BRAIN. Broad Research in Artificial Intelligence and Neuroscience
ISSN: 2068-0473 | e-ISSN: 2067-3957
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2023, Volume 14, Issue 2, pages: 242-256 | https://doi.org/10.18662/brain/14.2/453
Submitted: June 12th, 2023 | *Accepted for publication:* June 29th, 2023

National Strategy of Information Society in the Realities of Ukraine

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Abstract: *This article examines the development of a national strategy for the information society in the realities of Ukraine. The contemporary trend of civilizational development is the informatization of society and all aspects of its life. The development of concepts for the functioning of the information society for Ukraine is becoming the crucial assignment of socio-political development of the contemporary state, which should be based on science, innovation and advanced technologies, as well as culture and creativity.*
Domestic digital capital is in the process of formation, while digital technologies are the driving force of socio-economic development, due to the large-scale penetration of information and communication technologies everywhere. A characteristic resource of the information society is characterized by accurate, reliable, truthful and timely information. The expansion of the use of digital platforms, blockchain technology and artificial intelligence stimulates the creation of a digital economy in Ukraine.
The development of the information society requires the integration of digital and business ecosystems.
The creation of information infrastructure within business ecosystems, the expansion of services and intangible production as a result of advancement in the field of technology will guide to the transformation of Ukrainian society and the achievement of a high level of informatization.

Keywords: *Information infrastructure, innovations, innovative development, Digital Adoption Index, Global Innovation Index, innovation ecosystems.*

How to cite: Shust, N., Semen, N., Bilohrats, K., Ivanytska, B., Pavlyshyn, N. et Hotsur, O. (2023). National Strategy of Information Society in the Realities of Ukraine. *BRAIN. Broad Research in Artificial Intelligence and Neuroscience, 14*(2), 242-256. https://doi.org/10.18662/brain/14.2/453

Introduction

The contemporary trend of civilizational development is the informatization of society and all aspects of its life. Postmodern society functions in the realities of globalization, not only economic, structural and political, but also technological (Chase-Dunn et al., 2000). Bouncken and Reuschl (2018) note the phenomenal use of coworking space in a postmodern society, which allows the sharing economy to spread, promotes the exchange of ideas, experience and technologies. The study of Berger et al. (2019) shows that the level of life satisfaction and the level of income from participation in the sharing economy is growing.

Heeks, Graham, Mungai, Van Belle and Woodcock (2021) also consider the spread of the gig economy to be an advantage of the development of the information society, which allows the labor market to become more equitable. At the same time, it should be noted that in postmodern society there is a tendency to replace low-skilled work with industrial robots (Jung & Lim, 2020).

This is primarily due to the drastic changes that occur due to the formation of a new type of society, namely information (Nerubasska et al., 2020). The changes concern social, political, economic, spiritual, cultural, scientific and other various spheres of society. Achieving this ambitious goal requires systematic and purposeful work to modernize most spheres of life in Ukrainian society.

These changes affect much deeper concepts - identity, social interactions, social roles and so on. In addition, the information society with its modernization potential can become an element for Ukraine that will allow it to finally get out of the circle of "catching up" countries in the global division of labor and resources and secure a worthy place among the leading countries. Achieving this ambitious goal requires systematic and purposeful work to modernize different spheres of life in Ukrainian society. One of the reasons for its successful implementation is a critical review of the current situation in the direction of the information society in Ukraine with an emphasis on the vital problem areas also with opportunities for development (Dubov et al., 2010).

As noted by Kirichenko (2017), humanity is threatened by the exacerbation of various global crises, tensions are growing in society, in conditions of global transformation there is a society of enormous risks. Under these circumstances, it is urgent to develop a qualitatively new strategy for the development of human civilization, which is based on the ideology of

the information society as a factor of sustainable development. Becker (2001) emphasizes the need for social impact assessment, namely the identification of the future consequences of current or proposed actions that affect individuals, organizations, and social macrosystems.

The development of concepts of the functioning of the information society becomes crucial assignment of socio-political development of the contemporary state, which should be based on science, innovation and advanced technologies, as well as culture and creativity (Voronkova & Sosnin, 2015). Shumaeva (2014) analyzes the classical concepts of the information society. Kraus, Holoborodko and Kraus (2018) consider trends of avant-garde nature of digital economy development. Szopik-Depczyńska, Kędzierska-Szczepaniak, Szczepaniak, Cheba, Gajda and Ioppolo (2018) investigates innovations in sustainable development.

