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DIGITAL ECONOMY IN A GLOBAL CONTEXT: WORLD EXPERIENCE

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ABSTRACT

Purpose: The purpose of the academic paper is to highlight the principal directions and trends of the world experience in developing the economic sphere's digital component**.**

Theoretical framework: The processes related to digitalizing all branches of the world economy are irreversible components of the evolutionary development of the modern global economy. In current realities, the overriding priority in the economic sphere is the development of innovations and digital technologies using all their advantages regarding expanding the information component of enterprises' activities, creating information assets, minimizing risks, the possibility of remote cooperation and the reduction of transaction costs, the ability to quickly respond to existing security, competitive, and other types of challenges.

Design/methodology/approach: System-structural, comparative, logical-linguistic methods, analysis, synthesis, induction, and deduction in the processing scientific information, abstraction, and idealization for studying and processing of statistical and analytical data were used during the research.

Findings: Based on the research results, the concepts and components of the digitalization of the economic sphere, the main prerequisites, patterns and directions of developing digital economy in recent years were studied from the perspective of evaluating the global experience of this process.

Research, Practical & Social implications: The theoretical part of the research substantiates the relevance, concepts, components and main stages of developing the digital economy in the global context. The practical part of the research includes the features of distributing countries that are best prepared for the new digital economy

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according to the NRI rating based on the results of 2020, as well as by groups that are separate components of this index, namely, by the level of technology development, human capital, management level and degree impact on the world economic arena.

Originality/value: According to the analysis of the scientific literature on the research topic, in order to achieve success in the field of digital transformation of modern business, it is necessary to purposefully build its work, relying on the latest achievements of the digital environment and using all the possibilities of the digital infrastructure.

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ECONOMIA DIGITAL EM UM CONTEXTO GLOBAL: EXPERIÊNCIA MUNDIAL

RESUMO

Objetivo: O objetivo do trabalho acadêmico é destacar as principais direções e tendências da experiência mundial no desenvolvimento do componente digital da esfera econômica.

Enquadramento teórico: Os processos relacionados com a digitalização de todos os ramos da economia mundial são componentes irreversíveis do desenvolvimento evolutivo da moderna economia global. Nas realidades atuais, a prioridade absoluta na esfera econômica é o desenvolvimento de inovações e tecnologias digitais usando todas as suas vantagens no que diz respeito à expansão do componente informacional das atividades das empresas, criação de ativos de informação, minimização de riscos, possibilidade de cooperação remota e redução de transações custos, a capacidade de responder rapidamente aos desafios existentes de segurança, competitivos e outros tipos.

Delineamento/metodologia/abordagem: Métodos sistema-estruturais, comparativos, lógico-linguísticos, análise, síntese, indução e dedução no processamento da informação científica, abstração e idealização para estudo e processamento de dados estatísticos e analíticos foram utilizados durante a pesquisa.

Resultados: Com base nos resultados da pesquisa, os conceitos e componentes da digitalização da esfera econômica, os principais pré-requisitos, padrões e direções do desenvolvimento da economia digital nos últimos anos foram estudados na perspectiva de avaliar a experiência global desse processo.

Pesquisa, implicações práticas e sociais: A parte teórica da pesquisa substancia a relevância, conceitos, componentes e principais etapas do desenvolvimento da economia digital no contexto global. A parte prática da pesquisa inclui as características dos países distribuidores que estão mais bem preparados para a nova economia digital de acordo com a classificação do NRI com base nos resultados de 2020, bem como por grupos que são componentes separados desse índice, ou seja, pelo nível de desenvolvimento tecnológico, capital humano, nível de gestão e grau de impacto na arena econômica mundial.

Originalidade/valor: De acordo com a análise da literatura científica sobre o tema da pesquisa, para alcançar o sucesso no campo da transformação digital dos negócios modernos, é necessário construir propositalmente seu trabalho, contando com as mais recentes conquistas do ambiente digital e usando todas as possibilidades da infraestrutura digital.

Palavras-chave: Economia Digital, Infraestrutura Digital, Aplicação de Plataformas Digitais, Modelos Digitais de Desenvolvimento Econômico, Globalização dos Mercados de Capitais, Ambiente de Negócios Digitais.

