

**МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
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EFFICIENCY ANALYSIS OF USING THE SCIENTIFIC POTENTIAL IN THE UKRAINIAN HIGHER EDUCATION SYSTEM

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Introduction and purpose of the study. Solving the problem of ensuring the compliance of Ukrainian higher education with the current and future needs of the development of the national economy and society involves solving a number of interrelated tasks: assessing the state of Ukrainian higher education and science at the current stage; management problems of education institutions, marketing activities and increasing the competitiveness of Ukrainian institutions of higher education, which would allow to enter the world market of educational services; analysis of state management and regulation of the education system and innovative development of the field of higher education; outline of theoretical issues of modeling the processes of using the potential of the knowledge economy of society as a whole. The center of the development of innovations and the implementation of scientific research is the system of higher education of the state. According to the systemic approach, scientific activity in higher education is a system consisting of the following subsystems: carrying out scientific research, training academic staff, creative activity of participants in educational activity, publicizing the results of scientific research and implementing the obtained results in the educational process. It is the use of a systemic approach that will help improve the quality of higher education and increase the competitiveness of domestic institutions of higher education at the international and national levels. The aforementioned outlines the relevance of this study and reflects the purpose of this article as determining the effectiveness of the scientific potential of the higher education system of Ukraine and determining the impact of factors on this effectiveness.

Research methods used: the method of induction in the implementation of formal-logical generalizations; deduction method for obtaining intermediate (partial) conclusions based on the analysis of the nature of the general process; method of abstraction to locate and identify significant trends in economic processes; correlation analysis to determine the most significant

factors affecting the level of GDP formation from professional, scientific and technical activities; regression analysis to construct a linear multiple regression. Special software and technical tools were used for modeling: MS Excel, Statistika10.

Results. It has been proven that the effectiveness of using the scientific potential of the higher education system depends on the effectiveness of training academic staff, the level of financing scientific and technical activities of the higher education system, the publication activity of scientists and the number of patented inventions. In the process of analysis, it was proven that the level of GDP from professional, scientific and technical activities depends on changes in such factors as: the number of graduate students who completed graduate studies with the defense of theses; the number of doctoral students at IHE at the end of the year; the number of scientific and technical works performed by institutions of higher education; publishing activity of higher education: printed monographs and articles in scientific journals published in the Scopus scientometric database; the number of received patents for inventions. The obtained multiple regression equation makes it possible to predict the size of GDP from professional, scientific and technical activities at the specified sizes of the specified factor characteristics.

Conclusions. The development of the scientific potential of the higher education system largely depends on balanced state, regional and domestic policies. Currently, in the conditions of a full-scale war, institutions of higher education receive smaller amounts of real funding for scientific activities, therefore it is important to develop a strategy for the development of the higher education system of Ukraine, which would be aimed at ensuring the development and competitiveness of domestic institutions of higher education in the conditions of globalization.

Keywords: system of higher education; scientific activity; scientific potential; postgraduate studies; doctoral studies; publishing activity.

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АНАЛІЗ ЕФЕКТИВНОСТІ ВИКОРИСТАННЯ НАУКОВОГО ПОТЕНЦІАЛУ СИСТЕМИ ВИЩОЇ ОСВІТИ УКРАЇНИ

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Вступ і мета дослідження. Вирішення проблеми забезпечення відповідності української вищої освіти сучасним і майбутнім потребам розвитку національної економіки і суспільства передбачає вирішення цілого ряду взаємопов'язаних завдань: оцінювання стану української вищої освіти і науки на сучасному етапі; проблеми управління навчальними закладами, маркетингова діяльність та підвищення конкурентоспроможності українських закладів вищої освіти, які б дозволили вийти на світовий ринок освітніх послуг; аналіз державного управління і регулювання системи освіти та інноваційний розвиток сфери вищої освіти; окреслення теоретичних питань моделювання процесів використання потенціалу економіки знань суспільства в цілому. Осередком розвитку інновацій та здійснення наукових досліджень є система вищої освіти держави. Відповідно до системного підходу наукова діяльність у вищій освіті є системою, що складається з таких підсистем: здійснення наукових досліджень, підготовка наукових кадрів, творча активність учасників освітньої діяльності, оприлюднення результатів наукових досліджень та впровадження отриманих результатів в освітній процес. Саме використання системного підходу сприятиме підвищенню якості вищої освіти та зростанню конкурентоспроможності вітчизняних закладів вищої освіти на міжнародному і національному рівні. Вищезазначене окреслює актуальність даного дослідження та відображає **мету** даної статті як визначення ефективності наукового потенціалу системи вищої освіти України та визначення впливу чинників на цю ефективність.

Методи дослідження, що використовувались: метод індукції при здійсненні формально-логічних узагальнень; метод дедукції для одержання проміжних (часткових) висновків на основі аналізу характеру загального процесу; метод абстрагування для виявлення та ідентифікації значимих тенденцій економічних процесів; кореляційний аналіз для визначення

найбільш суттєвих чинників, що впливають на рівень формування ВВП від професійної, наукової та технічної діяльності; регресійний аналіз для побудови лінійної множинної регресії. Для моделювання використовувались спеціальні програмно-технічні засоби: MS Excel, Statistika10.

Результати. Доведено, що ефективність використання наукового потенціалу системи вищої освіти залежить від результативності підготовки наукових кадрів, рівня фінансування наукової та науково-технічної діяльності системи вищої освіти, публікаційної активності науковців та кількості запатентованих винаходів. В процесі аналізу доведено, що рівень ВВП від професійної, наукової та технічної діяльності залежить від зміни таких чинників як: кількість аспірантів, які закінчили аспірантуру із захистом дисертацій; кількість докторантів у ЗВО на кінець року; кількість науково-технічних робіт, що виконували ЗВО; публікаційна активність вищої освіти: надруковані монографії та статті надруковані у наукових виданнях, що опубліковані у наукометричній базі даних Scopus; кількість отриманих патентів на винаходи. Отримане рівняння множинної регресії надає можливість спрогнозувати розмір ВВП від професійної, наукової та технічної діяльності при заданих розмірах зазначених факторних ознак.

Висновки. Розвиток наукового потенціалу системи вищої освіти багато в чому залежить від виваженої державної, регіональної та внутрішньої політики. Наразі в умовах повномасштабної війни ЗВО отримують менші розміри реального фінансування наукової діяльності, тому важливо розробити стратегію розвитку системи вищої освіти України, яка була б направлена на забезпечення розвитку та конкурентоспроможності вітчизняних закладів вищої освіти в умовах глобалізації.

Ключові слова: система вищої освіти; наукова діяльність; науковий потенціал; аспірантура; докторантура; публікаційна активність.

Introduction. Progressive global trends nowadays include not only the global nature of the functioning of economic systems and the strengthening of their social focus, but also the transition to a knowledge economy. Formation of the knowledge economy is one of the most important areas of economic policy in all developed countries of the world. In this regard, the task arises as for transition to a qualitatively new stage of economic development based on knowledge, scientific achievements and innovations (Varnalii, 2017, p. 8).

Studying the interpretation of the concept of "innovation" by foreign scientists, we believe that their approach to the definition of this concept is conceptually related to the concept of "knowledge economy": innovation is considered to be a process of obtaining benefit from skills and knowledge for the production of new or improvement of new or improved products and services. It is knowledge that generates innovation, that is, the growth of knowledge, which is the source of economic growth, is the basis for economic development.

Currently, the state policy is aimed at integrating education, science and business. In this link, universities play the role of a scientific and innovative center, in which highly qualified academic staff, scientific and informational infrastructure, methods, means and technologies, certain resources and long-term connections with domestic and foreign scientists and business structures are concentrated. That is, the development of science in universities is one of the urgent problems in modern higher education in Ukraine. Scientific research activity and innovative products created in the process of its implementation are one of the most important and valuable assets for attracting additional funding not only to ensure scientific and research work, but also to support the economic stability of the entire university as a whole (Drantusova).

Education and science ensure the formation of a methodological base for the development and implementation of innovative projects, optimizing the use of the competitive advantages of the territory and a separate institution of higher education (hereinafter – IHE). Considering the multifaceted nature of the problems of scientific activity at institutions of higher education, the mentioned issue is considered by scientists from different sides, which is confirmed by the defended theses studies for the period 2001–2020 (Table 1).

Thus, Serhii Savchenko's research is aimed at improving the management system of institutions of higher education based on the implementation of innovative management tools directed to increase consumer satisfaction with the quality of educational and scientific services and products (Savchenko, 2010, p. 2). Andriy Shevchuk investigates the innovative development of regional educational systems, sets practical tasks and develops a system of measures aimed at stimulating the innovative development of regional educational systems (Shevchuk, 2014, p. 8). Oleksandr Romanovsky's research is aimed at

developing the theoretical and methodological foundations of the innovative development of the higher education system based on university entrepreneurship and substantiating practical recommendations for improving the state policy of actualizing the role of higher education in the innovative development of the national economy of systems (Romanovskyi, 2014, p. 8).

Table 1

Study of the problems using scientific potential and the issue of innovative development of institutions of higher education in scientific works

№	Scientist	Research topic	Defense year
theses for obtaining the scientific degree of Doctor of Economics			
1	Serhii Savchenko	Models of innovative management of an institution of higher education	2010
2	Oleksandr Romanovsky	Theoretical and methodological principles of innovative development in the field of higher education	2014
3	Andriy Shevchuk	Innovative development of regional educational systems	2014
theses for obtaining the scientific degree of Candidate of Economic Sciences			
4	Inna Khodykina	University education in the context of innovative development of Ukraine	2006
5	Yuliya Aranovych	Organizational and economic mechanism of using intellectual property objects of institutions of higher education of the aviation profile	2008
6	Tetyana Koroleva	Effectiveness of scientific research and use of innovative potential of an institution of higher educational	2008
7	Pavlo Dudkin	Organizational and economic mechanism of development of innovative and logistic systems in the educational, scientific and industrial complex	2009
8	Larisa Ivashko	Innovative information and communication technologies for ensuring the quality of higher economic education	2011
9	Artur Oleksyn	Effectiveness of financing educational innovations in the system of higher education of Ukraine	2012
10	Denis Deacon	Organizational and economic foundations of innovative development of the national system of higher education	2014
11	Oksana Demchenko	Activation of the influence of higher education on the innovative development of the national economy	2014
12	Tetyana Kmytyuk	Modeling of staff motivation in relation to innovative activities (on the example of universities)	2015
13	Olga Avdeeva	Socio-economic levers of state regulation of innovative development of education in Ukraine	2017
14	Volodymyr Prus	Formation of the management mechanism of innovative development of an institution of higher education	2018
15	Olha Maguta	Innovation of higher education in Ukraine based on attracting target capital (endowment)	2018
16	Nataliya Fedorova	Science as a factor of social and economic development of society	2018

Also, certain aspects of the effectiveness of the use of scientific potential were considered in the works of Ukrainian scientists: M.I. Bublyk, I.M. Gryshchenko, M.P. Denisenko, V.Ye. Yermachenko, S.A. Yerokhina, A.V. Zhuravka, I.S. Kaleniuk, A.O. Kasych, O.E. Kuzmina, B.A. Malysky, I.O. Tarasenko.

The analysis and generalization of literary sources and special scientific studies showed that most scientists in their works paid attention to the innovative development and management of institutions of higher education. At the same time, issues related to the effective use of the scientific potential of the higher education system of Ukraine remain insufficiently covered in the economic literature. The need to study this problem at the proper level considering the specifics and peculiarities of the economic situation in Ukraine has led to the choice of the article topic and determined its purpose and tasks.

Matherials and Methods. Data Description. As Dmytro Lukyanenko noted in his report, "higher education systems are the most competitive, and universities of countries with a long successful history of consistent development with constant support of best practices in this area are the most rating. A vivid example of the tradition of strong consistent state support for the educational and research sector is the USA. Thus, today the share of public spending on funding research in US universities ranges from 37.1% to 93.3% and has remained relatively stable over recent years. This fully applies to the leading European countries, primarily Great Britain, Germany, France. The share of public expenditures on average in OECD countries is 90% for primary, secondary, as well as professional education outside of higher education, and about 68% for higher education" (Lukianenko, 2020, p. 2).

It has been proven that the higher the level of education of employed persons is, the higher the potential opportunities for increasing labour productivity in the national economy are and the greater the total income of society is. Thus, there is a close connection between education and economic growth, which is manifested in the growth rates of general economic indicators: gross national product (hereinafter – GNP), gross domestic product (hereinafter – GDP), etc. (Table 2).

Science as a source of new information and knowledge is one of the most powerful factors of development, since it contributes to the qualitative improvement of both the economy and the entire social system, causing a synergistic effect within it, therefore the assessment of the pace and vector of development of professional, scientific and technical activity, as well as education is also a priority because these types of economic activity are the basis for the progressive socio-economic development of any society. According to the analysis results, it was found out that the share of education as a part of the gross domestic product over the years takes an insignificant part – in the range

of 4–5%, the share of professional, scientific and technical activities is even smaller – in the range of 2–4%.

Table 2

Gross domestic product and the share of scientific activity in 2010–2021¹

Indexes	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Gross Domestic Product, UAH million, including:	1079346	1299991	1404669	1465198	1586915	1988544	2385367	2983882	3560596	3978400	4194102	5459574
professional, scientific and technical activities, UAH million	27625	30471	41966	47712	47139	55789	68460	86537	113354	141523	136832	159284
- share in GDP, %	2.56	2.34	2.99	3.26	2.97	2.81	2.87	2.90	3.18	3.56	3.26	2.9

¹ without considering the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol and part of the area of the anti-terrorist operation.

Source: derived from State Statistics Service of Ukraine (<http://www.ukrstat.gov.ua/>).

The value of GDP depends on the influence of certain factors. We believe that the level of GDP is primarily influenced by the scientific potential of the higher education system, which is formed due to:

- funding of scientific and technical activities;
- the number of employees involved in scientific research and development;
- effectiveness of post-graduate studies and doctoral studies in the higher education system;
- completeness and timeliness of publicizing the results of scientific activity;
- patent activity.

An indicator measured by many international organizations – the World Bank, the World Economic Forum, the European Institute of Business Management INSEAD, etc. is spendings on scientific research and development as a percentage of GDP covering fundamental, applied research and experimental development. The level of expenditures for carrying out scientific research and development in Ukraine is shown in the Table 3.

The level of expenditures for scientific research and development in Ukraine in 1999 was 0.97% of GDP, in 2010 – 0.75%, in 2015 – 0.55%, and in 2021 – 0.17%. At the same time, the corresponding indicator in the world in 2010 was 2.02%, in 2015 – 2.09%, in 2018 – 2.20% and is constantly growing in accordance with the implementation of the strategic task of increasing its level up to 3% in 2020. The largest share of research and development expenditures in GDP in 2018 was in Israel – 4.94%, Switzerland – 3.37%, Sweden – 3.31%, Japan – 3.28%, Austria – 3.21%, Germany – 3.13%, Denmark – 3.03%, the United States – 2.83% (The World Bank; Maidanik, 2020).

Table 3

**The level of expenditures for scientific research and development
in 2010–2021¹**

Indexes	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Expenditures for carrying out scientific research and development, UAH million	8107.0	8513.4	9419.9	10248.5	9478.5	11003.6	11530.7	13379.3	16773.7	17254.6	17022.4	12171.01
- share in GDP, %	0.75	0.65	0.67	0.70	0.60	0.55	0.48	0.45	0.47	0.43	0.41	0.17

¹ without considering the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol and part of the area of the anti-terrorist operation

Source: derived from State Statistics Service of Ukraine (<http://www.ukrstat.gov.ua/>).

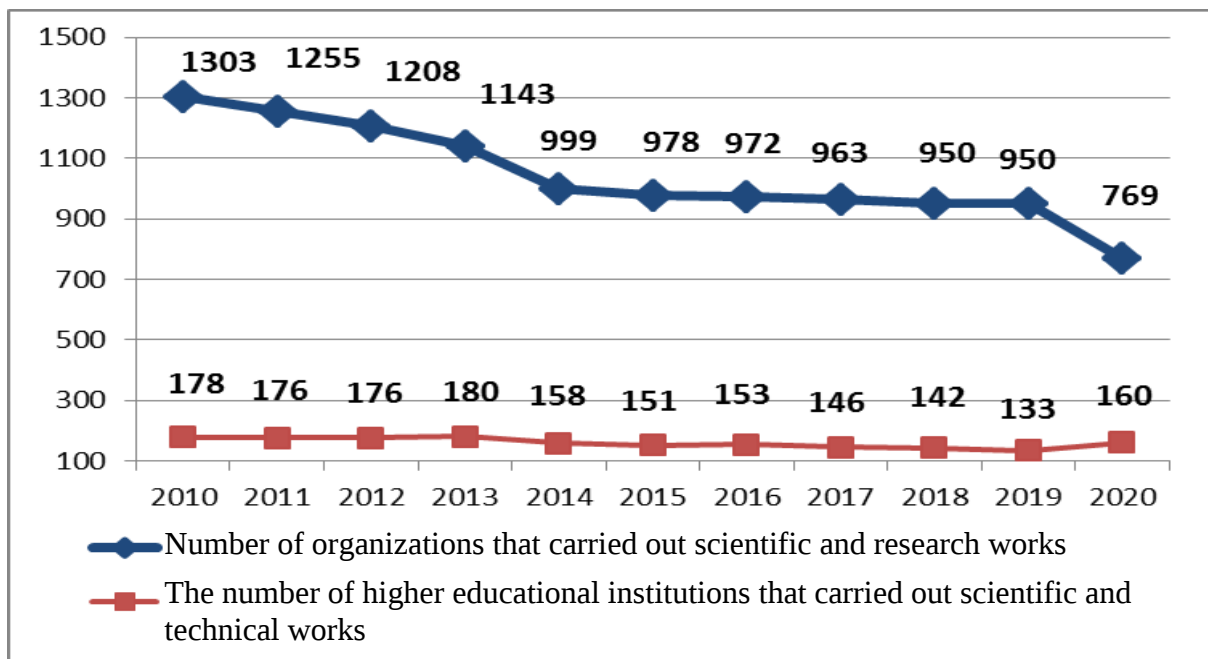
In Ukraine, over the years, there has been a trend that the largest specific weight in the expenditures for the implementation of scientific research and development is taken by expenditures for scientific and technical (experimental) developments. Thus, in 2020, scientific and technical (experimental) developments accounted for 51.7% of all expenses, for fundamental scientific research – 25.0%, for applied scientific research – 23.3%.

According to the data of the State Statistics Service of Ukraine, during 2010–2021, the number of domestic organizations and employees performing scientific research and development had a constant tendency to decrease (Fig. 1, 2).

The number of organizations carrying out scientific research work decreased from 1,303 to 769 (excluding temporarily occupied territories); the number of scientists during the corresponding period decreased from 182.5 to 78.9 thousand people, that is, more than twice, and in comparison with 1991 – almost five times (<https://mon.gov.ua>).

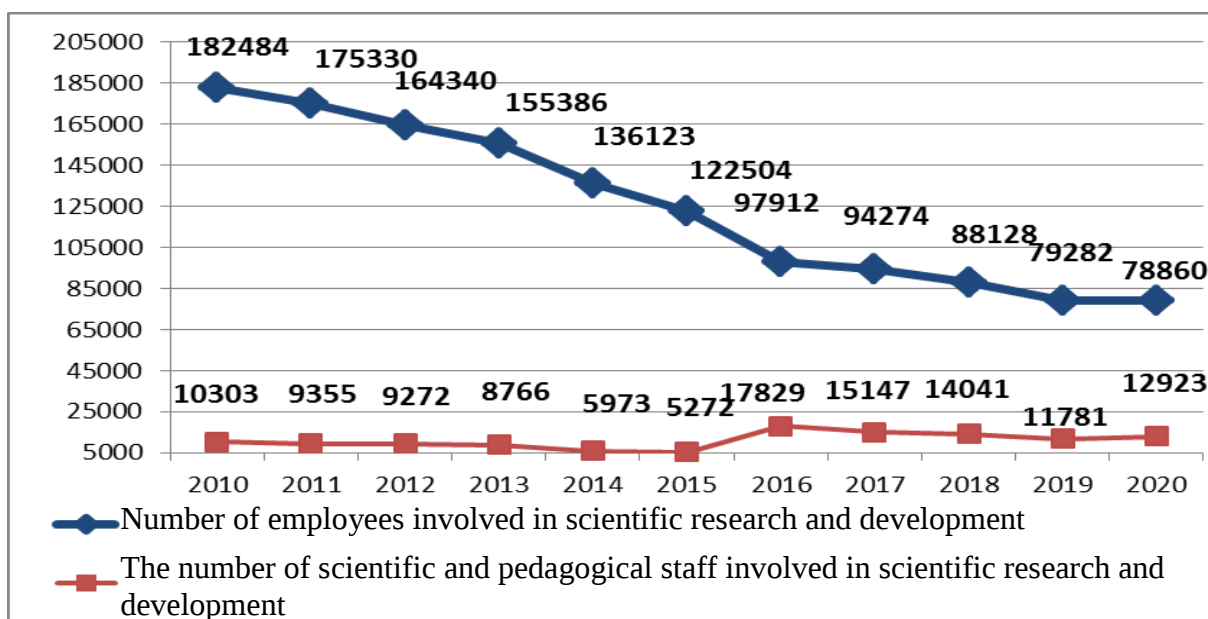
The number of researchers per 1,000 employed people (aged 15–70) in Ukraine was 3.2 in 2020 (3.1 in 2019). According to Eurostat, the highest values of this indicator in 2018–2019 were in Norway (23.0), Finland (23.4), Iceland (20.1), Portugal (21.7); within 11–16 people – in Slovenia, Lithuania, Hungary, Spain, Poland, the Czech Republic, Estonia, Slovakia, and the lowest – in Latvia (8.5), Bulgaria (7.4), North Macedonia (4.6), Romania (3.3) (<https://ec.europa.eu/>).

It should be noted that despite the negative dynamics of the indicators discussed above, in 2020 the number of organizations that carried out scientific research in the field of higher activity increased. Thus, if in 2010 the number of institutions of higher education carrying out research was 178, in 2018 – 142, in 2019 – 133, then in 2020 there were 155 of them (30.1% of the total number of institutions of higher education). That is why it is important to focus attention specifically on researching the effectiveness of using the scientific potential of the higher education system.



Source: derived from State Statistics Service of Ukraine (<http://www.ukrstat.gov.ua/>).

Fig. 1. Number of organizations, including institutions of higher education carrying out research work



Source: derived from State Statistics Service of Ukraine (<http://www.ukrstat.gov.ua/>).

Fig. 2. The number of employees involved in scientific research and development

In recent years, the quality of human scientific capital has been constantly improving in Ukraine – the number of doctors and candidates of sciences increased by one and a half times between 1995 and 2020 (Vlasiuk, 2019). In addition, during 2014–2019, among highly qualified specialists, there is a

tendency to decrease the specific weight of age groups from 50 to 64 years and a corresponding increase in the specific weight of age groups 30–49 years old, which is a positive trend.

At the same time, in recent years, Ukraine has lost more than 20,000 young researchers, and the strongest emigration sentiments are noted among students and post-graduate students. The influence of the educational factor on migration motivation is quite predictable: people with different levels of higher education, in comparison with graduates of secondary education institutions, more often associate foreign employment with the search for a better fate in another country, and not with avoiding failure at home (20.3% and 13.3%, respectively) (Savchenko, 2010).

An important part of the effectiveness of scientific activity is the publication of the results of scientific activity, namely the publication activity of scientists and the number of patents obtained. It is also currently important to publish the results of scientific research in scientific publications that are included in scientific metric databases. Thus, the largest number of Ukrainian publications in the Scopus database in 2020 refers to such areas of scientific research as "Mechanical Engineering" (about 6,000 publications), "Computer Science" (4,300), "Physics and Astronomy" (4.3 thousand), "Materials Science" (3.3 thousand) and "Mathematics" (2.6 thousand publications) (<https://mon.gov.ua>, 2020).

In addition to personnel qualifications, publication activity, and the quality of the system, the effectiveness of using the scientific potential of the higher education system depends on other conditions and factors – the established value system of society, the institutional organization of scientific activity, methods of stimulating labour activity, and the degree of receptivity of the economy to scientific results are really important (Kuranda and Kochetkova, 2020).

We believe that the effectiveness of using the scientific potential of the education system is influenced by the following factors: the number of institutions of higher education with postgraduate programs at the end of the year, number (x1); number of post-graduate students at the end of the year, people (x2); number of post-graduate students who completed graduate studies with thesis defense, people (x3); the number of institutions of higher education with doctoral programs at the end of the year, number (x4); number of doctoral students at the end of the year, people (x5); number of doctoral students who completed doctoral studies with thesis defense, people (x6); the dynamics of the number of institutions of higher education that carried out scientific and technical activities, number (x7); the number of personnel employed in the field of research and development, people (x8); financing scientific and technical activities of higher education, million hryvnias (x9); the number of scientific and technical works performed at the institution of higher education, number (x10);

publishing activity of higher education: printed monographs (x11), articles in scientific specialized publications (x12), articles in scientific specialized publications included in the Scopus scientometric database (x13); the number of patents for inventions received by the IHE (x14) (Table 4).

Table 4

**Initial data for analysing the influence of factors on the effective use
of the scientific potential of the education system**

Year №	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
x1	242	238	240	238	225	234	231	231	221	226	231
x2	28630	28305	27999	26270	23493	24625	22838	22134	20 749	23 034	23 469
x3	1789	1905	1971	1997	1736	1818	1583	1328	1373	695	975
x4	160	162	163	166	162	177	176	176	174	168	168
x5	1236	1292	1445	1454	1418	1483	1484	1374	969	937	937
x6	114	114	126	176	128	151	141	138	209	132	132
x7	178	176	176	180	158	151	153	146	142	133	155
x8	10303	9355	9272	8766	5973	5272	17829	15147	14041	11781	12800
x9	573.23	607.97	729.94	688.06	594.3	635.52	1052.65	975.8	1120.16	1056.75	1342.13
x10	6794	8283	9784	10154	7966	7577	3655	4922	5286	4020	2443
x11	5602	5752	5929	6320	4787	4479	5616	5828	5231	2852	3298
x12	136967	153997	158109	160297	137765	119486	175649	176924	173824	170519	148628
x13	1923	3114	2771	4341	4937	6135	8501	9071	10180	11309	12717
x14	3002	2336	3620	2307	2250	4553	1634	1525	1498	1511	1086

In this case, the generalizing feature (g) is the gross domestic product from professional, scientific and technical activities.

Method Description. STEP 1. At the first stage, correlation analysis was used. Correlation analysis was performed using the STATISTICA program. Using this method, the closeness of the linear relationship between factor characteristics and the resulting one is identifies, correlation coefficients are determined. It can take values from (-1) to (+1). The "-" sign shows that the connection is inverse, and the "+" sign shows that the connection is direct. With a correlation of less than 0.3, the closeness of the relationship is assessed as weak, from 0.31 to 0.5 – moderate, from 0.51 to 0.7 – significant, from 0.71 to 0.9 – close, from 0.91 and above is very tight. All coefficient values are taken modulo. For analysis, it is recommended to use significant, close and very close connections. The most significant indicators affecting the level of GDP formation from professional, scientific, and technical activities were selected with the help of the table (Table 5).

It can be seen from the matrix that the level of GDP formation from professional, scientific and technical activities has the greatest influence on the number of scientific articles published in the scientific metric database Scopus (0.958), financing scientific and technical activities of higher education (0.899),

the number of graduate students who graduated postgraduate studies with thesis defense (-0.942). At the same time, it was determined that some factors have a moderate relationship and it is advisable to exclude them when conducting the next study, namely: the number of institutions of higher education with doctoral degrees at the end of the year (0.432); the number of doctoral students who completed postgraduate studies with a thesis defense (0.312); the number of articles published in specialized publications of Ukraine (0.431).

