МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
ЗАПОРІЗЬКИЙ НАЦІОНАЛЬНИЙ УНІВЕРСИТЕТ

ФІНАНСОВІ СТРАТЕГІЇ ІННОВАЦІЙНОГО РОЗВИТКУ ЕКОНОМІКИ

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Економіко-математичне моделювання та інформаційні технології в економіці
Ринкові механізми обліку, аналізу та аудиту в національній економіці
Теоретико-прикладні аспекти економічних процесів в Україні та світі
Фінанси і грошовий обіг
Економіка праці, управління персоналом та маркетинг
Управління проєктами та фінансово-економічна безпека в умовах глобалізації

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ISSN Print 2786-5150
ISSN Online 2786-5169

CONTENTS

ECONOMICS AND BUSINESS MANAGEMENT

ECONOMIC AND MATHEMATICAL MODELING AND INFORMATION TECHNOLOGIES IN ECONOMICS

NATIONAL ECONOMY'S MARKET MECHANISMS OF ACCOUNTING, ANALYSIS AND AUDIT

THEORETICAL AND APPLIED ASPECTS OF ECONOMIC PROCESSES IN UKRAINE AND IN THE WORLD ECONOMY

FINANCE AND MONEY TURNOVER

ISSN Print 2786-5150
ISSN Online 2786-5169

LABOUR ECONOMICS, PERSONNEL MANAGEMENT AND MARKETING

PROJECT MANAGEMENT AND FINANCIAL AND ECONOMIC SECURITY IN THE CONDITIONS OF GLOBALIZATION

ISSN Print 2786-5150
ISSN Online 2786-5169

ЗМІСТ

ISSN Print 2786-5150
ISSN Online 2786-5169

ЕКОНОМІКА ПРАЦІ, УПРАВЛІННЯ ПЕРСОНАЛОМ ТА МАРКЕТИНГ

УПРАВЛІННЯ ПРОЄКТАМИ ТА ФІНАНСОВО-ЕКОНОМІЧНА БЕЗПЕКА В УМОВАХ ГЛОБАЛІЗАЦІЇ

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ECONOMICS AND BUSINESS MANAGEMENT

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ON EDUCATIONAL AND SCIENTIFIC PROBLEMS OF UNIVERSITIES: HUMANISM, MORALITY, ARTIFICIAL INTELLIGENCE AND POSSIBLE CONSEQUENCES OF IGNORING THEM

Andrushkiv B., Cherep A., Kyrych N., Grushko V., Pohaidak O., Yakymuk P.
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ПРО ОСВІТНІ ТА НАУКОВІ ПРОБЛЕМИ УНІВЕРСИТЕТІВ: ГУМАНІЗМ, МОРАЛЬ, ШТУЧНИЙ ІНТЕЛЕКТ ТА МОЖЛИВІ НАСЛІДКИ ЇХ ІГНОРУВАННЯ

Андрушків Б., Череп А., Кирич Н., Грушко В., Погайдак О., Якимук П.
Тернопільський національний технічний університет імені Івана Пулюя

(Scientific and journalistic essay on the search, in wartime, for means to increase the efficiency of using the existing scientific and human resources of universities by improving management).

From contempt for one's own kind, from...hypocrisy innated in behavior, arrogance, overestimation of one's capabilities and knowledge begin. From your achievements that are used for violence, we set foot on the threshold of self-destruction and oblivion.
(Bohdan Andrushkiv)

Relevance of the problem. Today, regional science, due to the circumstances and the opportunities available, implements the main areas of its activities under conditions of war and looks hopefully forward to the nearest post-war, European perspective. Currently, an educational reform is underway, which is not always understandable not only to ordinary citizens, but also to scientists themselves. Meanwhile, all management efforts are aimed at achieving positive results in the development of such an important for our state social and humanitarian sphere. All scientists, and especially specialists with extensive life and professional experience, should participate in the state plan implementation.

Currently, among the most important frontal educational and scientific trends for the application of scientific potential the following are identified:

– increasing the efficiency of the use of scientific personnel in reconstruction and educational processes;

– systematic scientific assistance to the effective use of available labor, energy and natural resources in the context of solving the multifaceted environmental problems caused by the war, etc.;

– search for the latest (innovative and technological) military and defense means with an expansion of the range of using non-traditional energy sources;

– activation of the use of the experience of scientific schools, and in particular universities etc., in these processes (in the fields of education and science).

Actually, public expertise of the usefulness and effectiveness of these areas has confirmed their relevance and timeliness, and necessitates the development of appropriate organizational and economic mechanisms for their introduction. One of the most important tools for their implementation at the local level, in many cases, is the organization of the effective functioning of scientific schools, which have been established in almost all universities of Ukraine and which, as it is known, are of a cross-sectional nature. They can be used to increase the effectiveness of involving the existing scientific and personnel potential in educational processes by directly transferring the experience of veterans, higher-education teaching personnel to students and young scientists.

Analysis of the literature on the topic of the study. Quite a number scientific works is devoted to the topic of transferring teaching experience, especially in the educational and scientific sphere. V. V. Kaplinskyi, N. I. Lazarenko, in their article: "Scientific Laboratory of Pedagogical Skills of a Teacher of a Higher Educational Institution as a School for the Formation of Professional Competence" / V. V. Kaplinskyi, N. I. Lazarenko // Scientific proceedings of Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University. Series: Pedagogy and Psychology. – 2016. – No. 48. – pp. 59-64. – Available at: http://nbuv.gov.ua/UJRN/Nzvdpu_pp_2016_48_14, [8], reveal the content and peculiarities of the arrangement of the work of the educational institution teaching staff, share the experience of finding ways to improve professional activity, etc.

Currently, a book on the experience of scientific schools: "Regional, Interregional Aspects of Supporting

Socio-Economic Reform, Innovative Contexts of Entrepreneurship development" has been published by the publishing house of individual entrepreneur Palanytsia V. A., authored by Vice-rector of I. Puluii Ternopil National Technical University, Roman Sherstiuk, (general editorship: Doctor of Economics, Prof. Kyrych N. B.,), ("Bohdan Andrushkiv's Scientific School: Phenomenon, Milestones, Achievements, Philosophy" (2023, 310 pp.) [9].

The publishing house of individual entrepreneur Osadets Yu.V. also published a similar book on the scientific school: "Effectiveness of Economic Entities, Regions and the State Activities" (editor: Doctor of Economics, Prof. Alla Cherep) under the intriguing title: "The Paradigm of a Scientist in the Formation of the Social and Economic Development of Ukraine in the Post-War Period (Literary and Psychological Essay on the Life and Creative Work of the Honored Scientist and Engineer of Ukraine A. V. Cherep: Achievements and Losses, Philosophy of Achievements and Effectiveness of Implementations" (2023, 380 pp.). [1], which, meanwhile, ranked the 1st for the best publication in the competition announced by the National Academy of Sciences of the Higher Education of Ukraine.

In the book abstract, it is noted that these informational, scientific and methodological publications are prepared by the experience of the life-sustaining activity of scientific schools, improving the management of economic departments, etc. The books generally reveal the features of the functioning of scientific schools, their formation within the framework of the development of departments under university conditions. The experience of solving problems against the background of "lack of money" is highlighted, and in particular the issues of the improvement of material, technical and educational, and methodological bases of the departments, the complexity of training not only students, and what is more, highly qualified scientific personnel. The organization of scientific and research work, publishing activities and education of the future generation of the state are considered.

Many books, scientific and journalistic articles by members of scientific schools on this topic [1-9], were published marked by the classification code of the NAS of Ukraine. Peculiarly, they include the identification of parallels between the activities of scientific schools and sub-structural scientific public associations. The studies focused on the need to address this issue.

Meanwhile, the range of problems of using and transferring of life and professional experience to young scientists by so-called "old professors" under the conditions of the university in a systematic manner and using scientific schools for this, were left out of the view of domestic scientists.

Statement of the Main Provisions of the Article. In fact, under the war conditions, spontaneous decisions negatively manifest themselves in the management of regional universities due to the chaos and uncertainty of social processes. Reform processes that are not always justified are ongoing: reductions and mergers of educational institutions. By the way, similar incomprehensible processes take place in other sectors of the national economy. Such circumstances appeal to scientists concerned to search for ways out of the situation. In fact, many of them are reasonable and for the benefit of the field of education and science. Actually, in order to prepare conclusions based on the analysis of the proposed ways dedicated to this topic, we want to summarize and reveal them for the reader of this article.

Literary digression from B. Andrushkiv*. Recently, I accidentally met a colleague who retired from science at the respectable age of 82. Such cases happen in science. He looks a little better than me, although I am several years younger. I remember that at our informal meetings he marvelously recited poems, which were always appropriate to the topic, he is witty, sings beautifully, drives a car, etc., to cut a long story short, he is a person of keen intellect.*

He explained the true reasons for his conduct. He noticed that recently his colleagues have begun to less frequently greet him, they somehow do not notice him, as if they are passing through an empty place. Previously, they smiled from afar. It seemed that there were no more loyal friends. He wanted to communicate with them. It seemed that they were womb to tomb friends, but it turns out that they were not, He was not interesting to them any longer. At the department, they gossiped in the corridors, "You see, he does not want to deal with information computer processing." It's good that our morality is like this – it doesn't allow us to put everything where it belongs. By the way, those who do this are still insincerely honored with a smile. They remember that a knife, even if it's rusty and old, can still hurt, even fatally. When a person is "soft", you can trample him or her. Nowadays, in Ukraine, the words "What a burnt-out man!" have become fashionable. I made the decision to retire and I retired! No one really held me back.

Of course, it's a pity to hear such words addressed to a young scientist who spoke like this to his senior colleague and vice versa.

You can agree with such conclusions, or you can oppose them and even protest them. By the way, precedently, people with such a status and track record as him should have had a decent salary and could have (even at their own expense) a secretary who knows computer technology and not only prepares reports, but also writes down interesting ideas and projects. The long and the short of it, in such cooperation talented scientific works are prepared, excellent scientific personnel are "forged"...

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We began to notice all these and other things after the dismissal of old professors here and there one by one. It is clear that there is no academic workload... it is clear that there is the war, but it is not clear where young "green" teachers will get production, scientific, educational and professional experience if they drive out old professors from the educational processes, because as you know, everything is built on it, on experience, everything is based on practice. What will happen if we interrupt this chain of life-giving connections for science and education. Now it is urgent to form the latest educational programs taking into account the transfer of experience of veterans of science and education not only to students, but also to young teachers, not many of them have only entrepreneurial experience. Of course, we are not talking about those who are not healthy, etc. ***Perhaps, in this situation, it would be worth developing relevant regulations, officially recommending the formation of special public organizations in universities that would function under the motto along the lines of: "We will transfer the experience of science veterans to young scientists, for the sake of the European future of Ukraine". It is possible to organize an "Intellectual Center for Transferring Knowledge and Experience of Science Veterans to the Young Generation under University Environment in the Post-War Period",*** which would include the most experienced scientific specialists to organize discussions on production issues, etc. At present, TNTU and ZNU have already gained some experience in this area as a result of cooperation with the ASU, NAS of Higher Education of Ukraine, MADKU, Scientific Technical School, etc.

If we lose it (this experience), then, as it follows from the proverbial wisdom, "It does not worth a plugged nickel." The Academy of Social Management non-governmental association studied public opinion on this topic:

Results of veterans of science sociological survey on working conditions: …*I want to call, to consult on how to present in a best way another scientific and journalistic study that I am preparing for publication. It turns out that there is no one to talk to. Some have gone to a better world, leaving all the worries of life to their descendants. Others survived in an excellent environment and cannot do it, or rather do not really want to evaluate certain processes that they have experienced. And still others, young people, those who float in ephemeral, computer-Internet clouds and what we have experienced does not seem worth their attention.*

Well, today times change…, but the old problems remain from ancient times and if you do not consider the blunders of the past, you will not have a successful future.

Results of a veterans of science sociological survey on the attitude to the awards of a scientific veteran*. All the numerous certificates of merit, letters of acknowledgment, order cards, certificates of distinctions, medals, "jackets" of diplomas certifying the belonging to certain scientific public organizations and associations, at my venerable age could be thrown into the trash as unnecessary….. Young people do not appreciate this "junk jewelry" but this is the history of my life, the life of my department, my university, which I and my colleagues, peers, created. First of all, a young scientist should see behind them the efforts of a person who strives to realize his opportunities during his life, to enhance a career, receive recognition, and prosperity in a righteous way. We experienced anguishes and emotional upheavals when achieving higher purposes and solving small tasks and problems behind each of "slip of paper", "medal". Joy from achieving a goal, suffering from failures and disappointments.*

There is triumph and sorrow of victories and failures behind them. To cut a long story short, there is hard work behind them, which is difficult to understand, and maybe some of the young people will not understand it without certain explanations, because I did good to people even to those who did not deserve it and when it was possible not to do it.

It is probably not possible for a scientific veteran to admit this, open his heart in front of the general public today. He addresses the scientific youth, "Come when you are having a hard time, or maybe just in a free moment, sit down nearby, distance yourself from worries and rueful feelings, and think. How would he solve your problems. Meanwhile, for him, life was also rich, full of events... experiences, he was more than once in a hopeless situation, but there is always a way out...and he found it. Use his experience....

Whatever he did, he tried to make his work for the benefit of his family, his native land. His homeland.

Reminiscences by Prof. B. Anrushkiv*. I recall that my former academic advisers were of venerable age. I kept in touch with them until their deaths (this is what my parents taught me). At the end of their lives, they bequeathed to me to complete and publish their scientific developments… I tried to fulfill their wills. The question was not about money or priority… Publishing was carried out by decision of the academic council of the university.*

Nowadays, not only our old professors, but also young scientists publish their papers at their own expense, in a small printing run, despite the importance of the subject matter. Meanwhile, we wrote about this to the interested authorities of the Ministry of Education and Science and the media about the need to found a special commission to determine the importance of the subject matter and develop recommendations on the expediency of mass circulation of the book. Veterans of science should be there.

For reference*: Currently, in the capital of Ukraine and the regions, hundreds of publishing houses produce thousands of books in small editions (20-100 copies), which no one analyzes for their usefulness to society. Meanwhile, in the "printing garbage there are golden pearls" that need to be selected and published in mass circulation. Our veterans of science have more than once officially informed of this the media and governmental agencies involved.*

Science is currently experiencing many problems, large and small. Not all of them can be solved now, but cases where no one pays attention to them are rare, even against the background of the aggression, war, and lack of will.

Once, the media and professional publications expressed the attitude of the scientific community to the recommendation to publish in Scopus and Web of Science. The instruction to reflect in reports the number of publications

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in journals included in foreign scientometric databases such as: "Scopus" and "Web of Science", according to the conviction of many Ukrainian scientists is incorrect, as it has all the signs of a commercial project of uncertain origin and has nothing to do with domestic science. What is more, the requirement to publish there, for one's own money, to highlight creative ideas in ... periodicals, which are not domestic, but foreign ones, is absurd, although this also takes place being not very grateful thing to do from a government perspective. Meanwhile, in the opinion of scientists, accounting and reporting on publications in domestic publications, which, for example, are included in top 5 or 10 foreign scientometric databases;

The faked fight against plagiarism brings terrible harm to science, which scares young researchers, slows down research processes, repels and confuses scientific research, and discredits Ukrainian science.

From the speech of a participant in the discussion, *"The most annoying thing is that everyone knows about it, understands it, and no one wants to stop this nonsense, which is surprisingly effectively used by careerists in politics... to discredit their competitors, etc*.

To cut the long story short, we are not looking for rational kernels, and if we do not confuse them as a result of the fight against windmills, then we will trample them irrevocably into the ground.

However, let's return to the topic of our conversation, of life and professional experience, and its use under the conditions of continuous computerization. They say that certain species of monkeys memorize some technological operations very quickly too and successfully manipulate them, not really realizing their place in them.

The smart ones in that environment are making big money on this topic. The most striking example of this is Elon Musk – engineer, entrepreneur, inventor, investor, billionaire. The founder of SpaceX, PayPal, Neuralink and The Boring Company, the chief designer, CEO and chairman of the board of directors of Tesla Inc., which runs the Tesla plant, who, according to the experts, not fully realizing his place in the world (unlike the Greats: Nikola Tesla, our fellow countrymen members of Scientific Technical School Ivan Puliui, Myron-Nikolai Onufriiovich Zarytsky, etc.), in society began to actively manifest his role in politics and public life [Internet resource].

Undoubtedly, Elon Musk in all his actions and processes uses the broad capabilities of artificial intelligence, whose humanism is very far from human morality and ensures the achievement of the goal at any cost. Unwise examples sometimes have their followers. The principle proposed half a thousand years ago "the end justifies the means", is fully implemented by our contemporaries. The former Machiavellianism as Western thought, as a mental trend that separates politics from moral and religion standards has been resurrected and now ignores all religious and moral norms and considers absolutely everything permissible to achieve the goal, without taking into account Christian morality or any other legal rules. The current war is a vivid example of the aforementioned cupidity, present not only in the bloodthirsty aggressor, but also in those world observers who, frankly speaking, are experimenting on Ukraine.

War has many facets of its negative essence. Threats to technogenic and ecological security (in Ukraine, the Kakhovka Sea dam blowing up), a significant level of not only wear and tear, but primarily destruction of critical infrastructure facilities, in particular utilities, life support systems underperformance increase the risk of emergencies of natural and technogenic origin, the spread of epidemics of dangerous infectious diseases, and necessitate the provision, at this stage, of special functions to the educational and scientific content of the state.

Undoubtedly, all of the above threats were realized primarily in the war and are the result of the greatest unfair challenges to Ukrainian society. A significant obstacle to their prevention is the limited capabilities of educators and scientists in these processes, the imperfection of current legislation, regulatory acts that do not make it possible to effectively change the management of this area of our society.

Summing up what has been said, even today experienced scientists and educators need to answer questions about the threats and challenges that will arise... after... the war and involve not only young scientists, but also ordinary people in solving problems.

We must proceed from the fact that the creators of the Ukrainian state were more than 28 million citizens who voted in the referendum on December 1, 1991 to approve the Act of Proclamation of Independence of Ukraine. In this regard, the explanatory and educational function of educational institutions should be strengthened, focusing on humanism, mutual understanding, and mutual tolerance of members of our society.

Meanwhile, veterans of Ukrainian science (this definition is increasingly used in the media) ranked the first in the world to draw attention to the necessity to solve this problem.

In fact, concerned politicians, the scientific community, and managers at various levels after the First and Second World Wars were looking for management tools to prevent aggressive manifestations and violations of International Peace Agreements by individual states. It should be recognized that currently under the management based on democratic principles of coexistence, it is extremely difficult to establish humanistic filters in the process of selecting and appointing managerial personnel to responsible positions. Meanwhile, the solution to the extremely complex issue of our time is obvious. In particular, elementary experience of successful use of human and artificial intelligence, organizational mechanisms in this area, including the "Polygraph" (Stress-Detecting Instrument), has already taken place in various states and branches of science and practice for a relatively long time.

The authors (veterans of science) of the creative initiative of the effective use of human and artificial intelligence in the search for ways to prevent the catalytic advance to the Third World War have been working on the study of this problem since the beginning of Russia's treacherous attack on Ukraine in 2014. Their developments have been published in the media, professional publications, collections of Scientific and Practical Conferences, have been registered with the State Patent Authorities, and are not only a relevant, scientifically sound proposals, but also an urgent

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requirement of the transformational state of Ukraine, the underlying participant in the global conflict that may escalate into the Third World War.

The stormy reaction of the domestic and international community to the Appeal of the scientific community of Ukraine initiated by them, on the use of human and artificial intelligence to improve the management of international institutions, the implementation of their coexistence into practice, could undoubtedly to some extent slow down the extermination of Ukrainians in the independent, legal, state of Ukraine, stop various hypocritical and illogical manipulations that are not perceived not only by conscious state leaders, scientific intellectuals, but also by the average population of our fragile planet.

In particular, at first glance, the accusation of Russia in supporting terrorism on the part of the USA, the European Community is very "tolerant", while it is actually a terrorist state in the true sense of these words, as it hypocritically violated international agreements and uses state armed forces to implement its aggressive goals in the war with Ukraine, under the pretense of "special operation". It finances hostilities out from the state budget, taking advantage of the impunity on behalf of international institutions, unblushingly violates the rules of war, etc.

The following studying of the behavior of leaders through the example of the aggressive state of Russia, etc., testifies to their inadequate behavior. Actually, they sanction depredation, violence, theft, murder, lies, falsification and distortion of the history, kidnapping of children, unreasonable destruction, etc. Meanwhile, the International Court of Justice in The Hague gave arrest warrant for Russian President Putin only for the fact of kidnapping children? You have to be blind not to see the above and other crimes, global destruction, facts of treachery, etc. Unbiased assessments of such actions among the population of Ukraine say that the territory of our state, with the tacit consent of partners (in agreement between world powers), has become a territory for experiments in testing weapons, manpower and the reaction of the long-suffering Ukrainian people to them.

It is commonly known that Russia has a significant contribution to the financial support of the UN activities and significantly manipulates this factor. The situation is similar with the activities of the International Red Cross and other administrative structures.

Effective, independent, impartial and fair functioning of administrative international structures can be ensured by the means proposed by the author's team using human and artificial intelligence.

According to polar testing of their behavior using artificial intelligence, the leaders of such a state should be identified as terrorist criminals and would undoubtedly deserve for their actions not only hiring, but also severe punishment under international agreements, and not dominance in these structures as financial donors.

The testing of the basic provisions of the formation of organizational mechanisms and tests for the use of human and artificial intelligence took place at a number of All-Ukrainian and International scientific and practical conferences, round table meetings, discussion clubs, etc., among them:

– XI All-Ukrainian Scientific and Practical Conference in Memory of Honorary Professor of Ivan Puliui Ternopil National Technical University, Academician of the National Academy of Sciences of Ukraine M. H. Chumachenko: "Science, Innovation, Business: Current Development Trends" (Ternopil, May 26, 2023, FP Palanytsia V. A., 2023, 137 pp.;

– 1st International Scientific Conference: "Mechanisms of Adaptation, Integration and Assimilation of Ukrainians in Conditions of Forced Migration", April 5, 2024, Paris, (France);

– IV International Scientific Conference, "Military Conflicts and Man-Made Disasters: Historical and Psychological Consequences" April 18-19, 2024, Ternopil – Poland;

– 6th Scientific Conference, organized by the State Professional University named after Prof. Edward F. Szczepaniuk in Suwalki (Poland) on the topic: "Assessment of the Current Course of the War in Ukraine and Possible Scenarios of the Perspective Operational Actions for Planning the Implementation of the Main Political and Imperial Institutions of Russia" on May 16-17, 2024.

This topic was discussed at other university and regional events, round tables ("Hot Spot with Mykola Davydiuk"), various discussion clubs under professional periodicals, etc.

Based on the results of scientific research, relevant publications were prepared in the media and in professional periodicals. The general summary states: "Appeal of the Ukrainian scientific community to the world intelligence and all institutions of international influence, including the United Nations Organizations, on organizing the protection of Ukrainians from extermination in Ukraine." The document was forwarded to the President of the Ukrainian Scientific Diaspora in France, the Head of the Organizing Committee and the participants of the 1st International Scientific Conference "Mechanisms of Adaptation, Integration and Assimilation of Ukrainians in Conditions of Forced Migration", to the European and World Diaspora. The appeal was successfully discussed at the meetings of the above-mentioned Domestic Public Associations and received a certain resonance both among the Ukrainian Diaspora and the International Community. However, hidden manifestations of Machiavellianism in this process certainly take place.

For reference: *Machiavellianism is an idea in the field of political philosophy, put forward by the Italian thinker and politician Niccolò Machiavelli, who lived between 1469 and 1527.*

The human intelligence notes that Machiavelli's inhumane and immoral ideas, under the guise of "progressive claims" of any nature whatsoever applied today after five hundred years, are... truly a disgrace to humanity.

Many scientists are frankly afraid of the possibilities of uncontrollable use of artificial intelligence. After all, we do not know what such individuals who are far from humanistic principles, Christian morality, will do for our society. The most unfortunate thing is that here, in the regions, there are their young followers. One fool makes many. How useful the experience of old professors..., veterans of science would be here.

ISSN Print 2786-5150
ISSN Online 2786-5169

From the speech of a participant in the discussion. *I once had a friend, Lord bless his soul, who, although he himself did not have very deep knowledge, liked to test it in others by asking awkward questions. He himself had previously read up literature source and believed that his interlocutor should know the answers to these questions. In this way, he tried to put himself up at the level of his friends.*

Once, instead of answering the next questions, he was told that out of curiosity, perhaps it would not be worth asking Jesus Christ about His knowledge of the rules of using a logarithmic line or a computer and, finally, artificial intelligence? Doubting the Lord's ability is the evidence of intellectual inferiority. We, people, will never understand his plan. It is a great honor to be a grain of sand under his feet, not to mention the role of a cog in his machine… The one who would modestly realize himself as a grain of sand in the implementation of God's purpose, can bring more benefit by his obedience than the authors of nuclear developments, who after their implementation, registration insincerely demonstrated their repentance.

Such conduct, such specific behavior (setting aside individuals), testifies to the limitations of human thinking. The proposed projects of flight to other planets with the purpose of developing its resources, etc. (cannot be condemned), but we can't guarantee them to be rational and, moreover, real. All the more, to look at the distant horizons, not knowing what lies under your feet, not understanding what our rich and generous land, seas and oceans can give us, is not reasonable. (Russia has a large territory, unlimited energy resources, fertile land, and grossly, treacherously encroached on someone else's belongings).

I am tormented by the question of whether it is worth writing about such things, whether it is worth speaking on this topic at SPC meetings and seminars? Probably it worth.

From the speech of a participant in the discussion. *We must talk about the fact that fire can burn. No, there is no need to consult with anyone and hesitate. From contempt for our own kind, from…hypocrisy inherent in behavior, arrogance, overestimation of our capabilities and knowledge begins. In its turn, from your achievements that are used for self-affirmation in a leadership role, domination over our own kind, use of violence, we step on the threshold of self-destruction and oblivion…*

A significant role in these educational processes can, again, be played by scientific schools, which successfully function in almost all universities of Ukraine.

Apropos, this article is also based on the experience of the functioning of scientific school "Regional, Interregional Aspects of Supporting Socio-Economic Reform, Innovative Contexts of Entrepreneurship Development" founded in 2007 by the Honored Scientist and Technology Worker of Ukraine, Vice-President of the National Academy of Sciences of Ukraine, President of the Academy of Social Management (ASM), B. M. Andrushkiv at Ternopil Ivan Puliui National Technical University, and scientific school: "Efficiency of the Activities of Economic Entities, Regions and the State", headed by Vice-President of the National Academy of Sciences of Ukraine, Head of the Department of Finance, Banking and Insurance of Zaporizhzhia National University Cherep A. V.

For reference: *Co-author of the article Andrushkiv B. M., working at TNTU first as a head of the department, and then as a professor at the Department of Management of Innovative Activities and the Service Sector with the participation of members of the scientific school, created the Museum of Management Tools and Economic and Managerial Literature of the Totalitarian Period, a special council for the defense of candidate and doctoral dissertations, the first at that time in Western Ukraine, scientific professional electronic periodical "Social and Economic Problems and the State". She is a member of the editorial board of a number of scientific, artistic and popular science collections and magazines, a member of the editorial boards of TNTU periodical "Socio-Economic Problems and the State" and "Galician Economic Bulletin".*

A. V. Cherep has many years of work as the dean of the Faculty of Economics, editor-in-chief of a professional periodical, Chairman of the University Specialized Council for the defense of candidate and doctoral dissertations, etc.

With the assistance of the heads of scientific schools (veterans of science), a number of new specialties, laboratories, etc. were opened. To facilitate the educational processes, exhibits were collected and the "Museum of Management Tools and Economic Literature of the Totalitarian Period" was opened. To cut the long story short, there is a lot to say about schools. With the assistance of scientific schools, today the economic sector of the University is quite powerfully provided with scientific personnel, information means, we have decent educational and methodological support.

In addition to numerous textbooks, training and methodological manuals (the exhibition of which we practice to demonstrate at seminars and conferences), in cooperation with scientific schools we have "established" a number of fundamental research areas. Among them:

– "Tourism of Ukraine: Economic and Organizational Mechanisms of its Development" – Ternopil, "Ternograf" – 2008 – 976 pp. (enlarged format), was presented for the State Prize of Ukraine in the field of science and technology);

– "Narratives on the Problems of Forming the Institutional Foundations of the Formation of the Economic Constitution of Ukraine (Institutional Foundations of the Basic Economic Law of the State)" Ternopil, "Ternograf" – 2013 – 552 pp.;

– "Complete Regional System of Business Accountability – a Way to Increase the Efficiency of a Territorial Unit, Ensuring its Sustainable Development – Ternopil: Ternograf LLC, 2014 – 680 pp.,

– "Innovative Means of Developing Non-traditional Energy Sources and Organizing Resource Use in the Social and Humanitarian Complex of Ukraine: Ternopil: Ternograf LLC, 2016 – 804 pp. et al. [9],

Against the background of scientific cooperation of scientific schools, when organizing planned (or spontaneous) events, we always comprehensively discuss the progress of solving scientific and everyday problems, develop recommendations that we use in preparing decisions or conclusions at general university, All-Ukrainian or even International scientific and practical conferences, which are usually called Scientific Schools as a Tool for Solving Scientific and Applied Problems in Higher Education in the Post-war Period".

To improve the functioning of scientific schools within the framework of transferring experience and knowledge of the so-called old professors to young scientists and increasing their efficiency, in our opinion, it is advisable:

– to determine state priorities in the implementation of programs for the post-war reconstruction of Ukraine, to direct the activities of these scientific associations, which include old professors, who are now ignored in many cases, to their implementation;

– to provide justification for developing special benefits and priorities for members of the scientific school in obtaining state budget orders, etc.;

– to make proposals to the Department of Certification of Higher Qualification Personnel of the Ministry of National Education and Science on the optionality of publications in Scopus and Web of Science. Applicants who have publications in professional journals, which entered top 7 foreign scientometric databases under these conditions, their registration and reporting are more justified.

– to develop mechanisms of material and moral incentives in work not only by team methods, but primarily by economic ones.

Conclusions. Summing up the results of discussions on theoretical and practical research on increasing the efficiency of using personnel scientific potential, searching for directions for the development of scientific schools as a tool for solving scientific and applied problems against the background of a local university, regional higher school in the post-war period, taking into account the reports and speeches of the participants of the meetings, we confirm the need to activate members of the scientific school in determining social and economic vectors of innovative development of business structures and improving economic, organizational and economic mechanisms for the development of industries of the post-war national economy and have the opportunity to present the following conclusions and recommendations:

1. To support the creative activity of scientific schools operating at universities and, taking into account the social and economic effects, to initiate certain activation measures before the Ministry of Education and Science of Ukraine. In particular, to increase their efficiency, it is advisable:

– to provide justification for the development of special benefits and priorities for members of the scientific school in obtaining state budget orders;

– to develop order of state priority in the implementation of programs for the post-war reconstruction of Ukraine, to direct efforts of scientific schools towards their implementation, activating cooperation of regional state administrations and regional councils not only with all-Ukrainian charitable and humanitarian funds such as "Renaissance of Ukraine", but also with public scientific associations, taking into account the initiatives and experience of highly qualified scientific personnel of the old formation, etc.;

2. As things stand now, it is advisable to organize a scientific study of modern adaptive-transformational processes and approaches to the formation of innovative principles of management of production enterprises and service enterprises, united territorial communities according to the requirements and standards of the EU;

3. Reforming the national economy in the post-war period should provide for the legitimacy and expediency of applying world experience in Ukraine, and primarily European experience, including in the areas of education, science, management, production and services.

4. To recommend that state administration bodies always promote priority development, implementation of achievements in education, science and technology, and scientific and technological progress within the framework of the implementation of the Enterprise Management Development Program in the context of Ukraine's accession to the European Union and the NATO Defense Alliance.

5. Educational institutions, institutions, enterprises and organizations should study the possibilities of implementing management through a consistent transition from direct administration to economic influence on scientific, educational and economic work. To study the relevant mechanisms of material and moral incentives.

6. The organizational and economic mechanisms proposed in the discussions, improving educational processes, scientific and research work, implementing innovative principles for the formation of a modern post-war Ukrainian society, ensuring the sustainable and stable functioning of industrial enterprises and the service sector.

The practical implementation of the conclusions and recommendations will undoubtedly raise the authority of scientists, scientific schools of Ukraine, create the prerequisites for improving their work, effective development of education, science, management both at the state level, branches of the national economy, and regions.

Really and truly, scientific schools may become a tool in the implementation of a social strategy to increase the efficiency of using highly qualified scientific personnel in the development of our state in the post-war period.

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INFORMATION PREDICATE IN THE STRUCTURE OF ENTERPRISE MANAGEMENT

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Key words:
information, management, enterprise, homeostasis, stochastic coefficient.

The process of enterprise activity assumes the presence of stochastic relations, which is an objective necessity. However, this does not mean that deterministic relations are given a secondary role. Only with the dialectical interaction of random and deterministic relations are their roles equivalent. The preference for random relations leads to a violation of the stability of the enterprise's functioning, the preference for deterministic relations reduces the enterprise's ability to adapt to external conditions, the ability to innovate. The unconditional relevance of the problem lies in determining the ratio of these relations. To solve the tasks set, appropriate methods were used, namely, systemic and critical analysis in the synthesis of the formation of deterministic and stochastic relationships on the basis of the theory of production systems; information theory. The conducted research allowed us to propose the concept of "optimal information accumulation", which makes it possible to conduct emergent selection. This approach allows creating conditions for the emergence of elements of evolution, in particular innovations, at the enterprise. which allows determining the ratio in shares of deterministic and stochastic information, which is advisable to use in the process of enterprise management. A stochasticity coefficient is proposed, which will ensure the homeostasis of the enterprise, while any of the extremes (absolute determinism or maximum stochasticity) leads to a deterioration in the functioning of the enterprise. Thus, it is proved that the process of managing the activities of the enterprise indicates the presence of a ratio of determinism and stochasticity. Given that complex production systems are systems open to information, when accumulating it, information must be selected to establish a connection with the external environment. The analysis conducted allows us to conclude that in the process of functioning of the production system, there is an increase in the volume of information that is accumulated and stored for further use. Thus, this should not be a replication of previously known information, but the creation of new information channels. Thanks to abstraction from the substantive characteristics, which are matter and energy, it is possible to trace the transformation of information in the processes of its accumulation, storage and transmission, that is, in the implementation of the information function. This approach allows us to create conditions for the appearance of elements of evolution in the functioning of complex production systems, namely enterprises.

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ПРЕДИКАТ ІНФОРМАЦІЇ В СТРУКТУРІ УПРАВЛІННЯ ДІЯЛЬНІСТЮ ПІДПРИЄМСТВА

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Ключові слова:
інформація, управління, підприємство, гомеостаз, стохастичний коефіцієнт.

Процес діяльності підприємства передбачає наявність стохастичних зв'язків, що є об'єктивною необхідністю. Однак це не означає, що детермінованим зв'язкам відводиться другорядна роль. Тільки при діалектичній взаємодії випадкових і детермінованих зв'язків їх ролі еквівалентні. Перевага випадковим зв'язкам призводить до порушення стабільності функціонування підприємства, перевага детермінованим зв'язкам знижує здатність підприємства адаптуватися до зовнішніх умов, здатність до інновацій. Безумовна актуальність проблеми полягає у визначенні співвідношення зазначених зв'язків. Для вирішення поставлених завдань використано відповідні методи, а саме системний та критичний аналіз у синтезі формування детермінованих та стохастичних зв'язків на засадах теорії виробничих систем; теорія інформації. Проведені дослідження дозволили запропонувати концепцію «оптимального накопичення інформації», що дає можливість проводити емерджентний відбір. Такий підхід дозволяє створити умови для появи на підприємстві елементів еволюції, зокрема інновацій. що дозволяє визначити співвідношення в частках детермінованої та стохастичної інформації, яку доцільно використовувати в процесі управління підприємством. Запропоновано коефіцієнт стохастичності, який забезпечить гомеостаз підприємства, при цьому будь-яка з крайнощів (абсолютна детермінованість або максимальна стохастичність) призводить до погіршення функціонування підприємства. Таким чином, доведено, що процес управління діяльністю підприємства свідчить про наявність співвідношення детермінованості та стохастичності. Враховуючи, що складні виробничі системи є системами відкритими для інформації, при її накопиченні має відбуватися відбір інформації для встановлення зв'язку із зовнішнім середовищем. Проведений аналіз дозволяє зробити висновок, що в процесі функціонування виробничої системи відбувається збільшення обсягу інформації, яка накопичується та зберігається для подальшого використання. Таким чином, це має бути не тиражування відомої раніше інформації, а створення нових інформаційних каналів. Завдяки абстрагуванню від субстанційних характеристик, якими є матерія та енергія, можна простежити перетворення інформації в процесах її накопичення, зберігання та передачі, тобто в реалізації інформаційної функції. Такий підхід дозволяє створити умови для появи елементів еволюції у функціонуванні складних виробничих систем, а саме підприємств.

Statement of the problem

The current stage of economic development is characterized by the widespread use of a systems approach to the study of economic phenomena. A systems approach is a comprehensive study of the economy as a single whole from the standpoint of systems analysis. In turn, systems analysis is a methodology for studying any objects by presenting them as a system and analyzing these systems. Economic systems are characterized by an exceptionally high complexity of the structure (branching) and the presence of interaction between system elements. Economic systems are characterized by an exceptionally high complexity of the structure (branching) and the presence of interaction between system elements (Maliarets, L. M. & Achkasova, O. V., 2022). If practical tasks required taking into account all the connections that exist in the system, and in all their complexity, then no meaningful scientific and practical activity would be possible. In reality, the matter is different. From the point of view of an economist, any object (enterprise, industry, etc.) is considered from the standpoint of a certain task (goal), and the consideration (research) itself is determined with finite accuracy, based on the permissible uncertainty. achievement of the goal. The most important principle of effective use of labor, material and financial resources of production is the principle of coordinated criteria management, which is formulated in the following form: the best is such management that takes into account the interests of the system as a whole, provided that they are coordinated with the interests of subsystems.

Thus, the development of an information support mechanism should be considered one of the most important tasks of effective management. In the current conditions of transformational processes in the economy, this task is of particular priority.

One of the important components of ensuring effective management is the availability of information tracking of processes occurring in complex production systems. This is explained by the stochasticity of both external influences and the state of the technological processes themselves.

Thus, the development of a mechanism for determining information predicates in enterprise management processes is relevant and a priority. In modern conditions of transformational processes of the economy, this task is especially relevant.

Analysis of recent studies and publications

Information support as a system is based on primary data about the management object. The functioning of the production system is complicated by changes in both the external and internal environment of its activity, which necessitates the development of new approaches to determining its target function, substantiating the economic prerequisites for achieving optimal profit reserves that ensure the competitiveness of the enterprise. enterprise in the market and determining the prospects for its development. The authors have proven the need for management actions using modern methods of information processing. The influence of information on making rational decisions has been determined (Sytnyk, H. V., Blakyta, H. V., Huliaieva, N. M., Hanechko, I. H., Hanushchak, T. V., Zubko, T. L., Lanovska, H. I., Adamenko, V. V., Lositska, T. I., Vavdiichyk, I. M., Butova, T., Olesenko, I., & Arkhipov, N. M., 2020). The issues of modeling complex production systems are the subject of works by scientists, which reveal the essence of the influence of the external environment. An assessment of the essence of information on the assessment of economic systems is provided (Beridze, T., lokhman, N., Bondarenko, O. & Buhra, A., 2020; lokhman, N., Serebrenikov, V., Beridze T., Cherep A. & Dashko, I., 2020). It has been established that information is one of the most important elements of the resource potential of an organization. The essence, structure and main criteria for the application of information systems at modern enterprises have been determined. The need to use an information system as a powerful tool for ensuring the competitiveness of a modern enterprise has been substantiated. It has been studied that modern information systems allow for continuous recording and control of the state and movement of material, financial and human resources of an enterprise, and to receive information about the results of the enterprise's activities in real time. (Puriy, G. M., 2019). At the same time, the technological paradigm is changing, governance models and social norms are changing, and large-scale changes are taking place that view the digital economy through its communicative function. Namely, as an economic activity that occurs between its subjects through certain communication channels for the exchange of data and processes (Sirko, A. V., 2020). Currently, the digital economy is proposed to be considered as part of economic relations created by digital resources based on the production of electronic goods and services. (Kolyadenko S. V., 2016). It is also believed that the modern digital economy is a constant transformation of all sectors of the economy by transferring all information resources and knowledge to a computer platform (Veretyuk, C. M., & Pilinsky, 2016). There are scientific developments on the application of information in HR processes in modern realities. Trends in the process of digitalization of the personnel management service have been analyzed, their main opportunities and risks have been investigated, since there is a need to study the risks and opportunities of implementing various digitalization tools in the activities of the HR service. (Melnychenko S., Lositska T., Belyaeva N., 2021). The digital economy is defined as a completely independent economic category, which is interpreted as a new type of economic system within which the processes of production, exchange, distribution and consumption are implemented (Kotelevets, D. O., 2022). The digital economy is increasingly intertwined with the analog economy, which complicates a clear distinction between them (Kuznetsova A. Ya., Chmeruk G. G., 2019). An in-depth study of the application of the latest methods of using information and information resources in management decision-making is presented by the scholar Armstrong M. Practical ideas and in-depth coverage of HRM strategies in such key areas as employee engagement, talent management, learning and development, as well as strategic approaches to HRM in an international context. It is supported by key learning points, key questions and real-life examples (Armstrong M., 2021). The conducted research confirmed the importance and necessity of in-depth research into the influence of information predicates in management processes. This is due to the multifaceted nature and rapid dynamics of the development of the digital space of society and the world.

Objectives of the article

Determination of the functional components of information in ensuring the management of the enterprise's activities.

The main material of the research

Considering the main functions of production system management, planning and organization functions are usually distinguished. In a broad sense, these functions are generalized (integral) management functions. Therefore, the planning function is defined as the process of organizing the purposeful activity of a person, based on establishing his goals and criteria, methods and means of achieving them. The organization function in a broad sense can be considered as a specific process of learning purposeful and orderly actions, that is, it can regulate the performance of all functions (Poplavska Zh. V., 2013).

The combination of a certain management structure together with a set of functions that characterize the actions of the structural elements of the production system and the rules that regulate the management processes in the system characterizes the mechanism of management of the production system.

The following properties are essential for explaining the mechanisms and processes of management of the production system.

1. The structure of the production system management is built on a hierarchical principle. This means that the production system has a multi-level organization with limited

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autonomy of lower-level subsystems and the right of intervention (priority of actions) of upper-level subsystems in the activities of lower-level subsystems.

2. In the production system, only the main parameters of the subsystems are controlled (which is the prerogative of higher levels of the hierarchy), and individual elements of the system (subsystems) are given a certain independence in choosing solutions, taking into account their own and general system limitations.

3. The elementary link of the management system that carries out conscious (intelligent) activity is a person (the subject of management). The subject performs all informalizations of the management function that make up the elementary cycle of the decision-making process (Matveichuk L. O. 2018).

The presence of a subject in the management system determines a certain level of its activity. The activity of subsystems of the production management system is manifested in the self-organization (self-development) of the subsystem, which is expressed in its desire to achieve the set goals. The goals of subsystems may not coincide with the general goals of the entire system. The presence of local goals causes conflicts in the system - inter-level and intra-level. Inter-level conflicts arise if the global goal of the system and the local goals of subsystems are incompatible. For example, lower-level controls will try to provide false information or hide some of the production resources from higher levels. Such actions may be due to the desire of the subordinate system to receive less stressful plans that guarantee their implementation in the future.

Intra-level conflicts arise if the achievement of local goals by each subsystem of one level prevents the achievement of its goals by other subsystems. For example, stimulating subsystems from a single fund of material incentives leads to a conflict of rivalry, which under certain conditions can have both positive and negative consequences.

The formalization of a number of these properties led to the creation of a methodology and theory of active systems, i.e. systems whose control objects are "active" elements. At the substantive level of the definition, an active element is a purposefully functioning element that has the property of self-organization (self-development) and works with varying efficiency depending on the goals set for it.

An active system is a centralized system. It contains a control center, the main functions of which are: 1) formation of planned tasks and their issuance to subsystems; 2) accounting, control and evaluation of the results of the subsystems' implementation of planned tasks; 3) decision-making and provision of management actions that ensure the stability and reliability of the implementation of plans (Kish L. M., 2019).

The behavior of the active elements of the system is largely determined by the given mechanism of its functioning. The mechanism of functioning includes: methods of forming plans, goals and criteria of management; laws of management (planning, assessment, stimulation); organization of management processes by functions: planning, accounting, control, assessment, decision-making, management actions.

The practice of applying the theory of production systems can be directly used at all levels of management, as well as in solving such issues as monitoring the efficiency of the production system.

It should be emphasized that the measure of the amount of information, as well as the category of information, which is one of the functional characteristics, has a fundamental difference from all others, since it reflects not unambiguous dependencies, but multi-valued. relationships of system elements. By abstracting from the substantive characteristics, which are matter and energy, with the help of this measure it is possible to trace the transformation of information in the processes of its accumulation, storage and transmission, that is, when monitoring.

The analysis conducted allows us to conclude that in the process of functioning of the production system there is an increase in the volume of information that is accumulated and stored for further use. At the same time, the condition of information accumulation for improving management is necessary, but not sufficient. Considering that complex production systems are systems open to information, information selection should occur during its accumulation to establish a connection with the external environment. Thus, there should be no duplication of previously known information, but the creation of new information channels. This will allow for the progressive accumulation of information, which makes it possible to conduct emergent selection. This approach allows creating conditions for the appearance of elements of evolution in production systems, in particular innovations. The analysis shows that the progressive accumulation of information cannot be carried out only according to a deterministic program. The basis of such processes should be a stochastic mechanism. Thus, the presence of stochastic connections is an objective necessity. However, this does not mean that deterministic connections are given a secondary role. Only with the dialectical interaction of random and deterministic relationships are their roles equivalent, the advantage in favor of random relationships leads to a disruption of the stability of the functioning of the production system, the advantage in favor of deterministic relationships reduces the ability to adapt to environmental conditions, the ability to innovate (Onopko A.S., Zhigalkevych Zh.M., 2017).

Given that enterprises are informationally open systems, information selection should occur during its accumulation during communication with the external environment. Thus, in the process of the enterprise's activities, there should be no duplication of previously known information, but the creation of new information channels. This will allow for the gradual accumulation of information when monitoring the enterprise's activities, which makes it possible to conduct emergent selection. This approach allows creating conditions for the appearance of elements of evolution, in particular innovations, at the enterprise. The analysis shows that the gradual accumulation of information when monitoring the enterprise's activities cannot be carried out only according to a deterministic program. Such processes should be based on a stochastic mechanism (Kuznetsova A.Ya., Chmeruk G.G., 2019).

Let us denote the amount of redundant information by a symbol that simultaneously serves as a measure of the preservation of deterministic order in the production system. Then the measure of the existing order can be represented by the equality:

$$H_1 = H_m - H_0 = I_1 \quad (1)$$

Where H_m is the entropy of the production system under conditions of maximum uncertainty, i.e. when all actions in the production system are equally likely; H_0 is the entropy in real operating conditions.

The introduced notations allow us to introduce the stochasticity coefficient for further analysis of the ratio of random and deterministic relationships:

$$G = \frac{H_0}{H_1} \quad (2)$$

The redundancy factor, which is used in information theory, is determined by the formula:

$$R = \frac{H_1}{H_1 + H_0} \quad (3)$$

Taking into account (3), formula (2) takes the form:

$$G = \frac{H_0}{H_1} = \frac{H_0 + H_1 - H_1}{H_1} = \frac{H_0 + H_1}{H_1} - 1 = \frac{1}{\frac{H_1}{H_0 + H_1}} - 1 \quad (4)$$

$$G = \frac{1}{R} - 1$$

Analysis of formula (4) shows that there is an optimal value of the stochasticity coefficient, which allows us to determine the ratio in shares of deterministic and stochastic information used in the formation of the information component of management. Such an optimal stochasticity coefficient will ensure homeostasis of a complex production system, while any of the extremes (absolute determinism or maximum stochasticity) leads to a deterioration in functioning.

Thus, information tracking of a complex production system, carried out for the purpose of its evolution, indicates the presence of an optimal ratio of determinism and stochasticity, since the process of evolution itself is the result of dialectical unity and struggle of opposing tendencies - the desire for decisiveness and all kinds of changes caused, in particular, by innovations. An important point is that deterministic and stochastic relations are not in equilibrium, but in a state of evolutionary dynamics. When conducting a study of complex production systems, the amount of information inherent in the system increases, and to reduce the uncertainty of knowledge about it, redundant information appears. Such redundant information is deterministic information, thanks to which the stable functioning of the production system is maintained. At the same time, stochastic connections serve as a source of new, unpredictable information, which can be obtained through channels from the external environment. The issue of the content and practical application of information does not lose its relevance.

Conclusions

The proposed optimal stochasticity coefficient makes it possible to ensure homeostasis of the enterprise, while any of the extremes (absolute determinism or maximum stochasticity) leads to a deterioration in the functioning of the enterprise. It has been established that deterministic and stochastic relations are not in equilibrium, but in a state of evolutionary dynamics. In the process of studying complex production systems, the amount of information increases, and to reduce the uncertainty of knowledge about the system, redundant information appears. Such redundant information is deterministic information, thanks to which the stable functioning of the production system is maintained. At the same time, stochastic relations serve as a source of new, unpredictable information coming through channels from the external environment. Due to the abstraction from the substantive characteristics, which are matter and energy, it is possible to trace the transformation of information in the processes of its accumulation, storage and transmission, that is, during the implementation of the information function. The proposed concept of "progressive accumulation of information" makes it possible to conduct emergent selection. This approach allows creating conditions for the emergence of elements of evolution in the functioning of complex production systems.

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CONTEMPORARY TRENDS IN MANAGEMENT: PARTICIPATION AS A TOOL FOR SOCIAL RESPONSIBILITY

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Key words:
participatory management, population activity, management mechanism, association of co-owners of multi-apartment buildings, local self-government.

Participatory governance has become an integral component of modern management theory, aimed at enhancing the involvement of citizens or employees in making critical decisions. This approach focuses on democratizing management processes and increasing their efficiency. Participatory governance, in which citizens or employees actively engage in decision-making processes, on the one hand, enhances the transparency and accountability of governmental bodies or company leadership, and on the other hand, fosters the development of social responsibility among citizens.

One of the key characteristics of participatory governance is the ability for stakeholders to directly influence the processes that concern them. For example, in the housing and utilities sector, this is exemplified by the activities of homeowners' associations in multi-apartment buildings, where residents have the opportunity to independently decide on the maintenance and operation of shared property. Through this mechanism, citizens become active participants in managing their resources, which increases their responsibility. Involving people in decision-making processes allows for more efficient use of resources and encourages the development of new ideas.

Despite its advantages, participatory governance faces a number of challenges, such as the passivity of certain population segments, insufficient legal and financial literacy among citizens, or resistance from corporate leadership. Therefore, it is essential to leverage the experience of other countries that have successfully implemented this principle. Adapting best practices from these countries to Ukraine's conditions can contribute to the development of democratic processes and improve the quality of governance.

СУЧАСНІ ТЕНДЕНЦІЇ В УПРАВЛІННІ: ПАРТИЦИПАЦІЯ ЯК ІНСТРУМЕНТ СОЦІАЛЬНОЇ ВІДПОВІДАЛЬНОСТІ

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Ключові слова:
партиципативне управління, активність населення, механізм управління, об'єднання співвласників багатоквартирних будинків, місцеве самоврядування.

