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THE DIGITAL ECONOMY OF THE REGION IN THE CONTEXT OF CONDITIONS TO INCREASE ITS COMPETITIVENESS

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The article identifies and substantiates the prerequisites and the need to implement the concept of digitalization of the regions of Ukraine. The difference of national programs and digitization strategies in different countries is considered, namely the programs: Concept of development of digital economy and society of Ukraine (Ukraine), Consortium of industrial Internet (USA), Society 5.0 (Japan), Industry 4.0 (Germany), Made in China – 2025 (China), Digital Technology Development Strategy (UK), Digital Economy Strategy of Canada is based on the economic plan of the government Advantage Canada (Canada) and reveals the main goal of digital development of national strategies for digitalization of the economy. The priority goals of digital transformation of Ukraine are considered, namely: increase of the level of digital literacy of the population; ensuring unimpeded access to high-speed Internet of all settlements and social institutions; introduction of the possibility of receiving electronic services via a smartphone; introduction of electronic document management; ensuring electronic interaction between national registers; introduction of open data by regional authorities; development of e-democracy tools. The factors that need to monitor and analyze the situation, identify and eliminate inconsistencies to increase the competitiveness of the company (development of information and communication technologies; development of scientific potential of employees of the organization; maintaining a favorable image of the company). The authors present summary statistics on the number of Internet subscribers by region as of 2019–2020. According to the above data, the presence of the so-called «digital divide», that is a noticeable difference between the regions, remains a problematic issue in Ukraine in practice. The priority directions of development of digital economy of regions of Ukraine are analyzed: stimulation of creation and development of the business focused on digital economy; additional regional support for small and medium-sized businesses in the field of digital technologies; formation and scaling of digital platforms for the main sectors of the economy; increasing the volume of training in the field of digital technologies; strengthening state support for the development of digital technologies in the field of health care in the regions.

Keywords: digital economy, digitalization, competitiveness of regions, competitive advantages, strategy.

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Problem statement

At the present stage and today, the development of Ukraine depends on the general situation related to the new pharmacy, namely the digital economy. The use of information and communication, digital technologies in intersection with the conditions of the crisis characterizes the basis of the digital economy. Modern conditions and the natural decline

in productivity in the traditional sectors of the economy of the industrial era determine the further development of the global socio-economic situation and the choice of priorities for technological development of the country.

Compliance with modern challenges of Industry 4.0 implies the need to increase the share of innovative products and restructuring on digital



technology platforms with a focus on strengthening the fundamental unevenness of innovation performance of regions with minimal use of processes on digital platforms in the regions and to provide new technological opportunities: convergence, flexibility, versatility technologies, cross-industry efficiency, development of additive, cloud technologies based on new network resources. Also differs in the intensity of the use of large arrays of information, new decision-making algorithms, automation technologies and robotics. The most important issue in this regard is to ensure the efficiency of innovation and strategic management of technological development of the region, identification, preservation and technological development of priority sectors of the region, taking into account new threats and consequences of reduced production, on the one hand, and opportunities for digital industry. Ensuring sustainable high growth rates of labor productivity, especially in high-tech sectors of the economy, will be the basis of economic growth in the region [1].

Statement of the main material

Competitiveness in the digital economy acts as an opportunity to operate successfully in a competitive environment, using its intellectual and human resources to process and use information and knowledge in their activities in an asymmetry of information [2]. When considering competitiveness in a digital economy, it is necessary to differentiate the scope of this economic category, paying attention to the competitiveness of the state as a whole in the world economy, in the context of individual regions, and the competitiveness of individual enterprises in the national economy.

Each country, demonstrating its success in creating a digital economy, has a certain, established strategy and priorities for industrialization based on the use of digital technologies, its own experience, and there is no absolute leader in the development of all its aspects.

Table presents the differences between national digitization programs in some leading countries and Ukraine, where we can note the diversity of technological development in different regions and industries.

After the global financial crisis in Germany, there is a trend towards reindustrialization. In essence, the new approach involves increasing the competitiveness of products produced by integrating «cyberphysical systems» into factory processes by connecting machines, warehouses to the «Internet of Things and Services». It is a qualitatively new interaction of intellectual equipment and means of production, which includes independent data exchange; they themselves initiate certain actions and independently control each other. China has

«digitized» millions of people. «Made in China – 2025» – a development plan for China, based on the principles of development of China’s manufacturing industry for the next decade. This program, designed to grow China’s innovative industries, has the main goal not only to develop the manufacturing industry, but also to achieve the level and quality of production in the world’s leading industrialized nations. It is widely believed among Chinese scientists and economists that it will help modernize production in China and accelerate the transition from the «Made in China» principle to the «Made in China based on intelligent technology» strategy [1].