Jiménez and Zheng (2021) shows the differences and features of the postmodern society, which tends to work in innovation centers, depending on its location.

Rudenko (2021) analyzes the position of Ukraine in the global indices of the digital economy, and Chmeruk (2019) considers the digital economy as a sovereign economic category.

At the micro level, Dergachova & Koleshnya (2020) and Holovchuk & Pchelianska (2020) note the need to form a strategy to increase the competitiveness of enterprises based on the paradigm of innovative development, and Gonchar & Khachatryan (2018) emphasize, that innovation is a case for the entrepreneurial and productional improvement, which confirms the ranking of the Top 100 companies by market capitalization (World Intellectual Property Organization, 2021), in which the first positions are occupied by high-tech companies.

The availability of developments and works that highlight some aspects related to our research underscores its importance and relevance. Paying tribute to the existing scientific conclusions, we believe that the issue of developing a national blueprint for the information society enlargement in Ukraine is insufficiently represented and needs special attention.

Thus, the goal of this article is to investigate the national strategy of the information society in the realities of Ukraine.

Digitalization is a decisive driver of modernization not only in the technological sphere, but also in the economy. Highly developed countries are leading in the digitalization level what is displayed in the various characteristics of the information society (Fig.1). As noted by Kravchenko, Leshchenko, Marushchak and Vdovychenko (2019) Ukraine as a European country is only at the beginning of its development of a quality digital economy.

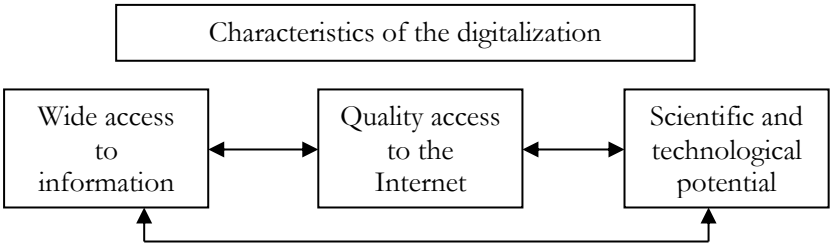

Fig.1 *Characteristics of the digitalization in the highly developed countries*
Source: Authors' own concept

According to Liashenko and Vyshnevskyi O. (2018) in the Ukrainian economy, physical capital is predominant (Fig.2).

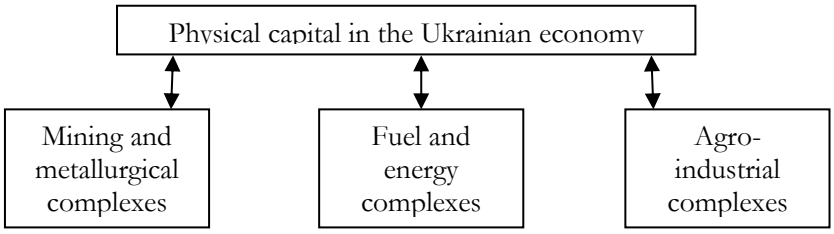

Fig.2 *Directions for the development of physical capital in Ukraine*
Source: Compiled by author according to Liashenko & Vyshnevskyi (2018).

Statistical data of the Ukrainian economy confirm a low level of expansion of innovative and technological areas of the economy

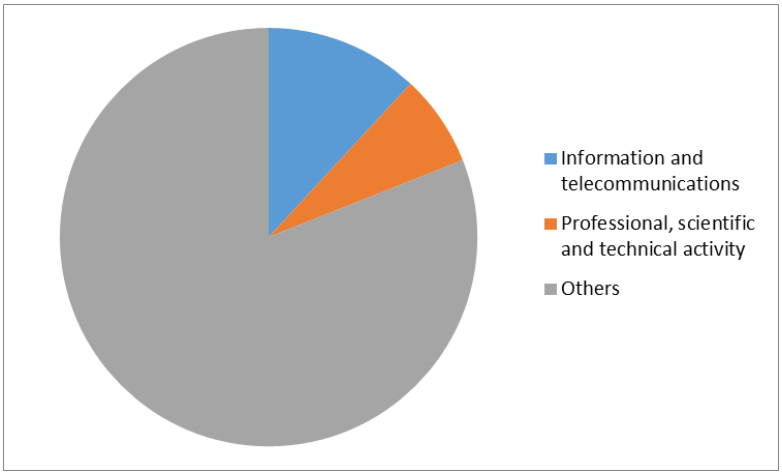

Fig. 3 *Number of active businesses by types of economic activity in 2020*
Source: https://www.ukrstat.gov.ua/

Ukrainian digital capital is on the way of it`s formation and there are multiple real representations of improvement of the contemporary information economy such as widespread of digital platforms, blockchain technology and others.