Партиципативне управління стало невід'ємною складовою сучасної управлінської теорії, націленої на активізацію залученості громадян або працівників до ухвалення важливих рішень. Цей підхід спрямований на демократизацію управлінських процесів та підвищення їхньої ефективності. Партиципативне управління, в якому громадяни чи працівники беруть активну участь у процесах ухвалення рішень, з одного боку, дозволяє підвищити прозорість і підзвітність органів влади або керівництва компаній, а з іншого – сприяє розвитку соціальної відповідальності серед громадян.

Однією з ключових характеристик партиципативного управління є надання можливості зацікавленим сторонам безпосередньо впливати на процеси, що їх стосуються. Наприклад, у житлово-комунальному секторі це проявляється у діяльності об'єднань співвласників багатоквартирних будинків (ОСББ), де мешканці багатоповерхових будинків мають змогу самостійно ухвалювати рішення щодо утримання та експлуатації спільного майна. Завдяки такому механізму громадяни стають активними учасниками управління своїми ресурсами, що підвищує їхню відповідальність. Залучення людей до процесу прийняття рішень дозволяє ефективніше використовувати ресурси та сприяє розвитку нових ідей.

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Попри переваги, партиципативне управління зустрічає низку викликів, таких як пасивність частини населення, недостатня правова та фінансова грамотність громадян або опір з боку керівництва у корпоративному секторі. Тому необхідно використовувати досвід інших країн, яким успішно вдалося впровадити даний принцип. Адаптація найкращих практик цих країн до умов України може сприяти розвитку демократичних процесів та підвищенню якості управління.

Problem statement

One of the main challenges in implementing participatory governance is the low level of activity among citizens or employees in decision-making processes. The lack of motivation to participate in collective initiatives often leads to important management processes being either delayed or left incomplete. In the case of homeowners' associations (HOAs), the problem of making collective decisions is particularly acute. Frequent lack of quorum at meetings complicates effective management of the building, carrying out repairs, and resource allocation. Low resident engagement is often explained by insufficient involvement in management processes and a lack of information. The passivity of HOA residents creates difficulties in making important decisions, which negatively affects the condition of the building and the quality of life for its residents. There is a pressing need to increase residents' awareness of the mechanisms for managing multi-apartment buildings.

Similar challenges arise in the corporate sector. Employees may be reluctant to participate in decision-making processes due to a lack of appropriate skills or mistrust of management. On the other hand, managers are sometimes unwilling to delegate part of their authority, which leads to closed-off management processes and stifles employee initiative.

Given the above, a priority task is to ensure the active participation of all stakeholders in decision-making processes. To achieve this, it is necessary to develop incentive systems, organize training programs, and create mechanisms that encourage citizens and employees to actively engage in governance.

Analysis of the latest research and publications

Participatory governance has become the subject of numerous studies, as its application can significantly enhance the efficiency of management processes. Participatory governance has been studied by both foreign and domestic scholars, such as D. Garson, A. Berli, M. Mintz, E. Lawler, M. Horlaty, O. Bugutsky, A. Yeskov, B. Zhalylo, O. Dokuchaev, N. Samoukina, V. Yakubenko, and many others.

Formulation of goals

The purpose of the study is to analyze the implementation of participatory governance in Ukraine through the mechanisms of homeowners' associations (HOAs) and to examine international experience to adapt it to Ukrainian realities. Special attention should be given to studying the challenges encountered during the implementation of this approach and developing recommendations to enhance its effectiveness. Additionally, the article outlines several specific objectives:

– evaluate the experience of establishing HOAs in Ukraine and identify the main challenges in implementing participatory governance;

– analyze international experience in participatory governance in countries with successful practices;

– develop recommendations for improving participatory mechanisms in the Ukrainian context;

– explore the role of digital technologies in enhancing citizen engagement.

Presentation of the main research material

Participatory Governance through Homeowners' Associations (HOAs) in Ukraine is an important mechanism for enhancing self-organization and citizen responsibility. Engaging co-owners in managing their buildings provides opportunities for more effective management of shared property. However, in practice, this approach faces several significant obstacles. The primary challenges include low resident engagement, insufficient legal and financial literacy, limited government support, and varying perceptions of digital technologies depending on age groups [1,6].

One of the main barriers is the low activity of residents, which significantly limits the ability to make important decisions related to the building. According to surveys, only about 30–40% of residents regularly attend HOA meetings or participate in voting, often making it difficult to achieve a quorum. This, in turn, delays decision-making on critical issues such as repair work or infrastructure upgrades and can lead to less effective management processes overall. An example of successfully addressing this issue can be found in Brazil, where educational programs and incentive measures have significantly increased citizen participation in participatory budgeting in the city of Porto Alegre. In Ukraine, a similar approach could activate co-owners, encouraging them to engage more actively in the management of HOAs [10].

Another significant challenge is the low level of legal and financial literacy among co-owners. Many residents lack adequate knowledge about the legal aspects of HOA operations or skills in financial planning. This can lead to financial errors, such as improper budget allocation or signing unfavorable contracts with contractors, which, in turn, affect the overall condition of buildings. In Germany, this issue is addressed through regular educational seminars designed to enhance citizens' knowledge in legal and financial matters. Implementing similar programs in Ukraine could help residents of multi-apartment buildings become more informed about managing shared property, thereby reducing financial risks and improving management quality [6, 8].

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A separate issue is the insufficient state support, which significantly impacts the development potential of HOAs. Although HOAs are officially recognized at the legislative level, government support programs for this form of management remain limited or difficult to access. Even existing programs aimed at improving energy efficiency and modernizing buildings do not always meet the needs of co-owners or are challenging to use due to administrative barriers. In countries like Switzerland, citizens actively participate in making key political decisions through referendums, which serve as an effective way to engage citizens in governance processes. In Ukraine, establishing consultation platforms where HOAs could directly interact with government bodies to address pressing issues could help strengthen participatory governance at the local community level [7,10].

In recent years, there has been significant growth in state support for HOAs through the Enerhodim and GreenDIM programs, which have become primary funding sources for energy-efficient modernization of multi-apartment buildings. In 2023, around 500 HOAs received funding covering up to 70% of the costs for projects such as facade insulation, installation of heat pumps, and solar panels. In 2024, thanks to support from international donors, the program's budget increased to over UAH 1 billion, allowing more than 500 additional HOAs to join the modernization initiatives. The GreenDIM program, which provides up to 70% funding for energy-efficient technologies, has significantly reduced HOAs' energy resource costs, enabling residents to achieve substantial savings on utility bills [7].

Digital technologies prove to be effective tools for increasing the activity of co-owners and ensuring transparency in management processes within homeowners' associations (HOAs). The use of mobile applications for voting and electronic platforms for discussions and decision-making enables residents to participate in processes without the need for physical presence at meetings. In Poland and Germany, similar platforms are already actively used for participatory budgeting at the local community level, significantly enhancing transparency and convenience in management processes. In Ukraine, a similar approach could be adapted for HOAs, facilitating decision-making processes and increasing resident engagement [9].

The impact of digital technologies on resident involvement varies across different age groups. According to surveys, about 65% of residents under 40 actively use mobile applications and electronic platforms to participate in decision-making and online voting. Around 80% of them positively evaluate electronic tools for managing shared property. Among the 40-60 age group, digital technologies are also becoming popular, but only about 50% of respondents actively use them, while 30% feel the need for additional instructions or training materials. Older residents aged over 60 generally use online platforms less frequently due to a lack of skills or mistrust of digital technologies: only 20% are actively involved in digital processes, while over 60% still prefer offline formats such as in-person meetings or interactions with HOA representatives. However, with additional support, such as training courses or assistance from younger residents, the engagement of the older group could significantly increase [9].

Despite these challenges, the number of homeowners' associations (HOAs) in Ukraine continues to grow. At the beginning of 2023, according to data from Ukrstat, the number of HOAs reached 38,606, an increase of 911 associations compared to the beginning of 2022. This growth reflects a heightened interest in HOAs as an effective mechanism for managing shared property. Such an increase, despite existing obstacles, demonstrates the willingness of residents of multi-apartment buildings to take responsibility for communal property, improve the quality of life in their buildings, and enhance energy efficiency through collective efforts.

The prospects for the development of participatory management in Ukraine's homeowners' associations (HOAs) are optimistic. The government plans to expand energy

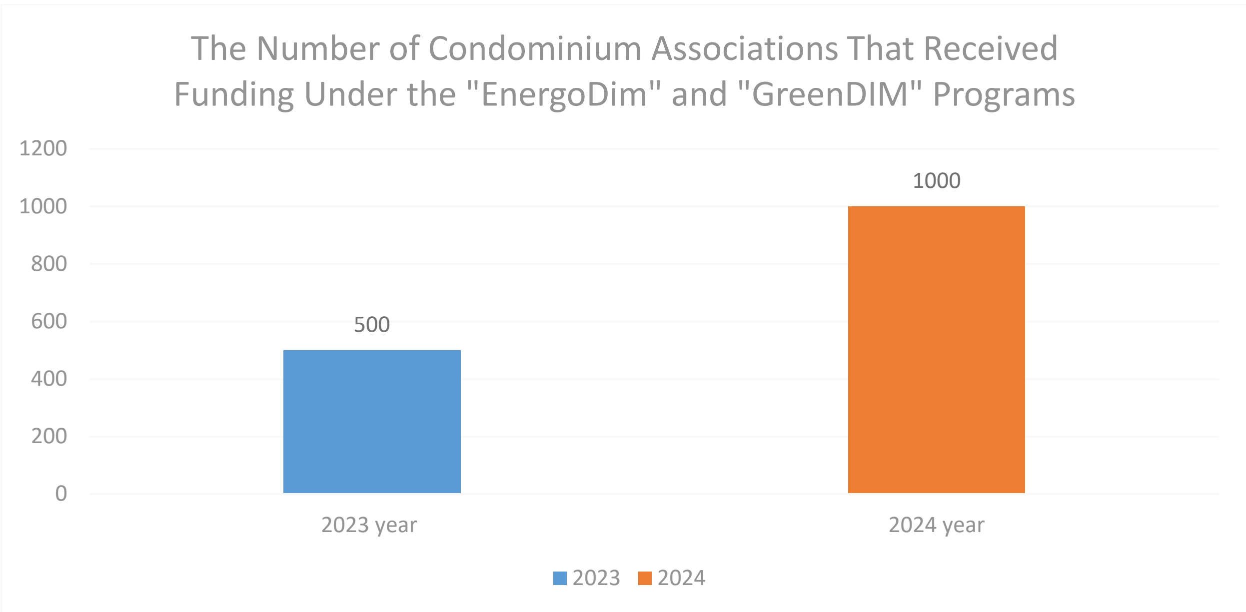

Fig. 1 – Trends in Funding Received Under the «EnergoDim» and «GreenDIM» Programs

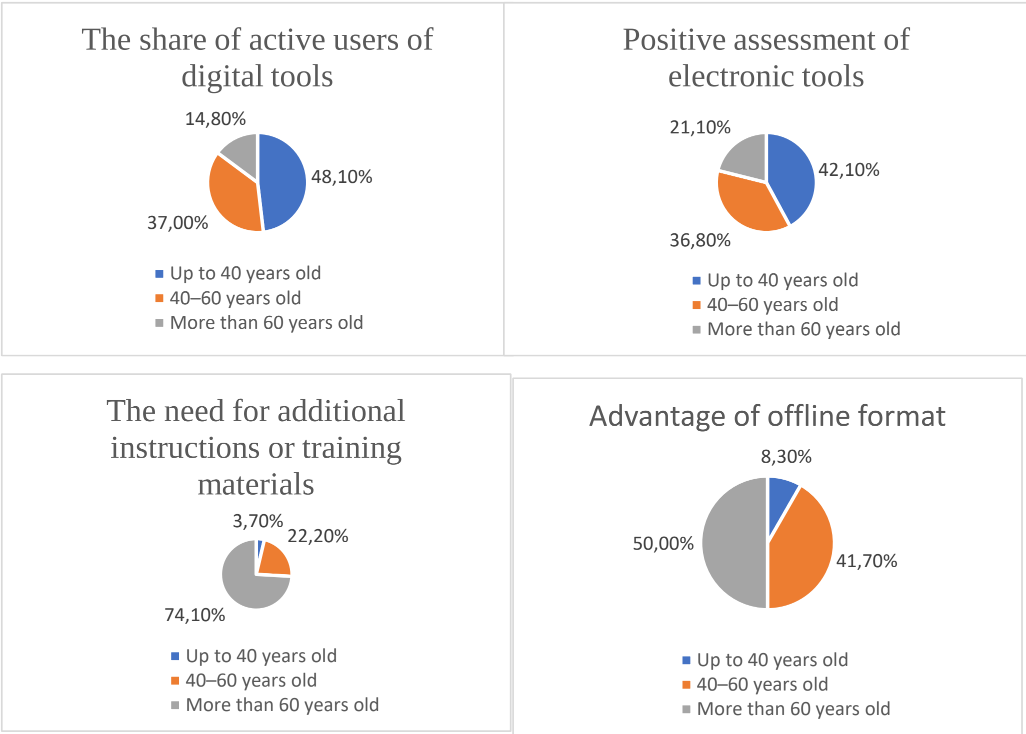

Fig. 2 – Perception of Digital Technologies by HOA Residents by Age

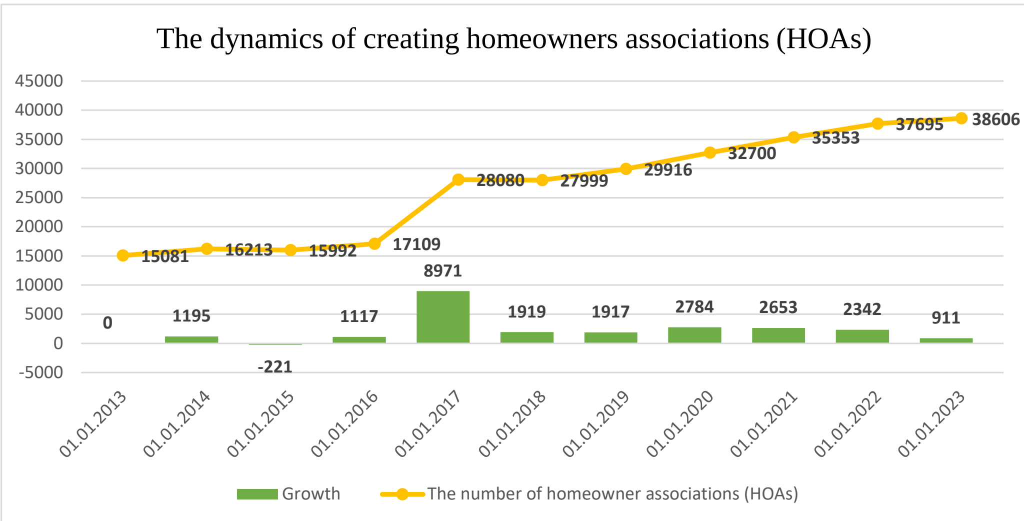

Fig. 3 – Dynamics of Creating Homeowners' Associations (HOAs) in Ukraine

efficiency support programs, enabling more HOAs to participate in modernization and energy efficiency improvement projects for residential buildings. Additionally, the development of educational programs and the implementation of digital solutions can significantly enhance the efficiency of shared property management and strengthen co-owners' responsibility for communal assets. This comprehensive approach has the potential to significantly improve the quality of life in multi-apartment buildings, foster civic engagement among residents, and promote a responsible attitude toward shared property [1].

Conclusions from the conducted research

The analysis of foreign experience in engaging citizens in the management of multi-apartment buildings has shown that participatory management in homeowners' associations (HOAs) is a promising approach to enhancing citizens' self-organization and improving the quality of life in Ukraine's multi-apartment buildings. Participatory management in HOAs is an effective tool as it ensures transparency of information and facilitates discussions on all issues related to the building. This approach increases residents' trust in HOA leadership and reduces the number of conflicts. Joint decisions enable

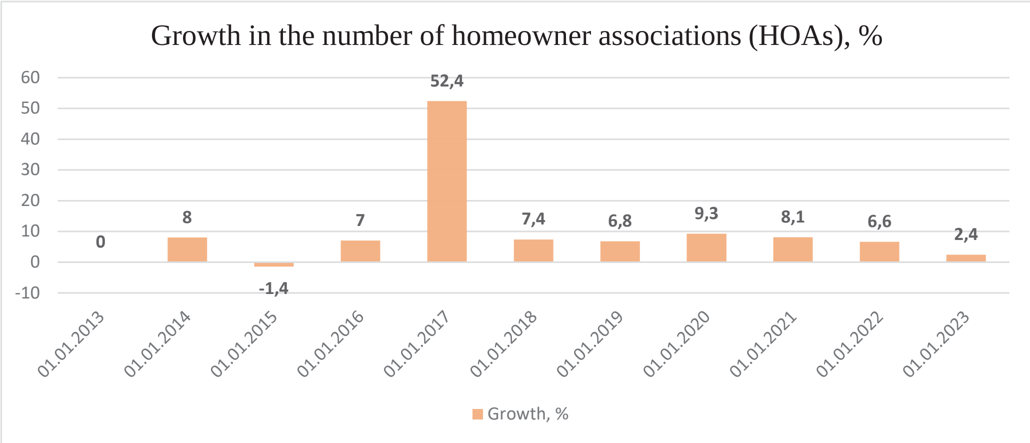

Fig. 4 – Growth in the Number of HOAs, %

more rational use of resources while considering the interests of each resident. Direct involvement in decision-making increases individual responsibility for the condition of the building and encourages residents to invest more effort in its maintenance. Participation procedures should be simple and understandable for all residents, regardless of their level of education or age. Therefore, conducting educational events for residents will help them better understand the fundamentals of HOA management, as well as their rights and responsibilities. Residents should have access to all necessary information, including the financial status of the HOA, plans for repair work, voting results, and more. Additionally, involving young people in the management of HOAs is crucial as it will help rejuvenate the active resident base and introduce new ideas for managing shared property.

The present demands the integration of digital technologies into management processes, as they demonstrate significant potential for involving residents in governance. The introduction of mobile applications for voting and electronic platforms for discussions enables residents to participate in decision-making processes regardless of their location. At the same time, differences in how digital platforms are perceived by different age groups indicate the need to develop customized tools to engage both younger and older generations. Furthermore, educational programs focusing on legal and financial literacy can greatly enhance the efficiency of HOA operations and foster residents' interest in collective management.

Constant cooperation with local authorities and public organizations is essential for obtaining additional support and resources. A systematic analysis of government programs, such as "Energodim" and "GreenDIM," will help identify opportunities for their improvement and make them more accessible to a larger number of HOAs.

Therefore, involving residents in participatory management is a continuous process that requires systematic effort and patience. However, the outcomes of this work will be clear: an improved quality of life within the building, heightened responsibility among residents, and the establishment of a cohesive community.

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FORECASTING THE GLOBAL INNOVATION INDEX BASED ON NEURAL NETWORKS

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Key words:
Global innovation index, neural networks, forecasting, machine learning, innovation policy, artificial intelligence.

This article is devoted to researching the possibilities of using neural networks for forecasting the Global Innovation Index (GII). Modern approaches to GII analysis and forecasting are reviewed, their limitations are revealed, and a new method based on deep neural networks is proposed. Scientific works on the forecasting of innovative activity and the forecasting of GII with the application of mathematical methods of machine learning and their possible areas of application in the digital economy are studied. The structure of GII was analyzed and the key factors affecting its dynamics were identified. A neural network architecture optimized for GII forecasting, taking into account its specificities, has been developed. The model is trained on historical GII data and its accuracy is evaluated on a test sample. The effectiveness of the developed model is compared with the traditional methods of GII forecasting. The positive aspects of the proposed approach, which provides more accurate forecasts compared to traditional methods, are established. The possibilities of interpreting the neural network results, allowing to identify key factors influencing the forecast, are explored. The practical aspects of applying the developed model to support decision-making in the field of innovation policy are discussed. The directions of further research are determined, in particular, regarding the interpretation of the results of the neural network and its adaptation to changes in the methodology of GII calculation. The developed model demonstrates high accuracy, but it should not be considered as a replacement for expert analysis and traditional methods of evaluating innovation potential; it should serve as an additional tool that complements existing approaches and contributes to making more informed decisions.

ПРОГНОЗУВАННЯ ГЛОБАЛЬНОГО ІННОВАЦІЙНОГО ІНДЕКСУ НА ОСНОВІ НЕЙРОННИХ МЕРЕЖ

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Ключові слова:
Глобальний інноваційний індекс, нейронні мережі, прогнозування, машинне навчання, інноваційна політика, штучний інтелект.

Дана стаття присвячена дослідженню можливостей застосування нейронних мереж для прогнозування Глобального інноваційного індексу (ГІІ). У проводиться розгляд сучасних підходів до аналізу та прогнозування ГІІ, виявляються їхні обмеження та пропонується новий метод на основі глибоких нейронних мереж. Досліджуються наукові праці з прогнозування інноваційної діяльності та прогнозування ГІІ із застосуванням для цього математичних методів машинного навчання та їх можливих сфер застосування у цифровій економіці. Проаналізовано структуру ГІІ та виявлено ключові фактори, що впливають на його динаміку. Розроблено архітектуру нейронної мережі, оптимізовану для прогнозування ГІІ з урахуванням його специфіки. Проводиться навчання моделі на історичних даних ГІІ та оцінюється її точність на тестовій вибірці. Порівнюється ефективність розробленої моделі з традиційними методами прогнозування ГІІ. Встановлюються позитивні аспекти запропонованого підходу, який забезпечує більш точні прогнози порівняно з традиційними методами.

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Досліджуються можливості інтерпретації результатів нейронної мережі для виявлення ключових факторів, що впливають на прогноз. Обговорюються практичні аспекти застосування розробленої моделі для підтримки прийняття рішень у сфері інноваційної політики. Визначаються напрями подальших досліджень, зокрема, щодо інтерпретації результатів нейронної мережі та її адаптації до змін у методології розрахунку ГІІ. Розроблена модель демонструє високу точність, але вона не повинна розглядатися як заміна експертного аналізу та традиційних методів оцінки інноваційного потенціалу, вона має служити додатковим інструментом, що доповнює існуючі підходи та сприяє прийняттю більш обгрунтованих рішень.

Statement of the problem

The Global Innovation Index (GII) is one of the key indicators reflecting the innovative potential and effectiveness of countries in the field of innovation. Accurate forecasting of GII is important for the formation of an effective innovation policy, strategic planning and informed decision-making at the level of states and international organizations.

Traditional forecasting methods, such as regression analysis or time series models, often do not take into account the complex GII structure and the non-linear relationships between its components. This leads to limited forecast accuracy and complicates their practical application.

In this context, the application of neural networks for GII forecasting is a promising direction of research. Neural networks are able to detect complex patterns in data and model non-linear dependencies, making them a potentially effective tool for GII analysis and forecasting.

This work is aimed at the development and evaluation of a new approach to GII forecasting based on neural networks, which will increase the accuracy of forecasts and provide a more reliable basis for decision-making in the field of innovation policy.

Analysis of recent research and publications

The problem of forecasting innovative activity and forecasting the Global Innovation Index using modern data analysis methods attracts the attention of many researchers. Let's consider the key works in this area.

Zhukovsky D. and Lozovska L. investigated the possibilities of applying mathematical methods of machine learning and their possible areas of application in the digital economy, in particular for forecasting revenues in e-commerce projects in their work [1]. They conducted an analysis of machine learning methods that are popular among today's scientists and that can be used to make the highest quality management decisions. The results showed that machine learning algorithms provide higher perspective and accuracy when processing large amounts of information in e-commerce projects.

Goncharov Yu. and co-authors determined the forecast of GII of Ukraine using a regression model of the dependence of this indicator on the specific weight of innovation-active enterprises in the total number of industrial enterprises and innovation related costs. [2]. The results highlighted the decreasing dynamics of the GII value. The authors emphasized that in order to ensure the growth of the innovativeness of the national economy and increase the competitiveness of Ukraine, there is a need for significant activation of innovative activity in Ukraine.

International researchers Robert J. Watts and Alan L. Porter collected a number of concepts from various innovation models and a number of bibliometric indicators that will help in the implementation of these concepts [3]. The work carried out made it possible to provide opportunities for combining technological trends, researching technological interdependencies and competitive intelligence to create a viable forecast.

At the same time, despite significant achievements in this area, there are a number of unresolved problems. In particular, the issues of the optimal architecture of neural networks for GII forecasting, methods of interpreting their results, and methods of adapting models to changes in the index calculation methodology remain insufficiently researched.

In addition, most of the existing studies focus on the forecasting of GII for developed countries, while the specifics of the application of neural networks for the analysis of innovation processes in developing countries require additional study.

Formulation of the goals for the article

The purpose of this article is to develop and evaluate the effectiveness of a new approach to forecasting the Global Innovation Index based on neural networks.

Presentation of the main material

To effectively forecast the Global Innovation Index, it is important to understand its structure and components. GII consists of two sub-indexes: Innovation Input Sub-Index and Innovation Output Sub-Index. Each of these sub-indices includes several pillars, which, in turn, consist of individual indicators.

The input sub-index of innovation includes five pillars:

1. Institutions
2. Human capital and research
3. Infrastructure
4. Level of market development
5. Level of business development

The original innovation subindex consists of two pillars:

1. Knowledge and technological results
2. Creative results

Each of these pillars contains from 3 to 5 sub-pillars, which together include 80 individual indicators. Such a complex structure of GII requires the forecasting model to be able to take into account the multidimensional interrelationships between different components.

When preparing the data for training the neural network, data on the value of GII and its components for 131 countries for the period from 2013 to 2023 were collected. Official reports of the Global Innovation Index, as well as databases of the World Bank, UNESCO and other international organizations served as data sources [4].

Data pre-processing was carried out, which included:

1. Normalization of all input variables to the range [0, 1] to ensure the same scale;
2. Filling in missing values using the k-nearest neighbors method;
3. Detection and processing of outliers using the interquartile range method.

To take into account temporal dynamics, lag variables (values of indicators for the previous 1-3 years) were added to the set of input data, which allowed the model to take into account trends and seasonality.

To predict the Global Innovation Index, a deep neural network [5] with the following architecture was developed:

1. Input layer: 80 neurons (according to the number of indicators included in the GII)
2. Hidden layers:
   – First hidden layer: 64 neurons
   – Second hidden layer: 32 neurons
   – The third hidden layer: 16 neurons
3. Output layer: 1 neuron (predicted GII value)

The ReLU (Rectified Linear Unit) function was used to activate the neurons in the hidden layers, and the linear activation function was used in the output layer. The model was trained using the Adam optimization algorithm and the Mean Squared Error (MSE) loss function.

The data set for training the model included historical values of GII and its components for 131 countries for the period from 2013 to 2023 [6]. The data were divided into training (80%) and test (20%) samples.

The training of the neural network was carried out for 1000 epochs using mini-batches of size 32. Figure 1 shows the graph of the change of the loss function [7] on the training and validation samples.

As can be seen from the graph, the model shows a stable error reduction on both samples, which indicates successful training and no overtraining.

The developed architecture of the neural network is based on the principles of deep learning and takes into account the specifics of the GII forecasting task. In addition to the basic structure described earlier, additional elements were introduced to increase the effectiveness of the model:

1. Residual connections between hidden layers to improve gradient flow and reduce the vanishing gradient problem;
2. Attention mechanism for identifying the most important input factors in forecasting;
3. Dropout layers with a dropout factor of 0.3 to prevent overtraining.

Schematically, the neural network architecture is presented in Figure 2.

The model was trained using the TensorFlow framework on an NVIDIA GeForce RTX 3060 GPU to accelerate computation. An early stopping technique with a patience of 50 epochs was used to prevent overtraining.

The Bayesian optimization method was used to optimize the hyperparameters of the model (the number of neurons in hidden layers, the learning coefficient, the size of mini-batches). This made it possible to automatically choose the optimal configuration of the model to maximize the forecasts accuracy.

A comparison of the accuracy of predictions of the developed neural network with other methods is presented in Table 1.

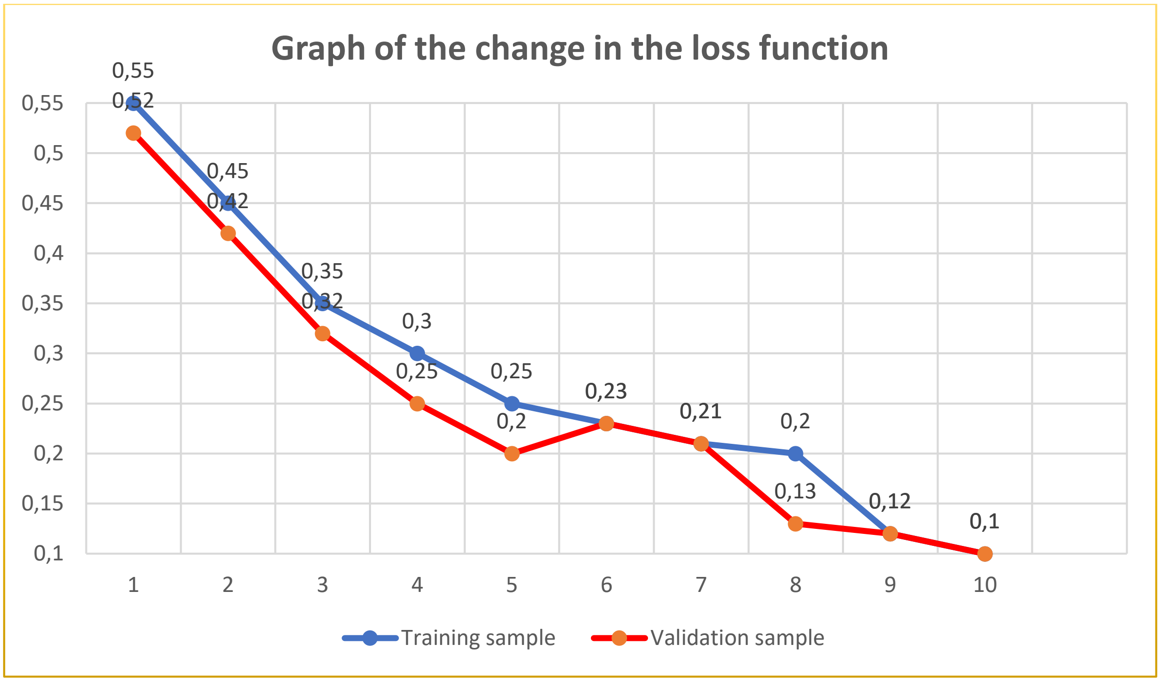

Fig. 1 – Graph of the change in the loss function

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Table 1 – Comparison of the accuracy of different forecasting methods of GII

Method	MAE	RMSE	R^2
Linear regression	1.50	1.89	0.82
Random forest	1.40	1.76	0.85
ARIMA	1.35	1.70	0.86
The proposed neural network	1.23	1.55	0.89

As can be seen from the table, the developed neural network shows the best accuracy in all metrics. Especially important is the increase in the coefficient of determination (R^2), which indicates a better ability of the model to explain the variation in the data.

For a more detailed analysis of the effectiveness of the model, an assessment of the accuracy of forecasts was carried out for different groups of countries classified by income level according to the methodology of the World Bank (Figure 3).

The analysis showed that the model demonstrates the highest accuracy for high-income countries, while the predictions for low-income countries have a slightly larger margin of error. This may be due to the greater volatility of innovation indicators in less developed economies and the limited availability of data.

The assessment of the accuracy of forecasts on the test sample showed that the developed neural network provides a mean absolute error (MAE) [8] of 1.23 GII points, which is 18% less compared to the traditional linear regression model [9] (MAE = 1.50) and 12% less compared to the random forest model [10] (MAE = 1.40).

The SHAP (SHapley Additive explanations) method [11] was used to interpret the results of the neural network.

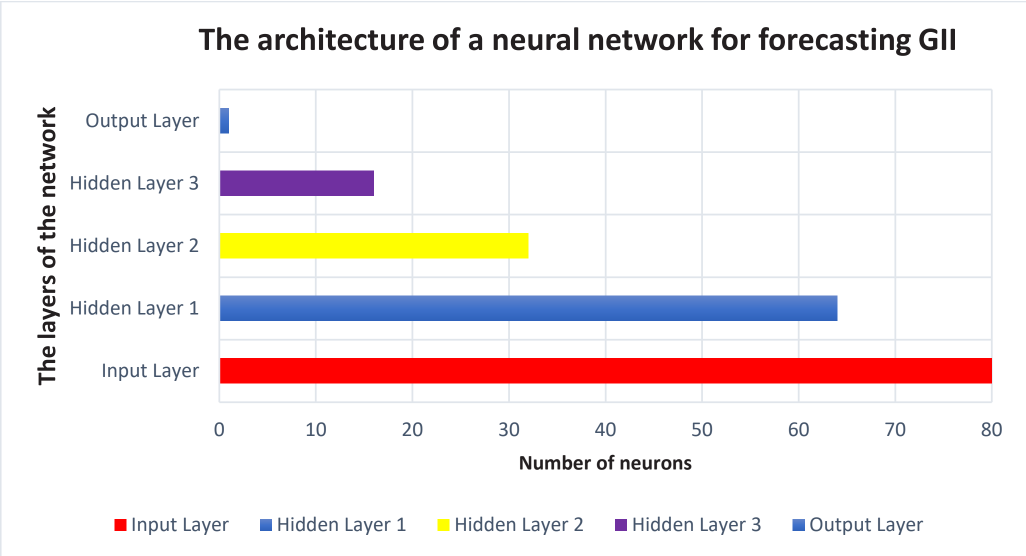

Fig. 2 – The architecture of a neural network for forecasting GII

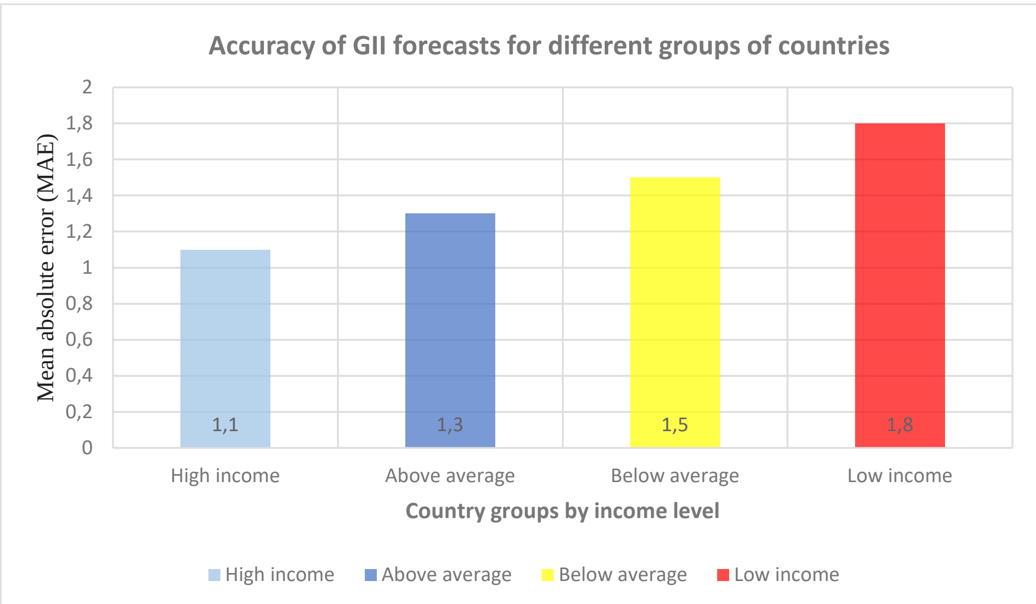

Fig. 3 – Accuracy of GII forecasts for different groups of countries

This made it possible to identify key factors affecting the GII forecast for specific countries. Figure 4 shows an example of SHAP values for the GII forecast in Ukraine for 2024.

The analysis of SHAP values showed that the following factors have the greatest influence on the forecast of the GII in Ukraine:

1. Research and development costs (% of GDP)
2. Number of patent applications per million persons
3. Quality of scientific publications (Hirsch index)
4. Export of high-tech products (% of total export)
5. Number of researchers per million persons

Practical application of the developed model to support decision-making in the field of innovation policy may include:

1. Forecasting the dynamics of GII for different countries and regions
2. Identification of key factors affecting innovative development
3. Assessment of the potential impact of various policy measures on GII
4. Comparative analysis of innovative strategies of different countries

Interpretation of results

Several methods were used to ensure transparency and interpretability of neural network results:

1. SHAP (SHapley Additive explanations) – allows you to estimate the impact of each input factor on the forecast for a specific observation.
2. Partial Dependence Plots (PDP) – visualize the average effect of changing one input factor on the forecast, keeping other factors constant.
3. Accumulated Local Effects (ALE) plots – similar to PDP, but takes into account correlations between input variables.

Figure 5 shows an example of a Partial Dependence Plot for the factor "Expenditure on research and development (% of GDP)".

The graph shows a non-linear relationship between R&D costs and the predicted GII value. In particular, there is a more rapid growth of GII when spending increases to about 2% of GDP, after which the effect becomes less pronounced.

The analysis of SHAP values for different countries made it possible to identify key factors influencing their innovative development. Table 2 presents the top 5 factors for selected countries.

These results can be used to develop targeted strategies for increasing the innovative potential of countries, taking into account their specific features.

The practical application of the developed model can be used to solve a number of practical tasks in the field of innovation policy:

1. Scenario analysis: assessment of the potential impact of various policy measures on the country's GII. For example, the effect of increasing R&D costs or improving the quality of education can be modeled.
2. Benchmarking: comparing the innovation potential of different countries and identifying areas for improvement.
3. Progress monitoring: tracking the dynamics of GII and its components to assess the effectiveness of implemented innovative policies.
4. Forecasting trends: identifying long-term trends in the global innovation landscape.

Despite the high accuracy of forecasts, the developed model has certain limitations:

1. Dependence on the quality of the input data: the accuracy of forecasts may decrease in the presence of errors or omissions in the input data.

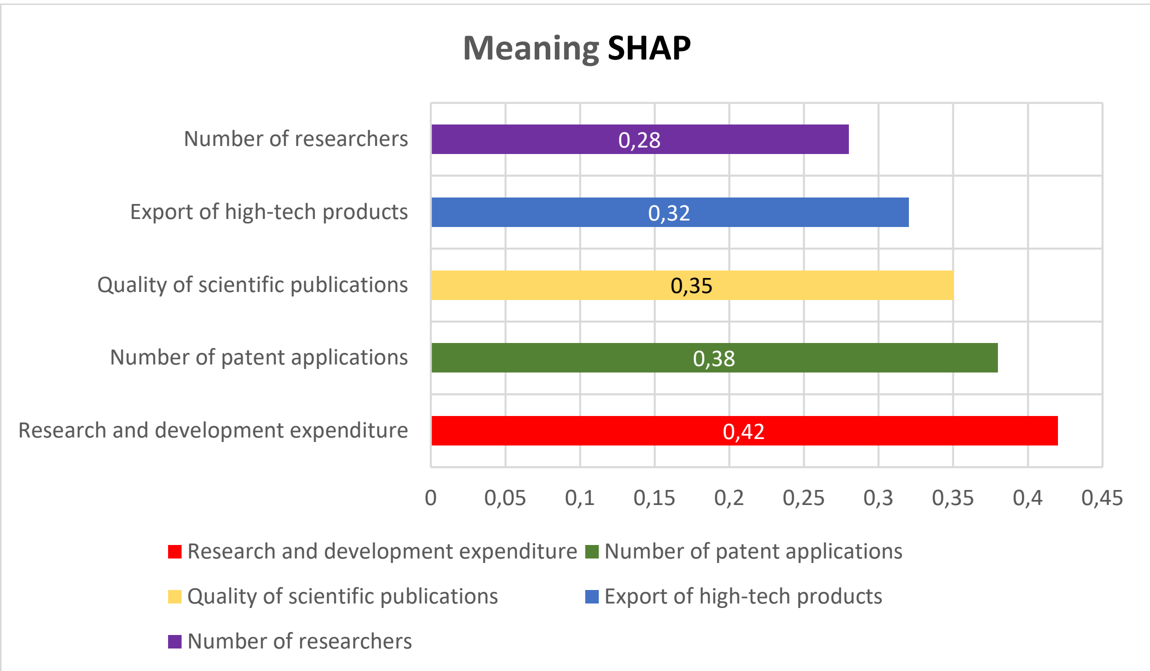

Fig. 4 – SHAP value for the forecast of GII in Ukraine

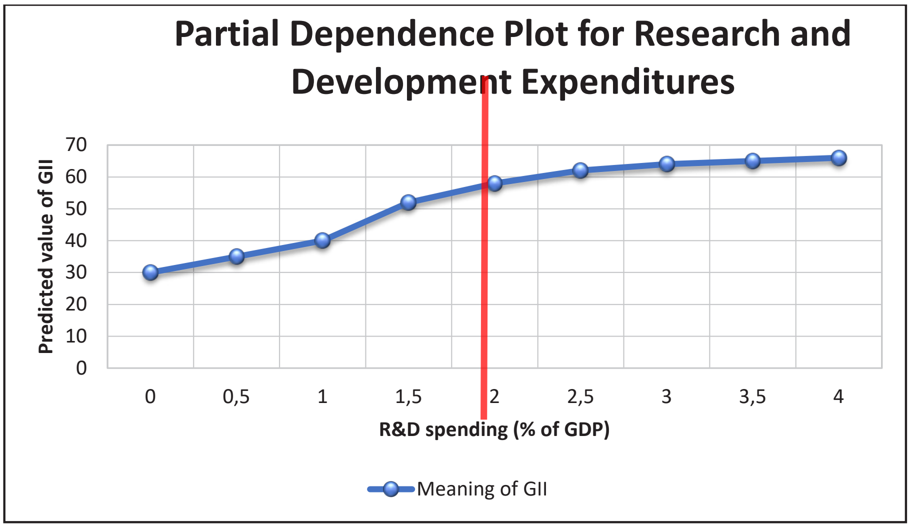

Fig. 5 – Partial Dependence Plots for research and development costs

Table 2 – Key influencing factors on GII for selected countries

Country	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
USA	R&D expenses	Patent applications	Quality of universities	Venture capital	Export of high technologies
China	Patent applications	R&D expenses	Export of high technologies	Number of researchers	Quality of publications
Germany	R&D expenses	Quality of universities	Science and business cooperation	Patent applications	Export of high technologies
Ukraine	Human capital	Export of ICT services	Patent applications	Education expenses	Number of researchers

2. Complexity of interpretation: although the applied SHAP and PDP methods improve interpretability, the general "black box" of the neural network remains a challenge.

3. Sensitivity to changes in the GII methodology: significant changes in the index calculation methodology may require model retraining.

To overcome these limitations and further improve the model, the following areas of research are proposed:

1. Development of hybrid models combining neural networks with other methods of machine learning and statistical analysis.

2. Implementation of active learning methods to adapt the model to new data and changes in GII methodology.

3. Researching the possibilities of using graph neural networks for better modeling of the relationships between the components of GII.

4. Development of methods for automatic detection and correction of anomalies in input data.

5. Integration of expert knowledge in the process of training and interpretation of the model to increase its reliability and practical value.

Conclusions

The developed model for forecasting the Global Innovation Index based on neural networks represents an important step in the direction of more accurate and reasonable planning of innovative development. It demonstrates the potential of using deep neural networks to predict complex socio-economic indicators, such as the Global Innovation Index. The high accuracy of forecasts achieved by the developed model testifies to its ability to take into account complex non-linear interrelationships between various factors affecting the innovative development of countries.

It is especially important that the model not only provides accurate predictions, but also allows interpretation of the results thanks to the application of the SHAP and Partial Dependence Plots methods. This makes it a useful tool for decision-makers in the field of innovation policy, as it allows you to understand which factors have the greatest impact on a country's innovation potential.

At the same time, the revealed limitations of the model, in particular the different accuracy of forecasts for countries with different income levels, indicate the need for further research and improvements. This may involve developing specialized models for different groups of countries or implementing transfer learning techniques to improve predictions in cases with limited data.

It is important to note that although the developed model demonstrates high accuracy, it should not be considered as a substitute for expert analysis and traditional methods of assessing innovation potential. Instead, it should serve as an additional tool that complements existing approaches and contributes to more informed decision-making.

Ultimately, the successful application of tools such as the developed model depends on the ability of decision makers to interpret and use their results in the context of broader socio-economic goals and ethical principles. Only under such conditions will we be able to fully realize the potential of innovation for sustainable development and improvement of people's lives around the world.

Prospects for further research include:

1. Development of ensemble and hybrid models combining neural networks with other machine learning methods and expert systems to increase the accuracy and reliability of forecasts.

2. Exploring the possibilities of applying transfer learning to improve forecasts for countries with limited historical data.

3. Development of adaptive learning methods that will allow the model to automatically adapt to changes in the methodology of GII calculation and new trends in innovative development.

4. Integrating additional data sources, such as textual data from scientific publications and patents, to enrich the input information and potentially improve predictions.

5. Development of methods for explaining and visualizing neural network results, aimed at decision-makers in the field of innovation policy.

6. Study of the long-term effects of various innovation policies on GII using the developed model and historical data.

7. Creation of a platform for collaborative GII forecasting, which would allow experts from different countries to contribute their data and receive aggregated forecasts.

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NATIONAL ECONOMY'S MARKET MECHANISMS OF ACCOUNTING, ANALYSIS AND AUDIT

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PROBLEM ASPECTS OF ACCOUNT OF PRODUCTIVE SUPPLIES AND THEIR REFLECTION ARE IN FINANCIAL REPORTING

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Key words:
supplies, classification of supplies, productive supplies, account of supplies, reflection of supplies in the financial reporting, national positions standards of record-keeping, international standards of the financial reporting.

The article is sanctified to the problem of research of account of productive supplies and their reflection in the financial reporting of enterprises. Positions of scientists are generalized in relation to possibilities of interpretation of concept «productive supplies». Analysed and generalized traditionally taken approach near classification of productive supplies. The comparative analysis of reflection is conducted in accounting of supplies for National Accounting Standards and International Accounting Standards.
A necessity is investigational for the enterprises of Ukraine of application of international standards of the financial reporting. The comparative analysis of opening of information is conducted in the financial reporting about the state of supplies of enterprise on international and national standards.The features of methods of presentation of information are considered about supplies depending on basic tasks to their account and control. It is accented on problem questions in relation to the order of forming and transformation of information in the financial reporting about the state of supplies of enterprise, with the aim of influence on the acceptance of effective administrative decisions.Undertaken a study allowed to distinguish basic problems at the reflection of information about supplies in the financial reporting, formed on national standards. The necessity of harmonization of National Accounting Standards and IAS, with the aim of simplification of regulation of account. Influence of the got results is certain on the acceptance of administrative decisions.

ПРОБЛЕМНІ АСПЕКТИ ОБЛІКУ ВИРОБНИЧИХ ЗАПАСІВ ТА ЇХ ВІДОБРАЖЕННЯ У ФІНАНСОВІЙ ЗВІТНОСТІ

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Ключові слова:
запаси, класифікація запасів, виробничі запаси, облік запасів, відображення запасів у фінансовій звітності, національні положення стандарти бухгалтерського обліку, міжнародні стандарти фінансової звітності.

Стаття присвячена проблемі дослідження обліку виробничих запасів та їх відображення у фінансовій звітності підприємств. Узагальнено позиції науковців стосовно можливостей трактування поняття «виробничі запаси». Проаналізовано та узагальнено традиційно використовувані підходи до класифікації виробничих запасів. Проведено порівняльний аналіз відображення в обліку запасів за П(С)БО та МСБО. Досліджено необхідність для підприємств України застосування міжнародних стандартів фінансової звітності. Проведено порівняльний аналіз розкриття інформації у фінансовій звітності про стан запасів підприємства за міжнародними та національними стандартами. Розглянуто особливості способів подання інформації про запаси залежно від основних завдань їх обліку та контролю. Акцентовано на проблемних питаннях щодо порядку формування та перетворення інформації у фінансовій звітності про стан запасів підприємства, з метою впливу на прийняття ефективних управлінських рішень. Проведене дослідження дозволило виділити основні проблеми при відображенні інформації про запаси у фінансовій звітності, сформованої за національними стандартами. Доведена необхідність гармонізації НП(С)БО та МСБО з метою спрощення регламентації обліку. Визначено вплив отриманих результатів на прийняття управлінських рішень.

Statement of the problem

Productive supplies play a significant role in the economic activity of the enterprise. Accounting data on inventory levels is a crucial component of information used to assess business performance and reflect the financial position of an entity. Effective inventory management involves careful documentation of all transactions related to receiving, movement, and write-off, determining the correct valuation, as well as controlling the rational use and preservation of material resources. Determination and development of directions for increasing the efficiency of the economic activity of enterprises involves improving the organization of accounting and control of productive supplies, which will allow the management of the enterprise to obtain information for the purpose of optimizing management decisions.

Analysis of latest research and publications

Questions related to the problems of accounting and display of productive supplies in financial reporting were reflected in the works of many domestic scientists such as Butynets F.F., Zadorozhnyi Z.V., Valuev B.I., Linnyk V.G., Sopko V. V., Smolenyuk P.S., Maksimenko I.Ya., Vailo T.V., Gudzenko N.M.

Despite the large number of studies and publications, the system of accounting and control of inventories needs a more detailed definition and development of methodical approaches to its formation for the purpose of further scientific and practical elaboration.

Formulation of the article's objectives

The purpose of this article is to study the theoretical foundations of inventory accounting, the methodology for reflecting them in the financial statements of enterprises, to identify problematic aspects in the chosen topic and to develop recommendations for eliminating shortcomings and improving inventory accounting practices.

The main material of the research

The successful functioning of any enterprise, especially a manufacturing one, directly depends on the effective management of material resources. Inventories are an important item of the company's current assets, and their correct accounting is a necessary condition for making informed management decisions.

They are the bearers of costs and the final result during the production of products throughout the entire production cycle, starting from the release of raw materials and auxiliary materials in production to the receipt and delivery of finished products to the warehouse.

However, in practice, companies face a number of problems related to inventory accounting. Imperfection of accounting systems, changes in market conditions, introduction of new standards in inventory accounting – all this affects the quality of accounting information and, as a result, the reliability of their disclosure in financial statements.

The general approach to inventory accounting and the requirements for disclosing information about them in financial statements are given in International Accounting Standard 2 «Inventories» and in Ukrainian Accounting Standard 9 «Inventories».

In recent years, the Ukrainian accounting system has seen significant changes in the direction of orientation towards international standards. It should be noted that the national standards were developed based on the main international standards, so they have some common features:

1. definition of such terms as «inventories» and «net realisable value»;
2. methods of measurement of inventories;
3. measurement of inventories as of the balance sheet date;
4. disclosure of information about inventories in financial statements.

In general, the concept of "inventories" as an economic category appeared in the early 90s of the 20th century with the adoption of the Law of Ukraine «On Accounting and Financial Reporting in Ukraine» dated July 16, 1999. № 996 and the implementation of national accounting regulations (standards) [2, 3].

However, you should pay special attention to the comparison of the essence of the definition of inventories, which is given in Table 1.

Table 1 – Definition of the essence of «Inventories»

Inventories are assets:	
According to IAS 2 «Inventories»»	According to UAS 9 «Inventories»
1. held for sale in the ordinary course of business.	1. held for for further sale (distribution, transfer) under the conditions of ordinary economic activity.
2. in the process of production for such sale; or in the form of materials or supplies to be consumed in the production process or in the rendering of services.	2. in the process of production for further sale of the product of production.
	3. held for consumption during the production of products, performance of works and provision of services, as well as management of the enterprise/institution.

Source: compiled by the authors based on [1, 2]

However, during the general analysis and comparison of standards, some specific differences were identified, which are disclosure in the Table 2.

