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ADJUSTMENT OF CORPORATE CULTURE AT MACHINE BUILDING ENTERPRISES IN THE STRATEGY IMPLEMENTATION PROCESS

Androsova O.F.
Zaporizhia National University
Ukraine, 69000, Zaporozhzhia, Zhukovsky str., 64
AndrosovaEF@gmail.com
ORCID: 0000-0002-2727-2474

Key words:
strategy, corporate culture, adjustments, events, activities, formal and informal channels

The article considers the management decision of the management of machine-building enterprises to strengthen corporate culture. It is proved that the main efforts to adjust the corporate culture of the enterprise should be carried out from top to bottom and based on vision. It was found that the manager in the process of implementing the strategy solves five management tasks. It was found that to properly understand the situation, it is necessary to identify problems in a timely manner, identify obstacles to the implementation of the strategy and to exercise effective control over the course of events. A network of formal and informal channels, sources of information for effective control of events has been identified. It is proved that in order to properly respond to the situation, it is necessary to identify problems and obstacles that arise in the process of implementing the strategy. Such actions will allow to take timely corrective actions of the responsible manager for the implementation of the strategy and will ensure the accuracy of information on the state of corporate culture. It was found that in order to exercise effective control over the course of events at machine-building enterprises, it is necessary to conduct regular site visits and interviews with workers at various levels. It has been established that informal management methods are very effective and help the management of machine-building enterprises to receive valuable information in the forefront about the progress in the implementation of the strategy and the state of corporate culture. Corrective action is needed to improve the corporate culture of machine-building enterprises.

КОРИГУВАННЯ КОРПОРАТИВНОЇ КУЛЬТУРИ НА ПІДПРИЄМСТВАХ МАШИНОБУДУВАННЯ В ПРОЦЕСІ РЕАЛІЗАЦІЇ СТРАТЕГІЇ

Андросова О.Ф.
Запорізький національний університет
Україна, 69000, м. Запоріжжя, вул. Жуковського, 64

Ключові слова:
стратегія, корпоративна культура, коригування, події, заходи, формальні та неформальні канали

В статті розглянуто управлінське рішення менеджменту машинобудівних підприємств по зміцненню корпоративної культури. Доведено, що основні зусилля по коригуванню корпоративної культури підприємства повинні проводитися зверху в низ і будуватися на баченні. Виявлено, що менеджер в процесі реалізації стратегії вирішує п'ять управлінських завдань. З'ясовано, що правильно розуміти ситуацію, необхідно вчасно виявляти проблеми, розпізнавати перешкоди на шляху реалізації стратегії та здійснювати ефективний контроль за ходом подій. Виявлено мережу формальних та неформальних каналів, джерел інформації для ефективного контролю ходу подій. Доведено, щоб правильно реагувати на ситуацію, необхідно вчасно виявляти проблеми, перешкоди, що виникають в процесі реалізації стратегії. Такі дії дозволять вчасно приймати коригувальні заходи відповідального менеджера за реалізацію стратегії та буде гарантувати точність інформації щодо стану корпоративної культури. З'ясовано, щоб здійснювати ефективний контроль на підприємствах машинобудування за ходом подій, необхідно проводити постійно відвідини об'єктів та бесіди з робітниками різних рівнів.

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Установлено, що неформальні методи менеджменту є дуже ефективними й сприяють керівництву підприємств машинобудування отримувати цінну інформацію в перших рядах про прогрес в реалізації стратегії та стан корпоративної культури. Щоб поліпшити корпоративну культуру на машинобудівних підприємствах, необхідно виконати коригувальні заходи.

Formulation of the problem

Adjusting the corporate culture is an integral part of the company's strategy. It shows how correctly and successfully the strategy of the machine-building enterprise was chosen. Adjusting corporate culture is closely linked to control, helping to strengthen corporate culture and corporate spirit, and initiating corrective action to improve the strategy and efficiency of engineering companies.

Analysis of recent research and publications

Recent research and publications differ in the variety of new and innovative approaches to this issue. This question has been studied by the following foreign and domestic scientists: Multfeit J., Kosty M. [5], Thompson Jr., Arthur D., Strickland III, L.,J. [1], Beloshapka V.A., Zagory G.V., Kulik Yu. [6; 7], Vinnichuk R.O. [10], Dikan V.L., Zubenko V.O., Makovoz O.V. [11], Zakharchin G.M., Lyubomudrova N.P., Vynnychuk R.O., Smolinskaya N.V. [12], Ignatieva I.A., Garafonova O.I. [2]. Due to the changing changes in the world, the military situation in Ukraine, the world is very vulnerable and is rapidly changing its priorities, economy, infrastructure. Therefore, this issue will be relevant in such conditions for a long time and will require careful study in new transient processes.

Formation of the objectives of the article

Investigate the network of formal and informal sources of information that affect the adjustment of corporate culture in machine-building enterprises and the effectiveness of control over the course of events. Justify measures of effective leadership in changing corporate culture.

Presentation of the main material of the research

In order to strengthen the corporate culture at machine-building enterprises, it is necessary to create a strategic plan, implement it into concrete measures, implement it, and adjust it if necessary. But this is not easy to do. Responsible leadership, initiative, training of subordinates, the ability to capture, including personal example – is not an easy task. The lead manager responsible for the implementation of the strategy is obliged to solve the following management tasks: forecast, make suggestions, participate in strategy development, be creative, be responsible for strategy implementation, create culture, allocate resources, create opportunities, combine processes, to be a mentor, to solve the problems of subordinates, to speak in front of an audience, to negotiate, to stimulate, to act as an arbiter, to reach consensus, to pursue a policy of leadership, to educate and capture. In different situations, you need to be able to show toughness or seek compromise, teamwork skills or decision-making alone, punish and educate. You need to be able to step into the background and be the center of attention.

The main efforts to adjust the culture of the enterprise should be carried out from top to bottom and based on vision. You should first study the situation thoroughly, and then decide how best to do it. The manager in the process of implementing the strategy solves five management tasks:

– monitors the progress of events, closely monitors them, anticipates possible problems, analyzes obstacles to successful implementation;

– helps to strengthen the culture and corporate spirit, mobilizing members of the company to effectively implement the strategy and achieve high performance;

– actively supports the adaptive abilities of the enterprise, constantly looking for new opportunities, generates ideas, ahead of rivals in the development of competitively valuable opportunities and competencies;

– is at the forefront of the implementation of high ethical standards and insists that the company operate as an «exemplary citizen»;

– initiates corrective measures inside to improve the implementation of the strategy and increase the overall efficiency of the enterprise [5].

The manager needs a wide network of formal and informal channels, sources of information to effectively monitor the course of events. The usual channels consist of conversations with responsible subordinates, participation in presentations and meetings, studying the results of work, conversations with clients, tracking the actions of competing companies, exchanging information by e-mail and telephone with employees in other regions, collecting first-hand information when visiting facilities and listening to the opinions of ordinary workers. Since the reliability of information can be assessed objectively, the opinions and assessments of people usually differ significantly. At the same time, reports and meetings reflect the situation, but not completely. Even bad news or problems are mentioned in passing or not at all if subordinates expect to gain time and rectify the situation. In order to properly understand the situation, identify problems in a timely manner, identify obstacles to the implementation of the strategy, take timely corrective action, the person responsible for the implementation of the strategy must guarantee the accuracy of information.

In order to exercise effective control over the course of events, it is necessary to perform regular site visits and interviews with employees at various levels. Informal management methods are widely used and in various forms (managers spend two or three days a week visiting and talking to managers and employees of their company, monthly visit the sales of their products and talk to key customers; communicate with managers from different countries world come to refresher courses, hold weekly meetings of departments to which managers are invited, workers, managers of some machine-building enterprises, walk around the shop and talk to employees, meet regularly with union representatives).

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Such informal management methods are very effective because they allow management to receive first-hand information on progress in implementing the strategy.

A large number of managers justifiably attach importance to meetings with employees in the field, as it allows you to get first-hand information and learn about how successful the process of implementing the strategy. Effective contacts allow managers to learn about emerging issues, the need for additional resources, or the need to review approaches. Constant visiting of objects allows to communicate with different employees at different levels of the enterprise, to encourage them, to switch their attention to new priorities, to create positive emotions, to cause an influx of enthusiasm.

At the machine-building enterprise, the managers responsible for the development and implementation of the strategy must lead the work on creating a culture appropriate to the strategy. When implementing the most important strategic changes, the manager is obliged to devote as much time as possible to the management of changes, especially if you need to adjust the corporate culture. The big mistake of some managers that over time the culture of the company will change «by itself» is rarely justified; therefore precious time is lost. Vigorous efforts are needed for a radical and rapid adjustment of the culture. At enterprises, positive changes are minimized due to conflict with the established interests of departments and employees. Success is possible with confident, energetic leadership and concerted action in many areas, which leads to a positive solution to such a large-scale and complex task as a radical change in corporate culture.

For a successful change of culture, the adjustment process must take place under the guidance of top management; the solution of this problem cannot be transferred to the grassroots level [13].

To solve this problem, the only and most noticeable – the difference between successful measures to change the culture – competent leadership from top management.

In this case, effective leadership in changing culture involves the following actions. Implement the «owners decide everything» principle, which combines a change of culture with the long-term interests of stakeholders.

Regular review of the basics of the enterprise. To do this, managers must constantly ask themselves the following questions: do we provide those products to customers? Opportunity to take away market share from competitors. Comparison of competitors' costs with their own. How to reduce costs in our company and increase their competitiveness in price. Is it possible to halve the period of introduction of a new product – from development to launch? How to accelerate the introduction of electronic and Internet technologies? How to increase the company's income? What can be done to speed up decision-making and reduce response time? [14].

Constantly organize events where each manager directly listens to the complaints of dissatisfied customers and strategic allies, laid off employees, as well as frustrated shareholders; At the same time, managers not only get first-hand information, but also better understand which features of corporate culture support the strategy, and which – no [15].

It is necessary to clearly justify the change of strategic course and changes in corporate culture, to convince employees that the changes are in the interests of the company and require individuals and teams to work hard to implement them. Arguments about the need to change the strategy and culture should be communicated to each employee so that it is fixed in the public consciousness.

This requires the decisive elimination of undesirable elements of corporate culture, the introduction of new models of behavior and principles.

Recognize and encourage employees who have mastered the new cultural norms, take an active part in the changes made by management and are an example for their colleagues [16].

To change the culture and overcome resistance to this process requires significant power, concentrated in the hands of senior management. In machine-building enterprises, top managers must not only use the power and influence appropriate to their level, but also set a personal example. The introduction of a new culture and its effectiveness is enhanced through oral tradition, corporate «folklore», the creation of «role models» and the belief in the need to change each member of the company personally [17].

In this situation, only top managers have the power and influence to achieve radical changes in the culture of the enterprise.

Based on this, «corporate citizenship» and social responsibility: another facet of ethical behavior.

Therefore, the struggle for the implementation of the corporate code of ethics is not enough for the company to become a reliable corporate «citizen». Business leaders who want their businesses to become trustworthy corporate «citizens» must not only take care of the ethics of their businesses, but also take social responsibility in making decisions that affect all stakeholders, especially employees, local communities and the general public. .

Corporate reliability and social responsibility are manifested differently: when creating working conditions that take into account the interests of employees' families; ensuring occupational safety; special measures to protect the environment beyond those provided by law; active participation in the life of the local community; interact with local authorities to minimize the impact of staff reductions or the recruitment of significant numbers of new staff (which may put additional strain on local schools and utilities); charitable activities [18].

Enterprises that honestly fulfill their obligations to society differ from enterprises that do only things that do not contradict the law, in their structures of leaders who consider civic position an integral part of corporate culture and modern business in general.

To improve the corporate culture in machine-building enterprises, it is necessary to take corrective action [12].

When adjusting the corporate culture, it is necessary to decide in which direction the culture of the enterprise should change, and then choose the time for appropriate measures. Such responsible decisions are made by managers who implement the strategy, as no strategic plan is able to anticipate all possible events and problems. In the

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activity of each enterprise there comes a moment when it is necessary to change the direction of activity, to reconsider the set purposes, to reconsider strategy or to adjust methods of its realization.

At modern machine-building enterprises, adjusting the methods of strategy implementation is a normal phenomenon; such adjustments must be made constantly.

The selection of corrective measures is different, and their choice depends on the situation. Usually in a crisis, management obliges subordinates to gather information, seek and evaluate options, make a list of recommended actions. As a result, the strategy manager meets with key employees, discusses proposed measures, and sues top managers. If top managers can not agree on ways out of the crisis, and time is running out, the person responsible for the strategy must choose the necessary measures and ensure their support. For the successful implementation of the strategy of mechanical engineering enterprises and change of corporate culture, a model of corrective measures is proposed in Fig.1.

The strategy manager chooses the path of gradual reform and adaptation of corporate culture, if the situation allows to act slowly. This process of corrective action is similar to an active and adaptive strategy that allows managers to study needs, gather information, delve into the situation, develop options, make proposals for action, make intermediate decisions, seek consensus among top managers, gradually achieve formal acceptance, measures taken.

The final decision on the need for corrective changes, taking into account the vision, goals, strategy, capabilities and methods of implementation takes from several hours to weeks and even months, if the situation is particularly difficult. Success depends on the depth of analysis of the situation and the quality of the selected solutions.

Conclusions

The accuracy of information guarantees the implementation of the strategy of machine-building enterprises, the correct understanding of the situation at the enterprise, the timely detection of the problem. To successfully change the corporate culture, the adjustment process must be carried out by top management. Successful measures to change the culture must be entrusted to the competent leadership of top management. Informal management methods are more effective in implementing the company's strategy. When adjusting corporate culture, it is necessary to identify the direction in which corporate culture should change, as well as choose the time for such a change.

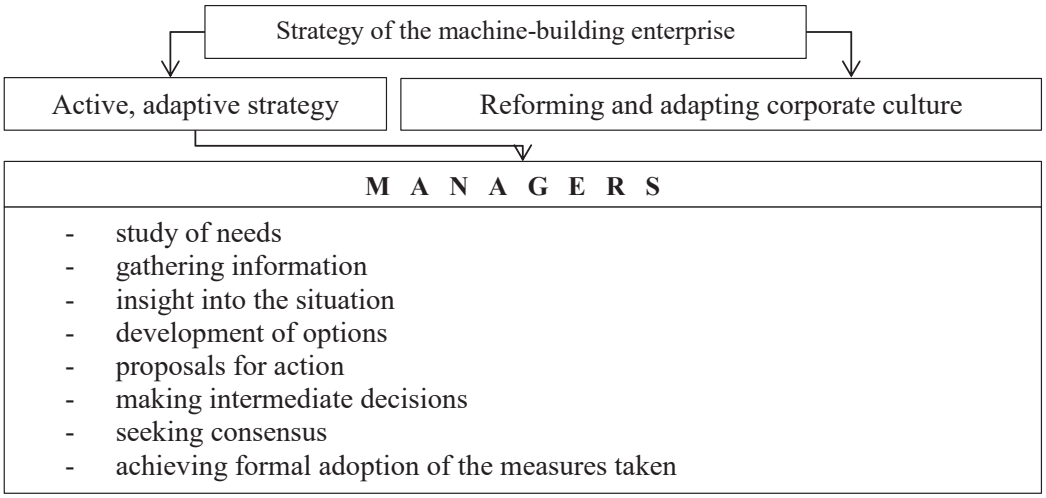

Fig. 1 – Model of corrective measures to implement the strategy of the machine-building enterprise and change the corporate culture

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INNOVATIONS AS A COMPONENT OF ENTERPRISE ECONOMIC PROTECTION MANAGEMENT

Bugay V.Z., Gorbunova A.V., Kysilova I.Yu.
Zaporizhzhia National University
Ukraine, 69600, Zaporizhzhia, st. Zhukovsky, 66
bugai_v_@ukr.net

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enterprise, innovation, innovative development, economic security, management, competitiveness

The market transformation of the economy of Ukraine has set up enterprises as sovereign subjects of the principles of new mind functioning in a competitive market environment, such as dynamism, slowness, and risk. It depends on the nature and mechanisms of business management from the point of view of their adaptability, ability to actively respond to changes in the external and internal environment with the method of ensuring competitiveness and steady dynamic development. To ensure this, we can help to ensure the economic protection of enterprises, the current reaction to the demands of the outer and inner environment, which is implemented on an innovative basis. It has been proved that the implementation of innovative activities requires the formation of a specific socio-economic environment, which characteristics are: the orientation of all factors of the reproduction process to ensure the use of advanced technologies and results of new research; creation of a modern innovation infrastructure aimed at supporting innovation activities; formation of innovative culture of society. It is substantiated that the innovative development of enterprises is the basis for increasing the efficiency of management and the level of protection against environmental threats. Innovative activity of domestic enterprises tends to decrease, which negatively affects the competitiveness of their products, impairs their investment attractiveness and level of economic protection. It was proved that an important element of enterprises economic security is the innovation component, which contributes to the formation of the synergy effect and increase the management efficiency. It has been established that the innovation policy of enterprises is the basis of economic security as vital for effective prevention and counteraction to internal, external, potential and real threats and dangers of financial and economic and socio-economic activities of the enterprise.

ІННОВАЦІЇ ЯК СКЛАДОВА УПРАВЛІННЯ ЕКОНОМІЧНОЮ ЗАХИЩЕНІСТЮ ПІДПРИЄМСТВА

Бугай В.З., Горбунова А.В., Кисільова І.Ю.
Запорізький національний університет
Україна, 69600, м. Запоріжжя, вул. Жуковського, 66

Ключові слова:
підприємство, інновація, інноваційний розвиток, економічна захищеність, управління, конкурентоздатність

Ринкова трансформація економіки України поставила підприємства як господарюючі суб'єкти у принципові нові умови функціонування в конкурентному ринковому середовищі, яким притаманна динамічність, мінливість, ризик. Це висуває нові вимоги до характеру і механізмів управління підприємством з точки зору їх адаптивності, спроможності активно реагувати на зміни зовнішнього і внутрішнього середовища з метою забезпечення конкурентоспроможності і стійкого динамічного розвитку. Забезпечити такі вимоги спроможна належна економічна захищеність підприємств, сутністю якої є реакція на виклики зовнішнього і внутрішнього середовища, що реалізується на інноваційній основі. Встановлено, що здійснення інноваційної діяльності потребує формування специфічного соціально-економічного середовища, характеристиками якого є: орієнтація всіх чинників відтворювального процесу на забезпечення застосування прогресивних технологій та результатів нових наукових досліджень; створення сучасної інноваційної інфраструктури, спрямованої на підтримку інноваційної діяльності; формування інноваційної культури суспільства. Обґрунтовано, що інноваційний розвиток підприємств є підґрунтям зростання

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ефективності господарювання і рівня захищеності від загроз зовнішнього середовища. Інноваційна активність вітчизняних підприємств має тенденцію до зниження, що негативно впливає на конкурентоспроможність їх продукції, погіршує їх інвестиційну привабливість і рівень економічної захищеності. Доведено, що важливим елементом економічної захищеності підприємств є інноваційна складова, яка сприяє формуванню ефекту синергізму й підвищення ефективності господарювання. Встановлено, що інноваційна політика підприємств є підґрунтям економічної захищеності, як життєво необхідної для ефективного упередження і протидії внутрішнім, зовнішнім, потенційним та реальним загрозам і небезпекам впровадження фінансово-господарської та соціально-економічної діяльності підприємства.

Problem statement

In today's rapidly evolving information technology, scientific and technological progress and global evolutionary processes in production and financial and economic activities, innovative development of the enterprise is one of the main factors ensuring its economic security as the ability of the business entity to effectively and successfully future functioning.

On the one hand, the dependence of the economic protection level on the innovative potential of the enterprise and, on the other hand, the need to implement basic innovation processes in accordance with existing enterprise competitiveness and survival requirements, are closely related to economic protection and innovative development of the enterprise.

Practice shows that enterprises have a leading role in the technological renewal implementation program of the country's economy. Nowadays, the management of enterprise innovative development is a purposeful is a system of activities to generate and develop ideas as well as to implement innovations in production.

In market conditions, the company, as an open system, operates in a complex, unstable and dynamic environment, and that's why move to quality transformations of production potential by means of intensifying innovative development as the basis of economic security is natural. Thus the problem of forming the state of enterprise economic security is being examined from the point of view of scientific research of modern problems of intensification of innovative development and is under review by domestic and foreign scientists.

Analysis of recent researches and publications

Scientists such as P. Drucker [1], I.L. Petrova, T.I. Shpilova, N.P. Sysolina [2], O.B. Salikhova, O.V. Sheludko [3], S.M. Shkarlet [4] and others performed in-depth study of the problem of enterprises innovative development.

Scientists note that the introduction of innovations is the basis of economic enterprise security in an unstable environment, which contributes to creating conditions for its effective functioning and development. In their research, they focus on the constituent elements of innovation, on the factors that influence the formation of economic security of the production system. Most scientists consider that in modern business conditions the active introduction of innovations has no alternative.

To that end, the company management must develop and implement an effective innovation policy, which is the basis for the formation of their competitiveness and economic security.

Formulating of objectives

The aim of the article is to study approaches to the interpretation of the innovation and innovation development essence, as well as to characterize the principles of innovation development, and to study the impact of innovation management on the enterprises economic security formation.

Presentation of the main research material

The scientific works show that the concept of «innovation» has always been under review by the famous economists. In particular, the founder of the theory of innovation P. Drucker considers innovation as a means of studying market changes, while the possibility of gaining competitive advantage through innovation policy is practically not considered [1].

The implementation of innovative activities requires the formation of a specific socio-economic environment, which main features include:

1) the orientation of the reproduction process factors to ensure high efficiency and quality of production through the use of advanced technologies and the results of new research;

2) creation of a modern innovation infrastructure aimed at supporting innovation activities. It includes all organizations that promote innovation (technology incubators, technology parks, innovation and technology centers, etc.);

3) the formation of innovative culture of society, which is manifested in its openness to creativity, innovation, readiness for constructive changes [6].

From the point of view of particular enterprise, innovation should be considered as one of the main means of adaptation to environment constant changes in order to ensure the security of business and improve the well-being of capital owners.

Innovative development is associated with the need for significant investments, which are quite risky, but highly profitable. Therefore, it can be safely said that this process helps to increase the competitiveness of innovative enterprises, and ultimately increase the efficiency of management and the level of protection from external threats.

the range of world-famous companies (as Google, LG, Apple, 3M and many others) is constantly expanding, penetrating new and traditional economic activities. On the other hand, domestic business is generally characterized

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by low innovation activity. Moreover, the analysis of the state and dynamics of Ukraine's innovative development shows that a recent years negative sign was the slowdown in innovation. More than 80% of domestic industrial enterprises are not engaged in innovation at all.

The decline in key indicators of innovation activity of domestic enterprises indicates that their products are mostly non-innovative and, thereby, uncompetitive. According to statistics, in the total volume of sold industrial products only 2.5% have signs of innovation, while in the European Union this indicator exceeds 75% [7].

In contrast to countries that are constantly increasing their scientific and innovative potential, Ukraine, on the contrary, is losing it, reducing its investment attractiveness (Tab. 1).

In the Bloomberg ranking of innovative economies in 2020, Ukraine lost 14 positions, taking 56th place, and in 2015, Ukraine ranked 33rd.

According to international estimates, one workplace in the R&D sector of the economy provides more than two jobs in other areas. In particular, according to Battelle, in 2014 the gross expenditure on research and development of 465 billion dollars provided 2.7 million jobs in the US in the R&D sector of the economy and further support the operation of more than six million jobs in other sectors [8].

That is why it is very important to ensure the intensification of innovation processes, which will contribute to the formation of competitive advantages as a basis for enterprise economic security.

Ukraine's lag in the number of innovations poses a serious threat to economic independence and, consequently, to the country's security. However, this is not the only risk factor. Another is the low quality of innovation. According to experts, 75% of investments are directed to the III-rd order and only 20% and 4.5% to the IV-th and V-th technological orders, respectively. In the technological part of capital investments (technical re-equipment and modernization) also dominates III-rd technological order (83%), and only 10% is accounted for by IV-th order.

As a result, in the industrial complex of Ukraine dominates production of the third and fourth technological orders (heavy engineering, steel production and rolling, shipbuilding, nonferrous metallurgy, organic and inorganic chemistry), with total account 94%.