Rudenko (2021) notes that the digitalization of the economy characterizes the general state of digital transformations in the organization of socio-economic relations in three sectoral models of society, which corresponds to domestic realities and includes: citizens (society), business (economy) and state (government). The research of the level of the digitalization of the economy is provided by use of different indexed executed by many influential organizations, institutions and various analytical agencies (Cornell University, INSEAD & WIPO, 2020; Doing Business, 2020; OECD, 2019; WIPO, 2021). There are a number of common parameters that determine the level of digitalization within the economy and society, the main indicators of scientists and practices include: Internet coverage, use of broadband Internet traffic, the percentage of smartphone owners, mobile Internet coverage, the share of digital skills, public online services, etc. The most common methods of assessing the state of the digital economy are the formation of rating indices.

World Bank (2016) economists, in collaboration with Microsoft, have built the Digital Adoption Index (DAI), which covers 180 countries on a scale

of 0 to 1 and highlights the "level" of digital adoption. DAI is a global index that measures the digital adaptation of countries (adoption of digital technologies) from the standpoint of three main participants in socio-economic relations within the state: 1) people (society), 2) government and 3) business.

Tab. 1. *Digital Adoption Index of Ukraine* (grouped by the authors using data from World Bank (2016))

Year	General index DAI	DAI business subindex	DAI people (society) subindex	DAI government subindex
2014	0,451	0,605	0,382	0,365
2016	0,537	0,667	0,473	0,471

Analyzing the components of DAI for Ukraine (Table 1) it should be noted the advantage in the value of the sub-index of business over the subindex of government and society, but it should be noted the positive dynamics of the general index.

A global study by the International Business School "INSEAD", Cornell University (USA) and the World Intellectual Property Organization is the Global Innovation Index (GII). Let's analyze the dynamics of this index in Ukraine, the data are grouped in table 2.

Tab. 2. *Ukraine's place in the Global Innovation Index (GII) in the period 2015-2021* (grouped by the authors using data from Cornell University, INSEAD, and WIPO (2021))

Year	Index	Place in ranking of countries
2015	36,45	64
2016	35,72	56
2017	37,62	50
2018	38,52	43
2019	37,40	47
2020	36,32	45
2021	35,6	49

Analyzing the data on Ukraine's place in the Global Innovation Index in the period 2015-2021, it should be noted a sharp deterioration in 2018 and the general unstable situation in terms of innovation in the country, and therefore there is an urgent need to identify areas of development in the direction to informatization the society.

General directions of the information society development strategy in Ukraine

The ideology of the information society involves the modernization of education, the creation of mechanisms of intellectual economy based on knowledge, the education system and aimed at curbing threatening processes, minimizing the destructive effects, ensuring sustainable development of postmodern society.

The main resources of all sectors of the economy are the means of production. In the age of the information society, as Chmeruk (2019) emphasizes, the main resource is accurate, reliable, truthful and timely information. Unlike other resources, information is inexhaustible and can be used repeatedly, and access to it in contemporary conditions can be obtained always and everywhere. Cloud services technologies create the benefits of mobility, which leads to a new format of interaction between contractors, transforms the interaction of supply and demand, service and products are personalized.

The informatization of society leads to the displacement of the hierarchical type of economic relations through the use of digital platforms designed to create an environment for the most convenient interaction of a large number of participants. The development of digital platforms in Ukraine will allow entrepreneurs to conduct business online, manage their website, sales and operations. A feature of this type of business relationship, called the on-demand economy, is the ability to access goods and services just when you need them. Reducing the number of intermediaries through the use of platforms reduces the cost of goods and services for the end user. The consumer can find the manufacturer on his own, and with the help of automatic document management he will be able to interact directly with all his contractors.

Access to global markets should be an important direction in the development of the information society in Ukraine. If traditionally in the economy the main criterion for the allocation of markets was geographical (local, regional, national, global markets), thanks to the capabilities of the Internet and digital technologies, national companies can enter the global market much faster. It also leads to the transformation of bilateral markets with a rigidly fixed leadership of several companies. In the information society, there is a multifaceted communicative space of network interactions, in which leadership changes more often, and the period of dominance of one company is shorter, the leader becomes less significant and visible.