Although different countries use different terms to describe a new stage of economic development (in the United States – «Industrial Internet», in Germany – Industry 4.0.), But all these concepts are focused on the transformation of industry. Instead, the theory of «Society 5.0», developed in Japan, involves solving serious social problems using the previously mentioned technologies. «Society 5.0» (Super Smart Society or Society 5.0) is a socio-economic cultural system based on advanced digital technologies, which provides the development of science and technology for the welfare of society.

Society 5.0’s strategy expands the concept of Industry 4.0. In the new theory, physical and cyberspace become one in order to solve social problems and create conditions for sustainable economic growth. However, the comprehensive development of digital technologies also requires a broad infrastructure.

The technological basis of this concept in a simplified form is as follows: with the help of Internet of Things technologies in physical space accumulate huge arrays of information (Big Data), which are stored in cyberspace and analyzed using artificial intelligence. As a result of this analysis, new solutions emerge that return to the physical dimension.

In Ukraine, according to the resolution On approval of the State Strategy for Regional Development for 2021–2027 [3], the defined strategy will contribute to the economic growth of Ukraine and the development of the information society. As well as providing access to high-speed Internet for all settlements, development of public services and digital transformation of the regions.

In total, the strategy contains more than 60 tasks of digital transformation. The priority goals are:

- increasing the level of digital literacy of the population;
- ensuring unimpeded access to high-speed Internet of all settlements (primarily rural and small towns) and social institutions;
- introduction of the possibility of receiving electronic services via a smartphone;

Differences between national programs and digitization strategies in different countries

Country	The name of the strategy of digitalization of the economy	The main goal of digital development
Ukraine	The concept of development of the digital economy and society of Ukraine	Stimulating the economy and attracting investment; the basis for the transformation of domestic industries into competitive and efficient through their «digitization»; solving the problem of «digital divide», bringing «digital» technologies closer to citizens, including by providing citizens with access to broadband Internet, especially in villages and small towns; creating new opportunities for the realization of human capital, the development of innovative, creative and «digital» industries and businesses; export development of «digital» products and services (IT outsourcing)
USA	Industrial Internet Consortium	Improving technology, sharing best practices and achieving the best results based on strategic alliances, reducing risks and costs, aggregate progress
Japan	Society 5.0	Technological development and motivation of large companies to create socially oriented technologies, directing resources to society through the integration of physical and cyberspace
Germany	Cyber Physical Systems – CPS	Germany's leadership in industry in mechanical engineering, automotive, transport and logistics sector based on the creation of cyberphysical systems
China	«Made in China 2025»	Bridging the gap with Western high-tech advances and reducing China's dependence on imported technology, world leadership in high technology
Great Britain	UK Digital Strategy	Application of blockchain in three sectors: marketing, healthcare and cultural and entertainment industry. The Ministry of Culture, Media and Sports will promote the development of the digital space
Canada	Canada's digital economy strategy built upon the Government's economic plan, Advantage Canada	Ensuring Internet security of the state, enterprises and citizens; including the confidentiality of personal data, the development of open data, the simplification of access to information and its protection

- introduction of electronic document management;
- ensuring electronic interaction between national registers, registers of local self-government bodies;
- translation of priority public services into electronic form;
- introduction of open data by regional authorities;
- development of e-democracy tools.

As well as the introduction of a system of electronic reception of documents and providing the opportunity to apply for social protection services through online services, and the introduction of a system of electronic queues. In addition, it is planned to create an electronic educational system, the introduction of modern educational programs at all levels of education for the effective formation of modern digital skills and the introduction of new professions and more.

The nature of the economic situation is changing, increasingly transformed under the influence of modern technology, which highlights

the need to analyze the factors of competitiveness and identify mechanisms for managing competitiveness in today's digital economy, both at the enterprise level and nationally.

Competitiveness management at the state level significantly affects the state of competition also in the domestic market. The activity of enterprises in the national economy is influenced by macroeconomic factors, which are external factors of competitiveness, arising from the ability of the state to effectively innovate and have a stable position in international commodity and financial markets.

With regard to internal factors, the competitiveness of enterprises is primarily influenced by the practice of using the benefits of the information economy, as well as the scale of use of information economy tools [4].