It should be noted that V-th (computerization, informatization, modern branches of electrical industry and instrument making, aviation, medical, chemical, pharmaceutical industry) and VI-th (microbiological industry, science-intensive and high-tech medical equipment, activities based on biotechnology, genetic engineering) technological orders accounts for 6%, in particular the VI-th order that matches post-industrial countries accounts for 1% [9].

Active innovation activity determines the formation of competitive advantages of the enterprise, which allows to operate successfully in the market. Innovation is the primary source of the innovation process. However, for the successful implementation of innovations in domestic enterprises it is necessary to create appropriate conditions. Researcher S.V. Lobunska notes that the processes of innovation in the economic activity of enterprises are directly related to additional economic risks, that cause a decrease in the economic security of the enterprise overall level.

On the other hand, the lack of innovation in the enterprise itself is a factor of considerable risk and threat to the enterprise [9].

The scientific works of S.M. Shcarlet are noteworthy in terms of enterprises economic security formation by means of intensifying their innovative development [4]. The researcher shows that it is possible to achieve the security of the enterprise only due to constant innovative changes that form the competitive advantage of the enterprise in the market.

Table 1 – Dynamics of the Global Innovation Index, Bloomberg (2017–2020)

2020 Ranking	2017 Ranking	Change 2020 / 2017	Country	Total	Research and studies	Manufacturing value added	Productivity	Concentration of high-tech companies	Enrolment in higher education	Concentration of researchers	Patent activity
1	3	+2	Germany	88,21	8	4	18	3	26	11	3
2	1	-1	South Corea	88,16	2	3	29	4	16	5	11
3	6	+3	Singapoure	87,01	12	2	4	17	1	13	5
4	4	0	Switzerland	85,67	3	6	14	10	17	3	19
5	2	-3	Sweden	85,50	4	16	19	7	13	7	18
6	10	+4	Israel	85,03	1	31	15	5	32	2	7
7	5	-2	Finland	84,0	10	15	9	14	24	9	10
8	8	0	Danmark	83,22	7	24	6	8	31	1	24
9	9	0	USA	83,17	9	27	12	1	47	29	1
10	11	+1	France	82,75	13	39	16	2	20	17	8
			…								
56	42	-14	Ukraine	48,24	57	57	57	35	48	49	36
				47,28*	47*	48*	50*	32*	21*	46*	27*

Remark:* Indices of 2017

Source: [3]

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It's should be mentioned that it is this subsystem of dynamic economic protection forms the parameters of comprehensive development of the enterprise on the basis of its innovation policy (competitive advantages, product competitiveness, new schemes of production organization, innovations in core activities, technology, marketing programs and innovations in enterprise management).

That is why the problem of intensifying the enterprises innovative activity in the general system of economic security is quite relevant today. The innovative activity of the enterprise allows to effectively use its resources and market opportunities to prevent external and internal threats, which contributes to improving the economic and social results of management based on the formation of enterprise competitive advantages.

It should be noted that along with financial, technical-technological, intellectual and personnel, political-legal, environmental components of enterprise economic security the innovative component should be considered. The main content of the innovation component is its ability to influence other components, creating a synergistic effect, and increase the level of economic security through the introduction of innovations in production and management.

In conditions of global competition, the innovation factor determines the paradigm of economic development and the essence of the economic security concept. Therefore, the enterprise economic security cannot be defined only as a «state of security» without taking into account the possibilities of long-term development on an innovative basis.

Increasing economic security on the basis of intensifying innovative development is directly dependent on the enterprise investment opportunities. The lack of free access to credit and investment resources for most domestic enterprises has significantly reduced their financial opportunities, which has made it difficult to provide even little funding for innovation processes.

The key component of the economic security of the enterprise is the innovation policy, which directly determines the effect, efficiency and reserve of competitive advantage of the enterprise. The innovation policy of the enterprise is a comprehensive system of activities for the creation, management and use of intellectual resources. And from this point of view it could be considered as the basis of economic security, as vital for effective prevention and counteraction to internal, external, potential and real threats and dangers of financial, economic and socio-economic enterprise activities.

It should be noted that innovation policy, as a basis for enterprise economic security formation serves as a tool for innovative redistribution of enterprise resources in favor of competitive economic initiatives designed for qualitative «breakthrough» in commercial, industrial, social, competitive and other environments. But it is also worth noting that unreasonable arrangements and principles of innovation policy represent potential threat to the state of economic security.

Therefore, in the system of «innovation policy – enterprise security» must be available applied mechanisms of integrated action for a continuous process of targeted innovation management and continuous improvement of production consumer parameters.

Functions of innovation development management, aimed at improving the economic security of the enterprise, are presented in Fig. 1.

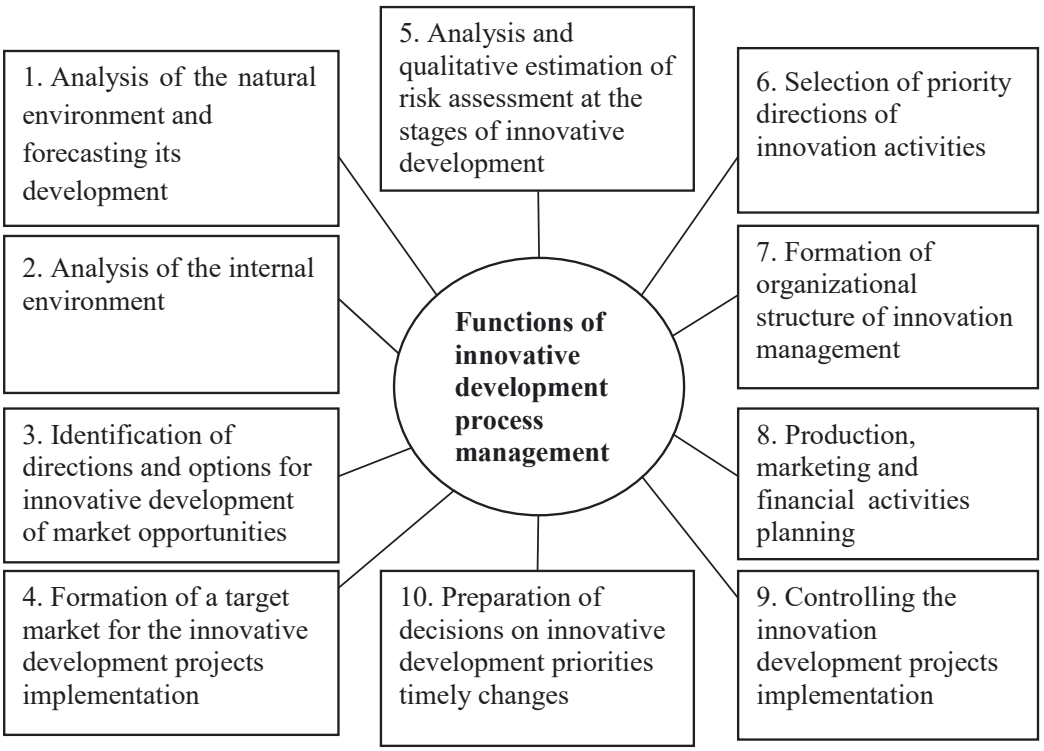

Fig. 1 – Main functions of enterprise innovation development management

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Thus, in a competitive environment it is important to find market opportunities for innovative development, because traditional products and traditional methods of production and marketing organization in a rapidly changing environment are non-perspective. There are problems of forming an enterprise adaptation mechanism to changing economic conditions of the transition economy through the rapid identification and implementation of market opportunities for innovative development in order to increase economic security.

Conclusions

Enterprises security is the most important condition for the effective development of the national economy. Thus, in the global financial and economic crisis, the importance of economic security of industrial enterprises as the main link of the domestic economy is a part of the strategic goal of increasing the national economy competitiveness.

The current state of economic development of Ukraine has led to the formation of new conditions of enterprises activity characterized by a high negative level of external factors influence on their economic security. Systemic, structural crises, which affect both individual enterprises and entire industries, force the development and application of special management approaches that ensure the security of the enterprise. One of them is the introduction of innovations. However, the level of innovation activity of domestic enterprises lags far behind highly developed countries.

The innovation policy directly determines the possibility of forming a competitive advantage of the enterprise in the market and is the key structural component of the economic security of the enterprise.

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APPLICATION OF BEHAVIORAL ECONOMICS APPROACHES IN MODERN ORGANIZATIONS

Kushchik A.P.
Zaporizhzhya National University
Ukraine, 69600, Zaporizhzhia, Zhukovsky str., 66
20favorit10@i.ua
ORCID: 0000-0003-0627-2296

Key words:
behavioral economics, behavioral finance, limited rationality, perspective theory, economic agents, framing

The article considers topical issues of implementation of behavioral economics models in modern organizations. Rapid changes in social and economic life, which create uncertainty and reduce predictability of processes, global competition and other factors that characterize the new economy, have a significant impact on the psychological characteristics of human perception and judgment, emotional and cognitive factors of behavior and economic decision-making, market participants. It is noted that behavioral economics provides important knowledge for a better understanding of financial and economic mechanisms, motivates critical perception of information and helps to make the right decisions and build their behavior more effectively. The components of behavioral economics are analyzed, namely: processes of preparation, analysis, measurement, accumulation, identification, presentation and interpretation of non-financial data, based on which the management of enterprises and ministries can make both operational and strategic decisions to influence the development of these organizations or industry in general. Various psychological effects associated with irrational attitudes of economic agents have been studied, and it has been proved that financial and economic, as well as managerial decisions are influenced by situational judgments and emotions. The key features that need to be considered in the general modeling of the behavior of economic agents are formulated. In real life, a person can not behave, adhering to the rigid limits of economic rationality. Rationality and irrationality complement each other, which allows the decision-making model to approach the real behavior of economic agents in the paradigm of the new economy, thus avoiding the erroneous dichotomy between classical and behavioral finance or neoclassical and behavioral economics in general.

ЗАСТОСУВАННЯ ПІДХОДІВ ПОВЕДІНКОВОЇ ЕКОНОМІКИ В СУЧАСНИХ ОРГАНІЗАЦІЯХ

Кущик А.П.
Запорізький національний університет
Україна, 69600, м. Запоріжжя, вул. Жуковського, 66

Ключові слова:
поведінкова економіка, поведінкові фінанси, обмежена раціональність, теорія перспектив, економічні агенти, фреймінг

У статті розглянуто актуальні питання впровадження моделей поведінкової економіки у сучасних організаціях. Встановлено, що швидкі зміни в суспільному та економічному житті, які створюють невизначеність і зменшують передбачуваність процесів, глобальна конкуренція та інші фактори, що характеризують нову економіку, мають суттєвий вплив на психологічні особливості людського сприйняття та судження, емоційні та когнітивні чинники поведінки й прийняття економічних рішень суб'єктами ринку. Зазначено, що поведінкова економіка дає важливі знання для кращого розуміння фінансово-економічних механізмів, мотивує до критичного сприйняття інформації і допомагає приймати правильні рішення та ефективніше вибудовувати свою поведінку. Проаналізовано складові частини поведінкової економіки, а саме: процеси підготовки, аналізу, вимірювання, накопичення, ідентифікації, уявлення та інтерпретації нефінансових даних, ґрунтуючись на яких керівництво підприємств та міністерства можуть приймати, як оперативні, так і стратегічні рішення, що дозволяють впливати на розвиток цих організацій чи галузі загалом. Досліджено різні психологічні ефекти, що пов'язані з нераціональними

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установками економічних агентів, і доведено, що на фінансово-економічні, а також управлінські рішення впливають ситуативні судження та емоції. Сформульовано ключові особливості, на які необхідно звертати увагу при загальному моделюванні поведінки економічних агентів. У реальному житті людина не може поводи себе, дотримуючись жорстких меж економічної раціональності. Раціональність та ірраціональність доповнюють одна одну, що дає змогу моделі прийняття рішень наблизитися до реальної поведінки економічних агентів в парадигмі нової економіки, тим самим уникнути помилкової дихотомії між класичними та поведінковими фінансами або неокласичною і поведінковою економікою в цілому.

Statement of problem

Behavioral economic theory symbolizes the changing stereotypes of classical economists, using in their analysis the results of psychological research on the processes of individual irrational financial decisions in various economic and social spheres.

Classical and neoclassical economic theories, which still remain mainstream, are based on the fact that all participants in economic relations behave rationally. In other words, all their actions and decisions are conditioned by the fact that everyone is guided by their own benefit. But in everyday life we do not develop a detailed analysis of possible income or expenses.

In the vast majority of situations, people are prone to current emotions and their own feelings at a particular time. Obviously, irrational behavior is inherent in man more than rational. Theories of behavioral economics are built on this hypothesis – a modern branch of economics, which combines the provisions of economics, psychology, sociology, neurobiology and studies socio-economic problems using non-traditional methods.

The principles of behavioral economics have long been used in EU stock and financial markets, applied in regional and local development policy in the United States. In Ukraine, the behavioral economy is currently in its infancy, so the urgent scientific task is to develop behavioral principles to ensure the competitiveness of the national market and economic system as a whole, which is consistent with the human-centered model of the new economy.

Today, even after scientists have received several Nobel Prizes in behavioral economics and finance, this theory is still very controversial. Some scholars still refuse to acknowledge its existence.

However, it is behavioral economic theory that forces us to look at the understanding of rational and irrational, productive and unproductive phenomena of market behavior in a new way.

Analysis of recent studies and publications

D. Kahneman, A. Tversky, Herbraith Simon, R. Thaler, R. Schiller are considered to be the founders of behavioral finance. J. Ackerloff, N. Barberis, W. DeBondt, R. Vishny, T. Odean, J. Ritter, M. Stetman, H. Sheffrin, A. Schleifer, and others studied the aspects of behavioral finance and their evolution.

The study is based on the theory of economic behavior, which was founded by such scientists as G. Akerlof, M. Armstrong, G. Becker, P. Blau, M. Weber, C. Hill, D. Kahneman, G. Katona, J. Coleman, T. Parsons, L. Robbins, H. Simon, R. Thaler, G. Tarde, G. Tverky, A. Tversky, E. Fama, R. Florida, A. Furnham and others.

In Ukraine, this trend is represented by the works of P. Ilyashenko, M. Kuzhelev, N. Karpyshyn, T. Kizima, M. Lipich, V. Ushkalyova, L. Shirinyan and others.

Relevance, theoretical and practical significance and insufficient development of these problems led to the choice of research topic.

Objectives of the article

The purpose of the article is to develop conceptual provisions and build behavioral models of economic agents in the new economy.

In accordance with the purpose of the work, the following tasks were set: to clarify the conceptual and terminological apparatus of the study of human economic behavior; to systematize scientific approaches to determining the features of the new economy and to outline its impact on the formation of behavioral models of market participants; identify and analyze the system of factors influencing the type of behavior of labor market participants.

The main material of the research

The classical paradigm of financial decision-making is based on the concept of «rationality» and implies that a person who makes decisions must act absolutely objectively and logically, have a clear goal, have information and perform all actions that will maximize the results of their own activities. This model encompasses a number of specific theories, the main assumptions of which are that market participants act rationally, and their main goal is to maximize profits.

Real people, in order to navigate with maximum reliability in conditions of uncertainty, have a ready-made set of rules of conduct, and not universal ones, but applicable to the most common situations in economic life.

The models used in standard finance assume that economic agents have such superpowers as unlimited cognitive skills and absolute willpower on the one hand, and on the other hand, agents are limited solely by their own personal interests. These three unlimited traits (rationality, willpower, and self-interest) form the basis of the so-called «economic man» (ironic *Econs* used), which is a model used to approximate the behavior of real people and build economic models. Instead, proponents of behavioral economics take the results of research in psychology and sociology seriously and emphasize that the behavior of real people (the term *Humans*) differs significantly from the economic human model. This difference, no matter how

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trivial it may seem, has important consequences, as real people tend to make systematic and predictable mistakes.

When making a decision with a small list of well-understood options, there is a careful study of the properties of each of them and the possibility of making concessions. With the growth of alternative choices, the decision-making process becomes much more complicated. Therefore, to facilitate the work, individuals often resort to the use of a simplifying strategy of choice, which involves the establishment of only key important parameters, with which the alternative is compared. All other unimportant choice parameters are neglected.

He tried to explain the irrationality of human actions in the early 40s of the XIX century. Charles Mackay. In «The Most Common Mistakes and Crowd Madness», he explains the phenomenon of «price speculative bubbles», which destabilize stock markets (one of the first manifestations of irrational behavior, called the «crowd effect»). Today, «behavioral economics» is a set of quite different approaches to theories, concepts, hypotheses, some of which are given in table. 1.

Most often, these theories and techniques of behavioral economics are used mainly at the macro level. However, they could also be particularly effective at the enterprise level. To do this, it is recommended to take the following steps:

– to introduce a functional approach to the use of basic techniques of influence of behavioral economics, which involves the gradual implementation of basic management functions;

Table 1 – Systematization of theories of behavioral economics

Name of the theory	Authors	The essence of the theory
The theory of mass consciousness	G. Lebon	People in the crowd start behaving the way they used to act alone, which explains the irrationality of decision-making.
The theory of expected usefulness	M. Allais	People are not rational in evaluating possible options, as lack of information and stereotypes of evaluation hinder rational choices. In his work, he denied the basic principles of the "theory of expected utility" and proved its relativity and ambiguity.
Decision analysis theory	G. Rife	When the time comes to make an important decision, we experience different feelings, from self-doubt to self-confidence, from the desire to postpone the decision for later to the desire to pass this stage sooner, from doubt to despair. This causes discomfort, which often pushes us to make hasty decisions.
The theory of limited rationality	S. Herbraith	Due to the limited cognitive abilities of man, his search and making a satisfactory decision is explained by the following stages: -all options are compared with a certain pre-established human level of needs; -in case of finding a satisfactory option, the search for a solution is stopped; -the level of needs can be periodically reviewed by the subject.
Theory of psychological economics	J. Cato	The way people interpret the real environment and how they shape their expectations for the future has a significant impact on the macroeconomic situation in the country. proposed an index of intermediate sentiments.
Choice theory in time	J. Ainslie	Irrationality of decision-making is associated with the choice of time and, as a rule, this behavior is inconsistent.
Perspective theory and cumulative perspective theory	A. Tversky and D. Kahneman	A person makes decisions based on his own perspectives, and these perspectives are always uncertain. Basic principles of the theory: the decision-maker has a certain "level of comparison"; we are more sensitive to losses than to profits of the same size; decision-makers overestimate the low probability and underestimate the high probability of an event. Excessive self-confidence, design bias, and limited attention effects have become part of this theory.
Motivation theory	R. Thaler and K. Sunstein	Most economic operators choose the "lazy" course of action, which is offered by default. Cognitive errors can be predicted, taken into account in economic analysis and try to overcome with special tools.
Adaptive market theory	Andrew Law	Individuals make decisions based on their own experience and their best assumptions about what may be optimal, and they tend to adapt to the market. The main idea of this hypothesis is to apply the principles of evolution (competition, natural selection, adaptation, reproduction, etc.) to financial markets. The key thesis is that market equilibrium is not guaranteed and cannot be achieved.
The illusion of control	E. Langer	Irrational decisions are a consequence of the illusion of control, ie individuals overestimate their ability to control real events and believe that they control the consequences of this event, and therefore may be at higher risk, although in fact they do not have such control.
Hyperbolic discounting		According to hyperbolic discounting, estimates fall relatively quickly for earlier periods of delay (eg, now up to one week), but then fall more slowly for longer periods of delay (eg, more than a few days).
Claims level concept	G. Simon	At every moment of time a person has some idea of what he can (has the right) to expect. There is a vague intuition that this option is above or below an acceptable level for decision making.
X-inefficiencies	Leibenstein	The degree of rationality (thoughtfulness) of human behavior depends on two forces. Physiological and social nature Working in the firm, he primarily strives for optimal comfort, not maximization of the nail.

Source: compiled on the basis of [2; 3; 4; 5; 6].

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– develop a system of principles on which the process of implementing the basic techniques of the impact of behavioral economics in domestic organizations will be based;

– develop measures for individual techniques of influence of behavioral economics;

– to develop a system of indicators for assessing the level of effectiveness of the implementation of behavioral economics techniques in modern organizations.

As you know, any process in the enterprise should be considered from the standpoint of a functional approach. That is, they should first be planned, organize work on their implementation, motivate employees, monitor the stages of their implementation and implementation and regulate the identified deviations. This may also apply to the process of implementing behavioral economics techniques.

Behavioral theories are based on the premise that a firm has many goals [7]. This set of goals includes:

– the interests of workers seeking high wages, good working conditions, safety, etc.;

– interests of managers striving for power, raising their social status, career, income growth;

– interests of shareholders wishing to receive high dividends;

– the interests of the top management of the company, which seeks to improve the economic performance of the company, to increase the prestige of the company.

In order for the firm to exist as a whole, to be a stable and viable organism, top management must be able to reconcile these private interests and the overall strategic interests of the firm as such. The prosperity of the company depends on the ability of the administration to extinguish differences of interests, to resolve their conflicts in the most painless way, to maintain a stable social environment in the team [8].

Support for solving this problem is provided, on the one hand, by the tools for performing management functions that form the technology for managing a production facility, and on the other hand, by taking into account the behavior of participants in the enterprise's activities when making and implementing management decisions.

According to behavioral theory, all goals must be ordered, following an implicit order of precedence among them.

In the presented model, the goals are not set to maximize the corresponding magnitude (such as profit, sales and market share), but instead the goals are trade-offs negotiated by interest groups (Figure 1).

Fig. 1 – Functional idea of how the models of the behavioral economy are promoted by the subjects of the market

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In practice, the coordination of these interest groups causes a number of so-called «effects» that underlie the irrational actions of market participants in conditions of uncertainty and risk. Depending on the goals and in different situations, we can outline the most important of them [9]:

– Recycling effect. Is the perception of the situation different by economic entities, if it is written in different formulations.

– Insulation effect. By simplifying the choice between different perspectives, economic agents ignore commonalities, focusing on differences.

– The illusion of controlling the risk of greater risk in a situation that creates a sense of opportunity to influence the outcome of the operation.

– Competence effect. Economic actors are at greater risk in areas where they are more competent, whether or not their knowledge and experience affect the likelihood of an outcome.

– Information cascade effect. The influence of economic entities affects the opinion of outsiders.

– Trap effect. Describes a situation where an entity has invested money, time, effort in any investment project and decided to continue its development for the sake of its initial investment, although the forecast has seriously deteriorated.

– The effect of conservatism. Manifested in the slow change of objects of their beliefs under the influence of new information.

– The effect of certainty. People prefer situations with lower income than situations with higher income with less chance of receiving it.

– Predisposition effect. There is a tendency for investors to keep their portfolio stocks for a long time, which are not profitable, and to sell profitable stocks too quickly.

– The effect of reflection. This is a positive prognosis, according to which people tend to avoid the risk of negativity and vice versa.

– The effect of «overreaction»: a sharp reaction to new information, regardless of whether it is bad or good.

– Illusion of importance: the subconscious desire of the entity in the financial decision-making process to identify and use for analysis information that directly or indirectly confirms his previously established opinion on any financial instrument or financial relationship of the entity.

– Incorrect perception of chances in the case of recurring events that have the same result: if the same result is repeated many times, the person may choose a second result. However, the probability of both results has not changed over time.

According to the basic theories of behavioral economics, the choice of behavior by market participants is the result of a combination of situational, cognitive, economic, educational factors characterized by heterogeneity, instability and inequality of personal preferences, information asymmetry, acceptance of irrational fact in economic behavior. cognitive bias [10].

Support for solving this problem is provided, on the one hand, by the tools for performing management functions that form the technology for managing a production facility, and on the other hand, by taking into account the behavior of participants in the enterprise's activities when making and implementing management decisions.

The coordination of interests is based on regulatory norms – social standards that reflect the recognized mandatory order, and rules – provisions that reflect the constant correlation of actions and phenomena (instructions for performing any actions). These tools are the main way to keep potential conflicts within acceptable limits, as well as a means of ensuring the processes of emergence and turnover of the rights and obligations of participants.

Conclusions

Behavioral economic theory symbolizes the changing stereotypes of economists' thinking, using in the analysis of the results of psychological research relating to the processes of individual irrational financial decisions.

The study of behavioral finance allows you to assess and predict the investment preferences of institutional investors (financial institutions – professional market participants) and direct investment sentiment of households (non-professional investors), as it determines the level of economic education, financial culture, literacy.