ECONOMÍA DIGITAL EN UN CONTEXTO GLOBAL: EXPERIENCIA MUNDIAL

RESUMEN

Propósito: El propósito del trabajo académico es resaltar las principales direcciones y tendencias de la experiencia mundial en el desarrollo del componente digital de la esfera económica.

Marco teórico: Los procesos relacionados con la digitalización de todas las ramas de la economía mundial son componentes irreversibles del desarrollo evolutivo de la economía global moderna. En las realidades actuales, la prioridad absoluta en el ámbito económico es el desarrollo de innovaciones y tecnologías digitales utilizando todas sus ventajas en cuanto a la expansión del componente de información de las actividades de las empresas, la creación de activos de información, la minimización de riesgos, la posibilidad de cooperación remota y la reducción de transacciones. costos, la capacidad de responder rápidamente a la seguridad existente, la competencia y otros tipos de desafíos.

Diseño/metodología/enfoque: Durante la investigación se utilizaron métodos sistémico-estructurales, comparativos, lógico-lingüísticos, análisis, síntesis, inducción y deducción en el procesamiento de la información científica, abstracción e idealización para el estudio y procesamiento de datos estadísticos y analíticos.

Hallazgos: Con base en los resultados de la investigación, se estudiaron los conceptos y componentes de la digitalización de la esfera económica, los principales requisitos previos, patrones y direcciones del desarrollo de la economía digital en los últimos años desde la perspectiva de evaluar la experiencia global de este proceso.
Implicaciones de investigación, prácticas y sociales: la parte teórica de la investigación fundamenta la relevancia, los conceptos, los componentes y las principales etapas del desarrollo de la economía digital en el contexto global. La parte práctica de la investigación incluye las características de distribución de los países que están mejor preparados para la nueva economía digital según la calificación NRI basada en los resultados de 2020, así como por grupos que son componentes separados de este índice, a saber, por el nivel de desarrollo tecnológico, capital humano, nivel de gestión y grado de impacto en el escenario económico mundial.
Originalidad/valor: De acuerdo con el análisis de la literatura científica sobre el tema de investigación, para lograr el éxito en el campo de la transformación digital de los negocios modernos, es necesario construir con propósito su trabajo, apoyándose en los últimos logros del entorno digital. y utilizando todas las posibilidades de la infraestructura digital.

Palabras clave: Economía Digital, Infraestructura Digital, Aplicación de Plataformas Digitales, Modelos Digitales de Desarrollo Económico, Globalización de los Mercados de Capitales, Entorno Empresarial Digital.

INTRODUCTION

The objective processes of computerization, which have been gaining momentum in recent years in all spheres of social development, require countries to formulate a balanced policy on digitization, regulatory liberalization, and adjustment of the regulatory and legal framework. They also require strengthening the “analog” fundamentals of digital transformation, stimulating investment processes for accelerating the development of the digital economy based on using modern information and communication technologies and applying the scientific foundations of theories and concepts of economic development in the conditions of digital transformation of global social processes.

The theoretical part of the research substantiates the relevance, concepts, components and main stages of developing the digital economy in the global context.

The practical part of the research includes the features of distributing countries that are best prepared for the new digital economy according to the NRI rating based on the results of 2020, as well as by groups that are separate components of this index, namely, by the level of technology development, human capital, management level and degree impact on the world economic arena. An assessment of digital economy’s impact on particular nations’ GDP was also done as part of the present scientific work.

Based on the research results, conclusions were drawn regarding the issues raised. In particular, it was established that Sweden, Denmark, Singapore, the Netherlands and Switzerland belong to the five countries with the highest level of the Network Readiness Index, and the USA ranks only eighth in the top ten. At the same time, Switzerland, Sweden, the Netherlands and the USA have the highest level of development in terms of digital

technologies' development level. Singapore, which is one of the leaders according to the NRI indicator, occupies the penultimate place in the top ten of this index. The personnel provision's indicator of the economy is decisive in the NRI formation, forasmuch as the leading countries according to the general level of the index occupy the first places in terms of this indicator's value. Norway, Denmark and Sweden are the leaders in the "Management" component of the Network Readiness Index. Singapore, Germany and Great Britain occupy relatively low places in terms of this indicator's rating level. Therefore, the components taken into account when calculating this indicator are important but not decisive criteria when calculating the total size of the NRI index. Indicators forming the "Impact" category significantly influence on the formation of the Network Readiness Index's overall size. In general, the leading countries, according to this indicator, are the countries with the highest NRI rate. The analysis of the digital economy's ratio in the GDP of individual countries shows that the share of companies conducting their activities in the digital mode in the country's GDP has a direct impact on the absolute volume of household expenditures and a fairly conditional direct impact on the volumes of exports, imports and investments in the respective countries in the electronic segment of the economy.

