoting digital deployment at the national level.

Szymanska KV, Bondaruk VV [5] investigate the benefits of digitalization of Ukraine's economy and propose measures to minimize threats to the digitalization of the economy.

Humeniuk, R. [6] explores the features of the impact of digitalization on the formation of strategic development potential of the enterprise. Identifying its features in accordance with the level of development of the digital economy allows us to draw conclusions about the priority areas of staff development, information and innovation support for management decisions and the development of corporate culture and teamwork. Development of managerial potential in the conditions of informatization and intellectualization of economy, introduction of innovations at the enterprises is carried out in the environment of corporate culture. Corporate strategic management in the digital economy involves the use of a comprehensive and targeted management system and environmental information management. It is also important for the digital economy to use the potential of information systems, electronic communications, digital staff skills.

Results. In modern conditions, one of the main trends in economic development is the penetration of information technology in various fields of human activity. Digital economy is a type of economy where the key factors and means of production are digital data (binary, information, etc.) and network transactions, as well as their use as a resource that can significantly increase efficiency and productivity and value for products and services [7].

Digital spilover occurs when digital technologies accelerate knowledge transfer, business innovation and increase productivity within the company through the supply chain of industries to achieve sustainable economic development. The digital economy is significantly changing traditional business processes. All traditional industries and companies (manufacturing, agriculture, construction, transport, etc.), which under the influence of digital transformation due to technological evolution improve their production and business processes and gain new opportunities to increase productivity and efficiency of core business.

The main segments of the digital economy are: the information and communication technology sector, e-business infrastructure; digital production and e-business, including industry, ie the processes of business organization using computer networks; e-commerce, ie retail Internet sales of goods "[8].

Depending on the definition used, the size of the digital economy is estimated at between 4.5% and 15.5% of world GDP [9].

According to the World Bank, the introduction of digital technologies leads to the blurring of geographical and physical borders and opens new perspectives for economic, social and cultural development of countries, as well as to increase regional and global competitiveness [10].

The high speed of digitalization of all aspects of life is due primarily to its possible positive manifestations and consequences at all levels.

Benefits at the level of the whole society:

• economic and social effects of digital technologies for business and society;
• improving the quality of life, primarily by improving the satisfaction of specific already known and new needs of people;

• increasing the productivity of all social labor by increasing it at the level of individual industries and enterprises;

• the emergence of new models and forms of business that can increase profitability and competitiveness;

• increasing the transparency of economic transactions and ensuring the possibility of their monitoring;

• ensuring the availability and promotion of goods and services, both public and commercial, up to the global scale;

• the emergence of human-replaceable control systems, for example, for enterprises of certain classes.

Advantages at the level of individual companies and industries:

• getting rid of intermediaries. Digitization allows manufacturers to arrange on their websites the sale of their products or services and reach out to potential customers. Consumers get the opportunity to independently choose the goods and services offered on the servers of airlines, hotels, e-shops, etc .;

• cost optimization, which involves, above all, reducing the cost of information retrieval, identification and measurement of transaction costs; costs of promoting goods and services; costs of concluding and conducting negotiations, etc .;

• acceleration of all business processes, including by reducing the time of communications;

• reducing the response time to market changes, reducing the time of development of products and services and bringing them to market;

• better understanding of their customers and improving the quality of products and services;

• creation of new products and services, increasing the flexibility of the offered products and their high adaptability to new expectations or needs of the consumer. Technological advantages due to digitalization:

• information sharing and lack of competition in the consumption of knowledge and information, as the use of a database or knowledge base by one consumer does not prevent their simultaneous use by other consumers;

• accumulation of large amounts of data, their automatic processing and analysis;

• synchronization of information flows, the possibility of point-by-point distribution of data throughout the business and, as a consequence, the ability to track a large number of chains between suppliers and consumers, as well as conducting intellectual and point analysis;

not just mastering new technologies at the applied level, but the transition to awareness of the potential of new innovations, to create new innovative products focused on the development of technological intelligence (for example, data management technologies);

• transition from paper to electronic documents (sick leaves, employment records, etc.). Consumer and employee benefits:

• reduction in the cost of payments and the emergence of new sources of income;

• The cost of Internet services is much lower than in the traditional economy (mainly due to reduced marketing costs), which makes services more accessible (both commercial and public). Goods and services become available anywhere in the world to any buyer;

• goods and services take into account the consumer preferences and needs of customers;

• the range of information, educational and entertainment services is significantly expanding, the level of provision and speed of which are also increasing [11].

It is important to note that the concept of digitalization of the economy in Ukraine is fundamentally different from what is currently happening in the world. In Ukraine, digitalization is mainly in the form of new types of services. However, the most important thing is a radical change in the situation in the manufacturing sector, approaches to design and so on.

The analysis shows that digitalization has almost no effect on Ukrainian industry, which is showing a tendency to rapidly reduce its pace of development. For

Ukraine, the critical problem is the technological backwardness and the preservation of this backwardness. Ukraine not only failed to make a technological breakthrough, but also lost its position.

Accordingly, labor productivity in Ukraine is much lower than in the European Union (Fig. 1). The result of the low-tech development of the Ukrainian economy was one of the lowest labor productivity in Europe, which is 3 times lower than that of neighboring Poland and Hungary.

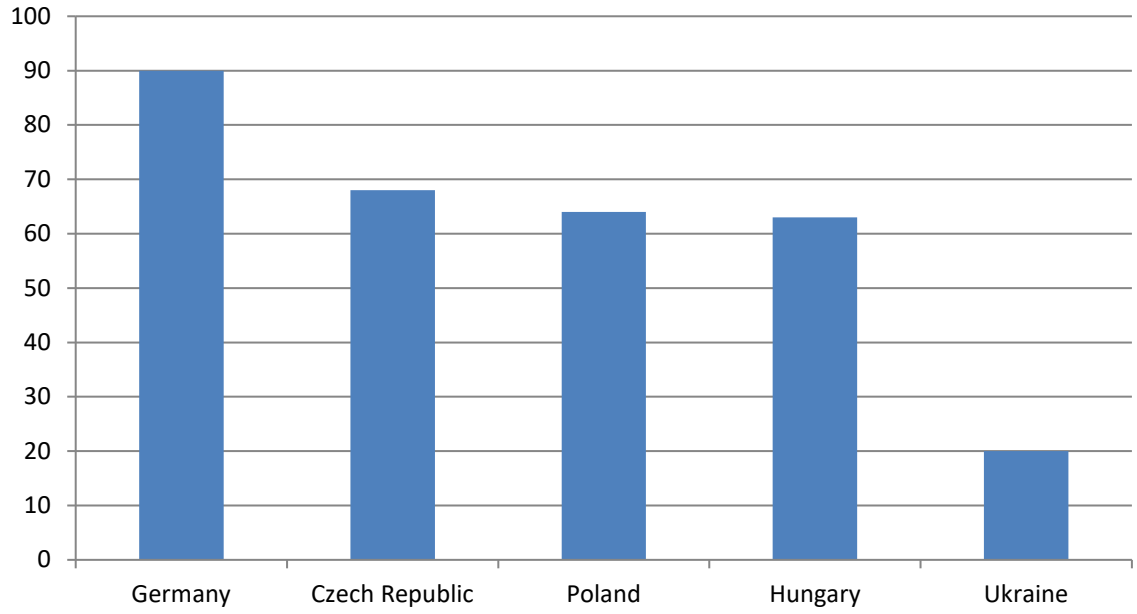

Figure 1. Labor productivity indicators in 2019 (thousand USD / person)

Source: Digital economy: trends, risks and social determinants. // Retrieved from: https://razumkov.org.ua/uploads/article/2020_digitalization.pdf [in Ukrainian] [11].

Digital economy and information and computer technologies. // Retrieved from: https://www.kmu.gov.ua/storage/app/uploads/public/602/581/51d/60258151d2896461958259.pdf [in Ukrainian] [12].

An important feature of today is the rapid widening of the digital divide, which threatens to lag behind developing countries. And this primarily concerns Ukraine. For any country, the manufacturing sector and maintaining its own technological level is a strategically important national task for the development of the economy, services and ensuring income growth and national prosperity. Underdeveloped digital competencies of citizens hinder the full transition to the digital economy. In fig. Figure 2 presents the distribution of the population with digital skills at the level of "above average" in 2019.

The overall assessment of digital literacy of the entire population shows that 53% of Ukrainians are below the "basic level" mark. Analysis of the level of digital

skills reflects a strong relationship between age and digital literacy. The 40-49 age group is dominated by those who do not have sufficient digital skills, and the 60-70 age group is dominated by almost 85%. In terms of the level of digital competences among the population, Ukraine lags far behind even its neighbors Poland (65%) and Hungary (69%), while in Germany the number of people with digital skills is more than 1.5 times higher (78%). The issue of improving digital literacy is becoming increasingly important given the growing digital threats - 34% of Ukrainians have fallen victim to fraud over the Internet over the past year. At the same time, there is great potential for non-formal education in this area. 47% of citizens expressed interest in learning digital skills. In addition to general digital competences, the low level of digital skills among civil servants, doctors and teachers remains a problem. [12].

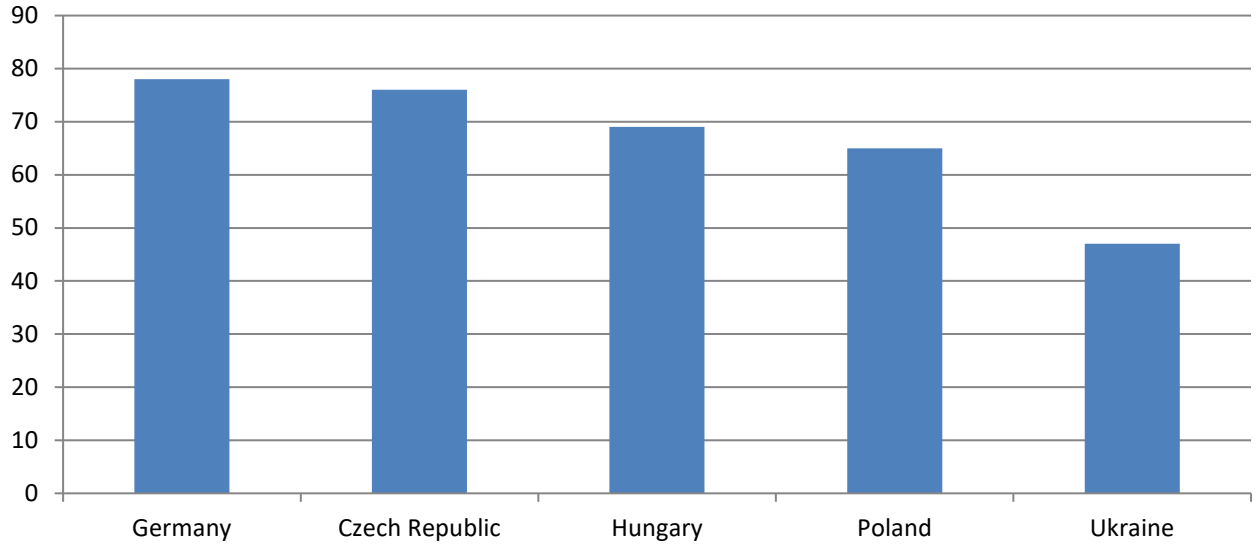

Figure 2. The share of the population with digital skills at the level of "above average" in 2019

Source: Ministry and Committee for Digital Transformation of Ukraine // Retrieved from: https://thedigital.gov.ua/ [in Ukrainian] [13]

Eurostat // Retrieved from: https://ec.europa.eu/info/departments/eurostat-european-statistics_en https://ec.europa.eu/info/departments/eurostat-european-statistics_en [14]

Widespread introduction of digital technologies is considered as one of the most important conditions for increasing the competitiveness of national economies. Digital technologies allow: to restructure the economy, reduce production costs and the cost of commercial operations, increase efficiency and reduce production time, improve the quality and efficiency of services, including state, to introduce new technologies and technological processes, provide new opportunities for ordinary citizens to access services.

Despite the statements of the state and business on the active introduction of digital technologies, not all domestic enterprises are transforming their activities in this direction.

The low level of development of digital infrastructures hinders the growth of the digital economy in Ukraine. Thus, in comparison with the member states of the European Union, Ukraine has much lower indicators of 4G availability, penetration of broadband Internet access, computerization, use of cloud services, cybersecurity. In fig. 3 presents the development of digital infrastructure components of Ukraine and the EU in 2019.

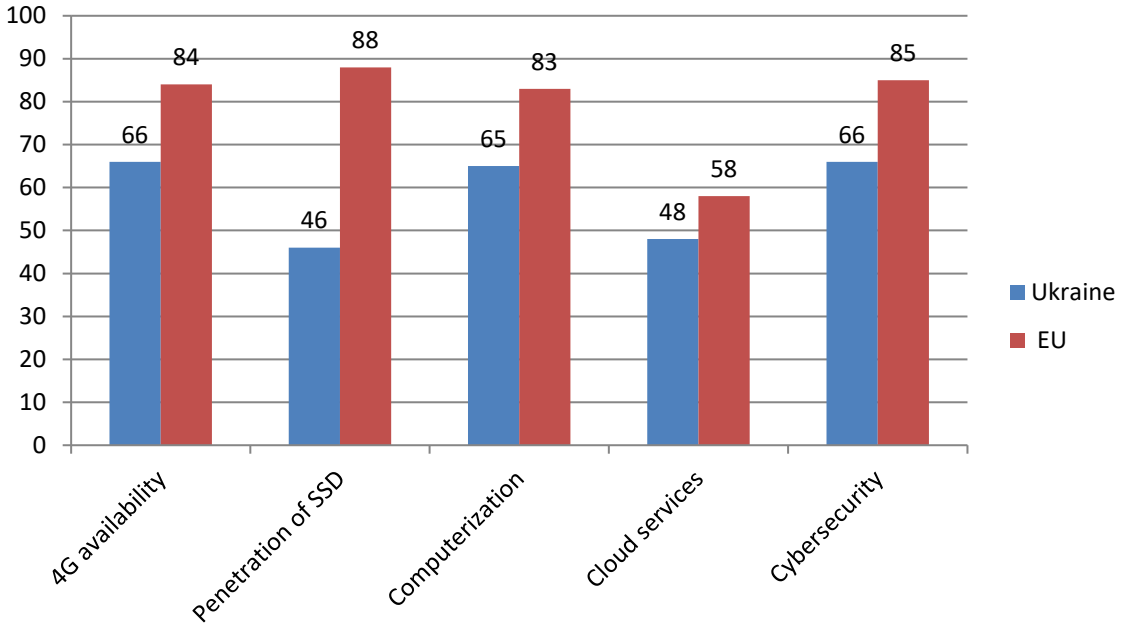

Figure 1. Comparison of the development of digital infrastructure components of Ukraine and the EU in 2019

Source: Ministry and Committee for Digital Transformation of Ukraine // Retrieved from: https://thedigital.gov.ua/ [in Ukrainian] [13]. Eurostat // Retrieved from: https://ec.europa.eu/info/departments/eurostat-european-statistics_en Global Global Connectivity Index. // Retrieved from: https://www.huawei.com/minisite/gci/en/ [14]. Global Cybersecurity Index. // Retrieved from: https://www.itu.int/en/ITU-D/Cybersecurity/Pages/global-cybersecurity-index.aspx [15]. Global Connectivity Index // Retrieved from: https://www.huawei.com/minisite/gci/en/ [16]. Global ICT Development Index // Retrieved from: https://www.itu.int/en/ITU-D/Statistics/Pages/IDI2019consultation/default.aspx [17].

Thus, Ukraine has one of the lowest levels of high-speed mobile Internet coverage - only 66% compared to the EU average of 84%. Only 46% of the population has broadband internet access, compared to 88% on average in the EU.

The relatively high computerization of urban households is exacerbated by the poor supply of rural residents. Thus, on average in Ukraine, computerization covers only 65% of the population, compared to 83% in the European Union. The lack of an effective regulatory system reduces Ukraine's potential in one of the most dynamic digital markets. The use of cloud services in Ukraine is 48%, in the EU 58%.

The lag behind developed countries is explained by: the peculiarity of the economic model, in which the agro-industrial complex occupies a significant place; too slow pace of digital technology implementation; the need to overcome the gap in the development of scientific and technical base, compared with post-industrial countries.

Harmonization of digital markets implies the need for synchronized development of each individual area of the digital market of Ukraine in the framework of the Eastern Partnership policy, namely115: rules for the provision of telecommunications services and digital infrastructure; security in the digital economy; e-commerce (eCommerce, eCustoms and eLogistics); digital skills; research in the field of information and computer technologies, innovations and startup ecosystems; eHealth [18].

There are several areas that are used in most developed countries for the digitalization of the economy: the creation of modern communications infrastructure, data storage and processing centers; promoting the free exchange of information; expanding the range of information and communication services; introduction of new intelligent networks, platforms and technologies; development of electronic commerce; removal of restrictions that hinder doing business; stimulating entrepreneurial initiative; providing benefits to small and medium-sized businesses; increasing the level of information security and users' trust in Internet services; training and improving general computer literacy. Priority is given to the development of end-to-end digital technologies such as the Internet of Things, industrial Internet, artificial intelligence, cloud computing, quantum and new production technologies, robotics components, cyberphysical systems, high data processing technologies, wireless, 3D printing.