The constructive nature of behavioral doctrine is ensured by the use of tools that allow predicting results even in conditions of uncertainty, instability, asymmetry of information, spatio-temporal variability, as it is based on new approaches to substantiate the motivational nature of man.

According to the latest data, ideology, sociology and psychology have an impact on the economy. A wide range of approaches can promote intellectual diversity, which will eventually lead to better decisions.

It is the basic idea, which, for example, is based on the theory of impulses and is based on the research of many psychologists and economists, such as D. Kahneman, M. Ale, R. Thaler, L. Festinger, G. Simon, breaks the two main myths in classical economic theory, namely: all people make rational decisions that are right for them and all people make those decisions that provide them with maximum benefit. E. Bem-Bawerk wrote that «in important and large matters, the calculation must be very accurate, in matters of medium importance it must be moderately accurate, in the countless mass of trifles of everyday economic life, it must be very superficial».

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THEORETICAL AND METHODOLOGICAL PRINCIPLES OF RESEARCH OF FACTORS OF INFLUENCE ON THE EFFECTIVENESS OF CRISIS MANAGEMENT OF OPERATIONAL ACTIVITIES INDUSTRIAL ENTERPRISES

Ohrenych Yu.O.
Zaporizhzhia National University
Ukraine, 69600, Zaporizhzhia, st. Zhukovsky, 66
yuliashvets@ukr.net
ORCID: 0000-0002-0294-1889

Key words:
efficiency, operational activity, crisis, anticrisis management, factor determination system, market environment factors

The article states that the effectiveness of financial economic activity of enterprises is constantly influenced by factors of market environment and they can lead to lower profitability. These factors are affecting operating, financial and investment activities and may cause their negative consequences. The level of profitability of enterprises depends, first of all, on a condition of operational activity and therefore is expedient study of internal and external factors influencing this type of activity. It is determined that factors can affect not only efficiency of production or sales, but can also cause crises phenomena in operating activities. The expediency in determining and is substantiated grouping of factors that affect the effectiveness of operational activities, anti-crisis management, which will allow timely diagnosis of the crisis, create ways to protect and improve the efficiency of both short-, such in the longterm period. Theoretical and methodological principles of use of a system for determining factors influencing efficiency of anti-crisis management of operational activities of industrial enterprises, which is based on the use of system, process, functional, factor approaches and identified factors that affect efficiency operational activities, the effectiveness of crisis management, determine the emergence of crisis phenomena in operating activities are formed. It is concluded that the use of theoretical and methodological principles allowed to develop ways of neutralization of negative influence of factors on operational activity, process crisis management and determine the feasibility of using tools of crisis management in the long term perod. The main feature of the theoretical and methodological framework is that they allow, based on impact studies of factors, to determine the need for crisis management of operational activities that will ensure the effectiveness of operational activities in the long term period.

ТЕОРЕТИКО-МЕТОДИЧНІ ЗАСАДИ ДОСЛІДЖЕННЯ ФАКТОРІВ ВПЛИВУ НА РЕЗУЛЬТАТИВНІСТЬ АНТИКРИЗОВОГО УПРАВЛІННЯ ОПЕРАЦІЙНОЮ ДІЯЛЬНІСТЮ ПРОМИСЛОВИХ ПІДПРИЄМСТВ

Огренич Ю.О.
Запорізький національний університет
Україна, 69600, м. Запоріжжя, вул. Жуковського, 66

Ключові слова:
результативність, операційна діяльність, криза, антикризове управління, система визначення факторів, фактори ринкового середовища

У статті визначено, що на ефективність фінансово-господарської діяльності підприємств постійно впливають фактори ринкового середовища та вони можуть спричинити зниження рівня прибутковості. Дані фактори впливають на операційну, фінансову та інвестиційну діяльність та можуть обумовлювати їх негативні наслідки. Рівень прибутковості підприємств залежить, в першу чергу, від стану операційної діяльності і тому доцільним є дослідження внутрішніх та зовнішніх факторів впливу на даний вид діяльності. Визначено, що фактори можуть впливати не лише на ефективність виробництва, збуту продукції, але й можуть спричиняти виникнення кризових явищ в операційній діяльності. Обґрунтовано доцільність у визначенні та групуванні факторів, які впливають на результативність операційної діяльності, антикризового управління, що дозволить своєчасно діагностувати кризу, створити способи захисту та покращення ефективності діяльності як у коротко-, такі і в довгостроковому періоді. Сформовано теоретико-методичні засади використання системи визначення факторів впливу на ефективність антикризового управління операційною діяльністю промислових підприємств, в основі якої закладено

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використання системного, процесного, функціонального, факторного підходів та визначено фактори, що впливають на ефективність операційної діяльності, ефективність антикризового управління, зумовлюють виникнення кризових явищ в операційній діяльності. Робиться висновок, що використання теоретико-методичних засад дозволило розробити шляхи нейтралізації негативного впливу факторів на операційну діяльність, процес антикризового управління та визначити доцільність використання інструментів антикризового управління у довгостроковому періоді. Особливістю теоретико-методичних засад є те, що вони дозволяють, на підставі дослідження впливу факторів, визначити потребу у здійсненні антикризового управління операційною діяльністю, що забезпечить ефективність операційної діяльності у довгостроковому періоді.

Statement of the problem

The operation and development of industrial enterprises takes place by conditions of constant negative influence of internal and external factors an environment that affects performance and, above all, affects the state of operating activities. Influence of market environment factors may be of different nature and cause the emergence of crisis phenomena, financial crisis and lead to a crisis of enterprises. Also factors can have a negative impact not only on performance enterprises, but also on the state of crisis management. Therefore, there is a need for identifying, studying groups of factors that may have a negative impact on the process of managing operational activities, which will allow them in a timely manner identify, respond to them and increase productivity.

Analysis of recent studies and publications

Many scientists have studied the factors influencing efficiency of operational activity of enterprises, in particular: O.V. Stashchuk, T.P. Nazarchuk, M.O. Podvysotska [12] identified factors influencing operating income activities; G.G. Lysak, O.V. Kot [8, p. 56] identified factors that shape the operating costs of the trading company and divided them into structural and functional; in the work of M.A. Gorbatyuk [3, p. 50] suggested factors influencing the operating room activities and divided into external (economic, natural, social) and internal (organizational, personnel, technical and technological); A.M. Poddyerogin, S.V. Skochii [11, p. 307] considered the division external factors (sales volume, production costs, payments) and internal (product structure, cost) factors influencing the operating profit; author O. Kostyshina [5, p. 172–173] analyzed and identified factors influencing the size of the operating room profits of the enterprise, which are divided into external and internal; authors S.A. Kuznetsova [6] and O.O. Litovkina [9, p. 33–34] identified factors influencing the operating cycle of the enterprise, which divided into direct factors and mesoenvironmental factors; in the work of S.M. Pisariuk [10, p. 95–98] highlighted external (natural, political and legal, social, scientific, technical, economic) and internal (quality of staff, management structure, organizational, type and specialization, format and size retail trade network, marketing, quality of service) factors impact on the economic efficiency of operating activities.

Along with this, many scientists have studied the factors influencing implementation of anti-crisis management of the enterprise and it should be noted the following works: in the work of Al-Lami Khaider Mukhsin Abdulaziz [1, p. 52–55] indicates the factors influencing the crisis management on enterprise and divided according to the method of influence of factors (factors of direct, indirect impact), by environment (external factors, internal environment), the speed of the required response from the outside enterprises (factors of strategic, tactical, operational influence, urgent response); in the work of L.M. Kysh [4, p. 82] carried out distribution of factors influencing anti – crisis management on external (crisis state of the economy, changes in markets, changes in legislation, variability in tax systems) and internal (current management system, competitive advantages, attracting investors, marketing effectiveness); scientist I.O. Akhnovska [2, p. 917] factors of influence on efficiency are resulted crisis management; author M.K. Kurhanska [7, p. 467–468] identified external (quality of life, tax system, unemployment rate) and domestic (financial strategy, level of investment, price on products) factors influencing crisis management; at work M.O. Tkachenko [14, p. 155–157] among the factors highlighted quality of anti-crisis program and management, management strategy, crisis research, development and adoption of risk decisions, forecasting changes in the market environment; Yu.O. Terletska, V.V. Ivaniuk [13, p. 185–188] identified factors influencing effectiveness of crisis management of operational activities and highlighted management flexibility, decision making process, management strategy, level of professionalism of anti-crisis management, effectiveness of monitoring crisis situations.

However, the question of determining the factors influencing the efficiency of operational activities, crisis management of this type of activity at industrial enterprises remains insufficiently studied. In addition, there is no system for determining the factors of influence, their grouping and further consideration in the work of enterprises, which will increase efficiency anti-crisis operational management and avoid crisis situations.

Objectives of the article

The purpose of this work is to study the experience of scientists in determining factors influencing the state of operational activities, the anti-crisis process management; formation of theoretical and methodological principles of using the system of identification of factors influencing the effectiveness of crisis management operating activities of industrial enterprises.

The main material of the research

Factors of the market environment have a negative impact on effectiveness of financial and economic activities and

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can cause the emergence of crisis phenomena in enterprises. First of all, the market environment affects the performance of operating activities that can affect the profitability of work. Including the analysis of factors influencing the indicators of operational activity, the process of crisis management is possible to note that there is no systematic approach to their definition and consideration in the work of industrial enterprises. Systematization of internal and external fluid factors will allow them to be taken into account in the process of production, sales of products, crisis management of operational activities, to develop ways to neutralize their negative impact.

Including the lack of an approach to allocation, taking into account the effects of factors on operational activities, crisis management is appropriate to develop a system of identification of factors that will allow them to be taken into account in a timely manner in the work of industrial enterprises. Therefore, the theoretical and methodological principles are formeduse of a system for determining factors influencing efficiency anti-crisis management of operational activities of industrial enterprises, which are built on the basis of compliance with factor, process, system, functional approaches. The peculiarity of the theoretical and methodological principles is identifying three groups of factors, namely: factors influencing efficiency operational activities of industrial enterprises; factors influencing the effectiveness of crisis management of industrial operations enterprises; factors that cause the emergence of crisis phenomena in operating activities of industrial enterprises [15]. The system has also been formed within the framework of theoretical and methodological principles identification of factors, which includes methodological principles for their isolation and taking into account the impact, developing recommendations to neutralize the negative influence of factors and choice of crisis management tools operational activities (fig. 1).

It is assumed that there is a close correlation between the stages and the blocks systems for determining the factors of influence, which will determine the factors which affect the efficiency of operational activities, anti-crisis management. This system for determining the factors of influence can be used only at industrial enterprises, as their features are taken into account work, field of activity.

Development of a system for determining the factors influencing efficiency anti-crisis management of operational activities of industrial enterprises carried out by observing the system, process, functional, factor approaches. These approaches should be used in combination will highlight the subject, the object of the system and establish the relationship between purpose, tasks, stages, blocks, to achieve the goal, ieselection of a group of factors that affect the efficiency of the operating room activities, crisis management of operational activities and determine the emergence of crisis phenomena [15].

First of all, the forecasting of existing factors of influence on industrial enterprise (first stage). The purpose of this stage is implementation forecast calculations to determine the factors of influence that in will have a negative impact on operational efficiency in the future the enterprise that will allow to define in due time the reasons of such influence, suggest ways to overcome it. Within this stage is expected allocation of two blocks: block 1 – diagnostics of the crisis phenomena on industrial enterprise; block 2 – establishing the need for the allocation of factors of influence on operating activities of the enterprise.

The second stage is planning, the finding out the elements systems for determining the factors influencing the effectiveness of the crisis management of operational activities of industrial enterprises. Within this stage, two blocks were identified, namely: block 1 – definition of goals, objectives, principles, functions, subjects, object, resource provision; block 2 – study of operating activities of the enterprise and general financial position, identification of advantages, disadvantages, capabilities of the enterprise. That stage allows to find out the main elements of the system for determining the factors of influence, which will be implemented in the next stages and will be the basis for selectionfactors of influence, making quality decisions.

Let's analyze the elements of block 1, ie the formation of goals, objectives, definition of principles, functions, subjects, object, resource provision. The purpose of the system for determining the factors of influence is to identify a group of factors that affect the efficiency of operational activities, crisis management surgical activities for diagnosis, prevention, identification, prevention, overcoming of crisis phenomena, restoration of efficiency production, marketing activities of industrial enterprises. To tasks systems for determining the factors of influence we include the following: implementation forecasting, planning, organization, control, regulation of the process identification of factors of influence; identification of a group of factors influencing efficiency of operational activity of industrial enterprises, anti-crisis management of operating activities of industrial enterprises and factors that cause the emergence of crisis phenomena in the operational activities of industrial enterprises; separation of the sequence of stages, blocks of the definition system influencing factors; formation of ways to overcome the negative impact of factors or adaptation to their action in operational activities, crisis management operating activities.

The basic principles that should be followed when developing and implementation of the system for determining the factors of influence should include: dynamism and continuity; availability of direct and feedback links; flexibility; objectivity; availability of information; integrity; optimality; planning and sequence; timeliness; systematicity and complexity; purposefulness; adaptability and speed of response. The following to these principles has influence on the sequence, coherence of all stages of the system and definition most influential factors. Also the effectiveness of the determination system impact factors depend on the implementation and performance of functions such as: prognostication; planning; organization; control; regulation; coordination. Execution of these functions will allow to fulfill the task, the purpose of the system identification of influencing factors.

We assume that the owner of the enterprise and a special unit for crisis management of the operational activities are the subjects of the system of determining the factors of influence, which must investigate and identify factors separately impact on operational activities, crisis management of the operating room activities, as well as to find out what threats and crises the action can cause of the studied factors. In turn, the object

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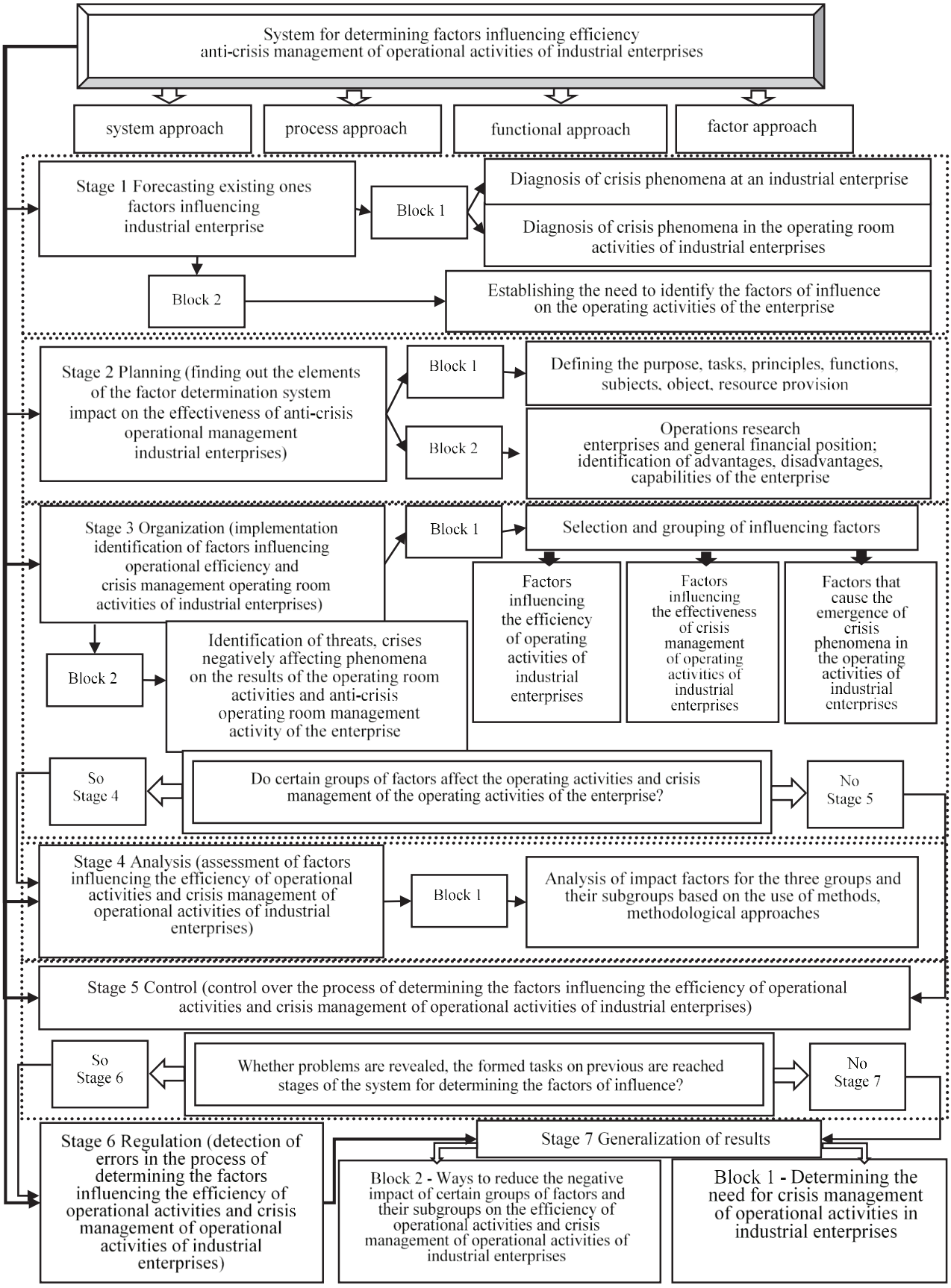

Fig. 1 – The system for determining the factors influencing the effectiveness of anti-crisis management of operational activities of industrial enterprises

Source: suggested by the author

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of the factor determination system impact is the process of determining the factors influencing the efficiency of the operating room activities of industrial enterprises; factors influencing efficiency anti-crisis management of operational activities of industrial enterprises; factors that cause the emergence of crisis phenomena in operating activities industrial enterprises. For development and further use the system of determining the factors of influence plays an important role in providing resources, that is, the adequacy of financial, human, information resources for isolation of influencing factors.

For block 2, a study of operational activities is envisaged enterprise and general financial position, ie the analysis is carried out indicators of production, sales, supply, financial stability, solvency, business activity, profitability, financial reporting for several years and grouping of the received data into the report. With taking into account the data obtained in the report, the determination is made advantages, disadvantages, capabilities of the enterprise, ie indicate problems with which the analyzed enterprise faces, its strengths and data the information is used to further determine the factors of influence. In addition, the identification of shortcomings and problems in the enterprise is evidence the need to determine their causes, ie the study of influencing factors.

At the third stage the organization, ie definition of factors is carried out impact on operational efficiency and crisis management operating activities of industrial enterprises. At this stage implementation of tasks, achievement of the purpose is carried out and it covers two blocks.

The first block 1 covers the selection and grouping of factors influencing efficiency of operational activity of industrial enterprises; factors impact on the effectiveness of crisis management of operational activities industrial enterprises; factors that cause crises phenomena in the operating activities of industrial enterprises.

Three groups of factors were identified in the study. For more detailed study of the selected groups of factors carried out their division into external and internal and each of them into separate subgroups, which allowed identify and select the factors that have the greatest impact on operational activities, crisis management of operational activities, cause the emergence of crisis phenomena. We have to note that the highlighted factors can create opportunities to improve operating efficiency activities, crisis management of operational activities and along with it threats, crises and therefore there is a need to identify, take into account and making effective decisions to ensure the coherence of sales, production activities, timely use of anti-crisis tools, adjustment of management activities.

The first group of factors, ie factors influencing efficiency operating activities of industrial enterprises, shown in fig. 2. The definition of this group of factors is due to the fact that the main purpose of any which company is making a profit that depends on efficiency production, marketing, supply of raw materials and materials incurred costs, etc. Therefore, the management of industrial enterprises must analyze given the factors they face on a daily basis that will allow in a timely manner respond to them, increase profitability, adopt effective management decision, determine the prospects.

Thus, the definition of it is important for industrial enterprises grouping of factors influencing the efficiency of operational activities industrial enterprises, the use of information data for adoption quality management decisions, which in the future will take them into account when organization of operational activities, diagnose the negative impact and use already established methods, ways to neutralize their impact or adapt to them in time.

The second group are factors influencing the effectiveness of anti-crisis management of operational activities of industrial enterprises (fig. 3). The selection of this group of factors is due to the fact that the guarantee of efficiency implementation of crisis management, detection of signs of crisis in the operating room activities, the negative impact of the market environment, crisis diagnosis phenomena is taking into account the influence of relevant factors. Therefore, the leadership enterprises in the implementation of crisis management of the operating room activities should take into account this group of factors, which will also provide effective decision making, development, implementation of the concept and crisis management tools and will affect performance management, the expected effect.

It should be generalized that the selection of factors influencing efficiency anti-crisis management of operational activities of industrial enterprises plays an important role on the basis of the already formed group of factors the management of industrial enterprises have the opportunity to take them into account, timely detect in the enterprise, which will guarantee effective use the concept of crisis management and its development.

The third group are the factors that cause the emergence of crisis phenomena operating activities of industrial enterprises. These factors are possible include the first two groups, as they may cause crisis phenomena both in operational activities and negatively affect anti-crisis management of operational activities of industrial enterprises. Therefore, when studying the factors of influence should be borne in mind that they can cause threats, risks, crises in operational activities and it is advisable to develop ways and means to overcome them. Selection of this group of factors should be explained by the fact that in addition to the negative impact they can become the cause of the crisis, provided they are not taken into account in a timely manner. Taking into account the above factors will allow timely action eliminate or reduce their negative impact, which will prevent the emergence of crisis phenomena in operating activities, will help determine the need for crisis management.

The second block identifies threats, crises, negatively affecting the results of operations and anti-crisis management of operational activities of the enterprise. According to the selected three groups of factors of influence on the analyzed enterprise are determined the possibility of crisis phenomena due to their negative impact on the operational activities, and anti-crisis management of operational activities enterprises, and also it is established what factors will lead to occurrence threats and which have a negligible impact that can be neutralized.