LITERATURE REVIEW

The modern world has already taken the first step towards a fundamentally new technological and economic reality, a component of which is digital economic and social processes. The challenges of modern industrial society are difficult to overestimate. We are talking about a change in the global social-technological structure, the consequence of which is a complete reformatting of the systems we are used to, and the formation of new economic strategies. Based on them, the technological paradigm is changing, management models and social norms are being introduced, and large-scale demographic shifts are taking place (Kan, Lyu, Huang & Yao, 2022).

In modern conditions, the acceleration of innovative development is based on introducing digital technologies that contribute to the formation of new business models. From the perspective of analyzing international and state institutions, the transition to the digital economy is considered as a mechanism of economic growth, forasmuch as ICT can positively affect the efficiency, effectiveness, profitability and quality of economic and social activities (Banga, 2022). Investment projects considered that are environmentally aimed at the building by multicriteria methodology (Shvets, V. Y., Rozdobudko, E. V., & Solomina, G. V., 2013).

The risks of multimodal landscapes are highlighted with mathematical modeling (Nitsenko, V., Kotenko, S., Hanzhurenko, I., Mardani, A., Stashkevych, I., & Karakai, M., 2020).

According to scientists' standpoint, the digital economy encompasses all types of economic activity. Summarizing the existing definitions of the digital economy, it should be noted that in most definitions, the digital economy is considered as an activity based on the active implementation of innovations and information and communication technologies in all types of economic activity and spheres of social life. This makes it possible to significantly increase efficiency/productivity in various types of economic activity. The digital economy is fundamental to globalization and the industrial revolution (Adriaens & Ajami, 2021).

In conditions when the borders between countries are becoming less and less visible, the rapid processes of technological transformations make it possible to transform business models into qualitatively new forms of activity, from simple automation of processes to strategic corporate organization (Timchuk & Evloeva, 2020).

The general regularity of the digital economy is its focus on the end consumer and the wide use of information as a driving resource, considering the specific features of this consumer (Elia et al., 2021).

In modern conditions, digital platforms are becoming points of concentration of information capital. From an economic perspective, a digital platform implements a multi-market model in which demand and supply are coordinated, transaction costs are optimized, and information asymmetry in the market is reduced. There is a transition from unification to general aggregation of all possible goods and services, contributing to the optimal development of the competitive environment (Zhang, Pan, Feng & Qin, 2022).

The digital economy is a global phenomenon that is developing thanks to new technologies and the widespread introduction of Internet communication tools. The transition of the business to the online mode has become a common phenomenon in our time, which allows us to use new opportunities for the development of companies and facilitates the process of human resource management (Serafim-Silva et al., 2022).

The high-quality organization of the company's work in the Internet environment today is the strength of the company, which ensures its ability to withstand the risks of activity in the external environment and makes the company stable in the face of these changes (Dulaimi & Al-Hindawy, 2023).

Currently, the need to change priorities and the urgency of systemic reforms in the field of digital economy development is becoming more and more evident around the world. At the same time, according to numerous scientists' standpoints, the main principles of developing the digital segment of the economy are as follows:

– integrity (mutual understanding between members of society in the process of participation in individual components of digital economic processes);

– completeness (elimination of institutional barriers on the way to digitalization);

– accessibility (equal access to services, information, and knowledge);

– justice (all members of society and the company must follow the established rules);

– security (observance by all participants of the economic system of cyber security, norms of protection of personal data and commercial secrecy);

– efficiency (the result of switching work to digital mode should exceed its cost);

– openness (cooperation with all partners to create a global e-commerce market);

– independence (ensuring freedom to search, process, analyze and transmit information) (Ferracane & Marel, 2019), (Ferencz & Gonzales, 2019), (Qian, Liu & Pan, 2022).