The main factors that are an obstacle to digital transformation include: the lack of digital solutions that take into account the specifics of the company's business; underdeveloped information infrastructure; lack of standards for the use of digital technologies; lack of legal regulation of relations emerging in the digital economy; lack of special measures of state support for the use of digital technologies by companies; data security and confidentiality, protection against cybercrime. The main resource constraints that hinder the development of the digital economy are the lack of investment resources; high cost of digital technology projects; high operating costs

of systems using digital technologies; low innovation potential; lack of opportunities for cooperation with innovative enterprises and research organizations.

Preliminary analysis of digitalization processes allows us to draw generalized conclusions: despite the current difficulties and problems of Ukraine's economy, some prospects and advantages in the field of digitalization still exist. These are cybersecurity software, robotics, Internet penetration in households and industries for which information is the main resource.

The main problems and obstacles to the introduction and development of the digital economy in Ukraine include: underdeveloped infrastructure; low technological education, accessibility of digital benefits and opportunities for all citizens, territorial digital inequality (rural population, low-income people and older age groups are more limited in access to the Internet), a small share of innovation in the digital economy; obsolescence of technology in government organizations and structures (if Ukrainian private IT companies can afford the latest equipment, government agencies, small and medium-sized businesses, potential buyers of their goods and services in Ukraine, as well as ordinary Ukrainians are limited in both technology and finance).

Thus, the main directions of development of the digital economy in Ukraine are the following: training and technical knowledge, providing high-speed Internet in rural areas, redistribution of labor and capital, reducing financial constraints for innovative enterprises and startups, transition to public digital services, digital-friendly policies for the elderly.

In addition, the guidelines for Ukraine are three main areas outlined in the comprehensive policy document "Digital Single Market for Europe" 116: better Internet access for consumers and businesses; creating appropriate conditions for the regulation of advanced digital networks; building the digital economy through investment, interoperability and standardization [19].

REFERENCES

1. Avi, G., Tucker C. (2019). Digital Economics. Journal of Economic Literature, 57 (1): 3-43. DOI: 10.1257/jel.20171452
2. Moskalyk, R., & Moskalyk, L. (2021). Digitalization of the world economy: theoretical and political aspects.Green, Blue & Digital Economy Journal, 2(3), 20-26. DOI: https://doi.org/10.30525/2661-5169/2021-3-4
3. Ragulina, N. (2020). Osoblyvosti ta tendentsii rozvytku tsyfrovoi ekonomiky v Ukraini [Features and trends of digital economy development in Ukraine] // Retrieved from: http://www.economy.nayka.com.ua/pdf/11_2020/107.pdf [in Ukrainian]DOI: 10.32702/2307-2105-2020.11.105

4. Sokolovska, O. (2020). Directions of development of digital society in Ukrain. Green, Blue & Digital Economy Journal, 1(2), 62-67. DOI: https://doi.org/10.30525/2661-5169/2020-2-12
5. Szymanska, K., Bondarchuk, V. (2021). Priorytetni napriamy ta mekhanizmy rozvytku tsyfrovoi ekonomiky v Ukraini [Priority directions and mechanisms of digital economy development in Ukraine]. Economics, management and administration, (1(95), 17–22. [in Ukrainian] DOI: https://doi.org/10.26642/ema-2021-1(95)-17-22
6. Humeniuk, R. (2020). Determinants of the level of development of management capacity of enterprises in the digital economy. *Green, Blue & Digital Economy Journal*, *1*(2), 90-95. https://doi.org/10.30525/2661-5169/2020-2-9
7. Ukraine 2030E is a country with a developed digital economy. // Retrieved from: https://strategy.uifuture.org/kraina-z-rozvinutoyu-cifrovoyu-ekonomikoyu.html
8. Mesenbourg T.L. Measuring the Digital Economy. – U.S. Bureau of the Census. // Retrieved from: http://www. census.gov/content/ dam/Census/library/working-papers/2001/econ/digitalecon.pdf
9. The Global Information Technology Report 2016. – World Economic Forum and INSEAD, 2016, 290 p. // Retrieved from: https://www.weforum.org/reports/the-global-information-technology-report-2016.
10. Digital Agenda of the Eurasian Economic Union until 2025: Perspectives and Recommendations. // Retrieved from: http://documents.worldbank.org/curated/pt/413921522436739705/pdf/EAEU-OverviewFull-RUS-Final.pdf [in Russian]
11. Digital economy: trends, risks and social determinants. // Retrieved from: https://razumkov.org.ua/uploads/article/2020_digitalization.pdf [in Ukrainian]
12. Digital economy and information and computer technologies. // Retrieved from: https://www.kmu.gov.ua/storage/app/uploads/public/602/581/51d/60258151d2896461958259.pdf [in Ukrainian]
13. Ministry and Committee for Digital Transformation of Ukraine. // Retrieved from: https://thedigital.gov.ua/ [in Ukrainian]
14. Eurostat. // Retrieved from: https://ec.europa.eu/info/departments/eurostat-european-statistics_en
15. Global Cybersecurity Index. // Retrieved from: https://www.itu.int/en/ITU-D/Cybersecurity/Pages/global-cybersecurity-index.aspx

16. Global Connectivity Index. // Retrieved from: https://www.huawei.com/minisite/gci/en/
17. Global ICT Development Index. // Retrieved from: https://www.itu.int/en/ITU-D/Statistics/Pages/IDI2019consultation/default.aspx
18. Koryavets M. Harmonization of digital markets in Ukraine and the EU: a thorny path to an innovative future. // Retrieved from: http://prismua.org/pdf/гармонизацияцифровых-рынков-украин. [in Russian]
19. EU Digital Single Market.// Retrieved from: EU4Digital, https://eufordigital.eu/ru/discover-eu/eu-digital-single-market (Political guidelines of the Commission 2019-2024, 16 July 2019, A Union that strives for more My agenda for Europe https://ec.europa.eu/info/strategy/priorities-2019-2024).

9.ENHANCEMENT OF OPERATIONAL RELIABILITY OF RENEWABLE ENERGY CONVERSION EQUIPMENT WITHIN THE FRAMEWORK OF SMART GRID CONCEPT

Tetiana Hilorme
Doctor of Sciences (Economics),
Leading Research Associate
Scientific Research Institute of Power
Oles Honchar Dnipro National University, Ukraine
E-mail: gillyorme@i.ua
ORCID ID 0000-0002-9598-6532

Lilia Nakashidze
Doctor of Sciences (Technical),
Leading Research Associate
Scientific Research Institute of Power
Oles Honchar Dnipro National University, Ukraine
E-mail:foton_dnu@ukr.net
ORCID ID 0000-0003-3990-6718

Iryna Liashenko
Candidate of Sciences (Philology)
Associate Professor
Department of Philosophy and Ukrainian Studies
Ukrainian State University of Science and Technologies, Dnipro, Ukraine
E-mail: ir4ik87@meta.ua
ORCID ID 0000-0002-7816-2339

Introduction. In March 2022, Ukrainian energy system was officially connected to the Single Energy System of Europe (ENTSO-E) [1]. This requires a revision of traditional approaches, principles and mechanisms of electricity, the formation of the latest concept of its innovative development that meets the values of social development and takes into account the main trends and directions of scientific and technological progress in all spheres of life and society. Such a concept is "Smart Grid".

The implementation of a high level of modern technology is a symptom that determines the degree of development of the country and its competitiveness. This is a necessary condition for achieving the mission of national interests in the field of energy security. However, due to innovative advantages, technological progress also brings a high degree of human and social dependence on systems that provide energy, communications, information, transport, finance and other services. As it is impossible to protect all these infrastructure systems at the same time due to limited availability of resources, the concept of critical infrastructure is being implemented in developed countries.

A possible solution is to study the level of impact of global natural anthropogenic factors on critical infrastructure and take into account the results of decision-making at the level of each economic agent of the market. This will not only reduce research costs, but also speed up the decision-making process to develop (agree on) a list of priorities for improving energy and national security.

Literature review. Smart Grid technology is characterized by several innovative attributes that meet the innovative needs of the energy market. It is necessary to separate the following among the main ones. Dileep G. determined the presence of an active bidirectional real-time interaction scheme for the exchange of information between all elements, components and participants of the network (from the generator to the final device that consumes energy) [2].

Kappagantu R. and Daniel S.A. stated the presence of a technological chain: energy producers (central (NPP, CHP, HPP), autonomous, photovoltaic power plants, wind turbines, energy storage, etc.), distribution networks, end users [3].

Gunduz M. Z. and Das R. analyzed the provision of information exchange on the “Smart Grid”, which is possible only with the use of digital communication networks, interfaces for the exchange of information data [4].

Kim S. K. and Huh J. H. emphasize that one of the most important goals of a smart grid is constant monitoring of the balance between supply and demand of electricity [5]. To do this, network elements must constantly exchange information on power parameters, modes, measurements, generation and commercial information based on the implementation of modern systems of accounting for production, transmission and consumption of electricity (“Smart Metering”).

Ghasempour A. characterizes “Smart Grid” as a technology that allows the power system to effectively protect itself from natural disasters, major accidents, external threats, etc. [6]. Al-Turjman F. and Abujubbeh M. outline that “Smart Grid” helps to optimize power system infrastructure [7]. Dranka G. G. and Ferreira P.

reveal the concept of “Smart Grid”, which promotes the emergence of new markets [8].

Due to the latest technology, the intelligent network system can be used on the scale of the entire energy system (electrical network, substation at all voltage levels), as well as individual buildings, enterprises, organizations, buildings and more. Therefore, all devices included in the “Smart Grid” system must have the technical means to efficiently exchange information.

Results. The focus should be on building communication systems for the information exchange between critical elements of the infrastructure. Especially those related to the identification and prevention of potential risks, coordination of all facilities in the event of an energy crisis. In these conditions, it is extremely important to develop and implement appropriate and innovative information technologies.

The performed content analysis allows to form a sequence of stages of development and design of the concept “Smart Grid” (Fig. 1) [9].

The first step in the implementation of energy systems based on “Smart Grid” technologies is the integration of measuring instruments (“Smart Meters”). The use of "Smart Meters" allows to integrate all electricity consumers and monitor a single network in real time.

Equipment manufacturers assess the direction of development of Smart Grid systems, first of all, in terms of opportunities to create innovative equipment and develop new business activities for energy companies. Smart Grid will be the basis for sustainable development of companies due to the emergence of innovative technologies in the industry.

Optimization of energy systems will lead to a gradual increase in efficiency without significant investment in innovative technologies for energy production, transmission and distribution. Modernization of power systems to the intellectual level involves the creation of a fully integrated system – from production, transmission to distribution and consumption of electricity and the implementation of new metering systems by individual consumers. In addition, the Smart Grid concept helps to increase the efficiency of renewable energy sources, taking into account the process of integrating the local power grid.

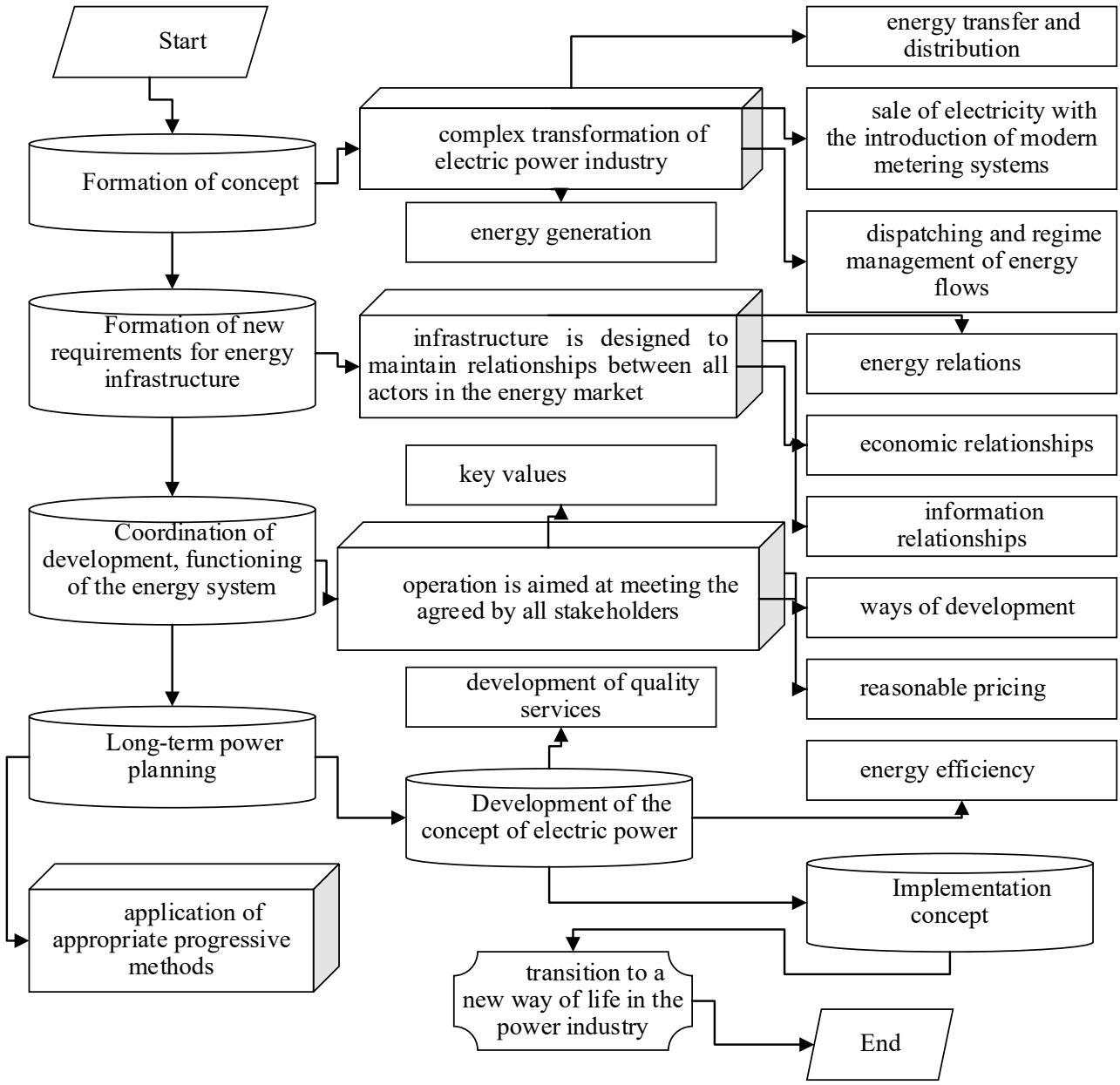

Figure 1. Algorithm for implementing "Smart Grid" in the power system [9]

Decentralized systems have the ability to easily integrate individual production units, transmission and distribution elements, and fragments of the network include modern energy metering systems. The formation of an intelligent energy system solves the problem of effective energy flow management, energy transfer and analysis of information on the energy system operation. These benefits apply to all economic agents without exception: end users, energy suppliers and society as a whole. Consumers who have information about the price of selling electricity have the opportunity to make a purchase in their favor. Therefore, if the production company has a electricity surplus, it will be forced to reduce the price [10].

"Smart Grid" is needed in the process of connecting renewable energy sources to large networks in a constantly evolving electricity markets.

Thus, the movement towards the implementation of "Smart Grid" systems is closely linked to the goal and the urgent need to increase energy consumption, increase the level of economic efficiency of electricity while limiting energy resources. The introduction of the Smart Grid model for energy sources not only optimizes the algorithms of energy generation and transmission, but also expands the potential use of alternative energy sources, the introduction of innovative energy development strategies, energy policy. Energy companies make significant adjustments to their scientific approaches to the management of structural systems of energy system development.

According to the study, the main problems of implementing the "Smart Grid" model are: the need to accumulate large amounts of financial resources around the world, overcoming technical barriers and the presence of information asymmetry.

Overcoming information asymmetry is a crucial task, as it hinders the harmonious development of necessary technologies, preventing energy market participants from properly assessing the risks and opportunities of the energy project associated with the development of "green" energy.

Although appropriate measures can be taken to reduce the information asymmetry (formation of a single information base, provision of additional information, coordination of interests of economic agents, use of screening techniques, etc.), it is absolutely impossible to avoid the minimum value. Information users are of particular interest: if interests diverge, information asymmetry reaches maximum. As a result, public benefits and effects are reduced.

The slow information exchange delays the achievement of harmonious development goals – the transformation of the global energy system into a "green" and the combination of interests of all participants in the energy market.

For the past 10 years, experts have noted that Blockchain technology can solve this problem. In the energy sector, this system provides direct interaction between suppliers and buyers of energy resources, including intermediaries that have monopolized the electricity and natural gas markets.

Building a model of energy management system based on the use of Blockchain technology contributes to the decentralization of production and supply of energy based on renewable and traditional sources (Fig. 2).