There is a shift to whether certain groups are affected factors on operating activities and crisis management of the operating room activity of the enterprise, ie one of two decisions is made: provided negative impact of these groups of factors – there is a transition to the stage assessment of

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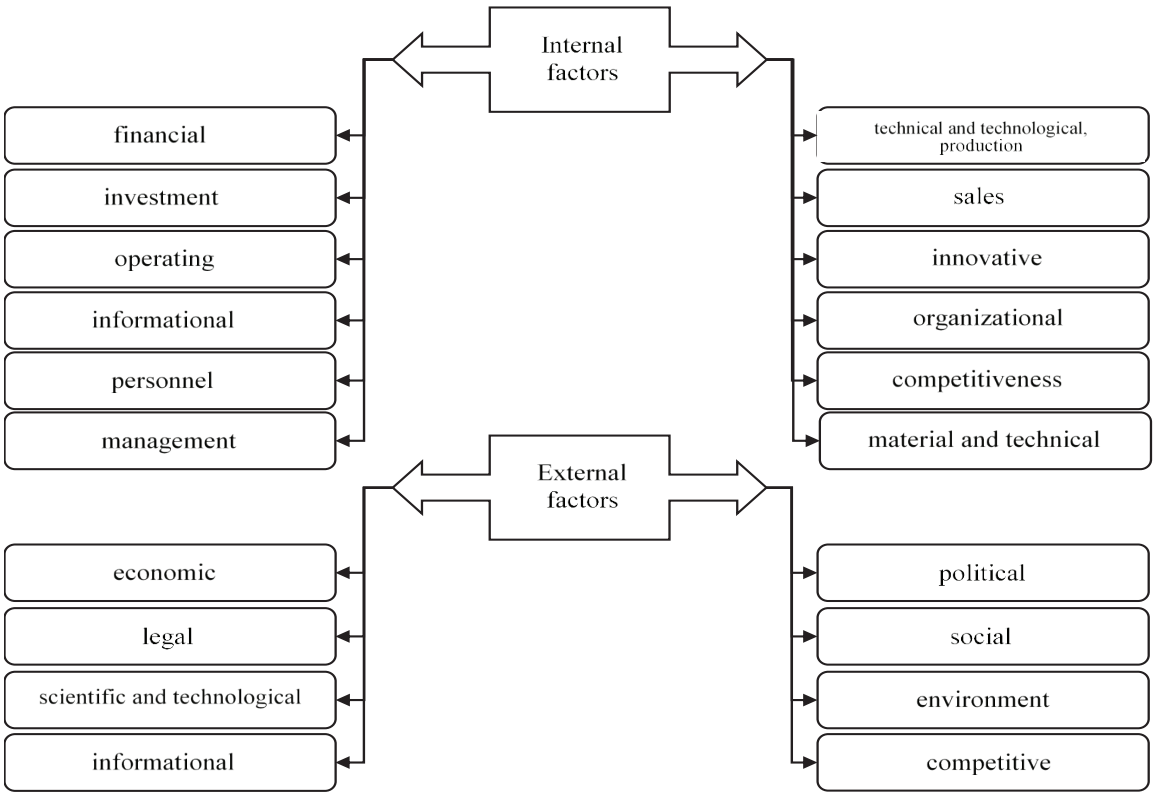

Fig. 2 – Factors influencing the efficiency of industrial operations of enterprises
Sourcw: formed by the author on the basis of [3; 6; 8; 9; 10; 11; 12]

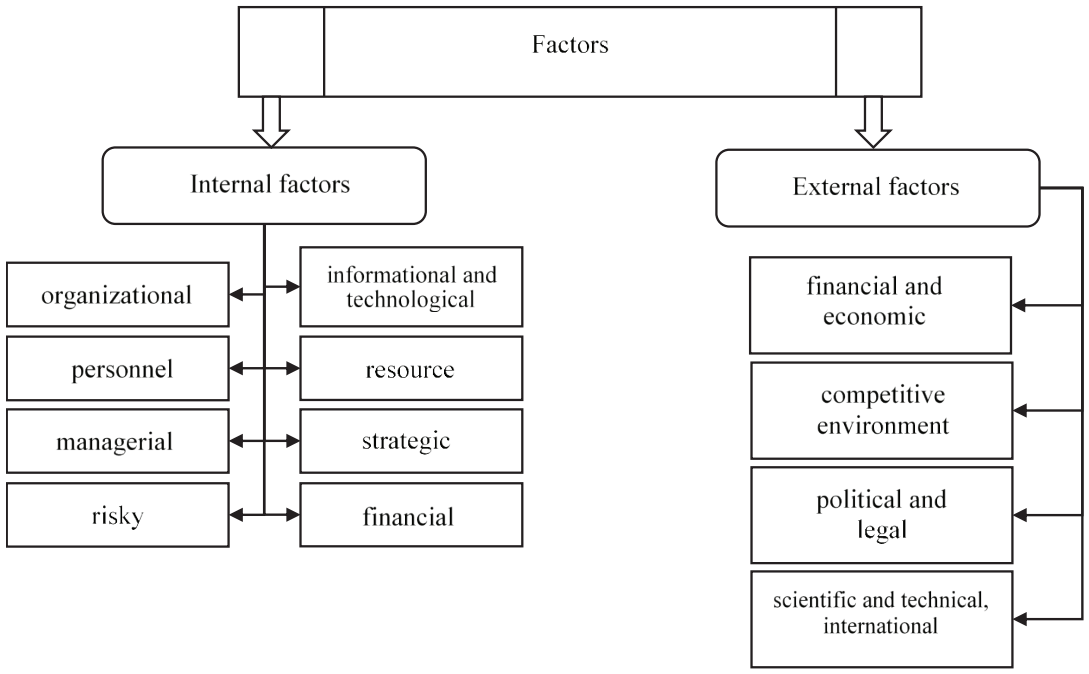

Fig. 3 – Factors influencing the effectiveness of crisis management of the operating room activities of industrial enterprises
Note: formed by the author on the basis of [1; 2; 4; 7; 13; 14]

influencing factors, which will identify those subgroups of factors which have a greater impact on the efficiency of operational activities, anti-crisis management of operational activities and then take them into account in the work of the enterprise to increase the effectiveness of indicators (stage 4); provided insignificant influence of these groups of factors –

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the decision is made to move on to the next stage, ie control over the determination of factors of influence (stage 5).

At the fourth stage the analysis is carried out, ie an assessment of factors influencing efficiency of operational activity and crisis management of operating room activities of industrial enterprises. This stage covers one block and its essence is to analyze the factors of influence on the three groups and their subgroups based on the use of methods, methodological approaches that will clearly identify which of the factors most affect the efficiency of operational activity, anti-crisis management of operating room activities that will facilitate a timely response to them, diagnosis crisis phenomena and threats, quality decision-making, concept development, crisis management tools for industrial enterprises.

For the fifth stage, the determination process is monitored factors influencing the efficiency of operational activities and anti-crisis management of operational activities of industrial enterprises. This stage involves checking the results achieved at each stage, implementation tasks, achieving the goal, comparing the expected results with the planned ones and, if necessary, their regulation at the next stage, which will provide performing tasks in full. Also at this stage, there is one of two solutions: if problems are identified, the existing tasks are not achieved at previous stages, it is necessary to decide on the transition to the next stage regulation (sixth stage); if no problems are identified, tasks are generated achieved in the previous stages, a decision should be made to move to the stage determining the need for crisis management of the operating room activities at industrial enterprises (seventh stage).

During the implementation of the sixth stage, regulation is carried out that involves the detection of errors in the process of determining the factors influencing efficiency of operational activity and crisis management of operating room activities of industrial enterprises. Identified problems, shortcomings, deviations, failures in achieving tasks in the previous stages are possible neutralize, eliminate, correct through development and implementation appropriate measures. The regulation is also aimed at maintaining interaction stages of the system for determining the factors of influence, the study of changes that occur and their timely elimination, which will identify groups factors that are specific to industrial enterprises and take them into account when development of the concept, tools of crisis management of the operating room activities.

At the seventh stage, the results are summarized and the stage consists of two blocks. The first block is to determine the need for implementation of anti-crisis management of operational activities in industrial enterprises, which is done in accordance with the results obtained on previous stages, selected groups of influencing factors, identification of threats, crisis phenomena that affect the results of operating activities and anti-crisis management of the operational activities of the signaling enterprise about expediency of realization of anti-crisis management. So, on the basis of generalization of results, ie identification and evaluation of factors influencing efficiency of operational activity and crisis management of operating room activities of industrial enterprises, the establishment of factors that to a greater extent affect and may cause threats, crisis phenomena should decide on their neutralization, development of ways to reduce negative impact and consideration in the development of the concept of crisis management, formation of anti-crisis measures in operational activities enterprises.

Regarding the second block, ie ways to reduce the negative impact certain groups of factors and their subgroups on the effectiveness of operational activities and crisis management of industrial operations enterprises, the main focus should be on improving performance operational activities, improving the process of crisis management operational activities, the work of a special unit, sufficiency resource provision, coherence of production, sales activities use of tools, methods of crisis management, interaction of all types of activity of industrial enterprises, establishment links between development strategy, enterprise management system and operational activities, crisis management, use information support, hiring skilled workers, allocation of financial resources, introduction of modern technologies in production and sale of products, concluding contracts with suppliers.

It is a study of the work, the conditions of industrial operation enterprises allowed to identify the above groups of factors and implement them division into subgroups, which, in turn, will allow their enterprises take into account in further work, solve problems, implement the concept crisis management, choose the right system, mechanism, strategy anti-crisis management of operational activities, successfully use them. In in general, all this will allow businesses to restore operating efficiency activities and successfully overcome the crisis.

Theoretical and methodological principles of using the system are formed the identification of factors influencing the effectiveness of crisis management operational activities of industrial enterprises provided separation factors of influence, construction of sequence of their definition and their timely consideration will allow for anti-crisis management, increase effectiveness of operational activities, to overcome the first manifestations of the crisis phenomena, to form measures to neutralize the negative impact of factors. All that will maintain the stability of operational activities and in a timely manner identify the need to use crisis management tools.

Conclusions

On the basis of the results of the research the theoretical methodical bases of use of system of definition of factors of influence on the effectiveness of crisis management of industrial operations enterprises. This system is built using process, system, factor, functional approaches, features of work of industrial enterprises and identified three groups of factors that affect the efficiency of operational activities, the effectiveness of anti-crisis management, cause the emergence of crisis phenomena in operating activities. Theoretical and methodological principles cover a set of actions for the separation of groups factors and taking into account their impact, and allow timely identify, prevent crises, develop ways neutralize the negative impact of factors. The practical value of this approach also consists in the fact that it allows to form ways of overcoming crisis phenomena in operating activities, determine the need for use crisis management tools that will guarantee efficiency sales, production activities.

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EFFICIENCY OF TRADE ENTERPRISES ON THE BASIS OF INNOVATIVE ACTIVITY

Cherep O.G., Uliashyn I.A.
Zaporizhzhia National University
Ukraine, 69000, Zaporizhzhia, Zhukovsky str., 66

Key words:
innovation, innovation, efficiency, enterprise, risks, enterprise development, factors, activation

It is established that the main purpose of innovative activity of trade enterprises is to create a new product (service) and maximize profits from their sale. The factors influencing the development of the innovation process are singled out. The expediency of carrying out innovative activities and developing measures to improve the efficiency of such activities, especially commercial enterprises in conditions of fierce competition. Methods for evaluating the effectiveness of innovative activities of commercial enterprises are studied. It is determined that innovations are mostly associated with significant or radical changes in the work of the enterprise, so there is always a significant risk of losses from the use of innovative solutions or the introduction of innovative products. The causes of uncertainty and the risks caused by the influence of macro- and micro-environmental factors are described. Measures to minimize the risks of innovation activity of trade enterprises are proposed. The expediency of the enterprise's choice of innovation strategy of its development is substantiated. Proposals have been made to develop innovative activities in order to increase the competitiveness of commercial enterprises.

ЕФЕКТИВНІСТЬ ТОРГОВЕЛЬНИХ ПІДПРИЄМСТВ НА ЗАСАДАХ ІННОВАЦІЙНОЇ ДІЯЛЬНОСТІ

Череп О.Г., Ульяшин І.А.
Запорізький національний університет
Україна, 69000, м. Запоріжжя, вул. Жуковського, 66

Ключові слова:
інновації, інноваційна діяльність, ефективність, підприємство, ризики, розвиток підприємства, фактори, активізація

Встановлено, що головною метою інноваційної діяльності торговельних підприємств є створення нового продукту (послуги) та максимізація прибутку від їхньої реалізації. Виокремлено чинники, які впливають на розвиток інноваційного процесу. Обґрунтовано доцільність здійснення інноваційної діяльності та розробки заходів щодо підвищення ефективності такої діяльності, особливо торговельних підприємств в умовах жорсткої конкуренції. Досліджено методики оцінки ефективності інноваційної діяльності торговельних підприємств. Визначено, що інновації здебільшого пов'язані із суттєвими або радикальними змінами в роботі підприємства, тому завжди містять значний ризик отримання втрат від застосування інноваційних рішень чи впровадження інноваційного продукту. Охарактеризовано причини невизначеності і, спричинені ними, ризики, які пов'язані із впливом факторів макро- і мікросередовища. Запропоновано заходи щодо мінімізації ризиків інноваційної діяльності торговельних підприємств. Обґрунтовано доцільність вибору підприємством інноваційної стратегії свого розвитку. Внесено пропозиції щодо розвитку інноваційної діяльності з метою підвищення конкурентоспроможності торговельних підприємств.

The aim of the article is to further develop theoretical and methodological provisions for creating an effective model of innovation management in trade, taking into account current trends in the science and practice of management.

Researching methods: Analytical, economic-statistical methods, system-structural analysis and synthesis and the method of logical generalization were used in the research.

Formulation of the problem

Innovative projects and programs are an essential component of the economic mechanism for managing the country's innovative development. Practice shows that low efficiency of innovation processes is formed at the micro level, so the current areas of research determine the issues of innovative development of enterprises, due to the need to form a scientific and methodological basis capable of describing the process of innovative development of enterprises and management mechanisms. These issues are also relevant because in the context of strengthening the course of European integration, the leadership of domestic trade enterprises is faced with the task of identifying as soon as possible methodological and practical experience of innovation management

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Analysis of recent research and publications

The issues of investment activity of the enterprise were covered in the works of such domestic and foreign scientists as: Glukhova N.V. [2], Kaplun S.O. [1], Lozovsky O.M. [2], Tovma L.F. [1], Fedulova L.I. [3], Khomutovsky D.I. [4], and many others. Unfortunately, nowadays in the scientific literature there are still unresolved theoretical and methodological problems associated with the existence of the term «innovation» and «efficiency of a commercial enterprise».

Presentation of the main material

The current stage of development of Ukraine's economy is characterized by the reform of institutional, economic, social, financial and other relations, in the formation of which a special role belongs to the sphere of trade. Traditionally, trade is considered to be the sphere of employment and the source of human well-being, the system-forming link of economic relations, the channel of distribution of goods and services, the place of formation of public sentiments and needs. The state of trade development indicates the standard of living, education and the state of society's economy. As a source of current funds, trade is one of the prerequisites for ensuring the financial stability of the state. Meeting the needs of the population, preventing social tensions in society, a significant contribution to gross value added – the most important functions of retail [1, p. 265].

In addition, the price index in the retail trade of stable developing countries is increasingly recognized as an indicator of socio-economic development of society. At the same time, trade business as a component of the system of distribution of economic goods reflects the main contradictions and problems of the national economy, the state of formation of the information society, the degree of integration of economic processes. Trade, being the branch of the economy closest to the final consumer, is the main tool for regulating the main components of the production process (volume and range of products) and allows monitoring of consumer preferences, dynamics of quality of life and more. The analysis shows that the long-term implementation of the liberal course of economic development of Ukraine was accompanied by a significant weakening of state regulation of trade, strengthening the process of its spontaneous development and placement. As a result, along with the emergence of modern retail chains in modern cities equipped with modern equipment using high-performance trade technologies and qualified personnel, a large part of trade enterprises still have outdated storage methods, forms and methods of public service, insufficient level of qualifications of employees [3; 5].

In general, the current stage of development of trade in Ukraine is characterized by the fact that competition in this area of economic activity has increased significantly. At the same time in the competition in the domestic trade market there is an offensive of foreign participants. The weakest link in the organizational and economic mechanism of trade management is the implementation of innovations. In particular, they need to improve the methodological framework and mechanism for intensifying innovation, which should contribute to the sustainable development of both the industry as a whole, and individual trade enterprises. The innovation process can be considered as a set of successive actions, as a result of which the innovation develops from an idea to a specific product and spreads during practical use. The course of the innovation process, like any other, is determined by the complex interaction of many factors. Success in this way depends on the management mechanism, which unites in a single stream the origins of the scientific idea, its development, implementation of the result in production, implementation, distribution and consumption. The development of the innovation process is influenced by:

– State of the external environment in which it takes place (type of market, the nature of competition, the practice of state regulation, level of education, organizational forms of interaction between science and industry, etc.);

– State of the internal environment of individual organizational and economic systems (financial and logistical resources, application of technology, relations with the external environment, etc.);

– the specifics of the innovation process as an object of management.

The effectiveness of the innovation process is determined only after the introduction of innovation, when it becomes clear how it meets the needs of the market.

Unlike the production process, the innovation process is characterized by:

– high risk and uncertainty of ways to achieve goals;

– the impossibility of detailed planning and focus on forecast estimates;

– the need to find understanding in the field of economic relations and in the interests of participants in the innovation process;

– depending on the socio-economic environment in which it operates and develops [2; 3].

The need for the innovation process is formed under the influence of such a contradiction as the relationship between the real and the desired situation in the development of society.

The introduction of effective innovative technologies allows, on the one hand, the company to gain competitive advantages: improve the competitive situation in the market of its product and its own financial condition, increase production capacity and staff capacity, etc., and on the other – requires significant resources and time expenses. To ensure high efficiency of innovation measures, today the relevance of systematic, timely and comprehensive analysis of innovation activities of the enterprise is growing [1, p. 266].

The efficiency of innovation is a value determined by the specific ability of innovation to save a certain amount of labor, material and financial resources per unit of created products, technical systems, structures, etc.

Managers-practitioners of countries with developed market economies pay due attention to the issue of evaluating the effectiveness of innovations. According to a study conducted by senior management of North American private enterprises, the effectiveness of implemented innovations is primarily assessed using a variety of numerical indicators – this approach is supported by more

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than half of the 355 respondents to the survey. Numerical criteria under such conditions are: the impact of innovation on enterprise revenue growth (78%), customer satisfaction (76%), revenue growth from new products (74%), productivity growth (71%) and profit dynamics (68%). At the same time, researchers of the consulting company, which conducted the survey, emphasize that innovation groups, which quantify the results achieved, have much greater support from management than groups with goals that do not quantify the effect of implementation [1, p. 267].

Internal and external (trade) balance in the environment of the enterprise is possible only under the conditions of purposeful and constant improvement of all aspects of its activity, maintenance of the gained and formation of new competitive advantages. Determining the areas and directions of innovation, justification and selection of innovative projects, the organization of their implementation are carried out in the process of managing the innovative development of the organization. Innovation development management covers strategic and operational aspects and should be, on the one hand, aimed at creating or promptly attracting such innovations that will maintain and strengthen the market position of the organization in the long run, and on the other – systematic and focused activities to improve existing technologies, techniques and methods of work, thanks to which the life of innovations is extended [4].

Innovation is associated with risk, because the main function of innovation and innovation is change, and change is always associated with some uncertainty about the expected results and, consequently, with risk.

For the objectivity of the analysis, the consideration of risks of innovation projects should be conducted from the standpoint of specific actors in the innovation process. However, given that from the standpoint of each of them other entities can be considered as environmental factors (microenvironment), and macro-environmental factors affect the risks of all entities, it will be legitimate to consider innovation risks from the standpoint of manufacturer-innovator can often combine both a developer and an investor. In a general sense, there are the following main reasons for the uncertainty and the risk it poses to developing and bringing a new product to market:

– inaccuracy, incompleteness and inconsistency of information that became the basis for making innovative decisions;

– unexpected or accidental changes in the conditions of innovation and management in general, due to external and internal factors;

– active opposition from other market counter-parties [6, p.15].

The risks of innovation projects for the innovator are often manifested in the fact that new products are not sold in certain volumes and at certain prices, increase the time of the innovative project, due to which there is a loss of profit or loss. The source of risk of innovative activity of the enterprise is the influence of micro- and macro-environmental factors, as well as factors of the internal environment. Risks caused by the influence of macro-environmental factors are divided into:

– economical, as changes in the economic situation may lead to a loss of competitiveness of innovative products;

– political and legal, which manifests itself in the form of possible adverse changes in the social or legal environment of preparation or implementation of innovative projects;

– socio-demographic, which arise due to the conflict of interests of different social groups, which may lead to non-acceptance of innovation at the beginning of the innovation process or after the introduction of innovation on the market;

– environmental, which manifests itself as potential losses of producers due to the eco-destructive effects of consumption or production of goods;

– technological, which arise due to possible changes in the scientific and technological progress [2; 7, p. 153].

In the practice of enterprises, the minimization of risks caused by macro-environmental factors is carried out through the diversification of production and marketing, streamlining the selection of economic activities by maximizing the opportunities and avoiding the impact of destructive factors. Risks caused by the influence of microenvironmental factors are divided into:

– competitive, which arise as a result of ahead of innovation actions of competitors;

– suppliers, due to the difficulty of obtaining new types of resources for the production of innovative products;

– commercial, which arise as a result of changes in the conditions of interaction with trade and sales intermediaries, which may not always be able to fully adequately and quickly respond to changes in the range of enterprises;

– consumer, which arise due to the rational expectations of consumers and changes in their demands [6].

Innovation strategy is one of the means to achieve the goals of the organization and is characterized by novelty, especially for the organization, and often – for industry, market, consumers. Depending on the purpose and position in the market, the following types of innovation strategies are distinguished: offensive strategy, protection strategy, imitation, dependent, traditional strategy and strategy «on occasion» («niche» strategy) [7, p. 154; 8, p. 370].

The company's choice of a particular innovation strategy depends on many factors, including: environmental conditions and factors, the scope of the firm, the range and range of its products, the life cycle of goods, its ability to monitor scientific and technical information on the innovation market, the level of scientific and technical and technological potential, etc. When justifying the choice of innovation strategy, managers must take into account its compliance with the overall development strategy of the organization, its acceptability in terms of risk, market readiness to accept the novelty.

Conclusions

In trade as an economic sphere of the national economy of Ukraine there is a constant improvement of trade enterprises, initiated by innovations. Trade enterprises develop and implement more efficient methods of customer

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service, expand trade services, offer new methods of pricing and sales, form new approaches to sales management, form new legal relationships with intermediaries, introduce modern approaches to personnel management, introduce the latest tools for work automation and so on. The development of innovation in trade can significantly increase competitiveness, financial stability, as well as more fully meet all customer needs. activities.

Given that the integrated enterprise management system based on innovative approach is built taking into account the consistency of goals not only of all participants in its activities, but also of all participants in the market environment in which the company is located, it will help achieve synergies in innovative development. The main factor in the success of innovative activities of a commercial enterprise is to achieve consumer satisfaction.

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ECONOMIC AND MATHEMATICAL MODELING AND INFORMATION TECHNOLOGIES IN ECONOMICS

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THE CONCEPT OF INTELLECTUAL ECONOMIC SYSTEMS IN THE ERA OF INDUSTRY 4.0

Ivanov S.M.
Zaporizhzhia National University
Ukraine, 69063, Zaporizhzhia, Zhukovsky str., 66
flydaiver@gmail.com
ORCID: 0000-0003-1086-0701

Key words:
digital economy,
information system, management,
human resource, marketing

In the article the author gives an analytical review of the application of information systems and technologies in the modern economy. The author determined that the activities of modern economic facilities require new approaches and the construction of a new concept in the era of digital economy – Industry 4.0. The author proposes a structure of interaction of economic entity management models, which combines a set of systemic, resource approaches to human resource management (Kobe Douglas function) and marketing analytics, which allows to form a strategy for economic entity (enterprise) to take into account market needs. The economic entity in the digital economy in the form of a multi-agent system, for which the correction factor for the value of the usefulness of the product. There is also a model for assessing consumer efficiency as part of a digital marketing system in the management of economic facilities. Thus, the concept of building intelligent economic systems in the era of Industry 4.0 is proposed, which aims to solve problems and problems of building intelligent economic systems and their effective use in the era of Industry 4.0 in marketing management, personnel, predictive management. For the developed conceptual model of intelligent economic systems in Industry 4.0, the axiomatics of processes is formulated, which consists of four points: components of the model level are equivalent in terms of general approach, formation of multidimensional forecasting solution, construction of intelligent economic system from functionally independent subsystems intellectual economic system as a means of analysis and forecasting of individual processes of the subject of economic activity.

КОНЦЕПЦІЯ ІНТЕЛЕКТУАЛЬНИХ ЕКОНОМІЧНИХ СИСТЕМ В ЕПОХУ ІНДУСТРІЯ 4.0

Іванов С.М.
Запорізький національний університет
Україна, 69063, Запоріжжя, вул. Жуковського, 66

Ключові слова:
цифрова економіка,
інформаційна система,
менеджмент, кадри, маркетинг

У статті автор наводить аналітичний огляд застосування інформаційних систем і технологій в сучасній економіці. Автором визначено, що діяльність сучасних економічних об'єктів вимагає нових підходів та побудови нової концепції в епоху цифрової економіки – Індустрія 4.0. Автором запропонована структура взаємодії моделей управління економічним суб'єктом, яка поєднує сукупність системного, ресурсного підходів управління людськими ресурсами (функції Коба Дугласа) та маркетингової аналітики, яка дозволяє формувати стратегію розвитку суб'єкта господарської діяльності (підприємства), що дозволяє враховувати потреби ринку. Розглянуто економічний суб'єкт у цифровій економіці у вигляді багатоагентної системи, для якого наведений поправочний коефіцієнт вартості корисності товару. Також представлена модель оцінки споживчої ефективності як складової частини цифрової маркетингової системи в управлінні економічними об'єктами. Запропонована концепція побудови інтелектуальних економічних систем в епоху Індустрія 4.0, яка спрямована на вирішення задач та проблем побудови інтелектуальних економічних систем та їх ефективного використання в епоху Індустрія 4.0 в управлінні маркетингом, персоналом, предикативного управління.

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Для розробленої концептуальної моделі інтелектуальних економічних систем в умовах Індустрія 4.0, сформульована аксіоматика процесів, яка складається з чотирьох пунктів: складові модельного рівня є рівноцінними з погляду загального підходу функціонування, формування багатомірного рішення прогнозування, побудова інтелектуальної економічної системи з функціонально-незалежних підсистем, та використання інтелектуальної економічної системи як засобу аналізу та прогнозування окремих процесів суб'єкту економічної діяльності.