So, according to the analysis in the table, we can see that UAS 9 «Inventories» and IAS 2 «Inventories» have common and distinctive features. Thus, the definition of the concept of «inventories», the main concepts related to them, as well as recommendations for the use of methods of inventory estimation in both standards are identical. The main differences between the two standards are inventory composition, inventory valuation methods, and other features listed above in the table.

It should be noted that international standards have both positive and negative features. Their objective advantages over national standards are:

- clear economic logic;
- generalization of the best modern world practice in the field of accounting;
- ease of perception for users of financial information all over the world.

We also note that the standards do not provide a clear definition of the term «productive supplies». In this regard, we will analyze the works of scientists and their interpretation of the essence of this concept in the field of accounting.

Thus, Z. D. Tychuk gives the following definition: «Production inventories – items of labor that are the property of the enterprise, are stored in warehouses, provide the production process only once, change or do not change their form and properties and transfer their value to the value of the created product» [6]. Butynets F. notes that production stocks are labor items intended for the production of products, performance of work, provision of services, maintenance of production and administrative needs [7].

In this way, production inventories are part of current assets, a component of material resources and labor items that play an important role in the production cycle system and fully transfer their value to products (works, services). The place of production inventories in the structure of the company's current assets is shown in Figure 1.

Table 2 – The main differences in inventory accounting IAS and UAS

Comparison feature	IAS 2 «Inventories»	UAS 9 «Inventories»
Inventory classification	1. Basic and auxiliary materials; 2. Work in progress; 3. Goods; 4. Finished goods produced; 5. Production stocks.	1. Raw materials, basic and auxiliary materials, component products; 2. Work in progress; 3. Finished goods produced; 4. Goods; 5. Consumables, expendables; 6. Current biological assets, provided that they are assessed in accordance with UAS 9.
Measurement of inventories:		
– on the date of receipt	For cost price	At original cost, which depends on the method of receipt of inventory, for example: 1. stocks produced by our own forces – at production cost; 2. received free of charge – at fair value.
– on the balance sheet date	Inventories shall be measured at the lower of cost and net realisable value.	Inventories shall be measured at the lower of original cost and net realisable value.
User orientation	More focused on the needs of a wide range of users of financial statements.	More adapted to the specifics of the national economy.
Requirements for disclosure of information about inventories in financial statements	It is necessary to disclose information about: 1. the amount of any reversal of any partial write-off, recognized as a reduction in the amount of inventory, which is recognized as an expense of the period; as well as the circumstances and events that caused the reversal of such write-off.	It is necessary to disclose information about: 1. the balance sheet (accounting) value of inventories transferred for processing, on commission, as collateral; 2. the amount of the increase in the net realizable value, according to which the invenrory assessment was carried out.
Other differences	There are nuances regarding the rules of inventory accounting by commodity exchange brokers. It is also stated that in the part of accounting for inventories purchased under the condition of deferred payment, the element of financing is defined as interest expenses during the financing period.	There are special valuation rules for accounting of such inventories: 1. received in exchange for other stocks; 2. free stock received; 3. inventories contributed to the share capital.

Source: compiled by the authors based on [1, 2]

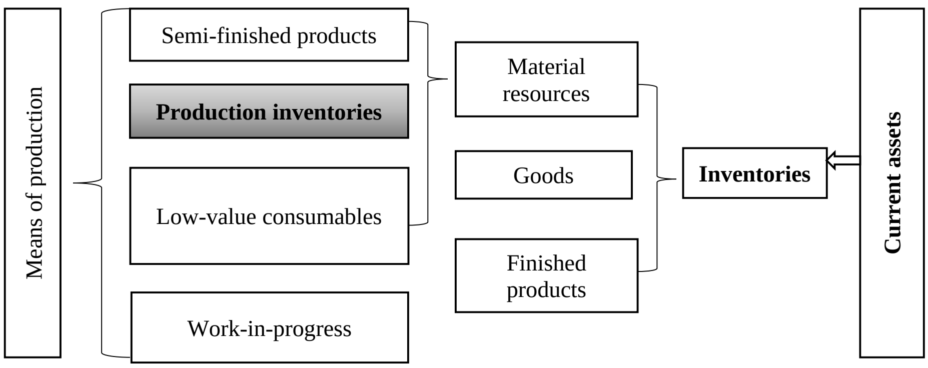

Fig. 1 – The place of production inventories in the structure of current assets at the enterprise

An equally important role in the accounting of production inventories is played by their classification, which is necessary for a correct understanding of the accounting organization. The main classification of stocks is given in the «Chart of accounts of accounting of assets, capital, liabilities and economic operations of enterprises and organizations». It is placed on account 20 «Production inventories» that the following objects are recorded:

− 201 «Raw materials»;
− 202 «Purchasable semi-finished products and component products»;
− 203 «Fuel»;
− 204 «Containers and packaging materials»;
− 205 «Construction materials»;
− 206 «Materials transferred for processing»;
− 207 «Spare parts»;
− 208 «Agricultural materials»;
− 209 «Other materials».

Each company has its own specific needs and requirements for inventory management. That is why it is extremely necessary to classify inventories depending on how they are used. According to the results of the study, the classification of production stocks is generalized [4, 5].

According to the reasons for their formation and purpose, production inventories are divided into permanent and seasonal. Permanent inventories are a part of production inventories that are involved in ensuring the continuity of the enterprise's production process between two regular deliveries. Accordingly, seasonal inventories are those formed during seasonal production or seasonal transportation.

By destination, inventories are divided into warehouse, in production, and in transit.

In terms of volume, inventories are divided into free (those that are in excess at the enterprise) and restricted (those that are in limited quantities at the enterprise).

In relation to the balance sheet, inventories are divided into on-balance sheet (inventories owned by the company and reflected in the balance sheet) and off-balance sheet (inventories not owned by the company and held by it due to certain circumstances).

The given classification of stocks ensures the implementation of the main tasks of the organization of accounting and control of production stocks, including: optimal definition of the accounting unit and formation of the price nomenclature; efficient warehouse management; reliable determination of the initial cost of stocks, conditions of revaluation as of the balance sheet date and methods of their assessment upon disposal. In addition, this classification contributes to the complete and reliable display of information about stocks in financial statements. Thus, the classification of an enterprise's inventory depends on the place of inventory in the production process and its specifics (industry, technological features, organizational structure).

According to the international standard, the following should be disclosed in financial statements (Fig. 2):

According to UAS 9 «Inventories», the next information should be disclosed in the financial statements (Fig. 3):

Basic information about inventories is usually disclosed in the balance sheet (statement of financial position) and notes to the financial statements. In the balance sheet, inventories are recognized in the current assets section.

The notes provide more detailed information on measurement methods, inventory movements, impairment and other material aspects.

Conclusions

The study of the essence of the concept of "production stocks" has made it possible to determine that stocks are one of the key factors of industrial production efficiency.

- accounting policies adopted for inventory valuation, including cost formulas used;
- the total book value of inventories and the book value according to the classifications acceptable for the business entity;
- book value of inventories, reflected at net realizable value minus costs of sale;
- the amount of inventory recognized as expenses during the period;
- the amount of any partial inventory write-down recognized as an expense during the period;
- the amount of any reversal of any partial write-off recognized as a reduction in inventory recognized as an expense for the period;
- circumstances or events that caused the reversal of the partial write-off of inventories;
- book value of stocks pledged to guarantee liabilities.

Fig. 2 – Basic requirements for disclosure of information about inventories in financial statements according to IAS 2 [1]

- inventory assessment methods;
- the book (accounting) value of inventories in terms of individual classification groups;
- balance (accounting) value of inventories, which are reflected at net realizable value;
- the balance (accounting) value of inventories,transferred for processing, on commission, pledged;
- the amount of increase in net realizable value at which inventories were valued.

Fig. 3 – Basic requirements for disclosure of information about inventories
in financial statements according to UAS 9 [2]

Their accounting and control over their use are regulated by regulatory and legislative acts.

As a result of the comparative analysis of inventory accounting under UAS and IAS, it is substantiated that the main differences between the two standards are the composition of inventories and methods of inventory valuation.

It is proved that an important role in the accounting of production inventories is played by their classification, which is necessary for a correct understanding of the organization of accounting. The classification of an enterprise's inventories depends on the place of inventories in the production process and their specifics.

At the legislative level, there is a need to harmonize UAS and IAS in order to simplify accounting regulations, which would allow foreign users of financial statements to obtain more detailed information about the activities of an entity, which is a necessary component when considering possible investment.

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SPECIAL ASPECTS OF ORGANIZING ACCOUNTING IN SMALL BUSINESS ENTERPRISES

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Key words:
accounting, accounting system, accounting policy, simplified financial reporting, small enterprise, microenterprise, simplified chart of accounts, double-entry principle.

The article studies the special aspects of accounting organization in small business enterprises in Ukraine. The author's adaptation of the forms of accounting organization provided for by the current legislation in the field of information support for the management of small business enterprises is presented. It is determined that the only fundamental consequence of an enterprise acquiring the status of a small enterprise or microenterprise is the composition and procedure for forming financial statements, because these legal entities are obliged to form simplified financial statements in order to provide users with information about the financial condition and results of their activities. The content and information-analytical purpose of the elements of simplified financial reporting are systematized. The issues of the regulatory features of the formation of the accounting system of small business enterprises are analyzed, which include the simplified Chart of Accounts, as well as the possibility for some micro-enterprises to keep accounting records without adhering to the principle of double entry and simplifying certain accounting procedures at micro-enterprises. It has been proven that the refusal to adhere to the double-entry principle is inappropriate when organizing the accounting of microenterprises, as this deprives accounting of an effective internal control mechanism and significantly reduces the quality of the microenterprise accounting system. The reasons for the refusal of the vast majority of small businesses from the simplified Chart of Accounts are established, which primarily include an insufficient level of detailing of accounting objects, as well as accounting traditions, including regarding its automation. The feasibility of adopting the accounting policy of microenterprises to simplify accounting procedures by refusing to revalue non-current assets and refusing to form provisions and a reserve for doubtful debts is analyzed. It is established that the adoption of a final decision on determining the elements of the accounting policy regarding the acceptance or rejection of the provided simplifications must take into account the characteristics of each individual microenterprise, including its interests in terms of optimizing the tax burden.

ОСОБЛИВІ АСПЕКТИ ОРГАНІЗАЦІЇ ОБЛІКУ НА ПІДПРИЄМСТВАХ МАЛОГО БІЗНЕСУ

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Ключові слова:
облік, облікова система, облікова політика, спрощена фінансова звітність, мале підприємство, мікропідприємство, спрощений план рахунків, принцип подвійного запису.

У статті виконано дослідження особливих аспектів організації бухгалтерського обліку на підприємствах малого бізнесу в Україні. Презентована авторська адаптація передбачених чинним законодавством форм організації бухгалтерського обліку в площині інформаційного забезпечення управління підприємств малого бізнесу. Визначено, що єдиним принциповим наслідком набуття підприємством статусу малого підприємства або мікропідприємства є склад та порядок формування фінансової звітності, адже зазначені юридичні особи з метою надання користувачам інформації про фінансовій стан та результати діяльності зобов'язані формувати спрощену фінансову звітність. Систематизовано зміст та інформаційно-аналітичне призначення елементів спрощеної фінансової звітності. Проаналізована проблематика передбачених нормативно особливостей формування облікової системи підприємств малого бізнесу, до яких належать спрощений План рахунків бухгалтерського обліку, а також можливість для деяких мікропідприємств вести бухгалтерський облік без дотримання принципу подвійного запису та спрощення окремих процедур обліку на мікропідприємствах.

Доведено, що відмова від дотримання принципу подвійного запису є недоцільною при організації обліку діяльності мікропідприємств, адже це позбавляє облік дієвого механізму внутрішнього контролю і суттєво знижує якість облікової системи мікропідприємства. Встановлено причини відмови переважної більшості підприємств малого бізнесу від спрощеного Плану рахунків, до яких насамперед належать недостатній рівень деталізації об'єктів обліку, а також традиції обліку, в тому числі щодо його автоматизації. Проаналізована доцільність прийняття в облікову політику мікропідприємств спрощення облікових процедур шляхом відмови від переоцінки необоротних активів та відмови від формування забезпечень та резерву сумнівних боргів. Встановлено, що прийняття остаточного рішення визначення елементів облікової політики щодо прийняття або відмови від передбачених спрощень має враховувати особливості кожного окремого мікропідприємства, у тому числі його інтереси в площині оптимізації податкового навантаження.

Statement of the problem

The development of small businesses is an important component of the socio-economic development of Ukraine in modern conditions. It is small businesses that are able to relatively quickly provide consumers with domestic goods and necessary services, increase the number of available jobs and the amount of tax revenues to the state and local budgets. The successful functioning of small businesses alongside large corporations is an effective mechanism for counteracting monopolization through the development of active competitive relations, because small businesses are anti-monopoly by their economic nature. An important function of small business should also be recognized as the democratization of market relations and the mitigation of social tension in society, because the owners of small businesses are a fundamental component of the formation of the so-called middle class.

Small businesses in a tough competitive environment, despite the positive aspects of mobility, flexible organization and some state support, are much more vulnerable compared to big business. That is why their effective work, maintenance of a stable financial condition and active development require special approaches to management. This in turn makes the issue of forming a high-quality accounting system in each small enterprise relevant, because making effective management decisions is impossible without appropriate information support. The organization of accounting in small business enterprises in the regulatory plane is characterized by certain features that must be taken into account in practice, which is why the study of special aspects of the organization of accounting in small business enterprises is an extremely important and relevant issue both for modern economic science and for the practice of accounting management support in every small enterprise.

Analysis of recent studies and publications

Various components of the issue of organizing accounting at small business enterprises are actively studied by many scientists. Thus, in the scientific works of O.A. Podolianchuk [1], I.M. Belova [2] and others, the issue of forming a system of accounting registers for small business enterprises is considered. This issue is undoubtedly relevant, but in the conditions of active spread of accounting automation, it is worth, in our opinion, to pay attention to the fact that today the overwhelming majority of small enterprises do not form such a system of accounting registers independently, but actually adopt it for use, choosing one or another software product for automating accounting. Accordingly, this issue changes the plane of relevance from the organization of accounting at individual small enterprises to the plane of methodological support for the development of software accounting products for small business enterprises.

The scientific literature studies the influence of the taxation system on the organization of accounting for small enterprises. In particular, this is emphasized by O.A. Podolianchuk [1], A.V. Dovbush and H.I. Davydovska [3], but, in our opinion, the influence of the taxation system should be studied not directly, but indirectly in the context of the formation of the accounting policy of small enterprises. This aspect and the issue of the formation of the accounting policy of small enterprises in general are extremely relevant. Regarding its justification and development, it is worth noting the scientific works of T.A. Gogol [4], H.V. Hryshchuk [5], S.M. Semenova and O.M. Shpyrko [6]. This issue should be recognized as quite multifaceted, because the focus is not only on the formation of accounting policies as a whole, the impact of its individual elements on the size of financial results and other indicators of financial reporting of small enterprises, but also on the issue of confidentiality of accounting policies, because according to some researchers, «it would be fair to require even small and micro-enterprises to briefly disclose key aspects of the chosen accounting policies in the notes to the annual financial statements, since the information contained therein can influence the decisions of users» [6, p. 103].

It is worth recognizing the research in the area of the implementation of management accounting in small business enterprises as interesting. Thus, L.M. Ocheretko and N.V. Krasovska, based on the results of the research, substantiate the conclusion that «taking into account the characteristic features of the simplified management system in small business enterprises, there is an urgent need to resolve methodological issues of introducing simplified management accounting» [7, p. 91].

Summarizing the above analysis, it is worth noting that despite the large number of scientific studies on the features of the formation of the accounting system in small enterprises, systematic changes in domestic legislation, as

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well as the development of business and accounting practice, actualize new tasks and the need for further scientific research on the features of the organization of accounting in small business enterprises. In our opinion, the issues of clear systematization and analysis of special aspects of the organization of accounting in small business enterprises deserve special attention.

Objectives of the article

The purpose of the study is to systematize and critically analyze the specific aspects of accounting organization in small businesses in order to create methodological conditions for improving the organization of the accounting system of such enterprises.

The main material of the research

Small businesses are business entities – legal entities established and operating for profit. Like other businesses, they are required to keep accounting records in accordance with the current legislation, as Article 3 of the Law of Ukraine dated 16.07.1999. № 996-XIV «On Accounting and Financial Reporting in Ukraine» stipulates that «accounting is a mandatory type of accounting maintained by an enterprise» [8].

The criteria for identifying small businesses, provided for by the current legislation to regulate accounting and financial reporting, are systematized in Table 1.

Initially, the organization of accounting at any small business enterprise involves choosing the form of its organization from the list of possible ones, which are provided for in Article 8 of the Law of Ukraine № 996-XIV. On this issue, it is worth noting that microenterprises and small enterprises have a full choice of the specified forms, since the financial statements of such enterprises should not be made public, and only those enterprises that are of public interest are obliged to create an accounting department headed by a chief accountant. The author's adaptation of the forms of accounting organization provided for by current legislation in the field of information support for the management of small business enterprises is presented in Figure 1.

The fundamental consequence of an enterprise acquiring the status of a small enterprise or microenterprise is to recognize the type of financial reporting that should be compiled based on the results of its activities on the basis of accounting data in order to «provide users with complete, true and unbiased information about the financial condition and results of the enterprise for decision-making» [8]. In accordance with the norms of the National regulation (standard) of accounting 25, small enterprises and microenterprises form simplified financial reporting in the forms «Financial reporting of a small enterprise» (forms 1-m, 2-m) or «Financial reporting of a microenterprise» (forms 1-ms, 2-ms). Such simplified financial reporting consists of a balance sheet and a report on financial results and presents information in a more generalized and abbreviated form than the financial reporting of medium-sized and large enterprises. It is also worth noting that small and micro-enterprises (except for public interest enterprises and enterprises that are public sector entities), unlike large and medium-sized enterprises, are not required to publish their annual financial statements together with the audit report on their website or website, although such annual

Table 1 – Criteria for identifying small businesses (compiled from source [8])

Type of enterprise by size	**Criteria for identifying an enterprise by size ***		
	book value of assets	**net income from sales of products (goods, works, services)**	**average number of employees**
Microenterprise	up to 350 thousand euros	up to 700 thousand euros	up to 10 people
Small business	up to 4 million euros	up to 8 million euros	up to 50 people
* indicators as of the date of preparation of the annual financial statements for the year preceding the reporting year must meet at least two of the specified criteria			

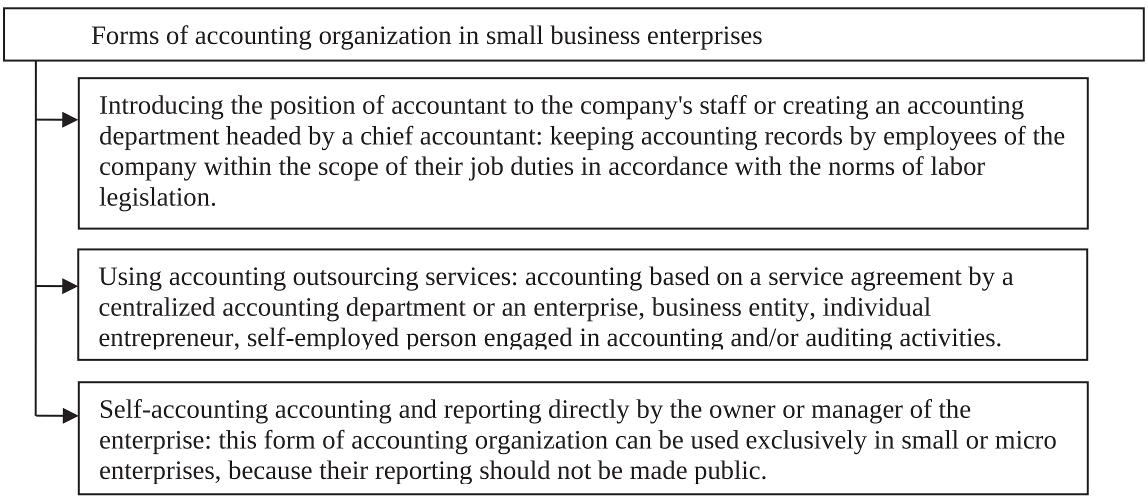

Fig. 1 – Forms of accounting organization in small businesses enterprises in Ukraine

financial statements are recognized as public information – accordingly, «enterprises are required to provide copies of financial statements upon request of legal entities and individuals in accordance with the procedure provided for by the Law of Ukraine «On Access to Public Information» [8].

The composition, content, and information and analytical purpose of the elements of simplified financial reporting of small business enterprises are systematized in Table 2.

It is also worth noting that the norms of NR(s)A 25 «Simplified Financial Reporting» do not apply to enterprises that, in accordance with the legislation, prepare financial statements in accordance with international financial reporting standards. Accordingly, such legal entities (even if they belong to small enterprises in terms of size) form financial statements in accordance with the norms of NR(s)A 1 «General Requirements for Financial Reporting». Other features of the formation of the accounting system of small business enterprises, which are provided for by current regulatory documents, are not mandatory for application in the practical sphere of accounting organization. Their essence and analysis of feasibility are presented in Table 3.

The possibility of accounting without observing the double-entry principle as an element of simplifying the organization of accounting is provided only for micro-enterprises that are not payers of value-added tax. But it is worth noting that in practice the adoption of such a simplification has not become widespread, because it is difficult to accept its expediency. Having appeared in the business environment, the double-entry principle has proven itself extremely positively over the centuries precisely as a tool for internal control (self-control) of the correctness of systematized accounting information regarding the activities of the enterprise. The important result of observing the double-entry principle should be recognized as logical internal control of the correctness of determining the financial result of the activity, because only under the condition of observing the double-entry principle, the profit received is embodied in an increase in the value of net assets, and the losses incurred, on the contrary, reduce the value of the net assets of the enterprise. Thus, failure to comply with the double-entry principle fundamentally increases the risk of distortion of accounting data regarding the obtained financial results of activities, which may also be subject to taxation, since some micro-enterprises are on the general taxation system and are payers of income tax. In any case, information on financial results is extremely important, as is information on the value of assets and existing liabilities, accordingly, no enterprise should refuse the mechanism of internal control over the correctness of accounting, which is compliance with the double-entry principle. It is also worth noting that accounting without compliance with the double-entry principle fundamentally complicates any external control of the correctness of the indicators of financial reporting compiled from the results of such accounting, and conservatively minded specialists may

Table 2 – Composition, content and information and analytical purpose of simplified financial reporting elements

Elements of simplified financial reporting	Content of elements of simplified financial reporting	Information and analytical purpose of elements of simplified financial reporting
Balance (1m and 1ms forms)	Information on the value of assets, equity and liabilities at the beginning and end of the reporting period	Assessment of the structure of assets and liabilities of the enterprise, its financial condition, the level of liquidity of assets and solvency; forecasting the further prospects of the enterprise's development
Financial results report (forms 2m and 2ms)	Information on income, expenses and financial results of the enterprise for the reporting period	Analysis of the structure and dynamics of income and expenses, the level of profitability and profitability of the enterprise, forecasting the prospects of profitable activity for the future

Table 3 – Regulatory features of the formation of the accounting system of small business enterprises

Essence and normative source	Comment
1. Article 3 of the Law of Ukraine “On Accounting and Financial Reporting in Ukraine” provides for the possibility for enterprises belonging to micro-enterprises (except for enterprises of public interest) and not registered as value added tax payers to keep records without observing the double-entry principle. Normative source [8].	This option is provided only for micro-enterprises that are not VAT payers. Not mandatory. Not appropriate, as it contradicts the basic idea of accounting and deprives the enterprise of an internal mechanism for controlling accounting records. Not common in practice.
2. Simplified Chart of Accounts for Accounting, provided for small enterprises and microenterprises by the Order of the Ministry of Finance of Ukraine dated April 19, 2001. № 186. Normative source [9].	It is not mandatory to apply. In reality, it is practically not used in the accounting practice of small enterprises due to the lack of the necessary level of detail, as well as due to the established accounting traditions, including regarding its automation, in favor of the Chart of Accounts, provided for by the Order of the Ministry of Finance of Ukraine dated 30.11.1999. № 291.
3. Clause 7 of NR(s)A 25 provides for simplification of accounting practices for microenterprises by refusing to revalue non-current assets to fair value, refusing to create security for subsequent expenses (payments) and forming a reserve for doubtful debts. Normative source [10].	Provided only for micro-enterprises. Not mandatory, but in practice quite common. The feasibility of adopting such simplifications in accounting policy should be analyzed separately for each such enterprise.

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generally be skeptical of the results of such accounting, despite the formal permission to keep accounting without compliance with the double-entry principle.

Another fundamental feature of the organization of accounting in small business enterprises is the possibility of using the so-called simplified Chart of Accounts, approved by Order of the Ministry of Finance of Ukraine dated April 19, 2001. № 186. According to the norms of this document, «the simplified Chart of Accounts may be used by legal entities that, in accordance with the Law of Ukraine «On Accounting and Financial Reporting in Ukraine», are recognized as microenterprises, small enterprises, non-entrepreneurial partnerships, as well as representative offices of foreign economic entities» [9]. It is worth paying special attention to the fact that the use of the simplified Chart of Accounts is not a mandatory condition for organizing accounting in small enterprises and microenterprises. In fact, small businesses have a choice – either to organize accounting according to the accounts of the simplified Chart of Accounts, or to use the Chart of Accounts of Assets, Capital, Liabilities and Business Transactions of Enterprises and Organizations, approved by Order of the Ministry of Finance of Ukraine dated November 30, 1999. № 291. Surprisingly, the overwhelming majority of small business enterprises choose the Chart of Accounts approved by Order № 291, ignoring the possibility of using the simplified Chart of Accounts.

Analyzing the reasons why the simplified Chart of Accounts has not been actively used in the accounting practice of small businesses, it is worth paying attention, first of all, to the fact that, in comparison with the Chart of Accounts approved by Order № 291, it does not offer proper detailing of accounting objects – only a list of thirty synthetic accounts without detailing at the level of sub accounts. In practice, such simplification does not provide the expected convenience, but on the contrary provokes many questions. Thus, it is difficult to imagine that on account 68 «Settlements for other operations» it is possible to organize high-quality accounting of settlements simultaneously with suppliers and contractors, with participants, and with short-term loans without additional detailing, because even accounts payable for such settlements forms different balance sheet items of simplified financial reporting. It is also practically impossible to organize simultaneously accounting for settlements with buyers and customers and settlements with accountable persons on account 37 «Settlements with various debtors» without additional detailing, since such settlements differ significantly in the principles of their organization, document flow, type of control and requirements for information needed to make management decisions. Of course, the necessary detailing can be achieved by introducing the necessary subaccounts to the accounts of the simplified Chart of Accounts, but this approach has not been widely used in practice. Instead, specialists prefer to use the Chart of Accounts, approved by Order № 291, which already provides for the necessary level of detailing of accounting objects, including through a system of subaccounts, for organizing accounting at small business enterprises. Additionally, the spread of the general Chart of Accounts in the accounting practice of small business enterprises can be explained by the fact that this particular Chart of Accounts is provided by the vast majority of software products used to automate accounting in small business enterprises, so the decision on the type of chart of accounts is usually made not at the level of individual enterprises, but at the level of the developers of the relevant software.

An important component of the organization of accounting at any enterprise, including a small business enterprise, is the formation of its accounting policy, that is, the definition of a set of «principles, methods and procedures used by the enterprise to maintain accounting records, prepare and submit financial statements» [8]. The vast majority of decisions that must be made within the framework of the formation of the accounting policy of a small business enterprise are standard and cannot be recognized as features of the formation of the accounting policy of a small enterprise or microenterprise. This concerns the determination of the value limit for the identification of fixed assets, the choice of the depreciation method for fixed assets, intangible assets and other non-current tangible assets, the choice of the method for valuing inventories when writing off and other elements of the accounting policy.

But it is also worth paying special attention to the fact that for microenterprises the current legislation provides for certain special additional opportunities in the formation of accounting policy, because according to clause Section 7 of Section I of NR(s)A 25 «Simplified Financial Reporting» provides that microenterprises «may:

− to account for non-current assets only at original cost, without taking into account impairment and revaluation to fair value;

− not to create provisions for subsequent expenses and payments (for payment of subsequent vacations to employees, fulfillment of warranty obligations, etc.), but to recognize the corresponding expenses in the period of their actual incurrence;

− to include current receivables in the balance sheet total at their actual amount» [10].

The listed simplifications in the formation of accounting policies apply only to micro-enterprises, moreover, they are not mandatory, but only possible. Accordingly, the formation of the accounting policy of each micro-enterprise requires a reasoned decision on the adoption of such simplifications or compliance with standard procedures provided for by national accounting standards. Thus, the revaluation of fixed assets requires additional funds for their independent professional assessment and somewhat complicates the accounting work on fixed assets, but if a micro-enterprise plans to attract credit funds secured by fixed assets, then their revaluation can be recognized as meeting the interests of the owners of the enterprise. It is also worth considering that the adoption of simplifications in terms of refusing to create provisions (in particular, provisions for vacation payments) and refusing to form a reserve for doubtful debts, in addition to a certain simplification of accounting, will lead to a temporary overestimation of the accounting assessment of the financial result of the micro-enterprise. At first glance, this would be in the interests of its owners, as it would mean a more optimistic assessment of the financial condition, investment attractiveness and creditworthiness of the enterprise according to financial reporting data. But if a micro-enterprise is on the general taxation system and is a payer of income tax, then such a decision contradicts the tax interests of the enterprise (and, accordingly, its owners), as it can lead to an increase in the tax burden. This aspect is undoubtedly relevant in relation to the provision for vacation payments (which can be formed at any actively operating enterprise that uses the labor of employees), since tax legislation does not provide for adjustments for this type of provision. The conclusion on the appropriateness of forming other types of provisions and a reserve for doubtful debts in order to minimize the tax burden will depend on whether a specific income tax payer adjusts financial results according to accounting data for the differences provided for by the Tax Code to determine the object of taxation (the vast majority of micro-enterprises have the right not to make such adjustments).

Conclusions

The formation of a high-quality accounting system is an important component of managing any small business enterprise, without which it is impossible to ensure effective functioning, stable financial condition, competitiveness and sustainable development. The organization of accounting in small business enterprises can be ensured by creating an accounting department (introducing an accountant to the staff), by using an accounting outsourcing scheme or by keeping records and preparing reports directly by the owner or manager of the enterprise.

The only fundamental consequence of an enterprise acquiring the status of a small enterprise or microenterprise is the composition and procedure for forming financial statements, since such enterprises are obliged to form and provide users with simplified financial statements. Other regulatory features of the formation of the accounting system of small business enterprises are not mandatory and the decision on their adoption is made directly at the level of each individual enterprise. This concerns the application of a simplified Chart of Accounts for accounting, as well as the possibility for some microenterprises to keep accounting records without adhering to the principle of double entry and the simplification of certain accounting procedures for microenterprises.

The Simplified Chart of Accounts, designed specifically for accounting in small and micro-enterprises, has not been widely used in practice, the main reasons for which, in our opinion, are the insufficient level of detailing of accounting objects, as well as the active use of alternative Chart of Accounts by software products designed to automate accounting.

Organizing accounting for micro-enterprises without adhering to the double-entry principle cannot be considered appropriate, because this does not simplify accounting, but deprives the accounting system of a powerful internal control mechanism and thus has a clear negative impact on its quality level, and also complicates external control of the correctness of accounting and reporting.

The decision on the advisability of adopting into the accounting policy of microenterprises the simplification of accounting procedures by refusing to revalue non-current assets and refusing to form provisions and a reserve for doubtful debts cannot be universal, as it must take into account the specifics of each individual microenterprise, including its interests in terms of optimizing the tax burden.

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THEORETICAL AND APPLIED ASPECTS OF ECONOMIC PROCESSES IN UKRAINE AND IN THE WORLD ECONOMY

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ESSENCE AND GOALS OF MODERN IMPORT POLICY OF UKRAINE

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Key words:
foreign economic relations, import policy, competitiveness, economic security, globalization, economic stability.

The article is devoted to a comprehensive analysis of the modern import policy of Ukraine, its essence and strategic goals. It examines the key factors that determine the formation of import priorities, as well as the challenges that the country faces in the context of globalization and economic instability. The text emphasizes the need to diversify import sources to reduce dependence on individual countries, as well as the importance of implementing European standards. This will not only improve the quality of imported goods, but will also become the basis for integration with European markets. Prospects for the development of foreign trade, as well as the role of import policy in ensuring the economic security of Ukraine, are studied. The author emphasizes the importance of import policy for stimulating domestic production, as it can serve as a catalyst for the introduction of innovations and technological renewal in Ukrainian companies. This, in turn, will positively affect the competitiveness of the national economy. Based on the analysis, the author concludes that an effective import policy is critically important for the country's economic growth and stability. The main emphasis should be on diversifying supplies, reducing dependence on specific countries, and strengthening integration processes with European markets. Investments in the development of domestic production, which will contribute to overall economic growth, are also important. Thus, Ukraine's import policy should become a powerful tool for achieving economic security, sustainable development and improving the overall competitiveness of the country in the face of global challenges. Effective regulation of import policy requires a balanced approach that combines support of the domestic producer and provision of the needs of the domestic market. The saturation of the domestic market with imported goods leads to an increase in the standard of living, as it satisfies the needs and preferences of consumers and improves the quality of life. One of the key tasks of the modern import policy of Ukraine is to ensure a balance between the protection of domestic production and the provision of access to high-quality foreign goods and technologies for the modernization of the national economy.

СУТНІСТЬ ТА ЦІЛІ СУЧАСНОЇ ІМПОРТНОЇ ПОЛІТИКИ УКРАЇНИ

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Ключові слова:
зовнішньоекономічні відносини, імпортна політика, конкурентоспроможність, економічна безпека, глобалізація, економічна стабільність.

Стаття присвячена всебічному аналізу сучасної імпортної політики України, її сутності та стратегічних цілей. Вона досліджує ключові фактори, які визначають формування імпортних пріоритетів, а також ті виклики, з якими стикається країна в умовах глобалізації та економічної нестабільності. У тексті акцентується на необхідності диверсифікації імпортних джерел для зменшення залежності від окремих країн, а також на важливості імплементації європейських стандартів. Це не лише сприятиме підвищенню якості імпортованих товарів, але й стане основою для інтеграції з європейськими ринками. Досліджуються перспективи розвитку зовнішньої торгівлі, а також роль імпортної політики в забезпеченні економічної безпеки України.

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Підкреслено важливість імпортної політики для стимулювання внутрішнього виробництва, оскільки вона може слугувати каталізатором для впровадження інновацій та технологічного оновлення в українських компаніях. Це, в свою чергу, позитивно вплине на конкурентоспроможність національної економіки. На основі проведеного аналізу, автор доходить висновку, що ефективна імпортна політика є критично важливою для економічного зростання та стабільності країни. Основні акценти повинні бути зосереджені на диверсифікації постачань, зменшенні залежності від конкретних країн та посиленні інтеграційних процесів з європейськими ринками. Також важливими є інвестиції у розвиток внутрішнього виробництва, що сприятиме загальному економічному зростанню. Таким чином, імпортна політика України має стати потужним інструментом для досягнення економічної безпеки, сталого розвитку та покращення загальної конкурентоспроможності країни в умовах глобальних викликів. Ефективне регулювання імпортної політики вимагає збалансованого підходу, який поєднує підтримку вітчизняного виробника та забезпечення потреб внутрішнього ринку. Насичення внутрішнього ринку імпортними товарами веде до підвищення рівня життя, оскільки задовольняє потреби та вподобання споживачів і покращує якість життя. Одним із ключових завдань сучасної імпортної політики України є забезпечення балансу між захистом вітчизняного виробництва та забезпеченням доступу до якісних іноземних товарів та технологій для модернізації національної економіки.

Problem statement

Import policy is an important part of the foreign economic strategy of the state. It defines the main principles, directions and tools for regulating the process of importing goods, services and technologies into the national territory from abroad. The main goal of import policy is to ensure national economic interests, promote economic growth, protect the domestic market and optimal use of resources. It not only provides access to goods and services that are not produced by domestic companies, but also stimulates economic growth, increases competitiveness and contributes to the well-being of the population.

Importing goods from abroad makes it possible to fill the shortage of goods in the domestic market, offering consumers a wider selection of products. This includes goods not produced in the country, such as exotic fruits, electronics and brand-name clothing, as well as quality goods that are economically unprofitable or technologically impossible to produce by domestic companies, such as high-tech products, medicines and sophisticated equipment.

In addition, import competition forces domestic manufacturers to reduce the cost of production, introduce new technologies, optimize production processes and look for cheaper resources. They are also forced to improve product quality, use better materials and introduce new quality standards. At the same time, they are expanding their product range, offering consumers new products and services. This leads to a decrease in prices for consumers, and at the same time, an increase in the quality of products makes Ukrainian products more competitive on the world market. The development of domestic production stimulates economic growth and the creation of new jobs. The saturation of the domestic market with imported goods leads to an increase in the standard of living, as it satisfies the needs and preferences of consumers and improves the quality of life.

Analysis of recent studies and publications

The issue of import policy is considered most thoroughly in the works of such Ukrainian scientists as: Mazaraki A. A., Melnyk T. M., Iksarova N. AT. [1], Novytskyi V. E. [2], Talavira E. V. [3], who studied the foreign trade of Ukraine in the 21st century.

Highlighting previously unsolved parts of the overall problem

In the conditions of economic instability and increasing global challenges, the analysis of the modern import policy of Ukraine requires a more in-depth study.

Objectives of the article

The purpose of the article is to study the modern import policy of Ukraine.

Presentation of the main material

Free trade and open economic borders are not just words, but key tools that dynamically stimulate the economic development of Ukraine. They expand the horizons of cooperation, establish ties with foreign partners, make it possible to create joint ventures, exchange experience and technologies. This attracts foreign companies, stimulating them to expand investment activities in our country. As evidenced by statistics, in particular, according to the State Customs Service of Ukraine, the turnover in 2023 reached $99.4 billion. Imports amounted to $63.5 billion, and exports – $36 billion. These figures clearly demonstrate Ukraine's activity on the international market and its considerable potential [4].

Import plays a key role in meeting the country's needs for goods that are not produced by domestic enterprises or are produced in insufficient quantities [5]. As a result, this contributes to the active saturation of the domestic market, the economy of public labor, an increase in the level of employment in trade and related industries, the growth of production and personal consumption standards through the purchase of goods and technologies, as well as an increase in revenues to the state budget.

Therefore, one of the key tasks of the modern import policy of Ukraine is to ensure a balance between the protection of domestic production and the provision of access to

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high-quality foreign goods and technologies for the modernization of the national economy. You can certainly rely on the position of S. V. Bestuzheva, that Ukraine's import policy should be balanced, take into account national economic interests and the interests of partner countries and the requirements of international economic organizations [6, p. 64].

However, at certain stages of economic development, when domestic production is not sufficiently competitive, imports can lead to an irrational increase in the share of foreign products in the domestic market. This can lead to a decrease in employment in the field of material production, deterioration of the financial condition of local enterprises and even their bankruptcy [7, c. 33].

The consequences of imports in conditions of low competitiveness of domestic production arise due to the insufficient ability of local companies to compete with foreign manufacturers. This can be caused, for example, by outdated technologies, high production costs, low product quality or a lack of innovation. Businesses that cannot compete with imports risk experiencing losses and even bankruptcy, which in turn can lead to increased unemployment and the threat of social instability. As a result, this contributes to the active saturation of the domestic market, the economy of public labor, an increase in the level of employment in trade and related industries, the growth of production and personal consumption standards through the purchase of goods and technologies, as well as an increase in revenues to the state budget.

Such consequences of imports in conditions of low competitiveness of domestic production arise due to the insufficient ability of local companies to compete with foreign manufacturers. This can be caused, for example, by outdated technologies, high production costs, low product quality or a lack of innovation.

Effective regulation of import policy requires a balanced approach that combines support of the domestic producer and provision of the needs of the domestic market. For this, it is necessary to diversify imports and create strategic reserves. At the same time, Ukraine's import policy should take into account both national interests and the interests of trading partners.

Speaking about technology and national economic interests, an important factor remains the provision of national economic security, which includes maintaining the stability of supplies of critical resources, such as energy resources, raw materials and food. This is achieved through the diversification of import sources and the creation of strategic reserves. Countries with limited own energy resources can import oil and gas from different regions of the world to avoid dependence on a single supplier.

Ensuring national economic security requires a comprehensive approach, which includes not only measures to support the competitiveness of domestic production, but also ensuring the stability of the supply of critical resources. For this, it is important to develop strategies for diversifying import sources and creating strategic reserves, which will reduce the risks of dependence on one supplier. An example of this approach is the European Union, which is actively implementing measures to reduce its dependence on Russian gas imports. This helps not only to increase the resilience of the European economy to possible risks of supply interruptions, but also contributes to strengthening the overall economic security of the region [8]. This is done in order to reduce dependence on Russia and increase the resilience of the European economy to possible interruptions in gas supply.

Striving for independence in the supply of any imported products, the state needs not only the diversification of supply sources, but also the development of the national infrastructure for the processing of imported goods. This may include upgrading ports, transport networks and logistics centres.

For this purpose, in 2018, the Cabinet of Ministers of Ukraine approved the National Transport Strategy of Ukraine for the period until 2030 [9], which contains 58 steps, including promoting the development of safe new infrastructure. One of the main goals of the strategy is to accelerate and ensure the timely delivery of passengers and goods thanks to high-speed modes of transport and the development of logistics. Special attention is paid to the integration of the transport system of Ukraine into the European transport space, which involves the modernization of railways, the development of European-style highways and the expansion of air connections. This will allow not only to improve the transport accessibility of the regions of Ukraine, but also to increase the competitiveness of the national economy.

Also, one of the key aspects of import policy is the protection of domestic producers from excessive competition from foreign goods. This is achieved through the establishment of customs tariffs, quotas, as well as the use of anti-dumping measures [10, p. 257]. An important part of this policy is also the protection of consumers from low-quality and dangerous products through the standardization and certification of goods.

The establishment of customs tariffs is one of the key instruments of state policy, which combines fiscal and protective functions. On the one hand, customs duties ensure the flow of funds to the state budget, which is necessary for financing social programs and infrastructure development. On the other hand, customs tariffs serve as a tool to protect domestic producers from unfair competition from imported goods, creating equal conditions for the development of the national economy.

Thus, in particular, on the basis of the provisions of Article 16 of the Law of Ukraine "On the Application of Special Measures Regarding Imports to Ukraine" dated 22.12.98 No. 332-XIV [11], a special import duty may be imposed on certain groups of goods by decision of the International Commission on International Trade. It is paid by the importer of the goods to Ukraine, regardless of other taxes that are levied upon importation to Ukraine.

Protecting the domestic market may include imposing high tariffs on certain goods that are produced domestically but face competition from cheaper imported counterparts. For example, in 2021, the import of cut fresh roses to Ukraine amounted to 470.08 thousand pieces (20.6 tons) worth $149 thousand, according to the State Statistics Service. The main supplier was Ethiopia, which supplied 392.43 thousand

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roses worth $2103.5 thousand. Other suppliers were Kenya, Ecuador, the Netherlands and Colombia. At the same time, during January-February of the same year, Ukraine exported 72.65 thousand roses worth $50.7 thousand to Lithuania and Moldova[9]. In response to this, the MKMT introduced a special duty on the import of roses, regardless of the country of origin: in the first year – 56%, in the second year – 44.8%, and in the third year – 35.84% [12].

Based on the above, the application of the tariff makes imported goods less competitive in price compared to local products, which gives domestic producers the opportunity to grow.

Anti-dumping measures are another important tool for protecting the domestic market. They are applied when foreign producers sell goods at prices below fair market value, which may harm domestic producers. Anti-dumping duties make it possible to level the playing field and protect local producers from unfair competition.

For example, in order to protect local biofuel producers, the European Union decided to introduce a temporary anti-dumping duty on biodiesel imports from China. The rate will vary from 12.8% to 36.4% depending on the manufacturer. Already in the first half of 2024, supplies to the EU fell by 51% compared to the same period in 2023 – to 567,440 tons [13-14].

Therefore, anti-dumping measures are an effective tool for protecting national economies from unfair competition from foreign producers who sell goods at below-market prices. This makes it possible to maintain equal conditions of competition and ensure the stability of local producers. The introduction of anti-dumping duties can have a significant impact on import volumes and help preserve jobs in the relevant industries. As the example of biodiesel in the European Union shows, such measures can significantly reduce the volume of imports and protect the domestic market, which is confirmed by a 51% decrease in supplies already in the first half of 2024, which indicates the importance of anti-dumping measures in ensuring the economic security of the state and maintaining the competitiveness of national manufacturers.

An important aspect of import policy is ensuring the quality and safety of imported goods, which is carried out by introducing strict standards and certification requirements for products imported into the country. In Ukraine, standardization covers a number of enterprises, institutions and organizations that are the subjects of this activity.

Conclusions and suggestions

Therefore, the principles of import policy are key guidelines that determine the strategic course of the country in the field of foreign trade and ensure the compliance of import operations with national interests and tasks of economic development and provide the following economic result:

1. Diversification of import sources allows for a variety of suppliers and regions from which goods and services are imported, which helps to reduce the risks of dependence on one source. This allows you to balance risks and ensure the reliability of supplies in case of unforeseen circumstances.
2. Creation of strategic reserves by stockpiling critical goods necessary for national security and economic stability in the event of crises or supply disruptions.
3. Protection of the domestic market through the use of tariff barriers, quotas and other measures to protect domestic production from import competition. This contributes to the preservation of jobs and the support of strategically important sectors of the economy.
4. The balance of import operations, which allows to avoid an excessive deficit or excess of trade turnover, which can negatively affect the economic stability of the country.
5. Supporting national interests ensures that import operations are consistent with the country's strategic goals and interests, such as economic development and job preservation.
6. The principles of import policy are a kind of compass that guides the country in the changing world of the global economy. A balanced and well-thought-out import policy is a necessary condition for ensuring economic growth, improving the welfare of the population, and strengthening the international position of the state. Considering the challenges of modern times, Ukraine must constantly improve its import policy, adapting it to new conditions and requirements.

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ASSESSMENT OF SOIL QUALITY IN CONDITIONS OF SUSTAINABLE LAND USE

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Key words:
assessment, quality, soils, credit rating, sustainable development, resources.

The article is researched the assessment of soil quality under conditions of sustainable land use. It is substantiated that the soil is one of the main means for the production of products in agriculture and forestry, has multipurpose use and serves as a basis for the placement and development of productive forces, a place for people to settle. It is determined that 95% of the total amount of the food fund and two-thirds of the consumer goods fund is formed thanks to land resources. It has been proven that resource management in sustainable agriculture is important, because only with proper management, food security can be achieved due to the preservation and economical use of natural resources – soil, water, air. Note that at the current stage, soils around the world provide food for 7 billion people, but access is different and food is unevenly distributed, because 1 billion people suffer from hunger. In order to provide food for 9-10 billion people by 2050, it is necessary to significantly improve the biophysical, as well as socio-economic availability of food, as well as increase the production capacity. The quality of land is defined as its ability to perform certain functions, not to lose its properties over time. The functions that the land should perform are highlighted, namely: providing food, maintaining or improving water quality, and supporting human life. The main determinants of land quality are highlighted - soil productivity and stability, possible combinations form certain soil quality classes: the best agricultural soils (I, II, III classes) – temperate zone; classes IV, V and VI are found mainly in intertropical zones; classes VII, VIII and IX belong to fragile ecosystems and include tundra and desert areas. Bonification is considered as one of the methods of assessing the quality of soils, which involves determining the soil bonity index, which indicates its quality, natural properties and ability to produce the expected result. The need to develop policies and practices that promote sustainable land management, including the development of monitoring methods and warning indicators for land degradation, has been proven.

ОЦІНКА ЯКОСТІ ҐРУНТІВ В УМОВАХ СТАЛОГО ЗЕМЛЕКОРИСТУВАННЯ

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Ключові слова:
оцінка, якість, ґрунти, бонітетна оцінка, сталий розвиток, ресурси.

У статті досліджуються оцінка якості ґрунтів в умовах сталого землекористування. Обґрунтовано, що ґрунти є одним із головних засобів для виробництва продукції у сільському і лісовому господарстві, має багатоцільове використання та слугує базисом для розміщення і розвитку продуктивних сил, місцем розселення людей. Визначено, що 95 % від всього обсягу продовольчого фонду та дві третини фонду товарів споживання формується завдяки земельним ресурсам. Доведено, що управління ресурсами у сталому сільському господарстві має важливе значення, адже лише при правильному управлінні продовольча безпека може бути досягнута за рахунок збереження та ощадливого використання природних ресурсів – ґрунту, води, повітря. Зауважимо, що на сучасному етапі ґрунти в усьому світі забезпечують продовольством 7 млрд людей, проте доступ є різним і продовольство розподілено нерівномірно, адже 1 млрд людей страждають від голоду. Щоб забезпечити продовольством 9-10 млрд людей до 2050 року, необхідно суттєво покращити біофізичну, а також соціально-економічну доступність продовольства, а також підвищити потужність виробництва. Визначено якість землі як її здатність виконувати певні функції, не втрачати властивості з часом.

Виокремлено функції, які повинна виконувати земля, а саме: забезпечувати продовольством, підтримувати або покращувати якість води, підтримувати людське життя. Виділено основні детермінанти якості землі – продуктивність та стійкість ґрунту, можливі комбінації утворюють певні класи якості ґрунту: найкращі сільськогосподарські ґрунти (I, II, III класи) – помірний пояс; класи IV, V і VI зустрічаються переважно в міжтропічних зонах; класи VII, VIII та IX належать до крихких екосистем і включають тундрові та пустельні райони. Розглянуто бонітування як один із способів оцінки якості грунтів, який передбачає визначення показника- бонітету ґрунту, який вказує на його якість, природні властивості та здатність давати очікуваний результат. Доведено необхідність розробки політики та практики, яка сприяє сталому управлінню землею, що включає розвиток методів моніторингу та індикаторів попередження про деградацію землі.

Problem statement

Land is the main national wealth of our country, which is under special state protection. It is one of the main means for the production of products in agriculture and forestry, has multi-purpose use and serves as a basis for the placement and development of productive forces, a place for people to settle. Without such a resource as land, socio-economic, cultural and political development of the people is impossible.

Land can be considered one of the main foundations for the formation of a strong economy of the country, it is a reliable resource for the economic growth of the country. 95% of the total volume of the food fund and two-thirds of the consumer goods fund is formed thanks to land resources.

The development of land relations cannot be considered without interaction with ecology, because these two components are inextricably linked, their successful combination will ensure the preservation of nature as one of the important components of the biosphere.

In the economic and political sphere, soils act as bases and means of production. Their role of use in agriculture is very different compared to other branches of production. After all, soils in all other industries play a passive role, they are the foundation for production, while in agriculture, the soil is the object and tools of labor, thanks to which humanity grows the crops necessary to satisfy its needs.

Analysis of recent studies and publications

From the point of view of soil quality monitoring and assessment as one of the most important components of sustainable agriculture, the study was conducted by Ukrainian scientists, namely: Chornyi S.H. [1], Radziy V.F. [2], Sokhnych A. [3], Panas R.M. [4], Pozniak S., Krasieha E., Kit M. [5] and others. Scientists outline issues related to quality monitoring and land use forecasting, land cover mapping, etc.

The mentioned works of scientists are a significant contribution to the development of the theory and practice of soil quality assessment in conditions of sustainable land use.

Highlighting previously unsolved parts of the overall problem

In the conditions of sustainable development, the assessment of soil quality requires a more in-depth study.