In the digital economy, the mechanism of competitiveness management is based, as in the traditional concept, on the implementation of tactical and strategic goals of the company, but the achievement of competitive advantage is due to such factors as:

- development of information and communication technologies;
- development of scientific potential of employees of the organization;
- maintaining a favorable image of the company [5].

It is on these factors that it is necessary to monitor and analyze the situation, identify and eliminate inconsistencies to increase the company's competitiveness.

In a digital economy to achieve competitive advantage, along with the scientific potential of employees, it is also important knowledge and active use of information technology in business processes, the ability to self-development and self-improvement to adapt to new technologies of production, marketing and interaction with consumers.

Thus, there is a transformation of competitiveness factors from the consideration of the traditional concept of the five forces of competition of Porter to the shift towards the rational use of information and communication technologies and the transformation of business processes into digital format.

The mechanism of personnel management of the organization as a factor of increase of competitiveness also undergoes transformation.

In this aspect, it is necessary to provide the company's employees with the opportunity to regularly improve their skills, use modern IT-systems in their work and stimulate their initiative and involvement in the process [6].

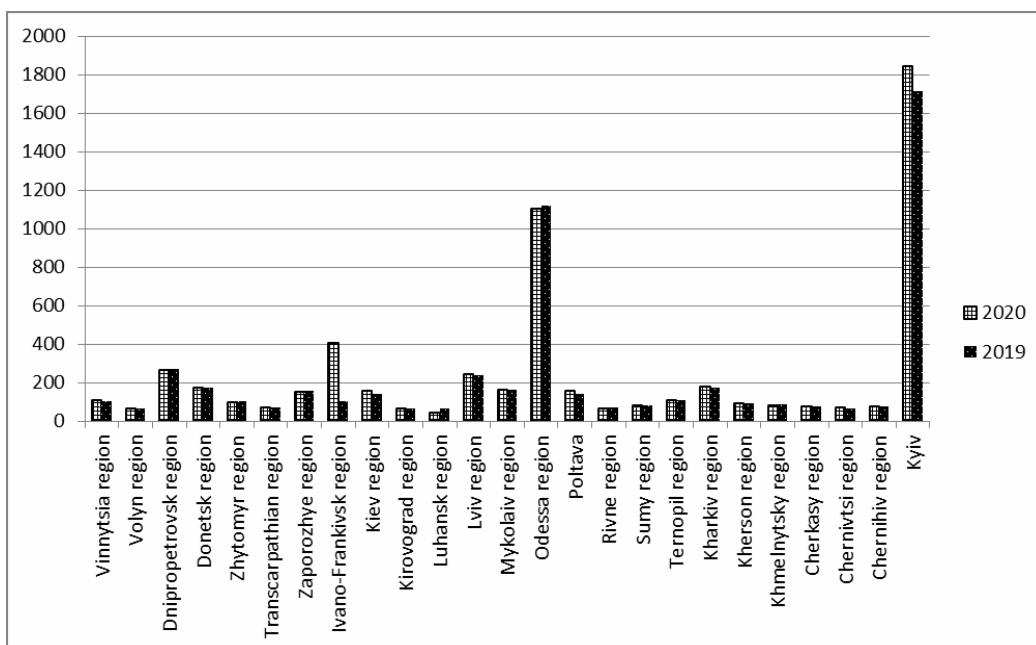
The mechanism of competitiveness management in a digital economy is also based on such a factor of competitive advantage as flexibility

and ability to change. The company's strategy can no longer be a fixed plan for the future. Its wording should include an approach that adapts to the rapidly losing environment and does not create gaps for threats from competitors. In this aspect, the scientific literature proposes the concept of hypercompetition, the optimal way to succeed in which depends on the constant creation of new benefits and continuous development and implementation of innovations demanded by the market [7].

In the foreign scientific literature there is also an increase in competitive pressure between enterprises in the digital environment due to the high degree of interchangeability of products and services, which also affects the construction of customer relations in a customer-oriented approach, offering comprehensive services [8]. In this aspect, it is important to consider two areas of competitiveness: digital transformation in the form of digitization and digitization [9].

In fig. presents consolidated statistics on the number of Internet subscribers by region as of April 1, 2019 and January 1, 2020 [10, 11]. According to the above data, it is clear that the problem in Ukraine in practice is the presence of the so-called «digital divide», that is a noticeable difference between the regions.