Table 5

**Results of the correlation analysis of the closeness of the connection
between GDP and professional, scientific and technical activities
and factor characteristics**

Variable	Correlations (Table) The indicated correlations are significant at the $p < .05000$ level N = 11 (Stepwise removal of PD)														
x1	1,000000	0,908157	0,618839	-0,449002	0,466284	-0,486486	0,840738	-0,278008	0,735486	-0,741203	0,034597	0,811620	0,566594	-0,591804	0,479322
x2	0,908157	1,000000	0,643691	-0,724042	0,347508	-0,547225	0,881255	-0,486048	-0,697968	0,686609	0,398037	-0,435998	-0,839052	0,804318	-0,734101
x3	0,618839	0,643691	1,000000	-0,307641	0,790214	-0,042123	0,797722	-0,484534	-0,806855	0,735136	0,804631	-0,390757	-0,891139	0,771584	-0,941515
x4	-0,449002	-0,724042	-0,307641	1,000000	0,044864	0,516373	-0,675802	0,464005	0,497993	-0,570744	-0,102955	0,301808	0,602985	-0,526777	0,432256
x5	0,466284	0,347508	0,790214	0,044864	1,000000	-0,165978	0,473016	-0,299970	-0,653553	0,433531	0,674659	-0,241280	-0,645368	0,560982	-0,786384
x6	-0,486486	-0,547225	-0,042123	0,516373	-0,165978	1,000000	-0,306984	0,176648	0,307627	-0,071759	0,128732	0,313773	0,335921	-0,321528	0,312130
x7	0,840738	0,881255	0,797722	-0,675802	0,473016	-0,306984	1,000000	-0,388282	-0,642920	0,793181	0,643796	-0,331594	-0,838942	0,712245	-0,799519
x8	-0,278008	-0,486048	-0,484534	0,464005	-0,299970	0,176648	-0,388282	1,000000	0,735486	-0,741203	0,034597	0,811620	0,566594	-0,591804	0,479322

End of the Table 5

Y	x14	x13	x12	x11	x10	x9
-0,684276	0,707609	-0,725332	-0,337575	0,491356	0,580223	-0,555444
-0,734101	0,804318	-0,839052	-0,435998	0,398037	0,686609	-0,697968
-0,941515	0,771584	-0,891139	-0,390757	0,804631	0,735136	-0,806855
0,432256	-0,526777	0,602985	0,301808	-0,102955	-0,570744	0,497993
-0,786384	0,560982	-0,645368	-0,241280	0,674659	0,433531	-0,653553
0,312130	-0,321528	0,335921	0,313773	0,128732	-0,071759	0,307627
-0,799519	0,712245	-0,838942	-0,331594	0,643796	0,793181	-0,642920
0,479322	-0,591804	0,566594	0,811620	0,034597	-0,741203	0,735486
0,898542	-0,802215	0,926417	0,570358	-0,507591	-0,644002	1,000000
-0,626944	0,694724	-0,706041	-0,486392	0,422311	1,000000	-0,644002
-0,749100	0,499001	-0,675075	0,157749	1,000000	0,422311	-0,507591
0,431173	-0,466809	0,437372	1,000000	0,157749	-0,486392	0,570358
0,958195	-0,897565	1,000000	0,437372	-0,675075	-0,706041	0,926417
-0,800061	1,000000	-0,897565	-0,466809	0,499001	0,694724	-0,802215
1,000000	-0,800061	0,958195	0,431173	-0,749100	-0,626944	0,898542
-0,684276	0,707609	-0,725332	-0,337575	0,491356	0,580223	-0,555444
-0,734101	0,804318	-0,839052	-0,435998	0,398037	0,686609	-0,697968

STEP 2. In order to assess the impact of each factor on the value of GDP from professional, scientific and technical activities, we will use regression analysis. Regression analysis was performed using the STATISTICA program. In general, linear multiple regression is written as follows (Eq. 1):

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_m x_m, \quad (1)$$

where β_0 – free term;

β_n – values of the coefficients of influence of each specific factor on the final result;

x_n – quantitative value of the factor.

Results and Discussion. The results of the regression analysis are shown in Fig. 3.

Multiple results. Regressions (Step 6)

Dependent: Y Multiple R = ,99651859 F = 95,24685

R2 = ,99304929 df = 6,4

No. to cases: 11 adjusted R2= ,98262323 p = ,000287

Standard error of estimate: 5440,6453685

Intercept: 38622,134638 Std.Error: 30269,10 t(4) = 1,2760 p = ,2710

X13 beta =,891 X5 beta =-,17 X14 beta =,240

X3 beta =-,39 X10 beta =,154 X11 beta =,093

Fig. 3. Results of regression analysis of GDP dependence on professional, scientific and technical activity and factor characteristics

The result is a regression equation:

$$Y = 38622,135 - 0,39X_3 - 0,17X_5 + 0,154 X_{10} + 0,93 X_{11} + 0,891x_{13} + 0,240 X_{14}$$

Let us have a schedule of residuals in case of normal movable distribution (Fig. 4).

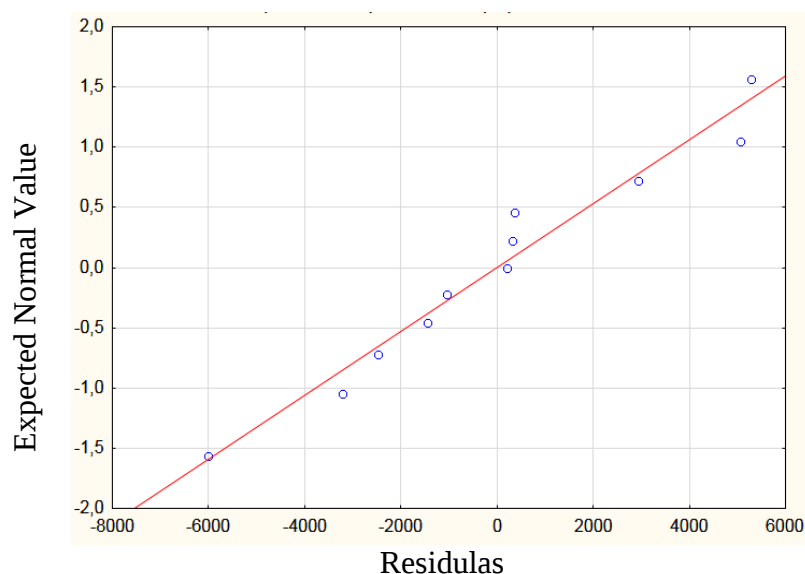


Fig. 4. Normal Probability Pilot of Residuals

Since the residuals are distributed according to the normal distribution law, they lie well on a straight line, which indicates the adequacy of the constructed model.

In the process of analysis, it was found out that the amount of GDP from professional, scientific and technical activities is influenced by: the number of graduate students who completed graduate studies with the defense of theses; the number of doctoral students at IHE at the end of the year; the number of

scientific and technical works performed at institutions of higher education; publishing activity of higher education: printed monographs and articles published in scientific publications included in scientometric databases; the number of received patents for inventions.

Myroslava Bublyk believes that the main directions for overcoming the problems of the development of the scientific activity of the higher education system at the national level are: the implementation of the policy of decentralization of higher education from the point of view of their economic activity with the improvement of the education quality control system and ensuring the growth of funding in full for the most promising and significant scientific research; at the regional level, the policy of promoting the development of higher education should consist of financing scientific research of regional significance; in IHE: ensuring the innovativeness of the educational process and the development of partnership relations with business structures for the implementation of joint scientific and practical projects (Bublyk et al., 2018).

Conclusion. The development of science contributes to the formation of both new knowledge and the development of new information, which can serve as a source of new knowledge in the future, which shows the incessant self-development of science. The constructed regression equation will make it possible to predict the size of GDP from professional, scientific and technical activities with the known values of the specified factors: the number of postgraduate students who completed postgraduate studies with the defense of theses; the number of doctoral students at IHE at the end of the year; the number of scientific and technical works performed at institutions of higher education; publishing activity of higher education: printed monographs and articles published in scientific publications, which are included in scientific-metric databases and the number of received patents for inventions.

We believe that since the economic development of higher education is impossible without an increase in the share of allocations earned by individual institutions of higher education and the higher education system as a whole, including scientific activity, the perspective for the development of institutions is to strengthen their autonomy, the introduction and development of contractual relations in the field of higher education and thereby contributing to the provision of independent conditions for spreading its self-sufficiency and self-financing, that is, self-development, which in turn will contribute to the increase of GDP from professional, scientific and technical activities.

Conflict of Interest. Tetiana Vlasiuk substantiated the research methodology, validation, conceptualization and control; collected the initial information for the analysis. Julia Bondarchuk conducted research and literature analysis. Natalia Fastovets gave a graphic presentation of the material.

ABBREVIATIONS

IHE is an Institution of Higher Education.

GDP is Gross Domestic Product.

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THE MAIN FACTORS OF INFLUENCE ON THE COMPETITIVENESS OF PRODUCTS OF ENTERPRISES OF THE FLOUR INDUSTRY

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Introduction. The resource potential of agri-food production of the economy of Ukraine determines the expediency of its orientation towards the strategy of self-sufficiency in solving the problem of food security at the national level, as well as the important role of the export of agri-food products for the development of the agrarian sector. World trends associated with globalization, increasing degree of openness of economies and increasing their interdependencies lead to increased requirements for national production from the point of view of their competitiveness.

The formation of the competitiveness of products of enterprises of the flour milling industry depends on a number of factors, which objectively complicates the process of its management. Depending on the level and scope of action, such factors are proposed to be combined into 10 groups in order to systematize the analysis of the competitiveness of enterprises in the flour milling industry: 1) resource; 2) innovative; 3) microeconomic; 4) sectoral; 5) infrastructure and logistics; 6) macroeconomic; 7) institutional and regulatory; 8) foreign trade; 9) social; 10) ecological.

The hypothesis of the scientific research consists in the study of the influence of external and internal factors on the

competitiveness of products of enterprises of the flour industry.

The purpose of the study is to analyze and justify the impact of factors on the competitiveness of the products of the enterprises under study.

The methodology of scientific research is general scientific research methods, in particular: induction and deduction, comparison, expert analysis, grouping method.

Conclusions and prospects for further research. It has been proven that competitiveness is a multi-component characteristic of products, business entity, region, industry, country, and also depends on factors of time and place, which lead to certain difficulties in its assessment. There is a close relationship between the formation of competitiveness at all its levels. Factors of competitiveness of the enterprise, industry, country will affect the competitiveness of products, which in turn affects the competitiveness of subjects at different levels. But in different groups of factors there are those that have a positive influence on the formation of competitiveness, and those that exert a negative influence.

Keywords: European integration; innovative development; competitiveness; competitive advantages; influencing factors; products of enterprises of the flour industry.

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
11	0	1

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ОСНОВНІ ФАКТОРИ ВПЛИВУ НА КОНКУРЕНТОСПРОМОЖНІСТЬ ПРОДУКЦІЇ ПІДПРИЄМСТВ БОРОШНОМЕЛЬНОЇ ПРОМИСЛОВОСТІ

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Вступ. Ресурсний потенціал агропродовольчого виробництва економіки України обумовлює доцільність її орієнтації на стратегію самозабезпеченості у вирішенні проблеми продовольчої безпеки на національному рівні, а також важливу роль експорту агропродовольчої продукції для розвитку аграрного сектора. Світові тенденції, пов'язані із глобалізацією, зростанням ступеня відкритості економік та підвищенням їх взаємозалежностей призводять до підвищення вимог до національних виробництв з точки зору їх конкурентоспроможності.

Формування конкурентоспроможності продукції підприємств борошномельної галузі залежить від множини чинників, що об'єктивно ускладнює процес управління нею. Такі чинники залежно від рівня та сфери дії запропоновано для систематизації проведення аналізу конкурентоспроможності підприємств борошномельної галузі об'єднати у 10 груп 1) ресурсні; 2) інноваційні; 3) мікроекономічні; 4) галузеві; 5) інфраструктурні та логістичні; 6) макроекономічні; 7) інституційно-регуляторні; 8) зовнішньоторговельні; 9) соціальні; 10) екологічні.

Гіпотеза наукового дослідження полягає в дослідженні впливу зовнішніх та внутрішніх чинників на конкурентоспроможність продукції підприємств борошномельної галузі.

Метою дослідження є аналізування та обґрунтування впливу чинників на конкурентоспроможність продукції досліджуваних підприємств.

Методологією наукового дослідження є загальнонаукові методи дослідження, зокрема: індукції та дедукції, порівняння, експертного аналізу, методу групування.

Висновки та перспективи подальших досліджень. Доведено, що конкурентоспроможність є багатокомпонентною характеристикою продукції, суб'єкта господарювання, регіону, галузі, країни, а також залежить від чинників часу та місця, що призводять до певних складнощів в її оцінці. Між формуванням конкурентоспроможності на всіх її рівнях існує тісний взаємозв'язок. Чинники конкурентоспроможності підприємства, галузі, країни впливатимуть на конкурентоспроможність продукції, яка в свою чергу впливає на конкурентоспроможність суб'єктів різних рівнів. Та в різних групах чинників є ті, які позитивно впливають на формування конкурентоспроможності, і ті, які здійснюють негативний вплив.

Ключові слова: євроінтеграція; інноваційний розвиток; конкурентоспроможність; конкурентні переваги; чинники впливу; продукція підприємств борошномельної галузі.

Problem statement. Product competitiveness is a dynamic concept that changes in time and space, is under the influence of numerous external and internal factors, the rate of change of which is constantly increasing.

Analysis of recent research on the problem In the scientific literature, considerable attention is paid to the identification and systematization of the factors of competitiveness of products, enterprises, regions, and countries. But product markets have their own characteristics, in addition to the general factors influencing the formation of competitive advantages of products, they are under the influence of special factors related to the properties of products, the structure of the market, the degree of its openness, regulatory conditions, etc.

M. Porter, identifying the country's competitive advantages, actually identified the factors affecting them, while combining the micro- and macro-level formation of such advantages. In particular, he identified such groups of factors as:

- factor (resource) conditions, i.e. provision of the subject of competition with resources in the required amount and quality, including natural resources, human resources, knowledge and information resources, infrastructure;
- demand conditions, which are affected by its size, which is related to the number of consumers and their incomes, internationalization;
- availability of supporting and related industries;
- strategy of firms (Porter, 2008).

Under the conditions of the innovative model of development, the factors of scientific and technical progress have acquired special importance. Thus, D. Palmer and S. Kaplan (2017) continued the justification of the innovative theory of competitiveness, emphasizing the exclusive role in modern competition in the global economy of advantages based on innovations, the development of science, education, the information environment, and scientific and technological achievements.

The purpose of the study there is justification and study of the influence of factors of competitiveness of products of enterprises of the flour milling industry.

Presentation of the main material If the competitiveness of products is a necessary condition for the competitiveness of an enterprise, the efficiency and effectiveness of its management, marketing, personnel policy, and innovation strategy will influence the formation of competitive properties and the realization of competitive advantages of products. The industry conditions of production development, the state of competition, integration and cooperation of manufacturers will affect the state of competitiveness of products. The formation of territorial and sectoral clusters, various forms of enterprise associations allow to improve the resource provision of industries, their access to innovations.

On the other hand, the state, forming the "rules of the game" on the market, supporting the development of certain industries, introducing regulation of business conditions will also affect the competitiveness of products.

In order to ensure the competitive advantages of products, the state of infrastructure and information support, technical-technological and innovative components are also important factors. Implementation of the "innovative industry development model based on a complex combination of science, scientific service and innovative infrastructure" is considered by many scientists as a more important factor in increasing the competitiveness of the agro-food sector and its products (Pisano, 2015).

A group of scientists, in determining the components and factors of competitiveness, singled out three of their main dimensions related to actual competitiveness, competitive potential and external factors related to competitiveness (Report of United States International Trade Commission, 2010). Among the factors of the first dimension, they noted the skills and knowledge of the staff; management practices; corporate culture; marketing factors and customer relations; networks and connections, as well as a number of factors determining the market structure and intensity of competition, including the number of competitors, the size of demand, the price/quality ratio, barriers to entry/exit from the industry, international openness. Innovations, cost effectiveness, productivity level were included in the factors of competitive potential formation. A group of external factors of competitiveness was formed from institutions and regulations, infrastructure, education, labor markets, financial markets, technologies, policies (Mulyk and Mulyk, 2020).

So, a fairly wide range of factors affecting the competitiveness of products of various industries was determined by scientists. In our study, we specify the factors of competitiveness of products of enterprises of the flour milling industry.

In order to organize and systematize such factors, scientists have proposed their various classifications. Thus, I. Starchenko singles out two groups of agricultural competitiveness factors: internal – which includes labor resources; material and technical support; financial resources; production technologies; information support; and external – which includes state regulation; scientific and technical progress; social; ecological (Ihnatenko and Marmul, 2020).

M. Ihnatenko and L. Marmul (2020) singled out 10 groups of agricultural competitiveness factors: innovative and technical-technological; logistic; structural and market; institutional; production; resource; regulatory; political; ecological; organizational.

S.V. Filyppova identified other 10 groups as factors of competitiveness of the agricultural industry: economic potential and growth rates of agricultural industries; efficiency of production of agricultural products; the level of development of science and technology, the rate of development of scientific and technical achievements; participation in the international division of labor; dynamism and capacity of the domestic market of agricultural products and products of their processing; financial support; state regulation; the level of

qualification of labor resources; supply of labor resources; socio-economic situation (Filyppova et al., 2018).

There is a close relationship between the formation of competitiveness at all its levels. Factors of competitiveness of the enterprise, industry, country will affect the competitiveness of products, which in turn affects the competitiveness of subjects at different levels. But in different groups of factors there are those that have a positive influence on the formation of competitiveness, and those that exert a negative influence.

Therefore, according to the direction and source of action as part of competitiveness factors, scientists have distinguished stimulators and destimulators of exogenous and endogenous action. Scientists classified as stimulants those factors that contribute to increasing competitiveness. As part of the disincentives, it was proposed to analyze the factors that prevent the increase of competitiveness (Barnat, 2018).

We believe that the composition of stimulators and destimulators, which depend on the direction of action of the factors, will constantly change in accordance with changes in the conditions of the world market, the macro environment, politics and management of the enterprise.

Taking into account such a variety of factors of the competitiveness of products and subjects of different levels, we consider it necessary to substantiate the author's classification of groups of factors of products of enterprises of the flour milling industry, which would become. The state of service industries, their market structure is also important for the formation of competitive advantages of products of flour milling enterprises.

- infrastructural and logistical factors directly affect the level of costs and thus the price of products, as well as the possibilities and conditions of product preservation, the timely delivery of products to the required place, and therefore their quality. In the conditions of globalization, an important role in the composition of these factors belongs to the state of the logistics system of the exit of domestic product manufacturers to world markets, international transport corridors and the price situation in the field of international logistics. High-quality roads, an extensive network of railway connections, ports, elevators, vehicles, warehouses for grain storage, increase the competitiveness of products of the flour milling industry, make it possible to reduce crop losses, maintain its quality in proper condition, reduce the cost of grain, which accounts for a significant share of the cost price products of the flour industry. It is also important to have a developed market infrastructure, including commodity exchanges, wholesale markets, improvement and spread of the use of exchange instruments, in particular futures contracts for the supply of grain for the purpose of insurance (hedging) of price risks.

- macroeconomic factors are factors external to the producer, form the conditions of its external environment, but directly affect the formation of costs, availability of resources, and the amount of demand for products. Thus, the economic growth of the country and the increase in the level of employment are accompanied by an increase in the demand for products, which will positively reflect on the volume of its production, that is, such a component of competitiveness as the stability of production and sales of products. Inflation will affect other components of product competitiveness, namely, the prices of resources and products, efficiency and profitability of production. The level of the bank interest rate, the availability of financial resources determine the state of financial support of all production processes, hence the level of costs and the quality of products;

- institutional and regulatory factors include the state of specification and protection of property rights in the economy, which are important conditions for the development of entrepreneurship and business activity. This group of factors also includes the existing standards of quality and safety of food products. On the one hand, the introduction of a modern quality management system requires additional costs, but at the same time they play an important role in meeting all the requirements in the production of quality products, and in many cases - in the access of product manufacturers to markets, including foreign ones. State support for commodity producers, taxation conditions will affect the level of production costs, its profitability, as well as the stability of economic activity conditions. State support, providing additional financial resources, enables producers to overcome their own financial limitations and properly finance production processes, as well as invest in new equipment and technologies, which will generally contribute to ensuring high product quality and reducing production costs, and will positively affect the competitiveness of agri-food products, Preferential taxation conditions, such as a reduced rate of value added tax (VAT), which is applied in the countries of the European Union for a number of food products, simplified and preferential taxation regimes will contribute to the supply of products to the market at a lower price, which will allow both to increase the demand for products and and increase the financial results of manufacturers;

- foreign trade factors include the level of openness of the economy, the liberalization of foreign trade relations, trends in the development of world markets of agricultural products and food, the number of competitors on the world market, their competitive advantages, the conditions for regulating foreign trade both in the national economy and in countries in which products are exported, the spread of the practice of using protectionist tools, time and costs for customs clearance of export-import, currency regulation;

- social factors include a set of factors related to the influence of the social environment on the competitiveness of products. Such factors include national,

religious traditions related to the consumption of products of the flour industry, including regarding the quality of flour and groats, time, volume and method of consumption of the product;

- environmental factors are determined by the state of pollution of the resource base, natural and climatic conditions of production, existing standards and society's attitude towards the environmental safety of production; availability of environmentally friendly technologies.

The composition of these groups of factors is summarized in table 1.

Table 1

**Factors of competitiveness of products of enterprises
of flour milling industry**

A group of factors	Factors
1. Resourceful	quality and quantity of available resources (natural, labor, capital) for agricultural and food production
2. Innovative	the achievement of scientific and technical progress, the state of the field of generation and transfer of innovations, available innovations in the field of production of agro-food products, their storage and promotion, including technologies, means of labor, new types of products or products with new properties
3. Microeconomic	technical and technological, organizational and managerial, including in relation to product quality management, personnel, marketing, economic and financial, innovative culture, corporate and social responsibility
4. Industry and market	the amount of demand, the structure of industry markets, the number of competitors, the intensity and methods of competition, pricing models, conditions of entry/exit from the industry, access to resources and the level of prices for resources
5. Infrastructural, logistic	the state of the market infrastructure, logistics systems of agriculture and the flour industry, including warehouses, the transport system for the supply of agri-food products to the national economy and to world markets
6. Macroeconomic	dynamics of GDP and GDP per capita, inflation rate, bank interest rate level, availability of financial resources, unemployment rate
7. Institutional and regulatory	specification and protection of property rights, standards, regulations of agro-food production and trade, standardization systems, state support for product manufacturers, taxation conditions
8. Foreign trade	trends in the development of world markets for agricultural products and food, the number of competitors, their competitive advantages, regulations on foreign markets
9. Social	social requirements for the quality of products, their taste properties; national, religious traditions related to the consumption of agro-food products;
10. Ecological	natural and climatic conditions of production; the state of pollution of the resource base, standards and attitudes of society regarding the environmental safety of production

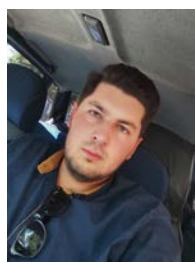
Source: generated by the author.

Research Findings and Prospects. The identification of factors and the direction of their influence on the competitiveness of products is the basis for the development of an effective competitive policy of the enterprise, as well as the state policy on ensuring the competitiveness of the products of enterprises of the flour industry, which plays an important role in the realization of the potential of agricultural production, and in the creation of jobs, and in providing for the population important food products, and in increasing the country's export potential.

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FORMATION OF DIGITAL COMPETENCIES OF HUMAN CAPITAL OF MACHINE- BUILDING ENTERPRISES

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Formulation of the problem. The article considers the problem of forming digital competencies of human capital of machine-building enterprises. It has been analyzed that the digital economy defines new requirements for enterprises, and one of the key success factors in it is the availability of highly qualified personnel with digital competencies.

The purpose of the study is to form the outline of digital competencies of human capital necessary for machine-building enterprises.

The main hypothesis is to confirm the trend in the labor market regarding the lack of middle-level personnel who possess digital skills and are provided with an effective plan for evaluating the digital competencies of human capital.

The methodology of scientific research is to ensure the development of human capital of machine-building enterprises with a unified framework of digital competences, based on the results of research using general scientific and special methods.

The results consist in the formation of proposals for the division of digital competences into basic and special digital competences, which, in turn, are divided into functional and operational ones. The functional dependencies of digital competencies of the human capital of machine-building enterprises have been formed, which include education, self-education, the worldview of the employee,

biological qualities of the individual, the set of business processes at the enterprise, the peculiarities of production processes, the uniqueness of the software product used at the enterprise and practical experience of acquiring digital competencies. The logical sequence of the implementation of processes related to the improvement of their digital competences is described. The article proposes the creation of an intra-corporate framework of digital competence for a machine-building enterprise based on three levels of requirements for determining the need for the scope of digital competences and choosing the method of its satisfaction. It is noted that the basic level of digital competences of the staff of the machine-building enterprise must correspond to the Framework of digital competences for citizens of Ukraine DigComp 2.1, while the outline of functional and operational digital competences is formed in the article independently.

Conclusions. It was revealed that the proposed projects of digital competence outlines, which meet the real needs of the digital transformation of machine-building enterprises and realize the strategic orientation of the formation of the digital economy of Ukraine, can be applied for planning, analysis and formation of digital competences of the human capital of machine-building enterprises.

Keywords: digitalization; human capital; digital competences; machine-building enterprises; digital technologies.

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13	1	6

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ФОРМУВАННЯ ЦИФРОВИХ КОМПЕТЕНТНОСТЕЙ ЛЮДСЬКОГО КАПІТАЛУ МАШИНОБУДІВНИХ ПІДПРИЄМСТВ

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Постановка проблеми. У статті розглядається проблема формування цифрових компетентностей людського капіталу машинобудівних підприємств. Проаналізовано, що цифрова економіка визначає нові вимоги до підприємств, і одним із ключових факторів успіху в ній є наявність висококваліфікованих кадрів, які володіють цифровими компетентностями.

Метою дослідження є формування контуру цифрових компетентностей людського капіталу, необхідних для машинобудівних підприємств.

Основна гіпотеза полягає у підтвердженні тенденції на ринку праці щодо нестачі кадрів середньої ланки, які володіють цифровими навичками та забезпечені дієвого плану щодо оцінки цифрових компетентностей людського капіталу.

Методологією наукового дослідження є забезпечення розвитку людського капіталу машинобудівних підприємств уніфікованими рамками цифрових компетентностей, базуючись на результатах дослідження з використанням загальнонаукових та спеціальних методів.

Результати полягають у формуванні пропозицій щодо розподілу цифрових компетентностей на базові та спеціальні цифрові компетентності, які в свою чергу, поділяються на функціональні та операційні. Сформовано функціональні залежності цифрових компетентностей людського капіталу машинобудівних підприємств, які включають в себе освіту, самоосвіту, світогляд працівника, біологічні якості індивідууму, сукупність бізнес-процесів на

підприємстві, особливості виробничих процесів, унікальність програмного продукту, що використовується на підприємстві та практичний досвід набуття цифрових компетентностей. Описано логічну послідовність реалізації процесів, пов'язаних з удосконаленням їх цифрових компетентностей. У статті запропоновано створення внутрішньокорпоративної рамки цифрової компетентності для підприємства машинобудування за трьома рівнями вимог для визначення потреби в обсягу цифрових компетентностей та вибору способу її задоволення. Зазначено, що базовий рівень цифрових компетентностей персоналу машинобудівного підприємства повинен відповідати Рамці цифрових компетентностей для громадян України DigComp 2.1, тоді як контур функціональних та операційних цифрових компетентностей сформована у статті самостійно.

Висновки. Розкрито, що запропоновані проекти контурів цифрових компетентностей, які відповідають реальним потребам цифрової трансформації підприємств машинобудування та реалізують стратегічну направленість становлення цифрової економіки України, можуть бути застосовані для планування, аналізу та формування цифрових компетентностей людського капіталу машинобудівних підприємств.

Ключові слова: цифровізація; людський капітал; цифрові компетентності; машинобудівні підприємства; цифрові технології.