Also, according to numerous scientists' standpoints, the advanced digital infrastructure is the basis of developing the economy's digital segment (Jiang, 2021).

The development of digital infrastructure makes it possible to overcome information inequality in access to economic, social, cultural and educational opportunities existing or deepening due to incomplete, uneven or insufficient access to computers and telecommunications, as well as digital technologies. Digital infrastructure with systematic state support stimulates the development of an open information society as one of the essential factors in increasing the efficiency of using ICT in order to improve the citizens' life quality, economy development, and social society (Ding, Zhang & Tang, 2021). The impact of migration of highly qualified workers on the country's competitiveness and economic growth has been studied (Oliinyk, O., Bilan, Y., Mishchuk, H., Akimov, O., & Vasa, L., 2021).

The purpose of the research is to determine the principal tendencies and comparative features of the digital economy's development level of different countries, as well as to outline the digital economy's main components of different countries.

MATERIALS AND METHODS

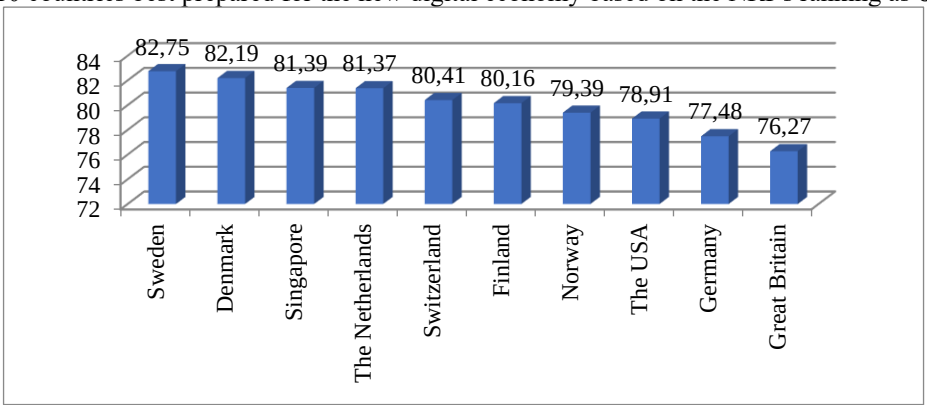
A practical study of directions, tendencies and the development degree of the digital economy in the world was conducted by evaluating statistical and analytical information on the specified issues, primarily based on the data of the Network Readiness Index 2020 and Shaping Europe's Digital Future.Brussels.COM (19.02.2020).

RESULTS

The key indicator for assessing the level of the digital aspect of the country's development is the Network Readiness Index (NRI). It is jointly calculated annually by the World Economic Forum, the World Bank and the International Business School INSEAD. This indicator measures how effectively a business uses digital technologies to increase its competitiveness and development.

This indicator is calculated to assess the state of development of the information society and achieve the main strategic goals of economic development. The NRI values for the ten countries with the highest level of network readiness are represented in Figure 1.

Figure 1. 10 countries best prepared for the new digital economy based on the NRI's ranking as of 2020, %

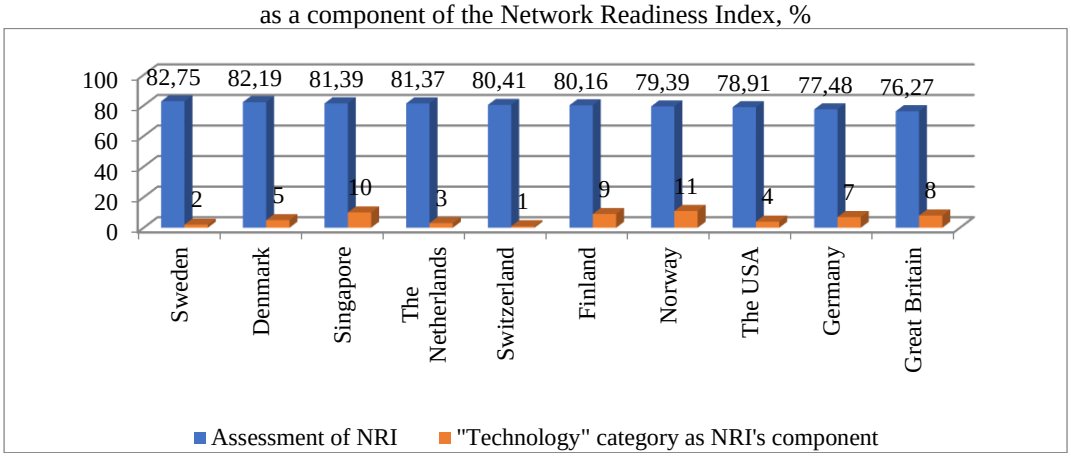


Source: compiled by the authors based on data (Network Readiness Index, 2020).