Information and communication technologies make it possible to connect the manufacturer with each end consumer. Long chains of

intermediaries, in particular institutional ones, are being reduced. This makes it possible to implement a mechanism that is cost-effective for all participants.

Jakonen, Kivinen, Salovaara, and Hirkman (2017) developed the concept of the economy of encounters, according to which, thanks to not only intentional, but also unintentional, unplanned meetings, encounters and business contacts, there is an exchange of knowledge, which is the most important production factor in the current realities. The research of Correa (2016) has shown that postmodern society uses even entertaining social networks for informational, educational and differentiated purposes. The spread of smartphones contributes to the introduction to the world of digital technologies, even those segments of the population who, for various reasons, do not use a computer (Correa et al., 2020). Thus, the problem of digital inequality is gradually leveled (Dolničar et al., 2014).

Kondarevych, Andriushchenko, Pokotylska, Ortina, Zborovska, and Budnyak (2020) note that companies that want to enter the digital zone must conduct comprehensive work and first of all understand what is actually the value of digital transformation and automation of operations, set development priorities and form your own portfolio of digitization. Heyets, Voynarenko, Kholodenko, and Stepanok (2019) come to the conclusion that the state should coordinate the actions of companies and other macroeconomic agents in the direction of their optimal interaction. Thus, in the realities of Ukraine, in order to make the transition from a commodity-orientedeconomy to a knowledge-based economy, it is necessary to set development priorities and form a portfolio of digitalization that will attract citizens to all the benefits of the information society.

Rational consideration of the impact of a set of such multi-vector factors as innovation, entrepreneurship, application of knowledge, features of state development requires the improvement of coordinated measures for the expansion of the information society. The creation of information infrastructure within business ecosystems, the expansion of services and intangible production as a result of scientific and technological progress will lead to the transformation of industrial society into post-industrial (Scaringella & Radziwon, 2018). Introduction in Ukraine of various information systems and resources, telecommunication networks and data transmission channels, means of communication and management of information flows within special economic zones and business ecosystems will not only promote information and communication technologies in these zones, but also lead to their deep and dynamic penetration into all spheres of society, economic entities and the state.

As noted by Bacon, Williams and Daviesv (2019) open innovation ecosystems involve the transfer of knowledge between many stakeholders to contribute to the innovation of products and services. The results of a study by Wu, Liu and Huang (2021) on the impact of special economic zones on innovation showed their stimulating effect on the development and informatization of society. Special economic zones not only promote innovation in existing technical fields, but also constantly expand new areas of research.

For the development of the information society Sussan and Acs (2017) emphasize the need to integrate two traditional conceptions: the digital ecosystem and the business ecosystem (Fig.4). The assimilation of these two ecosystems helps to better understand the performance of contemporary information society.

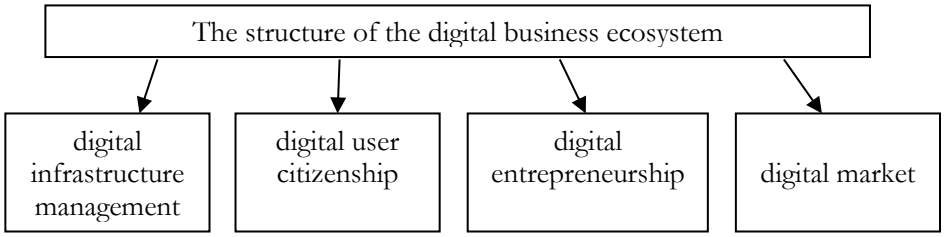

Fig. 4 *The digital business ecosystem structure*
Source: Compiled by author according to Sussan & Acs (2017)

The growth of computing power and big data technology, as noted by Duan, Edwards and Dwivedi (2019) has provided opportunities for artificial intelligence in present-day. The contemporary genesis of AI is expeditiously advancing and should take its rightful place in the scenario of the information society expansion in Ukraine. The use of AI for decision-making is a resource for building information infrastructure to ensure citizens' access to information services and information and communication technologies.

The introduction of the latest information and communication technologies in all spheres of public life, the activities of state bodies and local governments is a priority of the state for the development of the information society.