Formulation of the problem. Currently, the majority of machine-building enterprises in the world use modern technologies and introduce innovations, while Ukraine is only beginning to implement them in production processes. If we take the level of development in the field of digitalization of Ukraine, it is appropriate to note that there are several aspects that, if properly managed, would increase the likelihood of rapid digital transformation of enterprises. Such actions include the restructuring of the education system and the scientific paradigm, which would become an impetus for further proactive development of human capital, as well as the reformatting of educational programs for the new realities of society. Adaptation to market requirements and global challenges with the creation of a highly effective personnel reserve, retraining programs should be aimed at increasing the digital intelligence of employees. The development and implementation of the legislative framework related to the digitalization and virtualization of the economy, including the definition of opportunities for remote work, would attract a larger number of enterprises to support the digitalization strategy. Currently, there is no framework of digital competencies for machine-building enterprises, which would increase the likelihood of the implementation of digital technologies in management and production processes.

Analysis of recent research and publications. The question of the formation of digital competencies for employees is in the scientific research of scientists, including T. Balanovska, O. Havrysh and B. Vyrzhikovska (2020), L. Havrilova and Y. Topolnyk (2017), L. Hrynevych, N. Morze and M. Boiko (2020), T. Semyhina and V. Fedyuk (2022) and others. However, the requirements for the digital competencies of employees are deepening with the development of digital technologies. To study the applied aspects of human capital, a set of the most typical digital competencies, which the staff of a machine-building enterprise should have today, was considered. There are no methods for assessing the mastery of digital skills of human capital in the scientific literature. Therefore, we can assume that to reveal this issue, it is necessary to analyze the requests of employers regarding the necessary competencies for employees. The object of analysis was the sites of announcements about existing vacancies (roboota.ua, work.ua). The analysis of information on these sites allowed us to summarize the following research results:

- today there is a significant demand for a wide list of positions that ensure the implementation of relevant functions at machine-building enterprises;
- a significant number of vacant positions at machine-building enterprises is typical for the middle level of the management structure;
- at the level of working professions, there is an isolated demand from employers for highly qualified specialists to perform high-precision milling, turning, and welding operations;

– a prerequisite for the competency requirements of all relevant vacancies. The list of digital skills that employers put forward to potential applicants is determined by the functional obligations of each position.

The purpose of the study is to form the outline of digital competencies of the human capital necessary for machine-building enterprises.

Presenting main material. As evidenced by the experience of transforming the IT sphere into one of the most powerful spheres of activity in Ukraine, the main ways of forming digital competencies are a competitive selection of "talents" with highly competitive wages; organization of a wide network of educational projects to provide basic skills in the use of digital products in the performance of each operation and implementation of each management function; a broad information policy regarding the promotion of the image of IT companies and the prestige of activities in the specified field; high requirements for the level of English language proficiency; providing opportunities for professional growth by mastering new functions; encouraging creativity and innovation; social support as a way of encouraging the development of digital competences (Digital competence, 2023).

According to the classification features of their purpose, competencies divide into basic and special digital competence, and, in turn, special, is divided into functional and operational competence.

Basic digital competence is the ability of personnel to use modern means of communication, social networks, chatbots, payment cards, money transfer systems, etc. The group of general digital competencies includes the ability of personnel to search the Internet, use Facebook, Instagram, Telegram and other social networks, Microsoft, Google applications, etc., use Internet banking services, make posts in professional chats, etc.

Basic competencies in the context of the development of the digital economy are perceived as a mandatory element of basic digital skills. The importance of having basic competencies is determined by their ability to ensure the speed and breadth of development of the social characteristics of an employee of an enterprise as an individual. Despite the lack of direct involvement in the performance of functional obligations, the presence of basic digital competencies allows the formation of social and communicative relations between members of the work team, forming the "*collective digital competence effect*". It is manifested the increase in the general level of digital competence of the staff and the reduction of the company's costs for their formation.

Given the obvious dependence of the employee's basic competence (GC) on the quality of the acquired knowledge (G_E), especially in mathematics, physics and informatics and the acquired specialty (P_E) in a special or higher education institution, we see the absence of the need for theoretical proof.

Regarding the influence of worldview (W) on the basic digital competencies of the employee, it is worth noting that worldview is a system of views that determines how a person sees the world. It includes beliefs, values, and ideals that guide a person's life (Gergen and Gergen, 1986). Worldview can be shaped by various factors, such as personal experience, culture, religion, and education, and is a powerful tool that helps people understand the world and make decisions.

The influence of the worldview on the digital competencies of the employee has a dual nature. On the one hand, the worldview (in terms of knowledge, positive views on the acquisition of digital competencies, attitude to the fulfillment of professional obligations, etc.) of each individual affects the choice of digitalization strategy, on the other hand, the implementation of digitalization strategies affects the change in the worldview of the company's personnel, expanding their boundaries knowledge, supplementing the system of values and beliefs. Therefore, the higher the level of knowledge, views and beliefs in the need for digitalization of each employee of the enterprise, the higher the level of basic competence of the enterprise will be due to the readiness of its staff to acquire digital competencies .

The biological qualities of an individual (B) in the concept of researching digital competencies of personnel is the ability to evaluate and analyze external changes in mechanical engineering, their causes and consequences, to position one's role and the role of all employees in the system of digital transformations in mechanical engineering. The biological component of an individual is dictated by his consciousness, accordingly, the greater the number of personnel aware of the need for digital transformations, the more effective are the processes of implementing digital technologies.

Special digital competencies are a set of skills in the use of special programs designed to perform certain types of operations within defined functions. Special digital competencies depend on the type of software products that provide automation of special functions and operations in the enterprise. For the most part, such competencies require special training through the acquisition of knowledge and the formation of skills for their application (Table 1).

As the results of the survey showed, in mechanical engineering, special digital competencies should be an element of the professional competence of a specialist of the appropriate management level. Each level of functional management has its requirements for the possession of relevant digital skills.

In general, it was found that special digital competencies, in turn, are divided into functional and operational ones. Functional skills are those digital skills that allow using special software to plan, monitor, analyze, coordinate the performance of the entire management function. This digital competence should be characteristic of heads of functional departments. Depending on the

functional level of management, a set of such functional digital competencies allows you to plan processes, aggregate the results of the implementation of operational digital competencies, distribute tasks between operational executors, set deadlines for their execution, control and coordinate work, etc. Functional digital competence depends on operational digital competencies (ODC), a set of business processes at the enterprise (BP), functional software products (PP_F). The volume and quality of functional competencies of human capital create the "effect of digital functionality" – as an expansion of the list of capabilities of personnel to use the functionality of IT technologies.

Table 1

Functional and operational digital competencies of the human capital of the machine-building enterprise

Position	IT programs	User competencies
<i>Functional digital skills</i>		
Director of the department	Navkolo (relevant modules), IT-Enterprise, A5 ERP, Oracle products, MRP, DEBIT Plus	Strategic and operational control of the implementation of all types of plans Control of the implementation of business processes and performance of business functions
Production technologist	Navkolo (production), IT-Enterprise, A5 ERP	Production planning Cost rationing
Project manager	SAP	Planning works according to the project Fixation of works by performers Calendar schedule of the project Planning and allocation of resources Sales performance management
Human Resources Department	Hurma System SAP	Employee Experience Management Basic processes of personnel management and salary calculation Talent management HR analytics and planning
<i>Operational digital skills</i>		
Engineer	SolidWorks, Windows, Office, Autocad, Coreldraw, P-Cad, Altium, Solid Edge	Design modeling Design of nodes, details, products Graphical image

Source: created by the author (robota.ua, work.ua).

Operational digital skills involve the use of software to perform specific operations within a defined function. Usually, such skills are narrow and require specialized knowledge. In a generalized form, operational digital competencies are a function of the uniqueness of the software product used at the enterprise (PP_U), basic competencies (BDC), professional and full higher education (G_E), practical experience of being digital competencies (PE), features of production processes (P_{pr}). The presence of operational digital competencies in the company's personnel creates the "effect of digital uniqueness" of the company as

an exceptional ability of the personnel of this company to produce a product or its IT service.

The formalized form of functional dependencies is described in Table 2.

All separate groups of digital competencies of personnel at machine-building enterprises are connected by production and management relationships.

The hierarchy of all groups of digital competencies in the specified classification feature will have the form shown in Table 2.

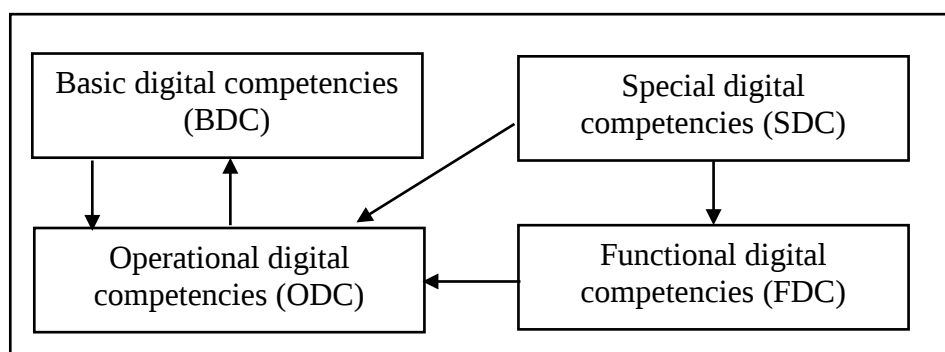
Table 2

Functional dependencies of digital competencies of the human capital of machine-building enterprises

Digital competence	Functional dependence	Legend
Basic (BDC)	$BDC = f(G_E, P_E, S_E, W, B)$	G_E – general education of the employee; P_E – availability of special professional or higher education; W – worldview of the individual; B – biological qualities of an individual; S_E – self-education; BP is a set of business processes at the enterprise; PP_F – functional software products; PP_U – the uniqueness of the software product used at the enterprise; PE – practical experience of acquiring digital competence; P_{pr} – features of production processes.
Functional (FDC)	$FDC = f(O_C, BP, PP_F)$	
Operational (ODC)	$ODC = f(PP_U, BDC, PE, P_{pr})$	

Source: generated by the author.

A formed hierarchy of digital competencies allows one to present visually the interdependencies between all their groups.



Source: constructed by the author.

Fig. 1. Hierarchy of digital competencies of the staff of the machine-building enterprise

By the presented hierarchy, all functional and operational digital competencies are based on the general digital competence of the staff.

Based on the above and taking into account the conducted analysis of the state of digitalization of machine-building enterprises, it is possible to form a logical sequence of the implementation of processes related to the improvement of their digital competencies (table 3).

One of the tools for determining the need for the number of digital competencies and choosing the method of its satisfaction is the creation of an intra-corporate framework of digital competence for a machine-building enterprise. Such a framework can be formed according to three levels of requirements: basic, operational and functional competencies.

Table 3

**Stages of the process of assessing the need
for digital competencies of human capital**

Stage
1. Defining the digital strategy of the enterprise
2. Assessing the need for a set of operational digital competencies
3. Assessing the need for a set of functional digital competencies
4. Analysis of the existing state of providing the enterprise with the necessary digital competencies of personnel in terms of structural units and workplaces
5. Calculation of the need for additional digital competences
6. Analysis of possible ways of acquisition of digital competencies by existing staff
7. Assessment of the need to recruit additional personnel with the necessary list of the Central Committee

Source: built by the author.

The basic level of digital competencies of the staff of the machine-building enterprise must correspond to the Framework of digital competencies for citizens of Ukraine or DigComp UA for Citizens 2.1 [11, p. 9], which was developed based on the results of research conducted as part of the project "dComEra: Digital competence framework for Ukrainian teachers and other citizens". It includes 6 areas, 30 competencies and 6 levels of mastery of digital competencies (Table 4).

As mentioned above, depending on the digitalization strategy, engineering enterprises need the necessary set of digital competencies of their personnel. The framework of functional competencies of personnel is a set of necessary skills and abilities of the user of technologies that ensure the performance of professional functions. This is a framework of skills and abilities of managers of functional management levels (heads of departments, departments, projects, etc.) (table 5).

Table 4

**Generalized structure of the framework of digital competencies
for citizens of Ukraine**

Sphere of competence	Name of competence
Basics of computer literacy	The use of various gadgets and basic software. Use of applications and software, the Internet and e-applications. Management digital identity
Information literacy, skill work with data	View, search, filter data, information and digital content. Critical evaluation and interpretation of data, information and digital content and reliability testing sources. Management of the data information and digital content. Realization of own requests with the help of ICT. Self-realization in the digital society
Creating digital content	Development, edition and integration of digital content. Copyright and licenses. Basic skills in programming. Creatively using digital technologies.
Communication and interaction in digital society	Communication, cooperation, sharing and exchanging data with the help of digital technologies. Digital citizenship. Use of e-services. E-signature. Responsibility. Legal and ethical norms network etiquette
Security in the digital environment	Protection of devices and secure connection to the Internet, with protection of personal data and privacy. Internet security. Defending of personal consumer rights from fraud and abuse. Protection of health and well-being, protection of surrounding environment
Solving problems in a digital environment and teaching during life	The solution to technical problems. Defining needs and their technological solution. Evaluation of the own digital competence, elimination gaps. Solution of vital problems with the help of ICT. Lifelong learning. Professional self-development in digital environment.

Source: created by the author based on (Ministry of Digital Transformation, 2021).

Each business function, each business process of an enterprise is a set of operations, the interaction and integration of which realize the tasks of each of its functional divisions. However, digital technologies used by operational actors may differ in the breadth of functionality and greater detail of technological operations. The digital competencies of the executor of technological operations are characterized by greater specialization in the performance of narrow operational actions (table 6).

Formed drafts of the framework of digital competencies of the personnel of the machine-building enterprise implement the task of developing the Roadmap of the digital transformation of the machine-building enterprise, the outline and requirements of which were formed by the Association of "Industrial Automation Enterprises of Ukraine" (APPAU, 2023).

Table 5

Outline of the generalized structure of the framework of digital functional competencies of employees of the machine-building enterprise

Spheres competence	Names of competence
Management skills	Digital management of personnel competencies Formation of the matrix of the digital competences Use of task planning technologies Forming a digital learning management program Organization of security of digital activities of personnel Use of digital technologies to perform management functions Time management The use of IT technologies for strategic planning of the development of business functions Use of digital documentation technologies
Development of rules of conduct regarding the use of IT technologies	Development of rules for the use of various types of devices Development of new forms of digital communications
Control and security	Control of "technological user instructions" Security of performance of business functions Control of communications ethics
Analysis and evaluation	Possession of technologies and methods, analysis and processing of a large amount of data Ensuring accuracy and secure data Use of visualization technologies of processes and operations
Communication	Selection of technologies and adjustment of intragroup and intergroup communication processes Organization of data transfer processes

Source: constructed by the author.

Table 6

Outline of the generalized structure of the framework of digital operational competencies of the personnel of the machine-building enterprise

Spheres competence	Names of competence
Operational	Programming, designing, modeling and working with artificial intelligence Use of automation systems and IT technologies to perform operational tasks Use remote databases, standards
Optimizing	Establishing, evaluating and analyzing performance indicators of operational IT technologies Analysis of "critical points" of a technological operation Software functionality support
Security	Safety of technological operations
Independence and responsibility	Ensuring the quality of operations

Source: constructed by the author.

Therefore, the proposed projects of the framework of digital competencies meet the real needs of the digital transformation of machine-building enterprises and realize the strategic orientation of the formation of the digital economy of Ukraine.

Conclusions. The digitalization of the enterprise requires not only the modernization of production but also the training of employees in digital competencies, which would help to adjust more effectively production processes. The presence of digital competencies in human capital is increasingly becoming a priority request among employers of various types of economic activity in industry. The developed framework of digital functional and operational competencies will enable business owners to assess the level of mastery of digital skills of employees, plan their effective training or retraining, and subsequently form the necessary digital competencies.

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TERRITORY AND REGION DEVELOPMENT AS AN OBJECT OF CRISIS MANAGEMENT

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Introduction. The development of territory and regions is one of the key issues that requires the attention of crisis management. In the context of current challenges and crisis situations, effective crisis management is crucial for ensuring the sustainable development of territories and regions. The relevance of the problem of territory development as an object of crisis management is determined by the need to ensure the long-term stability and prosperity of regions.

The research hypothesis is that effective crisis management contributes to the sustainable development of territory and region.

The aim of this article is to study and analyze the development of territory and region as an object of crisis management in order to identify optimal strategies for ensuring sustainable development.

Research methods. To achieve the aim of this research, the following methods were employed: analysis of scientific literature, statistical data analysis, surveys, and interviews with experts in crisis management.

Results. The research findings confirmed that effective crisis management contributes to enhancing the resilience of territories and regions in crisis situations. It was identified that optimal strategies include ensuring effective communication, flexibility, and coordination among different structures and actors of crisis management. Additionally, timely forecasting of potential crisis situations and implementation of preventive measures were found to be crucial for successful crisis management.

The conclusions drawn from the research findings highlight the necessity of effective crisis management for ensuring sustainable development of territories and regions. The identified optimal strategies and recommendations can be utilized to enhance practical activities in the field of crisis management.

Keywords: development; territory; region; crisis management; sustainability; efficiency.

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10	1	0

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РОЗВИТОК ТЕРИТОРІЇ, РЕГІОНУ ЯК ОБ'ЄКТУ АНТИКРИЗОВОГО УПРАВЛІННЯ

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Вступ. Розвиток території та регіону є однією з ключових проблем, яка вимагає уваги антикризового управління. В контексті сучасних викликів і кризових ситуацій, ефективне антикризове управління є надзвичайно важливим для забезпечення стійкого розвитку території та регіону. Актуальність проблеми розвитку території як об'єкту антикризового управління обумовлена потребою забезпечення сталості та процвітання регіонів на довгостроковій основі.

Гіпотеза дослідження полягає в тому, що ефективне антикризове управління сприяє сталому розвитку території та регіону.

Метою даної статті є вивчення та аналіз розвитку території та регіону як об'єкту антикризового управління з метою виявлення оптимальних стратегій для забезпечення стійкого розвитку.

Методи дослідження. Для досягнення мети даного дослідження були використані такі методи: аналіз наукової літератури, статистичний аналіз даних, анкетування та інтерв'ювання фахівців з питань антикризового управління.

Результати.

Результати дослідження підтвердили, що ефективне антикризове управління сприяє покращенню стійкості території та регіону в умовах кризових ситуацій. Було виявлено, що оптимальними стратегіями є забезпечення ефективної комунікації, гнучкості та координації дій між різними структурами та суб'єктами антикризового управління. Також було встановлено, що вчасне прогнозування потенційних кризових ситуацій та вжиття запобіжних заходів мають вирішальне значення для успішного антикризового управління.

Висновки за результатами проведених досліджень свідчать про необхідність ефективного антикризового управління для забезпечення сталого розвитку територій та регіонів. Виявлені оптимальні стратегії та рекомендації можуть бути використані для покращення практичної діяльності у галузі антикризового управління.

Ключові слова: розвиток; територія; регіон; антикризове управління; сталість; ефективність.

Problem statement. The regions of Ukraine are experiencing various socio-economic and developmental issues, which necessitates a comprehensive problem statement. Economic disparities and uneven regional development pose significant challenges for the country, hindering overall progress and stability. Regional disparities in income, infrastructure, employment opportunities, and access to services have created imbalances within Ukraine. The ongoing conflict in certain regions has further exacerbated the challenges, affecting economic growth and stability. The problem statement aims to address the urgent need for effective strategies to promote balanced regional development across Ukraine. Regional disparities not only hinder the well-being of local populations but also impact the overall competitiveness and growth potential of the country. The problem statement recognizes the importance of recognizing and addressing the unique characteristics and potentials of each region. It emphasizes the significance of targeted interventions and policies that can foster inclusive growth and reduce regional disparities. The problem statement acknowledges the need for coordinated efforts from both the government and other stakeholders to tackle the existing challenges. Addressing the problem statement will contribute to enhancing the overall socio-economic well-being and stability of Ukraine, fostering sustainable development and prosperity across all regions.

Analysis of recent studies and the unresolved part of the problem. Smith and Johnson (2022) identify the lack of effective mechanisms for financial support to regions in crisis situations as an unresolved part of the problem. Petrov (2021) points out that one unresolved aspect is the establishment of effective communication and cooperation mechanisms between regional authorities and other stakeholders during crisis management. Johnson and colleagues (2020) state that ensuring equal access to crisis measures and resources for all regions of Ukraine, particularly those in difficult socio-economic situations, remains an unresolved part of the problem. Ivanova and colleagues (2019) emphasize the insufficient attention given to the development of strategies and programs for crisis management aimed at supporting innovative territorial development. Thompson and colleagues (2018) highlight the absence of a comprehensive approach to crisis management that considers the specificities of different regions and their needs as an unresolved problem. Brown and colleagues (2017) underscore the issue of effective monitoring and evaluation of the outcomes of crisis measures in regions that remains unresolved. Rodriguez and colleagues (2016) suggest that a lack of mechanisms to stimulate investment activity and entrepreneurial development in crisis regions is an unresolved part of the problem. Williams and colleagues (2015) note that ensuring conditions for active participation of local communities in the process of crisis management and decision-making is an unresolved issue. Garcia and colleagues (2014) identify the coordination of efforts between

different levels of government in the context of crisis management in regions as an unresolved part of the problem. Davis and colleagues (2013) highlight the insufficient development of information systems and technologies that would facilitate effective regional-level crisis management.

These sources provide insights into the unresolved aspects of crisis management in regions/territories as expressed by the authors. In the analyzed sources regarding crisis management in regions/territories, the unresolved part of the problem includes the development of effective mechanisms for financial support to regions in crisis situations, the establishment of efficient communication and cooperation mechanisms between regional authorities and other stakeholders, ensuring equal access to crisis measures and resources for all regions, the formulation of strategies and programs aimed at supporting innovative territorial development, adopting a holistic approach to crisis management, implementing effective monitoring and evaluation of crisis measures' outcomes, stimulating investment activity and entrepreneurship, creating conditions for active participation of local communities, coordinating efforts between different levels of government, and developing information systems and technologies conducive to effective regional-level crisis management.

The objective of this research is to address the unresolved aspect of the problem identified through the analysis of recent studies, focusing on developing effective mechanisms for crisis management in regions/territories and exploring strategies for fostering innovative territorial development.

Presentation of the main material. The determinants of a crisis can be categorized into various essential factors, including economic, social, political, and environmental aspects.

Economic determinants play a crucial role in understanding and analyzing crises. Factors such as inflation, unemployment, fiscal deficits, and unsustainable debt levels can contribute to the onset and severity of a crisis.

Social determinants, such as income inequality, poverty rates, and social unrest, can also influence the likelihood and impact of a crisis. These factors can exacerbate existing vulnerabilities within a region, making it more susceptible to crises.

Political determinants encompass governance structures, policy decisions, and political stability. Weak institutions, corruption, ineffective policies, and political instability can undermine a region's ability to prevent or manage crises effectively.

Environmental determinants, including natural disasters and climate change, can significantly affect regional development. Environmental risks, such as hurricanes, droughts, or floods, can lead to economic disruptions, displacement of populations, and infrastructure damage, triggering a crisis.

Regional development, as an object of crisis management, has its unique characteristics. It involves analyzing and addressing the specific challenges and opportunities within a particular region to promote sustainable and balanced growth.

Regional development often focuses on enhancing infrastructure, attracting investments, fostering innovation, improving human capital, and promoting entrepreneurship. These aspects are vital for creating a conducive environment for economic development and reducing regional disparities.

Regional disparities, both in terms of economic development and access to resources, are a key concern in anti-crisis management. Addressing these disparities requires targeted policies and interventions that can help alleviate poverty, reduce inequality, and enhance the overall well-being of the region.

Research on anti-crisis management in regional development adopts various scientific approaches. Economic theories, such as neoclassical economics or regional economic development theories, provide frameworks for understanding the drivers of regional growth and the impact of crises.

Additionally, interdisciplinary approaches, including socio-economic analysis, environmental studies, and political science, are employed to gain a comprehensive understanding of the complex dynamics involved in regional development and crisis management.

Quantitative research methods, such as statistical analysis and econometric modeling, are often utilized to examine the relationships between different variables and identify patterns or trends in regional development and crisis occurrences.

Qualitative research methods, such as case studies, interviews, and surveys, help capture the contextual nuances and subjective experiences of individuals and communities affected by crises, providing valuable insights for effective crisis management.

Comparative studies, which involve analyzing multiple regions or countries, offer a comparative perspective on the factors that contribute to successful anti-crisis management and regional development.

Policy-oriented research is crucial for informing anti-crisis management strategies in regional development. This involves assessing the effectiveness of existing policies, identifying gaps or areas of improvement, and proposing evidence-based policy recommendations.

Collaboration and knowledge sharing among researchers, policymakers, and practitioners are essential for advancing the field of anti-crisis management in regional development. By fostering dialogue and exchanging best practices, stakeholders can collectively work towards building resilience and promoting sustainable regional growth.

Evaluating the impact of anti-crisis measures in regional development is an ongoing process. It requires continuous monitoring, data collection, and analysis to assess the effectiveness and adaptability of policies and interventions over time.

Regional development strategies should aim to build resilient systems that can withstand shocks and crises. This involves diversifying the regional economy, promoting innovation and entrepreneurship, investing in education and skills development, and enhancing social safety nets.

Sustainable development principles should guide anti-crisis management in regional development. Balancing economic growth with environmental preservation and social equity is essential for ensuring long-term prosperity and resilience.

The evolving nature of crises, along with global interdependencies, highlights the need for international cooperation in anti-crisis management. Sharing knowledge, resources, and expertise across regions and countries can contribute to more effective crisis prevention and mitigation strategies.

The study of anti-crisis management in regional development is a dynamic field that requires continuous research, innovation, and adaptation to address the ever-changing challenges and opportunities faced by regions worldwide.

The following organisational and methodological approaches to assessing the levels of socio-economic development of the regions of Ukraine and the effectiveness of crisis management are proposed.

Organizational and methodological approaches to assessing the levels of socio-economic development of regions in Ukraine and the effectiveness of their crisis management involve several key strategies and techniques.

These approaches aim to provide a comprehensive understanding of regional development dynamics and the performance of crisis management efforts. Here are more detailed explanations:

1. "*Comprehensive Approach*": This approach recognizes that regional development is influenced by multiple factors, including economic, social, and environmental aspects. It involves gathering data on various indicators, such as economic growth, employment rates, poverty levels, education and healthcare outcomes, infrastructure development, and environmental sustainability. By considering a wide range of factors, a more holistic view of regional development can be obtained.

2. "*Key Indicators Selection*": Identifying key indicators is crucial for assessing the socio-economic development of regions. These indicators serve as measurable benchmarks to evaluate progress and identify areas for improvement. For example, economic indicators may include gross regional product (GRP), per capita income, investment inflows, and industrial output. Social indicators may encompass education and literacy rates, healthcare

accessibility, poverty and inequality measures, and demographic trends. Environmental indicators may include pollution levels, natural resource depletion, and renewable energy adoption. Careful selection of relevant indicators ensures a comprehensive assessment of regional development.

3. *"Scoring Systems and Indices"*: Developing scoring systems or composite indices is a common method to compare and rank regions based on their level of development. These systems assign weights to individual indicators and combine them into an overall score or index. Examples include the Human Development Index (HDI), which combines indicators such as life expectancy, education, and income, or the Multidimensional Poverty Index (MPI), which considers multiple dimensions of poverty. Such scoring systems facilitate easy comparison and provide a comprehensive snapshot of a region's overall development level.

4. *"Cluster Analysis"*: Cluster analysis helps identify groups of regions that exhibit similar patterns of development. By grouping regions based on shared characteristics, such as economic structure, demographic composition, or geographical location, policymakers can gain insights into common challenges and design targeted interventions. Cluster analysis also enables comparisons between regions within the same group, helping identify best practices and policy lessons.

5. *"Regional-Specific Factors"*: Recognizing the unique features of each region is essential for accurate assessment. Regional-specific factors, such as natural resources, geographical location, historical heritage, and cultural dynamics, can significantly influence development trajectories. Understanding and accounting for these factors in the assessment process ensures a more nuanced and tailored evaluation of regional development and crisis management effectiveness.