Thus, more than 65% of Internet users live in Kyiv, Odesa, Ivano-Frankivsk, Dnipropetrovsk, Lviv and Kharkiv regions. This situation significantly creates unequal opportunities to engage in entrepreneurial activity, receive state and social services, develop the intellectual potential and labor competencies of the population of different regions. As you can see, the level of digitalization Kirovograd



Number of Internet subscribers by regions for 2019 and 2020 (thousand people)

region lags far behind the leading regions. The analysis also shows that more than 60% of Kyiv residents use the Internet.

In our opinion, the priority directions of development of the digital economy of the regions of Ukraine should include:

1 – stimulating the creation and development of business focused on the digital economy. The state can provide them with targeted support: guarantees for bank loans, reimburse part of the cost of patenting, form targeted investment funds, provide support through the mechanism of public procurement;

2 – additional regional support for small and medium-sized businesses in the field of digital technologies, platforms, provision of digital services through the provision of certain benefits to relevant enterprises and companies;

3 – formation and scaling of digital platforms for the main areas of the economy. Today in Ukraine there are portals of public services, platforms for payments, there is a transition to paperless technology;

4 – increasing the training of specialists in the field of digital technologies, especially in regions where the level of competencies of the population in the digital economy is low. After all, it is the regions that are primarily interested in the effective training of qualified personnel and the involvement of professionals in their enterprises;

5 – strengthening state support for the development of digital technologies in the field of health care in the regions. The main directions of development of digital technologies in medicine should be means of control of physiological parameters of the person; personalized approach in diagnostics; blockchain technologies for the development of preventive medicine [12].

Conclusions

Thus, in terms of the regions of Ukraine today there is a digital divide, the consequence of which is, among other things, the uneven socio-economic development of the territories. Low level of digital infrastructure development and security of digital processes; the lack of a system of state support for organizations implementing digital technologies in the regions significantly slows down the country's transition to a higher level of development. The development of the digital economy in our country largely depends on the effective operation of the higher education system, including the implementation of digital education programs and the availability of the necessary material and technical base. In this regard, the development of digital literacy of the population is important, especially on the basis of regional higher education institutions [12].

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ЦИФРОВА ЕКОНОМІКА РЕГІОНУ В КОНТЕКСТІ УМОВ ПІДВИЩЕННЯ ЙОГО КОНКУРЕНТОСПРОМОЖНОСТІ

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У статті визначено та обґрунтовано передумови й необхідність впровадження концепції цифровізації регіонів України. Розглянуто відмінність національних програм та стратегій цифровізації в різних країнах, а саме програми: Концепція розвитку цифрової економіки та суспільства України (Україна), Консорціум промислового інтернету (США), Суспільство 5.0 (Японія), Індустрія 4.0 (Німеччина), Зроблено в Китаї – 2025 (Китай), Стратегія розвитку цифрових технологій (Великобританія), Стратегія цифрової економіки Канади побудована на економічному плані уряду Advantage Canada (Канада) та розкрито головну мету цифрового розвитку національних стратегій цифровізації економіки. Розглянуто пріоритетні цілі цифрової трансформації України, а саме: підвищення рівня цифрової грамотності населення; забезпечення безперешкодного доступу до високошвидкісного Інтернету всіх населених пунктів та соціальних закладів; запровадження можливості отримання електронних послуг через смартфон; впровадження електронного документообігу; забезпечення електронної взаємодії між національними реєстрами; впровадження регіональними органами влади відкритих даних; розвиток інструментів електронної демократії. Виокремлено чинники, за якими необхідно проводити моніторинг і аналіз ситуації, виявлення і усунення невідповідностей для підвищення конкурентоспроможності компанії (розвиток інформаційно-комунікаційних технологій; розвиток наукового потенціалу співробітників організації; підтримання сприятливого іміджу компанії). Авторами приведено зведену статистику щодо кількості абонентів Інтернету в розрізі регіонів України станом за 2019-2020 роки. Згідно з приведених даних виявлено, що в Україні проблемним питанням на практиці залишається наявність так званого «цифрового розриву», тобто помітна різниця між регіонами. Проаналізовано пріоритетні напрями розвитку цифрової економіки регіонів України: стимулювання створення і розвитку бізнесу, орієнтованого на цифрову економіку; додаткова регіональна підтримка малого і середнього бізнесу в сфері створення цифрових технологій; формування та масштабування цифрових платформ для основних сфер економіки; збільшення обсягів підготовки фахівців у сфері цифрових технологій; посилення державної підтримки розвитку цифрових технологій у сфері охорони здоров'я в регіонах.