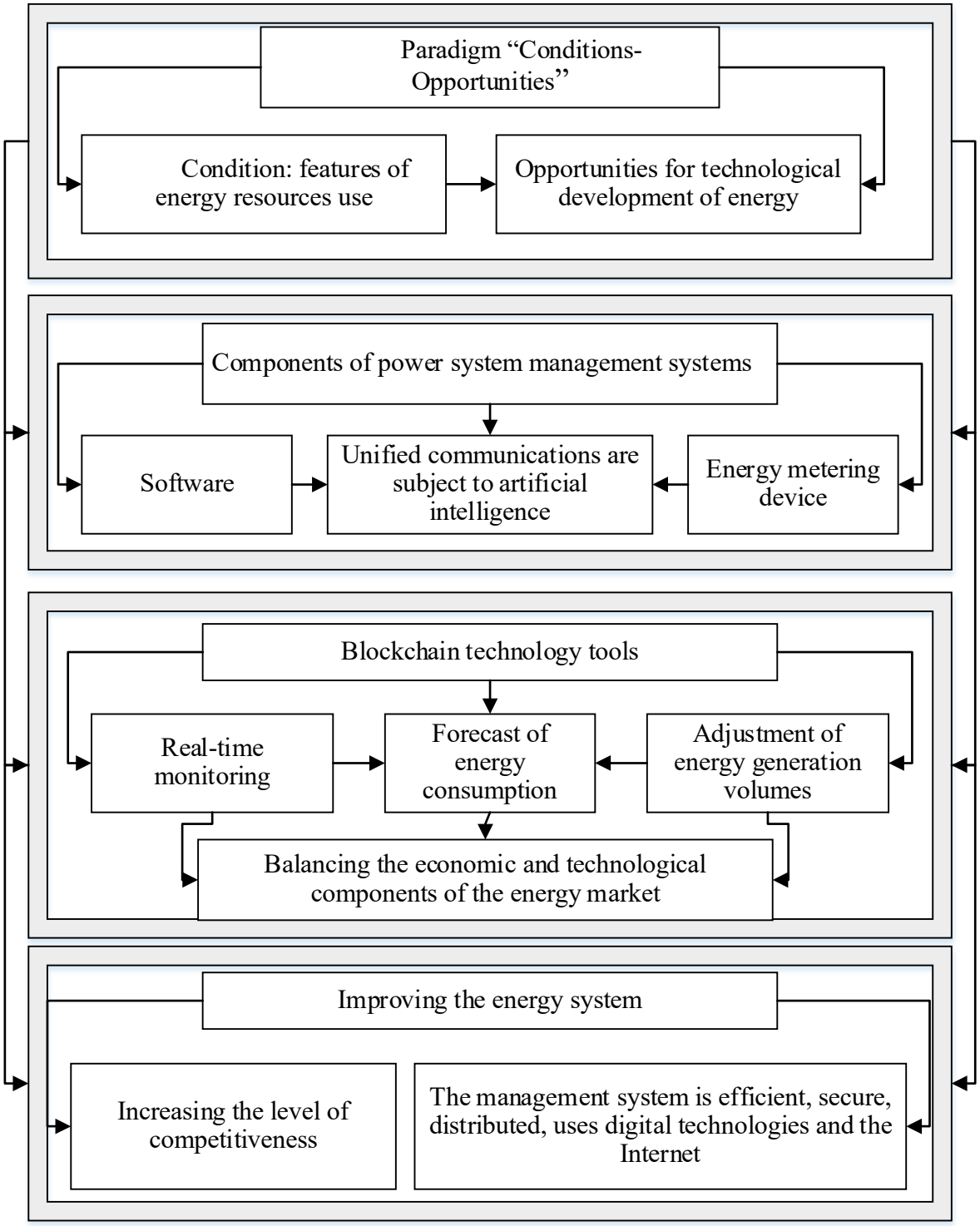

Figure 2. Architectonics of building management system for the distribution of energy resources using Blockchain technology [9]

Blockchain systems in the energy sector also help create the conditions for the storage, processing and analysis of vast amounts of non-financial information. This information should be included in the agreement and is the only one that is important for energy market participants, representatives of the financial sector of the economy.

This applies to the physical attributes of energy resources, especially fuel and electricity.

The system is based on characteristics: product - electricity, production and consumption do not coincide in time. With a high level of probability (accuracy) it is impossible to determine in advance the amount of consumption and generation, taking into account the potential of technological development of electricity. This leads to the need to align load schedules and continuous monitoring in order to improve the quality of energy resources.

Blockchain technology as a high-tech energy management system will allow to combine all communications into a single whole, provided programmable artificial intelligence, configured to the needs of each user.

In technical terms, Blockchain technology includes software for monitoring, measuring the energy of the power transmission device with the function of remote data transmission in the “online” mode.

This makes it possible to reduce significantly financial costs, costs of purchasing / selling energy resources, payments for them, in particular, the transfer of ownership of permits for greenhouse gas emissions, which guarantee “clean” generation of electricity.

The potential use of Blockchain technology in the energy sector based on artificial intelligence systems is not only the exchange, storage, processing and analysis of information, but also the formation of a high-tech system based on information that can make effective management decisions.

This creates the possibility of automatic formation of the energy system management system (demand and supply of energy resources are automatically balanced).

The network can monitor the state of the energy system on the Internet, using monitoring techniques and tools: collection, processing of information in the system “production process – energy consumption”. This greatly facilitates the transition from the use of traditional energy sources to renewable energy (non-traditional), given the differences that exist in the process of producing electricity from renewable energy. The new millennium has seen Ukraine actively developing the implementation of energy supply projects based upon alternative energy sources. To advance with the formation of the European mentality in domestic consumers, intermediaries and other market participants it is of utmost importance to conduct corresponding marketing and communication support for creation and market promotion of innovative energy efficient technologies in Ukraine. The topicality of developing strategies, mechanisms of reducing threats to energy security of Ukraine

is undeniable, particularly under the condition of energy consumption of the country being one of the highest in Europe.

The issue of energy saving and transition to technologies, which stipulate the utilization of alternative energy sources (solar energy, environmental heat, etc.), permit the business entity to increase economic independence from conventional energy sources, i.e. to enhance its economic security. To improve the efficiency of introducing the mechanism of energy efficiency technologies promotion, it is essential to form accounting and analytical provisions, taking into consideration the increase in complexity of organizational and structural framework of the internal environment in the conditions of information society.

With this, it is of extreme importance to consider the phenomenon of decoupling. Decoupling exists in two types: resource decoupling and impact decoupling. In the process of researching the indicators of energy security of the enterprise it is crucial to consider the 'impact decoupling', which is considered as an increase in ecological efficiency and predetermines the growth in production output simultaneously with diminishing the negative impact upon the environment. Such impact may occur as an aftermath of both resource exploration and direct production process or use of goods and services, particularly at the 'after consumption' stage. This wide range of possible realizations of impact decoupling complicates the process of its definition (measuring). It is connected with both a wide range of possible negative consequences to be taken into account and presence or absence of data with regard to a specific kind of negative manifestations. In particular, significant difference may be noticed with regard to tendencies of statistical series according to standalone constituents (atmospheric air pollution, water resource pollution, waste generation, etc.).

This allows electricity consumers to control independently the structure of quantity, consumption – the system can centralize information, as well as energy flow [11]. Information obtained online not only balances the energy system. The system automates the processes of production / consumption and purchase / sale of energy produced, which qualitatively and quantitatively measures the overall energy balance in order to prevent the existence of the shadow economy.

The implementation of Blockchain technology in the energy sector solves the problem of significant distance between the place of energy production from renewable energy sources and industrial centers.

One of the components of such system can be solar panels, which must be resistant to external factors. This solves the problem of reliability of switching elements and blocking of defective solar cells as components of structural elements of solar panels. The presence of such objects in the electrical circuit leads to a

significant reduction in the functionality of the entire power generation system or to its complete failure. One of the urgent tasks in this direction is the searching and development of technologies for the protection of solar components from electrical and thermal overloads in order to increase the service life and prevent abnormal (including firehazardous) situations [12].

It is known, that solar panels are one of the most promising renewable energy sources. They consist of tens and hundreds of thousands of individual solar cells connected in series to provide the required current and voltage ratings. The identity of their electrical characteristics is one of the determining factors in ensuring the optimal mode of operation and reliability of such multicomponent systems.

However, the manifestation and creation in the process of operation in solar cells and their compounds of various defects, as well as their operation in a mode of variable inhomogeneous illumination, lead to so-called sequential and parallel inconsistencies (differences) between individual elements and their groups [13].

In solving such problems, an approach based on the use of inexpensive elements of solid-state electronics from composite materials such as nanocarbon filler in a polymer matrix, made by self-healing fuse technology “PolySwith”, is efficient. The basic functional property of a self-healing fuse is a sudden increase in electrical resistance when reaching a certain temperature limit by several orders of magnitude and return to the initial high-conductivity state when the temperature decreases. Such elements of electrical and thermal protection have already found application in batteries and galvanic power supplies.

The implementation of technical solutions for the use of solid-state electronics as a means of protecting solar cells of solar panels makes it possible to create protection against electrical and thermal overloads, which will increase the effectiveness of Blockchain technology in the implementation of renewable energy sources (including solar) in the energy sector.

At the same time, there is a growing trend to increase the efficiency and reliability of renewable energy sources such as solar panels – search for and development of technologies to protect their components from electrical and thermal overloads in order to increase the service life and prevent abnormal (including fire hazardous) situations. The focus of engineering solutions on the development of reliable, cheap, technological methods and means to prevent local overheating of electrical origin (including “hot spots”) in photovoltaic systems of solar power plants “hot spots” will increase the efficiency of Blockchain technology in renewable energy. This is due to the fact that one of the circuit solutions to prevent local overheating of electrical origin in photovoltaic modules with bypass diodes is the

concept of opening the submodule circuit, which contains a “faulty” solar cell, and photocurrent bypasses the submodule through its bypass diode.

The development of a modern base of solid-state electronics, including the creation and widespread use of polymer self-healing fuses such as “PolySwitch”, allows to consider promising to create reliable, cheap, miniature means of protection of solar energy conversion devices from electric overloads and overheating. Self-healing fuses based on polymer composites with nanocarbon fillers function as reusable fuses that do not need to be replaced, do not affect the operation of the solar photovoltaic system in normal mode and operate when performing the function of opening, in emergency situations involving overheating.

It is advisable to connect “PolySwitch” fuses in series to photovoltaic modules in their parallel connection (line), which is suitable to prevent an anomalous situation - complete loss of electricity generated by such a line, which can occur when one of its modules is short-circuited. The problem of protection against local overheating in solar cells (or their parallel connections) can be solved by physical and technological methods of posistor nanocomposites, in particular by creating solar cells with a built-in layer based on a composite that is in thermal contact with it. In this case, in the presence of overload on electric power, heat transfer from the plate of the solar cell leads to heating of the posistor composite layer. Further, the electric power (reverse voltage and current) on such shaded, faulty or degraded solar cell is limited and reduced from the moment when the temperature of this structure reaches values close to the transition temperature of the posistor nanocomposite to the low-conductivity state.

Important issues that arise in the development of devices for protection of solar cells from electrical overloads are the impact of their functional properties of elevated temperatures and overheating due to reverse currents. Volt-ampere and volt-watt characteristics of monocrystalline silicon solar cells that have undergone heat treatment at elevated temperatures (up to 150 °C) for different times (up to 6 h) under lighting conditions and in the dark in open and short-circuited states did not show significant changes. At the same time, overloads caused by reverse currents for these converters lead to additive (accumulative) degradation of their parameters. This is especially true of short-circuit current.

Conclusion. It was found that the technological breakthrough in the field of energy management is based on the use of the concept of “Smart Grid” and intelligent energy networks, marketing logistics, related to reasonable and rational redistribution of energy flows in domestic and industrial energy systems. The effects of the implementation of the concept of “Smart Grid” in the energy system are

considered. It is expedient to increase the level of efficiency of electric networks through the introduction of “intelligent” systems, which will increase the level of efficiency and reliability of work to European standards. For the entire power system, this will reduce peak network loads, optimize load regulation, network modes; integrate virtual power plants into the system without compromising its stability; increase network asset load, reduce unclaimed capacity, reduce network investment, etc.

Building a model of energy management system based on the use of Blockchain technology helps to decentralize the production and supply of energy based on renewable and traditional sources. The technical side of Blockchain technology as software for monitoring, measuring the energy of its transmission device with the function of remote data transmission in the “online” mode is analyzed. This will significantly reduce financial costs, costs of purchasing / selling energy resources, payments for them, including the transfer of ownership of permits for greenhouse gas emissions, which guarantee “clean” generation of electricity. The potential use of Blockchain technology in the energy sector based on artificial intelligence systems is not only the exchange, storage, processing and analysis of information, but also the formation of a high-tech system based on information that can make effective management decisions.

Prospects for the use of Blockchain technology in the energy sector have significant potential: this technology is gradually expanding in related industries – a global energy network is being formed.

Acknowledgment. The article is performed within the research work “Technical means based on inhomogeneous dielectrics for electrothermal protection of solar batteries in spacecraft power systems”, which was performed at Scientific Research Institute of Power of Oles Honchar Dnipro National University.

REFERENCES

1. Ukraine has become part of the EU energy system (2022). [Ukrainian Pravda]. (Ukraine). Retrieved from: https://www.epravda.com.ua/news/2022/03/16/684140/ (Last accessed: 22.03.2022)

2. Dileep G. (2020). A survey on smart grid technologies and applications. *Renewable energy*, 146, 2589-2625. DOI: 10.1016/j.renene.2019.08.092

3. Kappagantu R., & Daniel S. A. (2018). Challenges and issues of smart grid implementation: A case of Indian scenario. *Journal of Electrical Systems and Information Technology*, 5(3), 453-467. DOI: 10.1016/j.jesit.2018.01.002

4. Gunduz M. Z., & Das R. (2020). Cyber-security on smart grid: Threats and potential solutions. *Computer networks*, 169, 107094. DOI: 10.1016/j.comnet.2019.107094

5. Kim S. K., & Huh J. H. (2018). A study on the improvement of smart grid security performance and blockchain smart grid perspective. *Energies*, 11(8), 1973. DOI: doi.org/10.3390/en11081973

6. Ghasempour A. (2019). Internet of things in smart grid: Architecture, applications, services, key technologies, and challenges. *Inventions*, 4(1), 22. DOI: 10.3390/inventions4010022

7. Al-Turjman F., & Abujubbeh M. (2019). IoT-enabled smart grid via SM: An overview. *Future Generation Computer Systems*, 96, 579-590. DOI: 10.1016/j.future.2019.02.012

8. Dranka G. G., & Ferreira P. (2020). Towards a smart grid power system in Brazil: Challenges and opportunities. *Energy Policy*, 136, 111033. DOI: 10.1016/j.enpol.2019.111033

9. Hilorme T.V. (2020). Obgruntuvannia upravlinskykh rishen shchodo zaprovadzhennia tekhnolohii enerhozberezhennia na promyslovykh pidpryiemstvakh: teoriia, metodolohiia, praktyka [Substantiation of management decisions on the introduction of energy saving technologies in industrial enterprises: theory, methodology, practice] : *monograph*. Zaporizhzhia, 300 p.

10. Nakashidze L., Hilorme, T., & Nakashydze I. (2020). Substantiating the criteria of choosing project solutions for climate control systems based on renewable energy sources. *Eastern-European Journal of Enterprise Technologies*, 3 (3 (105)), 42-50. DOI: 10.15587/1729-4061.2020.201527

11. Hilorme T., & Shachanina Y. (2017). Staff development as an object of accounting of a social activity of the entity. *Economics and Finance*, 6, 14-20.

12. Nakashydze L., Tonkoshkur A., Ivanchenko A., Mazurik S., Gabrinets V., Tytarenko I., Gnatiuk G., …, Hilorme T. (2019). Providing energy-saving technologies: technical, ecological and economic aspects. New York, USA: Yunona Publishing, 136 p.

13. Tonkoshkur A., Ivanchenko A., Nakashydze L., Lyashkov A., Gomilko I. (2021). Application of polymer posistor nanocomposites in systems for protecting photovoltaic components of solar arrays from electrical overloads. Boston, USA: Primedia eLaunch, 172 p.

10.FEATURES OF THE INFLUENCE OF THE 5G ECONOMY ON THE EFFECTIVENESS OF MANAGEMENT DECISIONS FOR THE DEVELOPMENT OF LOCAL COMMUNITIES

Roman Grytsko
Doctor of Science in Public Administration,
Honored Professor of the European Professor's Doctorate,
Candidate of Medical Sciences, Associate Professor of Infectious Diseases
Danylo Halytsky National Medical University of Lviv, Lviv, Ukraine
E-mail: *grytskoroman@gmail.com*
ORCID 0000-0001-7086-8399

Zenovii Kvasnii
Candidate of Economic Sciences, Associate Professor
Lviv Institute of Interregional Academy of Personnel Management,
Precarpathian Institute named after Mykhailo Hrushevsky of Interregional Academy of Personnel Management, Truskavets, Ukraine;
E-mail: zenovii_kvasnii@ukr.net
ORCID ID 0000-0001-9124-1579

Orysia Grytsko
Master of Project Management, Stepan Gzhytsky Lviv National University of Veterinary Medicine and Biotechnology, Lviv, Ukraine
E-mail: *orusjagr@gmail.com*

Solomiya Pekanets
Master of Project Management, Stepan Gzhytsky Lviv National University of Veterinary Medicine and Biotechnology, Lviv, Ukraine
E-mail: *soljagr@gmail.com*

Introduction. Ukraine's state policy in the field of local self-government is based primarily on the interests of local communities and provides for radical changes and systemic reforms, decentralization of power, ie the transfer of much power, resources and responsibility from the executive branch to local governments. The provisions of the European Charter of Local Self-Government and the best world practice of public relations in this area are the basis of policy.