6. *"Trend Analysis"*: Assessing the changes in regional development over time provides valuable insights into progress, challenges, and the effectiveness of crisis management measures. Longitudinal analysis allows for the identification of trends, such as improvements or deteriorations in economic growth, social indicators, or environmental performance. By examining the trajectory of development, policymakers can assess the impact of their interventions and adjust strategies accordingly.

7. *"Expert Involvement and Stakeholder Engagement"*: Engaging experts and stakeholders in the assessment process enhances the quality and credibility of the results. Experts bring specialized knowledge and experience, contributing to the selection of appropriate indicators, interpretation of data, and identification of relevant policy implications. Stakeholder engagement ensures that the assessment process considers local perspectives, fosters ownership, and

increases the likelihood of successful implementation of policy recommendations.

8. *"Performance Indicators for Crisis Management"*: Evaluating the effectiveness of crisis management efforts requires the identification of specific performance indicators. These indicators may include response time to crises, coordination among relevant agencies, resource allocation efficiency, risk mitigation measures, and the ability to bounce back from crisis impacts. By assessing these indicators, policymakers can gauge the effectiveness of their crisis management strategies and make informed decisions for future improvements.

9. *"Linking Development Level and Crisis Management"*: Analyzing the connection between the level of regional development and the effectiveness of crisis management efforts provides insights into areas that require attention. For example, regions with higher levels of development may demonstrate better resilience to crises due to stronger institutions, more diversified economies, and higher levels of human capital. Understanding the relationship between development and crisis management helps prioritize interventions and allocate resources effectively.

10. *"Continuous Improvement"*: Given the dynamic nature of regional development and the evolving nature of crises, it is essential to regularly update and refine assessment methodologies. Continuous improvement ensures that assessment frameworks remain relevant, account for emerging challenges, and align with changing policy priorities. Ongoing monitoring and evaluation facilitate evidence-based decision-making and adaptive policy responses.

By employing these organizational and methodological approaches, policymakers and researchers can gain valuable insights into the socio-economic development of regions in Ukraine and the effectiveness of anti-crisis management measures. These insights, in turn, can inform evidence-based policy formulation, targeting resources effectively, and promoting sustainable regional growth.

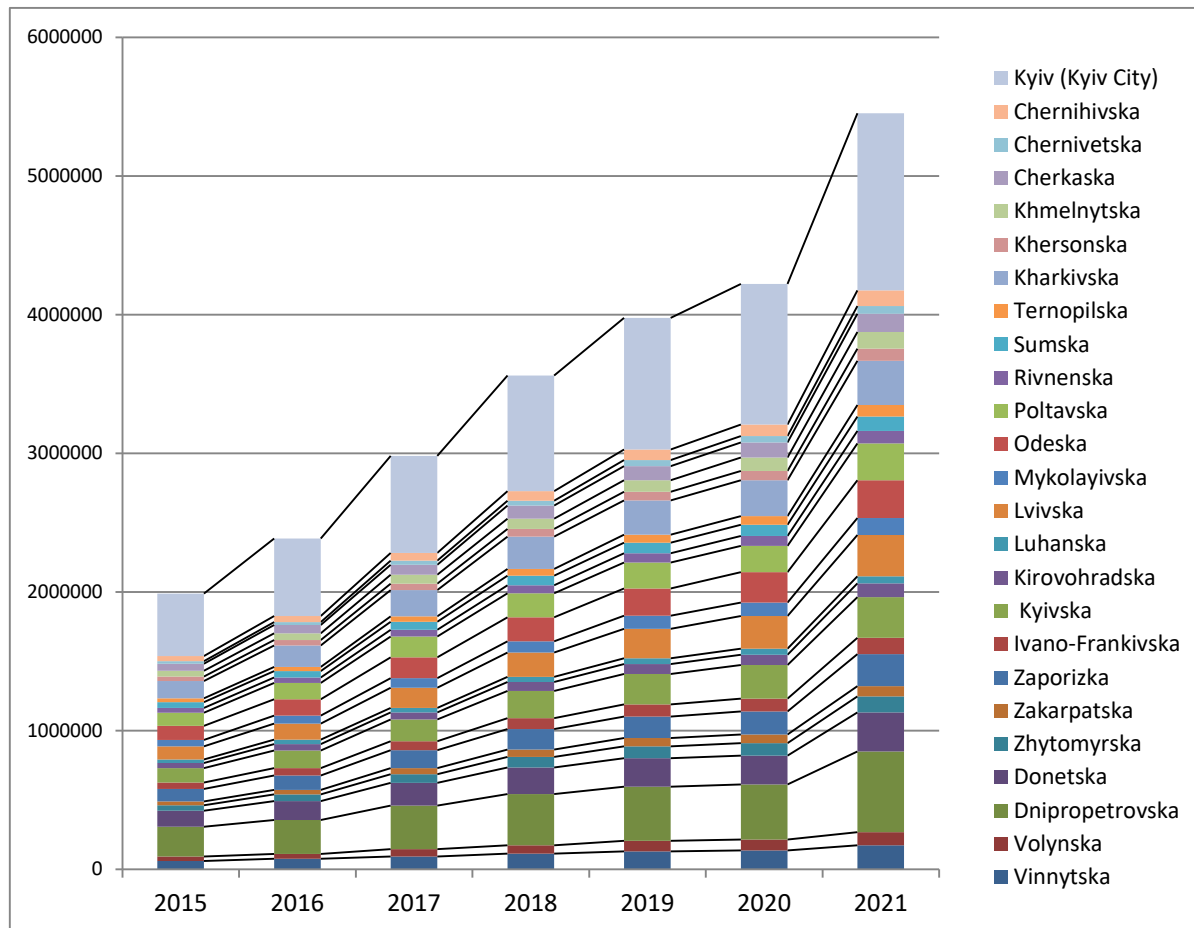
After conducting a statistical analysis of the level of regional development in Ukraine from 2016 to 2020 based on indicators such as 1) gross regional product (GRP), 2) per capita income, 3) investment inflow, 4) industrial production, 5) education and literacy rates, 6) accessibility of healthcare, 7) poverty and inequality indicators, 8) demographic trends, 9) pollution levels, 10) depletion of natural resources, and 11) utilization of renewable energy sources, we can draw the following expanded conclusions:

1. Gross Regional Product (GRP):

- ✓ Identify regions with the highest and lowest levels of GRP.
- ✓ Analyze the dynamics of GRP changes in different regions over the years.

✓ Determine the factors influencing the growth or decline of GRP in various regions.

Figure 1 illustrates the dynamics of changes in Gross Regional Product (GRP) over the past 6 years.



Source: Ukrainian State Statistics Committee.

Figure 1. Gross Regional Product (GRP)

2. Per Capita Income:

✓ Determine regions with the highest and lowest levels of per capita income.

✓ Analyze changes in per capita income across regions during the specified period.

✓ Identify the relationship between income levels and other indicators such as education, health, and poverty.

3. Investment Inflow:

✓ Identify regions attracting the highest amount of investment.

✓ Assess the dynamics of investment inflow in regions over the years.

✓ Determine the sectors that attract the most investment and contribute to regional economic growth.

4. Industrial Production:

✓ Identify regions with the highest and lowest levels of industrial production.

✓ Analyze changes in industrial production across regions over the years.

✓ Identify the sectors that have contributed the most to or hindered the development of the industrial sector in regions.

5. Education and Literacy Rates:

✓ Determine regions with the highest and lowest levels of education and literacy.

✓ Analyze changes in education and literacy rates across regions over the years.

✓ Identify the relationship between education levels and other indicators such as economic growth and poverty.

6. Accessibility of Healthcare:

✓ Determine regions with the highest and lowest levels of healthcare accessibility.

✓ Analyze changes in healthcare accessibility in regions over the years.

✓ Establish the connection between healthcare accessibility and other indicators such as life expectancy and mortality rates.

7. Poverty and Inequality Indicators:

✓ Identify regions with the highest and lowest levels of poverty and inequality.

✓ Analyze changes in poverty and inequality indicators in regions over the years.

✓ Establish the relationship between poverty and inequality levels and other indicators such as education and health.

8. Demographic Trends:

✓ Determine demographic trends in regions, such as population growth, migration, and population structure.

✓ Analyze changes in demographic indicators in regions over the years.

✓ Identify the relationship between demographic trends and other indicators such as economic growth and education.

9. Pollution Levels:

✓ Identify regions with the highest and lowest levels of pollution.

✓ Analyze changes in pollution levels in regions over the years.

✓ Assess the causes of pollution and its impact on public health and environmental sustainability.

10. Depletion of Natural Resources:

✓ Identify regions where depletion of natural resources is observed.

- ✓ Analyze changes in the utilization of natural resources in regions over the years.

- ✓ Examine the impact of natural resource depletion on the economy and ecology of regions.

11. Utilization of Renewable Energy Sources:

- ✓ Determine regions with the highest and lowest utilization of renewable energy sources.

- ✓ Analyze changes in the utilization of renewable energy sources in regions over the years.

- ✓ Establish the relationship between the utilization of renewable energy sources and other indicators such as pollution and economic growth.

The graphs and tables constructed based on the analysis will allow for visualizing and understanding the development of regions in Ukraine from 2016 to 2020. They will also help identify key trends. The direction of divisive research represents the focus or scope of the research that involves dividing or partitioning a subject into different parts or categories for detailed examination and analysis.

Conclusions and suggestions for further research. Based on the analysis conducted, it can be concluded that there are significant regional disparities in Ukraine in terms of various development indicators. These disparities highlight the need for targeted policies and interventions to address the economic, social, and environmental challenges faced by different regions.

Further research should focus on identifying the underlying factors contributing to the regional disparities. This could include investigating the role of historical, geographical, and institutional factors in shaping regional development patterns.

It is crucial to explore the impact of regional development policies and initiatives on reducing regional disparities. Assessing the effectiveness of existing anti-crisis management strategies in promoting balanced regional development would provide valuable insights for policymakers.

In-depth studies should be conducted to understand the relationship between regional development and key indicators such as gross regional product (GRP), per capita income, education, healthcare accessibility, and environmental sustainability. Exploring the interdependencies and causal relationships among these factors would contribute to designing more targeted and effective regional development strategies.

Additionally, future research could examine the role of regional collaboration and cooperation in addressing regional disparities. Analyzing successful case studies of regional initiatives and partnerships could provide valuable lessons and best practices for fostering regional development.

Long-term demographic trends and their implications for regional development should also be investigated. Understanding the dynamics of population changes, migration patterns, and urbanization can help identify potential challenges and opportunities for regional development.

The impact of globalization and international economic integration on regional development should be examined. Analyzing the role of foreign direct investment, trade flows, and global value chains in shaping regional disparities would contribute to a more comprehensive understanding of the factors driving regional development.

Overall, the findings of this research call for a comprehensive and integrated approach to regional development in Ukraine. Policy interventions should aim to reduce disparities, promote sustainable economic growth, improve social indicators, ensure environmental sustainability, and foster regional collaboration. Further research in these areas will provide valuable insights for policymakers and contribute to more effective anti-crisis management and regional development strategies.

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THE EFFICIENCY OF DISTANCE EDUCATION IN THE SOCIO-ECONOMIC CONTEXT OF STRUCTURAL-INNOVATIVE CHANGES

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INTRODUCTION. The rapid advancement of technology and the increasing demand for flexible learning options have led to the widespread adoption of distance education worldwide. In recent years, the educational landscape has been undergoing significant structural and innovative transformations, necessitating an examination of the efficiency of distance education within the socio-economic context. Understanding the effectiveness of distance education in the face of these changes is crucial for policymakers, educators, and stakeholders to make informed decisions and develop strategies that promote optimal learning outcomes and address societal needs.

RESEARCH HYPOTHESIS: Distance education in the modern socio-economic context is an effective means of learning that allows for achieving high academic outcomes.

METHODS. The initial stage involved an analysis of scientific literature, which allowed for a comprehensive understanding of existing research and theoretical foundations in the field of distance education. To gather empirical data, a questionnaire survey was conducted among students and instructors to capture their impressions, thoughts, and experiences regarding the effectiveness of distance education. The collected data underwent statistical analysis, revealing

patterns and trends within the dataset. Additionally, a comparative analysis was conducted to compare the effectiveness of distance education with other forms of learning.

FINDINGS. The research findings confirm the high effectiveness of distance education in the socio-economic context of structural-innovative changes. The survey results indicate that the majority of students and instructors perceive distance education as a convenient and effective form of learning. Comparative analysis demonstrates that distance education yields similar or even superior results compared to traditional teaching methods.

CONCLUSION. The research findings indicate the high effectiveness of distance education in the context of structural-innovative changes. This form of learning demonstrates significant potential in achieving high academic outcomes and satisfying the needs of students and instructors. Based on these conclusions, it is recommended to continue the development and implementation of distance education to enhance the educational process and improve the quality of learning.

KEYWORDS: distance education; socio-economic efficiency; structural-innovative transformations.

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ЕФЕКТИВНІСТЬ ДИСТАНЦІЙНОЇ ОСВІТИ У СОЦІАЛЬНО-ЕКОНОМІЧНОМУ КОНТЕКСТІ СТРУКТУРНО-ІННОВАЦІЙНИХ ЗМІН

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ВСТУП. Швидкий розвиток технологій та зростаюче попиту на гнучкі форми навчання призвели до широкого поширення дистанційної освіти по всьому світу. Останні роки характеризуються значними структурними та інноваційними змінами в освітньому середовищі, що вимагає вивчення ефективності дистанційної освіти в соціально-економічному контексті. Розуміння результативності дистанційної освіти в умовах цих змін є надзвичайно важливим для прийняття обґрунтованих рішень і розробки стратегій, спрямованих на досягнення оптимальних навчальних результатів та вирішення суспільних потреб.

ГІПОТЕЗА ДОСЛІДЖЕННЯ. Дистанційна освіта в сучасному соціально-економічному контексті є ефективним засобом навчання з можливістю досягнення високих навчальних результатів.

МЕТОДИ. Початковим етапом був аналіз наукової літератури, що дозволив ознайомитися з вже існуючими дослідженнями та теоретичними основами в галузі дистанційної освіти. Далі, для збору емпіричних даних, було проведено анкетування серед студентів та викладачів, щоб отримати їхні враження, думки та досвід щодо ефективності дистанційної освіти. Отримані дані були піддані статистичному аналізу, що

дозволило виявити зв'язки та тенденції у даних. Крім того, було здійснено порівняльний аналіз, який спрямовувався на порівняння ефективності дистанційної освіти з іншими формами навчання.

РЕЗУЛЬТАТИ. Результати дослідження підтвердили високу ефективність дистанційної освіти в соціально-економічному контексті структурно-інноваційних змін. Анкетування показало, що більшість студентів та викладачів сприймають дистанційну освіту як зручну та ефективну форму навчання. Порівняльний аналіз демонструє, що дистанційна освіта забезпечує схожі або навіть кращі результати порівняно з традиційними методами навчання.

ВИСНОВКИ. Результати дослідження свідчать про високу ефективність дистанційної освіти в умовах структурно-інноваційних змін. Ця форма навчання демонструє значний потенціал у досягненні високих навчальних результатів та задоволення потреб студентів та викладачів. На основі цих висновків рекомендується продовжувати розвиток та впровадження дистанційної освіти з метою поліпшення освітнього процесу та підвищення якості навчання.

КЛЮЧОВІ СЛОВА: дистанційна освіта; соціально-економічна ефективність; структурно-інноваційні перетворення.

Problem statement. In the rapidly evolving landscape of education, the increasing prevalence of online and blended learning necessitates a thorough understanding of the assessment and measurement of learning outcomes in these instructional formats. While there is a wealth of literature available on the design and effectiveness of online and blended learning, there is a notable gap in terms of standardized assessment methods and metrics specifically tailored for evaluating the achievement of learning goals in these contexts. This lack of clarity and consistency in assessment practices poses a significant challenge for educators and institutions seeking to ensure the quality and validity of educational outcomes in digital learning environments. Furthermore, as online and blended learning continue to gain momentum, it becomes imperative to develop reliable and valid assessment strategies that effectively capture the nuances and complexities of these modes of instruction. Without accurate and robust assessment approaches, it becomes difficult to measure student progress, evaluate the effectiveness of instructional interventions, and make informed decisions regarding curriculum design and pedagogical practices. Therefore, there is an urgent need for comprehensive research aimed at addressing this gap and developing innovative assessment frameworks that align with the unique characteristics of online and blended learning. Such research will not only contribute to enhancing the quality and credibility of educational outcomes but also provide educators and institutions with evidence-based guidelines for designing effective assessment practices. Ultimately, this research endeavor will advance our understanding of assessment in digital learning environments and contribute to the continuous improvement of educational practices in online and blended learning settings.

Analysis of recent studies and the unresolved part of the problem. This publication by Clark (2020) focuses on the principles and guidelines for designing effective e-learning experiences. It provides evidence-based recommendations for both consumers and designers of multimedia learning. Garrison and Vaughan (2013) present a comprehensive framework for blended learning in higher education. They discuss the integration of face-to-face and online learning, emphasizing the importance of learner-centered approaches and interaction. Moore and Kearsley (2011) provides a systems perspective on distance education and online learning. It explores various components and interrelationships within the distance education system, including learners, instructors, technologies, and institutions. The authors discuss the design and development of distance education programs, instructional strategies, learner support, and quality assurance. Means, Toyama, Murphy, and Baki (2013) conducted a meta-analysis of empirical studies to examine the effectiveness of online and blended learning. Their research synthesized findings from multiple studies and investigated factors influencing learning outcomes, student

engagement, and satisfaction. Picciano's (2017) explores theories and frameworks relevant to online education and aims to establish an integrated model for understanding and guiding online learning environments. The author examines various theoretical perspectives, including constructivism, connectivism, and social presence theory. Siemens and Tittenberger's (2009) handbook provides an overview of emerging technologies and their potential impact on learning and education. It explores topics such as social media, mobile learning, open educational resources (OER), and learning analytics. The publication examines the pedagogical implications of these technologies and offers insights into their integration into teaching and learning practices. Bates and Sangrà (2011) focus on the management of technology in higher education and strategies for transforming teaching and learning practices. The publication addresses key issues related to technology adoption, faculty development, online course design, and quality assurance. Allen and Seaman's (2017) report presents an analysis of distance education enrollment trends based on data collected from institutions across the United States. The publication provides insights into the growth and prevalence of online learning in higher education. It examines factors influencing student enrollment, institutional strategies, and the challenges and opportunities associated with digital learning. Dabbagh and Bannan-Ritland's (2005) book explores the concepts, strategies, and applications of online learning. It provides a comprehensive overview of the field, covering topics such as instructional design models, learner characteristics, online collaboration, assessment methods, and the role of technology in supporting online learning experiences. The publication offers practical insights and guidance for educators involved in online teaching and instructional design. Rovai's (2003) publication investigates factors contributing to higher persistence rates in distance education online programs. The research examines student characteristics, instructor support, learner engagement, and social integration in online learning environments.

The unresolved part of the problem lies in the assessment and measurement of learning outcomes in online and blended learning environments. While the publications offer valuable insights into the design, implementation, and effectiveness of these educational formats, there is limited consideration of standardized assessment methods and metrics to evaluate the achievement of learning goals. Further research is necessary to develop reliable and valid assessment strategies that align with the characteristics of online and blended learning, enabling more accurate measurement of student progress and success. Such research will contribute to a better understanding and improvement of educational practices in digital environments.

The goal of this research is to develop reliable and valid assessment strategies for measuring learning outcomes in online and blended learning environments.

Presentation of the main material. The socio-economic efficiency of distance education in the context of structural and innovative transformations can be characterized by organizational-technological, economic, and socio-pedagogical aspects. Indicators that can measure the organizational-technological performance (effectiveness of using the organizational-technological system to support and manage distance learning) include:

Level of educational services and system utilization: $Les = (Less/act) / (Less/max)$, where Les represents the level of educational services and system utilization, $Less/act$ is the actual utilization of educational services and systems, and $Less/max$ is the maximum possible utilization of educational services and systems.

Level of provision of material and technical resources for students, teachers, and educational institutions: $Lmtr = Nmtr / Nus$, where $Lmtr$ denotes the level of provision of material and technical resources for students, teachers, and educational institutions, $Nmtr$ is the number of distance learning material and technical resources, and Nus is the number of users.

It is important for all participants in the educational process to have access to the necessary material and technical resources for effective distance learning.

Level of compliance with standards and norms on online platforms: $Lst = (Nst/act) / Nst/nor$, where Lst represents the level of compliance with standards and norms on online platforms, Nst/act is the actual implementation of standards and norms in online education, and Nst/nor is the normative number of standards and norms in online education.

Ensuring compliance with standards and norms on online platforms helps ensure the quality and effectiveness of distance learning, as well as the protection of the rights and interests of educational process participants.

The effectiveness of content implementation and the use of new computer equipment for distance learning can be measured by the following indicators: $EF1 = InF1 / C1$, where $EF1$ represents the effectiveness of content implementation and the use of new computer equipment for distance learning, $InF1$ is the income of the educational institution resulting from the implementation of the technical support system for distance learning, and $C1$ is the total costs considering content development and computer equipment acquisition.

This indicator helps determine the effectiveness of content and new computer equipment utilization for distance learning and improve its quality and performance.

Indicators that can evaluate the economic effectiveness of distance learning (cost-revenue comparison of implementing distance education) include:

Efficiency of optimizing the content of classroom resources and instructional support staff: $EF2 = InF1 / C2$, where $EF2$ represents the efficiency of optimizing the content of classroom resources and instructional support staff, $InF1$ is the income of the educational institution resulting from savings on maintaining classroom resources and instructional support staff, and $C2$ is the total costs considering the savings on maintaining classroom resources and instructional support staff.

Overall effectiveness of distance learning: $E = In / C$, where E represents the overall effectiveness of distance learning, In is the total income of the educational institution resulting from the use of distance learning, and C is the total costs of distance learning.

Indicators that can measure the socio-pedagogical effectiveness and accountability (satisfaction with the results and conditions of distance education) include:

Effectiveness of training personnel in remote work technologies: $Ept = (Apat - Apbt) / Ctp$, where Ept denotes the effectiveness of training personnel in remote work technologies, $Apat$ is the assessment of personnel after training, $Apbt$ is the assessment of personnel before training, and Ctp is the training process costs.

Level of motivation of students and teachers regarding the necessity of acquiring additional knowledge of online technologies: $Lmot = Nad.kn. / Nstu$, where $Lmot$ represents the level of motivation of students and teachers regarding the necessity of acquiring additional knowledge of online technologies, $Nad.kn.$ is the number of students who acquired additional knowledge of online technologies, and $Nstu$ is the number of students using online education.

Level of student autonomy, self-organization, and responsibility for acquiring knowledge: $Lself-org = Nself-org. / Nstu$, where $Lself-org$ denotes the level of student autonomy, self-organization, and responsibility for acquiring knowledge, and $Nself-org.$ is the number of students who consciously and responsibly engage in self-study.

Time savings on commuting, waiting for classes, and other non-learning activities: $St/trav.wait. = Taver -$ (time spent on commuting, waiting for classes, and other non-learning activities before transitioning to distance learning).

Level of comfort during online learning (ability to study at convenient times, independent of the schedule of educational institutions): $Lcomf = Ncomf. / Nstu$, where $Lcomf$ represents the level of comfort during online learning, and $Ncomf.$ is the number of students who feel comfortable due to the transition to distance learning.

Research on the socio-economic effectiveness of distance education in the context of structural and innovative transformations is proposed to be conducted in the following sequence:

Stage 1: Identification of indicators that influence the socio-economic effectiveness and accountability of distance education in higher education institutions (HEIs) using factor analysis.

Stage 2: Classification of the researched HEIs into groups based on the level of socio-economic effectiveness and accountability of distance education using cluster analysis.

Stage 3: Calculation of integrated indicators for each cluster using taxonomy.

Stage 4: Monitoring the need for adjustments in the components of distance education in HEIs based on discriminant analysis.

Conclusions and suggestions for further research.

Conclusions. The study on the socio-economic effectiveness of distance education in the context of structural and innovative transformations provides valuable insights into the indicators and factors that influence the performance and accountability of distance education in higher education institutions (HEIs). By employing factor analysis, cluster analysis, and taxonomy, the research has shed light on the various dimensions of distance education and their impact on the overall effectiveness of HEIs.

The findings indicate that careful consideration of content optimization, staff training, motivation, and student autonomy are crucial for achieving positive socio-economic outcomes in distance education. The identified clusters of HEIs based on their socio-economic effectiveness and accountability provide a framework for benchmarking and comparison, allowing institutions to learn from each other's experiences and best practices.

Future Research Perspectives. While this study has provided valuable insights, there are several areas that warrant further research and exploration. Firstly, investigating the long-term economic implications of distance education and its impact on the employability of graduates would be beneficial. Understanding how distance education affects students' career prospects and the labor market dynamics can help shape policies and practices to enhance socio-economic outcomes. Additionally, the study focused on HEIs, but exploring the socio-economic effectiveness of distance education in other educational sectors, such as vocational training or lifelong learning programs, would broaden the scope and applicability of the findings. Furthermore, analyzing the technological advancements and their influence on distance education effectiveness, as well as examining the role of emerging pedagogical approaches and learning analytics, would provide valuable insights into the evolving landscape of distance education. Lastly, conducting longitudinal studies to assess the sustainability

and long-term impact of distance education models in different socio-economic contexts would contribute to a deeper understanding of its effectiveness and inform evidence-based decision-making. In conclusion, the study on the socio-economic effectiveness of distance education has highlighted the importance of various factors in achieving positive outcomes. Further research in related areas will contribute to enhancing the effectiveness, efficiency, and accountability of distance education, ultimately benefiting learners, educational institutions, and society as a whole.

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EUROPEAN INTEGRATION STRATEGY FOR TOURISM DEVELOPMENT OF UKRAINE

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The purpose of this article is to investigate the essence and features of the implementation mechanism of the European integration strategy for the development of tourism in Ukraine.

Methods of research. The article uses general scientific methods of researching economic phenomena: epistemological analysis, theoretical generalization, methods of analysis and synthesis, induction and deduction, structural-logical analysis, extrapolation, grouping and classification.

Presentation of the main research material.

The tourism industry of Ukraine is one of the first to suffer large-scale losses with the start of a full-scale war in Ukraine. The state budget did not receive almost 35% from the tourism industry, which was caused by the suspension or complete exit of tourist companies from the Ukrainian market of the tourism industry. The European integration process of tourism development in Ukraine consists in the implementation of European norms and standards, the spread of its own cultural, historical, geographical achievements in the EU countries. This will lead to the adaptation of European cultural identity in Ukraine and general integration into the European environment. Therefore, one of the key tasks of the Ukrainian tourism industry is the need to actively continue the implementation of the adopted strategic course for European integration through the mechanism of implementing the European integration strategy for the development of tourism in Ukraine. That is why the mechanism for the implementation of the

European integration strategy for the development of tourism in Ukraine is becoming relevant, since only with the help of integration into the European space and the adoption of European laws, standards, norms and rules will Ukraine be able to revive and ensure the appropriate level of safe and high-quality tourist flow of Ukrainian tourists to EU countries and others.

Conclusions from the conducted research. It was revealed that as a result of comprehensive actions regarding the implementation of the European integration strategy for the development of tourism in Ukraine, the following advantages will occur: the competitiveness of national and regional tourism products will increase with the prospect of expanding to European markets; the quality of life of the population will increase by ensuring socio-economic growth, environmental safety, consolidation of society, providing access to services in the field of tourism according to European standards; the emergence of new jobs and the expansion of the population's opportunities for employment and self-employment; creation of a modern tourist information industry, as well as ensuring information freedom about the tourist resources of Ukraine in the global information European space.

Keywords: European integration strategy; integration processes; tourism development of Ukraine; tourism industry; mechanism of implementation of European integration strategy; tourism industry; competitiveness; European space; tourist flow.

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ЄВРОІНТЕГРАЦІЙНА СТРАТЕГІЯ РОЗВИТКУ ТУРИЗМУ УКРАЇНИ

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Метою даної статті є дослідження сутності та особливостей механізму реалізації євроінтеграційної стратегії розвитку туризму в Україні.