Conclusions

With the intensification of globalization processes, the global trend is the spread of informatization and the transition from industrial to post-industrial society. Digital technologies have become a driving force of socio-economic development, thanks to the penetration of information and communication technologies in all spheres of society.

Highly developed countries are leading in the digitalization level what is displayed in the various characteristics of the information society. Ukraine is a developing country and is only at the starting point to achieving extensive character of digital economy. Therefore, the development of concepts of the functioning of the information society becomes crucial assignment of socio-political development of the contemporary state, which should be based on science, innovation and advanced technologies, as well as culture and creativity.

Ukrainian digital capital is on the way of it`s formation and there are multiple real representations of improvement of the contemporary information economy such as widespread of digital platforms, blockchain technology and others. There is a positive trend in the overall indicator of the Digital Adoption Index. Analysis of data on Ukraine's place in the Global Innovation Index in the period 2015-2021 showed a sharp deterioration in 2018 and the general unstable situation in terms of innovation in the country.

The information society is characterized by the fact that the main resource is accurate, reliable, truthful and timely information. Cloud services technologies create the benefits of mobility, which leads to a new format of interaction between counterparties, transforms the interaction of supply and demand, service and products are personalized.

Postmodern society differs from previous generations by the ability to combine different activities, opportunities and create new solutions. The widespread informatization is associated with the spread of technology. Smartphones make it easy to access the Internet, and modern users skillfully combine digital work with entertainment.

Therefore, Ukraine should join the trend of digitalization and overcome the digital divide. From a practical point of view, this means the need for the spread of coworking spaces, the development of the sharing economy and innovation hubs.

An important direction in the development of the information society in Ukraine should be access to global markets. The opportunities provided by the Internet and digital technologies open the way for national companies to these markets. Information and communication technologies make it

possible to connect the manufacturer with each end consumer. Long chains of intermediaries, in particular institutional ones, are being reduced. This makes it possible to implement a mechanism that is cost-effective for all participants.

The development of the information society requires the integration of digital and business ecosystems. The creation of information infrastructure within business ecosystems, the expansion of services and intangible production as a result of scientific and technological pace will transform the Ukrainian society and help to the achievement of a high level of informatization.

Acknowledgement

We, the authors of the article, express our gratitude to the Kyiv National University of Trade and Economics and Lviv Polytechnic National University that supported and inspired us for this work.

We confirm the equal contribution of each other to the study and are collectively responsible for the material and ideas presented in it.

References

Bacon, E., Williams, M. D., & Daviesv, G. H. (2019). Recipes for success: conditions for knowledge transfer across open innovation ecosystems. *International Journal of Information Management, 49*, 377-387. https://doi.org/10.1016/j.ijinfomgt.2019.07.012

Becker, H. A. (2001). Social impact assessment. *European Journal of Operational Research, 128*(2), 311-321. https://doi.org/10.1016/S0377-2217(00)00074-6

Berger, T., C. B. Frey, G. Levin, and S. R. Danda (2019). Uber happy? Work and well-being in the "gig economy. *Economic Policy, 34*(99), 429–477. https://doi.org/10.1093/epolic/eiz007.

Bouncken, R. B., & Reuschl, A. J. (2018). Coworking-spaces: How a phenomenon of the sharing economy builds a novel trend for the workplace and for entrepreneurship. *Review of Managerial Science, 12*(1), 317–334. https://doi.org/10.1007/s11846-016-0215-y

Chase-Dunn, C., Kawano, Y., & Brewer, B. D. (2000). Trade globalization since 1795: Waves of integration in the world-system. *American Sociological Review, 65*(1), 77–95. https://doi.org/10.2307/2657290

Chmeruk, H. (2019). *Cyfrova ekonomika yak okremyj sektor nacionalnoyi ekonomiky derzhavy* [Digital economy as a separate sector of the national economy]. *Scientific Bulletin of Uzhhorod National University. Series: International Economic Relations and the World Economy, 27*(2), 92-97. https://doi.org/10.32782/2413-9971/2019-27-38

Cornell University, INSEAD, & WIPO. (2020). The Global Innovation Index 2020: Who Will Finance Innovation? Ithaca, Fontainebleau, and Geneva. WIPO. https://www.wipo.int/global_innovation_index/en/2020/

Correa, T. (2016). Digital skills and social media use: How internet skills are related to different types of Facebook use among "digital natives". *Information Communication and Society, 19*(8), 1095–1107. https://doi.org/10.1080/1369118X.2015.1084023