The need for a radical change in the structure of power and its territorial base at all levels, the implementation of real steps to stimulate the development of the country, the proper response to modern challenges required legislative action.

Literature review. Experts refer to the rapidly growing European sector digital market solutions and services of "cloud" technologies, provide the rate of increase of which in practice is quite problematic, therefore forecasts of leading analytical companies on trends in its development significantly different. Yes, the IDC European Managed Cloud study Services provides a holistic view of digital strategies and priorities market, covering the full life cycle of infrastructure services, from consulting and integration into management and support. The main ones are considered "managed cloud services" for private, public and hybrid deployment types that will provide companies that manage "Cloud" and infrastructure services, data and qualitative analysis to understand the requirements of the end user for next generation services, market dynamics and the development of a competitive environment.

Results. Information and communication technologies (hereinafter ICT) are present in almost every sector of the modern economy. They accompany both the professional and private spheres of a growing number of people. Just as the advent of the steam engine in the 18th century was a great leap forward in civilization, so today new technologies are an incentive for all kinds of industrial change. The particularly strong trend in the mobility of electronic services, which has been observed for several years, is gaining in importance. They are becoming part of the daily life of the "digital society" and are rapidly being used in the production process, in the media, in logistics, transport, healthcare, banking and, finally, in the public administration sector. This phenomenon is so obvious, and the positive impact of ICT on the economy has become so obvious that all these changes have been called the era of Industry 4.0. The Ministry of Digitalization has proposed its own concept of digital transformation of the economy, adapted to national specifics and international challenges - "Industry +" - which is to build an economy based on data.

"The systemic nature of decentralization reform determines the complexity of its impact on the systemic transformation of society. It is important to move from the "technocratic" narrow perception of decentralization as a process of changing the procedures for the formation and functioning of local governments to an integrated understanding of the place and role of these changes in building development processes at regional and national levels. Decentralization will remain a "thing in itself" with a rather narrow potential for qualitative changes until it is integrated into the overall processes of modernization of the country and society. At the first stage of

the reform, additional opportunities were created for horizontal and vertical coordination of regional development management by strengthening the effectiveness of territorial communities, expanding strategy for community and regional development, financial and organizational tools for state regional policy. The expected administrative-territorial reform with the optimization of the redistribution of powers between levels of government and sectoral decentralization should logically "reset" the management verticals in the field of regional development. " [1]

The new Industry 5.0 concept emerged at a time when many European industries are reinventing themselves, adapting to the new reality of COVID, increasingly implementing digital and green technologies to remain a solution provider for all Europeans. Now is the time to make jobs more inclusive, build more sustainable supply chains and adopt more sustainable production methods. [2]

The development of cities and villages of Ukraine should guarantee a "civilized society" for their inhabitants, ie one that demonstrates a sufficiently high level of well-being, culture, education and technical development. The concept of "civilization" (from the Latin civilis - public, social, state, civil) was introduced into the scientific dictionary by the French educator Honore Gabriel Mirabeau (1757) and the Scottish philosopher Adam Ferguson (1767) as opposed to savagery. [2] However, the concept of "civilized man" in contrast to the savage has existed in science and politics since ancient Greece. Aristotle in his work "Politics" under civilization understood primarily "the ability to reason" [3, p.33] and "participation in courts and national assemblies" [3, p.67], ie the ability and ability to make decisions concerning the present and the future of the person and the community of which he is a member. If the inhabitants of the settlement cannot influence the activities of local authorities, participate directly in local self-government, it cannot be said that they live in a civilized society.

Ukraine has been experiencing a dynamically progressing process of computerization of the economy in recent years. This is a consequence of the development of ICT technology, including increasingly efficient computational methods working on large data sets, and the constant miniaturization, making ICTs more widely used in all areas of socio-economic life.ICT solutions that are entering the market are changing, in particular, in interpersonal contacts, the way of doing business, education, medicine, as well as in state and local government. ICT-based services create a new space not only for information, but above all for the production and distribution of goods and services.

In the coming years, we should expect further changes not only in the way we use the Internet, but also the content of the broadcast will take on a new dimension (it will cease to be purely informative, and more and more often it will be two-way

interaction). Operators are already "enticing" with new services and offers that can be paid for by SMS or credit card via the Internet.

With the advent of more and more affordable smartphones and applications, increasing the availability of LTE technology, and soon 5G, the Ukrainian ICT market will enter a phase of significant transformation, becoming an important element in the development of "Industry +" on the ground.

The mobile state will play an important role in various sectors of the economy. When talking about mobile services, we must always keep in mind the two contexts of this mobility.

The system of European principles has acquired further systemic manifestation in the DSRD-2027 project. According to this project, the new regional development policy in Ukraine will be conducted in accordance with the principles[4]:

• subsidiarity, which is one of the key principles of development policy and provides that each action of individual policies is programmed and implemented at the lowest possible levels;

• an integrated territorial approach, which assumes that the object of regional policy is the territory, which is characterized by a specific set of social, spatial, environmental and economic characteristics. These characteristics determine the development potential of the region. An integrated territorial approach is to coordinate measures with the specifics of a particular area, so that it accurately meets the different development needs of this area;

• partnerships and cooperation related to building a culture of partnership and cooperation, which are focused on the interaction of citizens and public institutions for development. This principle is also used to build strong relationships of trust, both vertically between national, regional and local institutions and horizontally between local authorities and various stakeholders, including the private and social sectors;

• territorial and sectoral concentration, understood as directing regional policy interventions to support a limited number of territories. The development of each region is characterized by specific challenges, barriers or potentials, the development of which is particularly important in terms of cohesion of the region or country.Ensuring real territorial concentration means that the intervention area does not cover the whole region or country. In turn, sectoral concentration is the concentration of resources and activities on a limited list of industries and sectors that are priorities in terms of development of the country and individual regions. This rule means supporting those industries and sectors which, due to their potential, make it possible to identify the competitive advantages of this territory and are the driving force of economic development;

• Evidence-based decision-making, which means that planned activities should be based on lessons learned, data collected, conclusions, recommendations, analysis and evaluation to ensure and maintain high standards of governance and implementation of regional policy. The implementation of this principle requires the functioning of appropriate specialized analytical tools, databases for policy formulation and evaluation;

• sustainable investment, which means cooperation and coordination in areas such as development planning, spatial planning, housing and transport policy, nature protection and air quality. This principle also helps to build a circular economy that maximizes resource efficiency and reduces waste generation. The goal of all these activities is to keep resources in the best condition for future generations.Sustainable investment meets the principle of sustainable and responsible development, in which the needs of the current generation can be met without reducing the future opportunities of generations, forming a relationship between economic competitiveness and care for the environment and quality of life;

• development of networks, which provides support for projects aimed at building networks of local communities, especially those that involve close cooperation between urban and rural areas;

• spatial planning, which ensures compliance of planning and implementation of programs and projects of regional development with the General scheme of planning of the territory of Ukraine. If these principles are taken into account in the text of the DSRD-2027, this document can be considered as an important step towards the Europeanization of Ukraine's regional development policy.

Research has shown that thematic principles of public investment can be structured in three areas:

1) coordination of public investment between levels of government and policy implementation; 2) increasing the capacity of public investment;

3) providing appropriate conditions for public investment at different levels of government. [5]

First of all, mobile communication is associated primarily with mobile communication networks, which today are viewed through the prism of smartphones, multimedia and data transmission. This allows users to enjoy a range of advanced services on the go, either through a web browser or through a special application installed on their phone. But there are also mobile computers that connect via WiFi or LTE with the appropriate services available on the network.

The second context, ie the use of different mobile solutions, where mobile becomes synonymous with wireless solutions that are used directly, e.g. in various production processes. It is about communication between sensors, recorders, labels,

industrial devices and systems for information collection, surveillance, etc. In both cases, the same technical transmission solutions are used, which are usually classified as widely understood mobility.

European industry is a key driver in the economic and social changes we are currently experiencing. To remain the engine of prosperity, the industry must lead the digital and green transitions. Industry 5.0 provides an industry vision that not only focuses on efficiency and productivity as common goals, but also strengthens the role and contribution of industry to society.[6]

With the development of digital technology, new concepts of development, organization and implementation of industrial production are being developed. The most famous are: the German concept, known as Industrie 4.0, in France - Nouvelle France Industrielle, in the Netherlands - Smart Industry, in the UK - High Value Manufacturing Catapult (HMV Catapult), in Spain - Industria Conectada 4.0. Another approach to the fourth industrial revolution is Denmark, Sweden, Finland, Ireland and the Netherlands.

Natural industrial policy should naturally focus on those areas of support that require relatively low budget expenditures, and on projects where the potential return on investment is greatest (or there is full or partial funding from external donors). At the same time, the implemented measures should not distort trade conditions and competition. Measures aimed at preserving the "old" industry, as a rule, will not give enough return to justify state support. Public policy should not keep the industry behind, but instead should encourage an increase in the technological level of production in Ukraine. In particular, this is possible by supporting the implementation of Industry 5.0.

Experts from research and technology organizations, as well as financial agencies discussed the concept of Industry 5.0 during 2 virtual seminars on 2 and 9 July 2020. ESIR, a high-level expert group that advises on how to develop forward-looking and transformative research and innovation policies, is currently developing a new description of Industry 5.0 policy. It will provide concrete policy recommendations and actions to achieve the goals of Industry 5.0 and provide an important basis for promoting policy initiatives at European and national levels and ensuring that development is in line with the political priorities.

For the development of territorial communities in Ukraine, it is important to continue major reforms and management efforts to improve the investment climate. But this is not an obstacle to the implementation of effective management decisions for the development of local communities and the implementation of industry 3.0 / 4.0 and 5.0:

The priority is to complete the work on formulating the Government's industrial policy. This can be done through the adoption of the Industrial Complex Development Strategy or other document that will formulate the government's position on industrial policy. Other government policy documents (current and draft) should be aligned with this concept of public policy.

State industrial policy needs to focus on improving the rules of the game not only for industry but also for the economy as a whole. It is a traditional set of reforms, such as the fight against corruption, judicial reform, modernization of the education system, development of the financial sector, improving the investment climate by reducing the regulatory burden on business and implementing transparent and equal rules of the game.

The main initiative should come from industrialists, but with the support of the state. National and regional 4.0 platforms need to be set up, following the example of EU countries, bringing together government institutions, businesses and academics. The national movement "Industry 4.0 in Ukraine" has already started this.

Given the limited budget funding, it is necessary to refrain from introducing large new programs of state aid to industrial enterprises in the form of tax benefits or direct subsidies. Instead, it is urgent to analyze the effect of existing benefits and draw conclusions about their feasibility.If there is a positive effect of state aid on the development of the industry, aid should be provided in accordance with the following principles: it should be received on time, for a certain period of time and targeted.

State aid to economic entities must comply with international obligations: it must not distort competition and foreign trade conditions. We need to work on expanding funding sources for innovative projects in industry. Today, the existing mechanisms of preferential financing are insufficiently used (for example, within the framework of the Horizon 2020 program), so it is necessary to analyze possible bottlenecks in the process.

It is necessary to support the creation of new enterprises and technological renewal of industrial SMEs. This area can be promising for attracting donor and public funds, for example, for technological audit of SMEs and support for startups. However, the ultimate responsibility for increasing the productivity of their production rests with the entrepreneurs themselves.

The positive impact of the Fourth Industrial Revolution and related new technologies will be fully realized through the large-scale deployment of 5G communications networks combined with other connectivity solutions. Key functional 5G drivers will open up a wide range of capabilities, including service optimization, decision making, and end-user experience. This will result in $ 13.2

trillion in global economic value by 2035, creating 22.3 million jobs in the global 5G value chain alone. [7]

Conclusions. Education, science and industrial policy - the development of industry in general and innovation in particular, require a careful overhaul of the education system in Ukraine. Technical universities should become an integral part of the innovation sector in the country with close ties to industrial enterprises. The reform of vocational education is important, which is designed to train qualified personnel for industrial enterprises (whereas there is now a significant gap in the skills acquired by graduates of vocational schools and needed by employers).

The Industry 5.0 approach contributes to three priorities: the "Economy that works for people", the "European Green Agreement" and the "Europe that is approaching the digital age".

Elements related to Industry 5.0 are already part of the main policy initiatives

• Adopting a human-centered approach to digital technologies, including artificial intelligence (AI Regulation Proposal)

• training and retraining of European workers, including digital skills (Skills Program and Action Plan on Digital Education)

• modern, resource-efficient and sustainable industries and the transition to a circular economy (Green Deal)

• a globally competitive and world-leading industry that accelerates investment in research and innovation (Industrial Strategy)

These are just a few examples of the strong link between the industrial transition and other developments in society.

REFERENCES

1. Децентралізація і формування політики регіонального розвитку в Україні : наук. доп. / [Шевченко О. В., Романова В. В., Жаліло Я. А. та ін.] ; за наук. ред. д-ра екон. наук Я. А. Жаліла. – Київ : НІСД, 2020. – 153 с.
2. Industry 5.0: Towards more sustainable, resilient and human ... URL: https://ec.europa.eu
3. Брайсон Д.М. Стратегічне планування для державних та неприбуткових організацій / Джон М. Брайсон. — Львів: Літопис, 2004. — 352с
4. У Мінрегіоні обговорили проєкт Концепції та план реалізації державної регіональної політики. 2020. URL: http://www.minregion.gov.ua/press/news/u-minregioni-obgovorili-proekt-kontseptsiyi-ta-plan-realizatsiyiderzhavnoyi-regionalnoyi-politiki/

5. Recommendation of the Council on Effective Public Investment Across Levels of Government. Adopted on 12 March 2014.
6. Industry 5.0 | European Commission. URL: https://ec.europa.eu › info › in.
7. The Impact of 5G: Creating New Value across Industries and ... URL: https://www.weforum.org

11. THE INFLUENCE OF DIGITALIZATION ON THE DEVELOPMENT OF THE TOURISM AND HOTEL BUSINESS

Artem Ahekyan
Candidate of Physical and Mathematical Sciences, Professor
Lviv Institute of Interregional Academy of Personnel Management, Lviv, Ukraine
E-mail: limaup@iapm.edu.ua

Oksana Kvasnii
Ph.D. in Economics, Lecturer, State Higher Educational Institution
«Mechanical and Technological College», Drohobych, Ukraine
E-mail:ukrnet91@ukr.net
ORCID ID0000-0001-8881-9165

Introduction. Many countries around the world show that tourism contributes to the growth and development of their national economies, on the one hand, through the many economic ties it creates with other sectors of the economy, through job creation and contribution to GDP, and on the other. on the other hand, by creating and consolidating image identity, information in the team and creating a brand of the country, which certifies the originality and quality of the destination.

Each responsible country values the economic sphere of tourism not only in terms of its ability to attract tourists, but also as a platform for economic growth and sustainable development. It is difficult to correctly determine the economic indicator that measures a reputation, but it is the landmark that sows the desire to visit a destination, and once strengthened, this reputation becomes a landmark for the development of this destination.

Literature review. The tourism industry can be considered one of the world's largest industries, accounting for 10% of global GDP and jobs (WEF, 2020). The hospital industry was an early adopter of digital technologies and digital platforms to enable computer reservation systems (CRS) in the 1970s, global distribution systems (GDS) in the late 1980s, and the Internet in the late 1990s (Buhalis and Amaranggana, 2015). Over time, the technology has improved greatly and is allowing more convenient purchase of tourism services at the lowest possible cost. The biggest advantage provided by ICTs is the access to reliable information, allowing the creating and sharing of knowledge among large numbers of people, and

reducing costs while increasing efficiency (Mihajlović, 2012). Hospitality companies have gained from the use of technologies in terms of reduced costs, higher revenues, easier marketing research and database developments, and customer retention (Morrison et al., 1999).

Results. The global COVID-19 pandemic has hit traditional forms of business the hardest. Almost all industries have felt this, but tourism has been particularly hard hit. Companies that have developed channels for the distribution of services / products, communication and information on the Internet have experienced the effects of coronavirus to a much lesser extent. Of course, it is impossible to travel online in tourism, but, of course, you can improve a number of procedures, communication, increase the comfort of service and increase sales through technological innovations through the network.

Even before the current pandemic, humanity faced numerous situations that had serious global consequences. Accidents at nuclear power plants, catastrophic earthquakes, volcanic eruptions, tsunamis in the Indian Ocean, epidemics of various diseases have led to the realization that humanity is powerless against such disasters. Given the number of infected, wounded and dead, it seems that these catastrophes were not a sufficient warning for humanity. Regardless of the achievements and development of science and technology, extensive and lengthy medical research, "invisible" enemies have taken millions of lives "without a shot." infectious diseases and related mortality remain a serious threat worldwide. Humans are still battling old pathogens that have plagued humanity for thousands of years (such as the plague) and new pathogens (such as the human immunodeficiency virus, HIV). Some infectious diseases are endemic in many parts of the world and require constant care. Others fluctuate in prevalence and intensity, leaving the same problems in the economies of developed and developing countries when they arise, grow into an epidemic, or grow into a pandemic.