Методи дослідження. У статті використано загальнонаукові методи дослідження економічних явищ: гносеологічного аналізу, теоретичного узагальнення, методи аналізу і синтезу, індукції та дедукції, структурно-логічного аналізу, екстраполяції, групування й класифікації.

Виклад основного матеріалу дослідження. Туристична галузь України є однією з перших, яка зазнала масштабних збитків з початком повномасштабної війни в Україні. Державний бюджет недоотримав від туристичної галузі майже 35%, що спричинено призупинкою або повним виходом туристичних компаній з українського ринку туристичної індустрії. Євроінтеграційний процес розвитку туризму в Україні полягає у імплементації європейських норм і стандартів, поширенні власних культурних, історичних, географічних здобутків у країни ЄС. Це призведе до адаптації в Україні європейської культурної ідентичності та загальної інтеграції до загальноєвропейського середовища. Тому одним із ключових завдань української туристичної галузі є необхідність активізації механізму реалізації євроінтеграційної стратегії розвитку туризму в Україні. Саме тому механізм реалізації євроінтеграційної стратегії

розвитку туризму України набуває актуального значення, оскільки лише за допомогою інтеграції у Європейський простір та прийняття європейських законів, стандартів, норм та правил Україна зможе відродити та забезпечити належний рівень безпекового і якісного туристичного потоку українських туристів до країн ЄС та ін.

Висновки з проведеного дослідження. Виявлено, що у результаті комплексних дій щодо реалізації євроінтеграційної стратегії розвитку туризму в Україні матимуть місце такі переваги: зросте конкурентоспроможність національного та регіональних туристичних продуктів з перспективою розширення на європейські ринки; зросте якість життя населення шляхом забезпечення соціально-економічного збагачення, соціо-екологічної безпеки, надання широких можливостей у сфері туризму за європейськими нормами; поява нових робочих місць та розширення можливостей щодо працевлаштування, а також забезпечення інформаційної свободи туристичних ресурсів України у світовому інформаційному європейському просторі.

Ключові слова: євроінтеграційна стратегія; інтеграційні процеси; розвиток туризму України; індустрія туризму; механізм реалізації євроінтеграційної стратегії; туристична галузь; конкурентоспроможність; Європейський простір; туристичний потік.

Statement of the problem and its connection with tasks. The tourism industry of Ukraine is one of the first to suffer large-scale losses with the start of a full-scale war in Ukraine. The state budget did not receive almost 35% from the tourism industry, which was caused by the suspension or complete exit of travel companies from the Ukrainian market of the tourism industry. The hotel and restaurant sector also suffered catastrophic destruction, some of which remained in occupation or were destroyed and are not suitable for restoration. However, in the second half of 2022, the Ukrainian tourism industry began to adapt and resume its activity through excursion safety tours to the west of Ukraine.

The tourism in Ukraine's industry is one of the main industries that has a direct impact on the country's budget and its overall socio-economic condition. That is why the mechanism for the implementation of the European integration strategy for the development of tourism in Ukraine is becoming relevant, since only with the help of integration into the European space and the adoption of European laws, standards, norms and rules will Ukraine be able to revive and ensure the appropriate level of safe and high-quality tourist flow of Ukrainian tourists to EU countries and others.

Analysis of recent publications on the problem. Current issues of the European integration direction of the tourism industry of Ukraine were studied by many economists. Research issues of the tourism industry in the context of the European integration of Ukraine (Babikova, 2021; Bigus, 2018; Drebot, 2021; Zayachkovska, 2017; Zinchenko, 2017; Khudaverdiyeva, 2022). Actual problems of the development of tourism in Ukraine (Gaponenko, et al., 2022; Zakharin, 2019; Komirenko et al., 2018; Marynyak, 2021; Molchanova, 2021; Olshanska, 2017; Pankova, 2022; Rubanyak, 2020; Schegliuk, 2019; Yarovy, 2016). However, the implementation of the European integration strategy for the development of tourism in Ukraine in general is not covered at a sufficient level, which prompted the study of this issue.

Statement of the main results and rationale. The European integration process of tourism development in Ukraine consists in the implementation of European norms and standards, the spread of its own cultural, historical, geographical achievements in the EU countries. This will lead to the adaptation of European cultural identity in Ukraine and general integration into the European environment. Therefore, one of the key tasks of the Ukrainian tourism industry is the need to actively continue the implementation of the adopted strategic course for European integration through the mechanism of implementing the European integration strategy for the development of tourism in Ukraine. Tourist flows among the Ukrainian population and the population of European Union member states also have a direct impact on the integration of our tourism industry into the European economic and humanitarian and social space (Babikova, 2021; Zakharin, 2019).

This is confirmed by the fact that in 2021, the cultural and educational and pilgrimage route from Vinnytsia to Kamianets-Podilskyi via Bar "Podilsky Way of St. James" (Camino Podolico) was officially accepted into the European Federation of the Way of St. James. Thanks to this, a new certified cultural route of the Council of Europe may appear in Ukraine, which allows popularizing and developing local heritage at the international level, establishing cooperation between communities and with other countries (Pankova, 2022). The Camino Podolico is modeled after the Ways of St. James, which pass through Europe and lead to the city of Santiago de Compostela in Spain, where the relics of the Apostle James are kept. The Ukrainian route with a distance of 250 km includes more than 10 Podillia communities. Testing of this route began immediately in 2021, in which more than 150 travelers from different cities of Ukraine took part, who for convenience were provided with a bilingual guidebook, a detailed map of the route with the maximum number of interesting objects, signposts on the way, a pilgrim's passport and certificates of passage. However, at present, due to the full-scale war, this route does not work (Drebot, 2021).

Thus, the mechanism for implementing the tourism development strategy of Ukraine in the conditions of European integration is the same powerful step on the way to solving global problems in the field of tourism industry, which can be achieved through a strategically oriented state policy of tourism in the focus of European integration shifts (Zinchenko, 2017). Therefore, Ukraine adopted Decree No. 168 of March 16, 2017, which highlights the main essence of the strategic development of tourism until 2026. This strategy has a European integration orientation and defines the main conditions, tasks and goals of the development of the tourism industry in Ukraine based on European standards (Fig. 1).

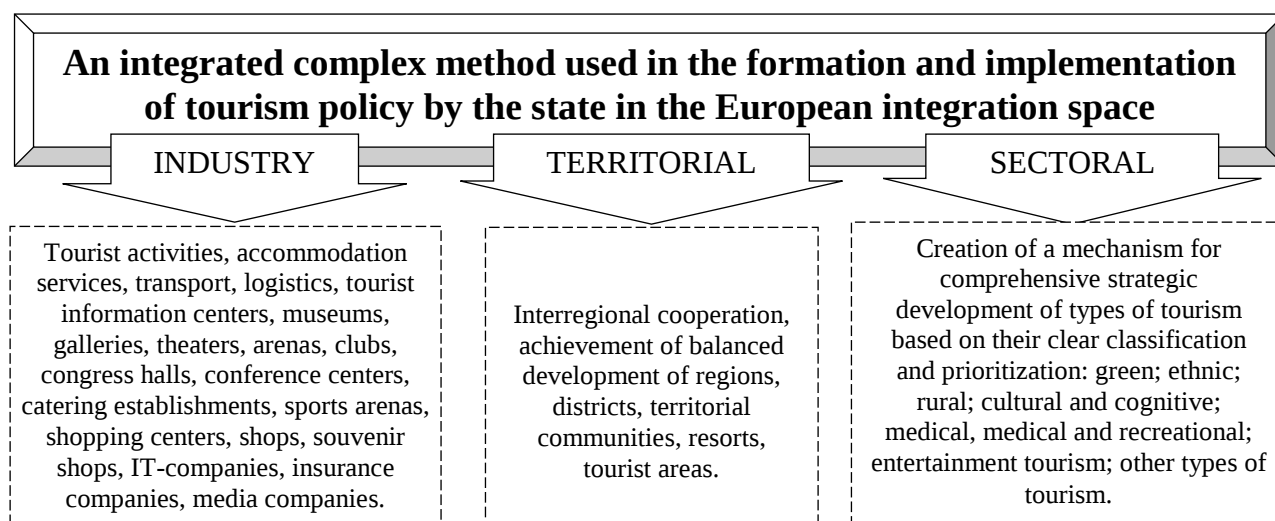


Source: systematized and built by the author on the basis of (Bigus, 2018; Zayachkovska, 2017; Yarovy, 2016; Tourlib.net, 2022; Tourism.gov.ua, 2022).

Fig. 1. Key conditions for the sustainable development of the Ukrainian tourism industry under the influence of European integration factors

The main goal of the mechanism for the implementation of the tourism development strategy of Ukraine is the formation of favorable, safe conditions for the competitive development of the tourism industry in accordance with international European quality standards. The implementation of this mechanism will provide Ukraine with a European-integrated, competitive industry in the world market, which will help accelerate socio-economic development and improve the quality of life of the population and popularize Ukraine in the world (Khudaverdiyeva, 2022).

The mechanism for the implementation of the tourism development strategy of Ukraine in the conditions of European integration helps to form an integration method in the formation and implementation of tourism policy, which provides for the synergy of such basic elements as: sectoral, territorial and sectoral (Fig. 2).



Source: systematized by the author (Bigus, 2018; Zayachkovska, 2017; Yarovy, 2016; Tourlib.net, 2022; Tourism.gov.ua, 2022).

Fig. 2. The main elements of the integrated complex method used in the formation and implementation of tourism policy by the state in the European integration space

In order to achieve the goals of the European integration strategy for the development of tourism in Ukraine, within the framework of the main elements of the integrated approach and the main identified priority directions, it is necessary to ensure the synergistic interaction of all elements of the mechanism of state regulation of the development of tourism with an orientation to the rules and norms of the European Union. Let's consider each individual element further (Gaponenko, et al., 2022).

1. The legal mechanism is aimed at compliance by subjects of the process of implementation of the European integration strategy with the principles of constitutionality, legality and transparency.

2. The organizational and economic mechanism is aimed at ensuring the principles of strategic partnership and cooperation of executive authorities and local self-government bodies, sustainable development of territories and maintenance of a high level of competitiveness by involving representatives of business structures. A clear definition of tasks by the subjects of implementation of the European integration strategy will make it possible to distribute responsibility for decision-making and their implementation:

- a plan of measures for the implementation of the European integration strategy, which will make it possible to evaluate the achievement of the goals of this strategy by means of monitoring and determining the effectiveness of the measures implemented at the state, using the established development indicators;

- target and regional programs for the development of the tourism industry;

- contracts concluded on the basis of public and private partnership.
- providing support to the domestic producer of tourist products;
- promotion of financial recovery of tourism industry enterprises;
- implementation of modern information and marketing and smart technologies.

3. The financial mechanism of the European integration strategy ensures the implementation of the principles of honesty and predictability of the actions of state authorities in the distribution of financial resources of the state budget, investment funds, grants of international organizations, attracting bank loans and loans from non-banking institutions, leasing and insurance companies (Komirenko et al., 2018).

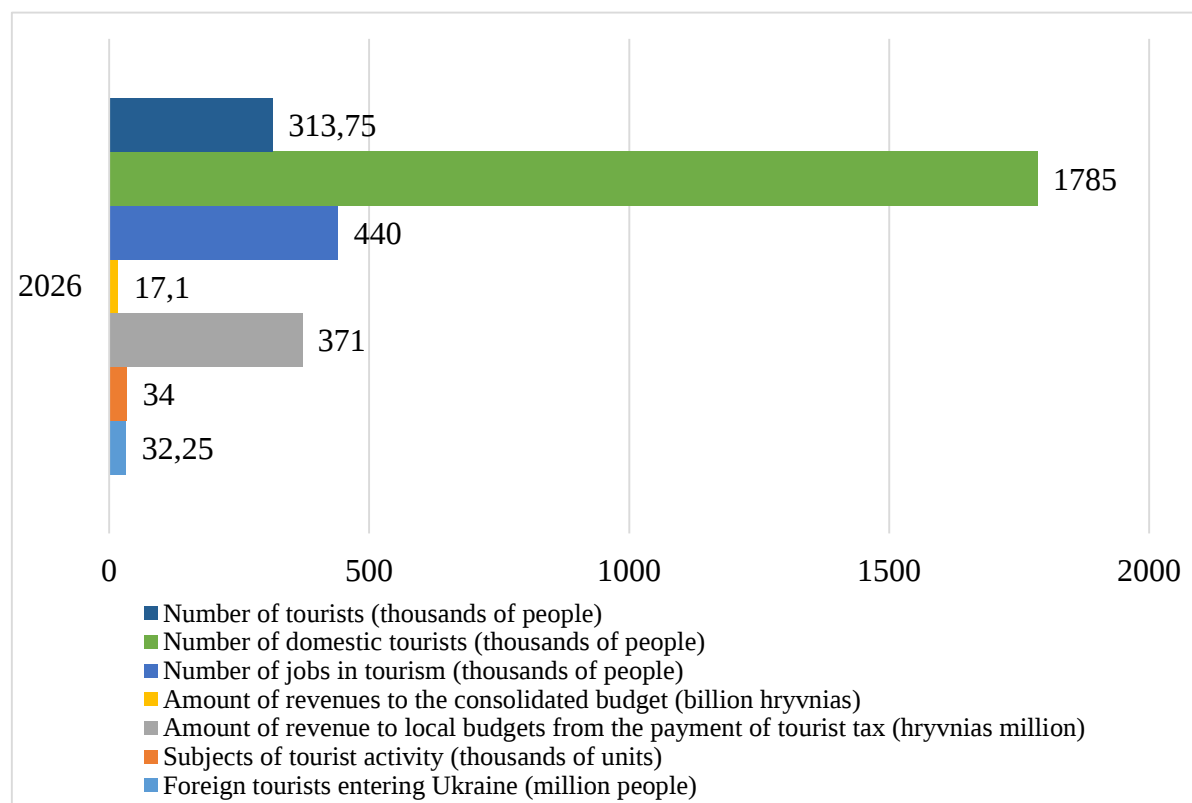
Financial support for the implementation of the European integration strategy is carried out within the limits of state and local budgets, tourism business entities, funds of international technical assistance, other international donors, financial organizations and institutions, funds of investors and other sources not prohibited by law. The amount of financing of the European integration strategy is formed under the influence of specific tasks and within the limits of financial resources provided by the country's state budget for the relevant year (Marynyak, 2021; Schegliuk, 2019; Rubanyak, 2020).

One of the conditions for the successful implementation of the European integration strategy is the development and implementation of a monitoring system taking into account objective indicators of development. In addition, there is a constant comparison of the results of its implementation in terms of achieving the goals of the European integration strategy and regional development strategies.

The implementation of the provisions of the European integration strategy, implementation of the action plan, and monitoring of the status of their

implementation are carried out by the central and local authorities within the limits of the Constitution and laws of Ukraine. Non-governmental organizations, independent institutes and experts are involved in monitoring in order to maintain objectivity and impartiality. The results of the monitoring may be the basis for adjusting the European integration strategy for the formation of the Ukrainian tourism industry (Molchanova, 2021; Olshanska, 2017).

Effective diagnostics of the development of the Ukrainian tourism industry and the achievement of the main Euro-strategic goals defined by the European integration strategy use benchmarks of development, the results of state statistical observations in the tourism industry, other data from central executive authorities and indices of international ratings of the development of the tourism industry. As a result of the implementation of the European integration strategy, the forecasted indicators will have the following value (Fig. 3).



Source: systematized and built by the author on the basis of (Bigus, 2018; Zayachkovska, 2017; Yarovy, 2016; Tourlib.net, 2022; Tourism.gov.ua, 2022).

Fig. 3. Forecast indicators of the development of the Ukrainian tourism industry for 2026. in the vector of the European integration strategy

Conclusions and prospects for further research. Therefore, as a result of an effective mechanism for the implementation of the European integration strategy for the development of the Ukrainian tourism industry, it is necessary to achieve the following values: an increase in the costs of tourist flows of the

population during trips in Ukraine to 80 billion hryvnias in 2026; increasing the volume of capital investments in the field of tourism and resorts to 6.6 billion hryvnias in 2026; ensuring the activity of the institute of decentralized organizations in the field of tourism (creation of a national tourism organization and relevant regional tourism organizations); functioning of the Unified tourist information system; implementation of the satellite account system recommended by the UN World Tourism Organization (UNWTO); establishment of ten tourist offices abroad; liberalization of the visa regime with ten countries of the world, which are target tourist markets for Ukraine. The resulting effect of the implementation will be as follows: the competitiveness of national and regional tourism products will increase with the prospect of expanding to European markets; the quality of life of the population will increase by ensuring socio-economic growth, environmental safety, consolidation of society, providing access to services in the field of tourism according to European standards; the emergence of new jobs and the expansion of the population's opportunities for employment and self-employment; creation of a modern tourist information industry, as well as ensuring information freedom about the tourist resources of Ukraine in the global information European space.

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THE CURRENT STATE OF THE TOURIST INDUSTRY OF UKRAINE AND THE PROSPECTS OF ITS INTEGRATION INTO THE EUROPEAN UNION

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The purpose of this article is to assess the modern market of the Ukrainian tourism industry and to highlight clear prospects for the integration of Ukrainian tourism into the European Union.

Methods of research. When writing the article, general economic and scientific research methods of the tourism industry were used, namely: survey, questionnaire, structural-logical analysis, graphic method, tabular method, expert method, grouping method.

Presentation of the main material. The current state of the tourism industry of Ukraine and the prospects of its integration into the European Union is a very relevant issue today, since the full-scale war that began in February 2022 fundamentally changed the entire tourism industry of Ukraine and put the entire tourism industry on a new vector of development, the basis of which is now laid travel safety of tourists, compliance with European standards and norms in a new format of development through the prism of European integration orientation. Today, Ukraine is trying to support its tourism industry and deepen economic, political and cultural relations with EU countries, as this will determine the effectiveness of the integration process of the state's development in the European space. The prospects of the integration of the tourism industry of Ukraine into the European Union are an important step in the post-war revival of the tourism infrastructure

of our country. The country's administration supports and is interested in harmonious, deepened and intensified relations between Ukraine and the EU in the field of tourism, because the positive aspects are indisputable: an increase in tourist flows on the territory of Ukraine; maximization of investment capital; transition to European quality standards for the provision of tourist services; revival of domestic tourist infrastructure; filling state and local budgets.

Conclusions. As a result of the conducted research, we came to the conclusion that the Ukrainian tourism industry is a powerful branch of the economy that not only withstood the beginning of a full-scale war in Ukraine, but also began to revive at a rapid pace, implementing European quality standards to all national legislation. The support of the member states of the European Union is extremely necessary and important for the tourism industry of Ukraine. Cooperation of Ukraine with strategic partners in the field of financing, investments, improvement of socio-economic standards is a prerequisite and a stable factor in the process of European integration of the tourism industry of Ukraine in international globalization processes.

Keywords: tourism industry of Ukraine; integration; European Union; tourists; tour operators; synergistic effect; national legislation; tourism policy; strategic partnership; budget of Ukraine.

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
25	5	1

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СУЧАСНИЙ СТАН ТУРИСТИЧНОЇ ГАЛУЗІ УКРАЇНИ ТА ПЕРСПЕКТИВИ ЇЇ ІНТЕГРАЦІЇ ДО ЄВРОПЕЙСЬКОГО СОЮЗУ

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Метою даної статті є оцінка сучасного ринку української туристичної індустрії та виокремлення чітких перспектив інтеграції туризму України до Європейського Союзу.

Методи дослідження. При написанні статті використано загальноекономічні та наукові методи дослідження туристичної галузі, а саме: опитування, анкетування, структурно-логічний аналіз, графічний метод, табличний метод, експертний метод, метод групування.

Виклад основного матеріалу. Сучасний стан туристичної галузі України та перспективи її інтеграції до Європейського союзу є досить актуальним питанням на сьогодні, оскільки повномасштабна війна, розпочата в лютому 2022р., змінила докорінно всю туристичну галузь України та поставила на новий вектор розвитку всю туристичну індустрію, в основі якої тепер покладено безпеку подорожей туристів, відповідність Європейським стандартам та нормам у новому форматі розвитку крізь призму Євроінтеграційної спрямованості.

Сьогодні Україна намагається підтримати свою туристичну індустрію та поглибити економічні, політичні та культурні відносини з країнами ЄС, оскільки це визначатиме ефективність інтеграційного процесу розвитку держави в європейському просторі. Перспективи інтеграції туристичної галузі України до Європейського союзу є важливим кроком у післявоєнному відродженні туристичної інфраструктури нашої країни. Адміністрація країни всіляко

підтримує і зацікавлена в гармонійних поглиблених та інтенсифікованих відносинах України з ЄС у галузі туризму, адже позитивні моменти при цьому є беззаперечними: збільшення туристичних потоків на території України; максимізація інвестиційного капіталу; перехід на європейські стандарти якості надання туристичних послуг; відродження вітчизняної туристичної інфраструктури; наповнення державного та місцевих бюджетів.

Висновки. В результаті проведеного дослідження ми дійшли висновку, що українська галузь туристичної індустрії – це потужна галузь економіки, яка не тільки вистояла від початку повномасштабної війни в Україні, а й почала відроджуватись швидкими темпами, імплементуючи європейські стандарти якості до всього національного законодавства. Підтримка країнами-членами Європейського Союзу є вкрай необхідною і вагомою для туристичної галузі України. Співпраця України з стратегічними партнерами у сфері фінансування, інвестицій, поліпшення соціально-економічних стандартів є передумовою та стабільним чинником у процесі євроінтеграції туристичної індустрії України в міжнародні глобалізаційні процеси.

Ключові слова: туристична галузь України; інтеграція; Європейський Союз; туристи; туроператори; синергійний ефект; національне законодавство; туристична політика; стратегічне партнерство; бюджет України.

Statement of the problem. The current state of the tourism industry of Ukraine and the prospects of its integration into the European Union is a very relevant issue today, since the full-scale war that began in February 2022 fundamentally changed the entire tourism industry of Ukraine and put the tourism industry on a new vector of development, which is based on travel safety tourists and a new format of tourism development in Ukraine in the direction of European integration (Babikova, 2021; Drebot et al., 2021).

Today, Ukraine is trying to revive its tourism industry and deepen economic, political and cultural relations with EU countries, as this will determine the effectiveness of the integration process of the state's development in the European space. The integration of the tourism industry into the European space should be based on the following pillars: wide and accessible exchange of information, best practices, experience, "know-how", innovative technologies in the field of tourism; deepening of strategic partnership between state, private and public interests in order to ensure the sustainable development of tourism; promotion and development of tourism products, markets, infrastructure, human resources and tourism business structures; development and implementation of effective economic strategies; improving the qualifications of managers in the tourism sector and building tourist potential in order to improve the quality standards of providing tourist services; development and promotion of tourism based on European standards (Zayachkovska, 2017; Kostecka et al., 2020; Gaponenko et al., 2020; (Kobchenko, 2020).

Therefore, the prospects of the integration of the tourism industry of Ukraine into the European Union are an important step in the post-war revival of the tourism infrastructure of our country. The country's administration supports and is interested in harmonious, deepened and intensified relations between Ukraine and the EU in the field of tourism, because the positive aspects are indisputable: an increase in tourist flows on the territory of Ukraine; maximization of investment capital; transition to European quality standards for the provision of tourist services; revival of domestic tourist infrastructure; filling state and local budgets (Potravka et al., 2020; Rodina, 2021).

Analysis of publications on the problem. The current state of the tourism industry, as one of the leading branches of the Ukrainian economy, has long been the subject of research by the following scientists (Berkova, 2018; Gaponenko et al., 2020; Kobchenko, 2020; Lisovii et al., 2020; Mashika et al., 2021; Mykhailichenko et al., 2022; Nikolayenko et al., 2022; Olshanska et al., 2015; Olshanska et al., 2017; Potravka et al., 2020; Prokopenko, 2020; Slyusar, 2014). The main promising ways of integrating the tourism industry of Ukraine into the European Union are an important step in the post-war revival of the tourist infrastructure of our country and are supported by the harmonious deepened and intensified relations between Ukraine and the EU in the field of

tourism, as stated by the following researchers (Babikova, 2021; Drebot et al., 2021; Zayachkovska, 2017; Kostecka et al., 2020; Papp, 2015; Potravka et al., 2020; Rodina, 2021; Slyusar, 2014; Khudaverdiyeva, 2022; Chernega, 2022; Yarovy, 2016).

Statement of the main results. With the beginning of a full-scale war, from February 24, 2022, the previously quite successful tourism industry of Ukraine suffered irreparable damage and destruction. Now the basis of all trips, both from Ukraine and to Ukraine, is the safety factor of staying in it. Ukraine is directing its efforts to a new vector of development of the tourism industry, which will be based on the format of development in the field of European integration orientation (European integration portal, 2022; Potravka et al., 2020; Prokopenko, 2020; Slyusar, 2014).

As of 01.01.2021 the number of tourists who traveled to the countries almost halved during the same period on January 1, 2020, due to the COVID-19 pandemic (Fig. 1, a, b, c, d).

Cooperation with the European Union will help support the tourism industry of Ukraine, which outlines future prospects for the synergistic use of organizational, financial, investment, and personnel resources in order to increase the economic efficiency of the Ukrainian tourism industry. With this in mind, through the Special Representation of Ukraine to the EU, the State Tourism Administration of Ukraine submitted an application for the inclusion of Ukraine in prospective cooperation programs in the tourism industry, including financial and technical assistance, as well as EU investment projects. This would have a qualitative impact on the development of the tourism sphere of Ukraine, would contribute to the socio-economic and cultural development of Ukraine (Chernega, 2022; Yarovy, 2016).

Comprehensive work on adjusting Ukrainian tourism legislation to European standards is important. Thanks to European quality standards and global international standards, Ukraine will be able to improve its legal framework in the field of tourism, improve the quality of tourist services and get closer to the European charter of a member state in the EU. Thus, Ukraine works hard in the field of adaptation of the European legislation of the tourism industry with directives and other acts of the member states of the European Union. Thus, since June 1, 2017, three national standards of Ukraine, comprehensively harmonized with international and European normative documents, entered into force in the field of tourism, namely: quality standard document ISO 17679:2016 Tourism and related services, ISO 17049:2013 Accessible design, ISO 23599:2012 Assistive products for blind and vision-impaired persons (European integration portal, 2022; Potravka et al., 2020; Rodina, 2021; Slyusar, 2014; Khudaverdiyeva, 2022; Olshanska et al., 2017).