Ключові слова: цифрова економіка, цифровізація, конкурентоспроможність регіонів, конкурентні переваги, стратегія

ЦИФРОВАЯ ЭКОНОМИКА РЕГИОНА В КОНТЕКСТЕ УСЛОВИЙ ПОВЫШЕНИЯ ЕГО КОНКУРЕНТОСПОСОБНОСТИ

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В статье определены и обоснованы предпосылки и необходимость внедрения концепции цифровизации регионов Украины. Рассмотрено отличие национальных программ и стратегий цифровизации в разных странах, а именно программы: Концепция развития цифровой экономики и общества Украины (Украина), Консорциум промышленного интернета (США), Общество 5.0 (Япония), Индустрия 4.0 (Германия), Сделано в Китае – 2025 (Китай), Стратегия развития цифровых технологий (Великобритания), Стратегия цифровой экономики Канады построена на экономическом плане правительства Advantage Canada (Канада) и раскрыто главную цель цифрового развития национальных стратегий цифровизации экономики. Рассмотрены приоритетные цели цифровой трансформации Украины, а именно: повышение уровня цифровой грамотности населения; обеспечение беспрепятственного доступа к высокоскоростному Интернету всех населенных пунктов и социальных учреждений; предоставление возможности получения электронных услуг через смартфон; внедрение электронного документооборота; обеспечения электронного взаимодействия между национальными реестрами; внедрение региональными органами власти открытых данных; развитие инструментов электронной демократии. Выделены факторы, по которым необходимо проводить мониторинг и анализ ситуации, выявление и устранение несоответствий для повышения конкурентоспособности компании (развитие информационно-коммуникационных технологий, развитие научного потенциала сотрудников организации, поддержание благоприятного имиджа компании). Авторами приведено сводную статистику по количеству абонентов Интернета в разрезе регионов Украины по состоянию за 2019-2020 годы. Согласно приведенных данных выявлено, что в Украине проблемным вопросом на практике остается наличие так называемого «цифрового разрыва», то есть заметная разница между регионами. Проанализированы приоритетные направления развития цифровой экономики регионов Украины: стимулирование создания и развития бизнеса, ориентированного на цифровую экономику; дополнительная региональная поддержка малого и среднего бизнеса в области создания цифровых технологий; формирования и увеличения цифровых платформ для основных сфер экономики; увеличение объемов подготовки специалистов в сфере цифровых технологий; усиление государственной поддержки развития цифровых технологий в сфере здравоохранения в регионах.

Ключевые слова: цифровая экономика, цифровизация, конкурентоспособность регионов, конкурентные преимущества, стратегия.

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The article identifies and substantiates the prerequisites and the need to implement the concept of digitalization of the regions of Ukraine. The difference of national programs and digitization strategies in different countries is considered, namely the programs: Concept of development of digital economy and society of Ukraine (Ukraine), Consortium of industrial Internet (USA), Society 5.0 (Japan), Industry 4.0 (Germany), Made in China – 2025 (China), Digital Technology Development Strategy (UK), Digital Economy Strategy of Canada is based on the economic plan of the government Advantage Canada (Canada) and reveals the main goal of digital development of national strategies for digitalization of the economy. The priority goals of digital transformation of Ukraine are considered, namely: increase of the level of digital literacy of the population; ensuring unimpeded access to high-speed Internet of all settlements and social institutions; introduction of the possibility of receiving electronic services via a smartphone; introduction of electronic document management; ensuring electronic interaction between national registers; introduction of open data by regional authorities; development of e-democracy tools. The factors that need to monitor and analyze the situation, identify and eliminate inconsistencies to increase the competitiveness of the company (development of information and communication technologies; development of scientific potential of employees of the organization; maintaining a favorable image of the company). The authors present summary statistics on the number of Internet subscribers by region as of 2019-2020. According to the above data, the presence of the so-called «digital divide», that is a noticeable difference between the regions, remains a problematic issue in Ukraine in practice. The priority directions of development of digital economy of regions of Ukraine are analyzed: stimulation of creation and development of the business focused on digital economy; additional regional support for small and medium-sized businesses in the field of digital technologies; formation and scaling of digital platforms for the main sectors of the economy; increasing the volume of training in the field of digital technologies; strengthening state support for the development of digital technologies in the field of health care in the regions.

Keywords: digital economy, digitalization, competitiveness of regions, competitive advantages, strategy.

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