The hospitality industry encompasses much more than just hotel management. This includes resort or event management, gastronomy, wine and alcohol, travel and tourism. According to the World Travel and Tourism Council, this is an industry with 319 million jobs, which should create another 100 million jobs in the next 10 years. In Ukraine, the tourism and hospitality industry is one of the largest industries in the service sector. According to the IBFM, the number of jobs in the industry is expected to increase from 41.6 million to 52.5 million by 2028 due to the growth of the middle class and the growth of international hotel chains. In fact, the growing industry is also undergoing an important digital transformation, making the customer experience

more personalized than ever. [1] Technologies such as face recognition, artificial intelligence, chatbots and data analytics are relatively modern innovations that are changing the industry. Machine learning will be used to involve a huge number of external factors in pricing recommendations, and personalization in the booking process will be taken to a new level by doing things like targeting AI on people's social media profiles.

Rapid changes in the industry require hoteliers to step up and lead the digital transformation to maintain their value and bring added value to their business. This can be done through partnerships with tech-savvy companies that can identify and clearly identify relevant issues that can and should be addressed through technology. This strategy is beneficial for both parties, as startups usually lack the appropriate industry experience that is important for their development.

In general, this digital revolution requires today's and tomorrow's hospitality leaders to adapt to it. To prepare future leaders for the challenges they will face in the digital world, hospitality universities also need to adjust their curricula. For example, programs are evolving to include coding, data analysis and visualization, digital marketing, and even CSR and ethics to better prepare graduates for a world where traditional hotel companies require more specialization and careers in hotel companies.

With the advent of the coronavirus pandemic, daily reports of infections and deaths around the world are raising concerns, and uncertainty about the health and safety of our families and friends is high. The pandemic has caused serious socio-economic problems that will affect the general state of the economy, life and health of people in the near and distant future. This primarily concerns the economic crisis caused by the coronavirus and Russia's military aggression in Ukraine, which is projected to be greater than in 2008-2009. It is already having a negative impact on the business of companies in almost all industries, as well as on the situation that a pandemic may recur, in a similar or more severe form.

Tourism is one of the fastest growing sectors of the economy and is an important factor in economic growth and development. In 2018, there were 1407 million international tourists, which is six percent more than in the previous year. Revenues from tourism amounted to 1480 billion dollars, which is 4.4 percent more. Passenger transport brought in another $ 250 billion. Tourism is the main source of employment worldwide and is a very labor-intensive industry. A high proportion of work is performed by women (54%) and young workers, which means that the industry is considered inclusive. [2]

Opinions of users, access at any time, the need for direct contact - all this means that services are increasingly ordered online. An online presentation of the

proposal has also become a necessity for the tourism industry. The World Economic Forum estimates that by 2025, the digitization process (implementation of online booking, data processing) will bring $ 305 billion in value to the tourism industry. Enterprises that implement innovative business models will gain a joint competitive advantage.

As a result, women are more likely to be entrepreneurs in tourism than in other industries, but most of them perform low-skilled work, which makes them vulnerable to various shocks. There is also indirect employment in the construction and development of infrastructure, as well as the supply of food, drink and souvenirs to tourists. In addition, many employees have direct contact with tourists in travel agencies, airlines, ships, hotels, restaurants, shopping malls and various tourist attractions.

The worldwide coronavirus pandemic has disrupted travel plans because most of the world's population has been unable to travel due to measures to prevent it from spreading. More than 200 countries and territories around the world have implemented measures to restrict or prevent people from entering their territory. A report by the United Nations World Tourism Organization states that "international travel has never been restricted in such an extreme way in history." The pandemic has negatively affected all industries, whether production or services, and the most affected are, of course, tourism and catering, airlines and air transport. Most airlines have faced declining interest in travel, a ban on flights.

Losses in air travel, including aircraft manufacturers, airports, air traffic controllers, travel agencies and hoteliers, are estimated at hundreds of billions of dollars. As a result, most airlines have laid off thousands of employees. A large number of small airlines are on the verge of bankruptcy, and forecasts for further business are negative. Some analysts predict that in 2022, declining incomes and returning to 2019 will be difficult (if still possible) and will be accompanied by major challenges. However, no matter how much airlines are in the public spotlight, they suffer no more than other modes of transport, such as bus, rail, sea or tourism, catering, services and a number of other industries.

With more than 1,400 airlines with 31,717 aircraft and 3,900 airports, supported by 173 air traffic control service providers, the civil aviation sector has created an impressive global network to serve passengers and companies around the world. Airplanes are the safest and fastest means of transportation to cross oceans and borders to connect people and promote sustainable economic growth. [3] Aviation's contribution to the world economy is roughly equivalent to Britain's total GDP. [4]

During 2018, airlines around the world carried about 4.3 billion passengers and 58 million tons of cargo. Every day, more than 100,000 flights carried nearly 12

million passengers and cargo worth about $ 18 billion. Historically, air traffic has doubled every fifteen years and is growing faster than most other industries. According to the Air Transport Action Group (ATAG), the total economic contribution of global air transport in 2021 amounted to 2.7 trillion dollars, or 3.6% of world GDP. Air traffic also provides 65.6 million jobs worldwide and provides 10.2 million direct jobs. Airlines, airports and air traffic control and navigation service providers directly employ about 3.5 million people. The civil aviation sector (aircraft, systems and engines) employs 1.2 million people. Another 5.6 million people work in other positions at airports, and 55.3 million jobs are supported indirectly through tourism.

One of the consequences of travel restrictions is the reduction in the number of commercial flights. This downturn has led airlines to land a significant portion of their air fleet, leading to financial difficulties. Travel restrictions apply to hotels, apartments, camps and other types of accommodation, as well as restaurants, museums, national and other parks visited by both local and foreign tourists. According to business indicators, it is clear that the pandemic will have a longer-term impact on the tourism sector, while other sectors of the economy may recover faster. This is especially important for countries where the national economy is heavily dependent on the tourism industry.

In addition to airlines, the reduction in travel also affected hotels. Several large hotel chains, including Marriot International and Hilton Worldwide, have experienced mass layoffs and pay cuts. The executive director of the Marriot International hotel chain (about 174,000 employees) said that the coronavirus pandemic had affected their business worse than the Great Recession and the terrorist attack on the World Trade Center in New York combined. In these two major crises, the largest quarterly decline in income was 25%. With the onset of the coronavirus pandemic, the decline is 75%, and in the United States it is estimated at up to 90%. With the spread of the pandemic, Marriott sent two-thirds of its employees on forced leave. . They are not paid, but they will still have health benefits. Hilton has also announced to lenders around the world that it will borrow $ 1.75 billion as a precautionary measure to maintain flexibility "in light of uncertainty in world markets." [5]

Other companies in the industry, such as the online platform Expedia Group, announced in late February that they were cutting 3,000 jobs. Meanwhile, the Booking Holdings travel site, which has 27,000 employees, has been suspended.

The tourism industry accounts for about 10.3% of world GDP and creates about one of four new jobs in the world in the last five years.

But the abrupt cessation of global travel through the pandemic has laid off more than 100 million workers worldwide in 2020 and continued this trend in 2022 due to events in Ukraine.According to the World Travel and Tourism Council (WTCC), tourism is an important driver of the world economy. Over the past two years, tourism has been hit hard by the pandemic, and both travel companies and people have had to adapt to new conditions. With the lifting of restrictions, vacationers have a sense of freedom, as they can travel abroad without difficulty.

Plans for the future did not last long and changed again when the war in Ukraine began. Our country's involvement in the conflict zone, as well as visible economic changes and rising prices have contributed to new consumer behavior. The year 2022 began with an upward trend in the growth of Ukrainians' intentions to travel, even if it is too early to talk about the evolution of Ukrainian travel this spring. In 2022, the desire of Ukrainians to rest was very great, although many feared and studied a lot of information about the conditions of travel. But due to the war and sanctions against Russia, tourist traffic in the eastern directions was frozen, and the offer of more popular weekend trips to Lviv, Kyiv and Moscow disappeared from the market.

Previously practitioners flew to Russia on weekends. Today this is not the case, because traffic is simply frozen. Today, unfortunately, tourism in Ukraine has ceased to exist. On the other hand, the closure of airspace over Ukraine and Russia means that planes flying to popular eastern destinations, such as Indonesia or Bali, are likely to avoid these areas and pave additional routes. More protracted is the fact that the pandemic issue is still relevant. Some Eastern countries do not want to visit tourists. On the other hand, avoiding Russian, Ukrainian and Belarusian territories is not a big problem for organized tourism today.

As practice shows, the war in Ukraine and the associated increase in fuel prices in the long run will inevitably affect the prices of travel agencies. Customers should expect everything to be more expensive. The meeting industry is changing the world, creating business and everything around

As the world undergoes major changes unprecedented in a century, the international environment is harsh and complex, and the impact of a new epidemic of coronary pneumonia, the far-reaching uncertainty of not only the domestic but also the global tourism industry has grown significantly. The internal environment of development has also undergone profound changes.The problem of unbalanced and underdeveloped tourism remains relevant, and there is still a gap to meet people's new expectations for a better life.

The implementation of the strategy of innovative development gave a new impetus to the tourism industry, as well as put forward new requirements for

innovation and development of the tourism industry. Adherence to the main position of innovation in the overall situation of modernization and promoting the in-depth development of a new round of technological revolution and industrial transformation will have a profound impact on the entire tourist chain, such as tourist information, choice of suppliers, consumption scene. creation, convenient payment and social exchange. At the same time, it is necessary to make full use of digital, network and intellectual scientific and technical innovative achievements, modernize traditional tourist formats, innovate products and methods of service, as well as promote the transformation of tourism from resource to innovation.

Strengthen independent innovation, gather excellent resources and combine the needs of epidemic prevention and control, accelerate the promotion of smart tourism characterized by digitalization, networking and intelligence, deepen Internet + tourism and expand the use of new technological scenarios.

After 2022, the biggest confidence of the tourism industry is the digital transformation, namely "Internet + tourism", which is a priority in "Planning". "Obtaining tourist information, choosing a supplier, creating a scene of consumption, convenient payment and social exchange, etc." - this is the whole stage of interaction of tourist information, and information technology has a profound impact on the interactive communication of tourist information. The future has come, and innovation has become the main way to solve many uncertainties in the future. As for the uncertainty of the "incomprehensible", the application of technology brings adjustments and changes in the model of development and way of thinking, which usually occurs at a significant level of the object of application of technology. For example, the increase in the number of unmanned journeys can be seen as changes caused by transport, and the outbreak of a new crown epidemic has both a catalytic effect. However, the widespread use of electronic cartographic navigation systems has significantly changed the role of tourists in the information interaction during the trip, ie tourists know where they are and how to go. Motor tourism also played a huge role.A small number of business owners can watch videos from mobile phones, and a circle of friends thinks that they are not "understandable", but in fact "take it for granted", but there is a difference in thinking.

The emergence of a new coronavirus epidemic and the war in Ukraine have strongly pushed the digital transformation of the tourism industry, which will bring the industry three uncertainties: incomprehensible, self-evident and too late.

Digitalisation, the Internet and information technology are used only as tools, not "the modernization of the traditional tourism industry, innovative products and services, and the promotion of the transformation of tourism from resource to

innovation." After the new coronavirus epidemic, it's just old wine in new bottles, and probably "too late".

«Industry 4.0 technologies are considered environmentally-friendly and one of the solutions to achievement of sustainability. Ben Youssef and Zeqiri (2020) propose five ways that hospitality 4.0 can help to achieve sustainability: increased energy efficiency, more efficient use of water, reduced food waste, circular hospitality and use of virtual reality to reduce transport and travel». [6]

We consider it appropriate to note that the tourism sector lags behind in digitalization compared to other industries. There are two problems in the hotel and tourism business, the first is that companies do not realize how big their problem is, and the second is that they do not approach digital transformation strategically, ie they do not start with digital goals. Due to these two problems, the market cannot create an impetus for technology to penetrate significantly into the hotel and tourism industry, and for the same reason there is insufficient investment in technology. This is a vicious circle.

In our opinion, the following tasks remain particularly relevant today: to effectively integrate online and offline resources via the Internet, to promote the transformation and modernization of tourism enterprises such as travel agencies, and to encourage tourist attractions, resorts, tourist hotels, theme parks, residential buildings, etc. to cooperate with the platforms of Internet services.

The dynamic development of modern technologies is included in more and more new areas of business. Digitization is not only a convenience for the customer, but also a way to reduce costs. To increase the competitiveness of the tourism industry, it is necessary to remain open to technological processes that meet societal needs and trends and contribute to financial efficiency. To remain relevant, many hospitality companies are offering more online services and allowing virtual visits to museums, galleries, exhibitions, castles, zoos, aquaria and other destinations. Digital strategies are filling the gap left by the ban on travel for tourism. In the future, the hospitality industry will depend eve more on digitalization and new technologies. [6]

Conclusion. The coronavirus pandemic has left its mark on the tourism industry. When there was hope for a better 2022, war broke out in Ukraine. Tourism is very sensitive to various stressful situations. Tourism is based on freedom of travel and restrictions related to the war in Ukraine. The longer the war lasts, the worse it is for European and world tourism. All situations, such as war, volcanic eruptions, terrorists or air strikes, obviously have a huge impact on Polish and world tourism. We're just scared.

Digitization will not replace personal interaction or staff, because it is the interaction with staff and destination that remains in the memory of guests. The feeling of guests affected by live contact will remain forever. They may remember the smell of the sea, the charming receptionist, the wonderful waiter or the wonderful food - that's what they remember, especially the children who will be your future guests. Tourism is a business where people are key and will remain so forever. Digitization should be considered as an aid to the well-being of guests. Therefore, it is advisable to try digital tools, but do not take them as a solution to all problems.

Digitalization in tourism makes the tourism business more flexible, adapted to modern conditions and competitive in a dynamic "digital world".

REFERENCES

1. The Impact of Digital Transformation on Hospitality Industry. URL: https://hospitalityinspired.sommet-education.com .
2. World tourism Organization (2020): "*World Tourism Barometer*", https://www.e-unwto.org/doi/epdf/10.18111/wtobarometereng.
3. ICAO (2020): "*Effects of Novel Coronavirus (COVID-19) on Civil Aviation: Economic Impact Analysis*", Montreal.
4. IhLG (2019): "*Aviation Benefits Report*", Geneva.
5. STR (2022): "*Europe hotel performance for March 2022*", URL: https://str.com/press-release/str-europe-hotel-performance-march-2022.
6. Digitalization of the tourism industry: What are the impacts of the new wave of technologies.URL: https://www.researchgate.net .
7. Buhalis, D., and Amaranggana, A. (2015). Smart Tourism Destinations Enhancing Tourism Experience Through Personalisation of Services. In Information and Communication Technologies in Tourism 2015. URL: https://doi.org/10.1007/978-3-319-14343-9_28.
8. Mihajlović, I. (2012). The Impact of Information and Communication Technology (ICT) as a Key Factor of Tourism Development on the Role of Croatian Travel Agencies. International Journal of Business and Social Science Vol.
9. Morrison, A. M., Taylor, S., Morrison, A. J., and Morrison, A. D. (1999). Marketing Small Hotels on the World Wide Web. Information Technology and Tourism.
10. World tourism Organization (2020): news release, 28. April.

12.TOURISM COMPONENT IN THE CONTEXT OF COMMUNICATIVE SECURITY OF INTERNET TECHNOLOGIES IN UKRAINE

Serhiy Stasevych
Candidate of Technical Sciences (Ph.D.),
Associate Professor of Department of Ecological Safety and Nature Protection Activity Lviv Polytechnic National University
E-mail: stasevych@ukr.net
ORCID ID 0000-0002-9985-9485

Olha Nedzvetska
Senior Lecturer of Departments of Tourism
Lviv Polytechnic National University
E-mail: nedzvetska.olga@gmail.com
ORCID ID 0000-0001-6449-7341

Introduction. Passed a turbulent time of global informatization of all processes of public life and the world economy. Ukraine is not outside these global processes in the spheres of economic and social life. The modern tourism industry is a global computerized business that intersects the interests of hotel chains, transportation companies, and travel corporations around the world. Information technologies allow to turn these interests into a coordinated interaction of all participants in the field of socio-cultural services and tourism, which makes tourism and services more flexible and targeted, more accessible and interesting to consumers.

Information technology greatly simplifies the procedure of formation and implementation of a tourist product using computer networks, international booking systems, electronic databases norm-legal acts of regulations in tourism, automated settlement systems and more. Much attention is paid to the study of the new latest information systems in the tourism business. in research and publications. Leading scientists in this field are O.M. Vetitnev, O.V. Vinogradova, V.V. Kovalenko, I.O. Michaylov, M.M. Schahovalov.

Experience in recent years has shown that the reliability and functionality of computer systems depends on the quality of software, its protection and information security. Developing quality software requires significant investment and therefore involves certain risks. The development of protective systems is a non-trivial task. It is very important to set the right priorities for protection methods. The information sphere has a strong influence on the state of political, economic, defense and other components of Ukraine's national security. In the modern world there is a continuous struggle for control over information flows both in their country and abroad.

The winner in these processes will be the one who not only forms the flow of information and regulates it in their own interests, but ensures the integrity of its information resource, protects it from external, sometimes hostile, influence. An example of such protection of its information space is Ukraine's struggle against the aggressor Russia, which for many years nurtured its information and cultural space on our territory.