It can be seen from Figure 1 that Sweden, Denmark, Singapore, the Netherlands and Switzerland belong to the top five countries with the highest level of this indicator. At the same time, the USA occupies only the eighth place in the top ten.

The index measures the level of ICT development using 62 benchmarks, divided into four main groups: technology, people, management, and influence (the place of countries according to each of these components among other countries is shown in Figures 2 - 4).

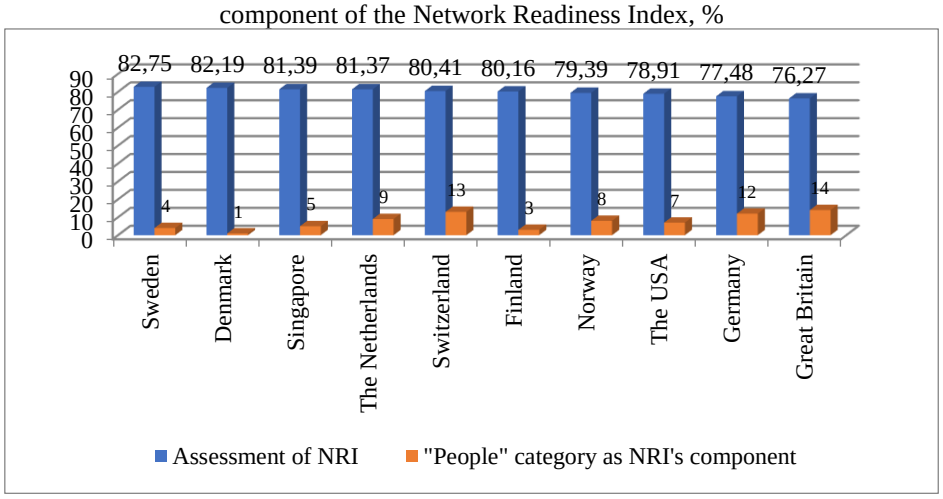
Figure 2. The level of assessing the leading countries according to the NRI rating in the "Technology" category as a component of the Network Readiness Index, %



Source: compiled by the authors based on data (Network Readiness Index, 2020).

Figure 2 shows that Switzerland, Sweden, the Netherlands and the USA have the highest level of development in terms of digital technologies' development level. However, Singapore, which is one of the leaders in terms of the NRI indicator, occupies the penultimate place in the top ten of this index.

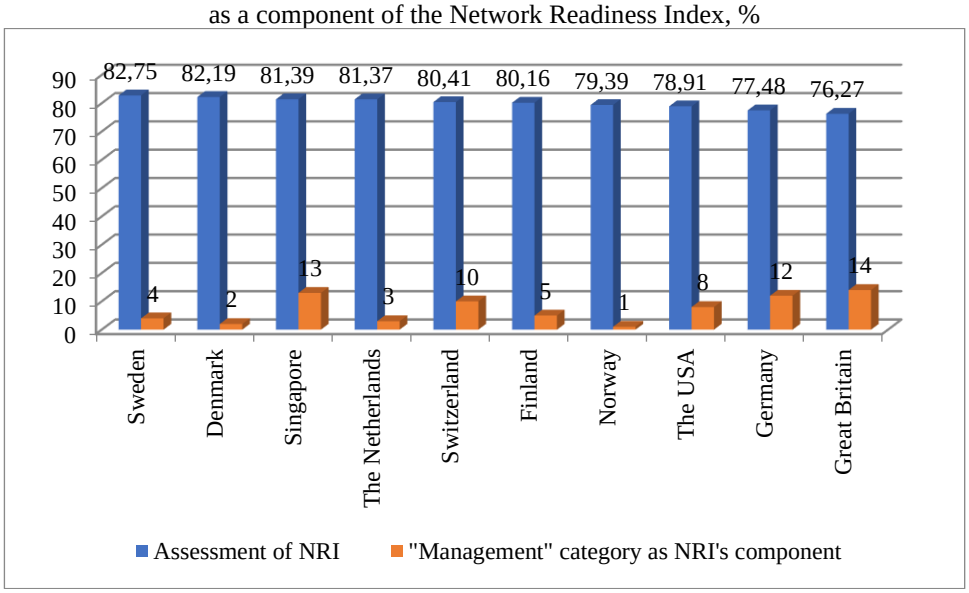
Figure 3. The level of assessing the leading countries according to the NRI rating in the "People" category as a component of the Network Readiness Index, %