Objectives of the article

The purpose of the article is research and assessment of soil quality in conditions of sustainable land use.

Presentation of the main material

Resource management in sustainable agriculture is important, because only with proper management, food security can be achieved through the preservation and economical use of natural resources - soil, water, air, etc. Their availability and use in the future depends on rational and quality management today.

On the basis of the new concept of soil quality in the developed countries of the world (USA, EU countries), new soil monitoring systems were created already in the 21st century, which included not only monitoring of nutrient content, but also indicators of physical and physicochemical properties, i.e. those indicators , which ensure the formation of a harvest of agricultural crops. In the new system of monitoring the condition of the soil, parameters were included that indicate the possibility of the soil realizing its social and ecosystem functions, in particular, indicators of the condition of the soil biota. And, therefore, such a monitoring system began to provide information about soils not only to producers of agricultural products, but also to managers who are concerned about the condition of soils on non-agricultural lands (industrial, under public development, 7 recreational, nature conservation lands, etc.). The quantitative and qualitative expansion of soil quality indicators in the USA and EU countries has led to the emergence of new problems related to the methods of determining these parameters, instrumentation for observations, personnel qualifications, etc. [1, c. 6].

Today, soils around the world provide food for 7 billion people. However, access varies and food is unevenly distributed, with 1 billion people suffering from hunger. In order to provide food for 9-10 billion people by 2050, it is necessary to significantly improve the biophysical, as well as socio-economic availability of food, as well as increase the production capacity. The ability of land users around the world to manage their soils rationally and productively in order to achieve high soil quality is of crucial importance [6].

The quality of land can be defined as its ability to perform certain functions, not to lose its properties over time. Among the many functions that land must perform is to

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provide food, maintain or improve water quality, and support human life.

The main determinants of land quality are soil productivity and stability, possible combinations of which are presented in Table 1.

Table 1 – Matrix for determining land quality classes

Soil productivity	Soil stability		
	Low	**Medium**	**High**
low	IX	VIII	VI
average	VII	V	III
High	IV	II	I

Source: [6]

The best agricultural soils (I, II, III classes) are in the temperate zone. Classes IV, V and VI are found mainly in intertropical zones. Classes VII, VIII and IX belong to fragile ecosystems and include tundra and desert areas. Only a quarter of the world's population lives on land with high potential. About half of the world's population lives in lands with significant agricultural limitations, including long periods of soil moisture scarcity. And a quarter of the world's people have to survive on lands that are considered unsuitable [6].

The availability of food depends on the soil: nutritious and high-quality food and animal feed can only be produced if the soil is healthy. Over the past 50 years, advances in agricultural technology and increased demand from population growth have put soils under increasing pressure. In many countries, intensive crop production has depleted the soil, jeopardizing the soil's productive capacity and ability to meet the needs of future generations.

Soils are the basis of production and need care. But the exploitation of soils only intensified due to the increase in pressure. Arable land per person was 0.20 hectares in 2014, compared to about 0.37 hectares 50 years ago, according to the World Bank, with marked regional differences. This alarming trend calls for important investments needed to restore, maintain and gradually improve soil productivity.

Addressing soil security provides the means to improve food quality through enhanced soil care and the development of best land management practices. Soil is a fragile resource that is being degraded in many parts of the world. Rapid global population growth has put additional pressure on soil resources to meet the increased demand for soil-derived food. Such pressure accelerates degradation.

Soil security and food security are interrelated concepts that will help facilitate the implementation of the above solutions, so approaches that take this connection into account are needed.

Achieving and maintaining food security requires policy development and decision-making at the global and local levels, which require access to quality-assessed information at an appropriate scale.

Research shows that by 2050, global production of food and related ecosystem services is set to increase by 60%. However, one-third of global soils are now moderately to severely degraded through soil erosion, nutrient depletion, salinization, compaction and pollution. Evidence-based decisions and soil information are critical to achieving sustainable soil management at all levels.

Smart soil management plays an important role in realizing the UN's Sustainable Development Goals (SDGs), which aim to end hunger, ensure food security and improve nutrition, and promote sustainable agriculture. This is particularly reflected in action point 2.4: "by 2030, ensure sustainable food production systems and implement sustainable agricultural practices that increase productivity and production and progressively improve land and soil quality." In other words, achieving food security is a challenge, maintaining it is another challenge, and soils are an important part of the solution [7].

One of the ways to assess the quality of soils is grading, which involves determining the soil grading index, which indicates its quality, natural properties, and ability to produce the expected result.

The task of credit rating is [8]:

– to determine and identify the most favorable soils for agricultural production, which are forbidden to be removed from agricultural use;

– compare and group the soils of the state, region, district, village council, individual land holdings according to their productivity (qualitative assessment);

– identify the most favorable soils for various agricultural crops;

– evaluate more objectively the territories with unproductive and degraded soils, where land conservation should be carried out;

– to help more correctly, taking into account the quality of soils, to implement modern rational farming systems, to carry out more productive specialization of farms;

– use the results of soil grading to develop measures to increase the yield of crops on different soils;

– carry out allotment of land in the process of land reform on the appropriate high organizational and legal basis;

– determine the amount of land tax and rent;

– carrying out a valuation of land holdings and land use of peasants;

– carry out a valuation of the lands of settlements;

– calculate losses when land is removed from agricultural use or soil is damaged.

Scientists have proven that when the natural potential of agricultural land is reduced, the issue of sustainable development of land use becomes acute, this threat is greater than environmental problems.

For the development of sustainable agriculture, it is necessary to develop structural changes and implement the latest ecologically safe technologies that will reduce the burden on land resources. Because the modern conduct of agrarian business in Ukraine inhibits the greening of agrarian land use. The implementation of production mechanisms that will contribute to the environmentalization of agricultural production will provide an opportunity for the appearance of ecological goods and the improvement of the ecological situation in Ukraine.

A very positive start for changes in the agricultural sector are the ideas specified in the Strategy of Sustainable Development of Ukraine until 2030. They consist in the fact that it is planned to increase the area of agricultural

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land for organic agar production in the period until 2030 to 3 million hectares and to increase the volume of organic agricultural products by at least 5% [8].

It should be taken into account that a mandatory condition for the development of sustainable agricultural land use is control by the state. After all, it is the state control over the use and protection of land that is the guarantee of the implementation of the principles for the sustainable development of agricultural enterprises. It is necessary to implement measures of economic stimulation, increase responsibility for violations of environmental legislation.

− The main areas that can be used for the development of sustainable land use are:

− rational use of agricultural land by agrarian business entities;

− environmentalization of agrarian business;

− increase the control and responsibility of land owners and users for the deterioration of land resources;

− introduction of new ecologically safe technologies of conducting agar business;

− implementation of measures to increase soil fertility;

− prohibition of the use of degraded and unproductive lands for agricultural purposes;

− strengthening of state control over the rational use of agricultural land and ensuring soil protection;

− development of a legal framework that will promote sustainable land use;

− the need to combine the interests of farm owners and society regarding sustainable land use;

− application of international experience of sustainable land use.

Having familiarized ourselves with the above directions, we can say that their complex application will allow us to move to the development of sustainable agriculture.

Conclusions and suggestions

Preservation of land resources is a priority for both executive and local self-government bodies. However, in economic circles, land resources are perceived mainly as an endless reservoir of food and raw materials for industry. Ignoring the universal laws of nature and its innate capacity for self-regeneration has led to unbalanced land use that has caused its degradation.

Therefore, there is a need to develop policies and practices that promote sustainable land management, including the development of monitoring methods and warning indicators for land degradation.

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INTERNATIONAL STRATEGIES OF EXPORT-IMPORT ACTIVITY OF AN ENTERPRISE: EXPERIENCE FOR THE NATIONAL ECONOMY

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Key words:
export, import, strategy, national economy, development, socio-economic conditions.

The issue of developing export-import strategies and the possibility of their use in the national economy has been studied. It is substantiated that enterprises engaged in export-import activities offer foreign manufacturers a unique opportunity to go beyond local borders, allowing enterprises to enter a huge global market. It has been proven that the expansion of exports contributes to the activation of international trade, and, accordingly, ensures a positive trade balance, which directly affects the stability of the national economy. Attention is focused on the fact that Ukraine's entry into the world economy is carried out thanks to the development of export-import activities of enterprises. Considering this, one of the main strategies of enterprises in modern socio-economic conditions is the strategy of developing their export-import activities. It has been determined that when companies enter international markets, they face complex regulations, cultural characteristics and economic risks. Export and import strategies play a key role in meeting these challenges and taking advantage of global opportunities. It is well-founded that the process of creating an import-export enterprise covers various stages, such as conducting market research, complying with legal and regulatory requirements, product selection, establishing relations with suppliers and buyers, managing logistics and transportation, financial planning, developing a market entry strategy, managing risks and ensuring compliance with documentation. It is determined that in order to maintain Ukraine's position as a leader in the export of food products, it is necessary to stimulate production and export. At the same time, it is important to respond in a timely manner to today's challenges, which require the search for effective and efficient tools and mechanisms for harmonizing the goals of national and world politics. Despite the difficult production and export conditions that arise as a result of military aggression, Ukraine continues to maintain and strengthen its position on the world market, adhering to the rules of international trade, minimizing risks and building effective logistics to defend national interests at the global level.

МІЖНАРОДНІ СТРАТЕГІЇ ЕКСПОРТНО-ІМПОРТНОЇ ДІЯЛЬНОСТІ ПІДПРИЄМСТВА: ДОСВІД ДЛЯ НАЦІОНАЛЬНОЇ ЕКОНОМІКИ

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Ключові слова:
експорт, імпорт, стратегія, національна економіка, розвиток, соціально-економічні умови.

Досліджено питання розробки експортно-імпортних стратегій та можливості їх використання в національній економіці. Обгрунтовано, що підприємства, які займаються експортно-імпортною діяльністю пропонують іноземним виробникам унікальну можливість вийти за межі місцевих кордонів, дозволяючи підприємствам вийти на величезний глобальний ринок. Доведено, що розширення експорту сприяє активізації міжнародної торгівлі, і, відповідно, забезпечує позитивне сальдо торговельного балансу, що, безпосередньо впливає на стабільність національної економіки. Акцентовано увагу на тому, що входження України у світове господарство здійснюється завдяки розвитку експортно-імпортної діяльності підприємств.

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З огляду на це, однією з основних стратегій діяльності підприємств у сучасних соціально-економічних умовах є стратегія розвитку їх експортно-імпортної діяльності. Визначено, що коли компанії виходять на міжнародні ринки, вони стикаються зі складними правилами, культурними особливостями та економічними ризиками. Стратегії експорту та імпорту відіграють ключову роль у вирішенні цих викликів і використанні глобальних можливостей. Обґрунтовано, що процес створення імпортно-експортного підприємства охоплює різні етапи, такі як проведення дослідження ринку, дотримання законодавчих і нормативних вимог, вибір продукту, встановлення відносин з постачальниками та покупцями, управління логістикою та транспортуванням, фінансове планування, розробка стратегії виходу на ринок, управління ризиками та забезпечення дотримання документації. Визначено, що для збереження позицій України як лідера в експорті продовольчих товарів необхідно стимулювати виробництво та експорт. При цьому важливою є вчасне реагування на виклики сьогодення, котрі потребують пошуку ефективних та дієвих інструментів та механізмів для узгодження цілей національної та світової політики. Незважаючи на складні умови виробництва та експорту, які виникають внаслідок військової агресії, Україна продовжує підтримувати та посилювати свої позиції на світовому ринку, дотримуючись правил міжнародної торгівлі, мінімізуючи ризики та будуючи ефективну логістику задля відстоювання національних інтересів на світовому рівні.

Statement of the problem

Prospects for the development of the economy of Ukraine are inextricably linked with the possibilities of export and import activities. The expansion of exports contributes to the activation of international trade, and, accordingly, ensures a positive trade balance, which directly affects the stability of the national economy.

In the conditions of deepening crisis phenomena and economic instability, the successful development of the enterprise's foreign economic activity is determined by solving the tasks of evaluating the effectiveness of such activity in order to increase its efficiency.

For the national economy, which has had a negative trade balance for a long time, and, accordingly, is forced to compensate these losses with credit funds, the issue of improving export-import activities based on international experience is relevant. One of the possible solutions to this issue is the development and implementation of effective export-import strategies.

Analysis of recent research and publications

Among Ukrainian scientists, significant attention was paid to the study of theoretical and practical aspects of export-import activity and strategic priorities: V. A. Biloshapka, G. V. Zahorii [1], Yu. S. Balyuk [2], Yu. L. Zborovska [3], Marchenko V. M., Lebedeva N. P. [4], Mostenska T. L., Karnaukh O. Yu. [5], Nalyvaiko A. P., Reshetnyak T. I., Yevdokymova N. M. [6] and others. Scientific export-import strategies of enterprises of various industries justify the expediency of adapting organizations to the influence of global socio-economic processes.

Highlighting previously unsolved parts of the overall problem

The entry of Ukraine into the world economy and the desire to increase the efficiency of the development of international trade, the issue of developing export-import strategies and the possibility of their use in the national economy requires a deeper study.

The purpose of the article

The main goal of this work is to study the strategy of export-import activity and the possibility of its use in the national economy.

Presentation of the main material

Ukraine's entry into the world economy is carried out thanks to the development of export-import activities of enterprises. Considering this, one of the main strategies of enterprises in modern socio-economic conditions is the strategy of developing their export-import activities.

Export-import businesses offer foreign manufacturers a unique opportunity to reach beyond local borders, allowing businesses to tap into a vast global market. Such diversification reduces the risk of relying solely on one market or economy, reducing the impact of economic downturns or fluctuations in demand.

Import-export companies can achieve a higher rate of profit by purchasing goods from cheaper regions and selling them in markets with higher prices. They also offer a diverse range of products catering to consumer preferences and market segments.

Scalability allows businesses to start small and gradually expand their market reach. These businesses also provide cultural exposure, promoting personal and professional growth. They also need creative problem-solving skills to overcome challenges and foster innovation.

Networking opportunities create valuable collaborations and partnerships. Import-export enterprises contribute to economic development by facilitating the flow of goods, creating employment opportunities and promoting international cooperation.

When companies enter international markets, they face complex regulations, cultural differences, and economic

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risks. Export and import strategies play a key role in meeting these challenges and taking advantage of global opportunities.

The goods and services traded by import-export companies, as well as their business strategies and target markets, can vary widely.

The process of setting up an import-export business involves various stages, such as conducting market research, complying with legal and regulatory requirements, product selection, establishing relationships with suppliers and buyers, managing logistics and transportation, financial planning, developing a go-to-market strategy, managing risks and ensuring compliance with documentation.

Let's consider the peculiarities of building export-import strategies (Fig. 1)

Market research and target selection: Understanding: Before diving into exporting or importing, it is necessary to thoroughly research the market. Analyze potential markets, assess demand and identify target countries.

Export strategies:

− Direct export: companies directly sell their products to foreign customers or distributors.

− Indirect export: firms work with intermediaries (export agents, trading companies) to reach international customers.

− Export consortia: several companies join forces to export together, sharing costs and risks.

− Licensing and Franchising: Licensing allows foreign companies to produce and sell branded products, while franchising involves copying a successful business model abroad.

Import strategies:

– Sourcing decisions: importers must decide whether to buy goods directly from manufacturers or through intermediaries.

– Supply Chain Optimization: Effective logistics and supply chain management are critical for timely imports.

– Compliance with customs rules and tariffs: importers are guided by customs rules and tariffs.

Risk reduction:

– Currency risk: fluctuations in exchange rates can affect profits. hedging strategies help manage this risk.

– Political and legal risks: businesses must assess geopolitical stability and legal frameworks.

– Quality control and product adaptation: product quality assurance and adaptation to local preferences are critical.

State support and incentives:

– Export Promotion Agencies: Governments provide resources and incentives to increase exports.

– Import subsidies: some countries stimulate imports to meet domestic demand.

Successful export and import strategies require agility, adaptability and a deep understanding of global markets. By using these strategies and learning from real-world examples, businesses can thrive in a dynamic international environment.

In today's globalized economy, trade plays a critical role in determining the economic health and overall well-being of a country. One of the key indicators used to assess a country's export and import performance is the trade balance. The trade balance, also known as the trade balance, measures the difference between a country's exports and imports over a period of time. When a country's exports exceed its imports, it is said to have a positive trade balance. This indicates that a country exports more goods and services than it imports, leading to a surplus. A positive trade balance is often seen as a favorable situation because it means that a country earns more from its exports, which can contribute to economic growth and job creation.

On the other hand, when a country's imports exceed its exports, it is said to have a negative trade balance. This means that the country relies more on imported goods and services, which can have various consequences for its economy. A negative trade balance can lead to a trade deficit, which means that a country spends more on imports than it receives from exports.

Fig. 1 – Features of construction of export-import strategies

Source: [7]

Several factors affect the country's trade balance. One of the important ones is the competitiveness of its industries. If a country's industry can produce goods and services that are in demand around the world, it is more likely to have a positive trade balance. In addition, exchange rates play a decisive role. A weaker national currency can make exports more competitive, leading to a positive trade balance.

Assessing a country's export and import performance through its trade balance is crucial to understanding its economic condition. Whether positive or negative, the trade balance reflects a country's competitiveness and dependence on imported goods. By delving deeper into the factors affecting the trade balance and looking at case studies, valuable information can be gained about a country's economic prospects.

The activation of integration processes in the national economy and the desire to become an equal player in the global food space necessitate the maximum use of natural resource potential and coordination of the goals and objectives of foreign economic policy, the key element of which is international trade.

According to the results of statistical studies, in Ukraine, as well as in developed countries of the world, less than 5% of the population. Given that the country is a significant producer of food, the likelihood of food security problems is lower. At the same time, there are certain challenges, because a significant number of the population spends more than 50% of their income on food products, the structure of which is irrational, there is a problem of providing processing enterprises with raw materials, etc.

Note that before the military aggression, Ukraine managed to strengthen its position on the world food market, increase the volume of exports, and diversify the commodity and geographical structure of exports.

Note that Ukraine occupied a leading position in the world in the production and export of a number of food products (Table 1).

Analysis of the table. 1 shows the presence of significant comparative advantages of Ukraine in the export of food products compared to the world level.

The leading positions in food exports are provided by crop production (Table 2), that is, the raw material component is key in exports. At the same time, the share of processed products is much lower.

Table 1 – Ukraine's position in the global food space

Position in the world rating	Production, export of goods
1	production and export of sunflower and sunflower oil
2	exporter of grains and nuts
3	producer and exporter of barley and canola
4	exporter of corn, producer of honey and nuts
5	exporter of wheat
7	producer of corn, wheat and exporter of soybeans
8	soybean producer and chicken exporter

Source: grouped based on: [7]

Regarding the export of livestock products, it should be noted that Ukraine's share in 2021 increased to 0.29, but comparative advantages remain the smallest.

According to experts, Ukraine does not yet have sufficient opportunities to influence the world food market, which according to forecasts until 2025 will be characterized by a significant level of concentration of exports of key food products. At the same time, experts note that strengthening the role of Ukraine in the global food space provides an opportunity to diversify the international market and achieve stability and sustainability of its development.

Conclusions and proposals

Based on the analysis, it can be concluded that in order to maintain the position of Ukraine as a leader in the export of food products, it is necessary to stimulate production and export. At the same time, it is important to respond in a timely manner to today's challenges, which require the search for effective and efficient tools and mechanisms for harmonizing the goals of national and world politics. Despite the difficult production and export conditions that arise as a result of military aggression, Ukraine continues to maintain and strengthen its position in the world food market, adhering to the rules of international trade, minimizing risks and building effective logistics to defend national interests at the global level.

Table 2 – Export of agro-industrial complex products of the food industry in Ukraine and the world, million US dollars

Products	Ukraine		World		Share of Ukraine in the world, %	
	2015	2021	2015	2021	2015	2021
Plant products	11288,1	21600,5	504646,7	836788,2	2,24	2,58
Animal products	821,3	1325,3	308089,4	460044,1	0,27	0,29
Food products	2468,4	3368,4	508337,5	817802,8	0,49	0,41
Food	14435,4	26538,8	1260805,0	2011963,9	1,14	1,32

Source: Grouped based on: [8]

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FINANCE AND MONEY TURNOVER

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FRENCH EXPERIENCE IN FINANCING SMALL AND MEDIUM-SIZED AGRICULTURAL ENTERPRISES

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Key words:
small and medium-sized enterprises, agriculture, financing, technological innovation, subsidies, cooperatives, productivity, environmental sustainability.

Studying the experience of European countries in terms of financing small and medium-sized agricultural enterprises is of great importance due to the significant impact of Ukraine's agro-industrial complex on the development of the state's economy, given the fact that even despite the losses during the military invasion, the agro-industrial complex remains a key industry in which 17% of Ukrainians are involved and 19% of GDP is formed. It is the agro-industrial complex that provides the country with over 70% of foreign exchange earnings. Studying the experience becomes particularly relevant in the context of the challenges faced by small and medium-sized agro-industrial enterprises, in particular, the loss of production assets, equipment, occupation of land, loss of logistical connections, instability of markets – all this has led to a decrease in the profitability of Ukrainian agricultural producers, and financing will be needed for reconstruction in order to prevent technological lag and be able to compete adequately with agricultural products on the world market. The article examines the issue of financing small and medium-sized agricultural enterprises in France, which also play a key role in their country, providing a significant share of national production and contributing to the economic sustainability of the agricultural sector. The article examines the main sources of financing for agricultural enterprises in France, including bank loans, state subsidies, financing through cooperatives, microfinancing and private investments. Therefore, it is very important to study and implement the experience of European countries in financing small and medium-sized agricultural enterprises, in order to be able to preserve them during the war and during post-war reconstruction, so as not to lose the state's position in the world agricultural market.

ДОСВІД ФРАНЦІЇ В ФІНАНСУВАННІ МАЛИХ ТА СЕРЕДНІХ СІЛЬСЬКОГОСПОДАРСЬКИХ ПІДПРИЄМСТВ

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Ключові слова:
малі та середні підприємства, сільське господарство, фінансування, технологічні інновації, субсидії, кооперативи, продуктивність, екологічна стійкість.

Вивчення досвіду європейських країн в частині фінансування малих та середніх підприємств сільськогосподарської галузі, має дуже важливе значення через вагомий вплив агропромислового комплексу України на розвиток економіки держави, зважаючи на той факт, що навіть попри втрати під час військового вторгнення АПК залишається ключовою галуззю в якій задіяно 17% українців та формується19% ВВП. Саме АПК забезпечує країні понад 70% валютного виторгу. Особливої актуальності вивчення досвіду набуває у контексті викликів, з якими стикаються малі та середні агропромислові підприємства, зокрема втрата виробничих фондів, техніки, окупація земельного фонду, втрата логістичних зв'язків, нестабільність ринків – все це призвело до зниження рентабельності українських сільгоспвиробників, а на відбудову знадобиться фінансування, щоб не допустити технологічне відставання та мати змогу гідно конкурувати сільгосппродукцією на світовому ринку.

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У статті досліджено основні джерела фінансування сільськогосподарських підприємств Франції серед яких банківські кредити, державні субсидії, фінансування через кооперативи, мікрофінансування та приватні інвестиції. Отже, зраз дуже важливо вивчати та впроваджувати досвід європейських країн у фінансуванні малих та середніх сільгосппідприємств, для можливості їх збереження під час війни та під час повоєнної відбудови, щоб не втратити позиції держави на світовому ринку сільгоспродуктів.

Statement of the problem

Small and medium-sized enterprises (SMEs) in Ukraine, not only during the war, but also in the pre-war period, had certain problems with access to financing, including access to bank lending, especially long-term. Given the losses suffered by agro-industrial enterprises during the war, the topic of financing is a painful one for enterprises of the entire industry, especially for small and medium-sized businesses. Given that post-war Ukraine intends to join the European community, it is already necessary to study the experience of financing small and medium-sized agricultural enterprises in countries such as France, where small and medium-sized enterprises play an important role in agriculture. It is important to study the experience of European countries in overcoming the problems of limited access to financing for small and medium-sized businesses in the agricultural sector, which will later make it possible to use it to rebuild Ukrainian small and medium-sized agricultural production and strengthen the competitiveness of the agro-industrial complex.

France has extensive experience in attracting bank lending, state subsidies and other innovative sources of financing for agricultural enterprises. France has experience in attracting investments from private investors, such as Demeter Partners and Partech Partners, which significantly improves access to financial resources for small farms, and the country also gives a large role to agricultural cooperatives, which also improves opportunities for obtaining financing. The experience of financing through the European Agricultural Fund for Rural Development (EAFRD), which provides support for the development of environmentally sustainable projects, is also an important aspect to be used in the creation of new organic farms in Ukraine.

Analysis of recent research and publications

The problems of financial provision of small and medium-sized agricultural enterprises in France have become the subject of research by many scholars. It is worth noting the works of J.-M. Bourgeon, M.- C. Villeval and P. Deschamps [1-3]. In his work, J.-M. Bourgeon analyzes the financial challenges for SMEs in the agricultural sector in France, in particular the difficulties of accessing bank credit [1]. M.-C. Villeval considers sustainable financing for small agricultural enterprises and focuses on the implementation of innovative financial models [2]. P. Deschamps examines the role of agricultural cooperatives in financing SMEs and provides an empirical analysis of their effectiveness [3].

Statement of objectives

The aim of the article is to study the French experience in financing small and medium-sized agricultural enterprises (SMEs) and to analyze the main sources of financing that contribute to the development of this sector, as well as to assess the impact of investments in technological innovations on the productivity of these enterprises; to study the current state of financial support for SMEs, including traditional sources such as bank loans and state subsidies, as well as innovative mechanisms such as microfinance and venture capital investments.

To propose the implementation of the learned experience for Ukrainian small and medium-sized agricultural enterprises, which will contribute to strengthening their competitiveness and sustainable development of the agricultural sector.

Summary of the main research material

Small and medium-sized enterprises (SMEs) play a key role in French agriculture, providing a significant share of national production and creating the basis for the sustainable development of the agricultural sector. In 2023, about 93% of all agricultural enterprises in France were SMEs [1].

SMEs in French agriculture provide about 70% of all agricultural sector output. According to the French Ministry of Agriculture, in 2023, the total volume of agricultural output in France was about 85 billion euros, of which 59 billion euros fell to SMEs [4]. The main areas of activity of SMEs remain livestock farming, in particular dairy farming, as well as the production of vegetables and fruits, which are in high demand both in domestic and foreign markets.

As of the end of 2023, there were over 405,000 agricultural enterprises in France, of which about 375,000 (approximately 93%) were small and medium-sized enterprises (SMEs) [5]. According to the national statistics service INSEE, the share of agricultural SMEs in France's GDP in 2023 was 1.7%, which is a significant indicator for the agricultural sector in a developed economy [5]. In addition, the share of agricultural products of SMEs in total French exports remains at around 15% [4]. The main export destinations remain the countries of the European Union, in particular Germany, Italy and Belgium, as well as China and the United States. Wine, dairy products, meat and cereals are the most exported.

Despite their significant contribution to the country's economy, agricultural SMEs in France face a number of challenges that limit their further development, among these problems is the need for financing. Insufficient access to long-term financing is one of the main obstacles to the development of SMEs. Many enterprises cannot invest in the modernization of production due to high interest rates on loans and difficult conditions for obtaining bank loans [6].

Financing of small and medium-sized agricultural enterprises (SMEs) in France is provided through several

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main sources, including bank loans, government subsidies and grants, and cooperative financing. Bank loans remain one of the key financing instruments for SMEs in France. The main banks that actively provide loans to agricultural enterprises are Crédit Agricole, Banque Populaire and Caisse d'Epargne [7]. Lending conditions depend on the size of the enterprise, its creditworthiness and the purpose of the loan. The average interest rate for the agricultural sector in 2023 was between 1.5% and 3.5%, depending on the type of loan and its maturity [8]. Standard loan terms vary from 5 to 15 years, with long-term loans mainly issued for investment projects such as the purchase of equipment or the modernization of production facilities. Collateral requirements include collateral in the form of land or equipment, as well as guarantees from specialized institutions, such as SIAGI (Guarantee Company for Small Enterprises) [8].

Financing of small and medium-sized agricultural enterprises in France in 2023 is also based on several main sources. Bank loans remain the main source of financing, accounting for approximately 48% of the total financing structure. State subsidies provide around 32% of financing, indicating an increase in support from the state. Agricultural cooperatives continue to play an important role, accounting for around 14% of the total. Microfinance, although less widespread, provides 6% of financial support for SMEs, reflecting some growth in this source of financing [2].

Fig. 1 – Structure of sources of financing for SMEs in agriculture in France

State subsidies and grants are another important source of funding. France actively supports farmers and SMEs under both national and regional programmes. The largest support programme is the Rural Development Programme, which is co-financed with the European Union through the European Agricultural Fund for Rural Development (EAFRD) [6]. In 2023, the total budget of this programme was around €9 billion, a significant part of which was allocated to support small farms [5]. The main areas of subsidy provision are the development of organic farming, support for young farmers and projects related to environmental sustainability [9]. Priority sectors include livestock farming, winemaking, and the development of new technologies to reduce greenhouse gas emissions in agriculture. To receive subsidies, enterprises must meet certain criteria, including having an annual turnover not exceeding €50 million and employing up to 250 people [10]. One of the main limitations is the need for co-financing, which means that businesses must cover part of the costs themselves.

Cooperatives play an important role in financing agricultural SMEs in France. Agricultural cooperatives such as Terrena and Agrial provide not only technical support and supply services, but also financial resources [11]. Cooperatives often act as guarantors for their members before banks, which simplifies access to credit and reduces risks for borrowers. A successful model is the Crédit Agricole cooperative system, which offers specialized financial products for the agricultural sector, including loans for the purchase of machinery, modernization of production processes and the development of environmental projects [12]. In 2023, more than 45% of all agricultural enterprises in France participated in cooperative structures, which significantly increases their chances of obtaining financing [11].

Over the past few years, France has seen a change in the structure of financing for small and medium-sized agricultural enterprises. While in 2018 traditional sources of financing, such as bank loans and government subsidies, accounted for 70% of the total financing, by 2023 their share had decreased to 60%. At the same time, the use of innovative sources of financing, such as microfinance, cooperatives and other alternative methods, increased from 30% to 40%. These changes in dynamics are presented in Fig. 2, which shows how traditional and innovative sources of financing changed from 2018 to 2023.

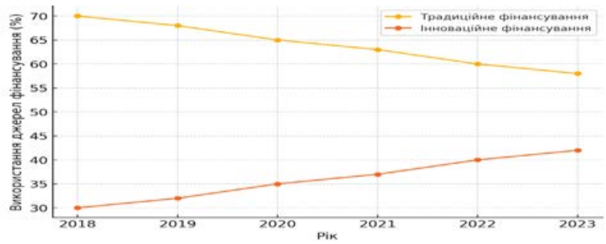

Fig. 2 – Comparative analysis of traditional and innovative sources of financing (2018-2023)

Investment in innovative technologies for small and medium-sized agricultural enterprises (SMEs) remains a key factor for increasing production efficiency, reducing costs and ensuring the sustainable development of the French agricultural sector. However, in 2023, state support for technological start-ups and innovative projects in agriculture remains insufficient. The amount of funding and tax incentives for innovative companies is limited, which makes it difficult for SMEs to access the necessary resources to implement new technologies. The Rural Innovation Development Program, which is partly financed by the state and the European Union through the European Agricultural Fund for Rural Development (EAFRD), provides some support, but its scale still does not meet the growing needs of the agricultural sector. In 2023, France allocated about 1.3 billion euros for innovative projects in agriculture, but this is not enough to support all enterprises that need to invest in environmental and technological innovations [6].

Examples of successful projects that have received public funding include the development of precision farming technologies, in particular the Farmbot system, which allows for the automation of sowing processes using robotics. The project was funded under the France Agritech program and received an investment of 10 million euros. Another example is the implementation of innovative water management systems, which were financed by the state and the European Investment Bank [13]. In 2021, 120 million euros were allocated for the development of irrigation technologies that reduce water consumption by 30%.

Private investors are also actively involved in financing innovation in French agriculture. Venture funds and private equity are focusing on financing startups operating in the agri-tech sector. In 2023, the total volume of private equity investments in agricultural SMEs reached €600 million. One of the largest venture funds investing in agricultural startups is Demeter Partners, which specializes in environmentally sustainable technologies [7]. For example, the startup Ynsect, which is developing technologies for growing insects for use as protein supplements for agriculture, received an investment of €125 million from Demeter Partners [7]. This is one of the largest projects in the field of biotechnology, which has the potential to revolutionize the animal feed system.

Private investors are also supporting the development of agricultural SMEs through joint programs with public funds. One example is the collaboration between the French government and the Partech fund, which in 2021 allocated 200 million euros to develop startups in the field of digital technologies for agriculture [8]. In particular, these investments were aimed at developing platforms for farm management that provide productivity monitoring and allow for the optimization of resource use.

Investment in innovative technologies is a key factor in increasing the productivity of small and medium-sized agricultural enterprises. For example, the introduction of automated systems, such as "Farmbot", has allowed to increase the productivity of enterprises by 30%. Water management systems have reduced water consumption and increased efficiency by 25%. The installation of biogas plants has allowed to reduce greenhouse gas emissions and at the same time increase productivity by 20%. Precision agriculture, which involves the use of modern technologies for monitoring and managing agricultural processes, has increased productivity by 35%. These data are reflected in Fig. 3, which illustrates the impact of investments in various technological projects on the productivity of agricultural SMEs.

Investments in innovative technologies for small and medium-sized agricultural enterprises (SMEs) play a key role in increasing production efficiency, reducing costs and ensuring sustainable development of the French agricultural sector. The state actively supports technological startups and innovative projects in agriculture by providing financial assistance and creating favorable conditions for investors. One of the main sources of financing for such projects is the Rural Innovation Program, which is co-financed by the state and the European Union through the European Agricultural Fund for Rural Development (EAFRD) [6]. In 2023, France allocated more than 1.2 billion euros to support innovative projects in agriculture, including areas such as process automation, the development of biotechnology and the application of precision agriculture. State support for startups also includes tax breaks for innovative companies and grants for the implementation of new technologies [6].

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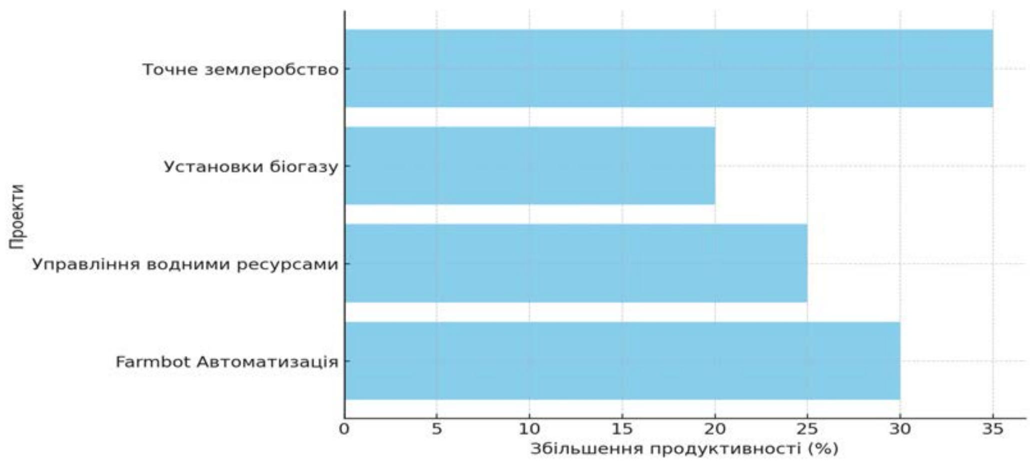

Fig. 3 – The impact of investments in technological innovation on SME productivity

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Financing sustainable and ecological agriculture is one of the key areas of French public policy aimed at supporting environmental initiatives and reducing the negative impact of agriculture on the environment. Within the framework of national and European programs, France allocates significant funds to projects that promote the transition to sustainable agriculture [14]. One of the main instruments is the European Agricultural Fund for Rural Development (EAFRD), through which in 2023 more than 5 billion euros were allocated to finance green initiatives, such as the creation of ecological farms, the reduction of greenhouse gas emissions and the introduction of renewable energy sources in agriculture [9].

The conditions for granting subsidies and loans for environmental projects provide for priority funding for projects aimed at reducing the environmental impact of agriculture. The main criteria for obtaining funding include the project's compliance with EU environmental standards, such as reducing the use of chemical fertilizers, switching to organic production and reducing water consumption [9]. Subsidies can cover up to 50% of the costs of implementing environmental projects, and for young farmers and small businesses this share can reach 70%. State programs also provide preferential loans with low interest rates, financed through the Banque Publique d'Investissement (BPI France) [15]. In 2021, BPI France allocated more than 800 million euros in loans for projects related to the environmental modernization of the agricultural sector [15].

The green economy, which favors environmentally sustainable projects, has a significant impact on access to finance for agricultural enterprises. The use of environmental standards is becoming an important factor in obtaining preferential lending conditions and government subsidies. In 2023, more than 60% of new agricultural projects that received financing met EU environmental standards, which include reducing greenhouse gas emissions, switching to organic farming and using renewable energy sources [9]. This provides farmers and SMEs with advantages in accessing financial resources, as projects that meet sustainability requirements have a higher chance of receiving subsidies and loans on preferential terms. For example, in 2021, a project to install biogas plants on dairy farms, aimed at reducing methane emissions, received a grant of €12 million from the French Ministry for the Ecological Transition [15].

The main challenges faced by small and medium-sized agricultural enterprises (SMEs) in France in obtaining financing are bureaucratic obstacles and insufficient access to credit. One of the key problems is the complex procedure for obtaining state aid, which involves a large amount of documentation and long application processing times. According to the French Ministry of Agriculture, in 2023, about 40% of small farms faced delays in the payment of subsidies due to problems with paperwork [4].

A second significant obstacle is the limited access to bank credit for small farms. While large enterprises can attract credit resources due to stable financial performance, small farmers often do not meet the requirements of banks for obtaining loans. The lack of collateral, uneven income due to the seasonality of agriculture and high interest rates make credit inaccessible to a significant part of SMEs. According to statistics from the Banque de France, in 2023, only 55% of small farms were able to obtain bank credit, while medium-sized enterprises had access to credit resources in 75% of cases [14].

To overcome these problems, reforms aimed at simplifying access to financial resources are needed. One solution is to simplify the procedures for applying for state aid, in particular the introduction of digital platforms for faster processing of documents. The French government has already started implementing similar initiatives, and in 2023 it was announced the launch of a national digital platform for applying for subsidies, which should reduce the processing time by 30% [15].

In addition, an important step is to improve financial models taking into account the needs of small farms. In particular, the development of microfinance programs and credit unions, which will allow small businesses to receive small loans on more favorable terms. According to the National Credit Union of France, in 2023, microcredit for farmers increased by 15%, which indicates the effectiveness of this mechanism [11]. It is also necessary to strengthen the role of state guarantees, which could reduce risks for banks and expand access to loans for small businesses. The government plans to increase the volume of guarantees by 500 million euros by 2025, which will allow attracting additional financial resources for SMEs [10].

Conclusions

Summarizing the experience of France in financing small and medium-sized agricultural enterprises (SMEs), we can conclude that the country is successfully implementing a comprehensive model of support for this sector, which combines traditional financial instruments, such as bank loans and state subsidies, with innovative financing methods, including microfinance and venture capital. Bank loans remain the main source of financing for most SMEs, but cooperatives and state programs play a significant role in promoting the sustainability of enterprises even in conditions of economic instability. It is also important to note the growing role of environmental programs and technological innovations that ensure increased productivity and compliance with modern standards of sustainable development. A key lesson for Ukraine is the need for a comprehensive approach to financing SMEs, which includes state support, access to traditional banking products, as well as stimulating innovative sources of financing. The integration of various

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forms of financial assistance, in particular support for cooperatives and microfinance, allows expanding access to financial resources even for the smallest enterprises, which is an important factor in their development. In addition, it is important to provide specialized support for the implementation of environmental and technological innovations that increase the competitiveness of SMEs in global markets. To further improve the financing system for agricultural SMEs in France, it is advisable to continue the development of innovative financing mechanisms, such as venture capital and microfinance, expanding their accessibility to small businesses. In addition, it is important to simplify the procedures for obtaining bank loans and government subsidies, especially for new businesses and start-ups.

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THE IMPACT OF CRYPTOCURRENCY ON THE SHADOW ECONOMY

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Key words:
shadow economy, cryptocurrency, money, state regulation, concept of the shadow economy, tax, illegal activity, financial system, security, threats, challenge, risks, bitcoin, block-chain, legal regulation, capitalization.

The article is devoted to the study of cryptocurrency and its impact on the shadow economy. Transactions related to cryptocurrencies are anonymous, so it is very difficult to control them.It is cryptocurrencies that are used in the shadow economy, and this raises the problem of how to control transactions and what laws should be applied to regulate digital currency.
The article analyzes the peculiarities of the cryptocurrency market, as well as the peculiarities of peer-to-peer payment systems such as Bitcoin, Namecoin, Litecoin, PPCoin, and Novacoin. The attitude to cryptocurrencies in the world is ambiguous; due to the pseudo-anonymity of cryptocurrencies, their use can be carried out through fraudulent schemes, in particular, financing the shadow sector - terrorism and drug trafficking. The author examines the possible interrelationships between cryptocurrencies and the shadow economy, highlights the main distinctive characteristics of cryptocurrencies and payment schemes using them, and analyzes the pros and cons of having competitive money in the country's economic cycle.

ВПЛИВ КРИПТОВАЛЮТИ НА ТІНЬОВУ ЕКОНОМІКУ

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Ключові слова:
тіньова економіка, криптовалюта, гроші, державне регулювання, поняття тіньової економіки, податок, незаконна діяльність, фінансова система, безпека, загрози, виклик, ризики, біткоїн, блокчейн, правове регулювання, капіталізація.

Статтю присвячено дослідженню криптовалюти та її впливу на тіньовий сектор економіки. Операції, пов'язані з криптовалютами, є анонімними, тому контролювати їх дуже складно.Саме криптовалюта використовується в тіньовій економіці, а це спричиняє проблему, як контролювати транзакції та які закони слід застосовувати для регулювання цифрової валюти.
У статті аналізуються особливості ринку криптовалют, а також особливості пірингових платіжних систем, таких як Bitcoin, Namecoin, Litecoin, PPCoin, Novacoin. Ставлення до криптовалют у світі неоднозначне, у зв'язку з псевдоанонімністю криптовалют їх використання може здійснюватися за шахрайськими схемами, зокрема фінансування тіньового сектора – тероризму та наркоторгівлі. Досліджено можливі взаємозв'язки криптовалют та тіньового сектора економіки, виділено основні відмінні характеристики криптовалют та платіжних схем з їх використанням, проаналізовано плюси та мінуси наявності конкурентних грошей у господарському циклі країни.

Statement of the problem

In economic theory, most researchers consider competition as a provision that meets the interests of the consumer and stimulates the producer to innovate and improve quality. However, there are industries that are declared to have special characteristics for which the presence of a single player or the desire for monopolization is seen as an inherent attribute. One of these industries is the financial system of a country, region, or the world.

Different items have been used as a means of payment in different time periods and institutional settings: "zimbos" made from sea snail shells, cotton cloth in Guinea and Africa, tobacco in Virginia, sugar in the West Indies, nails in Scotland, fur, iron and copper products, linen cloth, etc. Cash is most often (but not necessarily) characterized by portability, durability, divisibility, and standardization. When concluding a transaction in the form of cash, the number of monetary units increases for one person and decreases for the other.

However, there were monetary units that had only certain characteristics or none at all. An example is the "fairies" of the Caroline Islands – circles with a hole in the center, the diameter of which could reach several meters, the weight

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could be up to 1 ton. A striking difference between these monetary units is the complexity, limited production, difficulty of transportation, and the inability to obtain portability without losing value. When making a transaction using such monetary units, there was no physical movement of the fairy from the buyer to the seller, the fairy was simply marked with the sign of another owner. In this sense, fairies are somewhat similar to money based on cryptographic methods. In both cases, there is no physical movement of the payment unit, only the sign of its owner changes.

According to some researchers, today "only 2% of all transactional operations are accompanied by the movement of real commodities, the rest are speculative operations with liquid material, which allows the banking and financial sector to extract currency rent. However, transaction costs cannot exist without transaction income," which is 'appropriated by the initiators of various financial transactions' [1].

There are different views on the phenomenon of money: for example, in the textbook of economics edited by G. Manckew, "money is proposed to be considered what people recognize as a means of payment" [1; 2, p. 587], according to P. Samuelson: money is an "artificial social convention" [3, p. 64], money is also understood as funds used in settlements.

Analysis of recent articles and publications

Today, there is no single regulatory act governing the circulation of virtual currencies in the global economy, but there is a sufficient number of scientific developments on this topic, both domestic and foreign. The following domestic scholars have made an important contribution to the development of the issue of cryptocurrency circulation: T. Kovalchuk, K. Palyvoda, S. Volosovych, V. Lukianov, M. Vlasenko, Z. Farhadov; among foreign scholars – V. Paulman, A. Maslova. However, in our opinion, too little attention is paid to the connection between virtual capital and real capital, namely, the possibilities of forming fictitious capital for laundering "dirty" money.

Formulating the objectives of the article

The purpose of the article is to examine the main problems, opportunities, risks and consequences of using cryptocurrency in the economy, and to provide recommendations on the regulation of cryptocurrency transactions and recommendations on legislative restrictions on the use of cryptocurrency.

Presentation of the main material

The emergence of the term "cryptocurrency" is closely linked to the emergence of the peer-to-peer payment system Bitcoin. The system was developed in 2009 by Satoshi Nakamoto. It is not actually established whether this is the name of the inventor or a pseudonym of the development team. Later, competing developments appeared: Namecoin, Litecoin, PPCoin, Novacoin, and others (Table 1).

There are various views on the nature of cryptocurrency: it can be a convenient tool for shadow business, a type of pyramid scheme, and a way to reduce the state's monopoly on the monetary system. We will highlight the main distinguishing characteristics of cryptocurrencies and payment schemes using them, analyze the pros and cons of having competitive money in the economic cycle of a country, and consider the features of cryptocurrencies that can be used in the shadow economy.

Among the features of cryptocurrencies are the following:

– decentralized issuance: as a rule, most existing cryptocurrencies are generated by a large number of "miners" distributed around the world, the generation capabilities depend on a specific type of currency, capacity and other characteristics of computer equipment and the process of "mining" from time to time, the consequence of this characteristic is the possibility of participation in the issuance by any entity;

– absence of a central administrator;

– non-cash form (except for some attempts to create a physical medium);

– availability of information on the history of all transactions in the network to all users with a coin client installed on their computers;

– limitation of the volume of emission in most cryptocurrency systems;

– mostly open source software;

– inability to cancel a transaction, funds cannot be withdrawn, withdrawn, frozen, inability to revoke a payment (you cannot change your mind or return funds if you are dissatisfied with the quality of a product or service): this condition fundamentally distinguishes any cryptocurrency from conventional payment systems that provide for the possibility of blocking, rolling back a transaction, canceling a transaction, etc;

– anonymity of payment (or rather, pseudonymity, the payer is unknown, but can be identified by additional information, if any): anonymity is actually relative in nature, and if the name of the payer of one payment is known, it will be easy for any user of the labor system to trace the rest of the payments;

– making a payment only with technical consent and with the possibility of making it by the majority of the system's clients: any payment is technically verified by the coin clients, and if the data of the majority of them coincide, new information about the availability of currency for each client is recorded;

Table 1 – The most popular cryptocurrencies

Currency	Year of appearance	Market capitalization	Price	The total offer
Bitcoin	2009	$11,634,216,330	$965.93	12,044,575BTC
Litecoin	2011	$645,025,963	$27.58	23,389,742LTC
PPCoin	2012	$77,344,278	$3.72	20,798,011PPC
Namecoin	2011	$57,632,949	$7.79	7,402,700NMC
Primecoin	2013	$15,569,041	$4.84	3,217,203XPM

– interconnection of cost and network effect;
– impossibility of counterfeiting;
– information on all transactions in the system is stored for the entire life of the system;
– openness of the system to other payment instruments: the ability to exchange cryptocurrency for other currencies (both state currencies – dollars, euros, rubles, and private currencies) through electronic platforms, unless otherwise dictated by the formal institutions of a country;
– the impossibility of stealing a part of it, but the possibility of stealing the entire wallet of a system client or even a group of clients (Table 2);
– the exchange rate depends only on the network effect and the ratio of supply and demand;
– limiting the volume of emission hides the consequence – deflation of the currency value in the presence of the network effect.

The world's attitude to cryptocurrencies is ambiguous. Due to the pseudo-anonymity of cryptocurrencies, some researchers believe that the use of cryptocurrencies may involve fraudulent schemes, in particular, financing the shadow sector, i.e., socially dangerous phenomena such as terrorism and drug trafficking (for example, the anonymous online trading platform SilkRoad – Silk Road, most of the goods sold – more than 70% – during its operation were illegal, monetary transactions were conducted through Bitcoin). The concentration of the volume of a particular cryptocurrency is not too different from the concentration of other resources in society (for example, data on Bitcoin).

Currently, there is a tendency to increase the share of non-cash payments. According to research by Forrester, 90% of British top managers estimate that the UK will "become a cashless country by 2016". Seventy-three percent of Britons (according to VisaEurope) believe that "contactless technology will become a more common payment method than cash", according to a study by Skrill: "5% of Britons never carry cash with them, and 13% would gladly give it up today". However, according to Birch, "even in cashless economies, most of the remaining cash does not circulate anywhere: it simply disappears into the gray and black economy."

As a disadvantage of cryptocurrencies, they point out the possible negative impact of demand for them on the demand for government money: according to some estimates, demand for cryptocurrencies may lead to a decrease in demand for government currencies, a weakening of the banking system, and destabilization of the economy. In fact, the demand for cryptocurrencies, while reducing the demand for government money, will definitely lead to a reduction in the ability of the government to intervene in the economy. The problem of tax collection when cryptocurrencies are used as payments also raises many questions. The introduction of a formal rule requiring employers making salary payments in cryptocurrency to indicate the addresses of clients will lead to the loss of anonymity of the system and the ability to track all client payments.

Regulators of the financial and monetary system of many, including democratically developed countries, oppose the operation of cryptocurrencies on their territory, attributing to this mechanism a high probability of a shadow component. In countries with predominantly, in the terminology of D. Asemoglu and D. Robinson, extractive institutions, certain cryptocurrencies were banned by the regulator, for example, on December 5, 2013, the Central Bank of China introduced a ban on transactions using Bitcoin by Chinese banks and other financial institutions, but "individuals are free to participate in online transactions at their own risk".

The advantages of cryptocurrencies include openness, reliability, and the impossibility of counterfeiting. At the same time, reliability is achieved not by keeping information confidential, excluding other market participants from knowledge and controlling access, but by allowing each client to calculate the correctness of the transaction.

In addition, the positive aspects of payments through cryptocurrency include the advantages inherent in the development of cashless payments in general:
– absence of "stocking" savings and attraction of investments into the economy
– reduction of society's costs for processing and storing banknotes and coins for collection (for example, the lack of cashless payments in Italy alone costs $10 billion a year)
– increasing transparency and security of payments for all market agents;
– under certain conditions, a certain tax collection can be achieved.

There is an opinion that the existence of a currency that is not controlled by government agencies can lead to imbalance and instability, and that uncontrolled currency can be used in transactions outside the legal economy. Most experts believe that currency issuance should be controlled by the state. Supporters of this postulate rely in their argumentation on the "Gresham's Law", according to which "bad money drives out good money" (a stricter formulation: "Money artificially overvalued by the state displaces money artificially undervalued by it"). Thus, "the free market cannot be trusted to provide society with good money." Another argument is the loss of stability.