The Internet is one of the fastest and most economical cost-effective ways to accommodate, search for tourist information, establish interaction between the provider and consumer of tourist services. The number of Internet users (wired, fiber, 4G now, and soon 5G, satellite Starlink Ilona Maska, etc.) is growing steadily every year. The age category of network users is also significantly expanding. Therefore, the use of the Internet by travel companies is an opportunity to get the maximum result with minimal costs.

The basis of development in today's globalized world is information technology and information. Modern man is immersed in a huge array of information that is changing rapidly, information events are rapidly changing, and sometimes it is difficult to find a true event among the piling up on top of it others, often negative. When visiting the sites of various government agencies, organizations, various private companies, their visitors leave their personal data there. Information and communication of people is increasingly moving into the field of online through various information platforms (video, audio, multimedia).

In connection with the recent military actions launched by Russia on the territory of Ukraine, the problem of information security in the created IT projects of Ukraine (for example, "Action", Privat24, etc.) became acute. Ensuring the safe functioning of a common information space in which information is collected, processed, transformed, stored and exchanged requires a lot of additional efforts from both government agencies and volunteer teams.

Literature reviev. In modern society, information is becoming the most important value, and the industry of receiving, processing and transmitting information - the leading industry, where every year more and more capital is invested. According to leading scientists, information is becoming an important strategic resource, the lack of which leads to significant losses in the economy.

In the work of Panchenko O.A., Panchenko L.V. [1] the culture of information security is seen as a way of organizing and developing the information society to ensure a quality information environment (quality of information, protection of the individual from negative information influences). The culture of information security creates conditions for meeting the information needs of a person, in which he realizes himself as an information security entity, able to detect threats, has technologies to protect against them, adheres to information ethics in the process of transforming the information environment. Informatization of society is one of the decisive factors in modernizing the economy on a market basis and the key to Ukraine's integration into the world community.

The concept of "culture of information self-defense" is singled out in the work. It comprehensively combines the features of the material and ideal worldview of man, forming his information culture in terms of culture of information and professional competence and in terms of culture of information security. The culture of information self-defense [2] is characterized by those features of information culture of the individual, which determine the ability to handle information without harming themselves and other participants in information relations; ability to withstand information threats and reserve mental health in the face of negative information. It is formed during whole a person's life in the process of continuous learning, education and self-education, which contributes to the high level of information culture and literacy of society.

The classification of threats to information security can be carried out as follows:
- threats of information leakage;
- threats of violation of the integrity of information;
- threats of blocking information.

The diversity of classifications in the current legislation is due not only to different approaches to the choice of classification features and purposes of classification, but also the lack of proper theoretical well-grounded of the nature of information security threats [3, 4]. A. Loginov offers the same list of threats to information security in his own dissertation research. In particular, he defines threats

as: disclosure of information resources; violation of the integrity of information resources; put out in work of equipment [5]. Researchers S. Gutsu [6] and O. Litvinenko [7] agree that the main threats to information security can be presented as follows:

– threats to the impact of non-qualitative information (unreliable, false, misinformation) on the individual, society, state;

– threats of no sanction and illegal influence of outside parties on information and information resources (their production, systems of formation and use);

– threats to the information rights and freedoms of the individual (the right to produce information, disseminate it, search, receive, transmit and use; the right to intellectual property to information, including spoken).

Until 2016, the main attention was paid to the technical protection of information, the Doctrine of Information Security of Ukraine [8], adopted in 2017, shifted the emphasis to protection against information expansion by the aggressor state. In the same context, we can cite a broader classification proposed by A. Pogrebnyak [9], who notes that threats can be both accidental and intentional.

Summarizing the above, we can conclude that the approach to understanding the essence of information security for different categories of entities may differ significantly, for example, the security of ordinary citizens and government officials, the security of different tourism enterprises and companies. Therefore, it is quite logical and attract attention to classify threats that have a narrower, or in other words special nature, in particular, threats to information security of network resources. As a criterion, you can use the method of influencing information or ways to implement threats to information.

Results. The modern world is increasingly moving towards the creation of an information society, open both inside and outside the state, fully globalized, independent of the territorial location of a person or group of persons. The new model of society, which is related to the concept of information, also requires a significant rethinking of our presentations about the essence of the processes of development of human civilization. To do this, we need to look at the history of mankind from a new outlook, namely, as a process not so much the search for new and more efficient means of production, but as a process of finding new and more effective means of communication.

Communication is a very complex and multidimensional process that has universal character. Our Ukrainian society (as well as the countries of the former Soviet Union and the CMEA countries) has been fundamentally anti-communicative for many years under Soviet rule. It was built according to the principles of a rational machine, where everyone was given the role of a screw, which was easy to replace with another, the main thing is that the machine worked as a whole. The current Russian Federation is built and operates on this principle.

In a society built on the principles of communication and friendliness, man is no longer a screw cog, but the main person in the production, transformation and dissemination of information. Society will no longer be a machine, but a flexible system of diverse and multidimensional communicative structures. It is obvious that the value of the human person in this society is growing significantly, and the higher its value, the richer a person is more spiritually and intellectually.

Today tourism has become one of the most promising and leading industries in the world economy. The promotion of business in the field of tourism can guarantee a large contribution to tourism and the country's economy in providing new jobs, filling the state budget through taxes. The tourism industry is one of the most promising areas of economic restructuring, has a stimulating effect on the development of related industries, such as transport, construction, communications, agriculture, production of consumer goods. But the most important thing in tourism is communication, friendliness and peace between nations. Today the technical means of communication is becoming more important than the information message itself: the content of information depends primarily on the channel through which it is transmitted - radio, television, newspapers, the Internet.

The process of informatization of all processes in government agencies and the economy has not only a positive side but also a negative one: the use of computer technology for illegal, anti-social, criminal purposes. Studies have shown [6] that cybercrime in the world is growing, penetrating the computer information space, and creating new ways to create cybercrime. It should be noted that at the moment in Ukraine there is no developed universal integrated system of information systems protection. At the same time, separate components of information security systems have been developed, which each consumer uses in different combinations to meet their information security needs. And to ensure reliable protection it is necessary to use a range of organizational and managerial, organizational and technical and organizational and legal measures, tools and methods.

Even the world's largest companies fall victim to cybercriminals stealing corporate data using various schemes to hack corporate databases and devices. One of these schemes works due to non-compliance with the rules of safe work with corporate resources by campaign employees. Human information security in this context is not only the protection of intellectual property rights, but also the right to free access to information, free dissemination of information, protection of personal data of a person, company from nonsaction access.

Under the concept of information security we understand the state of protection of the information environment of society, which ensures its formation, use and development in the interests of citizens, organizations, the state and protection of subjects from negative information action. In turn, the information environment means the sphere of activity of state entities related to the creation, transformation, dissemination and consumption of information. The information environment can be divided into the following components:

a) production of information tools and information services;

b) information market - the formation of information resources, preparation of information products, provision of information services;

c) information consumption,

d) and the main thing without which the information environment cannot function - information and telecommunication systems of information dissemination.

All subjects who use information must have an information culture - the ability to effectively use information resources and means of information communication. The main factors in shaping the information culture of modern society:

a) the education system, which determines the general level of intellectual development of people, their material and spiritual needs;

b) information infrastructure of society, which determines the ability of people to receive, transmit and use the information they need;

c) democratization of society, which determines the legal guarantees of access to information sources of the internal and external market;

d) the development of the country's economy, which depends on the material opportunities for people to obtain the necessary education, as well as the acquisition and use of modern means of telecommunications.

Considering information security as a state of information security, security issues can be grouped into the following types:

- humanitarian, which arises in the case of uncontrolled use and dissemination of personal data, invasion of privacy, slander, etc .;

- economic and legal, which arise in case of leakage, distortion and loss of commercial and financial information, theft of intellectual property, industrial espionage, etc .;

- political, arising from information wars, attacks on information systems of important defense, transport, industrial facilities of the state, etc.

Citizens of the state must be able to consume information, learn to think critically, to compare and analyze information obtained from different sources of communication. Because the belief in the faith of all information can cause cognitive dissonance in humans.

One of the first researchers of the influence of electronic media was the Canadian philosopher Marshall McLuhan.

Marshall McLuhan's book "Understanding the Media. Human External Extensions" [10] was one of the first studies in the field of media ecology. According to McLuhan, the media should become objects of study in themselves, regardless of their content (content). The basic idea is that the mass media (communication) influences society primarily not by its content, but by the characteristics that distinguish it from other media. The simplest medium is electric light, which creates the environment through simple presence. "Electric light is pure information. It is, so to speak, a means of communication without message."

To ensure a culture of information security of society, it is necessary to provide a way of learning and development of members, especially children and youth. On January 19-20, 2021, the Ministry of Digital Transformation of Ukraine together with the Ministry of Internal Affairs with the support of the Advisory Mission of the European Union and the International Telecommunication Union held an international conference on last year's "Safe Online 2020: Modern Challenges" [11].

Lectures and panel discussions were held on the following topics:

- modern dangers of the Internet and ways to combat them;

- ways to build a safer online space in Ukraine;

- the impact of pornography on the minds of children and adults;

- sexual violence in the digital environment;

- blocking of materials and problems with legislation;

- Artificial Intelligence;

- advice to parents on the safety of children on the Internet;

- misinformation and fakes.

On February 8, 2022, the world celebrated Safer Internet Day under the slogan "Together for the best Internet". Safer Internet Day (SID / DBI) was launched by Insafe and INHOPE with the support of the European Commission to promote the safe and positive use of digital technologies, especially by children and young people. The Center for the Best Internet is represented by the National Committee for Safer Internet Day in Ukraine. This day is aimed at involving everyone who plays a role in creating a better Internet for all, including the youngest users. Moreover, it is an invitation for everyone to respectful online communication to provide the best digital experience.

Safer Internet Day provides a unique opportunity to conduct online security events together through the world: in an educational institution, library, public organization, as well as in government agencies and business organizations. Every year, more and more organizations join the Safer Internet Day in Ukraine, as well as around the world. The Center for the Best Internet invites you to join the joint celebration of this day in Ukraine in your family, educational institution, city, organization, country, world.

The textbook "Guide to socio-pedagogical support for the formation of safe behavior of adolescents on the Internet" [13] contains detailed elaborated exercises and information materials to highlight the topic of safe behavior on the Internet in professional activities with children, youth and professional communities. Exercises can be used separately or adapted to the needs of the target audience - children, youth, parents and / or their substitutes, educational and library communities, employees of youth, social and law enforcement spheres.

The handbook "Prudence. Vigilance. Protection. Politeness. Courage" [14] contains lesson plans for primary school students and focuses on the key principles of network etiquette and safety. Classes are offered in five topics: prudence on the Internet, vigilance on the Internet, protection on the Internet, friendliness on the

Internet, courage on the Internet. The Handbook for Parents "Klan Klitz-Click. Raising Children in the Digital Age" [15] provides in an accessible form the necessary information and advice that will be useful to parents to promote the positive use of digital technologies by children. The Center for Better Internet [16] was established with aim to promote the safe use of digital technologies, development and support of the information and digital society, to promote culture and security of using of the Internet.

Priority trends of work of the Center for Better Internet in 2019-2021: research of citizens' attitudes to safe behavior on the Internet; involving children and young people in planning activities for safe behavior on the Internet and the opportunity to choose those topics that need to be considered in the context of safe Internet; inclusion - helping families with children with disabilities to protect their children from threats and use the Internet for its development and rest; participation in the Internet Management Forum; coordination of Safer Internet Day in Ukraine. In 2020, the Center for Better Internet became a participant in the Safer Internet Center (SIC) + Program Better Internet for Kids (BIK) project.

The Best Internet for Children portal [17] provides information, guidance and resources on how to improve Internet issues from the Insafe-INHOPE network of safe Internet-question in Europe and other key parties. Internet Association of Ukraine InMind Factum Group Ukraine conducted a media survey of Ukraine's Internet audience based on a user-centric approach. The project was implemented by the Internet Association of Ukraine 2010 - 2019. The main purpose of the study is to analyze the attendance of web resources and socio-demographic profile of their visitors. monitoring of all Internet resources visited by Ukrainian users, both national and foreign. The panel represents Internet users throughout Ukraine aged 15 and older.

Research has shown that the share of regular Internet users in Ukraine in 2010 increased from 28% to 71% in 2019 [18]. Among such significant indicators are the measurements of regular Internet users using mobile devices: in 2019 they amounted to 69%.

According to research by Factum Group Ukraine, the most popular among Ukrainians are the following Internet resources [18]: Google - 62%; YouTube - 43%; Facebook - 30%; Ukr net - 16%; Classmates - 11%; Yandex - 10%; PrivatBank - 10%; OLX - 10%; VKontakte - 9%; Instagram - 9%. It is impossible, and not necessary, to completely restrict access to cyberspace. Lots of useful develop

information, literature, music and just communication of interests, connections with relatives and friends - all this can be found on the Internet. It is enough to know the rules of safe behavior to ensure personal safety on the Internet for both adults and children of school age. You need to learn the rules that will help you work safely online:

- remember that on the Internet you communicate with a person,

- put yourself in the place of the person you are talking to,

- defend your point of view, but do not insult your interlocutors,

- When you use telecommunications networks, you are dealing with a monitor screen. Words, and only words, are all that your interlocutor sees when communicating in the messenger. When you communicate on the Internet, you can easily make a mistake in interpreting the words of your interlocutor. When you connect with someone, remember that your words are fixed,

- adhere to the ethics of communication,

- Respect the time and opportunities of others. There is a stereotype that people have less and less time today, and creating new devices saves time. When you send an e-mail or communicate on the Internet, you are actually claiming someone's time. And then you are responsible for ensuring that the recipient does not waste this time.

Conclusions. Thus, information security of a citizen, enterprise, company, state institution, public authorities is not so much in the technical protection of information systems, but in the moral, ethical and organizational training of citizens and employees of various institutions.

In modern conditions, information security not only gives the citizen the right to free access to information, free dissemination of information, protection of personal data from unsanctioned access, but also the state of protection of the information environment from negative information influences on its citizens. Therefore, the distribution of tourist services using the net of Internet, taking into account these studies, it is recommended to use popular Internet sites.

The advantages of using Internet facilities by tourism enterprises are: high mobility of the Internet, global use of tourism services; work "24 on 7"; availability of unlimited amount of information, and the possibility of high-speed transmission; real-time video conferencing; the ability to quickly transfer data via messengers, e-mail, social networks and web pages. The state should form an information culture

through the education system in preschool and school educational institutions. It should be recognized that the Internet has become a significant factor in the socialization of not only adults but also children and adolescents, and that the Internet is an important and integral part of modern life, the space for most fundamental rights of contemporaneous the child. The current generation of young people is easy to receptive to multimedia information (video, audio, graphics, text) through the WWW (World Wide Web) and rapid aware of it than with the usual visual re-reading of textual information.

REFERENCES.

1. Panchenko O.A., Panchenko L.V. (2015). Informatsiyna bezpeka ta informatsiyna kul′tura v suchasnomu informatsiynomu suspil′stvi [Information security and information culture in the modern information society]. *Pravova informatyka*, *2(46*), 32-38.

2. Palekha YU. I., Palekha O.YU., Horban′ YU.I. (2020) P14 Informatsiyna kul′tura [Information culture]: *Tutorial*. Vydavnytstvo Lira-K.

3. Zolotar O.O., Trubin I.O. (2013). Klasyfikatsiya zahroz informatsiyniy bezpetsi. [Classification of information security threats]. *Informatsiya i parvo, 3(9),* 105-114.

4. Zolotar O.O. (2018). Informatsiyna bezpeka lyudyny: teoriya i praktyka [Human information security: theory and practice]: *monograph*. TOV Vydavnychyy dim "ArtEk", 446 p.

5. Lohinov A. V. (2005). Administratyvno-pravove zabezpechennya informatsiynoyi bezpeky orhaniv vykonavchoyi vlady [Administrative and legal support of information security of executive authorities:]: dys. kan. yur. nauk, *Nats. akad. vnutr. Sprav*, 192 p.

6. Hutsu S. F. Pravovi osnovy informatsiynoyi diyal′nosti [Legal bases of information activity]: tutorial. Vydavnytstvo Natsional′noho aerokosmichnoho universytetu, 48 p.

7. Lytvynenko O. (2012). Problema informatsiynoyi bezpeky v konteksti mihratsiynykh protsesiv [The problem of information security in the context of migration processes]. Retrieved from: http://www.nbuv.gov.ua/portal/soc_gum/Ukralm/2012_7/lytvynenko.pdf (Last accessed: 10.03.2021).

8. Doktryna informatsiynoyi bezpeky Ukrayiny (2017) [Doctrine of information security of Ukraine], zatv. Ukazom Prezydenta Ukrayiny vid 25 lyutoho 2017 roku № 47/2017 Retrieved from: http://www.president.gov.ua/documents/472017-21374 (Last accessed: 11.04.2022).

9. Pohrebnyak A.V. (2011). Tekhnolohiyi komp″yuternoyi bezpeky [Computer Security Technologies]: Monograph. Vydavnytstvo MEHU, 117 p.

10. McLuhan, Herbert Marshall (1964). Understanding Media: The Extensions Of Man. 1st Ed.: McGraw Hill; Reissued by MIT Press, 1994. Retrieved from: https://gtmarket.ru/library/basis/3528 (Last accessed: 11.04.2022).