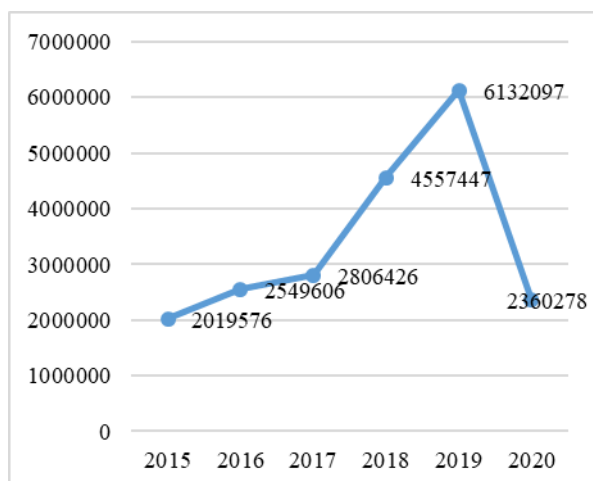


Fig. 1a. Tourists who contacted tour operators, persons

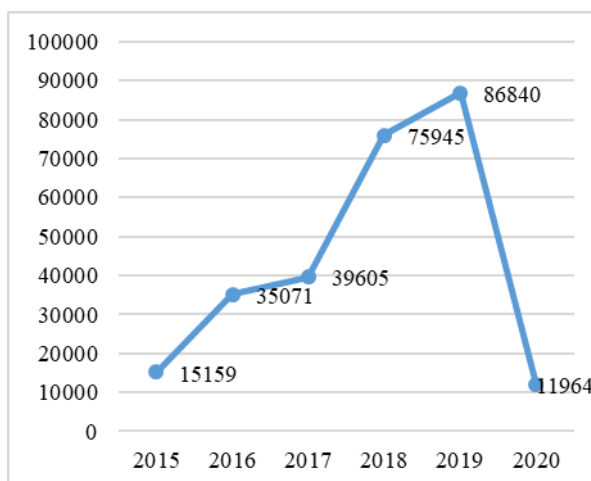


Fig. 1b. Inbound tourists, persons

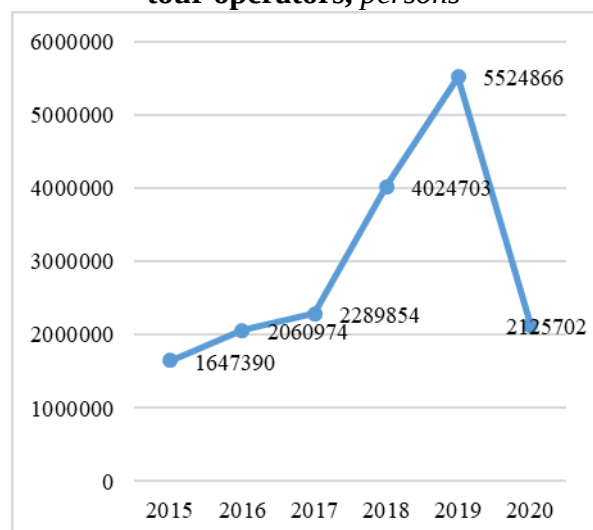


Fig. 1c. Outbound tourists, persons

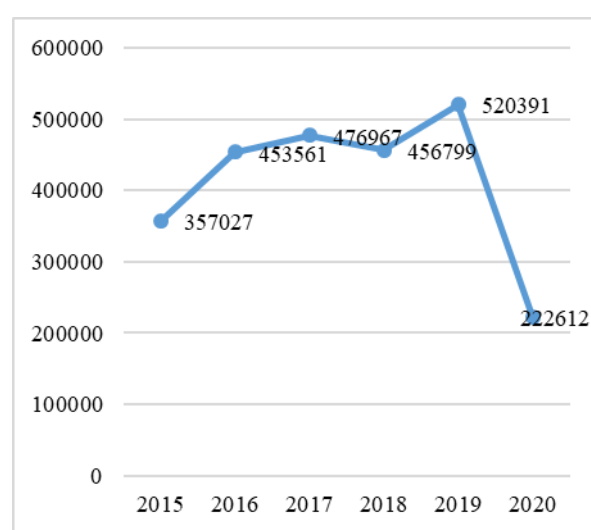


Fig. 1d. Domestic tourists, persons

Source: built by the authors on the basis of (tourism.gov.ua, 2022).

Ukraine also pays great attention to the tourism policy, which deals with the provision and implementation of tourist activities according to the European model, since Ukrainian tourism is defined as a promising industry, which will vector its unification in the future. That is why active work on the implementation and borrowing of European experience will become the basis of synergy and competitiveness in the formation of one's own strategy for improving tourism policy in accordance with EU standards and laws, which will later have a positive impact on the integration of Ukraine and EU countries (Mykhailichenko et al., 2022; Nikolayenko et al. al., 2022; Olshanska et al., 2015).

It is impossible not to pay attention to such issues as interaction and deep cooperation with the European Union. Ukraine sees in this the possibility of further effective promotion of Ukrainian tourist products and services to European markets, wide opportunities for using the information sphere,

borrowing the most productive experience of international companies in the tourism sphere, deepening and developing European integration processes in Ukraine (Chernega, 2022; Yarovy, 2016).

Further prospects of the Ukrainian tourism industry and its integration into the European Union are impossible without a strategic partnership between EU member states and Ukraine. Therefore, in the process of implementing state agreements on deep competitive cooperation, 10 effective associations were created with such EU member states (table 1) (tourism.gov.ua., 2022).

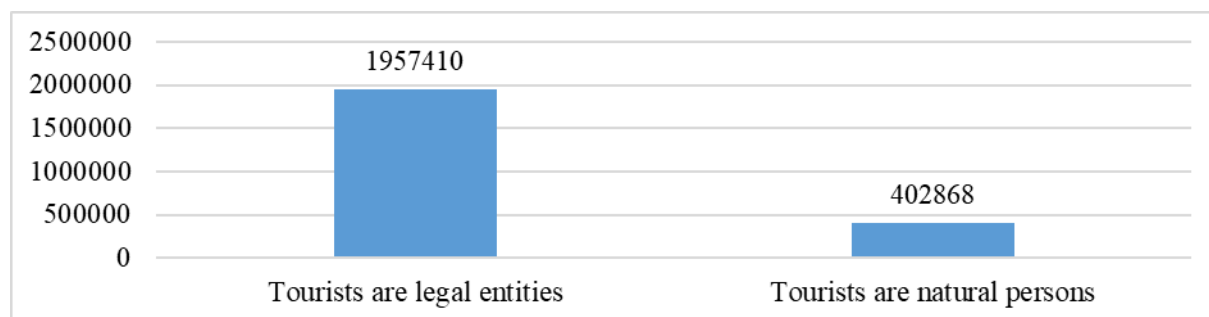
Table 1

**Rating of the strategic partnership of Ukraine and EU member states
as of 2021**

Top rating of strategic partners of Ukraine	Strategic partners	Countries whose leaders actively cooperate
1	Austria	Austria
2	Italy	Greece
3	Latvia	Italy
4	Lithuania	Germany
5	Germany	France
6	Poland	Poland
7	Slovakia	Latvia
8	Slovenia	Lithuania
9	Hungary	Slovenia
10	Czech Republic	Czech Republic

Source: built by the authors on the basis of (tourism.gov.ua, 2022).

The main factor that will determine the economic synergistic result from tourist activity and the effectiveness of the European integration process in Ukraine is the simplification of the procedure for the trips of Ukrainian tourists abroad (Fig. 2, 3) and the entry of foreign tourists into the territory of Ukraine (Fig. 4), their expenses related to staying in the country (Fig. 5) (tourism.gov.ua, 2022).



Source: built by the authors on the basis of (tourism.gov.ua, 2022).

Fig. 2. Tourists who went abroad in 2021, persons

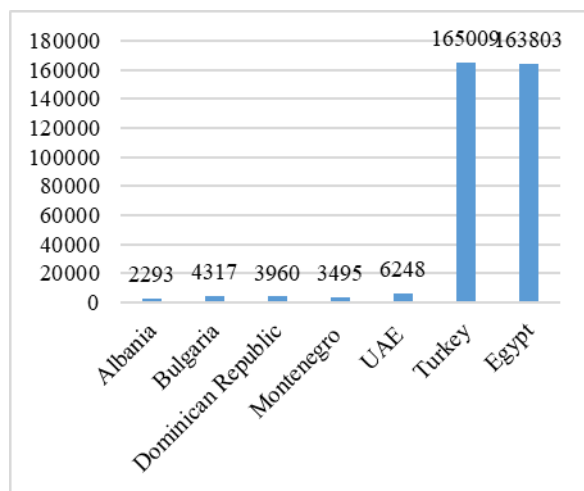


Fig. 3. Tourists leaving Ukraine in 2021 and countries of visit, persons

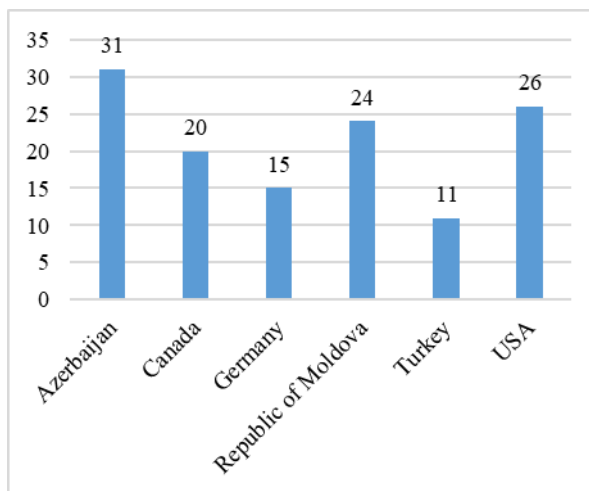
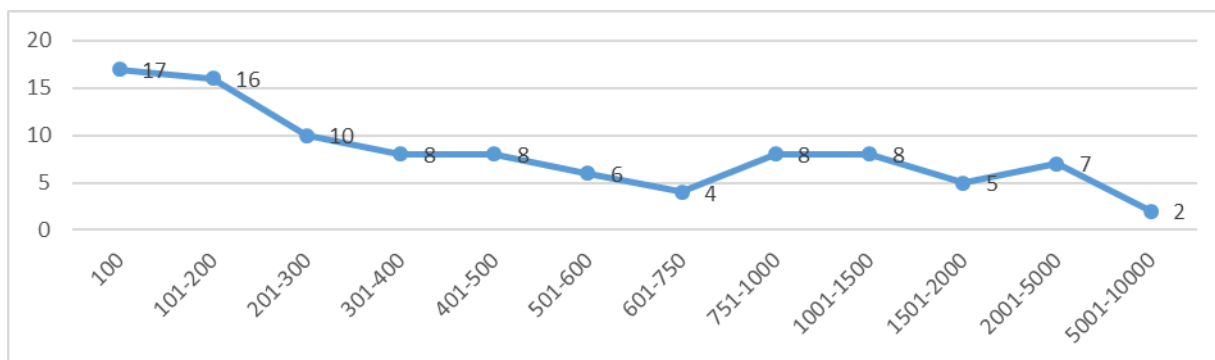


Fig. 4. Tourists entering Ukraine in 2021 and countries from which they came, persons

Source: built by the authors on the basis of (tourism.gov.ua, 2022).



Source: built by the authors on the basis of (tourism.gov.ua, 2022).

Fig. 5. Expenditure (USD) of tourists on a trip to Ukraine in 2021, %

An important step in the European integration process was the invitation of Ukraine to the European Tourist Commission. Also, Ukraine joined the research program of Euro-tourism markets, which will help Ukraine in the field of attracting specialists in the field of tourism and imitating their management experience (Drebot et al., 2021; Zayachkovska, 2017; Kostecka et al., 2020; Papp, 2015; Olshanska et al., 2015). Along with positive steps, there are also certain obstacles on the path of the European integration vector of development, where the main obstacle is the underfunding of the tourism industry (Zayachkovska, 2017; Papp, 2015; Rodina, 2021).

Ukrainian tourism is a promising, powerful, with great potential sector of the economy, which is able to fill the budget of Ukraine and popularize Ukraine as a European, young, progressive country. The steady harmonious expansion of relations in the field of tourism with the European Union will provide Ukraine with the opportunity to diversify the areas of tourism and individual

products/services, while ensuring the high competitiveness of the Ukrainian tourism industry. It will also be positive that the European Union will continue to invest investment resources, while developing the tourism and resort sphere of Ukrainian tourism (Olshanska et al., 2017; Potravka et al., 2020; Drebot et al., 2021).

Conclusions. Based on the above, we can draw the following conclusions: the Ukrainian tourism industry is a powerful branch of the economy, which not only withstood the start of a full-scale war in Ukraine, but also began to revive at a rapid pace, implementing European quality standards to all national legislation. The support of the member states of the European Union is extremely necessary and important for the tourism industry of Ukraine. Cooperation of Ukraine with strategic partners in the field of financing, investments, improvement of socio-economic standards is a prerequisite and a stable factor in the process of European integration of the tourism industry of Ukraine in international globalization processes.

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THE ROLE OF MARKETING TECHNOLOGIES IN THE POST-WAR RECOVERY OF THE LUXURY SEGMENT IN UKRAINE

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INTRODUCTION. The relevance of the study lies in examining the use of marketing technologies in the luxury segment during the post-war recovery in Ukraine. After the conflict, there was a need for effective marketing strategies to support the development of Luxury goods and services in the country.

RESEARCH HYPOTHESIS: The main hypothesis of the study is that the use of marketing technologies can stimulate the recovery of the Luxury segment in post-war Ukraine, attracting customers and strengthening the position of luxury brands in the market.

The main objective of the research is to investigate the effectiveness of marketing technology utilization in the Luxury segment of post-war Ukraine and identify key factors contributing to the success of marketing strategies in this industry.

METHODS. To achieve the set objective, the following research methods were employed: analysis of scientific literature, empirical research, consumer surveys, and analysis of statistical data on the luxury segment market in Ukraine.

FINDINGS. The results of research strongly confirm the hypothesis regarding the importance of marketing technologies in the recovery of the luxury segment in post-war Ukraine. It has been found that

the effective use of these technologies significantly influences the development of this segment, ensuring attractiveness to new customers, strengthening brands, and increasing sales. These findings underscore the necessity of actively implementing marketing strategies utilizing modern technologies for the successful development of the luxury segment within the context of post-war recovery in Ukraine.

CONCLUSION. Based on the obtained results, it can be concluded that the use of marketing technologies is a crucial success factor for the Luxury segment in post-war Ukraine. The research findings confirm that the effective utilization of these technologies contributes to attracting new customers, strengthening brands, and increasing sales in the luxury segment. Depending on the industry context and specific conditions of the Ukrainian market, it is recommended to actively develop and implement effective marketing strategies to support the development of luxury goods and services in the country.

KEYWORDS: marketing technologies; Luxury segment; post-war recovery; Ukraine; marketing strategies; customers; brands; market research.

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
10	0	0

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РОЛЬ МАРКЕТИНГОВИХ ТЕХНОЛОГІЙ У ВІДНОВЛЕННІ LUXURY СЕГМЕНТУ В ПІСЛЯВОЄННІЙ УКРАЇНІ

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ВСТУП. Актуальність дослідження полягає в розгляді використання маркетингових технологій у Luxury сегменті в післявоєнному відновленні України. Після конфлікту було виявлено потребу в ефективних стратегіях маркетингу для підтримки розвитку розкішних товарів і послуг в країні.

ГІПОТЕЗА ДОСЛІДЖЕННЯ. Головною гіпотезою дослідження є те, що використання маркетингових технологій може стимулювати відновлення Luxury сегменту в післявоєнній Україні, сприяючи залученню клієнтів і зміцненню позицій розкішних брендів на ринку.

Основною **МЕТОЮ** дослідження є дослідити ефективність використання маркетингових технологій у Luxury сегменті післявоєнної України та виявити ключові чинники, що сприяють успіху маркетингових стратегій в цій галузі.

МЕТОДИ. Для досягнення поставленої мети були використані такі методи дослідження: аналіз наукової літератури, проведення емпіричного дослідження, опитування споживачів та аналіз статистичних даних про ринок Luxury сегменту в Україні.

РЕЗУЛЬТАТИ. Результати дослідження докладно підтверджують гіпотезу про важливість маркетингових технологій у відновленні Luxury сегменту в післявоєнній Україні.

Виявлено, що ефективне використання цих технологій має значний вплив на розвиток цього сегменту, забезпечуючи привабливість для нових клієнтів, зміцнення брендів і підвищення продажів. Ці результати підкреслюють необхідність активного впровадження маркетингових стратегій із застосуванням сучасних технологій для успішного розвитку Luxury сегменту в контексті післявоєнного відновлення України.

ВИСНОВКИ. На основі отриманих результатів можна зробити висновок, що використання маркетингових технологій є важливим фактором успіху для Luxury сегменту в післявоєнній Україні. Результати дослідження підтверджують, що ефективне використання цих технологій сприяє залученню нових клієнтів, зміцненню брендів і збільшенню обсягу продажів у Luxury сегменті. Залежно від контексту індустрії та специфічних умов українського ринку, рекомендується активно розробляти та впроваджувати ефективні маркетингові стратегії, спрямовані на підтримку розвитку розкішних товарів і послуг у країні.

КЛЮЧОВІ СЛОВА: маркетингові технології; Luxury сегмент; післявоєнне відновлення; Україна; стратегії маркетингу; клієнти; бренди; ринкові дослідження.

Problem statement. The luxury segment has always been an intriguing field in the business world, with its distinctiveness and exclusivity. In countries facing crises and post-war recovery, the utilization of marketing technologies becomes crucial in revitalizing the luxury sector. This study aims to explore the relevance of marketing technologies in the context of the luxury segment's revival in Ukraine, considering its historical significance and comparing it with both developed and developing countries.

The relevance of this study lies in the unique challenges faced by the luxury segment in countries undergoing crises or post-war recovery. Understanding the role of marketing technologies in such contexts is essential to develop effective strategies that can help the luxury sector regain momentum and thrive.

Examining the historical trajectory of the luxury segment in countries facing crises provides valuable insights into the sector's resilience and adaptability. Throughout history, luxury brands have faced various economic downturns, political instability, and social disruptions. By analyzing past cases, we can identify successful approaches and lessons learned in reviving the luxury segment during challenging times.

The current state of the luxury segment in Ukraine reflects the country's unique circumstances. The impact of the recent conflict and the subsequent post-war recovery efforts have influenced consumer behavior and market dynamics. Understanding the specific challenges and opportunities faced by luxury brands in Ukraine is crucial for developing effective marketing strategies tailored to the local context.

Drawing comparisons between the luxury segment in Ukraine and both developed and developing countries provides a broader perspective. Analyzing the strategies and practices implemented in developed countries offers insights into best practices and innovations that can be adapted to the Ukrainian context. Additionally, examining the luxury segment in developing countries sheds light on emerging trends and opportunities for growth. By comprehensively examining the relevance of marketing technologies in the luxury segment's revival, considering the historical context, current state in Ukraine, and experiences of other countries, this study aims to provide valuable insights for practitioners and policymakers in navigating the challenges and leveraging opportunities for the luxury industry's success in post-crisis and post-war environments.

Analysis of recent studies and the unresolved part of the problem. K.L. Keller and D.R. Lehmann examined the importance of branding for companies and identified key factors for successful branding: "Companies should strive to create a strong brand that meets consumer expectations and differentiates itself from competitors" (Keller and Lehmann, 2016). F. Vigneron

and L.W. Johnson explored methods for measuring consumers' perceptions of luxury: "Perceptions of luxury depend on factors such as price level, product quality, and brand uniqueness" (Vigneron and Johnson, 2017). U. Okonkwo examined the latest trends, tactics, and techniques in luxury fashion branding: "Branding in luxury fashion requires constant updating and adaptation to changing consumer preferences" (Okonkwo, 2016). J.N. Kapferer and V. Bastien discussed the unique aspects of luxury management and how it differs from conventional marketing practices: "Luxury management requires a distinct approach that focuses on exclusivity, craftsmanship, and brand heritage" (Kapferer and Bastien, 2012). M. Chevalier and G. Mazzalovo explored the strategies and challenges involved in managing luxury brands. Conclusion: Managing luxury brands requires maintaining a balance between exclusivity, aspiration, and brand equity (Chevalier and Mazzalovo, 2012). B. Dubois and S. Czellar investigated how consumer needs and values influence their perceptions of luxury: "Luxury is subjective and varies depending on individuals' needs, values, and social context" (Dubois and Czellar, 2018). N. Hennigs, K.P. Wiedmann and C. Klarmann examined the role of emotional brand attachment in the luxury sector; the authors consider that emotional brand attachment plays a significant role in building strong customer relationships and brand loyalty in the luxury sector (Hennigs et al., 2019). U. Okonkwo discussed the unique challenges and opportunities of luxury brands in the online environment. Conclusion: Luxury brands need to carefully navigate the online landscape to maintain exclusivity and provide a seamless customer experience (Okonkwo, 2019). G. Atwal and A. Williams emphasized the importance of creating unique and immersive experiences in luxury brand marketing; the authors consider that Luxury brands should focus on delivering exceptional experiences to customers to enhance brand perception and loyalty (Atwal and Williams (2017). I. Phau and G. Prendergast developed a conceptual framework for understanding the consumption values associated with personal luxury and mass luxury goods. The authors consider that consumer motivations and preferences differ for personal luxury and mass luxury goods, and understanding these distinctions is crucial for effective marketing strategies (Phau and Prendergast, 2019).

The authors did not extensively study the specific application of marketing technologies in the luxury segment within crisis-stricken countries, including Ukraine. While they acknowledged the importance of branding, consumer perceptions, and management strategies in the luxury industry, there is a need for further research in the following areas:

The Impact of Marketing Technologies: Future studies could delve deeper into understanding the specific role and impact of various marketing technologies, such as digital marketing, social media, influencer marketing, and

personalized communications, in the luxury segment's recovery within crisis-stricken countries. Examining how these technologies can effectively attract new customers, strengthen brands, and increase sales would provide valuable insights for practitioners and policymakers.

Consumer Behavior in Crisis Contexts: Exploring consumer behavior patterns and preferences in the luxury segment during crisis situations would be beneficial. Investigating how consumer attitudes and purchasing decisions are influenced by economic downturns, political instability, and social disruptions would help develop targeted marketing strategies that align with the changing needs and expectations of luxury consumers in crisis-stricken countries.

Comparative Analysis across Countries: Conducting comparative studies between luxury segments in crisis-stricken countries like Ukraine and those in developed and developing countries would provide a broader perspective. Analyzing similarities and differences in marketing strategies, consumer behavior, and brand perceptions across these contexts can offer insights into successful approaches and practices that can be adapted to the unique challenges of luxury markets in crisis-stricken countries.

Sustainable Luxury: Given the increasing importance of sustainability, future research could focus on the integration of sustainable practices within the luxury segment in crisis-stricken countries. Exploring how marketing technologies can facilitate the promotion of sustainable luxury brands and products, and examining consumer attitudes towards sustainable luxury, would contribute to the development of environmentally and socially responsible strategies.

Overall, further research is recommended to investigate the specific application of marketing technologies, understand consumer behavior in crisis contexts, conduct comparative analysis across countries, and explore sustainability practices within the luxury segment. These research directions would enhance our understanding of the challenges and opportunities for the luxury industry in crisis-stricken countries and inform the development of effective marketing strategies.

The goal of this article is to examine the use of marketing technologies in the luxury segment during the post-war recovery in Ukraine. It aims to explore the effectiveness of these technologies in attracting new customers, strengthening brands, and increasing sales in the luxury sector. Additionally, the article aims to provide insights into the relevance of marketing technologies in the context of crisis-stricken countries and compare the state of the luxury segment in Ukraine with that of developed and developing countries. The findings of this research will contribute to a better understanding of the role of marketing technologies in the revitalization of the luxury industry and provide

recommendations for developing effective marketing strategies in post-war recovery situations.

Presentation of the main material. The use of marketing technologies, such as digital marketing, social media, influencer marketing, and personalized communications, has played a significant role in the recovery of the luxury segment in crisis-affected countries. Several practical examples highlight the effectiveness of these technologies:

Digital Marketing: Luxury brands have leveraged digital marketing strategies to reach and engage with their target audience. They have utilized search engine optimization (SEO), pay-per-click (PPC) advertising, and display advertising to increase brand visibility and drive website traffic. For instance, luxury fashion brands have implemented effective digital marketing campaigns, combining visually appealing content, influencer collaborations, and seamless e-commerce experiences to attract and convert customers.

Social Media: Luxury brands have effectively utilized social media platforms to connect with their audience and build brand loyalty. They have curated visually appealing and aspirational content on platforms like Instagram, showcasing their products, brand values, and lifestyle. By actively engaging with followers, luxury brands have created a sense of exclusivity and community. For example, luxury hotels and resorts share stunning visuals and immersive experiences on social media to entice potential customers and maintain customer relationships.

Influencer Marketing: Luxury brands have collaborated with influencers and celebrities to enhance brand visibility and credibility. By partnering with influencers who align with their brand values and target audience, luxury brands have effectively reached new customer segments and created authentic connections. For instance, luxury watch brands have collaborated with renowned athletes and celebrities to endorse their products and increase brand appeal.

Personalized Communications: Luxury brands have adopted personalized communication strategies to create tailored experiences for their customers. By utilizing customer data and advanced analytics, brands have sent personalized emails, recommendations, and exclusive offers based on individual preferences. Luxury retailers have employed personal shopping assistants and concierge services to provide a personalized and high-touch experience to their clientele. In summary, the application of marketing technologies such as digital marketing, social media, influencer marketing, and personalized communications has proven instrumental in the recovery of the luxury segment in crisis-affected countries. These technologies have enabled luxury brands to connect with their target audience, enhance brand visibility, and provide

personalized experiences that resonate with customers, ultimately driving the resurgence of the luxury industry in challenging times.

During times of crisis, consumer behavior in the luxury segment undergoes significant changes across different countries. Here are examples of how consumer behavior has been affected in the luxury segment in crisis-affected countries:

Economic Downturn: In countries experiencing economic crises, consumers tend to become more price-conscious in the luxury segment. They become more selective in their purchases, seeking value for money and prioritizing essential items over luxury goods. For example, during the 2008 global financial crisis, luxury retailers saw a shift in consumer preferences towards more affordable luxury items like accessories rather than high-end fashion or jewelry.

Shift towards Experiential Luxury: In crisis situations, consumers often prioritize experiences over material possessions. They seek out experiential luxury, such as luxury travel, fine dining, and wellness retreats, as a form of escape and self-indulgence. Luxury brands have adapted by offering unique experiences that cater to this demand, such as curated travel packages, immersive events, and personalized services.

Conscious Luxury: Crisis situations can lead to an increased focus on sustainability and ethical consumption. Consumers in the luxury segment may exhibit a greater preference for brands that prioritize environmental responsibility, social impact, and fair trade practices. Luxury brands have responded by incorporating sustainability initiatives into their products, packaging, and supply chains to appeal to this growing consumer sentiment.

Digital Transformation: The impact of crises has accelerated the shift towards digital platforms in the luxury segment. Consumers are increasingly engaging with luxury brands online, browsing and purchasing through e-commerce channels, and participating in virtual brand experiences. Luxury brands have invested in digital marketing strategies, virtual showrooms, and personalized online shopping experiences to meet the changing demands of consumers.

Local and Domestic Focus: During crises, consumers may demonstrate a preference for local and domestically produced luxury goods. This trend reflects a desire to support the local economy and preserve national heritage. Luxury brands have responded by highlighting local craftsmanship, promoting collaborations with local artisans, and emphasizing the authenticity of their products.

These examples illustrate how consumer behavior in the luxury segment shifts during times of crisis. By understanding these changes, luxury brands can adapt their strategies and offerings to meet evolving consumer needs and

preferences, ultimately fostering resilience and success in challenging market conditions.

Conclusions and suggestions for further research. The analysis findings indicate that several marketing technologies are particularly well-suited for the recovery of the luxury segment in post-war Ukraine. Below are the expanded conclusions for each of these technologies:

Digital Marketing: Digital strategies such as search engine optimization (SEO), pay-per-click (PPC) advertising, and content marketing can play a crucial role in rebuilding the luxury segment in post-war Ukraine. These techniques can enhance brand visibility, drive website traffic, and attract new customers. By leveraging targeted online advertising campaigns and optimizing their online presence, luxury brands can effectively reach their target audience and re-establish their presence in the market.

Social Media: Social media platforms offer immense opportunities for luxury brands to engage with consumers, build brand loyalty, and showcase their unique offerings. By creating visually appealing and aspirational content on platforms like Instagram, luxury brands can create a strong brand image and connect with their target audience. Moreover, actively engaging with followers, responding to comments and messages, and collaborating with influencers can foster a sense of exclusivity and community, vital for the recovery of the luxury segment in post-war Ukraine.

Influencer Marketing: Collaborating with influential individuals who align with the brand's values and target audience can greatly benefit luxury brands in their recovery efforts. By partnering with well-known personalities, luxury brands can leverage their reach and credibility to promote their products and services. Influencer marketing campaigns can generate brand awareness, attract new customers, and re-establish trust in the luxury segment in post-war Ukraine.

Personalized Communications: Personalization is key in rebuilding customer relationships and fostering loyalty in the luxury segment. By utilizing customer data and implementing customer relationship management (CRM) systems, luxury brands can create personalized communications, tailored recommendations, and exclusive offers for individual customers. This level of personalized engagement enhances customer satisfaction and strengthens brand loyalty, essential for the recovery of the luxury segment in post-war Ukraine.

In conclusion, digital marketing, social media, influencer marketing, and personalized communications emerge as highly effective marketing technologies for the revival of the luxury segment in post-war Ukraine. By strategically employing these techniques, luxury brands can rebuild their presence, attract new customers, and regain market share. However, it is important to carefully tailor these technologies to the local context and consumer preferences in post-

war Ukraine to ensure their maximum effectiveness in driving the recovery of the luxury segment.