Opponents of government intervention in money issue make other arguments. For example, according to M. Rothbard, Gresham's Law is "a direct result of government intervention", and, according to him, "when the government began to monopolize coinage, the royal coins were backed by the guarantee of private bankers, whom the public trusted much more than the government". M. Rothbard believes that "there is no reason to interfere with the market to change a certain supply of money". According to Guido Hulsman: "...paper money is the most important tool for realizing the interests of privileged groups", fiat money gives the state unlimited possibilities for emission, which "is necessary for the state to redistribute income at its own discretion", in addition, "all central banks exist to rob the population, redistributing money in favor of political elites", while "money has usurped the role of true values".

However, there are many examples when the regulator, when making financially significant decisions, acted by lobbying the interests of individual entities to the detriment of the public interest, for example, the work of Nobel laureate M. Alle points out that "a growing disconnect between the financial system and the real economy is being generated",

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"states live in a budget prison from which there is no way out". The banking system of most countries has two consolidated levels – the Central Bank or Federal Reserve system and commercial banks. However, "the banking system is predominantly, approximately 5/6, composed of depositors who for some reason are not part of the formally classified system," while in F. Brodel's terminology "money flows to the service of technologies that??? manage their turnover." Therefore, it is not surprising that the followers of the Austrian economic school, on behalf of M. Rothbard, argue that "in the sphere of money circulation, as in other areas of human activity, coercion does not generate order, but conflicts and chaos."

Conclusions

In our opinion, despite the large number of advantages and innovations, the issue of legislative regulation of cryptocurrency circulation remains a major problem. Some countries and organizations have already taken the first steps towards regulation, but the specific nature of cryptocurrencies and the method of their issuance implies decentralized management, which makes this task difficult. In Ukraine, the circulation of virtual currencies has no official status, which creates a wide field for the development and introduction of cryptocurrencies into the shadow economy and requires immediate correction.

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PECULIARITIES OF THE TAX SYSTEM FUNCTIONING AND THE ROLE OF TAX AUTHORITIES: DOMESTIC AND INTERNATIONAL EXPERIENCE, REFORM AREAS

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Key words:
taxes, tax system, tax authorities, tax remissions, elements of taxation, international experience, Ukraine, Canada.

It was determined that upon the conditions of instability of the market environment, taxes are the main source of pumping up the state budget. Along with this, there is a need to improve and reform the tax system by taking into consideration international experience, increasing the efficiency of the work of tax authorities in an effort to reduce the taxation load on enterprises, stimulating investment and innovative activities, reducing the shadowing of the market, improving the economy. It has been proven that there is a necessity to reform the tax system by researching and taking into account the experience of other countries. The article analyzes the peculiarities of the work of tax authorities, the organizational structure, the legislative framework in the aspect of taxation using the example of Canada. A comparison of the Canadian Revenue Agency and the State Tax Service of Ukraine was made. The work of the Canadian Revenue Agency, its key results for 2021-2022, changes in the financial situation, and the purpose of work during 2023-2024 were analyzed. The structure of the tax system was studied, the list of taxes in Canada was determined and a comparison was made with tax rates in Ukraine. The peculiarities of the tax system of Canada and Ukraine have been determined, tax remissions have been analyzed. A study of tax revenues to the budgets of Canada and Ukraine was conducted. The advantages of taxation experience, the work of tax authorities in Canada have been identified: a taxation system that facilitates transparency and simplicity; system of tax remissions and incentives; risk analysis and audits to ensure compliance with tax legislation; availability of tax incentives. Proposals for the implementation of Canada's experience to improve the tax system and the work of tax authorities in Ukraine have been formulated: extension of the system of tax remissions in Ukraine; increasing transparency; improvement of the website of the State Tax Service; improvement of the control and audit system; implementation of an effective risk analysis system.

ОСОБЛИВОСТІ ФУНКЦІОНУВАННЯ ПОДАТКОВОЇ СИСТЕМИ ТА РОЛЬ ПОДАТКОВИХ ОРГАНІВ: ВІТЧИЗНЯНИЙ І МІЖНАРОДНИЙ ДОСВІД, НАПРЯМКИ РЕФОРМУВАННЯ

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Ключові слова:
податки, податкова система, податкові органи, податкові пільги, елементи оподаткування, міжнародний досвід, Україна, Канада.

Визначено, що в умовах нестабільності ринкового середовища, податки є основним джерелом наповнення державного бюджету. Поряд з цим існує потреба у вдосконаленні та реформуванні податкової системи шляхом врахування міжнародного досвіду, підвищення ефективності роботи податкових органів з метою зменшення податкового навантаження на підприємства, стимулювання до інвестиційної та інноваційної діяльності, зменшення тінізації ринку, покращення економіки. Доведено, що існує потреба у реформуванні податкової системи шляхом дослідження та врахування досвіду інших країн. У статті проаналізовано особливості роботи податкових органів, організаційну структуру, законодавчу базу в аспекті оподаткування на прикладі Канади. Здійснено порівняння Канадського агентства доходів та Державної податкової служби України.

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Проаналізовано роботу Канадського податкового агентства, його ключові результати за 2021-2022 роки, зміну фінансового стану, мету роботи впродовж 2023-2024 років. Досліджено структуру податкової системи, визначено перелік податків в Канаді та виконано порівняння зі ставками податків в Україні. Визначено особливості податкової системи Канади та України, проаналізовано податкові пільги. Проведено дослідження податкових надходжень до бюджетів Канади та України. Визначено переваги досвіду оподаткування, роботи податкових органів в Канаді: система оподаткування, яка сприяє прозорості та простоті; система податкових пільг та стимулів; аналіз ризиків та проведення аудитів для забезпечення дотримання податкового законодавства; наявність податкових стимулів. Сформовано пропозиції до впровадження досвіду Канади для вдосконалення податкової системи, роботи податкових органів в Україні: розширення системи податкових пільг в Україні; підвищення прозорості; вдосконалення сайту Державної податкової служби; покращення системи контролю та аудиту; впровадження ефективної системи аналізу ризиків.

Statement of the problem

Considering the hostilities taking place on the territory of Ukraine, the issue of reforming the tax system is of key importance, because it is taxes that perform a fiscal function and provide income to the state and local budgets. The analysis of international experience in the field of taxation will make it possible to determine the prospects and ways of reforming the tax system in order to ensure the growth of the economy in Ukraine. In addition, reforming the tax system will allow to minimize market shadowing, the taxation load on business entities, and protect social strata of the population. Therefore, the issue of improving the tax system through changes in tax legislation, adjusting the work of tax authorities, taking into account international experience holds much significance.

Analysis of recent studies and publications

The study of the foreign experience of taxation, proposals for its implementation, the question of the structure of the tax system of Ukraine, the definition of its features in the conditions of martial law are disclosed in the works: Ohrenych Yu. O., Karmazina V. S. [4; 13]; Andrienko K., Artyukh O. [8]; Andrushchenko V. L., Danilov O. D. [9]; Hretsa V. Ya. [11]; Izmailov Ya., Yehorova I., Tomchuk Yu. [12]; Ohrenych Yu. O., Krasnoshchok Ya. V. [5]; Plotnikova K. O. [15]; Subina T., Orłowski J. [6]; Forostianko D. V. [18]; Shylo Zh. [19].

Along with this, the issues of determining the specifics of the work of the Canadian tax authorities, the structure of the Canadian tax system, and existing tax remissions have not been fully disclosed. Proposals regarding the introduction of Canada's experience into the tax system of Ukraine have also not been determined, which requires further research.

Objectives of the article

The objective of the article is to study the peculiarities of the functioning of tax authorities, the structure of the tax system and the existing tax remissions of Canada and Ukraine, to determine the areas for improving the tax system of Ukraine upon the conditions of the war and the post-war period.

Objectives of the article

Within the framework of the instability of the market environment, tax revenues ensure the constant pumping up of the state and local budgets. However, the tax system of Ukraine needs to be reformed, because a significant part of business is in the shadows, which reduces tax revenues to the budget. In the conditions of martial law, the filling of the state budget is an important issue, which confirms the need for research and consideration of international experience in order to reform the tax system.

In addition, the introduction of foreign experience, particularly that of Canada, is one of the steps to improve the Ukrainian tax system. Canada is noted for its transparent, effective taxation system, which promotes business development, investment attraction, and protection of social groups of the population. Adaptation of Canada's best practices can help reduce the shadow sector and contribute to the growth of tax revenues for the Ukrainian budget.

«Canada has a developed and fair tax system, which consists of three levels: federal, provincial and local. About 60-65% of tax revenues go to the federal budget» [18]. «The main tax authority in Canada is the Canada Revenue Agency (CRA), which was created in 1999» [18].

«The mission of the Canada Revenue Agency is to administer and enforce taxes, remissions and related programs on behalf of governments across Canada, thereby contributing to the permanent economic and social well-being of Canadians» [18].

The corporate structure of the Canada Revenue Agency is shown in Fig. 1. Taking into account the above structure, it should be noted that the activities of all divisions are aimed at establishing work with taxpayers, improving the quality of services, implementing tax management, ensuring the efficiency of the Canada Revenue Agency's work in accordance with the worldwide level and identifying ways to improve it.

It should be noted that the legal basis for the activities of the Canada Revenue Agency is the «Canada Revenue Agency Act». The Agency is also responsible for enforcing the following major laws: Canada Pension Plan; Law on Special Payments to Children; Employment Insurance Law; Excise Tax Law; Law on Income Tax [7].

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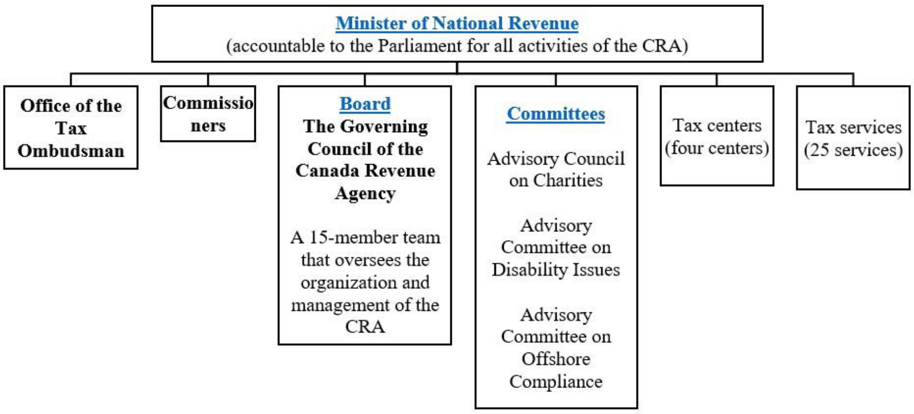

Fig. 1 – Corporate structure of the Canada Revenue Agency

Note: compiled on the basis of [1]

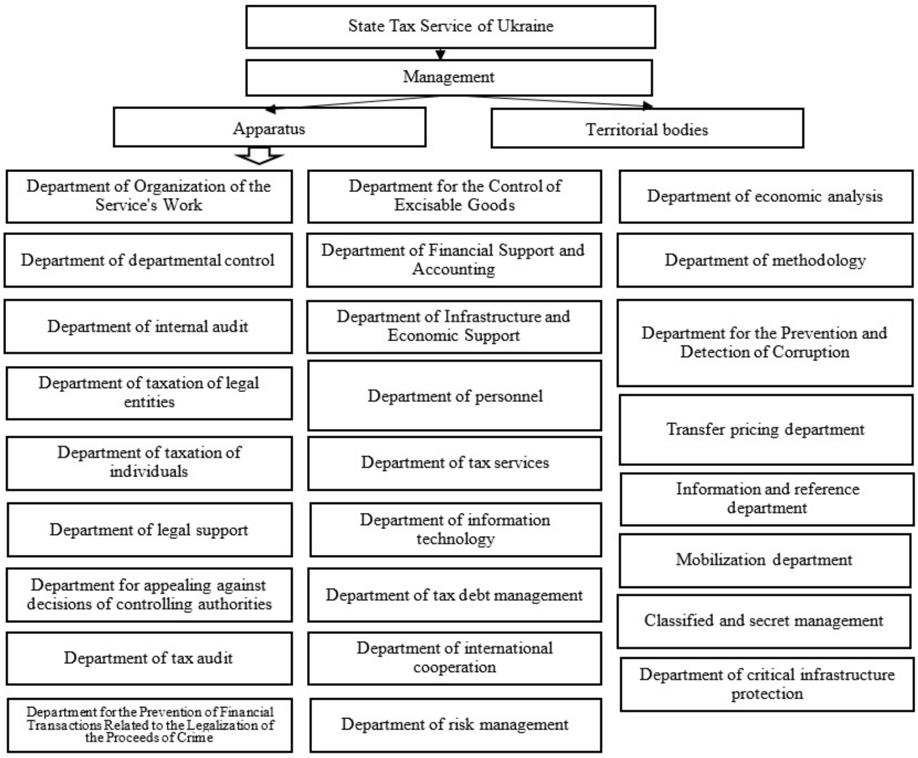

Fig. 2 – Organizational structure of the State Tax Service of Ukraine

Note: compiled on the basis of [17]

In Ukraine, the central body in the field of taxation is the State Tax Service, which includes the apparatus and territorial bodies (Fig. 2). Each oblast has territorial bodies responsible for tax tasks and control at the local level [17]. The activities of the apparatus and territorial bodies are aimed at the administration of taxes, fees, control over the assessment and payment of taxes, the use of tax remissions, detection of cases of tax evasion, work to cover tax debt, interaction with taxpayers, implementation of international standards, etc.

Compared to Ukraine, Canada has a more complex and extensive system of tax administration, including provincial and federal levels. Both countries use a centralized model with departments at different levels of management to ensure efficiency and control over the process of assessment and payment of taxes.

During 2022, the Canada Revenue Agency achieved the following key results: the introduction of programs to support job creation and economic recovery, which involve lowering tax rates and simplifying the taxation process; providing assistance to the population in submitting declarations through the volunteer income tax program in the community; setting up an automated callback service; creating an online form of service feedback to offer Canadians more opportunities to provide feedback on service quality; financed four projects through the CRA innovation program, which related to gamification of internal and external services, virtual integration of new employees [7].

Having considered the structure and peculiarities of the work of the Canadian Revenue Agency, it would make sense to analyze the financial condition of the agency (Fig. 3). In particular, the coronavirus pandemic affected the deterioration of the financial situation in 2021-2022, but it did not affect the effectiveness of tax policy.

According to the 2022-2023 reports, the Canada Revenue Agency aims during 2024 to: improve the quality of work with clients through digitalization; fight against aggressive tax planning and tax evasion; strengthen the security and protection of the privacy of taxpayers; increase the level of qualification of employees [7].

Along with this, the statistics of receipts of tax payments with the State Tax Service of Ukraine for 2019-2023 and as of October 1, 2024 were analyzed (Fig. 4). It is worthwhile noting that during the studied period, there has been an increase in funds, despite the coronavirus pandemic and the beginning of a full-scale invasion.

Canada's tax system covers the following levels: federal; provincial; local [9] (Fig. 5). It should be noted that each level covers different types of taxes, which differ in tax rates.

Unlike Canada, in Ukraine the tax system covers two levels: state; local. Based on this, national and local taxes and fees are paid in the country. «Statewide taxes include: corporate income tax; personal income tax; value added tax; excise tax; environmental tax; rent payment; duty» [16]. Local taxes include: «property tax; single tax. Accordingly, local fees include: fee for vehicles parking spaces; tourist tax» [16].

When comparing the structure of tax systems, it should be noted that Canada's tax system is more extensive and complex, there are many more taxes and they may differ in certain provinces. There are fewer taxes in Ukraine, but local taxes and fees also differ in tax rates.

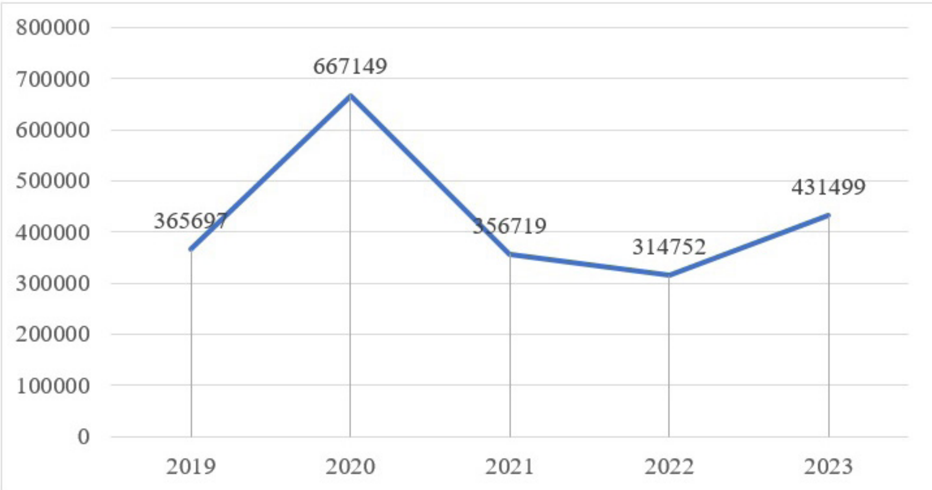

Fig. 3 – Changes in the financial position of the Canada Revenue Agency in 2019-2023 (in thousands of dollars)

Note: compiled on the basis of [7]

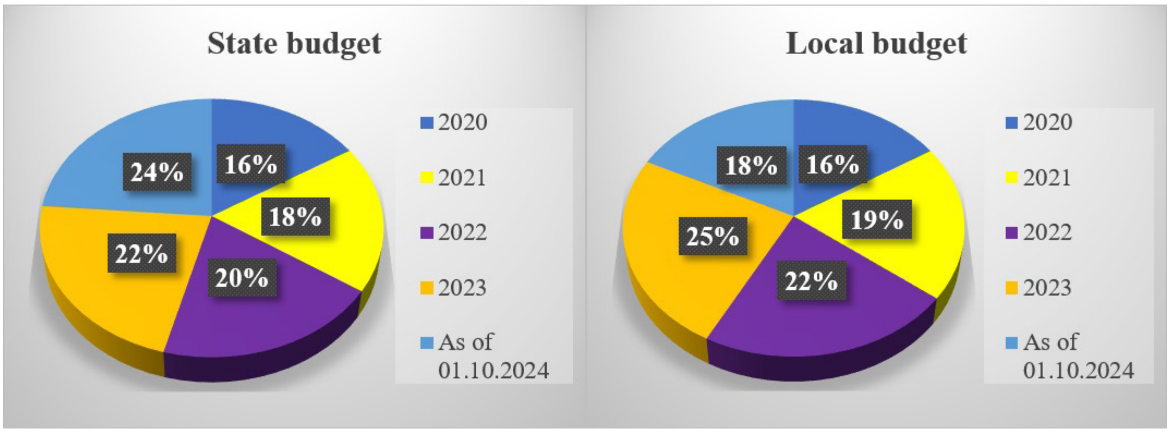

Fig. 4 – Dynamics of tax payments by the State Tax Service to the state and local budgets (balance) for 2019-2023 and as of 01.19.2024 (UAH thousand)

Note: compiled on the basis of [14]

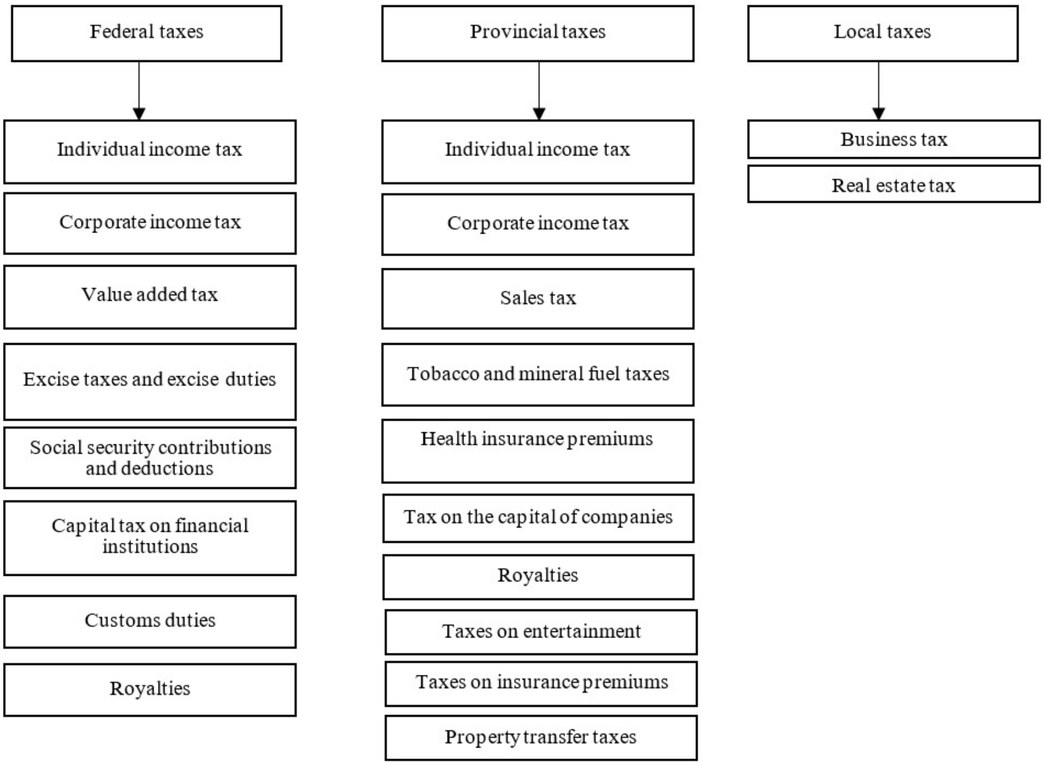

Fig. 5 – Major taxes in Canada by levels of the budget system

Note: compiled on the basis of [7]

Table 1 – Comparison of taxes in Canada and Ukraine

Tax	The rate in Canada	The rate in Ukraine
Corporate income tax	The total rate is 28% of net income (profit).	In Ukraine, this tax is called income tax and is 18%. There are also rates of 0, 3, 10, 25%, etc.
Federal goods and services tax (GST), harmonized sales tax (HST) (or VAT)	The federal goods and services tax (GST) rate is 5%. The rate of the harmonized sales tax (HST) varies from province to province and ranges from 13 to 15%.	In Ukraine, this tax is called value added tax and the basic rate is 20%. There are also rates of 0, 7, 14%, depending on the tax base.
Tax on capital gains	The tax rate on market value gains is up to 30%.	There is no analog of this tax in Ukraine.
Personal income tax	The rate varies depending on the level (federal, provincial, local) and can range from 0% to 55%.	The basic rate is 18%. There are also rates of 0, 5, 9%, depending on the tax base.
Duty	The standard duty rate is 35%.	The rate is set for each product.
Excise	The rates are set in accordance with the Excise Tax Law for each excisable good: spirits; beer; wine; tobacco; gasoline; aviation fuel, etc.	The rates are set in accordance with the Tax Code of Ukraine for each excisable product: tobacco; fuel; eclectic energy; passenger cars, etc.

Note: compiled on the basis of [7; 16]

Taking into account the results of the study, a comparison of taxes by rates in Canada and Ukraine was made (Table 1). Considering the data in the table 1, it is worth mentioning that Canada has a greater variety of taxes and often applies different rates depending on the type of product or region. Ukraine, on the other hand, has fewer taxes and usually applies flat rates, which can simplify the tax system for taxpayers.

Comparing taxes, we can specify that there is no analogue of such taxes in Ukraine: capital gains tax, sales tax. However, there are taxes in Ukraine that are not found in Canada, such as environmental tax and land tax.

According to the research of experts on the Destination of Canada website, the peculiarities of Canadian taxation are as follows: «during the taxation of individuals, the place of residence is taken into account; residents are taxed on their worldwide income; non-residents pay no Canadian tax on their international income and pay tax on certain income and capital gains received in Canada; there are no property or inheritance fees» [2].

Along with this, the peculiarities of taxation in Ukraine are: the use of tax social benefits and tax discounts for certain categories of taxpayers; application of the general and simplified taxation system for business entities;

introduction of the military levy, which is 1.5%; a significant number of tax benefits for each type of tax.

Canada has a fairly developed system of tax remissions (Table 2), which are aimed at stimulating investment, business development, and support for various sectors of the economy.

Side by side with this, in Ukraine, for each type of tax, there is an established set of tax remissions, which are defined in the Tax Code of Ukraine (Table 3). The introduction of tax remissions makes it possible to reduce the taxation load for individuals and legal entities, contributes to the recovery of enterprises.

Analyzing tax revenues for 2017-2022, one can notice the general trend of their growth. A particularly noticeable increase is observed in 2021-2022, which in percentage terms is 21.5% and may be the result of several factors, including the growth of the economy, an increase in business volumes, and an increase in the level of employment (Fig. 6).

Table 2 – Tax incentives in Canada

Title	Amount
Canadian Workers' Benefit (CWB)	Up to USD 1395 (for single persons) in 2022
Canadian child benefit	6997 USD per child in 2022-2023
Housing assistance in Canada	500 USD depending on income and the amount of rent paid
Basic personal amount	The amount of the tax credit depends on the province. For example, in Quebec, it is 16143 USD
Tax benefits for education	Up to 5000 USD in tuition fees per year
Tax benefits for pensioners	Refunds can be up to 7898 USD

Note: compiled on the basis of [7]

Table 3 – Tax privileges in Ukraine

Taxes	Title
Personal income tax	Tax rebate (for education, medical treatment, payment of expenses for the construction (purchase) of affordable housing)
Personal income tax	The tax social benefit (50, 100, 150, 200%) is granted to reduce the amount of total monthly taxable income (wages) for a certain category of population
Corporate income tax	«Profits of enterprises and organizations founded by public associations of persons with disabilities and wholly owned by them; profits of enterprises received through international technical assistance; profits of a participant in an industrial park included in the Register of Industrial Parks are exempt from taxation»
Value added tax	«Transactions subject to zero-rate taxation are not subject to taxation, are exempt from taxation»
Excise	The Tax Code of Ukraine defines transactions with excisable goods that are not subject to taxation; exempt from taxation
Tax on immovable property other than a land plot	Tax exemptions have been established for apartments, residential buildings, and various types of residential real estate
Land tax	Tax exemptions for individuals (e.g., persons with disabilities, pensioners) and legal entities (e.g., healthcare facilities, general education institutions) are defined

Note: compiled on the basis of [16]

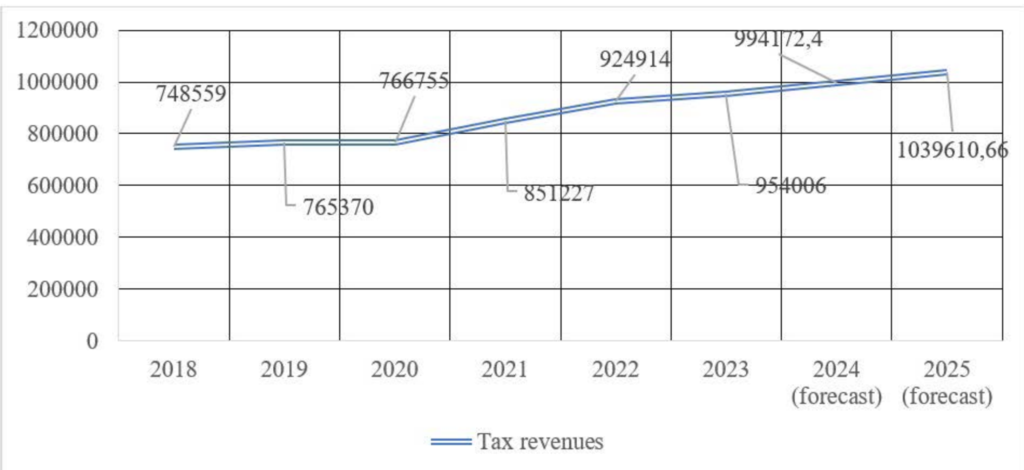

Fig. 6 – Canada's tax revenues in 2018-2023 and forecast for 2024-2025 (USD million)

Note: compiled on the basis of [3]

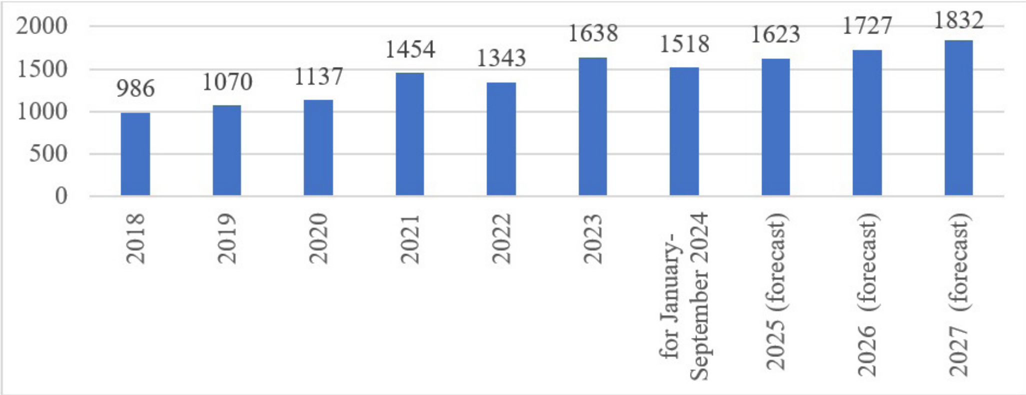

Fig. 7 – Dynamics of tax revenues of Ukraine in 2018-2023, January-September 2024 and forecast for 2025-2027 (UAH billion)

Note: compiled on the basis of [10]

Analyzing the indicators of tax revenues in Ukraine, it is possible to notice changing dynamic pattern during 2018-2023 (Fig. 7). More specifically, tax revenues to the budget during 2018-2021 had positive dynamic pattern, in 2022 there was a decrease compared to 2021 by 7.61%, and already in 2023, in accordance with 2022, an increase of 21.95% was observed. The forecast of tax revenues to the Consolidated Budget of Ukraine for 2025-2027 was also computed, according to which an increase in 2027 compared to January-September 2024 by 20.73% was observed, which confirms positive trends in the economy.

According to the results of the conducted research, the advantages of the experience of the functioning of the tax system and the work of tax authorities in Canada were determined, namely: the tax system is transparent and simple for taxpayers (for example, the process of filing tax returns is simplified and bureaucratic procedures are reduced); the use of a system of tax benefits and incentives for the development of economic sectors, solving social issues and stimulating investments; digitization of the work of tax authorities and the use of online tax services; the work of tax authorities is transparent, because the official website contains reports on the work of the agency, control is carried out by the Finance Council and the Minister of Finance personally; tax authorities carry out risk analysis and conduct audits to ensure compliance with tax legislation, which helps to identify and eliminate cases of tax evasion; by establishing tax incentives for research and development, innovations are stimulated and investments are raised in new technologies and industries.

Thus, proposals for improving the tax system and the work of tax authorities of Ukraine by implementing Canada's experience have been identified: expanding the system of tax remissions for business entities and social categories of the population; increase the transparency of tax procedures and policies, ensuring accessibility and comprehensibility of rules for taxpayers; full transfer of tax reporting into electronic form; improvement of the control and audit system, which will make it possible to more effectively detect violations and cases of tax evasion, control the payment of tax debt; introducing progressive tax rates by taking into account the experience of Canada and making the income tax different for different types of enterprises; stimulation of innovation, development of new technologies by revising tax rates for this activity; implementation of an effective system of risk analysis and use of advanced audit methods, similar to Canadian practice; the introduction of a digital services tax for large global companies that receive income from the provision of digital services (taking into account the experience of Canada); the introduction of tax holidays or tax credits for certain industries and types of activities, following the example of Canada; determining the level of tax risk of payers based on considering the amount of income; strengthening the mechanism of disclosure of tax information by business entities, improving the risk assessment system, which will allow detecting cases of tax evasion.

Thus, Canada's tax system is transparent and understandable for taxpayers, which facilitates the process of paying taxes for citizens and businesses, promotes business development and entices investors. Improving the tax system of Ukraine and the work of tax authorities, taking into account international experience, will improve the quality of the taxation system, reduce the taxation load on business, entices investors, which will contribute to the growth of tax revenues to the budget and the development of the economy.

Conclusions

Consequently, the Canada Revenue Agency is intended to make the tax system fairer and simpler. It was determined that the activity of the tax authority is effective due to its coordinated work. It should be pointed out that the tax rates in Canada are quite high, entrepreneurs in some cases have to give almost 50% of their income to the state, but the existing tax incentives reduce the taxation load and allow small businesses to develop. The emphasis has been laid to advantages of the existing taxation system in Canada, which include: transparency and stability of the taxation system; tax authorities highlight the results of their activities; tax authorities carry out risk analysis and conduct audits to ensure compliance with tax legislation; tax incentives are established to raise investments.

Based on the results of the study, proposals have been made to improve the tax system and the work of tax authorities of Ukraine, the implementation of which will stimulate the work of enterprises, reduce the shadowing of business, increase the level of transparency of the work of economic entities, stabilize tax revenues to the state and local budgets, and contribute to the development of the economy.

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METHODOLOGICAL APPROACHES TO DETERMINING THE COMPETITIVENESS OF COMMERCIAL BANKS

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competitiveness, commercial bank, methodological approach, financial service, digitalization, innovation, market, competitiveness indicators.

One of the most competitive industries, which is crucial for the financial stability of the economy, is the banking system. The article examines modern methodological approaches to determining the competitiveness of commercial banks that face increasingly fierce competition in the financial services market. Today's financial industry requires banks not only to adapt quickly to market changes, but also to integrate new technologies, implement innovative solutions and meet high customer demands. Changes in legislation and macroeconomic challenges, such as hostilities and the pandemic, have a significant impact on the activities of banking institutions, forcing them to look for new ways to increase their competitiveness.
The author characterizes the main factors that determine the competitiveness of banks, in particular, financial stability, technological level, innovation potential, customer satisfaction, and management efficiency. Particular attention is paid to digital transformation, which plays an important role in improving the efficiency of banking activities and creating new competitive advantages. Growing digitalization of the market, introduction of fintech technologies, mobile applications, blockchain innovations, and artificial intelligence have become a determining factor of competitiveness, as these technologies allow banks to adapt to market changes faster, reduce operating costs, automate customer service processes, and create new financial products for different categories of customers.
The influence of internal and external factors on the competitive positions of banks is considered. Internal factors, such as the quality of management, the level of personnel qualifications, the innovativeness of products and services, affect the ability of banks to maintain and increase competitive advantages. External factors, such as the economic situation in the country, government regulation and the actions of competitors, also have a significant impact on the market positions of banking institutions.
The analysis of three systemically important banks of Ukraine allows you to reveal the dynamics of changes in their competitiveness, to assess their market positions and financial indicators, including profitability, return on equity and liquidity of assets. It is noted that in the context of macroeconomic instability, increased market competition and global economic changes, banks must implement the latest strategies to ensure that they maintain and strengthen their market positions.
The article also offers a number of recommendations for improving the competitiveness of banking institutions. In particular, the development of innovative products and services, increasing the level of cybersecurity, and expanding the range of offers for customers that can become the basis for strengthening competitive positions. It is proved that effective risk management and adaptability to modern challenges are key factors for maintaining the stability and success of banks in today's changing environment. Combining financial and technological strategies will allow banks to stay afloat and ensure effective operations in a competitive market.

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МЕТОДИЧНІ ПІДХОДИ ДО ВИЗНАЧЕННЯ КОНКУРЕНТОСПРОМОЖНОСТІ КОМЕРЦІЙНИХ БАНКІВ

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Ключові слова:
конкурентоспроможність, комерційний банк, методичний підхід, фінансова послуга, діджиталізація, інновації, ринок, показники конкурентоспроможності.

Однією з найбільш конкурентоспроможних галузей, яка має вирішальне значення для фінансової стабільності економіки є банківська система. У статті досліджуються сучасні методичні підходи до визначення конкурентоспроможності комерційних банків, які стикаються з дедалі жорсткішою конкуренцією на ринку фінансових послуг. Сьогоднішня фінансова галузь вимагає від банків не лише швидкої адаптації до ринкових змін, а й інтеграції нових технологій, впровадження інноваційних рішень та задоволення високих вимог клієнтів. Зміни в законодавстві та макроекономічні виклики, такі як воєнні дії, пандемія, значно впливають на діяльність банківських установ, змушуючи їх шукати нові способи підвищення своєї конкурентоспроможності. Охарактеризовано основні чинники, що визначають конкурентоспроможність банків, зокрема такі, як фінансова стійкість, технологічний рівень, інноваційний потенціал, рівень задоволеності клієнтів та ефективність управління. Особливу увагу приділено цифровій трансформації, яка відіграє важливу роль у підвищенні ефективності банківської діяльності та створенні нових конкурентних переваг. Зростання цифровізації ринку, впровадження фінтех-технологій, мобільних додатків, блокчейн-інновацій та штучного інтелекту стало визначальним фактором конкурентоспроможності, оскільки ці технології дозволяють банкам швидше адаптуватися до змін на ринку, знижувати операційні витрати, автоматизувати процеси обслуговування клієнтів та створювати нові фінансові продукти для різних категорій клієнтів. Розглянуто вплив внутрішніх і зовнішніх факторів на конкурентні позиції банків. Внутрішні фактори, як якість управління, рівень кваліфікації персоналу, інноваційність продуктів і послуг, впливають на здатність банків зберігати та нарощувати конкурентні переваги. Зовнішні чинники, такі як економічна ситуація в країні, державне регулювання та дії конкурентів, також мають значний вплив на ринкові позиції банківських установ.

Аналіз трьох системно важливих банків України дозволяє розкрити динаміку змін їх конкурентоспроможності, оцінити їх ринкові позиції та фінансові показники, включаючи прибутковість, рентабельність капіталу та ліквідність активів. Зазначено, що в умовах макроекономічної нестабільності, посилення ринкової конкуренції та глобальних економічних змін банки повинні впроваджувати новітні стратегії, щоб забезпечити утримання та зміцнення своїх позицій на ринку.

У статті також запропоновано низку рекомендацій щодо підвищення конкурентоспроможності банківських установ. Зокрема, розвиток інноваційних продуктів і послуг, підвищення рівня кібербезпеки, а також розширення спектра пропозицій для клієнтів, які можуть стати основою для зміцнення конкурентних позицій. Доведено, що ефективне управління ризиками та адаптивність до сучасних викликів є ключовими факторами для підтримки стабільності й успіху банків у сучасному мінливому середовищі. Об'єднання фінансових і технологічних стратегій дозволить банкам залишатися на плаву та забезпечувати ефективну діяльність на конкурентному ринку.

Statement of the problem

Today's financial market is characterized by a high level of competition, growing customer demands and rapid changes in the economic environment. In such conditions, commercial banks must actively adapt, implement the latest technologies and develop strategies aimed at strengthening their competitiveness. However, determining the competitiveness of banks remains a complex and multifaceted task, as it depends on many factors, such as financial stability, quality of banking services, technological level, innovation potential, customer satisfaction and management efficiency.

Currently, there are a number of approaches to assessing banks' competitiveness, but they do not always take into account all key aspects of banking institutions' activities, including the impact of globalization, digitalization, and the latest financial technologies. In addition, the current economic situation, in particular the growth of macroeconomic risks and wartime challenges, requires improved methodologies for assessing banks' competitiveness, which would allow for more effective forecasting of their resilience and adaptability to market changes.

Analysis of recent studies and publications

The issue of competitiveness of commercial banks is the object of research by many scholars who focus on various aspects of assessing this indicator. Vdovenko L.O. [1] focused on refinancing mechanisms that help maintain the financial stability of banks, especially in times of crisis. Her work demonstrates the importance of government support for maintaining the financial stability of the banking system. Vovchak O.D. and Gongalo N.M. [2] emphasize the importance of digital innovations for increasing the competitiveness of banks, as the introduction of financial technologies provides faster access to new markets and reduced operating costs.

Shvets V.Y. [3] studied the financial aspects of banks and their impact on competitive advantages. In his work, he points out the need to improve the methods of asset and liability management to ensure stable profitability and increase competitiveness in the market. Kakhovych O.O. and Lysenko V.R. [4] in their works emphasize the need to take into account global trends, such as digitalization, which affects the competitive position of banks not only in the national but also in the international markets.

Balduev M.V. and Baldueva O.V. [5] studied the impact of both external and internal factors on the competitiveness of banking institutions, in particular, factors such as the economic situation in the country, changes in consumer behavior, and the development of technology. They also emphasize that improving the internal structure of the bank and effective risk management are key to enhancing competitiveness. Despite considerable academic interest, the issue requires further research, especially in the context of military challenges, when the banking system is under pressure from both internal and external factors.

Objectives of the article

The purpose of the article is to determine the competitiveness of commercial banks, to study the competitiveness of Ukrainian banks and to develop recommendations for their improvement with due regard for current economic conditions.

The main material of the research

The competitiveness of commercial banks is an important aspect of their activity, as it directly affects their position in the market, the ability to attract customers and ensure a stable financial result. In the modern financial environment, which is characterized by high dynamism, changes in legislation and technological innovations, the issue of determining and assessing competitiveness is of particular importance.

Methodological approaches to assessing the competitiveness of commercial banks may vary depending on the methodology chosen and the criteria used. The main methods of assessing competitiveness include analysis of financial indicators, assessment of the level of customer service, study of market position and adaptability to changes. It is also important to take into account the impact of external factors, such as the economic situation in the country, changes in consumer behavior, and technological development. These factors determine not only the growth opportunities but also the challenges faced by commercial banks. It should be emphasized that banking competition is one of the types of market competition. Therefore, in order to determine the mechanism for ensuring the competitiveness of banking institutions, it is important to first consider the essence of the concept of «competitiveness» in the general context.

Competitiveness characterizes the ability in the conditions of a competitive market for a significant current period of time to withstand competition with similar goods or services and to maintain the effective functioning of the organization in general.

The competitiveness of a commercial bank is its competition in the market of similar services, in the process of which new innovations, banking products are created, and unique competitive advantages of the institution are formed in order to achieve profitability and financial stability in the future and attract the most attractive consumer segments.

The bank's competitiveness indicators include consumer and economic criteria (see Fig. 1).

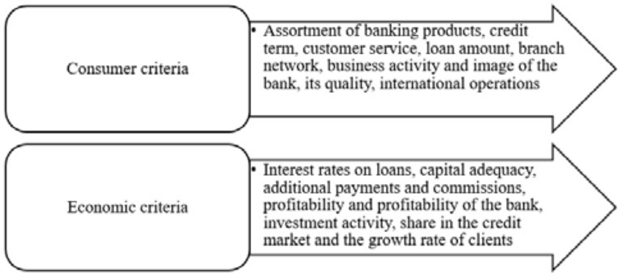

Fig. 1 – Basic indicators of consumer and economic criteria of competitiveness bank [4]

In the process of researching the bank's competitiveness, it is also mandatory to analyze the factors affecting the state of the financial institution on the market. Factors are divided into internal and external, which influence through quantitative and qualitative factors (see table 1).

The system of factors affecting the achievement of competitive advantages includes both external factors and internal factors that interact with each other to create a dynamic system in which banks can adapt their activities for maximum efficiency and stability in the market. Thanks to the bank's creation of competitive advantages, this provides it with the necessary basis for long-term activity and further development.

In addition, the competitiveness of banks is influenced by their internal structure, level of financial stability, strategic development plan, and risk management efficiency, as these allow banks to use resources for their intended purpose (efficiently), reduce losses, and promote stable growth. The ability of banks to provide customers with high quality, innovative products and services that meet their needs is one of the key factors determining their competitiveness [6].

Table 1 – Factors affecting the competitiveness of banks [5]

Source of influence	Factors	
	Qualitative factors	Quantitative factors
External environment	– intervention of state authorities in the work of banks; – availability of financial infrastructure services; – the level of trust in the banking system of citizens; – the state of the stock market; – the level of the regulator's loyalty to the bank's risky operations	– general economic situation in the country and the world; – the level and conditions of credit and financial services provided by competitors; -diversity of offers of banking services in the country and abroad; – profitability of assets and liquidity indicators of competing credit institutions
Internal environment	– trust and reliability of the credit organization; – quality and service provision of services; – reputation, image of the bank; – use of FinTech; – qualification of bank employees; – quality and degree of qualification with clients; – innovativeness of products and services	– financial condition of a commercial bank; – the quality of liabilities and assets of the credit organization; – cost and other conditions of service provision; – profitability of the bank's assets, which shows how effectively resources are used

Bank competition has certain differences from traditional competition between producers of goods, in particular, banks may not use external sales channels, providing their services through their own network of branches and electronic communication channels. Moreover, competition in the banking sector is not limited to banks, it also includes the activities of non-banking financial institutions. This creates a more complex competitive environment in which different types of financial institutions compete to attract customers and offer a wide range of financial services. In such an environment, success is challenged by banks' ability to quickly adapt to market changes, innovate and deliver high levels of service to reach and grow their customer base.

The main purpose of competition among banks is to attract the resources necessary to conduct active operations. Most banks are dependent on attracting deposits and other sources of funding, which are used for lending, investing and other financial transactions, and as a result, they actively compete to attract their main customers by offering favorable terms and conditions for lending, deposits [6].

In today's conditions, the competitiveness of banking institutions on the Ukrainian market is quite low, in comparison with other countries, through the banking system of Ukraine to go through the stages of transformation and modernization, on the one hand, this is connected with the beginning of a full-scale war, which led to a change in this market dynamics, and on the other hand, with the acceleration of digitization, however, the banking sector of the country has decently accepted the first blow to its sector and continues to work stably and, with the help of coordinated efforts of regulators and banks, ensure the smooth operation of financial institutions.

Let's analyze the banking market using key performance indicators of banks. As of 2023, there are 63 banks operating in Ukraine (Fig. 2).

According to the figure, we observe that as of 2023, the number of operating banks has decreased by 16% compared to 2019, that is, 12 banks have ceased their activities, accordingly, in the conditions that have developed on the market, the most stable and competitive banks have remained.

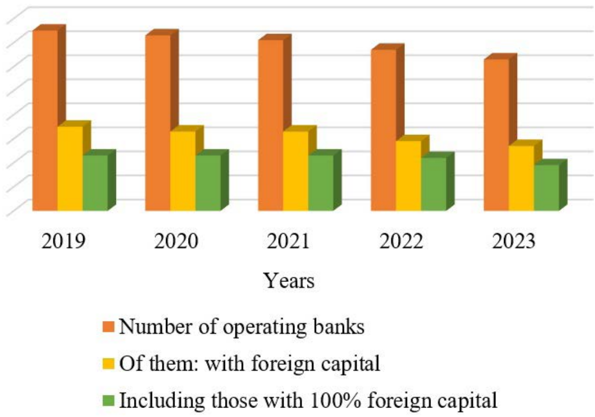

Fig. 2 – Dynamics of the number of operating banks in Ukraine in 2019-2023 [7]

The competitiveness of the bank is a characteristic of the efficiency of its work. The main indicators that characterize the effectiveness of banking activity are the financial result, profitability indicators, adequacy of regulatory capital, economic standards of bank activity. Consider the dynamics of income and expenses banks of Ukrainian (Tables 2 and 3).

According to the above information, we observe an increase in the income of the banking system of Ukraine for 5 years (where the total share of income exceeds interest income), in particular, in 2023, 25%, i.e. UAH 88813 million, there was an increase in income compared to 2022 (61% interest and 24% commission), and in comparison with 2019, an increase by as much as UAH 203260 million, i.e. 84%. Expenses for 2021 decreased by UAH 13957 million compared to 2020, but then began to grow, and for 2023 we have an increase of UAH 27889 million, 8% compared to 2022. Although there has been an increase in expenses, revenues exceed them, which indicates positive financial dynamics. Interest income only in 2020 decreased by 3% compared to 2019, and commission income in 2022 by UAH 7,540 million compared to 2021.

Table 2 – Horizontal analysis of banks' income and expenses in 2019-2023, UAH million

Indicators of banks	Years					Absolute deviation				Growth rate, %			
	2019	2020	2021	2022	2023	2020-2019	2021-2020	2022-2021	2023-2022	2020/2019	2021/2020	2022/2021	2023/2022
Income	243 102	250 171	273 863	357 549	446 362	7 069	23 692	83 686	88 813	3	9	31	25
Interest income	152 954	147 743	168 746	217 053	304 437	-5 211	21 003	48 307	87 384	-3	14	29	40
Commission income	62 057	70 640	93 162	85 622	97 061	8 583	22 522	-7 540	11 439	14	32	-8	13
Costs	184 746	210 445	196 488	335 628	363 527	25 699	-13 957	139 140	27 899	14	-7	71	8
Interest expense	74 062	62 895	51 097	65 358	103 043	-11 167	-11 798	14 261	37 685	-15	-19	28	58
Commission costs	18 096	24 132	35 186	35 449	47 084	6 036	11 054	263	11 635	33	46	1	33
Net profit (loss)	58 356	39 727	77 376	21 921	82 835	-18 629	37 649	-55 455	60 914	-32	95	-72	278

Source: compiled on the basis of [7]

Table 3 – Vertical analysis of banks' income and expenses in 2019-2023, UAH million

Indicators of banks	Years					Absolute deviation			
	2019	2020	2021	2022	2023	2020-2019	2021-2020	2022-2021	2023-2022
Income	100,0	100,0	100,0	100,0	100,0	0,0	0,0	0,0	0,0
Interest income	62,9	59,1	61,6	60,7	68,2	-3,8	2,5	-0,9	7,5
Commission income	25,5	28,2	34,0	23,9	21,7	2,7	5,8	-10,1	-2,2
Costs	100,0	100,0	100,0	100,0	100,0	0,0	0,0	0,0	0,0
Interest expense	40,1	29,9	26,0	19,5	28,3	-10,2	-3,9	-6,5	8,8
Commission costs	9,8	11,5	17,9	10,6	13,0	1,7	6,4	-7,3	2,4

Source: compiled on the basis of [7]

A schedule of the dynamics of income, expenses and net profit is shown in Figure 3

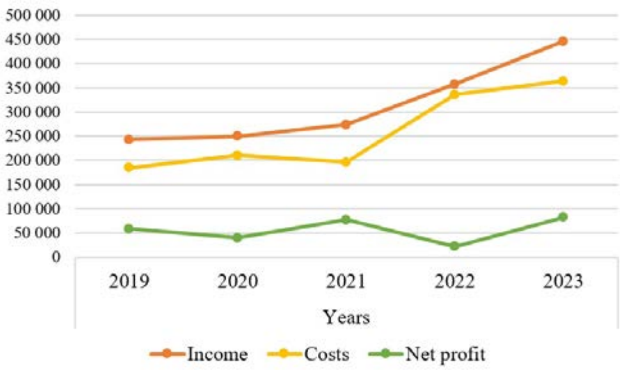

Fig. 3 – Dynamics of income, expenses and net profit of the banking system of Ukraine, 2019-2023 [7]

Net profit, according to the dynamics, decreased in 2020 by 32%, namely 18,629 million UAH, compared to 2019 and 2022 by 55,455 million UAH, 72% compared to 2021 - this is a period of economic instability and challenges caused by the pandemic and war, where the banking system faced numerous difficulties, including rising credit risks, reduced demand for financial services and instability of market, however, with the entire banking sector operating at a profit, for 2023 in comparison with 2022, there was a significant increase in profit by UAH 60,914 million, which works on the gradual recovery and adaptation of the banking system to new economic conditions, effective management of resources, the ability of banks to meet the needs of their customers and increase competitiveness in the market.

The competitiveness of the banking system can also be assessed by profitability indicators, since they reflect the efficiency of the functioning of banking institutions (Fig. 4).