Correa, T., Pavez, I., & Contreras, J. (2020). Digital inclusion through mobile phones?: A comparison between mobile-only and computer users in internet access, skills and use. *Information Communication and Society, 23*(7), 1074–1091. https://doi.org/10.1080/1369118X.2018.1555270

Dergachova, G., & Koleshnya, Y. (2020). Cyfrova transformaciya biznesu: sutnist, oznaky, vymogy ta tekhnologiji [Digital business transformation: essence, features, requirements and technologies.] *Economic bulletin of National technical university of Ukraine «Kyiv polytechnic institute», 17*, 280-290. https://doi.org/10.20535/2307-5651.17.2020.216367

Doing Business. (2020). *Doing Business database*. Doing Business. https://www.doingbusiness.org/en/rankings

Dolničar, V., K. Prevodnik, and V. Vehovar (2014). Measuring the dynamics of information societies: Empowering stakeholders amid the digital divide. *The Information Society, 30*(3), 212–228. https://doi.org/10.1080/01972243.2014.896695

Duan, Y., Edwards, J. S., & Dwivedi, Y. K. (2019). Artificial intelligence for decision making in the era of Big Data – evolution, challenges and research agenda. *International Journal of Information Management, 48*, 63-71. https://doi.org/10.1016/j.ijinfomgt.2019.01.021

Dubov, D.V., Ozhevan, O. A., & Gnatyuk, S. L. (2010). *Informacijne suspilstvo v Ukrajini: globalni vykliki ta nacionalni mozhlyvosti* [Information society in Ukraine: global challenges and national opportunities]. National Institute Of Strategic Research. https://niss.gov.ua/sites/default/files/2011-02/dubov_infsus-31058.pdf

Gonchar, O., & Khachatryan, V. (2018). Innovacyjnist –suchasna umova rozvytku pidpriemnickogo potencialu [Innovation – a modern condition for the development of entrepreneurial potential]. *Entrepreneurship and trade, 23*, 77-81. http://www.journals-lute.lviv.ua/index.php/pidpr-torgi/article/download/63/58

Heeks, R., Graham, M., Mungai, P., Van Belle, J-P., & Woodcock, J. (2021). Systematic evaluation of gig work against decent work standards: The development and application of the Fairwork framework. *The Information Society, 37*(5), 267-286. https://doi.org/10.1080/01972243.2021.1942356

Heyets, V., Voynarenko, M., Kholodenko, A., & Stepanok, N. (2019). Modeling state regulation of the labour market. *CEUR-WS, 2422*, 308–319. https://ceur-ws.org/Vol-2422/paper25.pdf

Holovchuk, Y., & Pchelianska, G. (2020). Osoblyvosti formuvannya strategiji pidvyshchennya konkurentospromozhnosti pidpriemstva na osnovi paradygmy innovacijnogo rozvytku [Strategies formation pecularities of enterprise competitiveness incrieasing on the basis of innovation devlopment paradigm]. *Ekonomika ta derzhava* [Economy and the state], *3*, 66–70. https://doi.org/10.32702/2306-6806.2020.3.66

Jakonen, M., Kivinen, N., Salovaara, P., & Hirkman, P. (2017). Towards an Economy of Encounters? A critical study of affectual assemblages in coworking. *Scandinavian Journal of Management, 33*(4), 235–242. https://doi.org/10.1016/j.scaman.2017.10.003

Jiménez, A., & Zheng, Y. (2021). Unpacking the multiple spaces of innovation hubs. *The Information Society, 37*(3), 163-176. https://doi.org/10.1080/01972243.2021.1897913

Jung, J. H., & Lim, D-G. (2020). Industrial robots, employment growth, and labor cost: A simultaneous equation analysis. *Technological Forecasting and Social Change, 159*, 120202. https://doi.org/10.1016/j.techfore.2020.120202

Kirichenko, M. O. (2017). Informatizaciya yak faktor optymizaciji ideologiï informacijnogo suspilstva ta zabezpechennya jogo stalogo rozvytku. [Informatization as the factor of optimization of the ideology of the information society in terms of network-communicative space]. *Scientific Journal «ScienceRise: Pedagogical Education», 1*(9), 46-50. https://doi.org/10.15587/2519-4984.2017.91627