11. Sayt Ministerstva ta Komitetu tsyfrovoyi transformatsiyi Ukrayiny [Website of the Ministry and the Committee for Digital Transformation of Ukraine]. Retrieved from: https://thedigital.gov.ua/news/mizhnarodna-konferentsiya-pro-bezpechniy-onlayn-vid-mintsifri-ta-mvs. (Last accessed: 11.04.2022).

12. Sayt Den′ bezpechnoho Internetu [Safer Internet Day website]. Retrieved from: https://www.saferinternetday.org/. (Last accessed: 11.04.2022).

13. Chernykh O.O. (2020). Onlayk [Onlayk]: tutorial. Vydavnytstvo VAITE. – 108 p. Retrieved from: https://www.osce.org/files/f/documents/0/f/483533.pdf. (Last accessed: 11.04.2022).

14. Obachnist′. Pyl′nist′. Zakhyst. Vvichlyvist′. Smilyvist′. Posibnyk iz tsyfrovoho hromadyanstva y bezpeky. (2018). [Caution. Vigilance. Protection. Politeness. Courage. Handbook on Digital Citizenship and Security]. Retrieved from: https://nus.org.ua/wp-content/uploads/2018/08/PRESS.pdf. (Last accessed: 11.04.2022).

15. Klan Klits-Klats. Vykhovannya ditey v tsyfrovu eru [Clan Click-Click. Raising children in the digital age]. Retrieved from: https://edpro.ua/blog/informacijna-bezpeka. (Last accessed: 11.04.2022).

16. Sayt Tsentru krashchoho Internetu [Website of the Center for the Best Internet]. Retrieved from: https://betterinternetcentre.org/. (Last accessed: 11.04.2022).

17. Sayt "Krashchyy Internet dlya ditey" [The site "The best Internet for children"]. Retrieved from: https://www.betterinternetforkids.eu/en-GB/home. (Last accessed: 11.04.2022).

18. Sayt Internet Asotsiatsiyi Ukrayiny InMind Factum Group Ukraine [Website of the Internet Association of Ukraine InMind Factum Group Ukraine]. Retrieved from: https://inau.ua/sites/default/files/file/1910/dani_ustanovchyh_doslidzhen_iii_kvartal_2019_roku.pdf. (Last accessed: 11.04.2022).

13. FINANCIAL RESOURCES MANAGEMENT OF TERRITORIAL COMMUNITIES IN CONDITIONS OF DIGITALIZATION

Liubov Kvasnii
Candidate of Economic Sciences, Associate Professor, Professor of Economics and Management, Ivan Franko Drohobych State Pedagogical University;
Professor of Management, organizations, economics and entrepreneurship, Precarpathian Institute named of Mykhailo Hrushevsky of Interregional Academy of Personnel Management, Drohobych -Truskavets, Ukraine
E-mail: lg_k@ukr.net
ORCID ID 0000-0001-5248-544X

Ludmila Lobik
Doctor of Philosophy in Public Administration
Precarpathian Institute named of Mykhailo Hrushevsky of Interregional Academy of Personnel Management, Truskavets, Ukraine;
E-mail: maup_truskavets@ukr.net

Olesya Lobik
Master Specialty «Public Administration»
Lviv Institute of PJSC «IAPM University» Lviv, Ukraine
Email: loo86@ukr.net

Introduction. Finances play a fundamental role in the management of local self-government. Therefore, the condition for the success of each unit of local self-government is the rational conduct of financial management and effective financial management, because every decision made, regardless of whether it concerns current activities or development, has a financial dimension. Financial opportunities in close connection with the quality of management are the basis for determining the strategic goals of its operation and development. Thus, financial management in local self-government units is part of a larger whole, ie the management of the entire local government organization. Practice shows that local governments are increasingly beginning to appreciate the economic and social aspects of their activities [4, p. 10].

The success of a local government unit depends on the quality of financial management. Traditionally, management is understood as a process consisting of planning, organization, management and control. Decisions taken in the process of managing the finances of local governments in the current context of digitalization, relate, on the one hand, the accumulation of funds, ie revenue, and on the other - how to spend them, ie decisions on the structure of expenditures and their use.

Literature review. The issue of local government financial management is currently one of the most important issues in the functioning of local governments and is of interest to both theorists and practitioners involved in local government. Issues of financial resources management of local communities are given much attention by domestic and foreign authors, in particular: Burzhynska D. believes that the rationality of budget expenditures is to bring the size and structure of budget expenditures to the level necessary for their efficiency and effectiveness of local government [1, p. 251]. There are many definitions of the concept of "local government financial management" in the literature on the subject. M. Dylewski perceives management as a type of management, which is characterized by the right of the manager to decide or jointly decide on strategic directions of development and the main goals of this unit of local government [2, p. 56]. According to M. Jastrzębska, financial management of local self-government is a process of decision-making and executive power of a certain unit of local self-government of interrelated actions and decisions aimed at maximizing economic and social impact, in accordance with current and strategic goals [3, p. 72]. The casing defines the financial management of local self-government units as a decision-making process subordinated to the realization of the main goal of local self-government, based on the use of various types of tools, techniques, criteria and rules of control over local self-government. phenomena associated with the accumulation and spending of money that remains at the disposal of local government, in a way that allows rational management of these resources [4, p. 122].

On the other hand, according to A. Sochatska-Krysiak, management, in contrast to administration, is a concept that includes activities and creativity [5, p. 121]. Thus, it can be stated that the concept of "financial management of OTG" in the approaches of scholars and in national legislation is incomplete, needs to be clarified and further improved. Given the scientific position of scientists, financial management of the local community can be defined as the process of regulating and managing the acquisition of sources of funding for current and investment activities of local governments and investing in their assets in a way that optimally implements goals and activities adopted in local government development strategies .

Results. Financial resources management consists of two stages:

• The diagnostic phase is the study of a particular area of financial management using the methods of financial analysis. This study aims to identify the strengths and weaknesses of the financial condition of companies in the community.

• decision-making phase - it includes current and long-term decisions that affect funding.

The financial management system is designed to create, combine, record and report on many different financial transactions, but ultimately serves one purpose: counting money. An effective financial management system can do more: it will help optimize profitability, measure cash flow, calculate additional requirements, maintain and maintain long-term business sustainability.

The key to any financial management decision is not only to support the company's current operations, but also to maximize profits and protect financial data from fraud and theft. The accounting system must provide at least the following functions:

- Impeccable financial management. Today, businesses need more than a digital version (spreadsheet) of tactical accounting software.In addition to transactions, financial management software also has support in such as managing companies' general financial affairs, accounting errors, shortening the billing cycle, adhering to constant changing norms and legal requirements, and optimizing daily cash flow, monthly and annually.

- Compliance with current and future accounting standards. Using rules, definitions and processes, standards normalize financial information. Unfortunately, these standards change frequently. New standards have come into force in the last few years. The financial management system must maintain the latest accounting standards and be flexible enough to easily adapt to subsequent changes, especially digital.

- Reliable financial results. Financial software cannot be limited to performing basic accounting transactions. It also supports: using the organization in the future, improving budgeting, forecasting planning, implementing cost management by category, seamless integration with banking systems, improving audit accuracy and keeping detailed records of assets and liabilities.

-Security of data and systems. The functions of accounting, finance and auditing must ensure the complete security of the system and the absolute integrity of the data throughout the financial management system.

- Integration of all enterprise activities. In large organizational programs, enterprise financial management is part of a resource planning system that connects finance and others between organizational units, enterprises, or enterprises.

-Scale for growth. As a business grows, so do its systems and processes. This means that financial management software needs to scale quickly and easily to support this expansion into new markets, countries and product ranges.

- Data and systems security. As part of monitoring and managing a company's cash flows, financial management systems should protect privacy from theft, counterfeiting and other forms of criminal use.If financial management decisions include risk management and compliance, the company can use these functions not only to track transaction history and identify errors, but also to share responsibilities and share responsibility roles across the enterprise and within the community.[6]

Modern organizations want to be able to use financial resources in practice to increase profitability, optimize operations and streamline decision-making processes. The function and other forms of reporting on the monitoring of activities and results have undergone special changes in recent years. Every business needs at least reports at the end of the month, quarter and year. Practice shows that old systems require a lot of time, labor and money to maintain their function. In turn, in cloud financial management systems, all updates, disaster recovery operations, equipment upgrades, backups and non-standard source code management are taken as part of a comprehensive service.

Financial software cannot be limited to performing basic accounting transactions. It is also designed to improve budgeting, forecasting and planning, introduce cost management by category, seamlessly integrate with banking systems, improve audit accuracy and keep detailed records of assets and liabilities. With the advent of modern financial management software, the practice of acquiring licenses for potential future users and projects is over. In the SaaS model, the company uses only a few licenses that they need, and more users and products are provided with new requirements. Investment costs for software are another relic of the past era, which is the result of the specifics of IT practices in the last century.

Software-as-a-Service (SaaS) is a model that allows end users to access

software developed by a provider over the Internet. Most SaaS applications run directly through the client's web browser and therefore do not require downloading or installing.

The SaaS business model differs from the traditional software model. There is a question about the ownership of the program: The right passes from the client to the service provider; responsibility for infrastructure and management is transferred to the service provider; the cost of providing software services is reduced on the basis of specialization and economic scaling; a new target can be chosen in the role - "long tail" of small business by reducing prices for services.Undoubtedly, financial management systems have evolved to adapt them to the requirements of digitalization. The concept of the cloud was key in this transformation. Thanks to the cloud environment, traditional enterprise resource planning and financial management systems have changed from simple back-office accounting software to end-to-end, critical integrated solutions to drive innovation. As companies within the local community face new factors that disrupt their current stability and competition, modern financial community management systems, adapted to these new realities, ensure an excellent financial position that allows them to meet the requirements of the future.

Modern best practices cover more than 180 business processes that help users. State-of-the-art financial management software is designed with these cutting-edge processes in mind to help the company achieve optimal productivity, record periods faster and deliver results in real time.

The process of systemic transformation that has taken place in the world has led to the reactivation of local governments.

The main unit of territorial self-government in Ukraine has become a territorial community consisting of residents together with a certain territory. It is equipped with separate assets (communal property) and provided with legislative sources of income. At the same time, the territorial community has the right to perform public tasks on its own behalf and at its own expense, and thus the independence of budget formation as the basis of financial management. At present, territorial local self-government bodies operate in rapidly changing and difficult conditions. It is difficult for them to predict their environment. Therefore, in order to properly perform their tasks, local authorities must effectively manage the activities of a unit, territorial community.

The special role of financial management should be emphasized in the management of the territorial community. The financial plan reflects all decisions

made by local governments.

When considering the management of the financial resources of the local community, the first thing to remember is the available resources. Use in the public sector is usually limited. The amount of budget expenditures determines the level of revenues.

Effective management of the territorial community requires the management of public funds in such a way that public funds are spent in accordance with state goals and objectives.

The issue of territorial community financial management is currently one of the most important issues in the functioning of local authorities and is of interest to both theorists and practitioners. Local authorities are beginning to assess the economic and social aspects of their activities. There is also a clear emphasis on strengthening the use of modern management in the management of local governments, including in financial management. The quality of this process determines the result of managing one's own resources in the given conditions and in the given environment and the level of meeting the needs of the local community.

Management is a type of management characterized by the right of management to decide or jointly make decisions on strategic directions of development and the main goals of this unit of local self-government.

Managing the finances of the local community in the current context of digitalization can be defined as a complex process that involves its constituent and executive bodies of many different decisions and interrelated measures to maximize economic and social impact, in line with current and strategic goals.

We define financial management of the territorial community as a comprehensive management of financial resources, aimed at: implementation of financial policy assumptions of the territorial community, coordination of this policy, monitoring and verification of the use of financial resources and the consequences of these actions.Local community financial management can also be defined as a decision-making process, subordinated to the main goal of local government, based on the use of various tools, techniques, criteria and rules to control the phenomena associated with digital change and spend money at the disposal of local authorities. a way that allows the most efficient management of these resources.

Financial management should be understood as a part of the general management of the territorial community, which includes: financial planning,

accounting, financial control and ensuring the efficient and effective use of resources.[7]

Based on the above definitions, we can conclude that the essence of community financial management - is making financial decisions and how to make them and respond to changing conditions and growing demands of the local community.

Summarizing the above considerations, it can be argued that financial management is a conscious activity (in terms of income and expenses, as well as income and expenses), which is to determine the methods and tools used in the process of collecting and spending money.

As financial management is defined as part of general management, it should provide the principles, processes and information needed to:

- planning, monitoring and control of resource use,
- demonstrate responsibility for the use of resources,
- ensuring efficient use of resources,
- compliance with the requirements of the legislation on financial issues.

The main purpose of the territorial community's financial management is to fulfill the tasks of the public and social sectors and provide the basis for stable and sustainable development. Therefore, financial managers must be focused on the development that takes place in their environment, and therefore they must be able to effectively manage available resources.

The main principles of financial management of the territorial community are:

- the territorial community independently carries out financial management on the basis of the budget accepted for calendar year;
- village councils and districts do not prepare a budget,
- the draft budget is prepared by the head of the territorial community in accordance with the budget law, taking into account the instructions of the city council,
- expenses may not exceed income and receipts from short-term loans and bonds less expenses incurred.

The management of the territorial community's finances does not take place out of thin air, but is determined by many factors that are constantly changing and changing for each territorial body. They include:

- external factors - economic policy of the state, public policy in relation to local governments, credit and tax system, availability of resources, methods of

solving problems,

- financial condition as a determinant of investment opportunities and the ability to maintain the solvency and financial liquidity of the commune,
- independence in making decisions on the development and control over the structure and volume of realized income,
- information resources that they have and can use, especially regarding the expectations of residents and their interest in community issues.

Financial management performs the following functions:

- formation of capital and ownership structure,
- allocation of own financial resources,
- affects the level of risk associated with the decisions made,
- current assessment of the financial and property status of local self-government, which allows to assess the compliance of current, investment and financial activities with the accepted assumptions,
- assessment of the impact of external conditions on investment and financial decisions,
- formulating conclusions on financial policy taking into account strategic goals and digital changes;
- drawing up a digital financing strategy.

We consider strategic management to be a promising model of financial management. It is an integrated process of revenue and expenditure generation in the cycle using modern strategic management tools. The main principle is the complexity of the approach, ie taking into account not only financial management in general, but also considering them as a continuous process.

In this model, financial decisions related to the needs of local communities should be strategic in nature, related to long-term social, economic and spatial policies.

Conclusion. Financial resource management is a process that consists of a series of decisions aimed at raising funds and investing in the company, as well as maximizing its value. Such an increase in goodwill is the result of a proper level and increase in the return on equity that the local community has and has at its disposal. The benefit also lies in maximizing profits, but also in maintaining the ability to timely settle liabilities. An analysis of the activities of local governments allows us to conclude that, given the Polish experience, the administrative model of financial management may dominate. Systemic changes, especially digitalization, decentralization of public power create conditions for better satisfaction of the needs

of local communities, but do not guarantee their full independence. Therefore, public administration should be aimed at improving the efficiency of available resources, methods and tools in strategic management.

REFERENCES

1.Burzyńska D.,2011, *Budżet zadaniowy narzędziem zarządzania finansami jednostek samorządu terytorialnego*, Studia Prawno-Ekonomiczne, tom 84.

2. Dylewski M., Filipiak B., Gorzałczyńska-Koczkodaj M., 2006, *Finanse samorządowe: narzędzia, decyzje, procesy*, Wydawnictwo Naukowe PWN, Warszawa.

3. Kożuch A., 2008, *Zmiany w zarządzaniu finansami lokalnymi,* Zeszyty Naukowe SGGW – Ekonomika i Organizacja Gospodarki Żywnościowej, Warszawa.

4. Owsiak S., 2012 *Budżet władz lokalnych,* Polskie Wydawnictwo Ekonomiczne, Warszawa.

5. Планування та управління фінансовими ресурсами територіальної громади/О.Кириленко, Б.Малиняк, В.Письменний, В.Русін / Асоціація міст України – К., ТОВ «ПІДПРИЄМСТВО «ВІ ЕН ЕЙ», 2015. 396 с.

6. Sochacka-Krysiak A., 2012 *Zarządzanie gospodarką i finansami gminy,* Szkoła Główna Handlowa, Warszawa.

7. Щур Р.І. Фінанси об'єднаних територіальних громад: концептуальні засади теорії і практики. URL: http://ir.stu.cn.ua/bitstream/handle/123456789/18386/Автореферат%20ЩурР.І.%20сайт. pdf?sequence=3&isAllowed=y (дата звернення 04 квітня 2022).