Statement of the problem

The digital economy (Industry 4.0) opens up new directions, which opens up new opportunities for economic actors. In modern conditions, when the dynamics of economic processes are high enough, where operational data are needed, and the strategy of production and promotion, as well as pricing depend not only on producers but also on consumers becomes a very important factor. Therefore, an increasingly important task is to build a concept for modeling intelligent economic systems in the era of Industry 4.0.

All activities of modern economic entities are aimed at forming an effective strategy for the development of enterprises to meet the needs of consumers. These requirements directly affect the construction of the concept of intelligent economic systems in the era of Industry 4.0. Therefore, the concept has direct links with the consumer, where real-time information comes from consumers and allows you to respond quickly to rapidly changing demand.

Analysis of recent studies and publications

In his work, Academician of the National Academy of Sciences of Ukraine, Doctor of Economics, Professor A.A. Chukhno [1] explored the problem of determining the laws of society, which determined the essence of formational and civilizational approaches [1, p. 52–55]. The author also noted that the industrial revolution of the XVIII and early XIX centuries carried out a technical revolution and gave development to industrial enterprises. This led to the creation of new technologies that gave rise to the post-industrial era (post-industrial society) [1, p. 56–67]. For post-industrial society, the characteristic features are the deepening of the international division of labor and specialization of labor. The paper also notes that the post-industrial society is the basis for the introduction of information and intellectual technologies [1, p. 144], which achieves a high level of development of productive forces. This development is to increase creativity (intellectual activity), which is aimed at forming new knowledge [1, p. 181–182].

A study of the current state, problems and prospects for the development of information systems in the economy was given in the work of Ustenko S.V. [2; 3]. The works also consider the role and place of information systems in the emergence of a new economic system, which makes new demands on the organization of enterprises, production systems and knowledge orientation, innovative nature of production, virtualization of production, dynamism, globalization and others.

In the works of Chornous G.O. [4; 5] the problem of building proactive management of economic entities is studied, as well as the agent model of information management system in the economy is proposed. It is established that the proposed models have a high level of flexibility, efficiency, productivity; adaptability to changes in economic conditions.

In the works of Bashnyanin G.I. [6] and Kononova K.Yu. [7] systematized approaches and analyzed economic systems. The problems of formation and development of economics as a special theory of economic systems and applied economics are studied. These studies have taken into account changes in relevant sectors of the economy, informatization and growth of scientific knowledge and its value to ensure the development of society.

In his works Gritsenko A.A. [8; 9] it was proved that economic and information changes require a new statistical paradigm, where the modern statistical system is formed on the basis of a market economy. The general methodological basis of the paradigm is the understanding of the time of life of systems and man as a fundamental dimension of individual and social wealth. Factors that cause an unstable socio-economic environment were also studied. The contradictions of digital and socio-economic development, as well as possible forms of their solution have been identified. The effects of digital transformations on economic relations and production efficiency are shown.

In the works of Lysenko Yu.G. [10], Bizyanova E.E. [11], Levitsky S.I. [12] and Vovchak I.S. [13] studied the areas of information systems design, features of various information technologies, trends in their development and examples of application in different sectors of the economy. The research of economic systems is continued and the problems of formation and development of the theory of economic systems as applied economy are analyzed.

In the work of Voynarenko M.P. and Yemchuk L.V. [14] the essence and definition of control technology in information systems are considered. The relevance of the introduction of management technology on the basis of modern information systems for the purposes of improving the efficiency of the management system of the enterprise is substantiated.

But the issue of creating a holistic concept of intelligent information systems in the economy is not given enough attention.

Objectives of the article

The purpose of the work is to build the concept of intelligent economic systems in the era of Industry 4.0.

The main material of the research

From the analytical point of view it is determined that a great contribution to theoretical and practical developments, as well as to the formation of scientific directions of economic development, business process

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management, information systems models, models of price optimization and sales in consumer markets, functions and approaches management in marketing, problem-based management of business processes, modeling of cooperative relations in the digital economy have contributed to the work of many domestic scientists.

Let's present the economic entity in the digital economy in the form of a multi-agent system. The subjects of economic activity act as agents. The total number of agents is not limited to the Internet market. Agents have access to information about resource opportunities (human resources), product market, range, competitors and other commercial information.

The developed concept proposes a model of images, which is the basis for building the structure of interaction of models. The structure of interaction of models corresponds to the decisions in the knowledge base as a set. In fig. 1 presents the structure of model interaction.

In the structure of interaction of models of management of the economic subject the model of fuzzy modeling of HR in the conditions of the fourth industrial revolution can be presented in the form of set:

$$P = \{p_i = (op1, op2, ep1, ep2, ep3)\}, i = \overline{1, N}, \quad (1)$$

where $op1$ – it is a generalized indicator of job compliance, which characterizes the degree of compliance of qualifications and experience in the position, the level of responsibility, as well as the quality of current work and responsibilities; $op2$ – generalized indicator of diligence, which characterizes the effectiveness of tasks (complexity, quality, timeliness); $ep1$ – ambition, indicator of personality characteristics; $ep2$ – the quality of the leader, an indicator of personality characteristics; $ep3$ – the level of attitude to the team, indicator of personality characteristics.

Then the model of digital marketing system in the management of economic objects can be in the form of a model for assessing consumer efficiency, defined by plural $P = \left\{P_i, i = \overline{1, N}\right\}$ as an expert assessment of the usefulness of the product.

Then the correction factor for the usefulness of the product can be written:

$$K = \left\{K_i = \left(k1, k2, k3\right) \in \left[0,1\right]\right\}, i = \overline{1, N}, \quad (2)$$

where $k1$, $k2$, $k3$ – signs of a consumer willing to pay for utility in addition, interest and the consumer will not pay for utility.

So the set of system M can be written in the form of a tuple:

$$\left\langle K_i, p_i, R_\Sigma, Z \right\rangle, \quad (3)$$

where $\left\langle K_i, p_i \right\rangle$. – the image of the subject of economic activity; R_Σ – related to solution models; Z – action on management decisions.

The search for typical configurations is not limited to solving problems of information analysis with further management of the economic entity. The decisions obtained

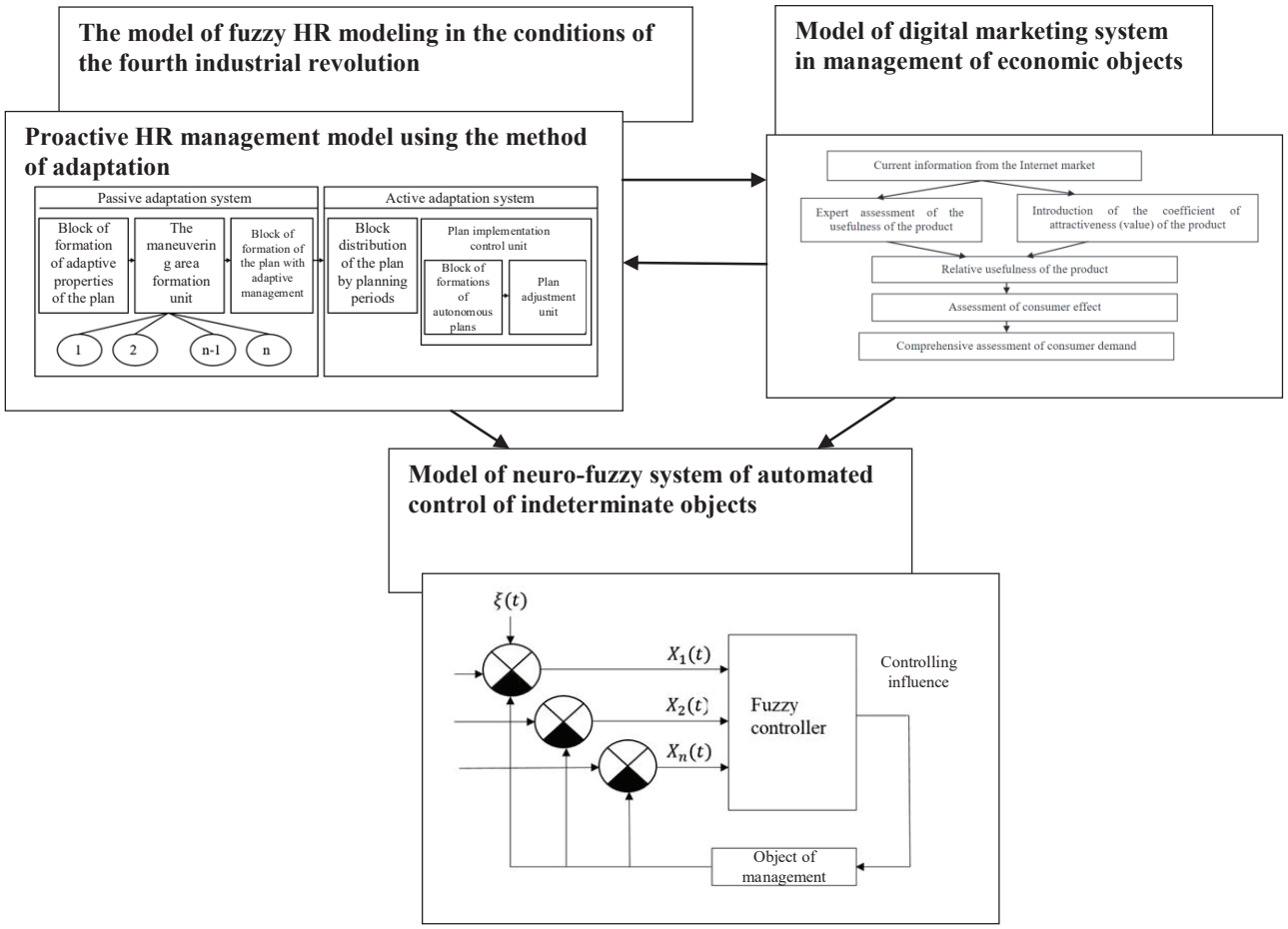

Fig. 1 – The structure of the interaction of management models of the economic entity

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for them can not always be positively assessed by the next management action, so the decision-making system should include monitoring the effectiveness of decisions and the corresponding update of the knowledge base.

The task of updating the images of models with the subsequent formation on the basis of their analysis of the set of precedents can be realized by mapping *Y* of the set *X* to the set *R*:

$$Y : X \to R_{\Sigma}, \tag{4}$$

where $X = \{X_1(t), X_2(t), X_3(t)\}$ – the set of images of the process of forecasting the environment, respectively, which are analyzed separately over time $t \in [0, T]$,

$R_{\Sigma} = \{R_1, R_2, R_3\}$ – the set of decisions given through the decisions of models, processes and environments.

Y – type display allows you to use to provide automated management of the economic entity.

As a result of interaction of models the concept which is presented in fig.2 is constructed.

Interaction of intelligent economic systems with the external environment is carried out at the level of models: synchronization of works, invariant control system, data exchange models in HR management, fuzzy HR modeling in Industry 4.0, marketing analytics, multidimensional forecasting based on neural networks, order distribution data. and sales, evaluation of marketing activities of the enterprise and economic management system (controller in the management of economic object.

The conceptual model of intelligent economic systems in the conditions of Industry 4.0 is developed, presented on fig. 2 allowed to formulate the following axiomatics of processes:

1. In intelligent economic systems (IES) all components of the model level are equivalent in terms of the general approach to operation and do not have a «core». That is, if the functional model (set) $M(n)$ has properties $A(\beta)$, then there is a model for which $nM(n)$ is true:

$$M(n) : A(\beta) \supset M(n) \to \exists nM(n). \tag{5}$$

On the basis of the analyzed works [2,3,5] IES is built, which is a model-analytical system with functional models that are practically inseparable from the whole information system (IS). The system is set up by selecting the input values of the economic entity. The number of factors used in the process of modeling economic indicators can be quite large, which increases the efficiency and, consequently, the effectiveness of IS.

Formation of a multidimensional IES forecasting solution. In IES for the economic entity is the key direction that determines the decision R_{Σ}. That is, all intersections of many solutions of models in the IEC system (marketing (R), human resources (R_{HR}) and other Rn, where $n = \overline{1, N}$.) is not an empty set then there is a real solution R_{Σ}

$$2.\ \left(R_{\Sigma} \to R_M \cap R_{HR} \cap R_n \neq \varnothing\right) \vee \left\{\left(R_M \cap R_{HR} \cap R_n \middle| R_{\Sigma}\right) \neq \varnothing\right\} \tag{6}$$

3. Ability to build IES from functionally independent subsystems (models). So in the set R_n the advantage of S_n an be determined:

$$x : Sn \to Rn., \text{де} n = \overline{1, ..., N}. \tag{7}$$

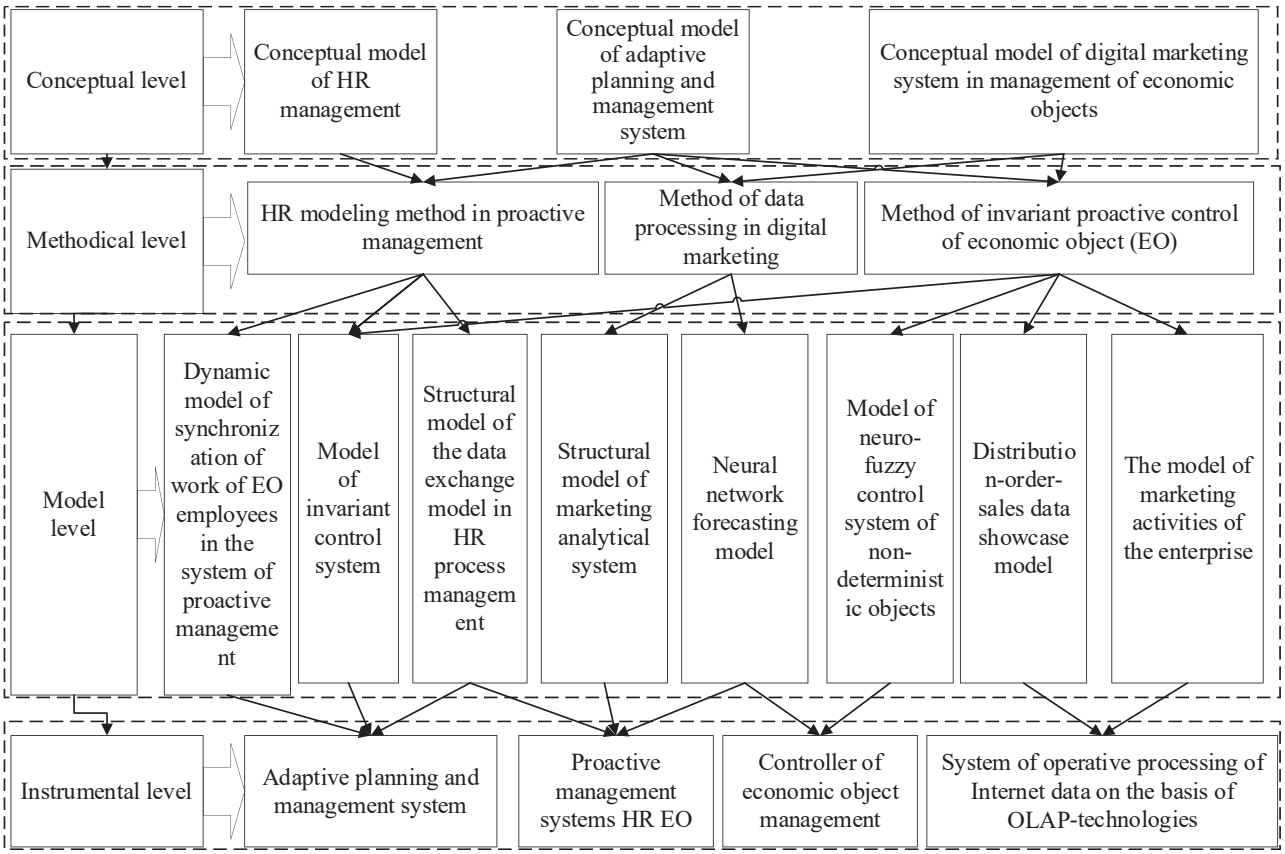

Fig. 2 – The concept of building intelligent economic systems in the era of Industry 4.0.

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4. Possibility to use IES as a means of analysis and forecasting of individual processes of the subject of economic activity in marketing S (m), human resources management S (HR) and other S (T) for sustainable development of the subject of economic activity:

$$S_{\Sigma} = \{S_M, S_{HR}, S_N\}. \quad (8)$$

Conclusions

Thus, in the process of analytical review, the changes taking place in the economy of Ukraine make significant changes in the management of economic entities in the digital economy.

It is established that in the digital economy, IECs must respond quickly to changes in the economic environment based on the modeling of Big Data (financial and product flows, marketing and others) with the ability to forecast, evaluate and manage. This will increase the efficiency of economic management.

Thus, the application of new approaches and the use of new economic and mathematical models and methods is a necessary condition in the strategy of IEC development in the activities of economic entities in the era of Industry 4.0.

Based on the proposed conceptual, methodological, model and instrumental levels and the developed axiomatics, a fundamentally new conceptual model of building intelligent economic systems in the era of Industry 4.0 was built.

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CONCEPTUAL BASES FOR THE RESEARCH OF THE PROCESS OF EVALUATING THE EFFECTIVENESS OF THE BANK'S ACTIVITIES

Ustenko S.V., Ostapovich T.V.
Vadym Hetman Kyiv National Economic University
Ukraine, 03057, Kyiv, Peremohy Avenue, 14
stanislav.ustenko@kneu.edu.ua, ostapovych@meta.ua
ORCID: 0000-0001-6742-3575, ORCID: 0000-0001-9356-4742

Key words:
information and communication technologies, innovative technologies in the banking sector, digitalization processes, bank activities, conceptual model, efficiency evaluation, fuzzy logic

An analysis of the factors of economic growth that determine the development of the banking sector and the banking industry. The main factors of economic growth include financial, human and information technology resources. The basis of information and technological support of banks are the processes of digitalization. Methods and models for solving structured, poorly structured and unstructured problems that have the necessary mathematical tools are analyzed for sound analysis and evaluation of the efficiency of banks. The article proposes a conceptual model for evaluating the efficiency of the bank, which is based on the use of fuzzy logic tools, and allows the analysis of production (operational), financial, economic and management subsystems of the bank and form an integrated indicator of efficiency of the banking system. The model of assessing the efficiency of the bank is based on the method of assessing the competitive status of the enterprise in the market, modified taking into account approaches to assessing the financial condition. The developed conceptual model for evaluating the effectiveness of banks can be used to improve decision-making systems used in the activities of banking institutions. Implementation of the conceptual model in each bank will allow at the system level to conduct model experiments to assess the effectiveness of the bank's operation and development, develop practical recommendations and ways to improve the efficiency of Ukrainian banks, take into account the introduction of banking services to provide customers with banking services.

КОНЦЕПТУАЛЬНІ ЗАСАДИ ДОСЛІДЖЕННЯ ПРОЦЕСІВ ОЦІНЮВАННЯ ЕФЕКТИВНОСТІ ДІЯЛЬНОСТІ БАНКІВ

Устенко С.В., Остапович Т.В.
Київський національний економічний університет імені Вадима Гетьмана
Україна, 03057, м. Київ, проспект Перемоги, 54/1

Ключові слова:
інформаційно-комунікаційні технологій, інноваційні технології в банківській сфері, процеси діджиталізації, діяльність банку, концептуальна модель, оцінювання ефективності, нечітка логіка

Проведено аналіз факторів економічного зростання, які обумовлюють розвиток банківської сфери та банківської індустрії в цілому. До основних факторів економічного зростання віднесено фінансові, кадрові та інформаційно-технологічні ресурси. Основою інформаційно-технологічного забезпечення банків є процеси впровадження діджиталізації. Для обґрунтованого аналізу та оцінювання ефективності діяльності банків проаналізовано методи та моделі для розв'язання структурованих, слабоструктурованих і неструктурованих задач, які мають необхідний математичний інструментарій. В статті запропоновано концептуальну модель оцінювання ефективності діяльності банку, яка базується на використанні інструментарію нечіткої логіки, та дозволяє проводити аналіз показників виробничої(операційної), фінансово-економічної та управлінської підсистем банку та формувати інтегральний показник ефективності роботи всієї банківської системи з урахуванням зовнішніх та внутрішніх факторів розвитку банків. В основу моделі оцінювання ефективності роботи банку покладено методику оцінювання конкурентного статусу підприємства на ринку, модифіковану з урахуванням підходів до оцінювання показників фінансового стану. Розроблена концептуальна модель оцінювання ефективності діяльності банків може бути використана для удосконалення систем прийняття рішень, які використовуються в діяльності банківських установ. Реалізація концептуальної моделі в кожному конкретному банку дозволить на системному рівні проводити модельні

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експерименти з оцінювання ефективності функціонування та розвитку банку, розробляти практичні рекомендації і шляхи підвищення ефективності досліджуваних українських банків, враховувати особливості впровадження технологій банківських сервісів для надання клієнтам банківських послуг.

Formulation of the problem

Accumulating the country's monetary resources, banks play a key role in ensuring economic development through money circulation, capital turnover, enterprise financing, introduction of innovative banking products, ensuring the security of banks in the economic, financial and information sectors, and, to a large extent, from quality of used information technologies and banking systems. Using the latest information technologies, telecommunications systems, banks can significantly expand the market of banking services, improve the quality of customer service, improve the culture of banking.

Building intelligent banking information systems using the Amazon Athena online query service, Amazon Machine Learning cloud service, Amazon RDS web service and artificial intelligence tools provides an opportunity to significantly improve the process of sending messages to bank customers with the possibility of further services. Another important component of intelligent systems is the integration with the mobile application, which allows the bank to provide notifications more efficiently.

Under such conditions, an important area of research is to assess the effectiveness of modern information systems and technologies in the banking sector, which necessitates the development of a conceptual model for evaluating the effectiveness of banks to make management decisions aimed at improving the efficiency of individual banks and the banking system.

Analysis of recent research and publications

Innovative development of the banking sector in the direction of modeling the implementation of information technology to support innovative products of banks and services is extremely important. In this direction, Vadym Hetman Kyiv National University of Economics is conducting research (R&D), in particular on the topics: «Development of methods and technologies of intellectual support for the management of organizational structures in the context of digital economy» state registration number 0119 U002604 «And» Modeling of processes of introduction of information technologies of support of innovative products of banks and services «state registration number 0122U001987 (scientific supervisor Doctor of Economics, Prof. Ustenko S.V.). Based on the current results of these works, scientific articles have been published in international monographs [1–5]. The relevance of the research topic is due to the fact that in market conditions, banking products, services and services play a key role in the functioning of the financial system and market. This causes an urgent need to build intelligent information systems for the interaction of banking institutions with the user, to attract artificial intelligence, including neural networks. The main feature and innovation of such systems is that they have the property of machine learning and with each new training the system improves its performance.

In [1; 5] information and communication systems and technologies to support information security of banking and conceptual approaches to sustainable development of Ukrainian banks on the general principles of banking education, the main of which are the principles of integrity, stability, digitization and structural and logical links elements and the banking system as a whole, which requires the generalization of approaches to model research and technologies for the use of banking systems.

The work [7] is devoted to the study of the conceptual foundations of the processes of information support of digital educational activities, which does not take into account the production (operational) sphere of activity of enterprises and organizations.

Publications [8–11] provide approaches, trends and factors of economic growth in the most technologically advanced countries. Technological development [10; 11] is one of the important factors of economic growth and includes the use of a set of production techniques and scientific methods that must be considered for sound analysis and evaluation of banks' performance.

At the same time, there is an urgent need to develop a general (conceptual) model for assessing the effectiveness of the bank, which can take into account key performance indicators of a number of subsystems of the bank, including operational, economic, financial, management, information technology and more. Implementation of the conceptual model in each bank will allow at the system level to conduct model experiments to assess the effectiveness of the bank's operation and development, develop practical recommendations and ways to improve the efficiency of Ukrainian banks, take into account the introduction of banking services to provide customers with banking services.

Formulation of the objectives of the article

The purpose of this work is to improve and develop a conceptual model for evaluating the effectiveness of banks to make informed management decisions aimed at improving the efficiency of individual banks and the banking system of Ukraine.