Fig. 4 – Dynamics of profitability indicators banks of Ukrainian in 2019-2023

Return on capital during 2019-2023 fluctuates, its value in 2020 will decrease by 14% against 2019. due to the impact of the consequences of the COVID-19 pandemic and 2022 by 34% by 2021. due to the war in Ukraine, which led to a worsening of the market situation, but in 2023 this indicator increased to 30.26%, which is 20.58% more than in 2022. What refers to the indicator the rate of return on assets the banking system effectively uses available resources when the value of the indicator is at least 1%, if only in 2022 the rate of return on assets reaches its lowest value, approaching the indicative value, which indicates a decrease in the efficiency of the banks' use of their resources, However, in previous years, this indicator remained within the recommended value, in 2023 it increased by 2% compared to 2022, and if compared with 2019, there was a slight decrease of 1%, that is, the banking system is gradually restoring its efficiency, but has not yet reached the level of profitability of assets characteristic of pre-crisis periods. Thus, banking institutions continue to work on improving the productivity of their resources and adapting to new economic conditions to ensure an adequate level of return on assets.

The bank's competitiveness is assessed on the basis of a comparison of the essential indicators of its work with similar indicators of competing banks. This comparison gives the bank an opportunity to correct its strengths and correct existing shortcomings. Let's assess the competitiveness of 3 Ukrainian systemically important banks: JSC CB «PrivatBank», JSC «Oschadbank» and JSC «OTP Bank» (see Fig. 5).

From Figure 5, we can see that JSC KB «Privatbank» occupies a leading position in terms of the size of bank assets. The assets of Privatbank amount to 680008000 UAH for 2023, which is 333472277 thousand UAH, 96% more than in Oschadbank, and 577964518 thousand UAH. UAH more compared to OTP Bank. However, it should be noted that starting from 2020, the positive dynamics of the assets of these banks have a tendency to increase, namely, in 2023, compared to 2020, the assets of Oschadbank increased by 48%, OTP Bank by 73%, and Privatbank by 78%.

The next one of the most important indicators of the bank, which ensures the stabilizing effect of the bank's development and the general economic development of the country, is the profitability indicator (Table 4).

If the rate of return on capital has a value of at least 15%, then the bank is working efficiently, according to Table 4, JSC CB «PrivatBank» has had a satisfactory value of the indicator for 5 years, but as of 2023 it has decreased by 15% compared to 2019, JSC «Oschadbank»

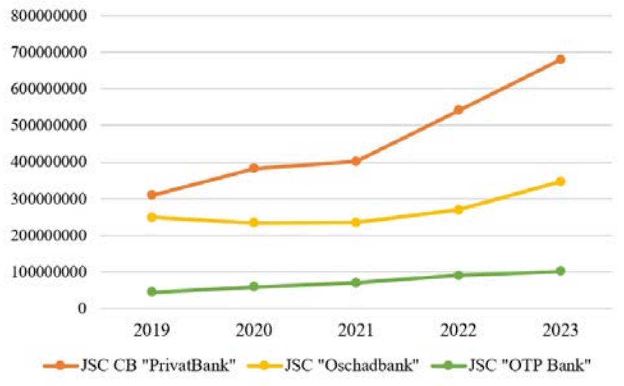

Fig. 5 – Dynamics of banks' competitiveness by asset volumes 2019-2023, UAH thousand

Source: compiled on the basis of [8], [9], [10]

did not achieve the optimal indicator for 3 years (2019, 2021-2022), but on 2023, there was an increase in the efficiency of the use of the bank's capital, the ratio was 20.81%, OTP Bank in 2022 also had a negative value of 10% from the optimal indicator, but in 2023 the situation improved, and the bank reached a positive level of profitability. The profitability of bank assets fluctuates over the years, then increases, then vice versa. At Oschadbank, the situation is similar to the profitability of capital, i.e., for 3 years, the bank's assets were used inefficiently, in 2023, growth occurred by 1.48%, compared to 2022. Also, OTP Bank in 2022 the value of the indicator does not reach the required value (it can be at least 1%), but the previous 3 years show good performance and in 2023 it grows by 2.98%. At Privatbank, unlike previous banks, in 2023 there is a decrease in the indicator, but only by 0.4% and compared to other banks in similar years, it has the highest value of the indicator. The net interest margin, an an indicator that is important in the assessment of the efficiency of banks' activity over the past 5 years, has increased in Privat by 2.42%, OTP Bank by 0.79%, and in Oschadbank by the largest percentage by 3.20%.

Table 4 – Profitability indicators of Ukrainian banks during 2019-2023, %

Indicator	**JSC CB «PrivatBank»**				
	2019	**2020**	**2021**	**2022**	**2023**
Net interest margin	6,35%	5,65%	7,31%	7,38%	8,77%
Return on assets	10,53%	6,35%	8,73%	5,59%	5,55%
Return on capital	59,80%	46,00%	52,62%	52,26%	44,51%
	JSC «Oschadbank				
Net interest margin	2,21%	3,42%	5,69%	5,56%	5,40%
Return on assets	0,10%	1,19%	0,45%	0,24%	1,72%
Return on capital	1,30%	12,65%	4,82%	2,88%	20,81%
	JSC «OTP Bank»				
Net interest margin	7,68%	6,07%	6,65%	7,48%	8,47%
Return on assets	5,66%	2,94%	3,93%	0,66%	3,64%
Return on capital	32,63%	18,11%	24,82%	5,13%	23,47%

Source: compiled on the basis of [8], [9], [10] It is appropriate to evaluate the regulatory indicators of banks, because these indicators indicate the ability of banks to fulfill their obligations, maintain an adequate level of liquidity and capital, as well as manage risks, which, in turn, determines their position on the market and trust from customers and partners (table 5).

Based on the above data, we can draw the following conclusions that most of the banks' indicators correspond to the normative values. Core regulatory capital, designed to absorb losses caused by risks, is the most in PrivatBank compared to other banks, which indicates its high ability to withstand potential financial losses. The standard of regulatory capital adequacy of OTP Bank exceeds that of Oschadbank by 20.04% and Privatbank by 14.86%, that is, OTP has a more stable situation in terms of settling its obligations compared to its competitors. The standard of capital adequacy also has the highest value in OTP Bank compared to other banks. Liquidity ratios: the LCR of Privatbank exceeds the corresponding figure of Oschadbank by 182.55%, and OTP Bank by 204.96%, and LCRs-the ratio of liquidity coverage in foreign currency is the highest at Oschadbank, by 48.52% more than Privat and 12, 42% OTP. A reliable funding base has OTP Bank (shown by the NSFR ratio), as its indicator exceeds the similar ratio of PrivatBank by 52% and Oschadbank by 37.78%. In general, analyzing banks, according to the norm , we can say that they comply with regulatory requirements and have a stock of resources for stable financial activity. Such compliance with the regulations of most rated banks indicates that they are able to function stably and ensure competitiveness in the market.

The question of increasing the competitiveness of banks has become quite relevant at the current stage of the aggravation of tough competition on the market. This process must be consistent, carried out methodically and correspond to the chosen long-term development strategy. Let's consider several proposals for increasing the competitiveness of banks: 1) Development of innovations - currently new technologies occupy an increasingly important place in the market. The introduction of such technologies as digital banking, blockchain, and artificial intelligence contributes to increasing the efficiency of banking activities and increasing the number of customers, because the simpler and more convenient banking services become, the more people prefer them. Innovations allow banks to adapt more quickly to changes in the market, reduce operating costs and create new products, which increases their competitiveness and attractiveness to customers;

2) Improving cyber security - will ensure an increase in the reliability of customers towards the bank, because if they are sure that their financial and personal data are under reliable protection, they will be more willing to cooperate with the bank, and in general, reliable data protection will allow banks to protect themselves from fraud, hacker attacks;

3) Expansion of the range of services - to introduce new products that will simplify the lives of customers;

4) Implement effective risk management, i.e., to quickly respond to danger and eliminate it, constantly assess risks, in case of crisis events have a reserve fund for uninterrupted settlements with customers and partners, regularly conduct audits and checks of internal control to identify possible threats and improve processes risk management;

5) Implementation of motivational programs - that is, to do promotions among customers, for example, the «Bring a friend» program and receive bonuses or discounts on banking services, special offers for loans and deposits. Such programs encourage customers to attract new users and increase the loyalty of existing customers [6].

The use of these methods can help banks to increase the level of competitiveness in the market of banking services.

Conclusion

Therefore, at the current stage of the development of the banking system, there is fierce competition between banks for users of banking services, and where there is competition, there is a need to introduce special methods to maintain

Table 5 – Economic norms of banks in 2023, thousand UAH

Norm	Optimal value	Name of the bank		
		JSC CB «PrivatBank»	**JSC «Oschadban»**	**JSC «OTP Bank»**
H1 – regulatory capital	at least 200 million UAH	64 843 346	27 646 436	14 189 431
H2 – standard of sufficiency (adequacy) of regulatory capital	not less than 20%	21,75	16,57	36,61
H3 – standard of capital adequacy	not less than 7%	10,88	8,30	18,49
H8 – the norm of large credit risks	no more than 8 times the amount of regulatory capital	0,00	54,91	0,00
H9-the norm of the maximum amount of credit risk for transactions with persons related to the bank	not more than 25%	0,00	0,08	0,16
LCRвв – the norm of liquidity coverage ratio for all currencies	not less than 100%	462,8319	280,2822	257,8735
LCRів – the norm of liquidity coverage ratio in foreign currency	not less than 100%	266,0898	314,6141	302,1892
NSFR – the norm of the ratio of net stable financing	not less than 100%	185,2109	199,4815	237,2654

Source: compiled on the basis of [7]

one's place. Determining the competitiveness of commercial banks is a complex and multifaceted process that requires the use of various methodological approaches. The competitiveness of the bank is manifested in its ability to provide products and services on the market that will be distinguished by the consumer from similar offers offered on the market by banks-competitors. The main evaluation methods include the analysis of financial indicators, monitoring of the quality of customer service, the study of innovative technologies and comparison with competitors in the market. Given the constant changes in the economic environment and technological progress, banks must be ready for innovation and quick response to new challenges. Implementation of a systematic approach to determining competitiveness will allow commercial banks to ensure sustainable growth and successful activity in the financial services market.

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PRINCIPLES OF WORK MOTIVATION OF THE STAFF OF THE ENTERPRISE

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Key words:
motivation, labor motivation, motivational policy, motivational potential, motive, enterprise, personnel, need, incentive, remuneration.

The article examines the motivation of the staff of the enterprise «Food Base Zaporizhzhia» LLC. The personnel composition of the enterprise is analyzed. It is determined that the labor resources of an enterprise are one of the most important components of its activities. It is substantiated that a significant problem faced by enterprise managers is the motivational policy of personnel and the way to productive achievement of goals. The concept of motivation is substantiated, which is closely related to the problem of personnel management. It is found that economic relations also put forward new requirements for personnel. It is revealed that labor is a necessary condition for the existence and development of society, as an expedient activity of people aimed at meeting their vital needs. It is substantiated that one of the components of labor is its motivation at the level of participants in labor relations. The variability of personnel composition is studied. Methods of optimization of motivational policy are proposed. An analysis of scientific sources on the evaluation of staff motivation is carried out. A characterization of the researched enterprise «Food base of Zaporizhzhia» LLC is provided. The sources of search for personnel for the researched enterprise are provided. The main tasks in hiring employees are substantiated in terms of quality and quantity. The motivational potential of payment systems for the enterprise is disclosed and substantiated. The current work of the motivational policy in the LLC «Food Base Zaporizhzhia» is disclosed. Conclusions on the basic principles of labor motivation of the enterprise's staff are made.

ЗАСАДИ МОТИВАЦІЇ ПРАЦІ ПЕРСОНАЛУ ПІДПРИЄМСТВА

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Ключові слова:
мотивація, мотивація праці, мотиваційна політика, мотиваційний потенціал, мотив, підприємство, персонал, потреба, стимул, оплата праці.

В статті досліджено мотивацію персоналу підприємства ТОВ «Продовольча база Запоріжжя». Проаналізовано кадровий склад підприємства. Визначено, що трудові ресурси підприємства є одним із найважливіших складників його діяльності. Обгрунтовано, що суттєвою проблемою, з якою зустрічаються керівники підприємств є мотиваційна політика персоналу і шлях до продуктивного досягнення цілей. Обгрунтовано, поняття мотивації, що тісно пов'язано з проблемою управління персоналом. З'ясовано, що економічні відносини висувають і нові вимоги до персоналу. Виявлено, що необхідною умовою існування й розвитку суспільства є праця, як доцільна діяльність людей, що спрямована на задоволення їхніх життєвих потреб. Обгрунтовано, що однією з складових праці є її мотивування на рівні учасників трудових відносин. Досліджено варіативність кадрового складу. Запропоновано методи оптимізації мотиваційної політики. Проведений аналіз наукових джерел з питань оцінки мотивації персоналу. Надано характеристику досліджуваного підприємства ТОВ «Продовольча база Запоріжжя». Надані джерела пошуку персоналу для досліджуваного підприємства. Обгрунтовано основні завдання при наймі працівників на роботу в якісному і кількісному відношенні. Розкрито та обгрунтовано мотиваційний потенціал систем оплати для підприємства. Розкрито поточну роботу мотиваційної політики у ТОВ «Продовольча база Запоріжжя». Зроблені висновки щодо основних засад мотивації праці персоналу підприємства.

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Statement of the problem

A significant problem faced by business leaders today is the motivational policy of staff and the way to achieve goals productively. This problem is a primary one even for successful business structures.

For any work to be productive, it needs motivation. The concept of motivation is closely related to the problem of personnel management. Economic relations also place new demands on staff. This includes not only the recruitment, training and placement of personnel, but also the formation of a new consciousness, mentality and methods of motivation. Labour is a prerequisite for the existence and development of society, as it is a reasonable activity of people aimed at satisfying their vital needs. One of the components of labour is its motivation at the level of participants in labour relations.

In the narrow sense of the word, "motivated activity" means free human actions aimed at achieving goals and realising interests. In a motivated activity, an employee determines the degree of action depending on internal motivations and environmental conditions.

Analysis of recent research and publications

In the modern economic literature, many scholars have studied the issue of assessing labour motivation. F. Taylor, F. Gilbreth and L. Gilbreth, G. Emerson, M. Follett, as well as O. Sheldon, A. Fayol, and E. Mayo made a significant contribution to the development of the theory and practice of labour motivation. Well-known authors of modern motivation theories in the West are A. Maslow, F. Herzberg, L. Porter, E. Lawler, D. McGregor, D. McClelland, V. Vroom and others.

The study of modern economic research on labour motivation shows that attention is being paid to the formation of the efficiency of enterprise motivation. Thus, in the works of Ivanchenko G.V. the use of intangible incentives at domestic enterprises is formulated. Mostenska T.L., Novak V.O., Lutskyi M.G. and Minenko M.A. in their research reveal the main role of motivation of creative work, which is aimed at increasing job satisfaction and staff interest [8]. Zanyuk S. considers motivation as a set of factors that determine employee productivity [6].

Formulation of the article's objectives

The aim of this article is to substantiate the assessment of staff motivation and the impact of the enterprise's motivational policy on the status of its staff.

Summary of the main research material

Assessment of labour motivation is a complex and multifaceted phenomenon that requires a comprehensive study. Human behaviour in the course of labour activity is influenced by a set of factors-motivators that encourage activity, in particular: external (at the level of the State, industry, region, enterprise) and internal (components of the structure of the employee's personality itself – needs, interests, values of a person, peculiarities of labour mentality associated with them and the socio-cultural environment, etc.).

Undoubtedly, labour efficiency depends on motivation, but this relationship is quite complex and ambiguous for both management and employees.

At Zaporizhzhya Food Base LLC, the HR manager is responsible for hiring employees. He deals with the following issues:

- study of the labour market;
- analysis and assessment of staffing needs;
- recruitment, selection and adaptation of employees.

Personnel files are maintained throughout the employment period. During the seasonal increase in the need for employees, temporary recruitment is practiced. In the event of an employee's dismissal, the personnel files are transferred to the archive of Food Base Zaporizhzhia LLC.

Table 1 – Number of employees of Food Base Zaporizhzhia LLC for 2021-2023

Indicator	2021 year	2022 year	2023 year
Average number of employees, people	18	15	16
Women	5	5	5
Men	13	10	11

[developed by the authors]

According to Table 1, we can conclude that the number of employees in 2022 decreased by 16.67% (3 people) compared to 2021, and in 2023 the number of employees increased by 6.25% (1 person).

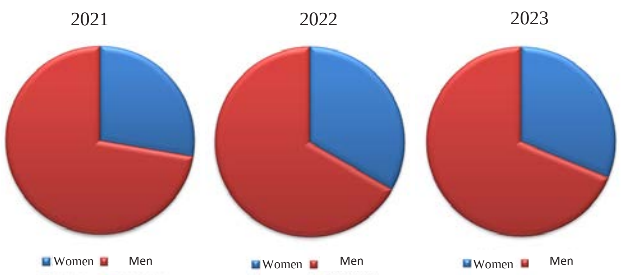

Fig. 1 – Comparison of the number of women/men in 2021-2023 *[developed by the authors]*

To attract employees, Food Base Zaporizhzhia LLC uses internal (its own capabilities) and external (third-party resources) sources.

Table 2 – Sources of staff recruitment

Internal sources	External sources
– Recruitment of personnel with the help of existing employees; – Personnel reserve.	– Placement of announcements, advertisements, etc.; – Creating a positive image of the company in the labour market.

[developed by the authors]

The main task when hiring employees is to meet the demand for employees in terms of quality and quantity.

Recruitment objectives:

- general analysis of the need for personnel;
- precise determination of who the company needs;
- identifying sources of candidates and selecting selection methods.

An equally important task of recruitment is to find the employees the organisation needs at the moment.

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Before a candidate is offered a job, he or she is interviewed, after which a personality match is made to the position for which he or she is applying and a conclusion is made about his or her professional qualities – whether the candidate is suitable for the position.

Every employee needs to be encouraged, i.e. motivated, when they are hired and throughout their employment.

Motivation (from Latin movere) is an inducement to action; a dynamic process of psychophysiological plan that controls human behaviour, determining its direction, organisation, activity and stability; a person's ability to actively satisfy his or her needs [3].

Work motivation is an employee's desire to satisfy needs through work. The structure of the work motive includes:

− a need that the employee wants to satisfy;

− a benefit that can satisfy this need;

− labour action required to obtain the benefit;

− price - material and moral costs associated with the labour action.

An employee's motivation to work is based on need, motive and incentive. A need expresses the need for certain benefits: spiritual, material, and social values. A motive is something that causes certain human actions. It determines what needs to be done and how this action will be carried out. The incentive is the employee's desire to move up the career ladder, his or her participation in the management of the enterprise and decision-making in the organisation [10].

The system of motivation of the management personnel of "Food Base Zaporizhzhia" LLC should comply with the following principles:

− flexibility – the ability to respond quickly to changes in external and internal operating conditions;

− systemicity – a full reflection of the individual contribution of a person to the achievement of the company's final results through the person-position-work and person-group-team chains;

− matching – establishing a level of staff motivation that is consistent with the quantity, quality and significance of the work involved;

− structured – characterises the division of salary into parts, each of which reflects the employee's personal contribution to the achievement of current, final and long-term results of the company's activities;

− openness of the personnel motivation system – transparency and information accessibility for each employee.

The main methods of staff motivation in today's environment are:

− cash payments for achieving the goals set;

− punishment is the prevention of actions on the part of an employee that may cause damage to the company;

− social policy is related to the provision of additional benefits, services and social payments to employees;

− intangible incentives (appreciation awards, written thanks from management and even compliments);

− "building" (subconscious influence on a person) – makes it possible to arouse the interlocutor's respectful attitude and desire to follow the speaker's example;

− professional training is an opportunity to develop personal qualities and gain specialised knowledge that opens up broad prospects;

− career growth is an incentive to work hard, perform your duties efficiently and effectively;

− feedback, which can be provided via internal mail or the company's internal website by organising a special section for this purpose [9].

Motivation of labour activity cannot be effective without satisfaction of material needs and engagement of employees' material interests.

Wages, as the main form of employee income, play a leading role in material motivation, which should be understood as the desire for prosperity, a certain level of well-being, and a material standard of living. At the same time, it should be noted that the relationship between wages and labour motivation is complex and controversial. The economic literature, research and publications of recent years are dominated by a one-sided approach to the analysis and impact of salary on labour motivation: only one aspect of this complex issue is being highlighted and criticised – the low level of remuneration for labour services, so that salary growth is the development of the needs of the staff of Food Base Zaporizhzhia LLC as a consumer interested in the organisation's performance.

The motivational potential of remuneration systems differs significantly. Remuneration systems that are based on an organisational and economic mechanism that ensures the solution of three tasks are incentivised:

1) encourages employees to increase their labour activity and labour contribution;

2) provides a direct, immediate link between labour contribution and the amount of remuneration for labour services;

3) optimises the interests of employers and employees.

Wages as an economic category and an element of the economic system are among the most complex. In today's economy, it should be taken into account: first, wages are an economic category that reflects the relationship between the owner of an enterprise and an employee regarding the distribution of newly created value (income); second, wages are remuneration paid by the owner to the employee for work performed under an employment contract; third, wages are an element of the labour market, which is the price at which an employee sells labour services; fourthly, for an employee, wages are his/her labour income, which he/she receives as a result of the realisation of the ability to work and which should ensure the objectively necessary reproduction of labour force; fifthly, for LLC "Food Base Zaporizhzhia", wages are an element of production costs included in the cost of products, works (services), and at the same time the main factor in ensuring the material interest of employees in achieving high final results of work [7].

The tariff system has played and should continue to play a decisive role in organising salaries at Food Base Zaporizhzhia LLC. The tariff system is a set of regulatory materials that help to set the level of employees' salaries depending on their qualifications (complexity of work) and working conditions. The main elements of the tariff system include tariff scales, tariff rates, a guide to the qualification characteristics of employees' professions, official salaries, allowances and additional payments to wages [2].

The remuneration system in place at Food Base Zaporizhzhia LLC promotes the interests of both the employer and employees. In the interests of the former, the remuneration system directs the efforts of employees to achieve the performance indicators expected by the employer. In the interests of the employee, the remuneration system provides an opportunity to increase material well-being depending on the labour contribution and the realisation of existing abilities. The remuneration systems at "Food Base Zaporizhzhia" LLC are divided into incentive, guarantee and compulsory.

Incentive-based remuneration systems are those whose organisational and economic mechanism ensures the simultaneous solution of three tasks:

1) encourages employees to increase their labour activity and labour contribution;

2) provides a direct, immediate link between labour contribution and the amount of remuneration for labour services;

3) optimises the interests of employers and employees [4].

A characteristic feature of guaranteed remuneration systems is that they do not directly depend on the level of the main salary-forming factors - quantity, quality and performance - but rather provide for the accrual of a stipulated salary.

The use of compulsory remuneration systems is most often driven by fierce competition in sales markets, technological process requirements, the desire to survive in the competition, etc. These systems are characterised by high labour intensity and tight labour standards, strict regulation of labour organisation, but most importantly, by the focus of employees on achieving a clearly defined, sufficiently high level of performance that does not allow for deviations.

Non-financial rewards can also be attributed to the methods of motivation at Food Base Zaporizhzhia LLC. Non-financial rewards refer to methods that are not related to remuneration and are used to reward employees for good work and increase their motivation.

Based on the above, the following suggestions can be made to improve labour

− involvement of the manager in improving performance and motivation by empowering employees;

− organise corporate events to unite the team;

− the possibility of individual working conditions for the physical or moral and psychological state of the staff (remote work, part-time work, benefits, etc.);

− hiring a more motivated employee from the existing staff;

− introduction of working conditions for the company's competitiveness in the market;

− use of a more effective system of material and non-material labour motivation (salary increases, bonuses for the best employees, additional days for vacation, time off).

Conclusions

Motivational policy is one of the central places in personnel management in "Food Base Zaporizhzhya" LLC, because it is a direct cause of their behaviour. Orientation of employees to achieve the goals of the enterprise is the main task of personnel management. With an effective organisational structure, modern equipment, but without employee motivation, it is impossible to achieve the desired results - members of the workforce will not cope with their duties, but needs are constantly changing, so you cannot expect that the motivation that works now will be effective in a certain time. As the personality develops, so do the opportunities and needs for self-expression. Therefore, the process of motivation by meeting needs is endless.

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STRATEGIES FOR PERSONNEL PROMOTION IN INTERNATIONAL BUSINESS (EXPERIENCE OF UKRAINIAN ENTERPRISES IN POLAND)

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Key words:
staff promotion, digital HRM systems, multicultural management, employee adaptation, retraining, motivational programs, corporate training.

The article discusses the strategies of personnel promotion in the context of international business on the example of the experience of Ukrainian enterprises operating in Poland after the outbreak of war in Ukraine. Attention is paid to the impact of digital technologies on human resources management and the use of multicultural approaches to adapt employees. Practical cases of leading Ukrainian companies, such as SoftServe, Nova Poshta, Lifecell, and their approaches to implementing adaptation, retraining, and employee motivation programs are studied. Particular emphasis is placed on the use of digital HRM systems to develop career prospects and reduce staff turnover. The role of intercultural trainings in increasing team productivity and adapting employees to new working conditions in Poland is considered. The article provides a detailed analysis of corporate training and coaching programs and assesses the impact of internal employee mobility on organizational performance.

СТРАТЕГІЇ ПРОСУВАННЯ ПЕРСОНАЛУ В УМОВАХ МІЖНАРОДНОГО БІЗНЕСУ (ДОСВІД УКРАЇНСЬКИХ ПІДПРИЄМСТВ У ПОЛЬЩІ)

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Ключові слова:
просування персоналу, цифрові HRM-системи, мультикультурне управління, адаптація працівників, перекваліфікація, мотиваційні програми, корпоративне навчання.

У статті розглянуто стратегії просування персоналу в умовах міжнародного бізнесу на прикладі досвіду українських підприємств, що працюють у Польщі після початку війни в Україні. Увага приділяється впливу цифрових технологій на управління персоналом та використанню мультикультурних підходів для адаптації працівників. Досліджено практичні кейси провідних українських компаній, таких як «SoftServe», «Nova Poshta», «Lifecell», та їхні підходи до впровадження програм адаптації, перекваліфікації та мотивації працівників. Особливий акцент зроблено на використанні цифрових HRM-систем для розвитку кар'єрних перспектив і зниження плинності кадрів. Розглянуто роль міжкультурних тренінгів у підвищенні продуктивності команд та адаптації працівників до нових умов роботи в Польщі. Стаття містить детальний аналіз програм корпоративного навчання та коучингу, а також оцінює вплив внутрішньої мобільності працівників на ефективність організацій.

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Problem statement

Ukrainian enterprises operating in international business face numerous challenges in promoting personnel in new markets, particularly in Poland. The main problems include adapting employees to a new cultural environment, the need for workforce retraining, and the implementation of modern personnel management technologies. Limited opportunities for employee development and motivational programs hinder talent retention and career growth. Additionally, insufficient implementation of digital HRM systems complicates the adaptation and management processes of personnel in multicultural teams. These challenges highlight the importance of improving HR approaches, developing internal training programs, and introducing innovative technologies to enhance business efficiency.

Analysis of recent research and publications

A significant number of studies in academic literature address the issues of personnel management and the adaptation of Ukrainian enterprises in international business, particularly in Poland. The themes of personnel development and promotion, the use of multicultural approaches, as well as the implementation of modern HRM systems, are actively researched at both national and international levels. Among the scholars who have studied these issues, the works of Lisovska I. (2022) [20], Mykolaychuk V. (2022) [22], Tarasova Yu. O. (2023) [31], and Horbunova O. (2022) [8] stand out, as they analyze the challenges of employee adaptation to new cultural environments and the implementation of motivational programs for talent retention. Significant contributions have also been made by researchers examining the impact of digital HRM systems on employee productivity and career growth, such as Aleksandrova M. (2023) [1] and Yermakova V. (2023) [13].

The adaptation of Ukrainian employees in multicultural teams has been explored in the works of Selezniova L. (2023) [28] and Semenyuk I. (2023) [29], which emphasize the importance of implementing intercultural training and mentoring. Issues of personnel mobility within companies and opportunities for retraining are thoroughly examined in the studies by Burlakov M. (2023) [3] and Kovalchuk O. (2023) [18].

Although these topics have been extensively researched, they remain relevant due to constant changes in the international market, challenges in adapting employees to new working conditions, and the need to improve personnel management tools in multicultural environments.

Identification of unresolved aspects of the overall problem

Despite the substantial amount of research dedicated to personnel management in international business, there are aspects that remain unresolved. In particular, the effective adaptation of Ukrainian employees to multicultural environments has not been sufficiently studied. This issue is especially important for businesses integrating into European markets, particularly Poland. Challenges related to language and cultural barriers, as well as motivation and retention of employees in such conditions, require further research and the development of new approaches.

Additionally, the implementation of digital HRM systems in multicultural teams, which should facilitate staff adaptation, retraining, and development, remains underexplored. Innovative strategies need to be developed to enhance personnel mobility within companies and to create transparent career paths. Special attention should also be given to the lack of a comprehensive strategy for the development of corporate mentoring and intercultural coaching, which could help employees adapt more effectively and advance in their careers under new market conditions.

Formulation of article objectives (task setting)

The purpose of this article is to study the experience of Ukrainian enterprises in personnel promotion within the context of international business, particularly in Poland, and to analyze the main strategies that foster human resource development in new market conditions. The task is to examine the current state of personnel management in Ukrainian companies abroad, including the implementation of digital HRM systems, intercultural adaptation programs, motivational schemes, and internal staff mobility. The main focus of the article is to analyze the impact of these tools on employee productivity, career growth, and effective integration into a multicultural environment, as well as to explore the role of corporate mentoring and coaching in the development of the enterprises' human resources.

Presentation of the main study material

The war in Ukraine, which began in February 2022, triggered one of the largest migration waves in modern Europe. According to the United Nations High Commissioner for Refugees (UNHCR, 2023) [34], more than 7 million Ukrainians were forced to leave their homes, seeking safety in neighboring countries such as Poland, Germany, and others in Europe. Poland received the largest influx of labor migrants, becoming a major center of employment for Ukrainians. According to the Polish Ministry of Internal Affairs (2023) [23], over 3 million Ukrainians crossed the Polish border during the early months of the war, with approximately 50% remaining in the country on either a permanent or temporary basis.

The 2022 migration wave became the largest for Poland since World War II. This created significant pressure on the labor market and social institutions, while also helping to fill labor shortages. Prior to this, Poland had experienced a lack of workers in many sectors, particularly in construction and manufacturing. According to a study by the European Migration Institute (2022) [12], the influx of Ukrainian workers made a significant contribution to restoring economic balance in Poland's labor market, increasing productivity across several sectors.

Mass migration has introduced new challenges for Europe's labor market. Ukrainian workers have become a key labor force across various industries, from manufacturing to services and the IT sector. According to the European Economic Commission (2022) [10], Ukrainians quickly adapted to new working conditions, which led to increased labor market competition and fostered entrepreneurial initiatives among Ukrainians in Poland.

The adaptation of Ukrainian workers to new market conditions in Poland had its own specificities. Poland has a developed labor market with a high demand for workers in various sectors. According to the Polish Ministry of Labor (2023) [24], many Ukrainians found employment in industries such as manufacturing, construction, IT, and services. However, adapting to a new work environment required not only professional skills but also cultural integration, language proficiency, and the ability to quickly learn new standards.

Research by Babenko O. M. (2022) [2] highlights that most Ukrainian workers in Poland face language barriers and challenges in adapting to Polish corporate cultural norms. Nevertheless, despite these difficulties, many businesses, particularly in the IT and technology sectors, actively developed programs to support the adaptation of new employees. For instance, SoftServe, a major Ukrainian IT company that expanded its operations in Poland, introduced a system of corporate training and mentoring for its Ukrainian employees, allowing them to integrate into the work process more quickly.

In addition, training programs for employees of Ukrainian enterprises in Poland have become an essential aspect of their successful functioning. Internal training and retraining programs, such as those implemented by companies like «Nova Poshta» [39, 40] and «GlobalLogic» [5], helped employees adapt to new market demands and supported their professional development.

One of the key challenges faced by Ukrainian businesses in Poland is working in a multicultural environment. Multicultural teams, consisting of Ukrainians, Poles, and representatives of other nationalities, require a specific approach to personnel management to ensure effective communication and productivity.

Research by Tarasova Yu. O. (2023) [31, 32] emphasizes the importance of adapting HR strategies in international teams. Multicultural workgroups require a higher level of emotional intelligence among managers, as well as the implementation of intercultural training for employees. For example, SoftServe [43] in Poland successfully introduced an intercultural training system for its employees, which significantly improved interaction between workers from different countries.

In addition to intercultural communication, motivational policies within companies are also crucial. In many cases, Ukrainian enterprises in Poland employ motivational schemes that take into account the individual needs of employees. For instance, Lifecell introduced flexible work schedules and opportunities for internal staff mobility, allowing employees to change roles and departments within the company, thus enhancing their qualifications and expanding their professional competencies.

These data reflect the diversity of employment of Ukrainian migrants across various sectors of Poland's economy, highlighting their ability to quickly adapt and contribute to the development of the Polish labor market. Poland rapidly adjusted its system of state support to accommodate the new conditions of mass migration, introducing several programs aimed at Ukrainian labor migrants. These programs are designed not only to ensure

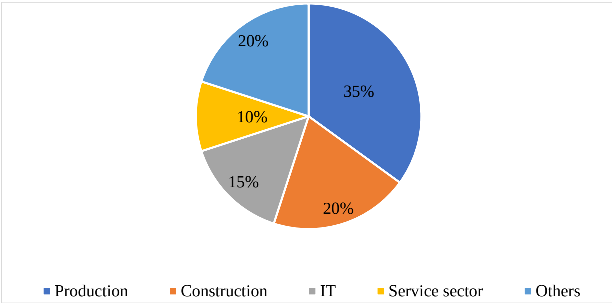

Fig. 1 – Employment Statistics of Ukrainians in Poland by Sector (2023) [26]

employment but also to promote professional growth and the integration of migrants into Polish society.

One of the key programs is «Tarcza Antykryzysowa» («Anti-Crisis Shield»), initially developed to combat the economic consequences of the COVID-19 pandemic. However, after the outbreak of the war in Ukraine, its provisions were adapted to support Ukrainian workers. The program offers subsidies to Polish companies for employing Ukrainian migrants, covering part of the costs for training and adapting new employees. According to the Polish Ministry of Development (2023) [27], approximately 200,000 Ukrainian migrants benefited from this program between 2022 and 2023, gaining opportunities for professional growth and retraining.

Another important initiative is the «Aktywizacja zawodowa dla uchodźców» («Professional Activation for Refugees») program, aimed at promoting labor migrants by offering free Polish language courses and vocational training. The goal of this program is to improve the communication and professional skills of Ukrainians, which, in turn, helps them advance in their careers. By the end of 2023, over 150,000 Ukrainians had taken advantage of this initiative, with 40% receiving promotions or switching to more qualified jobs [24].

The war in Ukraine forced many Ukrainian entrepreneurs to shift their operations to the European market, particularly to Poland, where there was already a significant Ukrainian diaspora and strong economic ties. One of the key challenges for Ukrainian businesses in Poland was the adaptation of their personnel to new working conditions. Successful company examples demonstrate how the use of modern HR strategies contributes to the development and promotion of employees in new markets.

One such example is SoftServe, a major IT company that expanded its presence in the Polish market in 2022. With the onset of the war, the company developed a comprehensive support strategy for its employees, which included not only material assistance for relocated staff but also expanded internal training programs. In his research, Zakharchenko O. (2023) emphasizes that the main success of companies like SoftServe was the implementation of adaptation programs for employees facing challenges in new markets, including language and cultural barriers [14].

The development of human capital through training and retraining is an important tool for adapting employees to new conditions. In a new working environment, where

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qualification requirements frequently change, it is essential to ensure continuous updating of knowledge and skills. According to the European Commission on Education and Training (2023) [11], over 60% of Ukrainian workers in Poland participate in upskilling programs, which not only help them retain their jobs but also allow them to qualify for higher positions.

Shevchenko Yu. (2022) emphasizes that successful retraining of personnel significantly enhances a company's competitiveness, as employees with current knowledge and skills are key to business resilience in a volatile market. This is particularly crucial during times of crisis, when a company's flexibility determines its survival and growth [35].

To ensure effective personnel promotion, many Ukrainian companies operating in the Polish market are implementing modern personnel management techniques. One such method is flexible work schedules, which allow employees to adjust their working hours according to personal circumstances, especially for those who have recently relocated and need time to adapt.

Corporate training has also become an important element of personnel promotion strategies. Many companies introduce internal training programs that allow employees to develop new skills and increase their qualifications directly within the company. According to a study by Lisovska I. (2023) [19], over 40% of Ukrainian companies in Poland have implemented corporate training systems, which contribute to increased employee productivity and engagement.

Motivational programs aimed at employee development also play a crucial role in personnel promotion. Mykolaychuk V. (2022) [22] notes that the introduction of bonus systems, opportunities for internal career growth, and individual development plans help companies retain top talent, especially in highly competitive labor markets.

«Nova Poshta,» one of Ukraine's leading logistics operators, expanded its operations to the Polish market after the war began. The company's primary focus was on ensuring the adaptation and development of its employees in the new environment. According to the company's internal report for 2023 [39], «Nova Poshta» implemented several programs aimed at upskilling and adapting employees to the realities of the Polish market.

One of the key initiatives was the organization of management skills and logistics process training, which enabled employees to develop their competencies in the face of new challenges. According to the company's report [39], over 80% of employees participated in these training sessions between 2022 and 2023, significantly boosting their efficiency and productivity.

The company also supported its employees in learning the Polish language by organizing language courses and seminars. This helped reduce cultural and language barriers, facilitated employee integration into local teams, and improved customer service quality.

A modern trend in personnel promotion is the use of IT platforms for organizing internal training and certification programs. These platforms allow companies to quickly adapt their employees to new conditions and provide constant access to educational materials. For example, «GlobalLogic,» an IT consulting firm, uses an internal platform to train its employees in new technologies and methodologies. According to the company's report (2023) [5], around 60% of employees participated in certification programs via this platform. This not only enhances the qualifications of personnel but also provides opportunities for career growth, which is a crucial aspect of staff promotion.

Lugovsky I. (2023) [21] emphasizes that using IT platforms for training not only saves time and resources for the company but also ensures an individual approach to each employee, allowing them to learn at a convenient time.

Ukrainian entrepreneurs in Poland actively implement multicultural management strategies to ease employee adaptation and create effective communication. One key aspect is organizing intercultural communication training, which helps employees understand cultural differences and promotes tolerance within the team. According to the study by Semenyuk I. (2023) [29], such training significantly improves interaction between employees of different nationalities, which is especially important for the successful integration of Ukrainians into Polish work teams.

Most Ukrainian entrepreneurs in Poland adopt an "open-door" approach, meaning a willingness to engage in dialogue and offer continuous support to employees during the adaptation process. For example, «Fozzy Group,» which relocated part of its operations to Poland, actively involves employees from different nationalities, forming multicultural teams. They organized Polish language courses and intercultural events, allowing new employees to integrate into the team.

Multicultural teams have a positive impact on company productivity by fostering the exchange of diverse experiences and knowledge. According to research by Tarasova Yu. O. (2023) [32], cultural diversity within a team contributes to the development of innovative solutions and creates a favorable decision-making environment. Furthermore, multicultural teams enhance the flexibility of enterprises, enabling them to adapt more effectively to changing market conditions.

However, multicultural teams also require additional attention in terms of management and communication processes. Lack of proper coordination can lead to conflicts due to differences in cultural approaches to problem-solving. This is especially important in the context of international teams, where employees may have varying views on leadership, work structure, and conflict resolution.

A positive example of the impact of multicultural teams is the experience of «Epicentr K,» which opened several branches in Poland after the war began. By creating multicultural teams that include both Ukrainians and Poles, the company was able not only to integrate new employees but also to improve its productivity through the exchange of different approaches to problem-solving. Research by Selezniova L. (2023) [28] showed that the multicultural team at «Epicentr K» worked more productively and demonstrated higher engagement levels compared to homogeneous teams.

Corporate culture undergoes significant changes in multicultural teams. According to research by Ivanova K. (2023) [16], corporate culture in such teams becomes more open and inclusive, fostering trust and mutual respect among employees. A key aspect is the increased level of emotional intelligence among managers who lead multicultural teams. This enables them to resolve conflicts effectively and ensure a positive work environment.

According to the Polish Ministry of Labor (2023) [26], over 200,000 Ukrainian workers successfully integrated into Polish companies between 2022 and 2023. One of the key factors in this successful integration was the implementation of intercultural adaptation programs, which helped reduce cultural barriers and improve interaction among employees.

«Danone Polska» is an example of the successful integration of Ukrainians into an international team. After the war began, the company actively started employing Ukrainian workers, particularly in its production and logistics units. Research by Kovalska A. (2023) [17] shows that «Danone» created separate departments to coordinate cultural adaptation, providing language support and organizing intercultural training for both Polish and Ukrainian employees.

Another example is «AmRest Holdings,» which operates in the food service industry. «AmRest» actively recruits Ukrainians into its restaurants, particularly in cities like Warsaw and Krakow. To facilitate employee integration, the company introduced flexible work schedules and intercultural communication training. According to the company's internal report (2023) [4], about 75% of Ukrainian employees completed language courses and training sessions, significantly improving their effectiveness and comfort at work.

«SoftServe,» one of the largest IT companies in Ukraine, also developed an effective strategy for managing multicultural teams in Poland. After opening new offices in Krakow and Wroclaw, the company actively recruited employees from both Ukraine and Poland. According to the company's internal report (2023) [43], «SoftServe» implemented a mentorship program where experienced employees help new hires integrate into the team and adapt to working in a new country. A key component of this program is intercultural communication training, conducted for both Ukrainian and Polish employees. These training sessions help overcome language and cultural barriers and foster a supportive work environment.

According to Tymchenko D. (2023) [33], such training significantly enhances team productivity and helps create a more comfortable work environment for employees. The company's internal studies also showed that the mentorship program reduced the adaptation time for new employees by 30%, positively impacting overall company efficiency.

In modern international business, retaining talented employees is a critical task for companies aiming to maintain competitiveness and high productivity levels. Recent research, such as the work of Kovalchuk O. (2023) [18], highlights the importance of individual development plans, which allow employees to see clear career prospects within the company. Such approaches boost motivation, as employees feel that the company invests in their professional growth and provides opportunities for advancement.

Individual development plans, as noted by Lisovska I. (2022) [20], include regular performance evaluations, the setting of personal goals, and the creation of learning paths for each employee. This enables companies to offer tailored upskilling programs based on the needs of the employee and adapt career paths to specific conditions and market challenges.

Companies like «Grupa Żywiec»—one of the largest brewing groups in Poland—have implemented individual development programs that help employees build long-term careers within the company. According to Grupa Żywiec's report (2023) [15], about 30% of staff participate in these programs, which helps reduce employee turnover and increase engagement.

Internal mobility is one of the key elements of talent retention strategies. The ability to change roles or departments within a company allows employees to develop new skills and test themselves in different areas without leaving the organization. As Burlakov M. (2023) [3] states, internal mobility enhances organizational flexibility, enabling companies to better respond to market changes and internal needs.

«Lifecell,» a leading mobile operator in Ukraine, introduced effective internal mobility programs after expanding its operations in Poland. In a market with a labor shortage and growing demand for highly skilled employees, the company offered its staff the opportunity to switch roles and departments, enabling them to develop new competencies.

According to Lifecell's internal report (2023) [6], approximately 20% of employees working in the company's Polish branches took advantage of the mobility program. These programs include training in new technical skills and offer employees the chance to work temporarily in other departments or divisions to gain new experience. This helps not only to retain talent within the company but also to create additional opportunities for employees' career advancement.

Mentorship and corporate coaching have become important tools for developing talented employees in modern companies. They help young specialists adapt more quickly to corporate culture and work processes, as well as develop key competencies for career growth.

Horokhova O. (2022) [9] emphasizes that coaching not only helps solve immediate tasks but also assists employees in setting and achieving long-term goals. At the same time, mentors, who are experienced employees, can pass on their knowledge and experience to younger colleagues, facilitating their faster advancement up the career ladder.

The case of «Polpharma»—the largest pharmaceutical manufacturer in Poland—is an example of the successful use of mentorship programs. The company has formal mentorship programs in place, where young specialists receive support from experienced employees. According to Polpharma (2023) [42], about 40% of employees who participated in the mentorship program received promotions within the first two years of working at the company.

Corporate leadership schools are becoming increasingly popular among companies looking to develop managerial talent within their workforce. Such programs not only enhance management skills but also help identify potential leaders who can take on executive positions in the future.

One successful example is «PKO Bank Polski,» which introduced its own corporate leadership school to develop

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internal managerial talent. According to PKO Bank Polski's report (2023) [41], employees in the leadership program receive training in strategic management, teamwork, and emotional intelligence development. Around 25% of the program's graduates were promoted to management positions within two years of completing the training.

Another example is «IKEA Polska,» which launched a leadership school aimed at developing future managers. The program includes both theoretical courses and practical tasks that allow employees to develop key management skills such as delegation, decision-making, and team leadership. According to IKEA's internal report (2023) [37], about 60% of participants received new managerial roles after completing the program.

In today's world, digital technologies play a key role in transforming personnel management processes. The use of digital HRM systems (Human Resource Management Systems) allows companies to effectively manage human resources, including tracking employee performance, planning career paths, conducting competency evaluations, and developing staff. According to Aleksandrova M. (2023) [1], over 70% of European companies have already implemented various HRM systems to manage their employees.

Digital HRM systems have become a primary tool for automating and optimizing many aspects of human resource management. Systems like SAP SuccessFactors and Workday allow companies not only to track employee information but also to analyze their performance, plan career growth, and provide feedback. According to research by Horbunova O. (2022) [8], companies that have implemented such systems have seen a 15-20% increase in employee productivity due to more efficient use of resources and time.

HRM systems enable companies to create individualized career plans for employees, automatically tracking their achievements, training needs, and opportunities for growth. This not only promotes more transparent communication between managers and employees but also boosts motivation and engagement with corporate goals. For instance, Workday, a widely used system in international companies, tracks key employee performance indicators and provides automatic recommendations for training programs and development opportunities based on performance analysis.

Additionally, electronic platforms for performance evaluation, such as Kronos or Oracle HCM Cloud, are used to monitor work in real-time. According to research by Yermakova V. (2023) [13], such systems reduce employee turnover by 10-15% as they offer greater transparency regarding career prospects and help employees see how their work impacts the company's overall success.

GlobalLogic, a leading global player in IT consulting and engineering services, actively implements digital solutions for personnel management. One of the main directions is tracking employee performance and developing their professional potential through specialized platforms.

According to the company's internal report (2023) [5], GlobalLogic uses integrated HRM systems such as Workday and SuccessFactors to automate the performance evaluation and talent management process. These systems allow company managers to access real-time data on key employee performance indicators, enabling them to make well-informed decisions regarding employees' career development.

A key component of GlobalLogic's digital strategy is the use of artificial intelligence algorithms to analyze employee performance data. These tools track each employee's progress and provide recommendations for further training based on their achievements and potential. As noted by Tarasova O. (2023), this approach not only improves employee productivity but also ensures they receive timely feedback, fostering their professional growth [30].

GlobalLogic has also implemented an automated system for planning employee learning paths based on their individual needs and achievements. This allows each employee to develop the skills required for their career advancement within the company. According to internal company surveys, 85% of employees report that this system helps them clearly see their career prospects and reduces uncertainty regarding their future professional development [5].

Table 1 – Impact of Digital HRM Systems on Performance and Employee Retention Metrics

Metric	Before Implementing HRM Systems (%)	After Implementing HRM Systems (%)
Employee turnover	20	12
Employee productivity	100	120
Participation in training programs	45	75
Average tenure in position	2 years	3 years

Conclusions

Ukrainian enterprises operating in the Polish market within the context of international business face numerous challenges in human resource management, particularly in adapting employees to new cultural environments, implementing modern HRM systems, and developing human capital. The study of successful cases such as «SoftServe,» «Lifecell,» «Nova Poshta,» and others demonstrates that the implementation of innovative personnel management strategies significantly enhances their competitiveness in the European market.

The main strategies that have proven effective include the active use of digital HRM systems for performance evaluation and career development planning, retraining programs and internal mobility initiatives, as well as intercultural training and mentoring to integrate employees into multicultural teams. These tools not only reduce employee turnover but also increase motivation and productivity, creating conditions for their professional growth.

An important aspect for the successful development of Ukrainian businesses in Europe is the creation of tailored training and coaching programs that help employees acquire new skills and integrate effectively into new work environments. Intercultural training and flexible work schedules help overcome cultural barriers and improve communication in international teams.

Based on the conducted research, it can be concluded that the future growth of Ukrainian enterprises in the European market largely depends on their ability to implement innovative HR strategies and adapt to multicultural environments. The productivity and competitiveness of these companies will improve through continuous human capital development, the implementation of modern HR technologies, and the provision of support for employees at all stages of their careers.

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TRANSFORMATION OF A DIGITAL STRATEGY TO ENHANCE COMPETITIVE ADVANTAGES OF AN ENTERPRISE

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Key words:
Digital strategy, Big Data, CRM, KPI, ROI, Google Analytics, , SEO positions, content marketing, infographics, email-marketing, contextual advertising, retargeting.

This article is dedicated to the study and development of methods for transforming digital strategies to enhance the competitive advantages of enterprises. The paper identifies the primary objectives that a business should achieve through digital channels. It emphasizes the importance of integrating social media into the marketing communication strategy to enable real-time customer interaction. Specifically, it examines SEO rankings, content marketing strategies (e.g., providing valuable content regularly, balancing content types, and utilizing infographics).
The article also highlights the importance of employing personalized email marketing, contextual advertising, and retargeting as effective methods for engaging target audiences. Attention is given to the integration of analytical tools, such as Google Analytics, into the strategy. These tools allow modern businesses to track key performance indicators (KPI), website traffic, conversion rates, social media engagement levels, and the return on investment (ROI) of advertising campaigns. It is established that continuous data analysis enables companies to adapt their approaches to market changes and audience preferences, thereby maintaining high performance levels.
The article explores the implementation of artificial intelligence (AI) technologies as a crucial component of the strategy. It also stresses the significance of CRM systems, Big Data analytics, chatbot integration, automated customer support services, and the development of omnichannel communication as indispensable elements of a modern digital strategy.
The study formulates pathways for transforming the digital strategies of contemporary enterprises to strengthen their competitive advantages, outlines evaluation stages, and proposes a methodological approach to assessing the effectiveness of digital strategies.

ТРАНСФОРМАЦІЯ DIGITAL-СТРАТЕГІЇ ДЛЯ ПІДВИЩЕННЯ КОНКУРЕНТНИХ ПЕРЕВАГ ПІДПРИЄМСТВА

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Ключові слова:
діджитал стратегія, Big Data, CRM, KPI, ROI, Google аналітика, SEO, контент маркетинг, інфографіка, email-маркетинг, контекстна реклама, ретаргетинг.