Source: compiled by the authors based on data (Network Readiness Index, 2020).

Personnel support for the functioning of any sphere of the economy is a significant prerequisite for its effective development. Germany, Great Britain, and Switzerland are the top three countries in the "People" category of the Network Readiness Index. It can be seen from Figure 3 that this indicator is decisive in the NRI formation, forasmuch as the leading countries in terms of the overall level of the index occupy the first places in terms of this indicator's value.

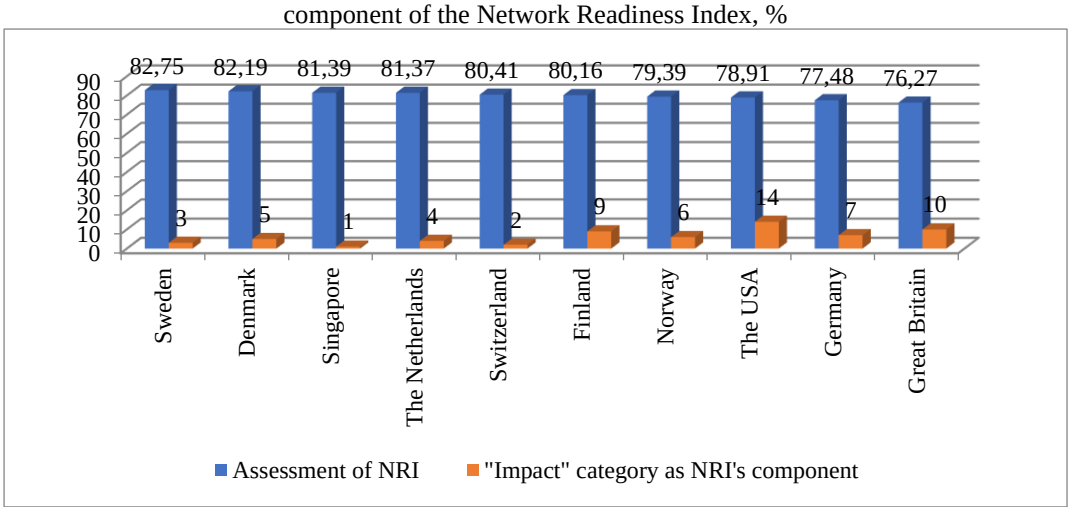
Figure 4. The level of assessing the leading countries according to the NRI rating in the "Management" category as a component of the Network Readiness Index, %



Source: compiled by the authors based on data (Network Readiness Index, 2020).

Figure 4 shows that Norway, Denmark and Sweden are the leaders in the "Management" indicator. At the same time, Singapore, Germany and Great Britain occupy relatively low places in terms of this indicator's rating. Therefore, the components taken into account when calculating this indicator are significant but not decisive criteria when calculating the total size of the NRI index.

Figure 5. The level of assessing the leading countries according to the NRI rating in the "Impact" category as a component of the Network Readiness Index, %