The main material of the research

Since the beginning of 2014, the banking system of Ukraine has experienced one of the strongest crises in its history. In terms of banking assets as a percentage of gross domestic product, Ukraine's banking sector was similar to Poland. However, by 2016, bank closures and reduced lending have led to a sharp reduction in the role of banks in the economy. Today, Ukraine lags far behind many European banks. As of October 2020, out of 180 banks operating at the beginning of 2014, 104 banks were declared insolvent or liquidated by the National Bank of Ukraine,

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which is almost 60% of the country's banks. It should be noted that the assets of some Ukrainian banks in 2014 were overstated due to concealment of loans to related parties, but many banks unfortunately did not have the ability to model and predict the impact on the financial institution of internal and external destabilizing factors, leading to search for tools and approaches for strategic analysis, evaluation of efficiency and development of banks.

Banks are at the epicenter of these changes. Technological evolution and social change have a deeper and more direct impact on the financial industry than on most other sectors, as its main raw materials are information and money. And money, in turn, can be dematerialized and converted into accounting records, in other words, into data that can be stored, processed and transmitted in real time at low cost [3; 4].

Banking has not yet undergone the transformation that other information sectors have undergone. This is largely due to the fact that banking has historically been a strictly regulated industry, subject to close scrutiny and control by government agencies.

However, the transformation of the industry is not only inevitable, but is gaining momentum every day. The main reason is that the technological revolution is introducing new ways of doing business every day and increasing the potential for cost reduction, and the number of users who resort to non-traditional methods of banking continues to grow.

Another reason for the transformation is that the current crisis is causing changes in different directions. Banks are perceived as the «culprits» of the recession, and rightly so, as many institutions have made very serious mistakes and decided to ignore the basic principles of banking: prudence, transparency and even honesty. As a result of these mistakes, many banks have faced serious difficulties, with some banks failing and others undergoing a complete restructuring, which is usually financed by public funds. The colossal amount of taxpayers' resources invested in savings banks has severely damaged the reputation of financial institutions and the entire industry in the eyes of ordinary citizens.

The crisis has also provoked a process of radical changes in banking regulation: borrowing limits, higher requirements for capital and reserves, the need for large investments to improve risk systems and compliance, and so on. All this comes down to lower revenues and higher costs, in other words, lowering the current and future profitability of financial institutions.

Banks must respond to the new demands of their customers and society, meet this challenge with a damaged reputation, lower profits and slow growth of traditional banking business. This situation requires a radical transformation: banks must radically reconsider the way they interact with their customers and make a qualitative leap forward in efficiency.

To some extent, these efficiency gains will be achieved through the sharp consolidation of the banking sector that has already begun. But the real transformation of the industry will be achieved through the wide and, above all, smart use of technology as part of a long process of innovation.

In recent decades, banks have been one of the most important users of information and communication technologies, which they have adopted with two main goals: to reduce costs and optimize processes to increase profits, as well as to develop communication channels other than conventional ones.

With the development of banking, the Internet has become a leading source of information, indispensable business communication, and even a forum for personal relationships: more than a billion people around the world now use various social networks. The Internet is also a driving force behind the fragmentation of banks' production chains, facilitating the outsourcing of services. Banking services offered by cloud computing are a major breakthrough in universal access to storage and data processing at very low costs and will have far-reaching consequences. The use of the Internet has also gained enormously thanks to the advancement of mobile phone technology. Thanks to these new devices, almost 4.5 billion people are online and have almost universal access to a certain level of information services, which has a huge impact on productivity [5; 6]. Mobile phones are equipped with more and more powerful and various functions, which will be gradually included in other devices, additional services and services of banking systems («Internet of Things», «Internet Banking»).

The methodology of research of processes of functioning and development of banks is based on the general analysis and principles of development of banks and taking into account the complex approach to research of processes of effective development of banks [5].

An integrated approach to the study of banking development processes is focused on the holistic development of all processes, rather than its individual processes, which contributes to the comprehensive development of the bank. This approach allows to take into account the information and technological aspects of banking services, development of new banking products and the use of modern information technology and banking systems. The basis of information and technological support of banks are the processes of implementation of digitalization as a tool for development and scaling of the bank. Digitalization is a direction of development of banks in understanding the introduction of modern digital technologies aimed at the transition to automated digital technologies controlled by real-time intelligent systems in constant interaction with the external environment beyond one bank, with the prospect of unification in the global network of the Internet of Things and Services. Today, the first steps in the implementation of digitalization are the introduction of technologies such as machine learning, blockchain systems, blockchain systems, AR technologies (augmented reality), cloud technologies AWS (cloud technologies), systems for processing large data sets (data processing) [3; 4; 8].

For sound analysis and evaluation of the efficiency of banks, it is necessary to choose methods and models, the necessary mathematical tools. It is possible to solve this problem by dividing methods and models into three groups:

- methods and models for solving structured problems that have a homogeneous relationship between the elements

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of the system. To solve such problems, it is advisable to use classical and scenario methods and models (regression, classification, clustering, etc.);

• methods and models for solving poorly structured problems, which are characterized by the presence of partial relationships (quantitative, qualitative) between the elements of the system. To solve such problems, it is possible to use both classical methods and models, and models using fuzzy logic;

• methods and models for solving unstructured problems, in which calculations are performed on the basis of verbal descriptions of elements only and in the absence of direct relationships between elements of the system. Artificial intelligence methods and models are best suited for solving unstructured problems.

Let's build a conceptual model for evaluating the effectiveness of the bank on the basis of fuzzy logic. The model of assessing the efficiency of the bank will be based on the method of assessing the competitive status of the enterprise in the market [12], modified taking into account approaches to assessing the integrated indicator of financial condition [13].

We will evaluate the effectiveness of the bank in the following areas and subsystems of the bank:

• operation of production (operational) subsystem (this includes production and technological aspects of the bank's development potential) – S_1;

• *work of financial and economic subsystem (includes financial and sales aspects of potential)* – S_2;

• *work of the management subsystem (includes such aspects of capacity as efficiency and innovation management)* – S_3.

To build the model we use the following development algorithm [13; 14]:

– stage 1: Selection of indicators to be taken into account in the model;

– stage 2: Description of linguistic variables;

– stage 3: Defining the types of membership functions and their construction;

– stage 4: Building a fuzzy knowledge base;

– stage 5: Adjust the model parameters and determine the initial characteristics.

Here is the process of building a model.

The initial parameter Z – an integrated indicator of the efficiency of the bank – is determined on the basis of quantitative and qualitative indicators s_{ij}, that characterize the production (operational) (S_1), financial and economic (S_2) and management subsystems (S_3) of the bank:

$$Z = f(S_1 \dots S_m),\ S_i = f(s_{i1} \dots s_{in}),\ s_{ij} = f(s_{ij1} \dots s_{ijh}),$$
$$i = \overline{1,m},\ j = \overline{1,n},\ l = \overline{1,h},$$

where Z – an integrated indicator of the level of efficiency of the bank; S_i – generalizing signs of states of subsystems, $i = \overline{1,m}$; i – subsystem status characteristic number; m – the number of subsystem states, $m = 3$; s_{ij} – generalizing signs of estimation of parameters of subsystem states, $j = \overline{1,n}$; j – number of parameters i; n – the number of parameters that characterize the state i, (technical and economic parameters, parameters of use of production resources, parameters of financial stability and autonomy, parameters of turnover of current assets, parameters of solvency and liquidity assessment, profitability parameters, parameters of evaluation of innovations and technologies, management parameters); s_{ijl} – evaluation indicators that are part of s_{ij}; l – subsystem status parameter indicator number; h – the number of indicators in the group of parameters j, the nomenclature of which is ranked depending on the period of analysis (current, operational, strategic).

To reflect the relationship between input and output parameters of the model using the linguistic rules «If – then» to form the linguistic characteristics of quality terms of the production, financial, economic and management subsystems of the bank $\{ДН, H, C, B, ДВ\}$: *ДН* – very low, *H* – low, *C* – average, *B* – high level, *ДВ* – very high.

Denote the given term sets as follows:

$$A_{i*} = \left\{a_{i*}^1, a_{i*}^2, a_{i*}^3, a_{i*}^4, a_{i*}^5\right\} =$$
$$= \left\{a_{i*}^1 = "ДН", a_{i*}^2 = "H", a_{i*}^3 = "C", a_{i*}^4 = "B", a_{i*}^5 = "ДВ"\right\},$$

where a_{i*}^p – p-й linguistic term i*-ї variable, $p = \overline{1,5}$, $i* = \overline{1,11}$; $i*$ – through number of input linguistic variables.

The resulting parameter Z makes it possible to assess the level of efficiency of the bank on such a scale of term sets $\{П, З, НЗ, К\}$: *П* – positive, *З* – satisfactory, *НЗ* – unsatisfactory, *К* – critical. Denote this term set as follows:

$$G = \left\{g^1, g^2, g^3, g^4\right\} =$$
$$= \left\{g^1 = "П", g^2 = "З", g^3 = "НЗ", g^4 = "К"\right\},$$

where g^k – k-й linguistic term of the original variable Z, $k = \overline{1,4}$.

In the table. 1 shows the values of fuzzy terms of the above-set terms of input and output variables.

The membership function performs the task of generalizing the values of expert assessments regarding the distribution of elements in sets.

Suppose there is some universal set U, which includes a set of possible values i*-ї variable. Then there is a fuzzy subset A, which describes the constraints on the possible values of the variable a_{i*}.

Then A can be defined as $A = \left\{s_{ij},\ \mu^{a_{i*}^p}(s_{ij});\ s_{ij} \in U\right\}$ and $A = \left\{S_i,\ \mu^{a_{i*}^p}(S_i);\ S_i \in U\right\}$, where $\mu^{a_{i*}^p}(s_{ij})$ and $\mu^{a_{i*}^p}(S_i)$ – membership functions, which acquire values in the range from 0 to 1, and:

$$\mu^{a_{i*}^p}(S_i) > 0,\ \forall S_i \in U,$$

$$\mu^{a_{i*}^p}(S_i) = 0,\ \forall S_i \notin U,$$

$$\sup_{S_i \in U}\left[\mu^{a_{i*}^p}(S_i)\right] = 1.$$

Similarly determined $\mu^{a_{i*}^p}(s_{ij})$.

Thus, the function $\mu^{a_{i*}^p}(S_i)$ determines the degree of belonging of the elements S_i and s_{ij} subset A.

To determine the parameters $\mu^{a_{i*}^p}(S_i)$ та $\mu^{a_{i*}^p}(s_{ij})$ it is expedient to use bell-shaped membership functions [13; 15], as they are smooth throughout the domain and take non-zero values.

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Table 1 – Parametric characteristics of the bank's performance appraisal model

The number of the linguistic variable	Designation of linguistic variables	Name of linguistic variables	Basic term set of a linguistic variable	Syntactic description of the values of the linguistic variable
Input variables				
*i**1	s_{i1}	technical and economic parameters	A_1	$a_1^1, a_1^2, a_1^3, a_1^4, a_1^5$
*i**2	s_{i1}	parameters of use of production resources	A_2	$a_2^1, a_2^2, a_2^3, a_2^4, a_2^5$
*i**3	s_{i1}	parameters of financial stability and autonomy	A_3	$a_3^1, a_3^2, a_3^3, a_3^4, a_3^5$
*i**4	s_{i1}	parameters of turnover of current assets	A_4	$a_4^1, a_4^2, a_4^3, a_4^4, a_4^5$
*i**5	s_{i1}	solvency and liquidity assessment parameters	A_5	$a_5^1, a_5^2, a_5^3, a_5^4, a_5^5$
*i**6	s_{i1}	profitability parameters	A_6	$a_6^1, a_6^2, a_6^3, a_6^4, a_6^5$
*i**7	s_{i1}	parameters of evaluation of innovations and technologies	A_7	$a_7^1, a_7^2, a_7^3, a_7^4, a_7^5$
*i**8	s_{i1}	control parameters	A_8	$a_8^1, a_8^2, a_8^3, a_8^4, a_8^5$
*i**9	S_1	the level of operation of the production subsystem	A_9	$a_9^1, a_9^2, a_9^3, a_9^4, a_9^5$
*i**10	S_2	the level of financial and economic subsystem	A_{10}	$a_{10}^1, a_{10}^2, a_{10}^3, a_{10}^4, a_{10}^5$
*i**11	S_3	the level of operation of the management subsystem	A_{11}	$a_{11}^1, a_{11}^2, a_{11}^3, a_{11}^4, a_{11}^5$
Output variables				
–	Z	indicator of the effectiveness of the	G	g^1, g^2, g^3, g^4

Belonging function $\mu^{g^k}(Z)$ fuzzy terms g^k source variable Z takes value in the range from 0 to 1:

$$\mu^{g^k}(Z) = \frac{1}{1+\left|\frac{Z-c}{d}\right|^{2b}},$$

where d – concentration-stretching coefficient Π – similar membership function (bell-shaped), c – the coordinate of the maximum of the function, b – setting option.

Next, we will form a set of rules – a fuzzy knowledge base, which presents expert-logical conclusions for the basic indicators (criteria) for assessing the state of the system.

The final rule on the positive overall level of efficiency of the bank in analytical form can be represented as follows:

$$\mu^{П}(S_1...S_3) = \mu^{ДВ}(\mathrm{S}_1)\cdot\mu^{\mathrm{ДВ}}(S_2)\cdot\mu^{\mathrm{ДВ}}(S_3)\vee$$
$$\vee\,\mu^{B}(\mathrm{S}_1)\cdot\mu^{C}(S_2)\cdot\mu^{\mathrm{C}}(S_3)\vee \quad ,$$
$$\vee\,\mu^{C}(\mathrm{S}_1)\cdot\mu^{\mathrm{ДВ}}(S_2)\cdot\mu^{\mathrm{B}}(S_3)$$

where through $\vee$ – denotes the disjunction operation (corresponding to the «OR» operation), such that $\mu^{a_{i*}^p}(S_i)\vee\ \mu^{a_{i*}^p}(S_{i+1}) = \max\left(\mu^{a_{i*}^p}(S_i),\ \mu^{a_{i*}^p}(S_{i+1})\right)$; $\cdot(\wedge)$ – denotes the conjunction operation (correlated with the operation «AND»), so that $\mu^{a_{i*}^p}(S_i)\wedge\ \mu^{a_{i*}^p}(S_{i+1}) = \min\left(\mu^{a_{i*}^p}(S_i), \mu^{a_{i*}^p}(S_{i+1})\right)$.

Similarly, we can present the final rules for the other three terms (З, НЗ, К):

$$\mu^{З}(S_1...S_3) = \mu^{C}(\mathrm{S}_1)\cdot\mu^{\mathrm{C}}(S_2)\cdot\mu^{\mathrm{C}}(S_3)\vee$$
$$\vee\,\mu^{H}(\mathrm{S}_1)\cdot\mu^{B}(S_2)\cdot\mu^{\mathrm{H}}(S_3)\vee \quad ,$$
$$\vee\,\mu^{C}(\mathrm{S}_1)\cdot\mu^{\mathrm{H}}(S_2)\cdot\mu^{\mathrm{ДВ}}(S_3)$$

$$\mu^{НЗ}(S_1...S_3) = \mu^{H}(\mathrm{S}_1)\cdot\mu^{\mathrm{H}}(S_2)\cdot\mu^{\mathrm{H}}(S_3)\vee$$
$$\vee\,\mu^{H}(\mathrm{S}_1)\cdot\mu^{H}(S_2)\cdot\mu^{\mathrm{C}}(S_3)\vee \quad ,$$
$$\vee\,\mu^{B}(\mathrm{S}_1)\cdot\mu^{\mathrm{C}}(S_2)\cdot\mu^{\mathrm{ДН}}(S_3)$$

$$\mu^{K}(S_1...S_3) = \mu^{ДН}(\mathrm{S}_1)\cdot\mu^{\mathrm{ДН}}(S_2)\cdot\mu^{\mathrm{ДН}}(S_3)\vee$$
$$\vee\,\mu^{C}(\mathrm{S}_1)\cdot\mu^{ДН}(S_2)\cdot\mu^{\mathrm{H}}(S_3)\vee \quad .$$
$$\vee\,\mu^{ДН}(\mathrm{S}_1)\cdot\mu^{\mathrm{ДН}}(S_2)\cdot\mu^{\mathrm{B}}(S_3)$$

Consider a set of rules, for example, for parametric assessment of the financial and economic subsystem:

To ex'press the degree of relationship between the output variable and the input, the function of belonging of the input variables to the value of the output variable can be represented as follows:

$$\mu^{g^k}(S_1, S_2, S_3) = \bigvee_{p=1}^{5}\left[\bigwedge_{i*=9}^{11}\mu^{a_{i*}^p}(S_i)\right].$$

Then, based on the provisions of the theory of fuzzy sets, you can form a fuzzy set of the original variable Z:

$$\mu^{g^k}(Z) = \max_{p=\overline{1,5}}\left(\min_{i*=\overline{9,11}}\mu^{a_{i*}^p}(S_i)\right),$$

where $\mu^{a_{i*}^p}(S_i)$ – membership function of the input variable S_i to the term a_{i*}^p; $\mu^{g^k}(Z)$ – membership function of the input variable Z to the term g^k.

Determining the level of efficiency of the bank is based on an algorithm such as Mamdani, as one of the most common methods of fuzzy derivation [15].

Conclusions

The article considers aspects of the development of the banking sector and its impact on economic growth,

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the key to success is a wider range of information systems and technologies. The main driver of economic growth is innovative digital technologies to adapt services to meet the needs and demands of users, providing efficient banking products and services.

A conceptual model for evaluating the efficiency of banks based on the theory of fuzzy sets is proposed, which allows to identify groups of indicators of production (operational), financial, economic and management subsystems of the bank, and form an integrated indicator for evaluating the effectiveness of banks for effective management decisions.

The developed conceptual model for evaluating the effectiveness of banks can be used to improve decision-making systems used in the activities of banking institutions.

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ANALYSIS OF PROJECT MANAGEMENT SOFTWARE

Cheverda S.S.
Zaporizhzhia National University
Ukraine, 69600, Zaporizhzhia, Zhukovsky str., 66
cheverdaserega@gmail.com
ORCID: 0000-0002-0473-7195

Key words:
project management systems, ActiveCollab, JIRA, BaseCamp, Trello, Wrike, TeamworkProjects

The article highlights the features of IT project management software to determine the best option with the best quality characteristics and high efficiency by saving time, financial and material resources. It is noted that IT companies can achieve a competitive advantage by implementing project management information systems, namely a comprehensive project management system. The author describes the basic and instrumental parts of the system, its functions, which are implemented using information technology. Modern information technologies are based he such principles as: interactive fashion of operation, flexibility of the process, integration (coherence) with software products. The task of information technology project management is to provide the user with a wide range of functionalities for project activities. Project management systems are considered as sets of tools, methodologies, methods and resources used in the management process, including tools for task planning, scheduling, budget management, resource allocation, documentation, reporting, collaboration. The author analyzes six project management systems: ActiveCollab, JIRA, BaseCamp, Trello, Wrike, TeamworkProjects, describes the functionality of each tool. The article presents the results of comparing project management systems, substantiates the differences and advantages of services, provides recommendations for choosing a project management system. Also he the basis of the presented analysis the alternative in the form of development of own software decision and its expediency is considered.

АНАЛІЗ ПРОГРАМНИХ ЗАСОБІВ ДЛЯ УПРАВЛІННЯ ПРОЄКТАМИ

Cheverda S.S.
Запорізький національний університет
Україна, 69600, м. Запоріжжя, вул. Жуковського, 66

Ключові слова:
системи управління проєктами, ActiveCollab, JIRA, BaseCamp, Trello, Wrike, TeamworkProjects

У статті висвітлюються особливості програмних засобів управління IT проєктами для визначення оптимального варіанта з найкращими характеристиками якості і високою ефективністю за рахунок економії часу, фінансових та матеріальних ресурсів. Зазначено, що IT підприємства можуть досягти конкурентної переваги шляхом впровадження інформаційних систем управління проєктами, а саме с комплексної системи управління проєктами. Автором описано базову та інструментальну частини системи, її функції, що реалізуються за допомогою інформаційних технологій. В основу сучасних інформаційних технологій покладено такі принципи як: інтерактивний режим роботи, гнучкість процесу, інтегрованість (узгодженість) з програмними продуктами. Завдання інформаційних технологій управління проєктами полягає у наданні користувачеві широкого спектру функціональних можливостей щодо проєктної діяльності. Системи управління проєктами розглянуто як набори інструментів, методології, методів і ресурсів, що використовуються в процесі управління, включають засоби для планування завдань, складання розкладу, управління бюджетом, розподілу ресурсів, документування, формування звітів, спільної роботи виконавців. Автор аналізує шість систем управління проєктами: ActiveCollab, JIRA, BaseCamp, Trello, Wrike, TeamworkProjects, описує функціональні можливості кожного інструменту. В статті наведено результати порівняння систем управління проєктами, обґрунтовано відмінності та переваги сервісів, надано рекомендації щодо вибору системи управління проєктами. Також на підставі представленого аналізу розглядається альтернатива у вигляді розробки власного програмного рішення та його доцільність.

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Statement of the problem

The activities of a modern organization are closely related to the implementation of a large number of different works, implementation of projects, implementation of management instructions, approval of documents, preparation of tender documents, etc. Planning and monitoring the implementation of all these types of work is complicated by the large number of projects, deadlines and those responsible for their implementation. Developments in the field of information technologies and, in particular, in the field of project management systems allow to significantly increase the efficiency of management of these activities. The choice between purchasing existing software solutions and developing your own information system is relevant for bridge organizations that plan to increase the efficiency of their activities by automating the processes of planning and control. Project management includes planning, organization and control of labor, financial and logistical resources aimed at effectively achieving project objectives. Therefore, one of the ways to solve the problem of improving the efficiency of project management is the implementation of appropriate software. The use of automated project management systems has long been limited to traditional areas (large construction, engineering, defense projects) and required professional knowledge, but over the past decade the situation in the use of scheduling software and project management has changed dramatically [1]. There are a number of universal PC software packages he the market today that vending machines project planning and control.

The current stage of project market formation is characterized by increasing requirements for project management systems that will reduce the risks of making incorrect management decisions.

Analysis of recent studies and publications

In IT project management it is important to combine all management functions and create flexible systems that allow you to quickly assess the effectiveness of IT project, IT project planning, planning and management of material flows, monitoring the implementation of IT project processes, as well as planning strategic activities of IT companies [2]. Development of information systems based he the integration of organizational and technical systems, as well as the use of intelligent methods for solving management problems are considered in the scientific works of V.M. Antonenko [3]. The authors investigated the making of managerial decisions in organizational and technical systems [4; 5]. Bashinska I. and Novak N. substantiate the bridge important requirements for software in IT project management [6]. In his article, Prokopenko T. compares in detail two software tools for project management, namely Trello and Jira [7]. However, for an IT project in the management process it is important to take into account the factors of rapid change of circumstances, when it is necessary to cover a large amount of incoming information, compare it with existing information, take into account past experience, understand different situations, interventions in management decisions. [8]. That is, the factor of software versatility becomes important, which should be taken into account when choosing a software in IT project management systems.

Objectives of the article

The purpose of this article is to study the software tools for IT project management to determine the best option with the best quality characteristics and high efficiency by saving time, financial and material resources.

The main material of the research

IT companies can achieve a competitive advantage by implementing project management information systems that, based on complete, reliable and up-to-date information, accelerate management decisions. Information systems can be implemented in the form of a corporate information system (covering the automation of all management functions and the entire cycle of project work) or individual functional subsystems operating in the enterprise. The formation of an information support system based on individual functional subsystems is impossible due to low integration of project information and, as a consequence, obtaining low quality information. Therefore, an effective approach is to create a comprehensive project management system, which includes a basic part, which includes organizational, legal, informational, technical and software and tool part, which includes those elements that determine its purpose and capabilities of information management. The instrumental part is considered a project management model, it is built on the basis of three components: available resources, planned work and the matrix of distribution of project work. The functions of the project management system are implemented with the help of information technology, which consists of clearly regulated actions of personnel for information processing. Modern information technologies are based on the following principles: interactive mode of operation; flexibility of the process of changes in both data and task setting; integration (consistency) with other software products. The task of project management information technology is to provide the user with a wide range of functionalities for project activities by the following means: description of project parameters and works; multilevel project presentation; formation of the list of resources, volumes of works, etc .; calendar and network planning; graphic representation of the project structure; project implementation monitoring; creation of reports and standardization of electronic document management; organization of communication (work in a network environment). Software tools used in the practice of project activities can be divided into the following groups: spreadsheets, artificial intelligence systems, integrated integrated enterprise management systems, specialized project management software products.