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THE ROLE OF DIGITALIZATION IN THE SOCIAL RESPONSIBILITY OF UNIVERSITIES

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INTRODUCTION. In the modern world, digital transformation has a significant impact on all aspects of life, including education. Universities, as key educational institutions, cannot avoid the influence of digital technologies. Therefore, there is a need to study the role of digitalization in the social responsibility of universities.

RESEARCH HYPOTHESIS: Digital technologies can contribute to enhancing the social responsibility of universities by improving access to education, promoting environmental sustainability, and supporting social-economic development.

THE AIM of this article is to explore the role of digitalization in the social responsibility of universities, identify the opportunities and challenges it brings, and develop recommendations for university institutions on effective use of digital technologies to achieve social goals.

METHODS. This article utilizes literature analysis, statistical data, and empirical research to assess the impact of digitalization on the social responsibility of universities.

FINDINGS. The analysis revealed that digital technologies enable universities to provide wide access to education, reduce environmental impact, and foster social-economic development. However, their effective utilization requires addressing technological, financial, and cultural barriers.

CONCLUSION. Digital technologies have great potential to enhance the social responsibility of universities, but their implementation should be carried out considering the specific needs and context of each university institution.

KEYWORDS: digitalization; social responsibility; universities; education; environmental sustainability; social-economic development.

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
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ВПЛИВ ЦИФРОВІЗАЦІЇ НА СОЦІАЛЬНУ ВІДПОВІДАЛЬНІСТЬ УНІВЕРСИТЕТІВ

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ВСТУП. В сучасному світі цифрова трансформація має значний вплив на всі сфери життя, включаючи освіту. Університети, як основні освітні інституції, також не можуть уникнути впливу цифрових технологій. У зв'язку з цим, виникає необхідність вивчення ролі цифровізації в соціальній відповідальності університетів.

ГІПОТЕЗА ДОСЛІДЖЕННЯ. Цифрові технології можуть сприяти покращенню соціальної відповідальності університетів шляхом поліпшення доступу до освіти, сприяння екологічній сталості та підтримки соціально-економічного розвитку.

МЕТОЮ даної статті є вивчення ролі цифровізації в соціальній відповідальності університетів, виявлення можливостей та викликів, які вона приносить, і розробка рекомендацій для університетських установ щодо ефективного використання цифрових технологій для досягнення соціальних цілей.

МЕТОДИ. У даній статті використовується аналіз наукової

літератури, статистичні дані та емпіричні дослідження для оцінки впливу цифровізації на соціальну відповідальність університетів.

РЕЗУЛЬТАТИ. В результаті аналізу було встановлено, що цифрові технології дозволяють університетам забезпечити широкий доступ до освіти, зменшити екологічний вплив та сприяти соціально-економічному розвитку. Однак, їх ефективне використання потребує усунення технологічних, фінансових та культурних бар'єрів.

ВИСНОВКИ. Цифрові технології мають великий потенціал для поліпшення соціальної відповідальності університетів, проте їх впровадження повинно бути здійснене з урахуванням конкретних потреб і контексту кожної університетської установи.

КЛЮЧОВІ СЛОВА: цифровізація; соціальна відповідальність; університети; освіта; екологічна сталість; соціально-економічний розвиток.

Problem statement. In today's rapidly evolving world, digital transformation is revolutionizing various aspects of society, including the realm of education. Universities, as prominent educational institutions, are not exempt from the profound impact of digital technologies. Consequently, there is an urgent need to examine the role of digitalization in shaping the social responsibility of universities. The advent of digital technologies has ushered in a new era of possibilities for educational institutions, prompting universities to embrace digitalization to stay relevant and responsive to the needs of their stakeholders. Beyond the realms of academia, universities are increasingly expected to fulfill their social responsibility by actively contributing to the betterment of society. The question arises: How does digitalization impact the ability of universities to fulfill their social responsibility? This study seeks to shed light on this complex issue, examining the multifaceted role of digitalization in fostering social responsibility within university settings.

The problem at hand revolves around the intricate interplay between digitalization and the social responsibility of universities. While digital technologies offer immense potential to enhance educational practices and facilitate engagement with diverse communities, their impact on social responsibility aspects remains relatively unexplored. How can universities harness the power of digitalization to address pressing societal challenges, promote inclusivity, and ensure sustainable development? Furthermore, what barriers and limitations might impede the effective integration of digital technologies into the social responsibility initiatives of universities? These questions warrant thorough investigation to optimize the utilization of digital tools for the betterment of society.

Understanding the role of digitalization in the social responsibility of universities is crucial for several reasons. Firstly, universities play a vital role in shaping future generations and have the capacity to foster social change. Exploring how digitalization influences their social responsibility efforts can yield insights into optimizing their impact. Secondly, as the world becomes increasingly interconnected and reliant on digital technologies, it is imperative to examine the potential risks and ethical considerations associated with digitalization in the context of social responsibility. Finally, this study can provide valuable guidance for university administrators, policymakers, and stakeholders, facilitating informed decision-making and the formulation of strategies to harness digital technologies effectively.

Methodology: To comprehensively address the research problem, this study will employ a mixed-methods approach. The initial phase involves an extensive review of scholarly literature, encompassing academic articles, reports, and case studies on the intersection of digitalization and the social responsibility of universities. This literature review will provide a theoretical

foundation and help identify key themes and trends in the field. Subsequently, empirical data will be collected through surveys, interviews, and focus groups involving university administrators, faculty members, students, and relevant stakeholders. The qualitative and quantitative data collected will be analyzed using appropriate statistical and thematic analysis techniques, enabling a comprehensive understanding of the research problem.

Analysis of recent studies and the unresolved part of the problem.

R. Agarwal and S. Arora (2020) examine the relationship between digitalization and corporate social responsibility (CSR) in the context of global telecommunication companies. They compare and analyze the CSR practices of several companies to understand how digitalization influences their approach to social responsibility. The authors highlight that digitalization provides opportunities for companies to integrate CSR initiatives into their operations, enhance transparency, and engage stakeholders. They suggest that companies can leverage digital technologies to promote sustainable practices, empower communities, and contribute to social development (Agarwal and Arora, 2020). E. Babbie (2019) provides a comprehensive guide to conducting social research. While not specific to the topic of digitalization and social responsibility in universities, it offers valuable insights into research methodologies and data collection techniques. It covers topics such as literature review, survey design, interviews, and data analysis. Researchers can draw upon this resource to gain a better understanding of the practical aspects of conducting research in the field of digitalization and social responsibility (Babbie, 2019). H. Chesbrough and M.M. Appleyard discuss the concept of open innovation, which emphasizes collaboration and knowledge-sharing between organizations. While not directly focused on universities, this concept can be applied to the study of digitalization and social responsibility. The authors argue that universities can adopt open innovation approaches by leveraging digital technologies to collaborate with external stakeholders, including businesses and communities. This collaborative approach can lead to the co-creation of solutions to societal challenges and foster social responsibility (Chesbrough and Appleyard, 2019). J.B. Cullen, K.P. Parboteeah and B. Victor (2003) explore the influence of ethical climates on organizational commitment. While not specific to digitalization or universities, the findings have implications for understanding the role of ethics and social responsibility within organizations, including universities. The authors highlight that fostering an ethical climate can enhance employees' commitment to the organization's social responsibility efforts. This suggests that universities need to create an ethical climate that aligns with their digitalization initiatives to ensure responsible and socially accountable practices (Cullen et al., 2003). A. Dabirian, W.K.W. Ismail and N.A. Ismail (2020) conduct a systematic review to identify factors that influence the adoption of digital technologies in

higher education institutions. Although the focus is not specifically on social responsibility, their findings provide insights into the challenges and facilitators of digitalization in universities. Understanding these factors can inform strategies to integrate digital technologies effectively to support social responsibility initiatives. The authors discuss issues such as infrastructure, faculty training, organizational culture, and student acceptance, which are critical for successful digitalization efforts in universities (Dabirian et al., 2020). R. Hahn, S. Gold, S. Mena, J. Pinkse (2015) emphasize the importance of partnerships in advancing sustainable supply chain management. While not directly focused on universities, the concepts discussed can be applied to the context of digitalization and social responsibility. The authors highlight the need for collaboration between different stakeholders, including businesses, academia, and NGOs, to address social and environmental challenges. They argue that partnerships can facilitate knowledge sharing, innovation, and collective action, ultimately contributing to the overall social responsibility efforts (Hahn et al., 2015). A. Molla and P.S. Licker (2018) conduct an empirical study focusing on the perceptions of information quality, usefulness, and ease of use of internet-based e-learning systems in Malaysia. While specific to e-learning systems, the findings offer insights into user perspectives on digital technologies in educational settings. Understanding perceived usefulness and ease of use can inform the design and implementation of digital platforms that support social responsibility initiatives in universities. The study highlights the significance of user perceptions in ensuring the effective adoption and utilization of digital tools for educational purposes (Molla and Licker (2018). J.C. Roca and M. Gagné (2008) explore the factors that influence individuals' intention to continue using e-learning platforms in the workplace. Although focused on the workplace, their study offers insights into user motivation and engagement with digital learning environments. Understanding the factors that drive continued usage can help universities design and implement digital initiatives that effectively promote social responsibility. The study highlights the importance of factors such as perceived competence, autonomy, and relatedness in fostering users' intention to continue using digital learning platforms (Roca and Gagné, 2008). S. Sarkar, S. Ravichandran and R. Echambadi (2015) discuss the shift from a traditional value chain perspective to a value constellation approach in designing interactive strategies. While not directly focused on universities, the concept of value constellations can be relevant to the integration of digital technologies for social responsibility. The authors propose that organizations need to collaborate with a broader network of stakeholders to create shared value and address societal challenges. By designing interactive strategies and leveraging digital technologies, universities can foster collaboration and align their social responsibility initiatives with the needs and expectations of diverse

stakeholders (Sarkar et al., 2015). M. Zorzini and M. Weber (2021) investigate the relationship between digitalization and corporate social responsibility (CSR). Their study explores the potential impact of digital technologies on CSR practices, focusing on topics such as stakeholder engagement, transparency, and social impact measurement. While not specific to universities, the findings provide insights into the opportunities and challenges that digitalization presents for advancing social responsibility initiatives. The authors emphasize the importance of leveraging digital technologies ethically and responsibly to create value for society (Zorzini and Weber, 2021). Analyzing these sources, we observe that authors highlight the significance of partnerships, perceived usefulness, ease of use, motivation, value constellations, and responsible digitalization in the context of social responsibility. The sources emphasize the need for collaboration, user-centered design, and ethical considerations when integrating digital technologies for social responsibility purposes in various settings, including universities. These insights contribute to the understanding of how digitalization can enhance social responsibility efforts and guide the development of effective strategies and practices.

This article aims to delve into this subject matter, exploring the opportunities and challenges presented by digitalization and providing valuable insights for university institutions to effectively leverage digital technologies in fulfilling their social obligations.

Presentation of the main material. *Open Online Courses:* Many universities have offered open online courses, making high-quality educational resources accessible to a global audience. For example, Harvard University launched HarvardX, providing free online courses on various subjects. This initiative promotes social responsibility by democratizing education and increasing access to knowledge.

Virtual Learning Environments: Universities have adopted virtual learning environments (VLEs) to enhance the learning experience. For instance, the University of Edinburgh implemented the Learn platform, which facilitates online collaboration, discussion forums, and resource sharing. VLEs enable flexible and inclusive education, accommodating diverse learning styles and promoting equal opportunities for students.

Digital Libraries and Open Access: Universities have digitized their library resources and embraced open access initiatives. The University of California initiated the eScholarship program, which offers free access to scholarly publications and research materials. Digital libraries and open access contribute to the dissemination of knowledge and support global research communities.

Sustainable Campus Operations: Universities have employed digital technologies to improve sustainability practices on their campuses. For instance, the University of Nottingham implemented an energy management system that

monitors and optimizes energy consumption across campus buildings. Such initiatives reduce environmental impact, promote energy efficiency, and serve as models for sustainable practices.

Social Media Engagement: Universities have actively utilized social media platforms to engage with their communities and promote social responsibility. The University of Manchester effectively utilizes platforms like Twitter and Facebook to share research findings, community initiatives, and raise awareness about social issues. Social media engagement fosters transparency, inclusivity, and encourages active participation from students, staff, and the wider public.

Online Community Engagement: Universities have developed online platforms to engage with local communities and address societal challenges. The University of British Columbia launched the Living Lab initiative, providing a digital space for collaborative problem-solving and community-driven projects. Online community engagement facilitates co-creation and allows universities to contribute directly to social development.

These examples highlight how universities have utilized digitalization to enhance their activities and demonstrate social responsibility. By leveraging digital technologies, universities have expanded access to education, improved sustainability practices, facilitated knowledge sharing, and engaged with diverse stakeholders. These initiatives align with the principles of social responsibility, promoting inclusivity, sustainability, and community engagement.

The experience gained from the aforementioned examples can be valuable for Ukrainian universities in leveraging digitalization for social responsibility. Here's how this experience can be applied:

Implementing Open Online Courses: Ukrainian universities can explore the development of open online courses to expand access to education. By collaborating with other institutions or creating their own platforms, Ukrainian universities can offer free or low-cost online courses, enabling learners from diverse backgrounds to access high-quality educational resources.

Adopting Virtual Learning Environments: Ukrainian universities can embrace virtual learning environments to enhance the learning experience and accommodate different learning styles. Implementing user-friendly platforms that facilitate online collaboration, interactive discussions, and resource sharing can promote inclusive education and enable flexible learning options.

Promoting Open Access and Digital Libraries: Ukrainian universities can prioritize open access initiatives and digitize their library resources. By making research publications, educational materials, and resources freely accessible online, universities can contribute to the dissemination of knowledge, support academic collaboration, and foster a culture of information sharing.

Fostering Sustainable Campus Operations: Ukrainian universities can leverage digital technologies to improve sustainability practices on their

campuses. Implementing energy management systems, smart building technologies, and digital monitoring tools can help optimize energy consumption, reduce waste, and promote eco-friendly practices within the university community.

Engaging through Social Media: Ukrainian universities can utilize social media platforms as channels for community engagement, knowledge dissemination, and awareness-raising. By actively sharing research findings, community initiatives, and promoting social issues, universities can foster transparency, connect with a wider audience, and encourage public participation in social responsibility efforts.

Facilitating Online Community Engagement: Ukrainian universities can establish online platforms or digital spaces to engage with local communities and address societal challenges. By creating virtual living labs or digital collaboration spaces, universities can facilitate community-driven projects, collaborative problem-solving, and co-creation with various stakeholders, contributing directly to social development.

By adapting and implementing these practices, Ukrainian universities can harness the potential of digitalization to enhance their social responsibility initiatives. Embracing digital technologies can help overcome geographical barriers, promote inclusivity, drive sustainability, and strengthen the relationship between universities and their communities in Ukraine.

Conclusions and suggestions for further research.

Research and practices related to the role of digitalization in the social responsibility of universities highlight the significant potential that can be harnessed from digital technologies to strengthen the social responsibility of universities. Examples of applying digital tools in education and university operations emphasize their ability to improve access to education, support sustainable development, and actively engage with stakeholders. Digitalization has the power to democratize education by providing access to high-quality resources and courses to a wider audience, including underprivileged groups. It enables universities to optimize their energy consumption, reduce environmental impact, and promote sustainable practices. Digital platforms and social media engagement foster transparency, inclusivity, and collaboration with communities, empowering stakeholders to actively participate in social responsibility initiatives.

Directions for Further Research:

While progress has been made in understanding the role of digitalization in the social responsibility of universities, further research is needed to explore specific areas and address emerging challenges. Some potential directions for future research include:

Impact assessment: Conduct comprehensive studies to assess the impact of digitalization on various dimensions of social responsibility, such as educational access, environmental sustainability, community engagement, and social equity.

Ethical considerations: Investigate the ethical implications of digitalization in university practices, ensuring responsible data handling, privacy protection, and addressing potential digital divides to ensure equitable access and benefits.

Stakeholder engagement: Explore effective strategies for engaging diverse stakeholders, including students, faculty, staff, local communities, and businesses, in co-creating social responsibility initiatives through digital platforms and tools.

Innovative practices: Investigate emerging digital technologies and innovative practices that can enhance the social responsibility of universities, such as blockchain for transparency and accountability, artificial intelligence for personalized education, and virtual reality for immersive learning experiences.

Policy and governance: Examine policy frameworks and governance structures that can promote the effective integration of digitalization in universities' social responsibility strategies, including guidelines for responsible use of digital technologies, data protection, and ensuring digital inclusion.

By addressing these research directions, universities can advance their understanding of the role of digitalization in social responsibility and develop effective strategies to leverage digital technologies for sustainable, inclusive, and socially responsible practices.

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SOCIAL RESPONSIBILITY OF HIGHER EDUCATION INSTITUTIONS IN TIMES OF CRISIS AND ARMED CONFLICT: INTERNATIONAL EXPERIENCE AND LESSONS FOR UKRAINE

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INTRODUCTION. The article is devoted to the study of the social responsibility of higher education institutions in times of crisis and armed conflict. Due to the increasing geopolitical conflicts and security threats, social responsibility becomes a key aspect of the work of higher education institutions. In modern times, when the country is facing crisis challenges and military actions, the social responsibility of higher education institutions becomes exceptionally important and relevant.

RESEARCH HYPOTHESIS: The hypothesis of the article is that based on international experience, valuable lessons can be learned to facilitate the development of effective social responsibility in Ukrainian higher education institutions in crisis situations.

THE OBJECTIVE of the article is to analyze international experience regarding the social responsibility of higher education institutions in times of crisis and armed conflict and identify key lessons that can be applied in the Ukrainian context.

METHODS. The research employs methods of systemic analysis, comparative analysis,

synthesis of scientific literature, and analysis of international practices in the field of social responsibility.

FINDINGS. The study identified key aspects of social responsibility of higher education institutions in times of crisis and armed conflict at the international level. Specifically, it highlights practices for responding to crisis situations, involving students in community and charity initiatives, addressing social issues, and contributing to community development.

CONCLUSION. Based on the analysis of international experience, it is concluded that active implementation of social responsibility is essential in Ukrainian higher education institutions during times of crisis and armed conflict. The valuable lessons from international experience can serve as a foundation for developing effective strategies and programs for implementing social responsibility in the Ukrainian higher education system.

KEYWORDS: social responsibility; higher education institutions; crisis; armed conflict; international experience; lessons; Ukraine.

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СОЦІАЛЬНА ВІДПОВІДАЛЬНІСТЬ ЗАКЛАДІВ ВИЩОЇ ОСВІТИ В УМОВАХ КРИЗИ ТА ВІЙСЬКОВИХ ДІЙ: МІЖНАРОДНИЙ ДОСВІД ТА УРОКИ ДЛЯ УКРАЇНИ

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ВСТУП. Стаття присвячена дослідженню соціальної відповідальності закладів вищої освіти в умовах кризи та військових дій. У зв'язку зі зростанням геополітичних конфліктів та загроз безпеці, соціальна відповідальність стає ключовим аспектом роботи вищих навчальних закладів. У сучасних умовах, коли країна зазнає кризових випробувань та військових дій, соціальна відповідальність закладів вищої освіти стає надзвичайно важливою і актуальною темою.

ГІПОТЕЗА ДОСЛІДЖЕННЯ. Гіпотеза статті полягає в тому, що на основі міжнародного досвіду можна здобути уроки, які допоможуть у формуванні ефективної соціальної відповідальності в українських закладах вищої освіти в умовах кризових ситуацій.

МЕТОЮ статті є проаналізувати міжнародний досвід щодо соціальної відповідальності закладів вищої освіти в умовах кризи та військових дій та виділити ключові уроки, які можна застосувати в українському контексті.

МЕТОДИ. У дослідженні використувалися методи системного аналізу, порівняльного аналізу та синтезу

наукової літератури, а також аналізу міжнародних практик у сфері соціальної відповідальності.

РЕЗУЛЬТАТИ. В результаті дослідження були виявлені ключові аспекти соціальної відповідальності закладів вищої освіти в умовах кризи та військових дій на міжнародному рівні. Зокрема, було висвітлено практики реагування на кризові ситуації, залучення студентів до громадських та благодійних акцій, сприяння вирішенню соціальних проблем та впливу на розвиток громади.

ВИСНОВКИ. На основі аналізу міжнародного досвіду було зроблено висновок про необхідність активного впровадження соціальної відповідальності в українських закладах вищої освіти в умовах кризи та військових дій. Ключові уроки з міжнародного досвіду можуть служити основою для розроблення ефективних стратегій та програм впровадження соціальної відповідальності в українській системі вищої освіти.

КЛЮЧОВІ СЛОВА: соціальна відповідальність; заклади вищої освіти; криза; військові дії; міжнародний досвід; уроки; Україна.

Problem statement. In contemporary times, countries around the world are increasingly confronted with crisis situations and armed conflicts. These challenging circumstances have far-reaching consequences and impact various aspects of society, including the higher education sector. Higher education institutions play a crucial role in shaping the future of individuals and society as a whole. However, in times of crisis and armed conflicts, the focus on social responsibility becomes paramount. The question arises as to how higher education institutions can effectively uphold their social responsibility amidst such challenging circumstances. These institutions are faced with the task of not only providing quality education but also addressing the pressing social and humanitarian needs arising from the crisis and armed conflicts. The well-being and development of students, faculty, staff, and the broader community are directly affected by the ability of higher education institutions to respond adequately and responsibly in times of crisis. Furthermore, the complexities of crisis situations and armed conflicts demand a multidimensional and comprehensive approach to social responsibility in higher education. This includes addressing issues such as access to education during times of instability, promoting peace and reconciliation, fostering inclusivity and diversity, engaging in community service and development initiatives, and contributing to the overall well-being of society. Therefore, there is a pressing need to explore and understand the experiences and lessons learned from international contexts where higher education institutions have successfully demonstrated social responsibility in times of crisis and armed conflicts. By analyzing and adapting these experiences, valuable insights can be gained to inform and guide Ukrainian higher education institutions in their efforts to fulfill their social responsibility effectively. Hence, the present study aims to delve into the topic of social responsibility of higher education institutions in times of crisis and armed conflicts, drawing upon international experiences and lessons, in order to provide recommendations and strategies that can be applied in the Ukrainian context. By addressing this problem, the study seeks to contribute to the ongoing discourse on social responsibility and its implementation within the higher education sector, particularly in challenging times.

Analysis of recent studies and the unresolved part of the problem. J. Smith (2020) explores the role of higher education institutions in social responsibility. He analyzes international perspectives and provides insights into the development of social responsibility in these institutions. M. Johnson (2019) examines crisis management in higher education and offers a practical guide for leaders. He concludes that effective crisis management is crucial for the successful functioning of institutions in challenging situations. K. Brown and L. Jones (eds.) (2018) explore the challenges faced by higher education in conflict zones and their implications for development. The contributors examine various aspects and reach the conclusion that addressing these challenges is essential for the progress of education in such

regions. S. Patel and R. Lopez (eds.) (2017) explore the topic of social responsibility in higher education from a global perspective. They provide insights into various perspectives and approaches to social responsibility and highlight the importance of integrating social responsibility into the mission and activities of higher education institutions. R.K. Mitchell, B.R. Agle and D.J. Wood (1997) propose a theory of stakeholder identification and salience, emphasizing the importance of determining which stakeholders matter and defining their significance. Their research contributes to the understanding of stakeholder theory and its application in various contexts, including higher education. UNESCO (2015) presents a framework for responding to higher education needs in emergency situations. The organization emphasizes the importance of ensuring access to education, promoting resilience, and supporting the rebuilding of higher education systems in crisis-affected regions. J.M. Dickey (2012) examines the role of higher education institutions in peacebuilding efforts from a global perspective. The author emphasizes the potential of universities to contribute to peacebuilding through education, research, and community engagement, highlighting the importance of their active involvement in conflict resolution and reconciliation. W.L. Filho and W. Leal Filho (eds.) (2013) explore the concept of sustainable development and its integration into universities. The contributors discuss various approaches and initiatives taken by universities worldwide to promote sustainable development, underscoring the role of higher education institutions in addressing environmental and social challenges. M.N. Nkwenti (2016) presents a framework for policy development aimed at promoting social responsibility in higher education institutions. The author discusses the key components of social responsibility and proposes strategies and guidelines for integrating social responsibility into the policies and practices of universities. United Nations Development Programme (UNDP) (2018) examines the role of higher education in crisis settings and identifies lessons learned and opportunities for action. The report emphasizes the importance of providing educational opportunities in crisis-affected areas, building resilience, and utilizing higher education as a means of fostering development and peace in challenging contexts.

Aspect not covered by these authors: The aspect of the impact of technology and digitalization on social responsibility in higher education was not extensively explored by these authors. While they discuss the broader concept of social responsibility, they do not specifically address the implications of technology, online learning, and digital platforms on social responsibility within higher education institutions. Directions for further research: Further research could focus on investigating the role of technology and digitalization in promoting and enhancing social responsibility in higher education. This could involve examining the use of online platforms and digital tools for community engagement, exploring the ethical implications of technology adoption, and assessing the effectiveness of virtual learning environments in fostering social responsibility among students.

Additionally, research could delve into the challenges and opportunities associated with technology-driven initiatives and develop frameworks for integrating digital solutions into the social responsibility agendas of higher education institutions.

The aim of the article is to explore the role of higher education institutions in promoting social responsibility and examine international perspectives, particularly in the context of crisis and armed conflict, to derive lessons and insights for Ukraine.

Presentation of the main material.

Bosnia and Herzegovina: In the aftermath of the Bosnian War (1992–1995), higher education institutions in Bosnia and Herzegovina played a vital role in post-conflict reconstruction and promoting social cohesion. For instance, the University of Sarajevo established the Center for Interdisciplinary Postgraduate Studies, which focused on peacebuilding, human rights, and democracy. This center facilitated research, training, and collaboration among scholars, practitioners, and students to address the underlying causes of the conflict and promote reconciliation. Additionally, universities organized joint programs and initiatives that brought together students from different ethnic backgrounds to foster understanding, tolerance, and dialogue, contributing to the healing process and long-term peacebuilding efforts in the country.

Colombia: Higher education institutions in Colombia responded to the protracted armed conflict with various initiatives promoting peace, reconciliation, and social inclusion. For example, the Universidad Nacional de Colombia established the Center for the Study of Law, Justice, and Society (Dejusticia), which focuses on research, policy advocacy, and litigation to address human rights issues and promote social justice. Universities across the country also implemented educational programs that emphasized human rights, conflict resolution, and intercultural understanding. Moreover, universities created spaces for dialogue between former combatants, victims, and affected communities, fostering a culture of peace, empathy, and reconciliation. These efforts aimed to contribute to the peace process, facilitate social healing, and build a more inclusive and equitable society.

Rwanda: Following the devastating 1994 genocide, higher education institutions in Rwanda played a crucial role in post-genocide recovery and reconciliation. For instance, the National University of Rwanda initiated programs focused on trauma healing and psychological support for survivors. These programs aimed to address the psychological scars of the genocide and promote healing and reconciliation within communities. Universities also integrated peace education and conflict resolution courses into their curricula, emphasizing the importance of dialogue, forgiveness, and non-violence. By educating the next generation on the history of the genocide and promoting values of peace and tolerance, universities contributed to preventing future conflicts and building a more harmonious society.

South Africa: During the apartheid era, higher education institutions in South Africa played a significant role in the struggle against racial discrimination and

social injustice. Universities served as centers of resistance and critical discourse, providing spaces for students, academics, and activists to challenge the apartheid regime. For example, the University of Cape Town's Students' Representative Council organized protests and boycotts to advocate for equality and academic freedom. Moreover, universities actively promoted access to education for previously disadvantaged communities, leading to the establishment of historically disadvantaged institutions that aimed to rectify the educational imbalances of the apartheid era. Through these efforts, higher education institutions contributed to the broader social transformation in South Africa and the dismantling of apartheid.