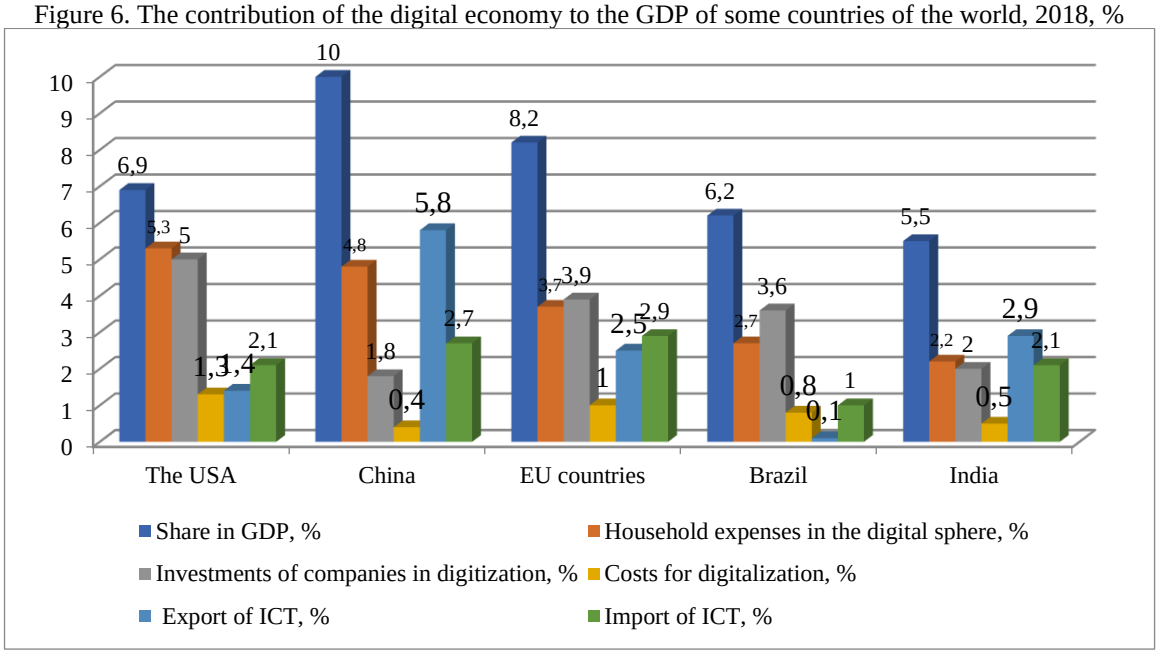


Source: compiled by the authors based on data (Network Readiness Index, 2020).

Analyzing the NRI components by the "Impact" category showed that the indicators forming this category significantly impact the overall size of the Network Readiness Index. In general, the leading countries according to this indicator are the countries with the highest

number of NRI (Singapore, Switzerland, Sweden, the Netherlands, and Denmark). The relative share of the digital economy in the GDP of some countries of the world is shown in Figure 6.

Figure 6. The contribution of the digital economy to the GDP of some countries of the world, 2018, %



Source: compiled by the authors based on data (Digital Economy and Society Index, 2018)

The experience of the USA and China proves that the development of the digital economy contributes to strengthening competition, increasing productivity and labor skills of the population, and facilitating resource management and access to information about creating several settings for both users and companies.

The Digital Business Survey as of 2018 reveals that 89% of companies plan to adopt a digital business strategy, but only 44% have fully implemented the approach. The spheres of services (95%), financial services (93%) and healthcare (92%) are leading in terms of the share of adapting digital innovations (Shaping Europe's Digital Future, 2020).

The fields of production, education, management and leisure have long been transformed by using personal computers and the Internet. In order to remain competitive in today's market environment, business leaders are already implementing innovations that can become engines and accelerators of developing entire industries and economies in the coming years. This has created new market opportunities that significantly impact on the economy in various sectors (Pradhan et al., 2019).

Wireless networks, advanced mobile devices, and video and conferencing technologies have contributed to integrating information and communication technologies into various economic and social spaces and creating a new global digital economy (Lin, 2019).

The tendency of recent years is the growth of social and "cloud" technologies, which play a significant role in the information infrastructure of the corporate sector. The combinatorial effects of mobile, "cloud", sensor and electronic analytical technologies, and artificial intelligence exponentially accelerate the process of developing the digital sector of the economic system (Digital Economy and Society Index, 2018).

The introduction of digital information platforms at various levels of the economy solves various strategic tasks within the framework of the challenges of the new industrialization system. The digital economy is developing on the basis of achievements in the information sphere. It is its continuation as an unprecedented technological breakthrough as a result of an industry's achievements in which innovation, especially digital, is spreading at a significant speed (Ercan & Samet, 2018).