Kondarevych, V., Andriushchenko, K., Pokotylska, N., Ortina, G., Zborovska, O., & Budnyak, L. (2020). Digital Transformation of Business Processes of an Enterprise. *TEM Journal, 9*(4), 1800-1808. https://doi.org/10.18421/TEM94-63

Kraus, N., Holoborodko, O., & Kraus, K. (2018). Cyfrova ekonomika: trendy ta perspektyvy avangardnogo harakteru rozvytku [Digital economy: trends and prospects of avant-garde development], *Efficient economy, 1*. http://www.economy.nayka.com.ua/pdf/1_2018/8.pdf

Kravchenko, O., Leshchenko, M., Marushchak, D., & Vdovychenko, Y. (2019). Digitalization as a global trend and growth factor of the modern economy. In *CEUR Workshop Proceedings*, Vol. 2422 (pp. 434–443). CEUR-WS. https://doi.org/10.1051/shsconf/20196507004

Liashenko, V., & Vyshnevskyi, O. (2018). *Cyfrova modernizacyja ekonomiki Ukrayini yak mozhlivist prorivnogo rozvytku: monografiya* [Digital modernization of the economy of Ukraine as an opportunity for breakthrough development: a monograph]. NAS of Ukraine, Institute of Industrial Economics.

https://iie.org.ua/monografiyi-2018-r/tsifrova-modernizatsiya-ekonomiki-ukrayini-yak-mozhlivist-prorivnogo-rozvitku-v-i-lyashenko-o-s-vishnevskiy-2018-r/

Nerubasska, A., Palshkov, K., & Maksymchuk, B. (2020). A Systemic Philosophical Analysis of the Contemporary Society and the Human: New Potential. *Postmodern Openings*, *11*(4), 275-292. https://doi.org/10.18662/po/11.4/235

OECD. (2019). Vectors of digital transformation. *OECD digital papers, 273*. https://www.oecd-ilibrary.org/science-and-technology/vectors-of-digital-transformation_5ade2bba-en

Rudenko, M. (2021). Analiz pozycij Ukrajiny v globalnyh indeksah cyfrovoji ekonomiky [Analysis of Ukraine's positions in global indicators of the digital economy]. *Ekonomika ta derzhava* [Economy and the state], *2*, 11–18. https://doi.org/10.32702/2306-6806.2021.2.11

Scaringella, L., & Radziwon, A. (2018). Innovation, entrepreneurial, knowledge, and business ecosystems: Old wine in new bottles? *Technological Forecasting and Social Change, 136*, 59-87. https://doi.org/10.1016/j.techfore.2017.09.023

Shumaeva, M. (2014). Analiz klasichnih koncepcij stanovlennya informacijnogo suspilstva [Analysis of classical concepts of information society formation]. *Scientific Bulletin of Kherson State University. Series "Economic Sciences", 8*(4), 13-17. http://www.ej.kherson.ua/journal/economic_08/165.pdf

Sussan, F., & Acs, Z. J. (2017). The Digital Entrepreneurial Ecosystem. *Small Business Economics, 49*(1), 55-73. https://doi.org/10.1007/s11187-017-9867-5

Szopik-Depczyńska, K., & Kędzierska-Szczepaniak, A., Szczepaniak, K., Cheba, K., Gajda, W., & Ioppolo, G. (2018). Innovation in sustainable development: an investigation of the EU context using 2030 agenda indicators. *Land Use Policy, 79*, 251-262. https://doi.org/10.1016/j.landusepol.2018.08.004

Voronkova, V. G., & Sosnin, O. V. (2015). Formuvannya informacijnogo suspil'stva v Ukrajini: vyklyk chi potreba chasu? [Forming an information society in Ukraine: a challenge or a need for time?]. *Humanitarian Bulletin of the Zaporizhia State Engineering Academy, 60*, 13-24. https://doi.org/10.30839/2072-7941.2015.42519

World Bank. (2016). *Digital Adoption Index*. World Bank https://www.worldbank.org/en/publication/wdr2016/Digital-Adoption-Index

World Intellectual Property Organization (WIPO). (2021). *Global Innovation Index 2021: Tracking Innovation through the COVID-19 Crisis*. World Intellectual Property Organization. https://www.wipo.int/global_innovation_index/en/2021/

Wu, M., Liu, C., & Huang, J. (2021). The special economic zones and innovation: Evidence from China. *China Economic Quarterly International, 1*(4), 319-330. https://doi.org/10.1016/j.ceqi.2021.11.004