Project management systems are sets of tools, methodologies, methods and resources used in the management process, including tools for task planning, scheduling, budget management, resource allocation, documentation, reporting, collaboration. At the heart of

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any project management system is a management plan that describes how the system will be used. The content of the latter varies depending on the scope, features of the organization, the complexity of the project and the availability of the necessary resources. The system is built to best meet the strategic goals and production resources of the organization. Modern development of information technology has led to the emergence of a large number of web-based services available through the corporate network of the organization or the Internet, which facilitate the collaboration of a large number of distributed participants. Web-based systems and project management are project -oriented workspaces for one or more projects that are available to all participants. Project management systems usually include a project status bar, calendar, tasks (by project and responsible), list of employees (with the ability to view each workload), project plan, network schedule, project reports, time and attendance system, messaging system, file storage and documents.

The application of the project management system allows: create, implement and adjust the project work plan, effectively allocate material and human resources needed for project implementation, control the main indicators of pace and quality of project implementation, improve production efficiency, establish relationships in the implementation of various projects, take into account the advantages and disadvantages of the work performed when planning a new project. For effective management of project team members, it is necessary to see objective information about each active project: current tasks, the course of their implementation, calendar and network schedules, changes during project work. To increase efficiency, it is necessary to automate standard functions, improve the quality of planning, use the experience gained. Project management software covers a number of platforms, each with a different set of features. It is extremely important that the chosen software product simplifies project management and does not add unnecessary complexity.

Were selected for analysis, namely: ActiveCollab, JIRA, BaseCamp, Trello, Wrike, TeamworkProjects. These control systems today are quite popular in the market and cover almost all areas of application of such systems.

ActiveCollab is a cloud-based project management platform suitable for organizations of all sizes. It offers task management, time scheduling, teamwork, reporting tools and email integration. Task management tools include dashboards for each user that display their assigned tasks. Tasks can be filtered by time, by assigned users, or by special labels. Users can create tasks, attach files, set deadlines, add reminders, leave comments, and receive update notifications. Tasks can be viewed as a timeline, kanban board, calendar or list. Users can record the time spent on each task and set hourly rates for different jobs. The stopwatch tool helps users keep track of working hours. ActiveCollab also offers invoice and payment tracking features, including automatic reminders for customers when payments are overdue. Support is provided online via email. Monthly, annual and one-time tariff plans are available [3].

JIRA is a bug tracking and project management tool designed for teams of all sizes. JIRA allows you to track the workflow and errors in the project with some features of the Agile methodology. These features include Kanban and Scrum boards, as well as reporting capabilities such as task burnout schedules that help support teams at different stages of the development lifecycle. JIRA integrates with developer tools, and teams can use different APIs and add-ons to fine-tune the needs of each team. JIRA is available as a cloud solution and is compatible with multiple operating systems. It also offers a mobile application. The cost of use for one month is calculated by the number of users in the team. Support is available through the online support portal, online documentation and training videos [4].

BaseCamp is a real-time communication tool that helps teams stay on one page, which is not a traditional solution among project management systems. With to-do lists, calendars, deadlines, and file sharing, BaseCamp allows teams to keep track of the priorities and tasks they need to accomplish. Since 2004, the Basecamp team has focused on developing a simple interface where users can create projects, distribute documents and manage tasks. It is software that allows users to log in anywhere, anytime, anytime, through a web browser or through applications compatible with a large number of mobile devices. Basecamp can be deployed by any organization that should lead the team, including non-profit organizations, startups and customer service firms, in addition, it can be used among freelancers. The tariff plan depends on the size of the file storage and the number of users [5].

Trello is a tool for collaboration, task planning and projects. Used by both software development teams and other departments (marketing, sales, support and HR). The web application provides tools for describing projects, their requirements and workflow so that projects are completed in a systematic and consistent manner. Trello offers a digital whiteboard for creating, organizing and prioritizing tasks. Administrators or managers can define workflows, assign tasks to individuals or teams, set deadlines, and monitor progress. Trello cards allow users to collaborate with each other. Users can add comments, add participants and add documents to their assigned tasks. Trello has a free subscription, but also offers a professional package with the confidential and administrative settings needed for large businesses. Trello integrates with a number of online applications, including JIRA Cloud, BitbucketCloud, Google Drive, GitHub and Slack [6].

Wrike is a cloud-based project management platform for teams of more than 20 people. It comes with Gantt charts, calendars, resource management workload views, special dashboards and real-time updates. This allows you to structure projects and tasks using directories, as well as automatically assign tasks based on their states. Wrike covers a wide range of industries, from finance and technology to creative and advertising activities. Wrike integrates with a variety of tools, including SalesForce, Dropbox, Slack, and AdobeCreativeCloud, and offers an open API. The solution is available to every user based on a monthly subscription.

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TeamworkProjects is a cloud-based project management solution that provides functionality to manage various project tasks. Among the functions of the tool: to-do lists, time tracking, downloading files and messages. TeamworkProjects helps teams manage project goals, communicate and set up business processes [7]. TeamworkProjects has a project scheduling feature that allows project managers to define project tasks, assign them to team members, and track ongoing tasks. The solution also includes document management, which allows users to share documents as part of a team. The client payment feature allows users to create invoices based on time spent on work and resource costs. Dashboards provide access to project objectives, and project collaboration features allow you to communicate via mobile devices, so team members and project managers can remotely monitor project implementation. TeamworkProjects can be integrated with applications such as FreshBooks, Dropbox, Google Drive and others. Services are offered on a monthly subscription basis, including telephone and email support.

To select among the analyzed project management systems, select the following criteria:

– ability to manage projects and tasks;
– the ability to build a Gantt chart;
– the possibility of accounting for resources and finances;
– the ability to manage documents;
– the ability to generate reports;
– availability of a mobile application;
– Presence of emoji or stickers.

Based on the results of the analysis of project management systems (Table 1), we can conclude that for large, long-term projects should prefer ActiveCollab, Wrike or TeamworkProjects, as they are able to provide support for complex projects, providing extensive opportunities in time planning, team management and control of all aspects of projects. JIRA, BaseCamp, Trello are better suited for small and medium projects, as they have only basic functions such as task management and teamwork, but their simplicity allows you to quickly set up the production process and provide quality support for small teams, as well as the cost of a license. such systems are much smaller, in comparison with more complex analogues.

According to Table 1, the considered systems have a rich functionality, support work with projects and tasks, have built-in mechanisms for constructing Gantt charts, allow you to automate work with documents and manage system users. Any of the considered services can be used as a full-fledged project management system. Differences are in additional functions: the possibility of using as a corporate information system, the availability of communication environment, electronic coordination of documents, built-in telephony functions, etc.

In cases where the institution does not want to use third-party developments and has several free web programmers, the most promising direction is the development of web-based applications, despite the fact that desktop (user-installed system) options are in some cases more productive, but they less flexible to customize. In addition, sharing the system for web applications does not require installing the client part on users' computers, which simplifies the deployment process.

Disadvantages of using web-based systems: rather complex system administration, the need to use a single software product, or at least the agreement and harmonization of data formats used, problems that arise when working with data over a corporate network or the Internet.

Conclusions

The activities of a modern organization are inextricably linked with the implementation of a large number of different works, planning and monitoring of which cannot be carried out without taking into account modern advances in information technology. Software solutions are aimed at automation and significantly increase the efficiency of organizations. Given the high cost of owning existing project management software systems on the market, the need to integrate them with other information systems used in organizations is also promising to develop your own solution. This will not only reduce financial costs, but also solve the problem of integration and subsequent mandatory modernization of this system. It should be noted that the latter is one of the determining factors in the choice between own development or purchase of a ready-made solution. The project management system can be developed as an integral part of the corporate information system of the organization, which also combines such components as control over the execution of orders, personnel accounting, preparation of approval of documents, etc. A single management system will raise the efficiency of management of the organization to a whole new, higher level, streamline work processes, combine a variety of activities that require constant analysis and monitoring.

Table 1 – Comparison of project management systems

	Project management	Gantt chart	Resource accounting	Document management	Reports	Mobile application	Smiley stickers
Trello	+	–	–	+	+	+	+
Baseca mp	+	–	–	+	+	+	+
JIRA	+	–	+	+	+	+	+
TeamworkProjects	+	+	+	+	+	+	+
ActiveCollab	+	+	+	+	+	–	–
Wrike	+	+	+	–	+	–	–

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

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PROBLEMS OF PRODUCT COST PLANNING

Varlamova I.S., Rybalko O.M., Gamazynska A.V.
Zaporizhzhia National University
Ukraine, 69600, Zaporizhzhia, st. Zhukovsky, 66
irina.varlamova.zp@gmail.com, hamazynska@ukr.net

Key words:
planning, cost, enterprise, methods, costs, targeting acceptance, classification, resources, efficiency, optimization

The article examines traditional and modern methods of cost planning. The classification of production costs by the method of determining the elements that form the cost of production is given. It is substantiated that the expediency of using each method depends on a number of factors, namely: the characteristics of the enterprise, the nature of the production process, type of product, the complexity of the production process, the results achieved, market conditions. Among the traditional methods are such methods as: the method of cost planning by technical and economic characteristics, estimated cost, the method of calculating the cost, regulatory. Among the modern planning methods are focused on such as: extracurricular method of calculating the cost of production, preliminary (post-process), the method of coverage and the target method. Target-costing is identified as a method of calculating the cost of production, which allows a new look at the interdependence of prices, profits and cost. It is determined that in the case of the introduction of target-busting there are difficulties in using additional production units in the development of a new product; unexpected excess of the actual cost over the planned already in the process of production; the impossibility of changing the technology of production of a new product in order to reduce its cost. Factors for reducing the cost of production due to changes in production and fixed costs; saving materials and reducing their cost; increase in labor productivity, which exceeds the growth rate of wages.

ПРОБЛЕМИ ПЛАНУВАННЯ СОБІВАРТОСТІ ПРОДУКЦІЇ

Варламова І.С., Рибалко О.М., Гамазинська А.В.
Запорізький національний університет
Україна, 69600, м. Запоріжжя, вул. Жуковського, 66

Ключові слова:
планування, вартість, підприємство, методи, витрати, прийняття націлювання, класифікація, ресурси, ефективність, оптимізація

У статті досліджуються традиційні та сучасні методи планування витрат. Наведено класифікацію виробничих витрат за методом визначення елементів, які формують вартість виробництва. Обґрунтовано, що доцільність використання кожного методу залежить від ряду факторів, а саме: характеристик підприємства, характеру виробничого процесу, виду продукції, складності виробничого процесу, досягнутих результатів, кон'юнктури ринку. Серед традиційних методів виділяють такі методи як: метод планування витрат за техніко-економічними характеристиками, кошторисна собівартість, метод калькулювання собівартості, нормативний. Серед сучасних методів планування зосереджено увагу на таких як: позааудиторний метод калькулювання собівартості продукції, попередній (післяпроцесний), метод охоплення та цільовий метод. Target-costing ідентифікується як метод калькулювання собівартості продукції, що дозволяє по-новому поглянути на взаємозалежність цін, прибутку та собівартості. Визначено, що у разі впровадження таргет-перебору виникають труднощі щодо використання додаткових підрозділів виробництва при розробці нового продукту; несподіване перевищення фактичної собівартості над плановою вже в процесі самого виробництва; неможливість зміни технології виробництва

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нового продукту з метою зниження його вартість. Викладено фактори зниження собівартості продукції за рахунок зміни обсягу виробництва та постійних витрат; економії матеріалів та зниження їх вартості; підвищення продуктивності праці, що перевищує темпи зростання заробітної плати.

Formulation of the problem

In conditions of deepening competition in both domestic and foreign markets, as well as increasing requirements for product quality encourages companies to develop creative approaches to improve efficiency, which largely depends on planning production costs, which together form the cost of production.

The basis of the new philosophy of the planning process is the ability to respond in a timely manner to changing market conditions, which involves the principles of dynamism and rationality in reducing production costs during periods of negative market fluctuations, and in favorable economic conditions to optimally allocate resources between current and investment activities. This organization of the process of planning production costs, ie the cost of production, significantly increases the chances of the company not only «survive» in conditions of significant market transformations, but also successfully operate and build a future strategy for enterprise development.

Analysis of recent research and publications

A significant number of works by foreign and Ukrainian scientists testifies to the significant interest of scientists in the issues of theoretical substantiation of product cost and methods of its planning. Among foreign researchers, the problems of cost accounting and cost planning should be distinguished Drury K., Apchercha A., Skun T., Foster J., Horngren C. [5, 10], who considered the cost of production in terms of management accounting.

Ukrainian scientists also make a significant contribution to the development of theoretical and practical principles of the process of product cost planning. Among them are: Butynets F. [1], Vasyuk G. [2], Dreval. O. [3], Ivanyuta P., Luhivska O. [4], Lisovyi A., Lyashenko G., Pizhuk O. [6], Ryasnykh E., Larionova K., Orlov O. [7], Sopko V. [8], Shik L., Skorobogatova N. [9] and other scientists and economists.

Despite the significant amount of theoretical and practical research on product cost planning taking into account industry specifics, in our opinion, a more thorough analysis requires classification of product cost planning methods and focus on modern approaches used in enterprise management accounting.

Formulation of the objectives of the article

The purpose of the article is to reveal the theoretical approaches to the essence of the category of cost of production of the enterprise, to determine the main stages of formation of the cost of production of the enterprise management system. As well as a critical analysis of applicable in the practice of domestic enterprises methods of cost planning, analysis of the structure of production costs, determining the efficiency of financial resources of the enterprise on the basis of comparative analysis of the enterprise.

Presentation of the main material of the research

Modern economic realities indicate the need to identify and eliminate obstacles in the enterprise by finding alternative factors and involving them in production, as well as finding reserves that are not fully used or are not involved in the production process. The efficiency of the enterprise functioning and prospects of its future development depend on it, and also directly influences results of activity and their optimization. After all, the strength of the «immunity» of economic agents depends on how profitable their activities are. In addition, companies that demonstrate inefficient activities are unviable and cannot withstand fierce competition.

Among the indicators that determine the efficiency of the enterprise is the cost. Cost is a synthetic indicator that covers all aspects of production and economic and financial activities, namely: the efficiency of material, labor and financial resources, quality of work and the organization of the management mechanism in general.

In the scientific literature, the cost of products (works, services) is defined as a cost estimate of the level of use of resource potential, capital resources, services from third parties and the level of wages. The cost of production directly determines and affects the amount of profit of the enterprise. There is an inversely proportional relationship between these indicators, the higher the cost of production, the lower the profitability of the enterprise, and vice versa. Such analytical dependence characterizes the degree of rational use of resources and the efficiency of the organization of the production process, which directly affects the profit and level of profitability.

Based on the above, it should be concluded that the calculation of the cost of production is one of the main tasks for the company, which seeks to achieve a rational allocation of resources and optimize the results of its activities. In addition, the quantitative determination of the cost is the basis for forecasting and forming a mechanism for managing the production process of the enterprise in order to purposefully influence the results of activities.

Cost is important from the point of view of the practice of economic activity of the enterprise, because it involves the process of cost planning.

The main purpose of cost planning, which together form the cost of production, is to ensure the appropriate level of optimization of current costs, which allows to ensure appropriate rates of increase in profitability and profitability, taking into account the principle of rational use of natural resource potential [3, p. 104].

The main tasks of product cost planning include:

– analysis of indicators in monetary terms of production and financial activities of the enterprise as a whole or its individual structural units;

– determination of production capacity and the required amount of reduction in production costs according to the plan compared to previous periods;

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– costing of all types of products produced by the enterprise;

– analysis of the inexpediency of individual costs and identify measures and tools to eliminate them in general or reduce the negative impact;

– assessment of the impact of production costs and its reduction on the profitability and profitability of economic activity of the enterprise.

The use of structural analysis allows us to identify the main units of the cost plan of the enterprise:

– analytical determination of the amount of cost reduction by increasing the efficiency of technical and economic factors;

– calculation of the cost of products produced by the enterprise;

– preparation of a general estimate of production costs.

In the practice of industrial enterprises widely use the principle of allocating certain types of costs to the cost of production, which is that cost planning covers production costs, which ensures the efficiency of reproduction of almost all components of the production process, while all other costs have financial coverage profit or investment account.

The production activities of the enterprise are characterized by unproductive costs, such as loss of materials, downtime, production of substandard products, which are compensated by the inclusion in the cost of production [1].

In turn, the costs incurred as a result of violation or non-compliance with the terms of agreements (contracts), such as: penalties, fines, complaints, are reimbursed from the profits of the enterprise.

The process of cost planning is a certain algorithm, which consists of a sequence of actions – steps.

The initial step in the process of planning production costs is to determine the criteria for their classification, which involves the division of all costs into certain groups according to a certain criterion – a feature, characteristic (Fig. 1).

Note that the classification of costs greatly facilitates the process of planning the cost of production by ensuring their order and systematization.

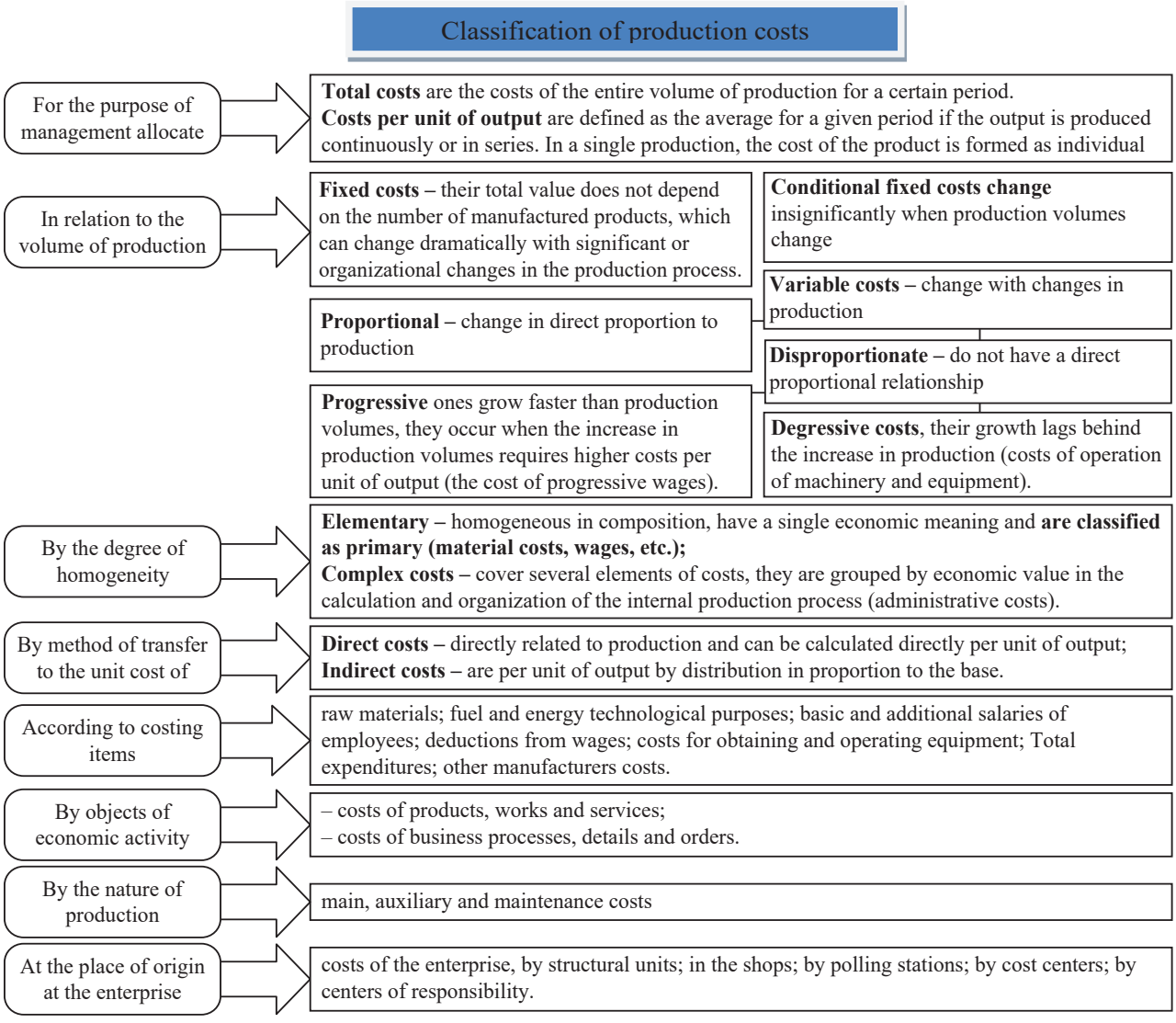

Fig. 1 – Criteria for classifying production costs to build a «cost plan»

Source: built on [5; 9]

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Quite common for industrial enterprises is the classification of the distribution of costs by place of origin. The purpose of such grouping is the reliable formation of the cost of finished products, ensuring the appropriate level of responsibility of structural units of the enterprise for the distribution (redistribution) of financial resources and the process of their optimization.

The distribution of costs depending on the objects that carry out economic activities allows you to determine the actual cost of production in general and its individual types. Based on this criterion, the selling price is determined, the level of profitability is analyzed and the possibilities of reducing the cost of certain types of products are outlined, etc.

The second step in the cost planning process is to analyze the effectiveness of the use of financial resources of the enterprise based on a comparative analysis of current and past periods. The purpose of such an analysis is to estimate the actual costs compared to the planned period or the previous (in time) cost level.

The appropriate sequence of analysis involves the following steps:

– estimating the cost for the reporting period and comparing the fact with the plan;

– determination of growth and growth rates;

– analysis of the structure of costs and their changes with the determination of the share of each type of costs;

– study of costs based on the division into constants and variables;

– calculation of the share of production and non-production costs and analysis of the relationship between them;

– justification for choosing the method of cost allocation.

In the practical activities of industrial enterprises, it is rational to use scientifically sound methods of cost planning, which are presented in Figure 2.

We consider it appropriate to comment on the specific aspects of each of these methods.

The method of planning costs by technical and economic factors determines the impact of technical and economic factors on the cost of production and allows to formulate a number of measures to reduce its level by improving the use of technology and economic levers of influence.

The estimation method allows to detail each type of expenses which form production costs, and to harmonize the work of each of the divisions of the enterprise separately, and also in their interaction. Substantiation of the level of costs per unit of output is based on the method of calculations.

The normative method determines the compliance of production costs and costs with certain defined norms and standards, as well as to make effective management decisions to optimize the use of resources and improve performance.

In addition to these methods, it is impossible not to single out modern methods of cost planning, which are used in today's industrial enterprises (Fig. 3).

Out-of-order, boiler, preliminary method of product cost planning and coverage method are well known in domestic practice. From this point of view, we will focus in more detail on the method of target costing – as a modern method of planning, which allows you to get creative in understanding the role of price, profit and cost, as well as to determine the relationship between them.

The method of target costing is that the primary role is to determine the unit price at which the company must sell the planned number of finished products (goods, works, services) with a stable level of profitability, at least for the previous period. According to this method, the difference between these indicators forms the level of cost, which is a guide for the company – the target cost. Target cost is a criterion value, which is the basis for the production and sale of products (goods, works, services) to end users.

Using this approach allows to ensure the required level of production costs by increasing the level of efficiency and use of alternative opportunities and reserves to reduce costs, rather than by deteriorating quality and, accordingly, the formation of a negative image of the enterprise. Based on the above, it should be noted that the method of target costing can increase the level of profitability of the enterprise in general, and the founders, shareholders and investors in particular.

There is a real opportunity to save resources on new product development, as well as reduce the cost of marketing activities by meeting the needs of target consumers in both quality and price characteristics.