Digital technologies contribute to establishing new requirements that necessitate an immediate innovative response from economies, previously created ecosystems, individual companies and society as a whole (Chen, Gozgor & Koo, 2021).

DISCUSSION

Currently, the development of global and local markets creates favorable conditions for the digital transformation of countries with a high level of population's education and computerization of economies.

The analysis of statistics and data and the evaluation of scientific works on the subject of the research show that the development level of the digital economy in the country is closely related to income level. The obtained data indicate that the first twenty countries, according to the NRI indicator in 2020, are occupied by the states with a high per capita income, and low-income countries close the ranking (Genari et al., 2018).

In general, analysts remark that the country's degree of economic growth is the single factor that determines how widely and effectively ICT opportunities may be exploited for advancing all aspects of life, including the economic one (Goldfarb & Tucker, 2019).

Taking into account the influence of the principal tendencies of society's digitization on developing economic and social processes, it is worth noting that the economic sphere needs to ensure the digital transformation of the economy. It should be aimed at: changing the economic structure, modifying traditional markets, social relations, public administration, which is connected with the penetration of digital technologies, a fundamental change in the main source

of value creation and the economy's structure through forming more effective economic processes provided by digital infrastructure (Amankwah-Amoah et al., 2021).

The systematization of conceptual approaches to the emergence of the digital economy and its development makes it possible to conclude that the digital economy is a new type of economy encompassing companies from all economic sectors around the world. It creates favorable opportunities for the globalization of capital, goods, services and labor markets, permeating all sectors in all branches of the economy (Shaping Europe's Digital Future, 2020).

The results of the NRI structure's analysis show that digital transformation is taking place nowadays at all levels of the economic system: international, national, regional and local.

The general regularity of the digital economy is the focus on a specific consumer and the wide use of information as a driving resource, taking into account the characteristics of specific consumer segments in a particular place, as well as the global use of digital transformation technologies of real business processes (Ferracane & Marel, 2019), (Qian, Liu & Pan, 2022).

At the same time, it is worth noting that digital projects are characterized by very specific conditions for their implementation in a given place and can become the subject of standardization only if positive economic results are accumulated (Goldfarb & Tucker, 2019).

The analysis of the literature on the research topic made it possible to establish that digital transformation is a difficult task. Countries that have reached the highest level of digital maturity have to solve complex cultural, organizational and technical problems. After all, only the consideration of all these factors makes such a transformation successful (Ferencz & Gonzales, 2019).

The analysis of the principal tendencies in developing the digital economy provides insight into the main directions of optimizing the process of the digital economic environment's functioning, which will contribute to developing the digital economic system, namely:

- rethinking the process of creating economic value (by including a digital component in it, improving accounting, etc.);
- solving the problem of excessive concentration in the market of online platforms (including by improving regulation);
- taking active measures to create new jobs (for instance, by improving professional training, reorienting the labor market to new high-tech areas, etc.);
- improvement of measures of the population's social protection.

Information and communication technologies are an important factor in developing digital innovations and society as a whole.

CONCLUSIONS

So, by the research task, the analysis of the main directions and trends of the world experience in the development of digitalization of the economic sphere showed that the volume of digital innovations in the world economic environment today is constantly growing, but the innovation processes are not developing efficiently enough, and this significantly slows down the digital modernization of the world economy. Therefore, the volume of digital innovations in the global economic environment is increasing. However, innovative processes are not developing efficiently enough, and this significantly slows down the digital modernization of the world economy. The main reasons for the slowdown in the digital economy development are an unfavorable environment for business, especially at the stage of introducing innovations into production, an imperfect regulatory framework, and an insufficiently high level of using digital infrastructure.

According to the analysis of the scientific literature on the research topic, in order to achieve success in the field of digital transformation of modern business, it is necessary to purposefully build its work, relying on the latest achievements of the digital environment and using all the possibilities of the digital infrastructure. The limitations of the practical part of the study are related to the peculiarities of the calculation of the Network Readiness Index, which is a basic indicator used in the assessment of directions, trends, and the degree of development of the digital economy in the world. Further promising areas of future research may be the assessment of the industry specifics of conducting an online business and the construction of a marketing policy effectiveness model for companies starting or intensifying their activities online.

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