Стаття присвячена дослідженню і розробці шляхів трансформації Digital-стратегії для підвищення конкурентних переваг підприємства. В статті визначено основні цілі, які має досягти підприємство за допомогою Digital-каналів. Зазначено важливість впровадження у маркетингову комунікаційну стратегію соціальних мереж, які дозволяють взаємодіяти з клієнтами в реальному часі, зокрема, досліджено SEO-позиції, контент-маркетинг: регулярне надання цінного контенту, балансування контенту, інфографіка. Також акцентовано увагу на важливості застосування персоналізованого email-маркетингу, контекстної реклами, ретаргетингу, що є ефективним методам для залучення цільової аудиторії.
У статті приділена увага інтеграції аналітичних інструментів (таких як Google Analytics) у стратегію, що дозволяє сучасному підприємству відстежувати ключові показники ефективності (KPI), відвідуваність сайту, конверсії, рівень залучення в соцмережах та ROI рекламних кампаній. Встановлено, що постійний аналіз даних дає змогу компанії адаптувати свої підходи до змін на ринку та вподобань аудиторії, що сприяє підтримці високої результативності.
Розглянуто особливості впровадження технологій штучного інтелекту (ШІ) що є ефективною частиною стратегії. Також зазначено, що невід'ємною частиною сучасної Digital-стратегії є використання CRM-систем, використання методів аналізу великих даних (Big Data), інтеграція чат-ботів та автоматизованих сервісів підтримки, розробка омніканальної комунікації.
Сформовано шляхи трансформації Digital-стратегії сучасного підприємства для підвищення конкурентних переваг, етапи оцінки та методичний підхід до оцінки ефективності Digital-стратегії.

Problem statement

In the modern terms of highcompetitionenvironment and rapid technologicalchanges, enterprise run into the necessity ofpermanent adaptation of the strategies to thenew challenges. One of the most actualdirections for the achievement of competitiveedges there are introduction andtransformation of Digital-strategy.

However, without regard to the presence oflarge potential, not all enterprisessuccessfully adapt oneself to the digitalchanges, that results in the loss of efficiencyand lack of expression at the market.

Transformation of діджитал-стратегії needscomplex approach, that embraces not onlytechnological innovations but also culturaland organizational changes into an enterprise. A basic problem is insufficient ability of manycompanies to integrate digital technologiesin the strategy thus, that they reallypromoted competitive edges. There aredifferent barriers on a way to successfultransformation: from insufficient qualificationof personnel to difficulties in the change ofcorporate culture and managementstructure. As a result, without the properintroduction to діджитал-стратегії ofenterprise risk to remain behind thecompetitors that actively invest in newtechnologies and innovative approaches.

Analysis of recent research and publications

Digital marketing is actively studied by both domestic and international scholars, including O.Onofriychuk O. [4], S. Blyzniuk [4], K. Lukhanyna [8], F. Kotler, D. Chaffey, E. A. Hart, D. Dubrovina, L. G. Balabanova, N. D. Kolosova, L. N. Saprykina, A. Yu. Popova, among others. However, debates continue regarding the most effective approaches to implementing digital strategies in highly competitive markets, particularly in manufacturing enterprises, where the importance of customer communication is steadily increasing.

Moreover, the scientific literature lacks comprehensive studies on the integration of digital tools into an enterprise's overall marketing strategy. This gap highlights the relevance of the topic for in-depth exploration, especially given the growing role of digital transformation in achieving strategic business objectives.

Identification of unresolved aspects of the overall problem presentation of the main study material

When choosing a digital strategy to enhance an enterprise's competitive advantages, it is crucial to consider key aspects that influence the brand's appeal to the target audience, the effectiveness of communications, and the company's ability to quickly adapt to market changes. A digital strategy should focus on achieving specific business goals and maintaining a stable connection with customers at every stage of their interaction with the brand.

The first step in selecting a strategy is to define the primary objectives the enterprise aims to achieve through digital channels. Key priorities for a business may include:

– Increasing brand awareness by creating high-quality and informative content.

– Enhancing audience engagement through interactive communication methods, particularly via social media and retargeting campaigns.

– Attracting new customers and retaining existing ones through personalized email campaigns, contextual advertising, and SEO optimization.

– Boosting conversion rates by thoroughly analyzing user behavior data and implementing A/B testing to optimize marketing materials.

A digital strategy for a business should employ a comprehensive approach that integrates various tools and channels to strengthen competitive advantages. One of the most effective strategies is content marketing, which focuses on regularly delivering valuable content to the target audience. Creating useful articles, video materials, and infographics enables a company to not only attract new customers but also establish itself as an expert in its field, fostering trust in the brand. Informative content also improves the website's SEO rankings, increasing the brand's visibility in search engines.

SEO optimization is a critical element that ensures consistent organic traffic to the company's website, offering a cost-effective and sustainable outcome. It involves the use of relevant keywords, improved website structure, and enhanced loading speed. High rankings in search engines allow a company to remain competitive, as users tend to trust websites that appear on the first pages of search results.

Social media plays a vital role in fostering audience interaction and building a community around the brand. Modern businesses can benefit greatly from platforms that enable them to showcase their products visually, provide tips, and share company news. Social media facilitates real-time interaction with customers, addressing questions, conducting polls, and enhancing customer experience and loyalty.

Personalized email marketing is a key component of the strategy, allowing businesses to send tailored offers that meet the specific needs of individual customers. Through database segmentation and automated campaigns, companies can maintain regular communication with clients, informing them about updates, promotions, and personalized discounts. Email marketing not only helps retain existing customers but also attracts new ones, offering a cost-effective way to maintain audience engagement.

Contextual advertising and retargeting are effective methods for attracting a target audience that is already interested in the company's products. By precisely adjusting advertising campaigns, specific market segments can be targeted, and retargeting helps bring back users who previously visited the website but did not complete desired actions. This approach increases the conversion rate by minimizing advertising costs and enhancing its effectiveness [1].

The integration of analytical tools (such as Google Analytics) into the strategy allows a modern company to track key performance indicators (KPIs), including website traffic, conversions, social media engagement, and ROI of advertising campaigns. Continuous data analysis enables the company to adapt its approaches to market changes and audience preferences, helping maintain high performance.

Overall, the chosen digital strategy for the company should provide a comprehensive approach to attracting and retaining customers, integrating various tools to achieve the maximum result. This will allow the company to strengthen its competitive advantages, ensuring sustainable growth and reinforcing its market position.

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In the current market environment, choosing an effective digital strategy becomes one of the key factors that allows a company to stand out among competitors and achieve stable growth. A modern business should focus on a strategic approach that combines targeted audience engagement, building long-term customer relationships, and flexible responses to changes in consumer behavior.

One of the key components is the use of an omnichannel approach, which involves integrating all communication channels into a unified system. This ensures a seamless customer experience, regardless of which channel the customer uses to interact with the brand. For example, customers can start their interaction with the company via social media, continue on the website, and receive support through email. Omnichannel communication not only enhances convenience for customers but also increases the effectiveness of marketing communications.

The implementation of Artificial Intelligence (AI) technologies can also become an effective part of the strategy. AI allows for the analysis of large volumes of data, automatically adjusting advertising based on user preferences, and enhancing the level of communication personalization. For example, AI algorithms can suggest the most effective offers for each audience segment and adapt advertising campaigns in real-time. This increases the likelihood of marketing success and helps optimize costs.

The approach to process automation is also an integral part of a modern digital strategy. The use of CRM systems to automate customer interactions, such as handling inquiries, managing orders, and storing customer information, significantly reduces time costs and improves service quality. Automating marketing campaigns, such as email newsletters or targeted advertising, also helps to respond more quickly to customer needs and provides relevant offers for each segment [2].

Thus, the strategic choice of digital tools should be based on a combined approach that integrates omnichannel communication, artificial intelligence, video and interactive content, automation, and regular market analysis. This comprehensive approach will allow the business to not only strengthen its competitive positions but also create an effective customer interaction model that is flexible to changes and capable of ensuring sustainable business growth.

To achieve competitive advantages in the digital environment, a company should focus on implementing modern approaches to data analysis and enhancing the personalization of marketing messages. A personalized approach enables the company to better understand the needs of individual customers and tailor its offers for each audience segment, which increases the likelihood of conversion and strengthens trust in the brand.

Special attention should be paid to customer behavior analytics. Using Big Data analysis methods helps to gain deeper insights into how users interact with websites, social media, and other digital channels. Building customer loyalty is another strategic direction that should be part of a comprehensive digital strategy. Loyal customers provide stability for the company, even in a competitive environment, as they are willing to make repeat purchases and recommend products to others. To achieve this, a company can implement loyalty programs, personalized discounts, perks for regular customers, as well as organize special events and webinars where customers can receive consultations from company experts. These initiatives not only support customer retention but also increase their satisfaction and willingness to engage in long-term cooperation [1, 3].

Integrating chatbots and automated support services can significantly enhance the efficiency of customer interactions. Chatbots allow for quick responses to the most common user queries, ensuring prompt service, especially during off-hours. This increases customer satisfaction, as they receive answers to their questions without delays. Additionally, the use of chatbots frees up resources in the support department, allowing the team to focus on more complex inquiries that require a personalized approach.

Mobile optimization is a crucial component of a Digital strategy, given the growing demand for mobile devices. Optimizing the website and all content for mobile platforms enhances the user experience and allows users to easily navigate the site and interact with the brand from any device. Studies show that mobile traffic continues to rise, and websites that are not optimized for mobile devices may lose a significant portion of potential customers.

This table reflects the key areas of the Digital Strategy, each of which contributes to strengthening the company's competitive position and improving customer interaction on digital platforms.

Thus, the choice of a Digital Strategy for a business should be based on a flexible and comprehensive approach that integrates various promotion tools and methods aimed at strengthening the connection with the audience. Through personalization, omnichannel strategies, interactive services, and content optimization, the business will be able to not only maintain market relevance but also create sustainable competitive advantages, fostering long-term brand development.

We have also developed a scientific and methodological approach to evaluating the effectiveness of a digital strategy for a business, which combines the return on investment (ROI), conversion rate, and audience engagement metrics. This approach is an important tool for comprehensive monitoring of the strategy's performance and adaptability. It allows for assessing not only the financial benefit of investments but also the effectiveness of interaction with the target audience and their behavioral responses to the implemented strategies.

Description of indicators:

1. Return on Investment (ROI) – this financial metric measures the benefit of investments in the digital strategy. ROI shows how effectively investments have been used and is calculated as the ratio of net income to marketing expenses. It provides insight into the overall effectiveness of the spending.

2. Conversion Rate – reflects the effectiveness of converting potential clients or users into active ones. For example, this could be the percentage of website visitors who made a purchase or subscribed to a service. It allows for assessing how well the digital strategy works in driving the desired action.

3. Audience Engagement – assesses the level of user interaction with the content shared by the company

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Table 1 – Directions for transforming the digital strategy of a modern enterprise to enhance competitive advantages *(compiled by the author* [1-4]*)*

Strategic Direction	Description	Expected result
Omnichannel communication	Integration of all channels (social media, email, website) into a unified system	Consistent customer experience, improved communication with customers
Personalization and Big Data	Use of analytics to tailor individualized offers	Increasing conversion and audience loyalty
Implementation of AI and Automation	Using aI for automating advertising campaigns and analytics	Optimization of costs and enhancement of marketing activities' efficiency
Content marketing and video content	Creating informative articles, videos, and case studies	Increasing engagement and building the image of an expert
Interactive content	Surveys, quizzes, and polls for audience engagement	Increasing user engagement and gaining a deeper understanding of needs
Loyalty programs	Implementation of discounts and bonuses for loyal customers	Increasing customer satisfaction and retention
Mobile optimization	Website and content mobile optimization	Improving ser convenience, increasing mobile traffic
Influencer marketing	Cooperation with bloggers for product promotion	Attracting new audience, increasing brand awareness
Using chatbots	Customer support automation for quick response to inquiries	Improving service, freeing up resources for more complex tasks
Adaptability to market changes	Regular competitor monitoring and implementation of new approaches	Maintaining relevance and competitiveness

through digital channels. This can include metrics such as the number of likes, comments, shares, time spent on the site, or interaction with campaigns through social media. Engagement is a key factor in identifying the real interest of the audience and their readiness for further actions.

The advantages of this approach include, first of all, comprehensive monitoring, which combines multiple metrics to provide a broader view of the strategy's effectiveness and adaptability. The adaptability of the strategy to changes in audience behavior and the market can be identified through these metrics, allowing for quicker adjustments to the strategy, forecasting future results, and real-time adjustment of marketing expenses. Thus, the evaluation of the effectiveness of the digital strategy is reflected in the comprehensive approach in Fig. 1.

Figure 1 allows us to determine how each indicator affects the overall effectiveness of the digital strategy and enables more accurate monitoring and adjustments to the strategy based on the data obtained.

For the further development of a scientific-methodological approach to assessing the effectiveness of the digital strategy, which combines the indicators of Return on Investment (ROI), conversion rate, and audience engagement, it is important to consider the following stages:

Stages of assessing the effectiveness of a digital strategy:

1. Data Collection: In the first stage, it is essential to gather baseline data on digital marketing expenses, interactions, visits, and other important metrics from all platforms and channels through which the strategy is implemented.

2. Return on Investment (ROI) Analysis: With the available data, calculate the ROI for each individual campaign, as well as for the overall strategy. This will help determine whether the strategy is financially effective and if the costs are justified by the results.

3. Conversion Rate Analysis: After analyzing ROI, it is important to evaluate the effectiveness of user engagement. Conversion rate assessment helps understand how many visitors or users became active clients or completed a target action.

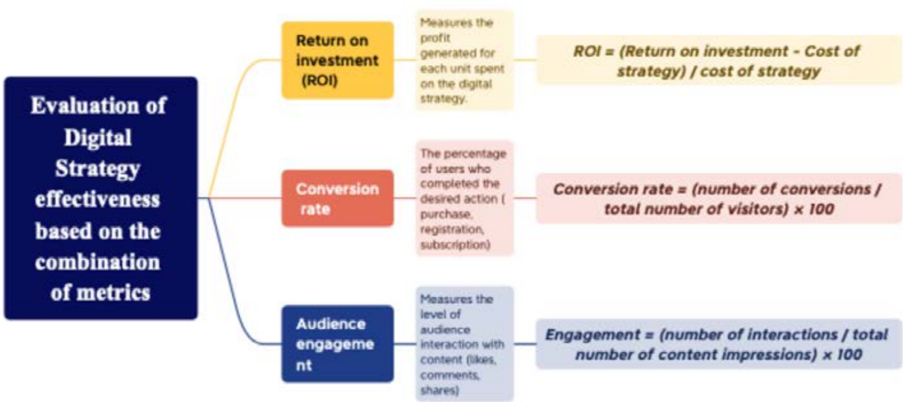

Fig. 1 – Evaluation of Digital Strategy effectiveness based on the combination of metrics (compiled by the author [1-8])

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4. Audience Engagement Analysis: The next stage involves evaluating the level of audience interest and loyalty. It is necessary to measure how actively users interact with content. This may include not only traditional metrics (likes, comments) but also deeper engagement indicators, such as average time spent on a page or frequency of return visits to the website.

5. Strategy Adaptation: based on the monitoring results, if any part of the strategy proves ineffective, it should be adjusted. For example, if ROI is low, costs can be reduced for certain channels or advertising campaigns can be modified.

6. Strategy Testing: if engagement or conversion rates are low, changes should be made to the content, advertisements, or design—adjusting the strategy accordingly.

This approach is particularly useful when digital strategies require flexibility and adaptation, such as in campaigns on rapidly changing markets or for small and medium-sized enterprises.

Conclusions

The conclusions confirm the high effectiveness of a comprehensive approach to implementing digital tools to enhance competitive positions. Research and program development showed that the integration of digital channels allows businesses to achieve strategic goals, attract new clients, and maintain the loyalty of existing audiences. The effectiveness of the program, assessed through key indicators such as ROI, conversion rate, and audience engagement, demonstrates the validity of investing in digital marketing.

The implementation of individual tools, such as SEO, content marketing, email campaigns, retargeting, influencer marketing, and chatbots, contributes to the creation of multichannel communication with customers, improving service quality and strengthening the company's image. The use of CRM systems and marketing process automation helps reduce customer query management costs, optimizes administrative expenses, and creates a personalized approach for each client.

Overall, the implementation of a transformed digital marketing program is an important step towards strengthening competitiveness and ensuring sustainable growth. The adoption of digital tools not only optimizes marketing processes but also creates an effective customer interaction system, contributing to the long-term growth of the company.

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THEORETICAL AND ORGANIZATIONAL ASPECTS OF ENTERPRISE STAFFING

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Key words:
enterprise, personnel, staffing, staffing shortage, employee, employment, salary, migration, strategy, artificial intelligence (AI), war.

The theoretical and organizational aspects of staffing of enterprise are studied. It is proved that staffing is a system of principles, forms and methods of forming the necessary quantitative and qualitative composition of personnel and is aimed at improving human resources and its efficient use. The dynamics of the employed population in Ukraine is analyzed. It is shown that with the extension of martial law in Ukraine, the number of employees decreases annually, which is caused by both migration abroad and intentional unemployment due to the fear of mobilization among men of military age. It is substantiated that one of the most effective ways for Ukrainian business is to integrate artificial intelligence technologies into business processes, which will allow companies to compensate for the lack of personnel and obtain a qualified workforce capable of performing simple tasks. The article analyzes the staffing in Ukraine in the conditions of war. It is shown that the main problem of staffing in Ukraine is the lack of employees, which can lead to the decline of Ukrainian business. The regional structure of employment in Ukraine is analyzed. The number of open vacancies by type of economic activity is analyzed. The dynamics of the average salary of Ukrainians is analyzed. The share of artificial intelligence implementation in global industries is analyzed. A comprehensive strategy for the introduction of technologies into the activities of Ukrainian enterprises has been developed, which will compensate for the shortage of employees and reduce the impact of the growing personnel crisis.

ТЕОРЕТИЧНІ ТА ОРГАНІЗАЦІЙНІ АСПЕКТИ КАДРОВОГО ЗАБЕЗПЕЧЕННЯ ПІДПРИЄМСТВА

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Ключові слова:
підприємство, кадрове забезпечення, кадровий дефіцит, працівник, зайнятість, заробітна плата, міграція, стратегія, штучний інтелект (ШІ), війна.

Досліджено теоретичні та організаційні аспекти кадрового забезпечення підприємства. Досліджено, що кадрове забезпечення являється системою принципів, форм та методів формування необхідного кількісного та якісного складу персоналу й спрямовано на вдосконалення кадрового потенціалу та ефективне його використання. Проаналізовано динаміку зайнятого населення в Україні. Досліджено, що з продовженням військового стану в Україні щорічно зменшується кількість працівників. Обгрунтовано, що одним із найбільш ефективних шляхів для українського бізнесу є інтеграція технологій штучного інтелекту у бізнес-процеси. Проаналізовано кадрове забезпечення в Україні в умовах війни. Досліджено, що основною проблемою кадрового забезпечення в Україні є нестача працівників. Проаналізовано регіональну структуру зайнятості в Україні. Проаналізовано кількість відкритих вакансій за видами економічної діяльності. Проаналізовано динаміку середньої заробітної плати українців. Проаналізовано частку впровадження штучного інтелекту у світових галузях промисловості. Розроблено комплексну стратегію щодо впровадження технологій в діяльність українських підприємств.

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Statement of the problem

With the extension of martial law in Ukraine, the number of employees decreases annually, which is caused by both migration abroad and intentional unemployment due to the fear of mobilization among men of military age. These factors have an extremely negative impact on the staffing of Ukrainian companies, and almost all sectors of the economy are experiencing a significant shortage of personnel, which can lead to negative consequences for the economy and business in particular. One of the most effective ways for Ukrainian businesses is to integrate artificial intelligence technologies into their business processes, which will allow companies to compensate for the lack of staff and get a skilled workforce capable of performing simple tasks. The replacement of employees with artificial intelligence is especially relevant in the trade and service sector, which can be replaced by online assistants and chat bots. That is why the study of human resources in Ukraine in the context of martial law and the development of artificial intelligence technologies is a relevant topic for research.

Analysis of recent research and publications

The following scholars and researchers have studied the issue of staffing, such as: Boyko A. [1], Goncharova L. [2], Dashko I. [13-15], Demchenko O. [3], Zinchenko S. [4] and others.

Formulation of the article's objectives

To study the theoretical aspects of staffing, to analyze the general state of staffing of the Ukrainian economy and to propose strategies to increase the number of staff in Ukraine.

Summary of the main research material

In the context of a full-scale invasion of Ukraine, there is a need for an effective formation of a human resources system that covers many areas of activity at an enterprise and is an indicator of its development. The success and development of an enterprise will depend on the qualified organization of the personnel system [1].

Based on the analysis of scientific literature, it is determined that the staffing of the personnel management system means the necessary quantitative and qualitative composition of the personnel service of the organization [2].

Analyzing the work of Demchenko O., it is noted that staffing is one of the areas of personnel policy, the result of forming a staff that meets the tactical and strategic goals of the organization, aimed at improving the human resources of the organization [3].

Summarizing, we can say that staffing is a system of principles, forms and methods of forming the necessary quantitative and qualitative composition of personnel aimed at improving human resources and its effective use. This definition is more detailed and reveals the essence of staffing, because, firstly, formation means several processes depending on the stage of work with personnel. This can be a chain of search - selection - recruitment, i.e. the primary formation of personnel [4]. It can also be staff development, i.e. further improvement of the staff, which leads to the unlocking of potential. Second, compliance with quantitative and qualitative criteria is important for the development of the organization as a whole. Thirdly, improving human resources is necessary to ensure that the organization has the right staff both now and in the future, which can be achieved not only by attracting new people, but also by developing and utilizing the potential of existing employees [5].

Thus, staffing is a system of principles, forms and methods of forming the required quantitative and qualitative composition of personnel aimed at improving human resources and its effective use. The stages of the HR system are as follows: personnel planning and forecasting, recruitment and selection of personnel, their development, control and evaluation. Each of them has its own peculiarities and characteristics [6]. Thus, personnel planning allows to develop requirements, criteria and forecasts within the framework of providing the organization with the necessary personnel; based on recruitment and selection, the best candidates are selected for positions; training and development allows to improve their skills; evaluation is aimed at identifying achievements, existing problems and developing possible ways to solve them. Thus, these stages contribute to providing the enterprise with the necessary labor force, which is an integral part of its successful market activity [7].

In the next part, it is proposed to analyze the human resources in Ukraine and propose a strategy for its improvement. In the context of martial law, Ukrainian companies face many problems related to staffing, because as the war unfolds on the territory of Ukraine and mobilization increases, the employed population decreases every year, which can ultimately become a serious threat to the development of Ukrainian business. In Fig. 1. shows the dynamics of the employed population over the past ten years.

Analyzing the data in Fig. 1, it can be seen that in Ukraine in the period 2022-2023, the number of employed people significantly decreased - 16.01% in 2022 compared to 2021, which was caused by the outbreak of war and the massive departure of Ukrainians abroad. Another reason for the decline in employment was the mobilization of men, which resulted in dismissals and most men switching to freelancing, which affected overall employment statistics. This situation on the labor market in Ukraine creates significant problems with staffing, as it is becoming increasingly difficult to find an employee, not to mention their qualifications.

In Fig. 2 shows the structure of employed workers by region of Ukraine.

Analyzing the regional structure of employment, we can see a change in the share of employed people in the regions that are geographically close to the combat zone and in the regions located in the Western part of Ukraine, which was actually caused by internal migration of Ukrainians.

Next, we propose to examine the number of open vacancies as of January 2025 by type of enterprise activity (Fig. 3).

Analyzing the data in Fig. 3 shows that the largest number of vacancies is in manufacturing and trade - 9899

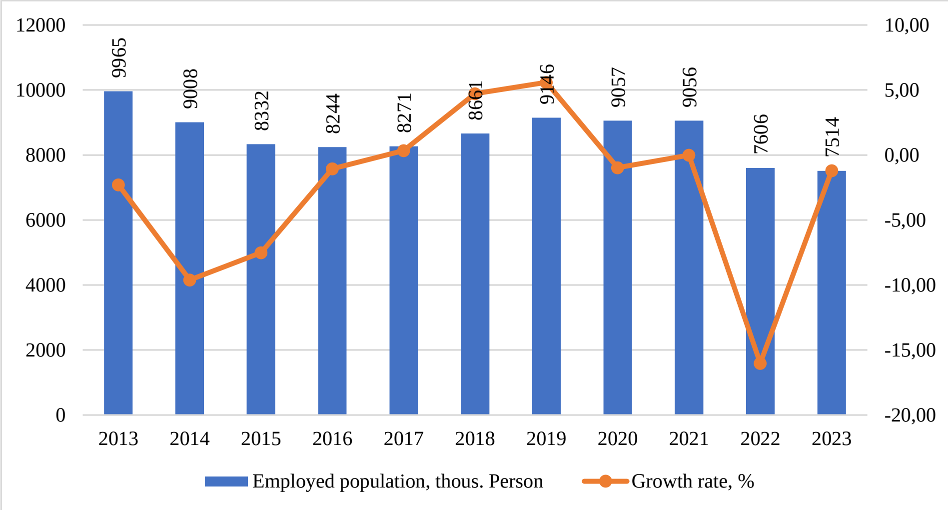

Fig. 1 – Dynamics of the employed population in Ukraine in 2013-2023, thousand people
Source: [8]

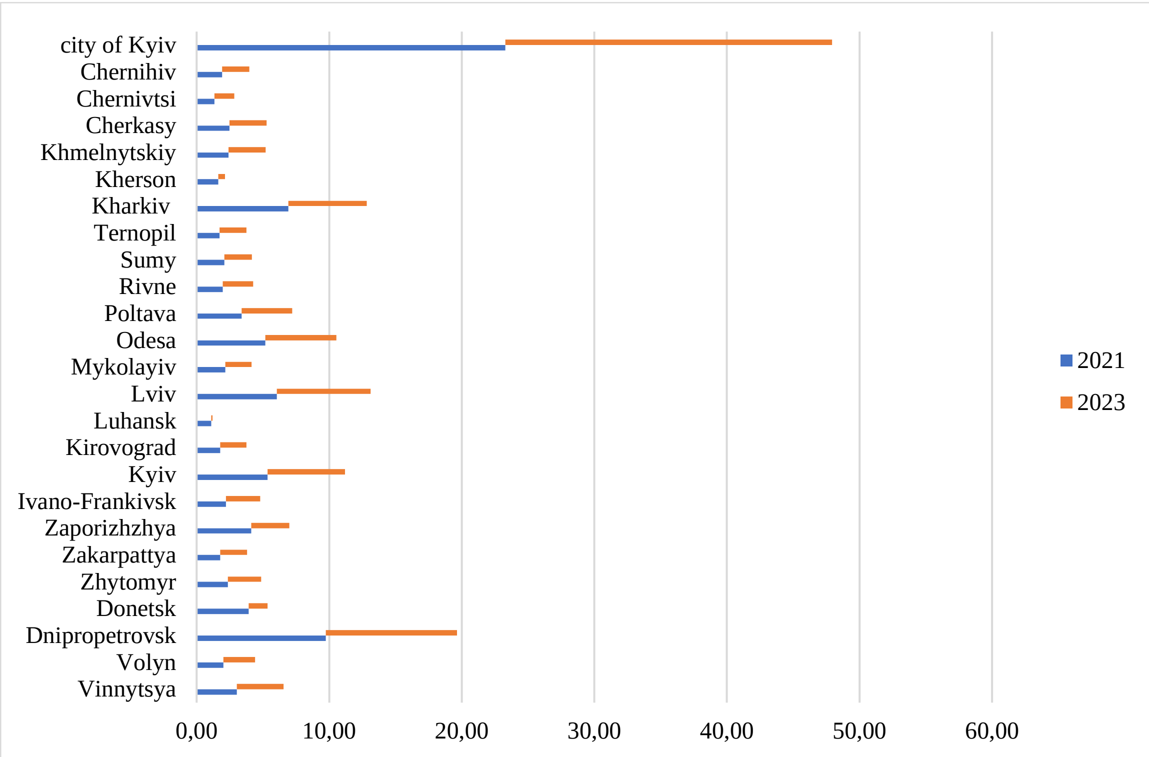

Fig. 2 – Regional structure of employment in Ukraine in 2021 and 2023, %.
Source: [8]

and 7299 vacancies, respectively. In fact, this deficit may deepen, which may negatively affect both the overall performance of the industry and the economy of our country.

As the staff shortage in Ukraine has grown, the average wage level has increased significantly, as shown in Figure 4.

The war in Ukraine has caused an increase in average wages, which arose against the backdrop of a growing staffing crisis and a lack of qualified personnel. Ukrainian companies are forced to pay extra money, as it has become increasingly difficult to find an employee in Ukraine since the beginning of the war.

Therefore, it has been studied that the main problem of staffing in Ukraine is the shortage of employees, which can lead to the decline of Ukrainian business. To overcome this problem, it is recommended to use modern artificial intelligence technologies that will help to partially replace humans

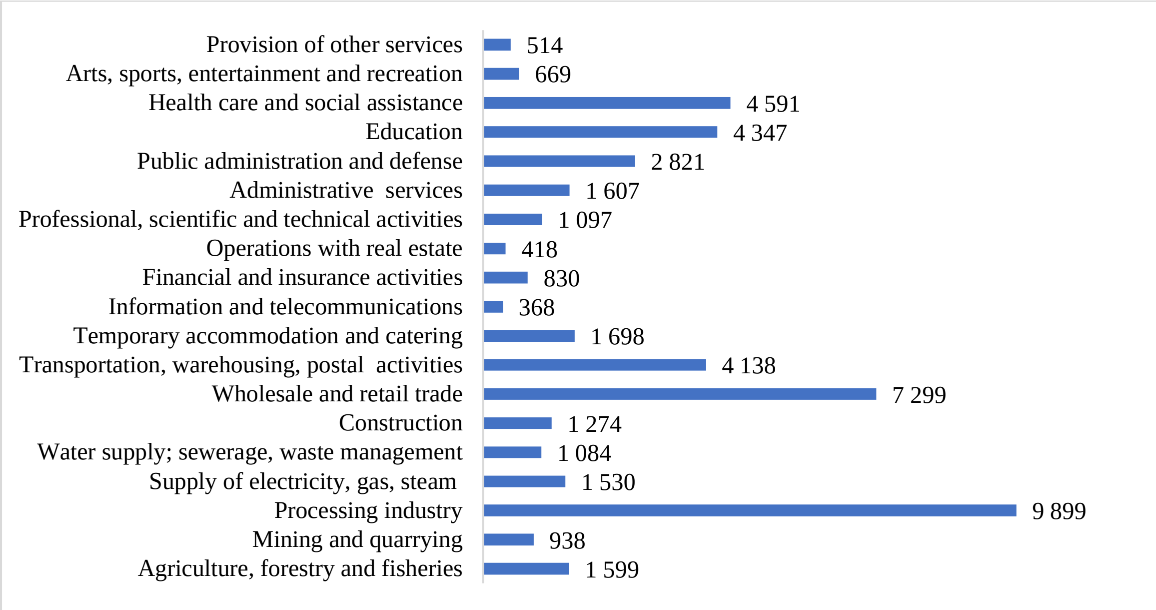

Fig. 3 – Number of open vacancies by type of economic activity as of January 2025, units

Source: [9]

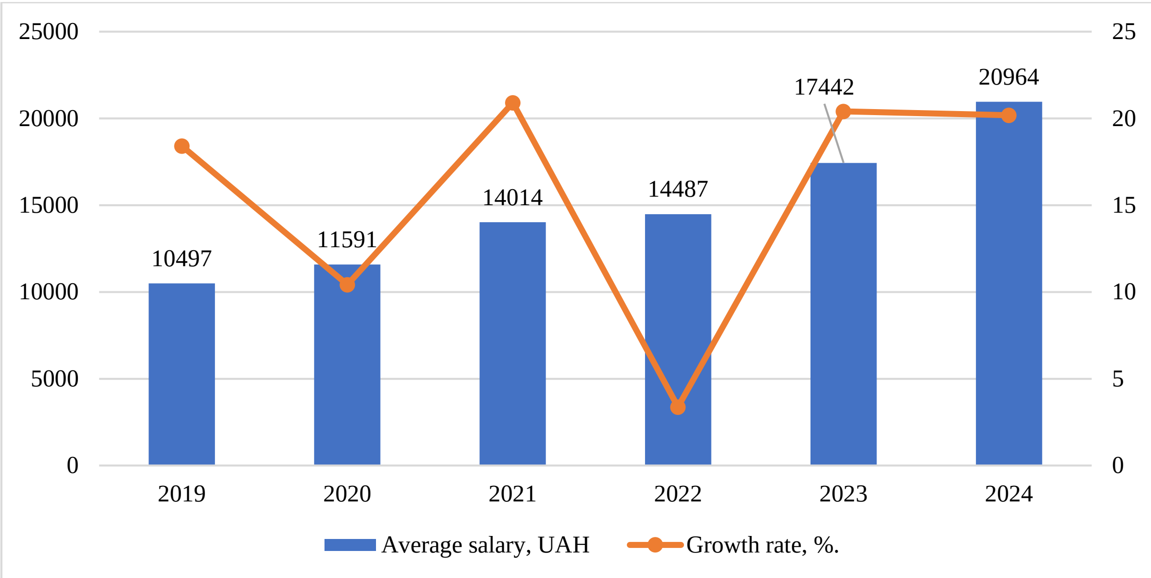

Fig. 4 – Dynamics of the average salary of Ukrainians in 2019-2023, UAH

Source: [10-11]

in certain operations and minimize staff loss. Today, most global companies are actively using AI to optimize human labor and reduce personnel risks associated with dismissal, retirement, and maternity. To do this, they replace human labor with AI, especially in such professions as operators, online consultants, and salespeople, and introduce chatbots to replace them. Based on a study of international companies, about 300 million people may lose their jobs as early as 2030 due to their replacement by artificial intelligence [12]. Figure 5 shows the share of AI integration in the economy.

Analyzing the data in Fig. 5, we see that AI is most integrated in the marketing and advertising (37%), technology (35%), and consulting (30%) industries, where employees are complemented by chatbots that perform analytics much faster and better than humans can.

The development of AI is beneficial for Ukrainian companies and HR professionals, which will help overcome the human resources crisis in Ukraine and minimize the human resources risks that have arisen in the war. Fig. 6 shows the author's strategy for increasing human resources in Ukraine.

Thus, the proposed strategy for increasing staffing includes constant monitoring of the labor market situation in order to be prepared for any changes and respond to them in

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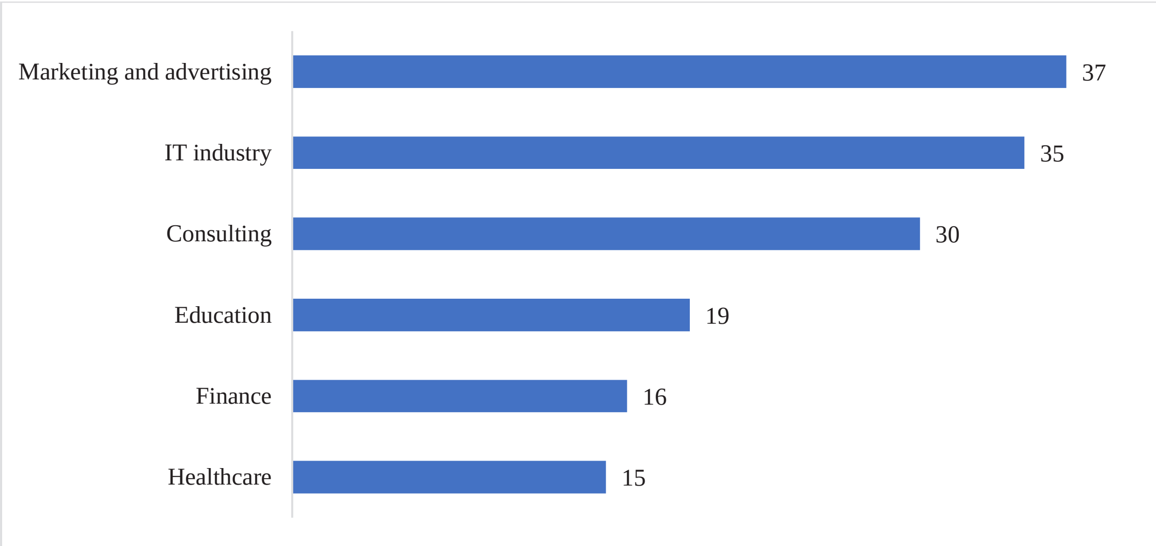

Fig. 5 – Share of AI adoption in global industries as of 2024, %.

Source: [12]

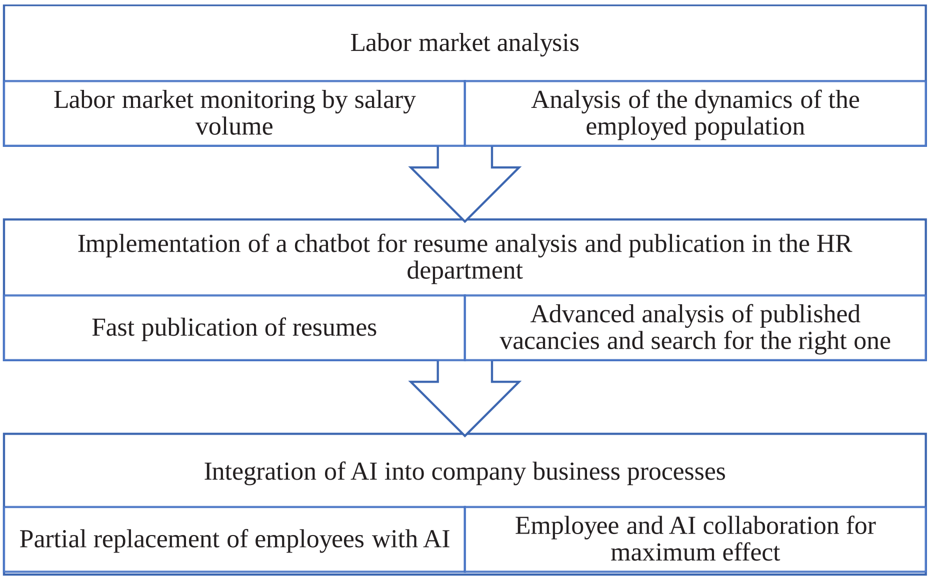

Fig. 6 – Strategy for increasing staffing in the context of martial law and technology development

Source: made by the author

a timely manner. The introduction of a chatbot in the company's HR department will allow employees to quickly publish resumes and search for the right employees for published vacancies, as human labor takes much longer than AI.

To increase the number of employees, Ukrainian companies should also start introducing AI into business processes, which means partial replacement of an employee with AI in the context of consultations, data analysis, forecasting, and other analytical work.

Conclusions

Thus, in the course of the study of staffing in enterprises, it was determined that the availability of qualified employees is the key to the successful development of the company. Having studied the state of staffing in Ukraine, a significant deficit was identified, which in the future may have extremely negative consequences for both business and the economy as a whole. That is why the author has proposed a comprehensive strategy for increasing staffing, which aims to introduce technologies into the activities of Ukrainian companies that allow them to compensate for the shortage of employees and reduce the impact of the growing staffing crisis. Technology is one of the most effective ways to increase staffing, which will not only solve the problem of Ukrainian companies with the lack of employees, but will also allow them to optimize their business processes and improve their financial results.

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DIGITALIZATION OF UKRAINE IN THE POST-WAR PERIOD AND ITS IMPACT ON JOBS

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Key words:
digital economy, digitalization, AI, information technology, Ministry of Digital Transformation.

This article examines the topic of Ukraine's digitalization in the postwar period and identifies its impact on job creation in the field of technology and innovation. It should be noted that Ukraine is the only European country that has sufficient human resources to be involved in the development of the digital economy. The coronavirus pandemic and the war in Ukraine have forced our country to integrate technology more intensively into the economy and adapt to new environmental changes, which in fact demonstrates the relevance of a more detailed consideration of the development of digitalization in the postwar period as one of the main tools for economic recovery. To begin with, the essence of digitalization as an economic phenomenon was investigated and the vision and understanding of this concept by scholars was analyzed. Next, the level of digitalization of the Ukrainian economy was studied in detail by analyzing its innovation potential and determining that Ukraine's strengths are the high level of knowledge and the availability of specialists who are ready to work for the development of innovation. It should be noted that during the period of martial law in the country, the volume of the artificial intelligence market and technology exports have grown, which are positive indicators of the deepening digitalization of the Ukrainian economy. Having studied the level of digitalization of Ukrainian regions, it was determined that it is mostly positively growing, with the exception of regions located close to the military action zone. As a promising direction for the development of digitalization in Ukraine and job growth, it was proposed to create a digital platform aimed at attracting foreign companies to Ukrainian business. Therefore, in the context of post-war recovery, it is proposed to create an information platform for innovative start-ups which will not only expand their activities in foreign markets but also contribute to increasing the level of digitalization and increasing the number of jobs.

ЦИФРОВІЗАЦІЯ УКРАЇНИ У ПОВОЄННИЙ ПЕРІОД ТА ЇЇ ВПЛИВ НА РОБОЧІ МІСЦЯ

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Ключові слова:
цифрова економіка, цифровізації, штучний інтелект (ШІ), інформаційні технології, Міністерство цифрової трансформації.

При написанні статті була розглянута тема цифровізації України у повоєнний період та визначено її вплив на формування робочих місць саме в сфері технологій та інновацій. Слід зазначити, що Україна є єдиною європейською країною, яка має достатньо кадрових ресурсів, які можна задіювати у розвитку цифрової економіки. Пандемія коронавірусу та війна в Україні змусила нашу країну більш інтенсивніше інтегрувати технології в економіку та підлаштовуватись під нові зміни середовища, що власне засвідчує актуальність більш детального розгляду розвитку цифровізації у повоєнний період як одного із основних інструментів відновлення економіки. Для початку було досліджено сутність цифровізації як економічного явища та проаналізовано бачення та розуміння цього поняття науковцями. Наступним було детально досліджено рівень цифровізації української економіки через аналіз її інноваційного потенціалу та визначено, що сильними сторонами України є високий рівень знань та наявність спеціалістів, які готові працювати на розвиток інноваційної діяльності.

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Слід відміти, що за період військового стану в країні виріс обсяг ринку штучного інтелекту та експорт технологій, зо є позитивними показниками поглиблення цифровізації української економіки. Дослідивши рівень цифровізації українських регіонів, визначено, що в основному він є позитивно зростаючий, за виключенням областей, які розміщення близько до зони військових дій. Як перспективний напрямок розвитку цифровізації в Україні та зростання кількості робочих місць було запропоновано створити цифрову платформу, яка має на меті залучити іноземні компаній в український бізнес. Отож, в контексті повоєнного відновлення пропонується створити інформаційну платформу для інноваційних стартапів, які не тільки розширюватимуть свою діяльність на зарубіжних ринках, але й сприятимуть підвищення рівня цифровізації та збільшенню кількості робочих місць.

Problem statement

In the era of the rapid spread of information and communication digital technologies, their role in economic growth and social development is indisputable. The introduction of these technologies in all countries of the world is happening at an extremely fast pace, which, unfortunately, cannot be said about Ukraine, which began to introduce technologies into the economy and management only at the beginning of 2019. It should be noted that Ukraine is the only European country that has enough human resources that can be used in the development of the digital economy. The Coronavirus pandemic and the war in Ukraine have forced our country to integrate technologies into the economy more intensively and adapt to new changes in the environment, which actually testifies to the relevance of a more detailed consideration of the development of digitalization in the post-war period as one of the main tools for economic recovery.

Analysis of recent research and publications

Studies of the digitalization of the economy were carried out by the following scientists and researchers, such as: Plakhotnik O. Pavlenko, A. [1], Rudenko, M. [2], Tokar, M., Kravtsov, Y., Shybirina, S., Khmarska, I. [4], and others. However, the study of the post-war development of the digital economy in Ukraine is not sufficiently studied in the scientific literature, which actualizes this study.

Formulation of the objectives of the article (statement of the task)

To investigate the essence of the digital economy and determine the features of digitalization of the Ukrainian economy under martial law to provide a post-war strategy for the development of digitalization.

Presentation of the main material of the study

One of the main directions of development of modern society is the digitalization of all areas of activity, from business to government agencies [1]. Modern technologies have become an integral part of our lives, which are fully integrated into both the business processes of global companies and the daily routine of each of us [2]. It has been determined that digital technologies play a vital role in the development of economic activity and security of national economies and, as a result, the formation and rapid development of the digital economy is a global trend in the development of the world economy [3]. Analyzing the scientific literature, it should be noted that digitalization is defined as an integral part of the modern economy, which has a positive impact on the rational management of resources, optimizes costs and unifies approaches to change management.

That is why the digital development of Ukraine plays a significant role in accelerating the economic and social development of the country, directing its economic and innovation potential towards international competitiveness and increasing the efficiency of Ukrainian industry and agricultural business. So, in Fig. 1. it is proposed to give Ukraine's place in the overall ranking of digital well-being of the countries of the world.

Analyzing the data of Figure 1, it should be noted that the first positions in the ranking are occupied by the EU member states, which indicates a high indicator of digital goodness in these countries. As for Ukraine, as of 2023, it took 46th place, which indicates the high potential of our country for digital development. An important condition for the digitalization of the economy is the presence of innovative potential. The graphical model of the potential of the innovation index is designed to diagnose its development of innovations in the country (Fig. 2).

Thus, applying the graph-analytical method of assessing the innovation potential of countries, we can safely say that the main problem of Ukraine is the underdeveloped institutional environment, i.e. there are no created conditions for the development of innovations and the lack of market experience. The strengths in Ukraine include a high level of knowledge and the availability of specialists who are ready to work for the development of innovative activities and contribute to the development of the global high-tech sector. So, as we can see, Ukraine has a fairly high potential for the development of innovative technologies, which is also confirmed by the volume of exports of information technologies (Fig. 3).

Despite the increase in exports in 2022 by 5.19%, in 2023 there is a decline of 7.43%, which is caused by the continuation of martial law and the fears of foreign companies to work with Ukraine due to hostilities on its territory. That is why the Ukrainian government needs to develop programs to support the development of Ukrainian exports of information technologies, which will contribute to the overall development of the level of digitalization of

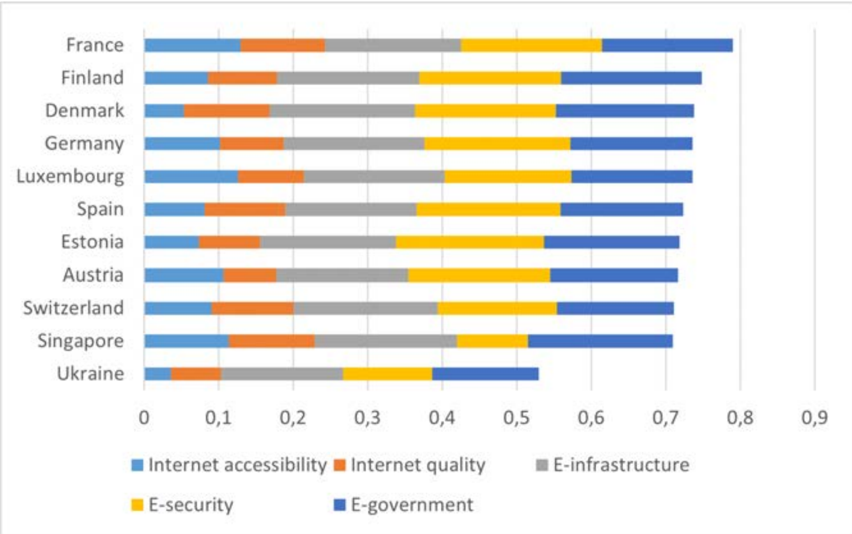

Fig. 1 – Ukraine's place in the ranking of countries in the world in terms of digital well-being for the period of 2023

Source: [4]

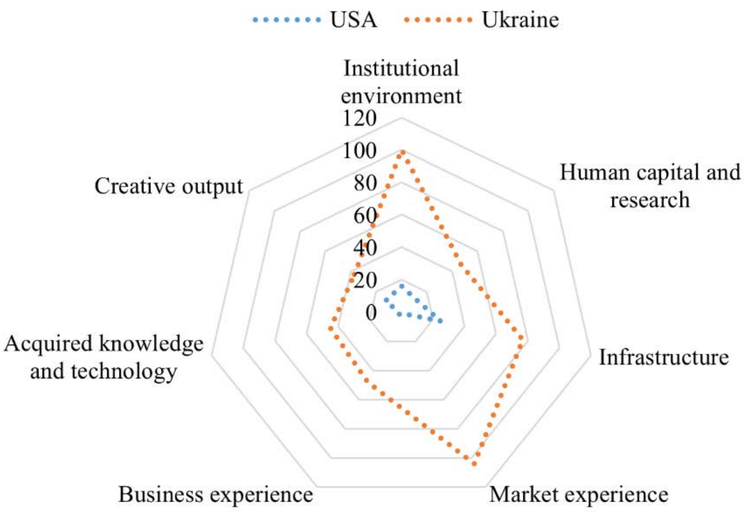

Fig. 2 – Square of Ukraine's innovation potential

Source: [5]

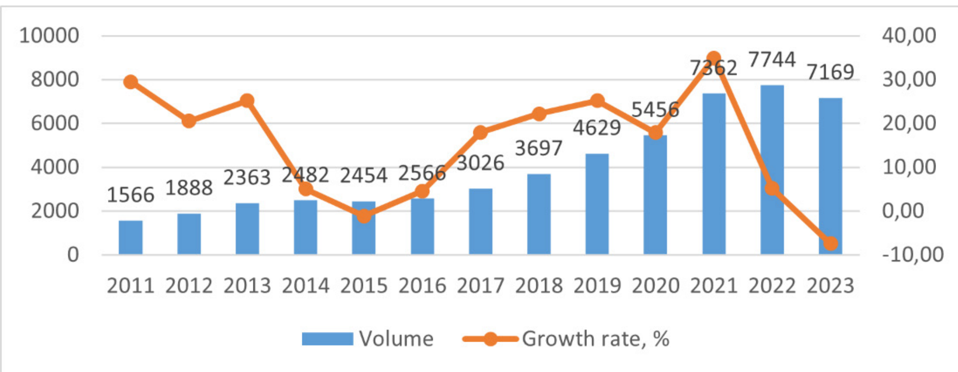

Fig. 3 – Dynamics of exports of technological services in Ukraine for the period 2011-2023, million tons USD. United State

Source: [6]

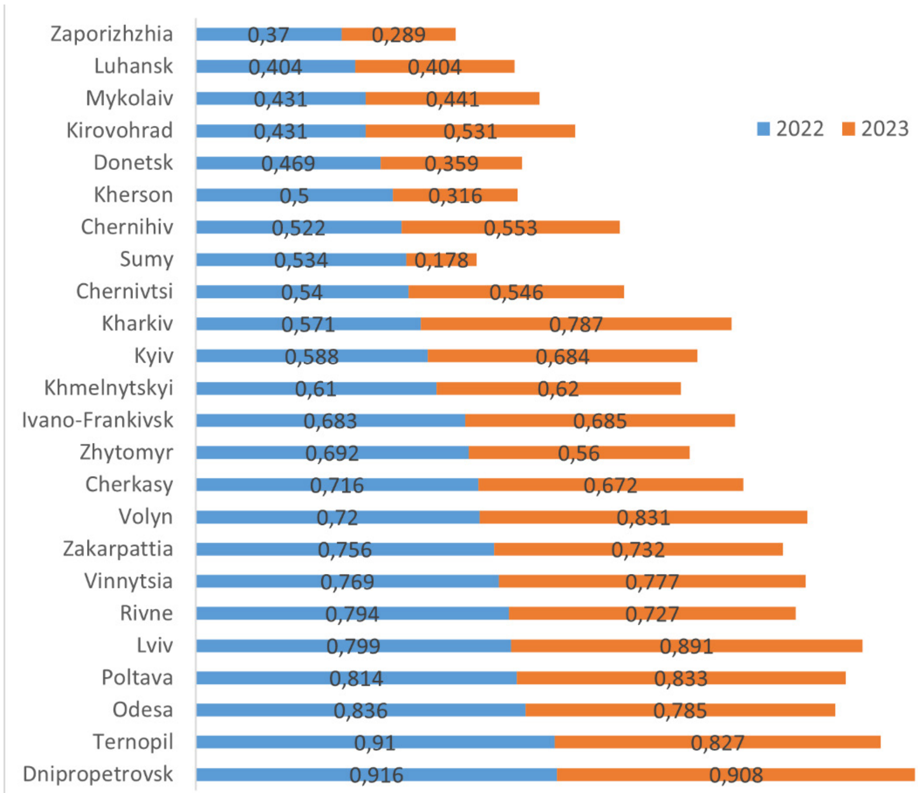

Fig. 4 – Dynamics of the index of digital transformation of the regions of Ukraine in 2022-2023, %

Source: [7-8]

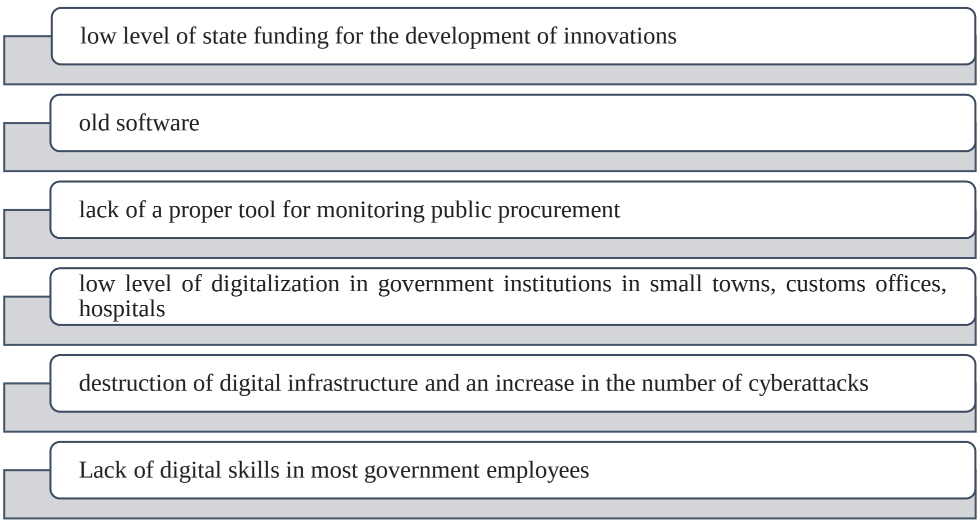

Fig. 5 – Key problems of digitalization development in Ukraine

Source: created by the author

Ukraine. Next, it is proposed to study the level of digitalization of Ukrainian regions (Fig. 4). and in more detail the main problems of the implementation of digitalization at the state level.