8. Jastrzębska M., 2009, *Zarządzanie długiem jednostek samorządu terytorialnego,* Wydawnictwo Wolters Kluwer, Warszawa.

14. DIGITAL COMMUNICATION - CONVENIENCE OR NECESSITY OF MODERN TOURISM?

Liubov Kvasnii
Ph.D. in Economics, Associate Professor, Associate Professor of Economics and Entrepreneurship, Ivan Franko Drohobych State Pedagogical University; Precarpathian Institute named Mykhailo Hrushevsky of Interregional Academy of Personnel Management, Drohobych, Ukraine
E-mail: lg_k@ukr.net
ORCID ID 0000-0001-5248-544X

Yurii Shulzhyk
Ph.D., Professor of Management, organizations, economics and entrepreneurship, Precarpathian Institute named of Mykhailo Hrushevsky of Interregional Academy of Personnel Management, Truskavets, Ukraine;
E-mail: pimaup_ doctorant@ukr.net
ORCID ID 0000-0003-1699-054X

Liubov Malik
Ph.D., Associate Professor of Organizational Management and Administration, National Forestry University, Lviv, Ukraine
E-mail: *lubamalik84@gmail.com*

Introduction. As the world continues to move into the digital space, new communication channels and advanced data platforms have created opportunities for organizations to improve their customer experience and adapt to new ways of doing business. ”[1] “The digital economy is transforming the process of communicating with tourists and marketing travel services, opening up new and extremely creative ways to provide travel services and improving the visitor experience. This changes the way we organize work, provide services, and take advantage of digital achievements to process transactions, collect and process information and data on supply and demand in tourism, and improve and connect operations along tourism value chains and ecosystems. ”[2]

In this sense, we can talk about the opportunities or conveniences provided by new digital technologies, especially in the field of communication. "As the world

continues to move into the digital space, new communication channels and advanced data platforms have created opportunities for organizations to improve their customer experience and adapt to new ways of doing business."[1]

Literature review. The importance of studying the impact of digitalization on the development of the modern tourism industry has led attention to this problem of foreign and domestic scientists. The following problems and peculiarities of tourism development were reflected in scientific research: preconditions for the emergence of M. Birzhakov, M. Malska, and V. Khudo.

Many scientists analyze the general state of tourist infrastructure and prospects for its development Yu. Olenichev, D. Kornev. However, today the issues of practical problems of tourism development are not sufficiently studied, little attention is paid to the analysis of the impact of the tourism industry on related areas.

Results. Many companies and individuals have finally started using digital technologies with the changes and limitations in mobility and behavior that occurred in 2020. Changes in the tourism sector today are the result of the Covid19 pandemic's impact on people's movement and travel. "Travel restrictions have spread from the epicenter of the Wuhan region (local regime since January 23) to most countries by the end of March 2020.

Digitalisation is significantly changing the socio-economic culture of the world, especially in the travel and tourism industries. The digital revolution has completely changed the way business works today.

Gone are the days when people had to go to travel agencies and stand in long queues for hours to book tickets. With the advent of technological advances and rapid digitalization, all travel companies have avoided geographical barriers and are implementing online methods to approach their customers.

It is estimated that more than 90% of the world's population is in countries with some level of restrictions on international travel, and many of these countries also have some degree of restrictions on domestic travel, including limited air travel and home bookings. 3In this situation, digital communication technologies are becoming even more important, they are becoming a necessity, because many activities and businesses are moving to the digital sphere, the Internet. Many people are online, many work from home, order products online or search for content that is important to them through work or pleasure. They spend a lot of time using different programs, messenger platforms and browsers. Businesses have begun to see how easy it is to communicate with customers through mobile platforms and applications, and COVID-19 has accelerated the need for this remote communication.

The tourism sector uses a lot of information, and we can say that it is "information-rich". Understanding the introduction of digital technologies among tourism SMEs is particularly relevant, as about 85% of those enterprises that play an important role in providing tourism services in OECD countries are SMEs (eg accommodation and food services, travel agencies, tour operators), compared to approx. two. - thirds for the wider economy. Although they make up the majority of tourism enterprises, SMEs and micro-enterprises face greater difficulties in vertical integration than larger companies (eg hotel chains in the accommodation sector) and reach potential customers ”[4]. Communication is the process of exchanging information between the sender and the recipient of a message. The main thing is understanding, because communication was good when the sender and recipient understood the information equally.

In business communication "it is necessary to pay attention to the general context in which communication takes place, as well as to all changes in the behavior and communication of the interlocutor during the communication process" [5]. This becomes especially difficult and important in situations. When the recipient and sender of the message do not see each other or when there is no direct face-to-face communication. Another problem is when they come from different cultures or have different cultural backgrounds. Therefore, in order to get accurate and clear information today, people are looking for information from several different sources, from several different sides. New IC technology also provides such capabilities. "However, the importance of 'ICT readiness' continues to grow rapidly, forcing many organizations, companies and countries to spend time rethinking their «service delivery by integrating a constant connection to experience." [6].

Digital technologies are transforming most industries and creating new challenges and opportunities for companies. In the tourism sector, the Internet allows locals and travelers to connect and communicate directly. "Tourism, as a socio-economic phenomenon, is the movement of people to meet the needs of tourism." [7] “The use of digital technologies and their further evaluation are profoundly changing the way people live and work. But the speed of digitization depends on a number of factors, such as socio-demographic characteristics; political context; legal bases; geophysical environments; availability, access and awareness of various technologies; economic conditions that build trust, investment, etc .; what is happening among competitors; and market impact ".[8]

The impetus for the adoption of digital technologies has been driven by new technologies and globalization, but has now been accelerated by the Covid-19 pandemic.

Today, digital technology has revolutionized communication. In order to remain competitive and take advantage of these new technologies, the tourism sector and destinations will have to start using it intensively and more widely.

There are more and more connected people all over the world. The Internet provides a lot of information, communication and exchange of experiences, reservations and much more. Being competitive means being digital. Countries and organizations are trying to be competitive by integrating technology into business and improving their connectivity, increasing investment in telecommunications infrastructure.

The solution to the problems faced by tourism enterprises on the path of digitalization can vary significantly depending on:

• "type, size and characteristics of the tourism business, as well as the sub-sector to which they belong (eg transport, accommodation, personal services),

• access to technology, information, experience, advice, mentoring and other resources and support,

• Ability to manage and develop strategies that determine the extent to which business owners perceive opportunities, perceive risk and are motivated to use opportunities

• Business location, social and economic context, and access to and availability of digital technologies. "[9]

According to Xiang and Fesenmeier, there are three key phases of technology development in tourism:

1. „Stage 1 - Sales and Marketing - The introduction of the Internet has allowed businesses to use technology as a marketing tool. websites began to replace paper marketing materials, web booking systems began to facilitate business transactions, and so on.

2. Phase 2 - Digital Business Ecosystems - The Internet has strengthened its place as a key source of information for travelers, and advances in Internet technology have made it possible to create a virtual marketplace where products and services can be searched, compared and traded. exchanged places, etc.) online. Vendors have become increasingly interested in customizing products and developing personal relationships with their customers. Innovative online resellers such as Expedia have emerged, and the growth of review sites such as TripAdvisor has allowed customers to control their purchases and given them an influential role in future consumer decision-making. Tourists increasingly booked and made electronic transactions online, which, in turn, contributed to the expansion of global markets.

3. Phase 3 - System Integration. Advances such as cloud computing, mobile and wearable technologies, augmented and virtual reality, GPS, and enhanced

integration and interoperability of digital systems have contributed to the interconnectedness of the digital and physical worlds. Combined with shared social media platforms and Web 2.0, which makes it easier for users to create content, these advances have opened up new and innovative opportunities for product development that have accelerated the global reach of tourism businesses.»[10]

Today, consumers are using digital technology to search, plan and book travel.

According to Arnould, Price, and Zinkhan, the travel experience is the sum of four distinct phases of the pre-consumption experience, the shopping experience, basic consumption, and the nostalgia experience. [11]

Digital technologies have important implications for tourism businesses of all sizes and for the sector as a whole. OECD data (2019) show that “on average, 77% of businesses offering housing, food and beverages in OECD countries have a website or homepage, and 70% use social networks. The tourism sector has embraced e-commerce as online platforms and payment systems have changed the way people buy travel products. ” use of new technologies.[12]

Thus, we are in the third stage of the use of ICT in tourism, where digital communications are becoming a necessity. The transition from traditional players to new digital competitors is primarily due to the consumption habits of Millennials (born in the early 1980s to the mid-1990s) and the generation (born in the late 1990s - early 2010s), which together with other generations that developing by 2040 will be the bulk of domestic and international tourists. "[13] They want fast and direct access to information, primarily through digital technology.

In the tourism industry, this means increasing the use of online sources and mobile platforms to obtain information at the planning stage (eg websites, social networks), combined with a decrease in the use of offline sources (eg visitor centers, print media, concierge). hotel); a tendency to stay online / connected to a destination to search and explore, share experiences, and receive real-time updates; and increasing the use of e-commerce payment methods instead of cash. Thus, we are in the third stage of the use of ICT in tourism, where digital communications are becoming a necessity. The transition from traditional players to new digital competitors is primarily due to the consumption habits of Millennials (born in the early 1980s to the mid-1990s) and the generation (born in the late 1990s - early 2010s), which together with other generations that developing by 2040 will be the bulk of domestic and international tourists. "[13] They want fast and direct access to information, primarily through digital technology.

In the tourism industry, this means increasing the use of online sources and mobile platforms to obtain information at the planning stage (eg websites, social networks), combined with a decrease in the use of offline sources (eg visitor centers,

print media, concierge). hotel); a tendency to stay online / connected to a destination to search and explore, share experiences, and receive real-time updates; and increasing the use of e-commerce payment methods instead of cash.

Scientists believe that the first transformation of tourism will begin in transport companies, which will have to make the traveler's experience as safe and comfortable as possible and include many safety protocols that will slow down the journey. All the necessary information should be found online. Tourists will be looking for more flexible bookings, as well as safer and more personalized hotels, which are likely to be more dependent on applications in the future. Automation, fewer personal contacts, room service and online booking of everything from the pool area to the restaurant table, as well as the quality of the internet connection will depend on the price.

With the closure of borders, many countries use domestic tourism as the main measure to prevent the spread of infection. Many events and meetings have been networked and they have become virtual, or we have hybrid solutions. Some hotels and resorts have gone live. As travelers need to be constantly up to date with the latest travel recommendations, a detailed and timely exchange of information has become important. In the market of tourist trips, the digitization of tourism plays an important role. Revenues from Booking and Expedia Group, the world's two largest online tourists (OTAs), more than doubled between 2013 and 2019, and valuations of travel review websites such as TripAdvisor have become an important part of overall travel. experience. As the COVID-19 pandemic has turned the travel industry upside down, digital innovations, along with new hygiene measures, interior trends and sustainability, are likely to usher in a new era of recreation.

Research has shown that up to 89% of young people book a holiday based on suggestions they find on Facebook, Twitter or Instagram, based on comments from people they consider authoritative to some degree. Not only are very young people exposed, but the percentages are significant: 30% to 40% of tourists admit to changing their travel plans after reading negative comments.

More people than ever are online now. The pandemic has forced many people to work from home. It has become very important for companies to find out which mobile platforms their customers are using and to find ways to connect with them on these platforms.

Digitalization and automation have significantly reduced the need for several types of jobs, and work has become delocalized and remote from regulation that protects workers' rights. On the one hand, this facilitates the work, on the other hand, rapid technological progress also has a negative impact on many service workers. Thus, in recent years, the following trends in digitalization in tourism are typical:

First, travel companies are increasingly relying on mobile applications for growth. More than 35% of users book travel through mobile applications, and this percentage will only increase soon. Developing your mobile app is certainly expensive for several market players, but it's worth it. In addition, many companies register as providers of other travel programs, which saves time and money.

Travel apps often give you options that you are likely to choose. This mechanism is also known as cognitive computing. This mechanism is based on your previous search queries, historical data and completed profile. They can narrow down your options for your entire trip without any effort on your part.

Currently, there is an electronic attack on the traditional tourism business. Electronic travel offices allow any credit card holder to purchase a tour, book a seat on a plane or hotel, buy tickets for entertainment events and rent a car anywhere in the world. Thus, computer technology has provoked the creation and application of fundamentally new electronic marketing channels for the promotion and sale of tourism products.

Of particular importance is the introduction of innovative technologies that radically change business processes in the field of tourism. Such new areas of digital tourism development include blockchain technologies that implement a distributed database in which storage devices are not connected to a shared server. In the near future, blockchain technologies will be used by online travel agencies, metasearch systems, GDS, airlines, which will lead to a radical change in business processes in the field of tourism.

Third, there is an omnichannel model in the tourism business, according to which no player is the best. The user gets experience with several suppliers and learns how they compare with each other before finally choosing any supplier. This model helps multiple business providers have more potential to get on customer screens. In the XXI century, the activities of tourism enterprises do not do without the use of information and digital technologies. In order to survive in the age of competition, it is necessary to introduce innovative ones technology. In such cases, travel agents and tour operators should develop and use new types of services that will not only appeal to tourists, but will be unique.

Conclusion. Communication is a matter of human nature. People, as social beings, need to communicate, receive and send information about what they feel, what they think, what makes them happy or scared, to find out what is happening around them, to agree with friends or to do business. . however, people also like to travel, gain new experiences, learn about new cultures. In this sense, modern

technology offers great opportunities for information, as well as new ways of doing business. The tourism sector is becoming increasingly important in the world.

In the period from 2009 to 2019, the real growth of revenues from international tourism (54%) exceeded the growth of world GDP (44%). By the beginning of 2020, tourism was undergoing constant expansion and diversification and became one of the largest and fastest growing economic sectors in the world. Tourism, both inbound and inbound, is a major part of gross domestic product for many economies around the world. This share is highest in Macau (China), where tourism accounts for 48% of GDP. In Jordan, Spain, Croatia and Mauritius, tourism accounts for 10% or more of the GDP of these countries. In France, the world's largest tourist destination, tourism accounts for 7% of GDP. In Ukraine, the expansive growth of tourism activity began in 2014, which lasted until March 2020 and finally stopped on February 24, 2022. Restrictions imposed by the Crown Virus pandemic and the war in Ukraine in early 2022 disrupted this steady growth.The new reality is that according to the UnwtO World Tourism Barometer (January 2021), the number of international tourists has fallen by 74 percent from almost 1.5 billion in arrivals in 2020 to about 38 million in 2019.

Currently, information support of business is considered as a strategic resource for business development and direction of increasing competitiveness in tourism at all levels of government (macro, meso and micro). The tourism business uses a number of information and communication technologies that provide business through teleconferencing from mobile communications, such as the ability to make a call to any part of the world from an airplane.

The use of information technology improves the safety and quality of travel services, as the organization, management and control of air transportation are implemented using electronic systems that help plan routes and schedules, monitor and analyze the flight, manage personnel. In hotel complexes, a high level of service can not be provided without the use of information and communication technologies that implement electronic redundancy, electronic keys and others technologies that improve the quality of service and at the same time allow to optimize the number of staff. Network information technology is a relevant and promising area of information development support. They provide the exchange of information between individual users of information and computer systems, the ability to share distributed information resources, obtain reference, documentary and other information from various specialized information funds.Many see the beginning of the recovery in the wider and better use of digital communications and in close communication with domestic tourists. Digital communication may begin as a convenience, but over time and a pandemic, it has become a necessity for modern tourism.

Digitalisation has undoubtedly had the greatest impact on the travel and tourism industry, as it mainly offers experience rather than any physical product, and therefore depends on the digital lifestyle. However, with the advent of rapid technological progress, people working in certain areas of services are at risk of losing their jobs. Therefore, comprehensive digital solutions are needed to create a digital path that embraces modern technology and empathizes with local culture and values.

REFERENCES

1. The 2021 digital Communication trends that will Boost Your Business", *MartechZone,* URL: https://martech.zone/digital-communication-trends/
2. OECD Tourism Trends and Policies 2020, URL: https://doi.org/10.1787/6b47b985-en, 62.
3. Gössling Stefan, Scott Daniel, hall C. Michael (2021): "Pandemics, tourismand global change: a rapid assessment of COVID-19", *Journal of Sustainable Tourism*, 7.
4. OECD Tourism Trends and Policies 2020, https://doi.org/10.1787/6b47b985-en, 62.
5. Cvetkovski Tatjana, Cvetkovska Tomanović Violeta (2017): *Poslovna komunikacija – savremenim uslovima poslovanja, 2. dopunjeno izdanje*, Univerzitet „Džon Nezbit ", Beograd, 10
6. World economic Forum: which are the most tourist-friendly countries?, URL: https://www.weforum.org/agenda/2017/04/which-are-the-most-tourist-friendly-countries/(12.03.2021.)
7. Ilić B., Stefanović V., Žikić S. (2020): Specifics of Leadership in Tourism with the Aim of Successful Business Processes, Megatrend revija, Vol. 17, No 1, 2020. 89-109.
8. Dredge Dianne*et. al.* (2018): *Digitalisation in Tourism: In-depth analysis of challenges and opportunities*. Low Value procedure. SME-17-C- 091-A for EASME, Virtual Tourism Observatory. Aalborg University, Copenhagen, 11.
9. Dredge Dianne *et. al.*(2018): *Digitalisation in Tourism: In-depth analysis of challenges and opportunities*. Low Value procedure. SME-17-C- 091-A for EASME, Virtual Tourism Observatory. Aalborg University, Copenhagen, 11.
10. Xiang z. & Fesenmaier D. (2017): Big data analytics, tourism design and smart tourism, In book Analytics in Smart Tourism Design: Concepts and Methods. Cham: Springer, 299-307.

11. E.J. Arnould, L. Price, G.M. zinkhan (2002): Consumers, McGraw-hill/Irwin, Boston.
12. OECD (2019), ICT Access and Usage by Businessesdatabase, November 2019.
13. OECD (2018), Analysing Megatrends to Better Shape the Future of Tourism, OECD Tourism Papers, No.2018/02, OECD Publishing. Paris. URL: https://doi.org/10.1787/d465eb68-en, 19.
14. OECD (2020), Tourism Trends and Policies 2020, 62.