These examples highlight the specific initiatives and contributions of higher education institutions in Bosnia and Herzegovina, Colombia, Rwanda, and South Africa in responding to conflicts, crises, or military actions. By engaging in research, education, dialogue, and social initiatives, these institutions played instrumental roles in promoting peace, reconciliation, social justice, and societal development in their respective contexts.

Lessons that Ukrainian higher education institutions can learn from these examples include:

Emphasizing interdisciplinary studies and research: Ukrainian universities can establish specialized centers or programs that focus on peacebuilding, reconciliation, and social cohesion. By promoting interdisciplinary collaboration among scholars and practitioners, universities can contribute to addressing the root causes of conflicts and fostering societal healing.

Promoting diversity and inclusivity: Following the examples of universities in Bosnia and Herzegovina, Colombia, Rwanda, and South Africa, Ukrainian institutions can develop programs that encourage diversity and inclusion. This can involve initiatives that bring together students from different ethnic backgrounds, fostering dialogue, understanding, and tolerance.

Integrating peace education into the curriculum: Universities in Ukraine can incorporate peace education, conflict resolution, and human rights courses into their curricula. By providing students with the knowledge and skills to address conflicts peacefully, universities can contribute to a culture of peace and social responsibility.

Creating spaces for dialogue and reconciliation: Ukrainian higher education institutions can establish platforms and initiatives that promote dialogue between different groups, including victims, former combatants, and affected communities. By facilitating open and respectful discussions, universities can contribute to reconciliation efforts and the healing of societal divisions.

Supporting marginalized communities: Following the example of South Africa, Ukrainian universities can prioritize access to education for marginalized communities, ensuring equal opportunities for all. By addressing historical imbalances and promoting inclusivity, universities can play a role in reducing social inequalities and fostering a more equitable society.

Engaging in research and policy advocacy: Ukrainian universities can actively engage in research and policy advocacy on issues related to social responsibility, peacebuilding, and conflict resolution. By producing evidence-based knowledge and advocating for policies that promote peace, universities can have a broader impact on society.

By considering these lessons, Ukrainian higher education institutions can contribute to the promotion of social responsibility, peacebuilding, and reconciliation within the country.

Conclusions and suggestions for further research.

Conclusion: The social responsibility of higher education institutions is a pertinent and significant topic, particularly in situations of conflicts, crises, and military actions. International experiences demonstrate that higher education institutions can effectively utilize their resources and capabilities to contribute to peaceful conflict resolution, support affected communities, and contribute to social reconstruction.

Interdisciplinary research, participation in educational programs worldwide, and the application of social responsibility practices help higher education institutions achieve these goals effectively.

Directions for further research: Investigating the impact of higher education institution's social responsibility programs on peace processes, post-conflict reconstruction, and social development. Analyzing the effectiveness of social responsibility practices within specific conflict and crisis contexts to identify successful strategies and mechanisms of action. Developing models and tools for evaluating and measuring the influence of higher education institutions' social responsibility on society and peace processes. Examining the role of higher education in sustainable development and its interconnectedness with social responsibility.

Studying the experiences of other countries in the field of higher education's social responsibility to adapt and apply a national model within the context of Ukraine.

Further research in these directions will provide a deeper understanding of the role and contribution of higher education in society, peace processes, and development amidst conflicts and crises.

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VECTOR FORMATION OF THE STRATEGY OF INNOVATIVE DEVELOPMENT OF AGRARIAN ENTERPRISES IN THE CONDITIONS OF EUROPEAN INTEGRATION OF UKRAINE

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Introduction. The main problem of domestic agrarian enterprises lies in the misunderstanding or unwillingness to understand the mandatory compatibility of the general business strategy with the innovative strategy of further development. It should be remembered that strategy is a commitment to a set of coherent, complementary policies or behaviors aimed at achieving a specific competitive goal. Companies regularly devote considerable attention to defining their overall business strategy (scope and positioning) and analyzing how various functions such as marketing, operations management, finance, research and development will support it. However, firms rarely formulate strategies to align their innovation efforts with their business strategies.

Without a real innovation strategy adapted to the potential (production, personnel, resource, financial, other potentials of the firm), efforts to improve innovation can easily turn into a list of widely publicized best practices: dividing research and development into decentralized autonomous teams, creating internal entrepreneurial structures, formation of corporate units of venture capital, introduction of open innovations and crowdsourcing, etc.

A company without an innovation strategy will not be able to make adequate compromise decisions and pay attention to all elements of the innovation system. Copying and implementing someone else's innovative system is not a way out of the situation. There is no one system that works equally well for all companies or works in all circumstances.

The hypothesis of the scientific research consists in substantiating methodological recommendations

regarding the vector directions of innovative development of agrarian enterprises in modern conditions of European integration.

The purpose of the study is to substantiate the peculiarities of the formation of vector directions of innovative development of agrarian enterprises.

The methodology of scientific research is general scientific research methods: comparison, expert analysis, grouping method, systematic approach (regarding the study of approaches and evaluation of the effectiveness of strategic management of an agricultural enterprise); methods of SWOT analysis and construction of matrices (to assess factors affecting the external and internal environment of the company), methods of financial and economic indicators (to assess the effectiveness of strategic management and direct activity of the enterprise under study), method of system analysis, method of logical analysis, economic and statistical methods (to justify the results of the study of the functioning of the agricultural enterprise).

Conclusions and prospects for further research.

The theoretical and methodological provisions for managing the innovative development of an agrarian enterprise were formed, taking into account the specifics of innovations in the agrarian sector, understanding the company's opportunities for development and assessing the current state of the application of innovations in the company's activities, as well as an analysis of the general state of the scientific and innovative capacity of the economy and agriculture of Ukraine in particular.

Keywords: agrarian enterprises; European integration; innovative development; innovative strategies; development of agrarian enterprises.

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ФОРМУВАННЯ ВЕКТОРА СТРАТЕГІЇ ІННОВАЦІЙНОГО РОЗВИТКУ АГРАРНИХ ПІДПРИЄМСТВ В УМОВАХ ЄВРОПЕЙСЬКОЇ ІНТЕГРАЦІЇ УКРАЇНИ

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Вступ. Основна проблематика вітчизняних аграрних підприємств полягає у нерозумінні або небажанні розуміти обов'язкову взаємоузгодженість загальної бізнес-стратегії із інноваційною стратегією подальшого розвитку. Слід пам'ятати, що стратегія – це зобов'язання щодо набору узгоджених, взаємодоповнювальних політик або поведінки, спрямованих на досягнення конкретної конкурентної мети. Компанії регулярно приділяють значну увагу визначенню власної загальної бізнес-стратегії (сфери діяльності та позиціонування) та аналізу того, як різні функції, такі як маркетинг, операційний менеджмент, фінанси, дослідження і розробки, будуть підтримувати її. Проте фірми рідко формують стратегії так, щоб узгодити свої інноваційні зусилля зі своїми бізнес-стратегіями.

Без реальної інноваційної стратегії, адаптованої до потенціалу (виробничого, кадрового, ресурсного, фінансового, інших потенціалів фірми), зусилля з удосконалення інновацій можуть легко перетворитися на список широко розрекламованих найкращих практик: поділ науково-дослідних робіт на децентралізовані автономні команди, створення внутрішніх підприємницьких структур, формування корпоративних підрозділів венчурного капіталу, впровадження відкритих інновацій і краудсорсингу та ін.

Компанія без інноваційної стратегії не зможе приймати адекватні компромісні рішення та звертати увагу на всі елементи інноваційної системи. Копіювати та втілювати чужу інноваційну систему не є виходом із ситуації. Немає жодної системи, яка однаково добре підходить для всіх компаній або працює за будь-яких обставин.

Гіпотеза наукового дослідження полягає у обґрунтуванні методичних рекомендацій щодо векторних напрямів інноваційного розвитку аграрних підприємств в сучасних умовах євроінтеграції.

Метою дослідження є обґрунтування особливостей формування векторних напрямів інноваційного розвитку аграрних підприємств.

Методологією наукового дослідження є загальнонаукові методи дослідження: порівняння, експертного аналізу, метод групування, системний підхід (щодо вивчення підходів та оцінки ефективності стратегічного управління сільськогосподарським підприємством); методи SWOT-аналізу та побудови матриць (для оцінки чинників впливу зовнішнього і внутрішнього середовища компанії), методи фінансово-економічних показників (для оцінки ефективності стратегічного управління та безпосередньої діяльності досліджуваного підприємства), метод системного аналізу, метод логічного аналізу, економіко-статистичні методи (для обґрунтування результатів дослідження функціонування аграрного підприємства).

Висновки та перспективи подальших досліджень. Сформовано теоретико-методологічні положення управління інноваційним розвитком аграрного підприємства з врахуванням специфіки інновацій в аграрному секторі, розуміння можливостей компанії щодо розвитку та оцінки поточного стану застосування інновацій у діяльності компанії, а також аналіз загального стану науково-інноваційної спроможності економіки та сільського господарства України зокрема.

Ключові слова: аграрні підприємства; євроінтеграція; інноваційний розвиток; інноваційні стратегії; розвиток аграрних підприємств.

Problem statement. Despite significant investments of time and money in trying to adopt the latest technologies, innovation often remains a frustrating endeavor for many companies. Innovation initiatives often fail, and successful innovators find it difficult to sustain their effectiveness due to a lack or inability to maintain a decent level of innovation capacity. And the reason for this is not always banal: poor performance of assigned tasks. The problem with efforts to introduce or improve innovations is the lack of an innovation strategy (creately.com, 2022).

Analysis of recent research on the problem Dynamics of ratings of Ukraine according to the Global Innovation Index (GII), Bloomberg Innovation Index (BII), Global Talent Competitiveness Index (GTCI), European Innovation Scoreboard (EIS)), which show the ability to innovate for 2014–2020, is disappointing and is characterized by the lack of an active policy and significant breakthroughs in the support of innovative activities by both the state and business in general. Currently, labor capital, the indicator of higher education, knowledge and the results of scientific research are the backbone of domestic innovative competitiveness. However, a weak state institutional environment, unfavorable conditions for conducting innovative activities, a complex and burdensome financial and tax system restrain the disclosure of entrepreneurial opportunities, create obstacles for the commercialization of innovations and their impact on GDP growth. Over the past 10 years, Ukraine has remained in the group of countries with below-average income (according to the World Bank grouping of countries) (Pysarenko, et al., 2021).

A negative impact on the reduction in the efficiency of innovative activity was caused by a decrease in costs for development and research, and as a result of this deterioration of the attractiveness of the research system for young scientists, a low level of concentration of researchers, a weak state of development of the innovation infrastructure, a lack of effective ways of state financial support for innovators, problems with the protection of rights on intellectual property, hence low patenting activity, low ability to export goods with high added value and other factors.

According to the Global Innovation Index 2020, Ukraine ranks 45th out of 131 economies in the world in terms of their innovation performance (80 indicators in 7 areas). Such countries as Switzerland, Sweden and the USA topped the ranking of innovative countries. According to the Bloomberg Innovation Index of 2020, Ukraine fell by 10 positions and took 56th place among the 60 analyzed countries. In this rating, the winners were Germany, South Korea and Singapore (www.bloomberg.com, 2020).

There are noticeable problems with the technology of the economy of Ukraine. The technological capability of the economy is understood as the ability to produce products with high added value and further export them as a

result of the use of new technologies, product, marketing, and organizational innovations. If structural changes are successful, then there is a transition from low-tech, labor-intensive types of activities to high-tech ones, which is accompanied by an increase in personnel qualifications. Therefore, it is precisely the high indicator of the specific weight of the medium- and high-tech product in the added value that shows the intensity of the economy's technology with a high level of labor productivity, innovation, and scientific and technical progress.

Unfortunately, Ukraine still remains at the level of medium-low technology activities of enterprises (mainly the domestic economy exports raw materials and goods of a low degree of processing, including agricultural products). The high-tech sector of Ukraine is currently represented by only one Ministry of Foreign Affairs – "Scientific research and development" (Pysarenko, et al., 2021).

The purpose of the study there is a study of the formation of a strategy for the innovative development of agricultural enterprises in the conditions of the European integration of Ukraine on the example of AGROINVEST-UA LLC.

Presentation of the main material Formation of strategic directions of innovative development of AGROINVEST-UA LLC is preceded by:

- taking into account the specifics of innovations in the agricultural sector;
- understanding of the company's opportunities for development and assessment of the current state of application of innovations in the company's activities;
- analysis of the general state of the scientific and innovative capacity of the economy and agriculture of Ukraine in particular.

Finally, only taking these aspects into account, it is possible to proceed to the formation of the very directions of the innovative development strategy for the enterprise under study.

Thus, the peculiarities of innovations in agriculture are determined by its specificity. First of all, this is explained by the involvement of natural resources in the production process, the need for vectorial direction of innovative activity to support and preserve environmental safety, rational use of natural potential. Also, the innovative process in the agricultural sector is differentiated into economic, organizational, technological, technical, etc., which in one way or another are most often united by a single element - the creation of new, higher-yielding varieties of agricultural crops or biological species. Secondly, based on the fact that agricultural products are the backbone of food security and an element that significantly influences human life expectancy and health, innovative activity in agriculture should ensure the priority of improving the quality and safety of such products by maximally preserving their natural properties (Hanushchak-Iefimenko and Humenna, 2015).

Regarding the possibilities and readiness of AGROINVEST-UA LLC to implement innovative activities and the innovations themselves, there are every reason for this. This is evidenced by the company's financial and economic condition, leading positions on the agricultural production market, and already existing positive examples of the application of innovative technologies.

Thus, the analyzed enterprise is one of the leaders in precision agriculture in Ukraine, which significantly increases the profitability of production. Thanks to the use of satellite images of the field according to the vegetation index of the biomass, homogeneous areas in terms of biomass are quickly and accurately determined, the doses of mineral fertilizers are adjusted in order to reduce the costs of agrochemicals and the burden on the environment. This innovative technology provides:

- accurate selection of zones by biomass, conducting soil and plant nutrition diagnostics and establishing precise doses of nitrogen fertilizers for feeding agricultural crops and carrying out differentiated fertilizer application;
- scientifically based and ecologically safe distribution of nitrogen in the field and increasing the efficiency of fertilizer application up to 25%;
- reduction to a minimum of non-productive losses of nitrogen as a result of leaching into surface water and leaching into groundwater and into the air as a result of denitrification processes.

In addition, equipment is constantly monitored remotely during field work and crop transportation, and special software has been introduced to optimize logistics.

Despite COVID-19 and the war, it was possible to maintain and even slightly increase the amount of spending on research, innovation and development, which in 2021 amounted to UAH 32,140.5 thousand (101.73% compared to the base year of 2020).

As you can see, this company spends a lot of money on innovative activities. The cost structure indicates the general product focus of investments on innovative soil fertility improvements and yield increases, as well as maximum monitoring of fields (in 2021, the share of expenditures for video monitoring of fields with the use of drones increased significantly – the share increased by 10.36% in the total specific weight innovative costs or 3.7 times). That is, most of the innovations relate to the technologies of the company's production activities. Regarding innovative changes in the conduct of internal business processes and the company's management system, no changes have been observed so far (expenses are not foreseen during the analyzed period).

So, it can be concluded that, in general, AGROINVEST-UA LLC has a favorable innovative microclimate and is engaged in innovative activities. Understanding the current state of the scientific and innovative capacity of the domestic economy is important for the formation of the directions of the

innovative strategy of the analyzed enterprise. It is very difficult to be ahead of competitors and try to create new ideas for products or technologies when the level of development of science and technology in the territory of economic activity is extremely low. And unfortunately, compared to other countries, Ukraine occupies an unsatisfactory position.

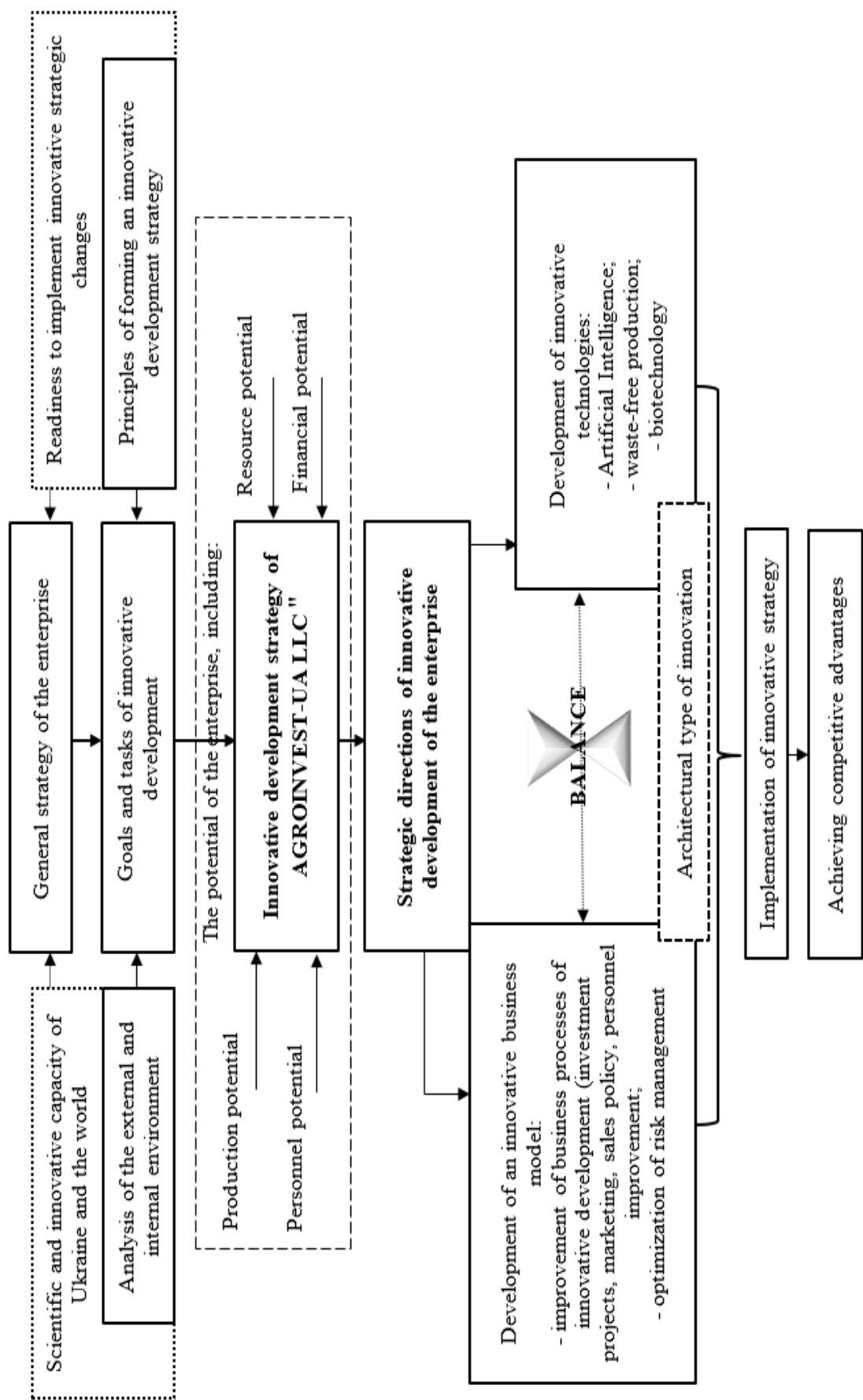
Therefore, when making a decision on the choice of optimal directions for the formation of an innovative development strategy, a contradiction arises: on the one hand, an enterprise without state support is ready to continue implementing innovation policy, on the other hand, the low level of scientific and innovative state of the domestic economy will inhibit this process.

In order to reduce the influence of negative factors of the external environment, AGROINVEST-UA LLC should approach the strategic management of the company more thoughtfully and, in particular, the formation of a clear, adequate to real conditions innovative development strategy. Therefore, the proposed conceptual principles of the formation of the innovative development strategy of AGROINVEST-UA LLC are shown in Fig. 1.

The development of an innovative strategy is preceded by the generation and clear understanding of the general strategy of enterprise management. Next, the external and internal environment of the organization and the real readiness of the company for innovative implementations are analyzed. At the same time, the principles of forming an innovative development strategy are taken into account, including: systematicity, complexity, dynamism, adaptability, flexibility of response, purposefulness, information support, orientation to the innovative path of development (Palmer and Kaplan, 2017).

The development of an innovative strategy must begin with an understanding of the primary reason for its development or the goals that the company wants to achieve through its implementation. Taking into account the specifics of AGROINVEST-UA LLC's activities, these may be the following goals:

- increasing the level of labor productivity by adjusting working conditions and improving business processes of personnel policy;
- rationalization of the structure of cultivated areas (in the next three years, the company will focus its activities on the cultivation of corn and sunflower (including high-oleic crops), as the most popular and profitable);
- achievement of record high productivity indicators, and above all of sunflower;
- preservation of leading positions on the market;
- obtaining the most stable profit in the short- and long-term periods;
- creating a positive image and increasing business reputation in the regions of presence;
- support for environmental sustainability and environmental initiatives.



Source: author's development.

Fig. 1. Conceptual principles of the formation of the innovative development strategy of "AGROINVEST-UA" LLC

The main problem of domestic agrarian enterprises lies in the misunderstanding or unwillingness to understand the mandatory compatibility of the general business strategy with the innovative strategy of further development.

Of course, there is nothing wrong with learning from others, but it is a mistake to believe that what works for, say, MHP (a large Ukrainian agricultural holding) will work just as well for AGROINVEST-UA LLC. Precisely a clear innovation strategy helps to develop such a unique system in accordance with the specific competitive needs of the company.

Without an innovation strategy, different parts of the organization can easily pursue conflicting priorities, even if there is a clear business strategy (Hanushchak-Iefimenko and Humenna, 2015).

Analysis of the direction of investments in innovative activity showed that AGROINVEST-UA LLC mainly invests in the development of innovative technologies, neglecting the innovative business model. This led to a loss of normal financial stability in the analyzed period, which is currently improving, but has not yet reached the recommended level.

Therefore, when developing strategic directions of innovative of the company under study, two should be highlighted:

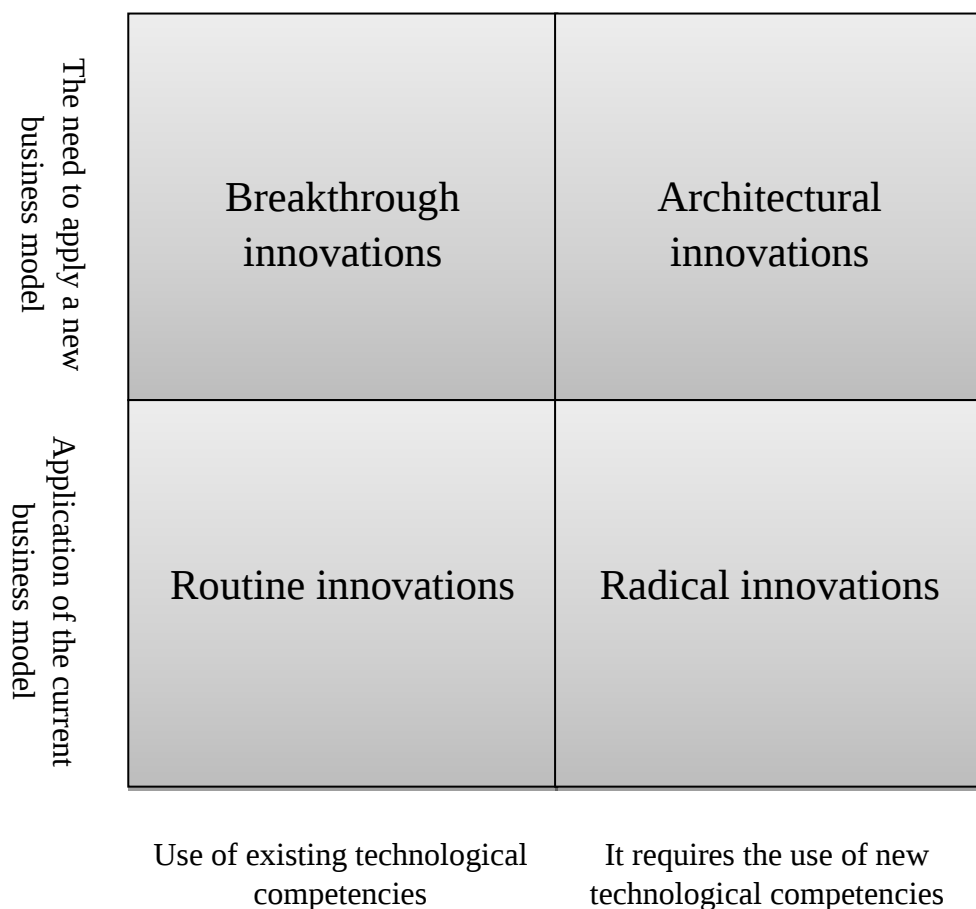
- on the one hand, this is the improvement of internal business processes and, ultimately, the development of an innovative business model;

- on the other hand, it is the definition and implementation of information technology solutions (which are currently actively produced by the company) in the direction of artificial intelligence, the Internet of Things, biotechnologies of growing the best varieties and creating hybrids of these varieties of plants, the use of UAVs in economic activities, etc.).

And if everything is fine with the second direction, then more attention should be paid to the first, otherwise the company may find itself in a situation where it has technologies, but competitors also have them, but it may happen that the competitor's management of strategic business processes turns out to be more perfect and therefore, the analyzed company's competitive advantages will be lost. Therefore, the balance in the development of the two directions in the extreme case for the long-term perspective is obvious.

Of course, technological innovation creates enormous economic value and drives competitive advantage. But some important innovations may have little to do with new technologies. Over the past few decades, there are a number of agricultural companies (eg, Cargill, Archer-Daniels-Midland Company, Bayer) that have mastered the art of business model innovation. Thus, when thinking about innovation opportunities, AGROINVEST-UA LLC has a choice about how much of its efforts to focus on technological innovation.

Another important point in forming the vectors of innovative development of AGROINVEST-UA LLC is understanding which types of innovations to give priority to. A convenient way to visualize for further selection of the desired type of innovation is the "Innovation Landscape Map". A map proposed by Harvard Business School professor Harry Pisano that characterizes innovation along two dimensions: the extent to which it involves changes in technology and the extent to which it involves a change in the business model. Although each dimension exists on a continuum, together they offer four quadrants or categories of innovation (Figure 2).



Source: built by the author on the basis of (Palmer and Kaplan, 2017; Pisano, 2015).

Fig. 2. Innovation landscape map for AGROINVEST-UA LLC

Everyday or routine innovations are based on the company's existing technological capabilities and fit with its existing business model and therefore its customer base. An example is the use of GIS systems on cultivated fields by the researched company, the practice of deep fertilization.

Disruptive innovation requires a new business model, but not necessarily a technological breakthrough. For this reason, such innovations are able to

challenge or destroy the business models of competitors. For example, improving the business process of growing corn and sunflowers due to the NO-Till method (tillage technology), which involves farming where there is no soil cultivation at all, and plant residues (wheat, corn, barley stalks) are left chopped on it.

Radical innovation is the polar opposite of breakthrough innovation. The problem here is purely technological. An example of this is the emergence of genetic engineering and biotechnology back in the 1970s and 1980s as an approach to drug discovery. And now biotechnologies perfectly fit into the business model of improving the quality of food products, finding new hybrids of crop varieties, etc. These innovations involve a complete redesign of the company's business model (reengineering of business processes) and the technologies used by it.

Architectural innovation combines technological and business models. An example of the application of this type of innovation is the creation and entry of "AGROINVEST-UA" LLC into the "DigitalAgriBusiness" project (intelligent management system and process optimization technology), which was developed by the Kernel agricultural holding. These are the most difficult to implement, but the most interesting from the point of view of the long-term profitability of the innovation. Therefore, in the system of building innovative directions of development of the enterprise under study, we advise you to use them.

Research Findings and Prospects. Therefore, for "AGROINVEST-UA" LLC, based on its real potential and readiness to implement innovations, as well as taking into account the situation of the Ukrainian agricultural market, it is appropriate to use the following directions of forming an innovative development strategy as an optimal combination (balance) of an innovative business model aimed at on the improvement of business processes of innovative development, first of all, and innovative technological developments and competencies.

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