Therefore, analyzing the data of Fig. 4, it should be noted that the leading regions in digital transformation in Ukraine are Dnipropetrovsk, Odesa and Ternopil and regions, which actually testifies to the effectiveness of local authorities. Negative trends in the direction of decreasing the index are observed in Sumy, Zhytomyr, Kherson, Zaporizhzhia and Donetsk regions, the reason for this decrease is the intensification of missile strikes on these territories and, accordingly, a decrease in funding for the development of innovations by local authorities.

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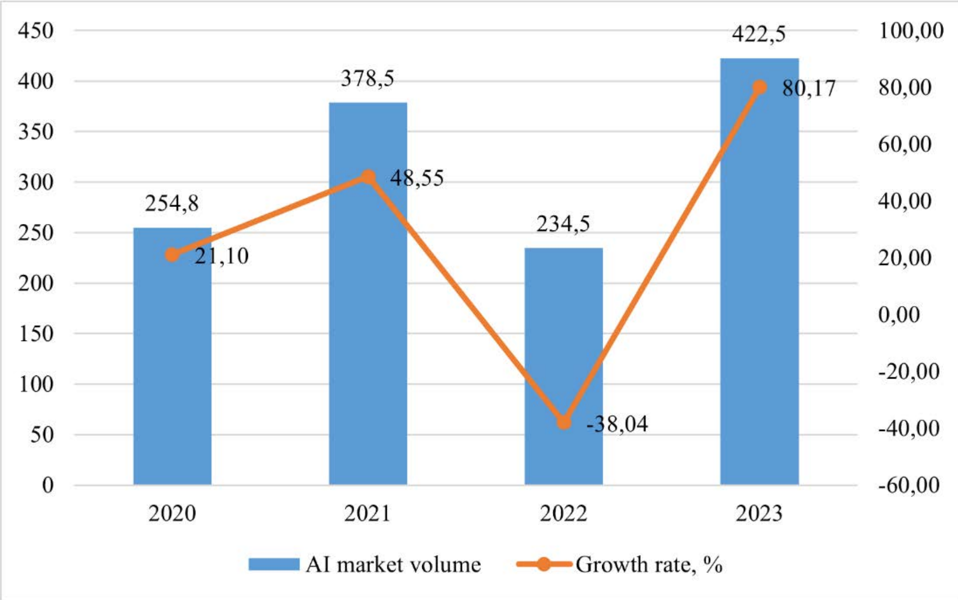

Fig. 6 – Dynamics of the development of the AI market in Ukraine
for the period 2020-2023, mln. USD.

Source: [9]

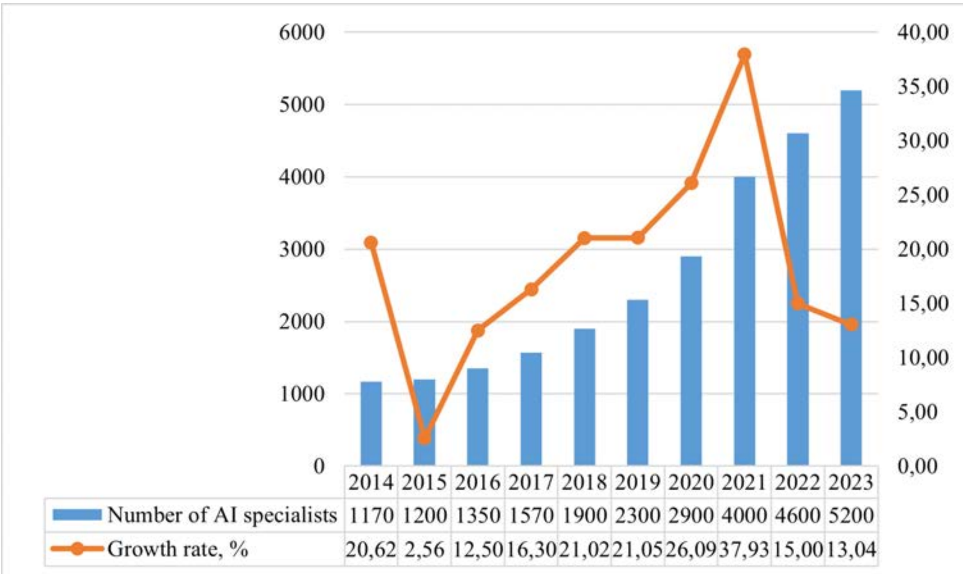

Fig. 7 – Dynamics of the number of specialists in the field of innovation and technology
development in Ukraine for the period 2014-2023

Source: [10]

Then it is proposed to cite the problems of digitalization of the economy in Ukraine (Fig. 5.).

Analyzing the main problems that negatively affect the digitalization of the economy, it is proposed to distinguish such two key ones as the lack of proper state funding and outdated equipment, which actually hinders. Of course, under martial law. All budget funds are aimed at supporting the army, which is why, after the victory, we propose to create innovative platforms for business cooperation with foreign clients who will be interested in the development of technologies in Ukraine. It is planned to choose AI technologies as a promising direction, the development of which is growing rapidly in Ukraine (Fig. 6).

So, having studied the development of AI, we see its growth in 2021, which was 48.55%, in 2022 there was a decline of 38.04%, but already in 2023 the market grew by 80.17% and is one of the most promising areas for startups, the number of which is growing in Ukraine. In Ukraine, the number of qualified specialists working in the field of AI and developing new ideas for the modernization and digitalization of business and the economy as a whole is

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growing. So, based on Figure 7, we see that over 9 years in Ukraine the number of specialists has increased by 4.5 times, which indicates the popularization of the profession in the field of innovative services and, in fact, the development of the high-tech sector market as a promising direction for the work and growth of specialists.

Ukraine has a significant share in the AI market in Eastern Europe in terms of the number of companies working in this direction (Fig. 8). So, we see that Ukraine's market share is 20%, which makes it the second largest country in Eastern Europe that has the greatest potential in the development of AI. As of 2023, there are 243 companies in Ukraine, which is actually an update on the proposal to create a digital platform to attract foreign partners to Ukraine. This platform is proposed to be created by the Ministry of Digital Transformation so that a foreign company has state guarantees. It is proposed to create something like a crowdfunding platform only on a national scale.

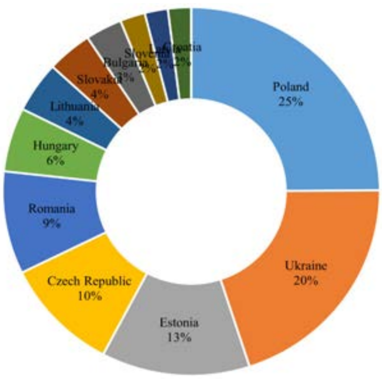

Fig. 8 – Ukraine's share in the Eastern European AI market in 2023, %

Source: [10]

Ukrainian companies working in the field of innovation and technology will exhibit their projects with a detailed description and business plan, thus creating an opportunity for small companies to enter foreign markets and develop their activities in working with foreign companies. As for the opportunity to be a member of this platform, it can be obtained by all interested startup companies that are officially registered in Ukraine. In fact, such cooperation between business and the state will have a positive impact on the level of digitalization and increase the number of jobs. A more detailed scheme of the digital platform is shown in Fig. 9.

In our opinion, every technology company should have such an algorithm for cooperation with foreign partners, where everything will be transparent and understandable. It is proposed to entrust the creation of the platform to the Ministry of Digital Transformation, which will also monitor the feasibility of innovative projects and their delivery. A foreign partner must be sure that in addition to the company, the project is controlled by state authorities, which will actually strengthen its trust.

Strengthening digitalization is one of the most important steps in Ukraine's post-war recovery, and it is necessary to start with innovative and technological startup companies on an international scale. Conclusions. Therefore, analyzing the level of digitalization of the Ukrainian economy, it should be noted that despite the military actions of the Russian Federation on the territory of our country, information technologies are being developed and the volume of exports and the number of specialists in the technological field are increasing. It was investigated that since the war in Ukraine, business in the field of artificial intelligence technologies has developed, and it is in the context of post-war recovery that it is proposed to create an information platform for innovative startups that will not only expand their activities in foreign markets, but also contribute to increasing the level of digitalization and increasing the number of jobs.

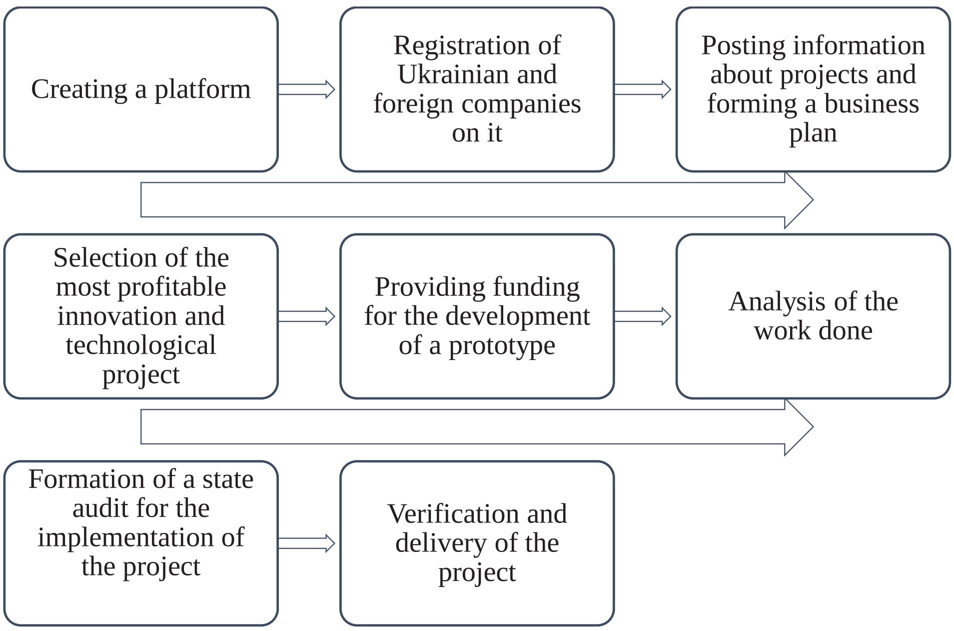

Fig. 9 – Flowchart of the innovative platform for digital transformation of Ukrainian business Source: created by the author

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PROJECT MANAGEMENT AND FINANCIAL AND ECONOMIC SECURITY IN THE CONDITIONS OF GLOBALIZATION

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MAIN CHALLENGES OF REFORMING THE WHOLESALE ELECTRICITY MARKET IN UKRAINE

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Key words:
electricity market, reforms, challenges, modern technologies, renewable energy sources.

The reform of the wholesale electricity market (WEM) in Ukraine began in 2019 in order to create a competitive environment, attract investment and improve energy efficiency. In the context of the constant dynamics of the energy sector in Ukraine, the wholesale electricity market is a key element in ensuring the stability and efficiency of the country's energy supply. The results of reforming this market play a decisive role in improving the energy system and contribute to ensuring the country's energy security. At present, taking into account the difficulties arising in connection with energy reforms, the analysis of the results of the reform of the wholesale electricity market is of particular importance.
The article discusses the principles of effective and transparent management, which is key to the stability and development of the energy sector. The reforms aimed at modernizing and expanding infrastructure, as well as improving governance and ensuring transparency, play an important role in achieving these goals. They will help improve the efficiency and reliability of electricity supply, reduce energy losses and stimulate investment in modern energy technologies and infrastructure. It is proved that the study of the system of reforming the energy sector and the development of new proposals for its improvement is a key task for the further development of Ukraine.

ОСНОВНІ ВИКЛИКИ РЕФОРМУВАННЯ ОПТОВОГО РИНКУ ЕЛЕКТРОЕНЕРГІЇ В УКРАЇНІ

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Ключові слова:
ринок електроенергії, реформи, виклики, сучасні технології, відновлювальні джерела електроенергії.

Реформування оптового ринку електроенергії (ОРЕ) в Україні розпочалося 2019 року з метою створення конкурентного середовища, залучення інвестицій та підвищення енергоефективності. В умовах постійної динаміки енергетичного сектору в Україні оптовий ринок електроенергії є ключовим елементом забезпечення стабільності та ефективності енергопостачання країни. Результати реформування цього ринку відіграють вирішальну роль у покращенні енергетичної системи та сприяють забезпеченню енергетичної безпеки країни. В даний час, з урахуванням складностей, що виникають у зв'язку з енергетичними реформами, аналіз результатів реформування оптового ринку електроенергії набуває особливого значення.
У статті розглянуто принципи ефективного та прозорого управління, що є ключовим для стабільності та розвитку енергетичного сектору. Охарактеризовано реформи, які спрямовані на модернізацію та розширення інфраструктури, а також на вдосконалення управління та забезпечення прозорості, відіграють важливу роль у досягненні цих цілей. Вони сприятимуть покращенню ефективності та надійності електропостачання, зниженню втрат енергії та стимулюванню інвестицій у сучасні технології та інфраструктуру енергетики. Доводиться, що дослідження системи реформування енергетичного сектору та розробка нових пропозицій щодо його покращення є ключовим завданням для подальшого розвитку України.

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Statement of the problem

The relevance of studying the results of reforming the wholesale electricity market in Ukraine lies in the need to assess the achievements and determine the most effective ways of further development of the energy sector. Taking into account modern challenges such as climate change, energy efficiency and competitiveness, the development of the wholesale electricity market is becoming a strategic task for Ukraine.

Objectives of the article

The purpose of this study is to analyze and evaluate the results of reforming the wholesale electricity market in Ukraine in order to determine its impact on the country's energy system and develop recommendations for further improvement of the energy sector.

The main material of the research

It is difficult to overestimate the importance of the wholesale electricity market in the energy system, as it acts as a key component for the effective functioning and development of the electricity system.

To summarize, the wholesale electricity market plays a critical role in the energy system, ensuring the efficient use of resources, maintaining the stability and security of energy supply, promoting the development of renewable energy sources, and stimulating innovation and economic development. Its role in today's energy system is invaluable, and it is a key element in achieving a sustainable and efficient energy future.

The electricity supply system in Ukraine had numerous problems before the reform, including mismanagement and widespread corruption. A centralized approach to managing the energy sector has often led to suboptimal resource allocation and underdeveloped infrastructure. This caused distrust among the population and investors, which hampered the development of the industry [3, p. 43].

The previous power supply system in Ukraine had a number of problems. Reforms and transformation of the energy sector are aimed at diversifying energy sources, improving energy efficiency and integrating into the European energy system. The war created new challenges for the Ukrainian energy sector, but also opened up opportunities for modernization and transition to a more sustainable and secure energy system [3, p. 44].

Reforms in Ukraine's energy sector are aimed at creating a competitive market, separating functions between producers, suppliers and network operators, as well as creating an independent regulator that would monitor the activities of all market participants and ensure compliance with rules and standards.

The previous power supply system in Ukraine had numerous problems and shortcomings, among which the following can be distinguished.

Reforms in Ukraine's energy sector were aimed at addressing these challenges by modernizing infrastructure, creating a competitive environment in the electricity market, and improving the governance of the country's energy system.

The beginning of the reform of the energy sector in Ukraine was marked by a number of key events and initiatives aimed at improving the efficiency, transparency and stability of the country's energy system. In this section, we will consider the first steps taken in this direction [6].

1. Establishment of a legal framework: One of the first steps in reforming the energy sector was the adoption of important legislation. In particular, the Laws "On Electricity" and "On Natural Monopolies" were adopted, which established the legal framework for the liberalization of the electricity market and the creation of a competitive environment.

2. Liberalization of the electricity market: In order to attract the private sector and stimulate competition, the process of liberalization of the electricity market has

Table 1 – Criteria for the functioning of the wholesale electricity market

Criterion	Characteristics
Efficient use of resources	The wholesale electricity market allows producers and consumers to interact efficiently to optimize the use of energy resources. It stimulates competition and allows producers to offer electricity at competitive prices, which helps to reduce energy costs for end consumers.
Flexibility of management	The wholesale market allows for flexible regulation of electricity production and consumption depending on changes in demand and production conditions. This allows for efficient management of the energy system and ensures the stability of electricity supply.
Support for the development of renewable energy sources	The wholesale market creates a favorable environment for the development and integration of renewable energy sources (RES) into the energy system. Thanks to market mechanisms, RES producers have the opportunity to compete in the electricity market and attract investments for further development.
Ensuring energy security	The wholesale market allows diversifying sources of electricity supply and ensuring the stability of energy supply in the face of changes in the energy market and geopolitical risks.
Innovation and technological progress	The competitive environment of the wholesale market stimulates innovation and development of new technologies in the energy sector. Producers are constantly looking for ways to optimize production and increase efficiency, which contributes to overall technological progress.
Support for economic development	The efficient functioning of the wholesale electricity market contributes to the stability of the energy sector and supports economic growth by ensuring the availability of electricity and stimulating investment in the sector.
International cooperation	Wholesale electricity markets can become the basis for international cooperation and exchange of electricity between countries, which contributes to energy security and stability in the region.

Developed by authors by source [1]

Table 2 – Synchronization of the Ukrainian energy system with ENTSO-E

Characteristic element	Main aspects
1. Centralized system	
History	– Formed in the Soviet period. – Based on large thermal power plants (TPPs) and nuclear power plants (NPPs). – Electricity was transported over long distances.
Advantages.	– Criterion – Ability to export electricity.
Characteristic	– Efficient use of resources – High level of greenhouse gas emissions. – Vulnerability to damage and accidents.
2. Problems of the previous system	
Flexibility of management	– Depreciation of TPP and NPP equipment. – Electricity losses during transportation
Supporting the development of RES	– Dominance of centralized electricity generation. – Underestimation of renewable energy sources (RES).
Ensuring energy security	– State regulation and market monopolization. – Lack of incentives for energy efficiency.
3. Innovation and technological advancement	
Market liberalization	– Support for economic development – Allowing private investors to enter the energy sector.
Support for renewable energy sources	– International cooperation – Stimulating the development of solar and wind energy.
Improving energy efficiency	– Implementation of energy efficiency programs and standards. – Modernization of the housing stock and industrial enterprises.
4. War and new challenges	
Damage to energy infrastructure	– Destruction of thermal power plants, nuclear power plants and power grids. – Blackout of large areas.
Growing demand for electricity	– Restoration of destroyed facilities. – Transition to alternative energy sources.
Main aspects	– Restoration of destroyed facilities. – Transition to alternative energy sources

Developed by the authors at the source: [1, 2]

Table 3 – The main shortcomings of Ukraine's electricity supply system before the reforms

Disadvantage	Characteristics
Centralized management	The system was highly centralized, with insufficient balance between the central and regional levels of government. This led to underestimation of local needs and insufficient attention to the development of regional networks.
Insufficient efficiency and reliability	Old and outdated power transmission and distribution networks caused technical problems and accidents. This resulted in frequent power outages, especially during peak loads.
Low energy efficiency	Many power plants and grids had low energy efficiency, which led to excessive energy consumption and increased emissions.
Corruption and vagueness	The system was plagued by corruption and unclear governance, leading to inefficiency and wastage of resources.
Insufficient investment in development	The lack of sufficient investment in the modernization and development of power grids slowed down innovation and the introduction of new technologies.
Dependence on energy imports	Ukraine was heavily dependent on imports of energy resources, such as gas and coal, which made the energy system vulnerable to external influences and price fluctuations on world markets.
Uneven development of regions	The uneven development of regional power grids resulted in some regions having insufficiently developed infrastructure, which limited their opportunities for industrial and social development.
Large technical losses	The old electricity transmission networks had high technical losses due to inefficiency and old equipment. This led to significant electricity losses during transportation.
Insufficient competition	The lack of competition in the electricity market limited opportunities for innovation and service quality improvement. Monopolization of the market reduced incentives for efficiency and development.
Energy instability	Outdated power plants and infrastructure often operated at the limit of their capabilities, leading to instability in energy supply and possible accidents.

Improved by authors based on [3, 4, 5]

begun. Mechanisms were introduced to separate the production, transmission and supply of electricity, which created conditions for the emergence of new participants in the market and a decrease in state influence.

3. Establishment of the Regulatory Authority: To ensure the effective regulation of the energy sector, the National Commissariat was established, which was given the authority to monitor and regulate the activities of all participants in the electricity market. This was an important step in ensuring transparency and equality in the market.

4. Stimulating renewable energy: Reforming the energy sector also involved actively promoting the development of renewable energy sources. Measures were taken to attract investment in the renewable energy sector and create favorable conditions for the development of wind energy, solar energy and other environmentally friendly sources.

5. Implementation of international standards: As part of the reforms, measures have been taken to harmonize energy legislation with international standards and practices of the European Union. This contributed to the convergence of Ukraine's energy market with European standards and opened up new opportunities for cooperation and integration.

It is reasonable to assert that the wholesale electricity market is a key element of the energy infrastructure that ensures the optimal functioning of electricity supply in the country. It is based on the principles of the free market and competition, ensuring the efficient generation, transmission and distribution of electricity. Below we will consider the basic principles and features of the wholesale electricity market [7]:

1. Free access to the market: One of the main principles of the wholesale market is that all participants have equal access to it. This means that any electricity producer can enter the market and sell their energy, and any consumer can purchase electricity at competitive prices.

2. Competitive bidding: The production and distribution of electricity in the wholesale market is carried out through competitive bidding. This means that producers offer their energy for sale at a certain price, and buyers choose the best deals. This process stimulates competition and ensures optimal electricity prices.

3. Energy balancing: To ensure the stability of the power supply, the balance between electricity production and consumption is taken into account in the wholesale market. In the event of an imbalance between these two processes, mechanisms such as reserve capacities or consumption regulation mechanisms can be used to ensure the stability of the system [8].

4. Tariffs and pricing: Electricity prices in the wholesale market are determined on the basis of competitive bidding. They can change depending on supply and demand, the state of the energy system, and other factors. Electricity tariffs can also be regulated by government agencies in order to ensure affordability and price stability for consumers.

5. Role of the Regulator: The National Energy Regulator acts as a key figure in ensuring the efficiency and transparency of the wholesale electricity market. It establishes the rules for the functioning of the market, controls the activities of market participants and ensures compliance with the law [8, 9].

Thus, the wholesale electricity market is an important mechanism for ensuring the efficiency and stability of electricity supply. It promotes competition, innovation and development of the energy sector, which in turn contributes to improving energy efficiency and reducing costs for both electricity producers and consumers [10, p. 40]. In addition, the wholesale electricity market creates conditions for the development of renewable energy sources and increasing the environmental sustainability of the energy system.

Thus, the reform of the wholesale electricity market in Ukraine has led to positive changes in the energy sector, contributing to increased production efficiency, the development of renewable energy sources, lower electricity prices and improved quality of electricity supply.

In turn, we believe that further reform of the wholesale electricity market should be carried out with an emphasis on renewable energy sources, because this is one of the world's Sustainable Development Goals and therefore can receive support from the international community. Thus, we propose to review the future achievements and challenges in reforming the wholesale electricity market at the expense of renewable sources.

Table 4 – Achievements and challenges of the wholesale electricity market with regard to RES

Achievement / challenge	**Characteristics**
Achievement	
Creating a competitive environment	One of the key achievements of the reform is the creation of a competitive environment in the wholesale electricity market. This incentivizes producers to increase efficiency and reduce prices, which leads to improved quality and affordability of electricity for consumers.
Development of renewable energy sources	Reforms have promoted the development of the renewable energy sector (RES). This helps reduce dependence on coal fuels and reduces greenhouse gas emissions, contributing to environmental sustainability.
Improving energy efficiency	Market reforms encourage producers and consumers to use resources more efficiently. This helps to reduce overall energy consumption and pollutant emissions.
Challenges	
Market heterogeneity	Despite the achievements, the electricity market may remain heterogeneous due to differences in the level of competition between different regions and business entities.
The need for infrastructure investment	Investments in energy infrastructure are needed to support the development of renewable energy sources and ensure the stability of the electricity grid.
Reforming the regulatory environment	Regulatory rules need to be constantly evaluated and updated to ensure transparency and efficiency of the wholesale market.
Energy security	Changes in the structure of energy production can affect the country's energy security, so it is necessary to ensure a balance between the development of RES and traditional energy sources.

Table 5 – Advantages of using RES for Ukraine

The advantage of using renewable energy sources	Characteristics
1. Diversification of energy sources	
Increasing the share of RES	– Reducing dependence on fossil fuels. – Reducing greenhouse gas emissions. – Creation of new jobs.
Development of decentralized generation	– Increasing the stability of the power system. – Reducing losses during transportation. – Involvement of consumers in electricity production.
2. Improving energy efficiency	
Reduced energy consumption	– Reduced energy costs. – Reduction of greenhouse gas emissions. – Increased energy security.
Modernization of infrastructure	– Reduction of electricity losses. – Improving the reliability of electricity supply. – Creation of new technologies.
3. Integration into the European energy system	
Access to new energy sources	– Increase in electricity supplies from the EU. – Reducing dependence on domestic sources. – Increased competition in the market.
Creating a common energy market	– Increase electricity exports from Ukraine. – Attracting investments in the energy sector. – Unification of technical standards.
4. Impact on consumers	
Rising electricity prices	– As a result of reforms and investments. – The need for state support for vulnerable groups.
Expanding the choice	– The ability to freely choose an electricity supplier. – Stimulating competition in the market.
Raising awareness	– Increased knowledge about energy efficiency and renewable energy sources. – Motivation to save energy and use environmentally friendly sources.

We believe that during the reform of the wholesale electricity market at the expense of renewable energy sources in Ukraine, a number of significant prospects will be achieved. Let's consider the impact of RES wholesale electricity market reforms on the energy system and consumers.

Thus, we have proved that reforms in the energy sector of Ukraine with the help of renewable energy sources (RES) have a positive impact on the energy system and consumers. Diversification of energy sources, increased energy efficiency and integration into the European energy system make the Ukrainian energy sector more sustainable, safe and environmentally friendly. Rising electricity prices are a challenge, but government support and expanding choices for consumers can help mitigate its impact.

Conclusions

The electric power system is of great importance for the economy, society and various industries. The reform process in the electricity sector is of great importance for ensuring sustainable development, increasing the efficiency and competitiveness of this sector. In conclusion, it can be noted that the period before and after the reform of the electric power industry is characterized by significant transformations that have affected all levels of this industry.

Since the reform, there has been significant progress in many aspects of the electricity system. In particular, the liberalization of markets has helped to increase competition, lower prices, and stimulate innovation. The introduction of regulation and control mechanisms made it possible to ensure the stability and reliability of energy supply. Also, the reform contributed to the development of alternative energy sources and reduced environmental impact.

However, it must be recognized that the process of reforming the electricity system has its own challenges and problems. Solving these problems requires joint efforts of the government, industry players and society as a whole. Only in this way it is possible to ensure the sustainable and efficient functioning of the electric power system that meets the modern requirements of the development of society.

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MAIN FACTORS OF THE OCCURRENCE OF THE FINANCIAL CRISIS IN THE CONTEXT OF ANTI-CRISIS MANAGEMENT OF THE ENTERPRISE

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Key words:
financial crisis, anti-crisis management, business processes, enterprise, digitalization, program, foreign experience.

The article examines the essence of the financial crisis, its characteristic features and varieties. The main macroeconomic indicators that determine the state of economic and financial crises are considered. Varieties of concepts of anti-crisis management during wartime and their main differences from each other are characterized. The essence and scope of use of PESTLE - analysis is defined. The level of influence of political, economic, social, technological, ecological and legal factors on the activity of the dairy enterprise «Yagotynsky Butter Plant» LLC was investigated using PESTLE analysis. The essence, meaning and scope of use of the map-scheme of perception are indicated. The main products of the considered enterprise «Yagotynsky Butter Plant» LLC under the brand «Yagotynske» and its competitors Danon, Svoya Liniya, Activiya, Halychyna, Dolce, Molokiya Zlagoda and Stary Porytsk were analyzed. It was determined that the «Yagotynske» brand occupies an intermediate position due to a high price policy, but at the same time, the goods are of high quality, which is why they are in demand on the domestic market. In today's conditions, the main tasks of the anti-crisis financial management system of the enterprise were characterized. As anti-crisis measures, it is proposed to introduce blockchain technology, digital doubles, microservices and create a bio-flash drive technology based on machine learning.

ОСНОВНІ ФАКТОРИ ВИНИКНЕННЯ ФІНАНСОВОЇ КРИЗИ В КОНТЕКСТІ АНТИКРИЗОВОГО УПРАВЛІННЯ ПІДПРИЄМСТВОМ

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Ключові слова:
фінансова криза, антикризове управління, бізнес-процеси, підприємство, цифровізація, програма, зарубіжний досвід.

У статті розглянуто сутність фінансова криза, її характерні ознаки та різновиди. Розглянуто основні макроекономічні показники, які визначають стан економічної та фінансової криз. Охарактеризовано різновиди концепцій антикризового менеджменту у період воєнного часу та їх основні відмінності один від одного. Визначено сутність та сферу використання PESTLE – аналізу. Досліджено за допомогою PESTLE – аналізу рівень впливу політичних, економічних, соціальних, технологічних, екологічних та правових факторів на діяльність молочного підприємства ТДВ «Яготинський маслозавод». Зазначено сутність, значення та сферу використання карти-схеми сприйняття. Проаналізовано основну продукцію розглянутого підприємства «ТДВ «Яготинський маслозавод»» під брендом бренд «Яготинське» та його конкурентів Danon, Своя Лінія, Активія, Галичина, Дольче, Молокія Злагода та Старий Порицьк. Визначено, що бренд «Яготинське» займає опосередковане місце через високу цінову політику, але при цьому товари відзначаються високою якістю, через що мають попит на вітчизняному ринку. В умовах сьогодення було охарактеризовано основні завдання системи антикризового фінансового управління підприємства. Запропоновано в якості антикризових заходів впровадити блокчейн технології, цифрові двійники, мікросервіси та створити технологію біо-флешка на основі машинного навчання.

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Statement of the problem

Due to the pandemic, a large number of small and medium-sized enterprises found themselves in a difficult situation, which had negative consequences: a large number of business entities became insolvent and were forced to close down their activities. In the period from 2022 to 2023, the number of business entities decreased from 659,755 to 643,602 units of enterprises. As a result, there was an urgent need to improve the existing anti-crisis management. Therefore, in order to avoid the occurrence of a financial crisis at domestic dairy enterprises in advance, it is necessary to carry out effective anti-crisis management. To overcome the problem associated with the appearance of a significant number of Ukrainian enterprises on the verge of bankruptcy, it is necessary to implement effective measures to recognize signs of economic stagnation of the enterprise, which in the future may provoke a deterioration in the financial condition of the enterprise. Therefore, managers and leaders of the enterprise must accurately and highly qualified forecast the sources and causes of crisis phenomena, as well as develop a mechanism for their prevention and avoidance in advance. And for the effective performance of this task, it is necessary to invent instrumental means and methods that would allow analyzing and forecasting the possibility of a potential crisis, developing options for their resolution procedures and the appropriate information and economic management base. The most relevant and effective way to prevent bankruptcy among Ukrainian business entities is the effective and professional application of anti-crisis management measures. The need to consider the specifics of the financial crisis and its main stages of occurrence due to the negative impact of military actions on domestic enterprises is particularly relevant. Taking into account the peculiarities of the marketing level of the development of the dairy enterprise plays a key role in the analysis of the peculiarities of the enterprise's sales activity and ensuring an effective product sales system in the conditions of the financial crisis. PESTEL analysis and perception map are methods of analysis that best reflect the main factors and the level of competitiveness of a business entity's goods on the domestic market in modern realities.

Analysis of research and publications

The factors causing the financial crisis at the enterprise were considered by the following domestic scientists, such as: Pohrishchuk H.B. [1, p. 464], S.V. Prysiazhnyuk [1, p. 464], Ryabenko H.M. [2, p. 126], Verlanov O.Yu. [2, p. 126], Zvyagintseva O.B. [2, p. 126], Klymenko S. O. [2, p. 126], Moshkivska D.V. [3], Voronova O.V. [4], Marushchak S.M. [4], Pugachev M.I. [4], Sharapov V. [5], Petrovska S. [6, p. 220], Kivchenko A. [6, p. with. 220], Dligach A.O. [7] etc.

Setting the task

The task of the article is to consider the theoretical foundations of the financial crisis at the enterprise; analysis of the main stages of the financial crisis at the enterprise; study of the main classification features of world financial crises; description of the main tasks of anti-crisis management during the course of the financial crisis at the enterprise.

Main material and results

Today, accurate assessment and timely recognition of the financial crisis at the enterprise is gaining relevance. In the conditions of war, the peculiarities of identifying its main signs, which require constant changes in legislative acts, referring to the presence of physical destruction, termination of partnership cooperation, destruction of sales lines of goods and services, loss of investment infusions, inflationary negative processes with the national currency and the development of innovative technologies.

A financial crisis is an imbalance in the financial balance of an enterprise, which is caused by the cyclical development of interconnected and mutually determined crisis phenomena and leads to the depreciation of equity capital in the absence of adequate anti-crisis measures [1].

It is appropriate to note the main stages of the onset of the financial crisis at the enterprise (Fig. 1).

It is appropriate to distinguish the following stages of the financial crisis at the enterprise. The first stage of the crisis (most often hidden) is characterized by a drop in the marginal efficiency of capital, indicators of business activity of the enterprise, a decrease in profitability and profit volumes, a lack of rationalizing proposals, innovations and new capital investments, irrational use of labor resources, insufficient level of qualifications. As a result, the financial condition of the enterprise deteriorates, the sources and reserves of development are reduced.

The second stage of the crisis is characterized by the emergence of unprofitable production, the absence of new production programs, the use of outdated equipment, the emergence of internal conflicts, and the dismissal of qualified specialists and employees.

The third stage is accompanied by outdated production programs, failures in production, tangible losses, lack of

Fig. 1 – The main stages of the onset of the financial crisis at the enterprise

Source: [1, c. 464]

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initiative to make changes and improvements, explaining all problems with factors that prevent proper development. At this stage, the company has almost no own funds and reserve funds. This, in turn, negatively affects the prospects of its development, long-term and medium-term planning of cash flows, rational budgeting and is combined with a significant reduction in production, since a significant part of working capital is directed to repayment of losses and servicing of growing payables. If operational measures are not taken, there will be a liquidity crisis and bankruptcy.

The fourth stage is accompanied by the dismissal of employees and a decrease in the number of customers, equipment failure, significant losses, anarchy, constant excitement and restlessness of management, a decrease in productivity to a state of laziness, a mood of hopelessness. The enterprise is in a state of acute insolvency, it has no way to finance even a reduced reproduction and continue payments on previous obligations. There is a real threat of stopping or stopping production, and then bankruptcy. The peak of the development of the financial crisis is the stage of the onset of bankruptcy, which corresponds to a complete loss of financial stability, which is characterized by the absence of net assets at the enterprise. This means that at the disposal of the debtor there is property in an amount insufficient to satisfy all the demands of creditors.

Anti-crisis financial management is a preventive measure aimed at preventing bankruptcy and ensuring the financial stability of the enterprise in crisis conditions [2, p. 126].

The main elements of anti-crisis financial management are:

1. The management system – anti-crisis management includes various components and processes aimed at solving problems and challenges related to crisis situations.
2. The management system – anti-crisis management includes various components and processes aimed at solving problems and challenges related to crisis situations.
3. Increasing internal control – allows the enterprise to strengthen internal control, identify and solve potential risks even before they reach a crisis state.
4. Flexibility of management – anti-crisis measures make it possible to create a more flexible management system that is able to adapt to changes in the external environment and respond effectively to new challenges.
5. Increasing stakeholder trust – stakeholders such as investors, banking institutions, partners and customers pay attention to how the company manages its financial resources. The implementation of anti-crisis measures can increase the level of confidence.
6. Optimization of resources – preliminary identification of possible risks allows to optimize the use of resources and avoid unjustified costs.
7. Creating a culture of risks – the introduction of anti-crisis management contributes to the creation of a culture of timely recognition and management of risks among personnel, which can become an important resource for maintaining the stability of the enterprise.

There are the following most common characteristics of the causes of the crisis at the enterprise: [3]

1. Lack of liquidity of the new product and lack of demand. In world practice, there were cases when new products were absolutely undemanding and led enterprises to an unpredictable crisis.
2. Manufacturing defects. At manufacturing enterprises, during the production process, production malfunctions may occur as a result of equipment failures, malfunctions of gas, water, and electrical networks, risks caused by the negligence of the worker.
3. The ineffectiveness of management fully contributes to the existence of crisis situations at enterprises. Project planning, organization, calculation of financial and economic efficiency of the project, control of production processes, performance of the functions of proper organization and stimulation of the personnel management system.
4. Conflict situations between staff and management are a characteristic phenomenon for the state of the market economy. In world practice, there have been cases of riots, boycotts, mass layoffs, and complete cessation of production due to employee dissatisfaction.
5. Change of management. The positive image of the manager among consumers is formed over a long period of time, and in the event of a change in management, consumer loyalty and the level of demand may change.
6. Even if the probability of natural disasters is very small, it leads to the stoppage of the production process, closing of plants, factories.
7. Merger of enterprises. During the merger of a large enterprise with another, the process of "absorption" takes place, the consequence of which is the restructuring of personnel at a small enterprise, dismissal, and the departure of management.

Different explanations of the causes of the global financial crisis offered by researchers and their different interpretations indicate the need to group them according to the appropriate characteristics for the purpose of scientific systematization (Table 1).

So, from the above-mentioned table 1, it can be concluded that there are various methods of analyzing the effectiveness of management decision-making at the enterprise, which provide a complete description of the existing risks and the probability of the appearance of new ones.

The authors summarize the main macroeconomic indicators that signal the onset of both a general and an

Table 1 – Classification features of world financial crises

Classification sign	Type of financial crisis
The level of international economic relations	International
	Supranational
Disturbing factors	Monetary and financial
	Political
	Economical
	Technological
	Globalization
Coverage of the monetary and financial system	General
	Banking system
	Credit
	Budgetary
	Credit and money circulation
	Debt
	Currency

Source: [4]

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individual financial crisis, and show that the main ones are the state of the balance of payments, the ratio of external debt to GDP, rates of exchange rate changes and the ratio between the growth of international reserves and imports (Fig. 2).

An important role is played by the formation of the concept of anti-crisis management during the wartime period, which includes the main tasks to be solved by the actions of anti-crisis management: [5]

1. preventive orientation of the detection of crisis phenomena (a focus on prevention, timely detection of crisis phenomena; availability of tools that allow comprehensive diagnostics of the activity of the business entity);
2. restorative actions to ensure the viability of the enterprise (restoration of solvency, ensuring viability, further development of the enterprise by ensuring the company's liquidity and preserving its ability to repay existing debts);
3. a stabilization strategy for compliance with the requirements of financial stability, which allows for a certain time to save the company from a possible loss of solvency, however, excessive enforcement of this rule may indicate an inefficient use of the company's resources, a loss of possible profit; establishment of stable conditions for the operation of the subject of economic activity for the long term.

Note that PESTLE analysis helps to investigate external factors that can influence the development and implementation of innovative marketing strategies [6, p. 220]. It consists of the following elements, such as: political, economic, social, technological, legal aspects and environmental factors.

Since the financial crisis at the enterprise is of great significance, we evaluated the marketing activity of the enterprise "Yagotynsky Butter Plant" LLC using PESTLE analysis (Table 2).

After the development and analysis of the effectiveness of marketing activities at the "Yagotynsky Butter Plant" LLC, a perception map was created and analyzed. So, let's consider the essence of the concept of "perception map".

A perceptual map is a product positioning tool designed for a visual representation of proximity between products or segments, measured in terms of psychological factors,

Fig. 2 – Macroeconomic indicators of economic and financial crises

Source: [4]

Table 2 – PESTLE – analysis of "Yagotynsky Butter Plant" LLC as of 2024

Factors	**Description of the situation**	**Positive influence**	**Negative influence**
P – political	How have changes in the political environment affected our company?		+
	What is the level of long-term and short-term reproduction?	+	
	What is the nature of political threats to the enterprise?		+
E – economics	What is the state of the economy now?		+
	How does it affect the enterprise?		+
	What is the level of harmful aspects of the local economy for our company?	+	
S – sociological	What is the level of change in numbers or demographics in the market?		+
	How does the strengthening of social factors affect our organization?		+
	What is the level of impact of changes in consumer emotions, behavior or opinion on the enterprise?	+	
T – technological	What is the level of availability of creation and acquisition of a technological base at the enterprise?	+	
	What is the level of use of available innovations by the enterprise?	+	
	What is the level of influence of new technologies on the enterprise?	+	
E – ecological	How do climate changes in the world affect the company's activities?		+
	How does water pollution affect production?		+
	How does water pollution affect production?		+
L – legal	What changes in international, national and local legislation affect the organization?	+	
	How will these legal changes affect the organization?		+
	What level of potential legal pressure could arise?		+

Source: [6, c. 220; 11]

which are evaluated using the method of multidimensional scaling of consumer preferences and perceptions [7]. Perception maps involve the construction of a graph of the attitude to the product. When using this method, consumers answer questions about the product based on their own experience of using it and their opinion about how it should be. The answers are plotted on a graph, and the results are used to improve and develop products.

Therefore, in order to consider the market potential of "Yagotynske" products among other products of competing companies Danon and Activia, a brand/brand perception map was developed according to the "quality-price" criteria for such brands as: Danon, Svoya Liniya, Activia, Halychyna, Dolce, Molokiya Zlagoda and Old Porytsk (fig. 3). According to the results, it was found that the brand "Yagotynske" occupies an intermediate place due to the high price policy, but at the same time, the goods are of high quality, which is why they are in demand on the market. That is, it can be said that the Yagotynske brand is competitive, comparing it with other brands.

The following tasks of the anti-crisis financial management system of the enterprise were proposed by I. O. Blank (Fig. 4) (Blank, 2008, p. 594).

By forming the concept of anti-crisis management, it is possible to determine its main tasks:

1) timely identification of signs of crisis phenomena through the use of diagnostics;

2) application of preventive, neutralization and stabilization measures aimed at prevention and liquidation of crises in the activity of the enterprise in order to ensure the stabilization of the parameters of its functioning;

3) maintaining viability and creating conditions for sustainable development. Therefore, the crisis should not be considered exclusively as a negative concept, because the very occurrence of problems creates prerequisites for the further development of the subject of economic activity.

So, having considered the main tasks of the concept of anti-crisis management of the economic entity, it would be appropriate to consider the following methods in the context of digitalization processes at the "Yagotynsky Butter Plant" LLC: blockchain technology, digital doubles, microservices and the creation of bio-flash drive technology based on machine learning. All the proposed technologies will help the company in question to get out of the financial crisis, improving its production and marketing sphere, increasing its profitability in the future, thus covering the costs of manufacturing dairy products.

From the conducted research it can be concluded that at the moment consideration of the features of the financial crisis process is gaining relevance, in particular: stages of the course of the crisis. Characteristics of the essence and main elements of anti-crisis management. Determination of the most common causes of crisis at the enterprise. Analysis of the main signs of financial crises and macroeconomic indicators of economic and financial crises. Studies of the main tasks of anti-crisis management more widely reveal the importance of timely monitoring of the course of the financial crisis process at the enterprise. The proposed measures to improve the operation of the technological equipment of the "Yagotynsky Butter Plant" LLC will help to prevent and avoid possible bankruptcy in the future.

Conclusion

In general, we note that the analysis of the features and main tasks of anti-crisis management at the enterprise in the conditions of a financial crisis will help the management to avoid and prevent the occurrence of bankruptcy of the business entity and will contribute to the further innovative development of the enterprise in the future. The financial crisis has several stages that have certain characteristics that affect the final formation of effective management at the enterprise. In addition, there are classification signs of global financial crises, through which it is possible to analyze the causes of the crisis at the enterprise. We should also note that there are groups of economic and financial crisis indicators that reveal in detail the main trends in the development of a financial crisis at an enterprise in wartime conditions.

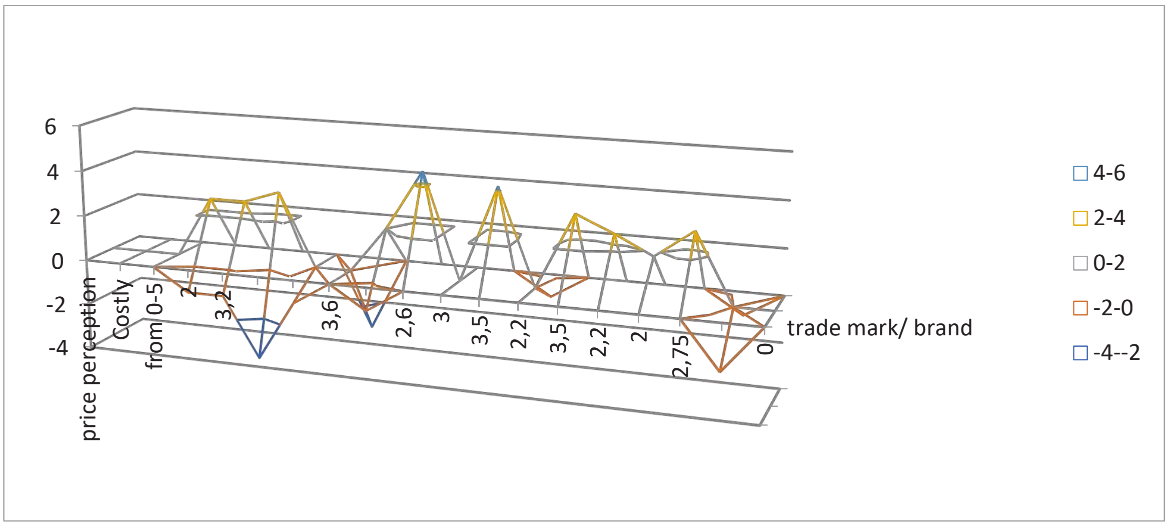

Fig. 3 – Map of the perception of brands/brands according to the «quality – price» criteria for 2024
Source: [8; 9; 10]

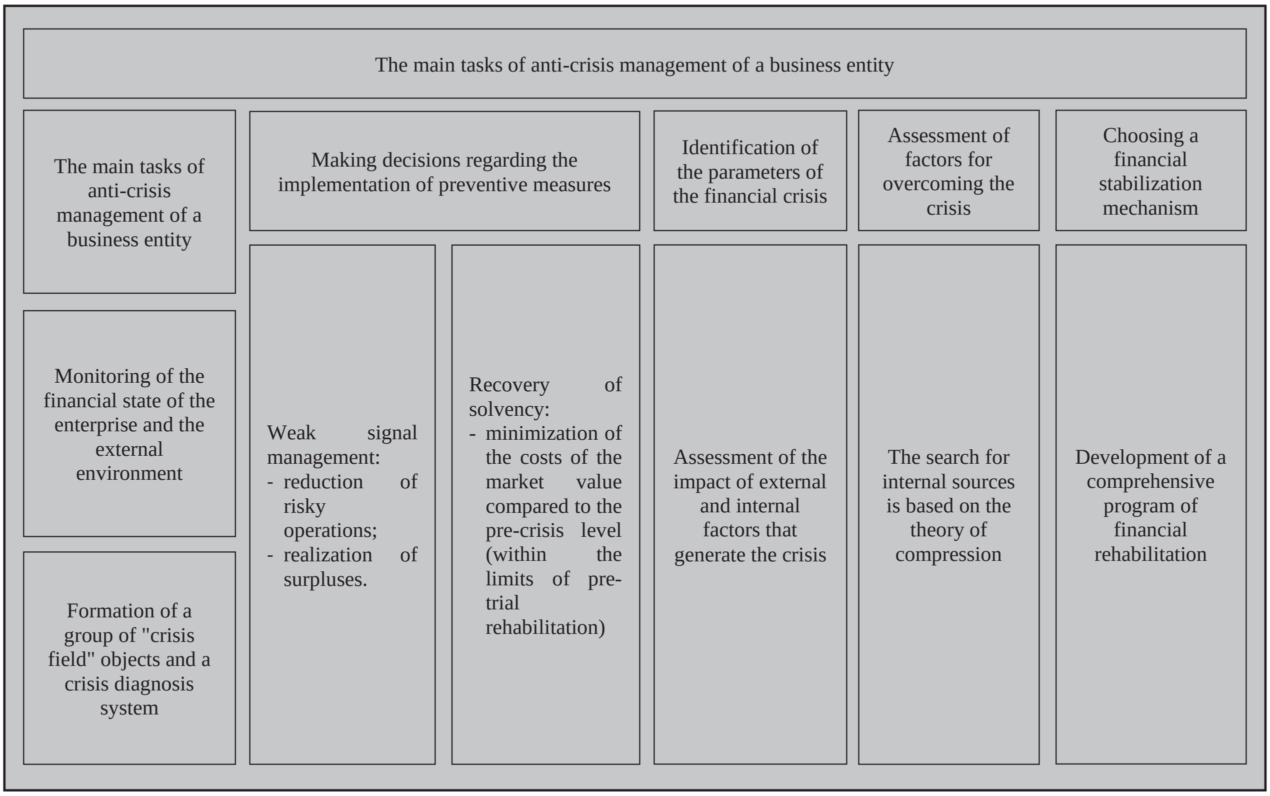

Fig. 4 – The main tasks of the concept of anti-crisis management of a business entity

Source: [5]

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