Despite the significant advantages of the method of target costing in cost planning, of course, there are obstacles to its use in the enterprise. The main disadvantages include:

– mandatory participation of all structural units of the enterprise in the development of new products. At the same time, there may be significant obstacles in the event of inconsistencies in the conditions of the task between the divisions of the enterprise, as well as the inability in the short term to determine a common methodology for optimizing production costs. It is extremely difficult to convince the heads of individual departments in the need to reduce costs in order to achieve the overall efficiency of the enterprise as a whole and structural units;

– increase in the actual cost above the planned cost, which becomes apparent only in the production process. To avoid this situation, the market should be systematically monitored and changes in its situation, as well as the dynamics of supplier prices and changes in tastes and needs of consumers. It is not possible to neglect these measures, as the result will be packaging of finished products that are not in consumer demand.

To reduce the cost of production, it is impractical to change the technology of production of new products. The result of such modifications may be the risk of losing significant financial resources, namely the cost of existing developments and loss of time. In addition, there is a risk of production, which is made under the conditions of suboptimal use of resource potential or is not in demand in the market [2].

Thus, the main purpose of the process of planning the cost of production is to increase the efficiency of the enterprise by achieving cost optimization, which together are part of the total cost of production. Factors that reduce

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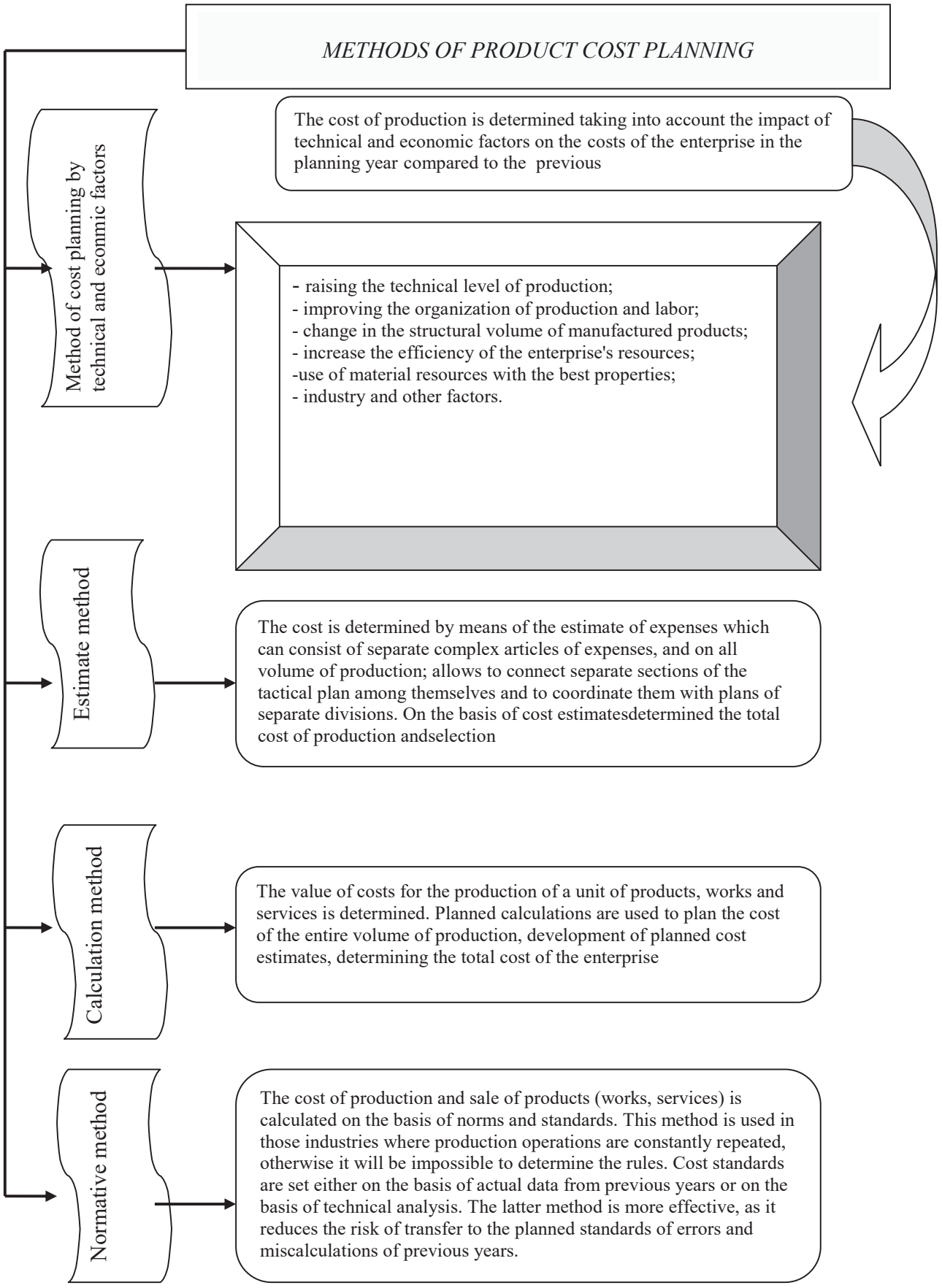

Fig. 2 – Methods of cost planning

Source: built by the author for [4; 8]

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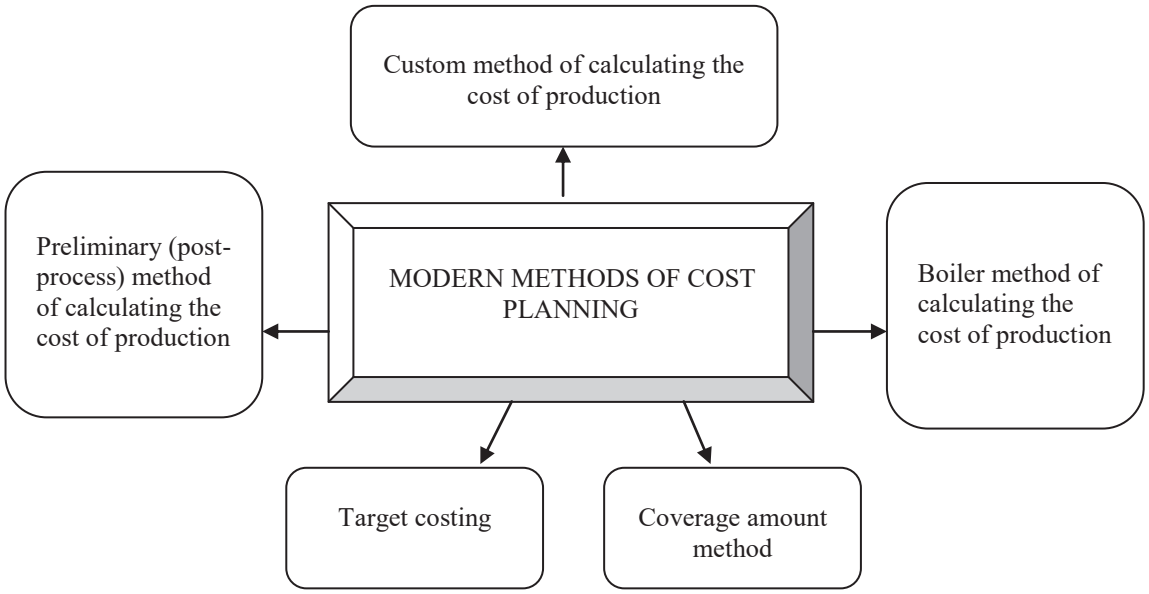

Fig. 3 – Modern methods of product cost planning

Source: built by the author [6; 7]

the cost of production can be grouped into three groups: changes in production and fixed costs; saving resources used in production and reducing their cost; intensive development of the enterprise, which assumes that the growth rate of labor productivity is higher than the growth rate of wages – wages.

Conclusions

The study of production cost planning methods allows not only to distinguish traditional, in terms of theoretical justification, but also modern methods based on their practical application, and formulate criteria for their use depending on the characteristics of the enterprise, species classification, nature of production and its complexity, the level of profitability and market conditions and more. Every company strives for production development, and therefore is in constant search of economically sound optimal solutions and the formation of a new philosophy of organization of production processes and management. Therefore, rational and conscious planning of production costs is of paramount importance for the successful operation of the enterprise and determine the trajectory of its future development, which is achieved by identifying and optimal use of reserves, resource potential and resource conservation. The development of a cost plan significantly increases the probability of successful operation of the enterprise in both domestic and foreign markets and ensures a high level of product competitiveness.

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RECOGNITION OF CREDIT LOSS RESERVE FOR NON-BANK FINANCIAL INSTITUTIONS: ISSUES OF METHODOLOGY AND PRACTICE

Goncharova V.G., Plutitska K.M., Seisebayeva N.G.
Zaporizhia National University
Ukraine, 69600, Zaporizhia, st. Zhukovsky, 66
sintez_audit2016@ukr.net, plutio@i.ua, ngs19570104@gmail.com

Key words:
enterprise, financial instruments, credit losses, segmentation, receivables, default, reserve matrix, depreciation

The article develops methodological recommendations for compliance with International Financial Reporting Standards (IFRS); Regulations on mandatory financial standards and requirements limiting risks on transactions with financial assets of credit unions, approved by the Order of the National Commission for State Regulation of Financial Services Markets dated 19.09.2019 № 1840; Regulations on determining the amount of credit risk by banks of Ukraine for active banking operations, approved Resolution of the National Bank of Ukraine of June 30, 2016 № 351. The requirements of IFRS 9 Financial Instruments (IFRS 9) for determining the amount of change in the fair value of a financial asset related to changes in the credit risk of such an asset are considered. The focus is on the requirements of IFRS, which establish the principle of recognizing the provision for expected credit losses on financial assets. The regulatory requirements for the company to take into account the change in the risk of default since the initial recognition when determining whether the credit risk of a financial instrument has increased significantly. The formula for calculating the reserve for expected credit losses is determined and reflected. Methods of accrual of the provision for credit losses are given. Assets and financial liabilities by quality categories are allocated. Factoring transactions are classified by maturity. The differences between the general and individual assessment of the reserve for expected credit losses are revealed. Some characteristics of credit risk by segmentation of financial instruments are given.

ВИЗНАННЯ РЕЗЕРВУ ПІД КРЕДИТНІ ЗБИТКИ НЕБАНКІВСЬКИХ ФІНАНСОВИХ УСТАНОВ: ПИТАННЯ МЕТОДИКИ ТА ПРАКТИК

Гончарова В.Г., Плутицька К.М., Сейсебаєва Н.Г.
Запорізький національний університет
Україна, 69600, м. Запоріжжя, вул. Жуковського, 66

Ключові слова:
підприємство, фінансові інструменти, кредитні збитки, сегментація, дебіторська заборгованість, дефолт, матриця резервів, знецінення

В статті розроблено методологічні рекомендації щодо дотримання вимог Міжнародних стандартів фінансової звітності (МСФЗ); Положення про обов'язкові фінансові нормативи та вимоги, що обмежують ризики за операціями з фінансовими активами кредитних спілок, затв. Розпорядження Національної комісії, що здійснює державне регулювання у сфері ринків фінансових послуг від 19.09.2019 р. № 1840; Положення про визначення банками України розміру кредитного ризику за активними банківськими операціями, затв. Постановою Національного банку України від 30.06.2016 р. № 351. Розглянуто вимоги МСФЗ 9 «Фінансові інструменти» (IFRS9) щодо визначення величини зміни справедливої вартості фінансового активу, що відноситься до змін кредитного ризику такого активу. Зосереджено увагу на вимогах МСФЗ, які встановлюють принцип визнання резерву для очікуваних кредитних збитків за фінансовими активами. Розкрито нормативні вимоги до підприємства щодо врахування зміни ризику настання дефолту з моменту первісного визнання при з'ясуванні того, чи зазнав значного зростання кредитний ризик за фінансовим інструментом. Визначена та відображена формула розрахунку резерву під очікувані кредитні збитки. Наведено методи нарахування резерву під кредитні збитки. Виокремлено активи та надані фінансові зобов'язання за категоріями якості. Класифіковано факторингові операції за терміном погашення. Розкрито відмінності між загальною та індивідуальною оцінкою резерву під очікувані кредитні збитки. Наведено окремі характеристики кредитного ризику за сегментацією фінансових інструментів.

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Formulation of the problem

At the end of each reporting period, the non-bank financial institution (hereinafter referred to as the enterprise) should assess whether there is objective evidence that the usefulness of the financial asset or group of financial assets measured at amortized cost is impaired. Such an annual assessment can lead to many errors on the part of the company, which will further lead to the modification of the independent auditor's report on financial statements, which is of great importance for senior management and participants of the company. Therefore, the authors propose ways to solve a number of problematic issues that arise in the process of determining the provision for expected credit losses.

Analysis of recent research and publications

The works of many scientists, in particular, I.V. Zholner [1], L.M. Kindratskaya [2], O.E. Kuzminskaya [3], O.V. Nebyltsova, R.S. Korshikova, L.I. Lukyanenko, V.V. Khodzitskaya [4]. At the same time, approaches to the classification and measurement of assets require a priority focus on compliance with International Financial Reporting Standards (IFRS) and a qualitative restructuring of existing procedures and procedures for assessing the impairment of financial assets.

Aspects of non-bank financial institutions as financial intermediaries are reflected in the works of foreign scholars – A. Akelrof, F. Allen, T. Beck, J. Hurley, R. Goldsmith, W. Diamond, K. Jalan, G. Gabbart [5].

A significant contribution to the study of the formation and regulation of the non-banking financial sector has been made by domestic scientists: V.D. Bazilevich [6], O.I. Baranovsky [7], V.I. Vikhlevschuk, S.V. Naumenkova, O.O. Gamankova [8], S.S. Osadec, A.L. Samoilovsky, O.O. Slyusarenko, B.M. Furman, O.Y. Shevtsova [9] and other scientists. However, quite often auditors during the audit of financial statements document existing errors and inconsistencies in the amount of the accrued reserve for expected credit losses, which are governed by the requirements of IFRS9 [10].

Formulation of goals

The purpose of the article is to provide guidelines for determining the methods and features of calculating the provision for credit losses of non-bank financial institutions that do not contradict the requirements of applicable regulations and apply a general and simplified approach to estimating expected credit losses.

Presentation of the main material of the research

The International Accounting Standards Board has provided two approaches to estimating expected credit losses: general and simplified. In accordance with the requirements of IFRS9, an entity determines the amount of change in the fair value of a financial asset that relates to changes in the credit risk of the following asset:

– as the magnitude of the change in its fair value, which is not related to changes in market conditions that cause an increase in market risk. That is, the entity shall estimate the difference between the credit risk at the balance sheet date and at the date of its initial recognition (general method);

– using an alternative (simplified) method, which, in the company's discretion, more accurately represents the amount of change in the fair value of the liability related to changes in its credit risk.

The stage of impairment is determined based on how significantly the level of credit risk on a financial asset has changed as of the reporting date compared to the initial level of credit risk on it. Assignment of a financial asset to one stage or another determines the procedure for estimating the amount of expected credit losses and the amount of interest income required to be recognized for each such financial asset [9].

Recognition of loss provisions for expected credit losses on financial assets in accordance with the requirements of IFRS9 (Fig. 1).

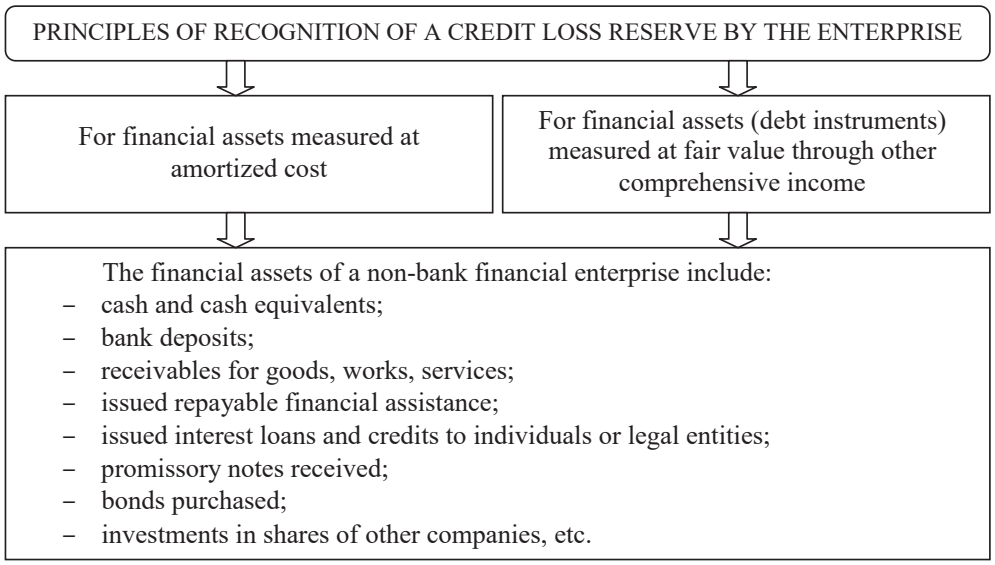

Fig. 1 – Principles of recognition by a non-banking financial institution of a provision for expected credit losses

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The standard introduces basic simplified assumptions:

– if the number of overdue days exceeded 30 days – there was a «significant increase in credit risk» (on the loan);

– if the number of days in arrears exceeds 90 days – there is «objective evidence of impairment».

In order to optimize the recognition of expected credit losses on debt financial assets and interest income on them, regardless of category (at amortized cost or at fair value with recognition of revaluation results in other comprehensive income), are divided into 3 stages of impairment (credit risk levels) (Fig. 2).

If there is objective evidence that there is an impairment loss on financial assets measured at amortized cost, the amount of the loss is measured as the difference between the asset's carrying amount and the present value of estimated future cash flows (except for future credit losses that were not incurred), discounted at the original effective interest rate of the financial asset (that is, the effective interest rate calculated at initial recognition). The carrying amount of the asset should be reduced directly or through the use of a provisioning account. The amount of the loss should be recognized in profit or loss.

If an entity determines that there is no objective evidence of impairment for a separately assessed financial asset (whether significant), it includes the asset in a group of financial assets with similar credit risk characteristics and evaluates them for impairment overall. Assets separately assessed for impairment for which an impairment loss is recognized or continues to be recognized are not included in the aggregate assessment of impairment.

If in the next period the amount of impairment loss decreases (for example, improvement of the debtor's credit rating), the previously recognized impairment loss must be applied to the method of «red reversal» (either directly or by adjusting the reserve account). A reversal shall not result in the carrying amount of the financial asset exceeding the amount that the amortized cost would have been if the impairment loss had not been recognized at the reversal date. The amount of the reversal should be recognized in profit or loss.

As at each reporting date, an entity assesses whether credit risk on a financial instrument has increased significantly since initial recognition. In performing such an assessment, the entity uses instead of changing the amount of expected credit losses to change the risk of default during the expected life of the financial instrument.

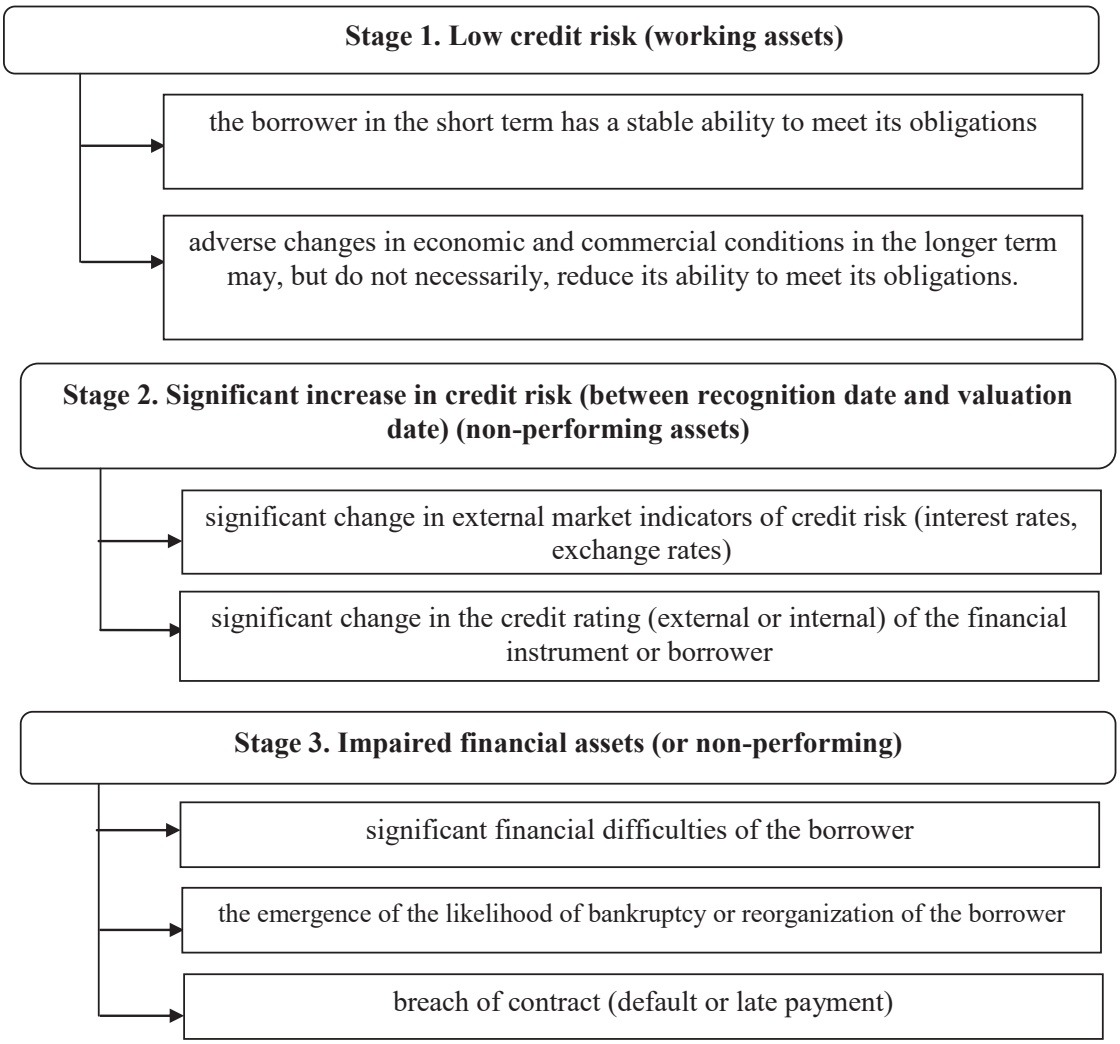

Fig. 2 – Stages of the life cycle of a debt financial asset

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To perform this assessment, the entity compares the risk of default on the financial instrument as at the reporting date with the risk of default on the financial instrument as at the date of initial recognition, and takes into account the confirmed information and indicates a significant increase in credit risk. the moment of initial recognition.

IFRS9 that in determining whether credit risk on a financial instrument has increased significantly, an entity should consider changes in the risk of default from the date of initial recognition.

When determining default to determine the risk of default, an enterprise should use a default definition that matches the definition used for internal credit risk management for the financial instrument and, if appropriate, considers qualitative indicators (financial conditions). However, there is a rebuttable assumption that the default occurs no later than the financial asset is overdue for 90 days if the company does not have reasonably necessary and corroborating information, which proves the feasibility of applying the criterion with a longer delay. The definition of default used for these purposes is applied consistently to all financial instruments, unless information becomes available indicating the appropriateness of applying another definition of default for a particular financial instrument [10, p. B5.5.37].

The default definition used for these purposes should be applied consistently to all financial instruments unless information becomes available demonstrating that another default definition is more appropriate for a particular financial instrument [10, p. B5.5.37].

Examples of defaults:

– incomplete payment under the contract;
– overdue payment under the contract;
– refusal or inability to pay interest;
– failure to provide documents stipulated by the contract;
– violation of financial covenants (support conditions);
– reduction of the sufficient level of collateral, guarantees, insurance;
– reduction of economic indicators (sufficiency of equity of the legal entity, reduction of receivables, etc.) [4].

When it comes to actual valuation under the general approach, an entity shall measure the ECL of a financial instrument to reflect the valuation principles set out in IFRS9. They dictate that the estimate of expected credit losses should reflect: an unbiased and probable amount; which is determined by estimating the range of possible results; temporary value of money; as well as substantiated and confirmatory information about past events, current conditions and forecasts of future economic conditions, available at the reporting date without excessive costs or effort [10, p. 5.5.17].

When assessing ECL, an enterprise does not have to consider all possible projected scenarios. However, the risk or probability of credit loss should be taken into account, reflecting the possibility of credit loss and the possibility that credit loss will not occur, even if the possibility of credit loss is insignificant [10, p.5.5.18].

It is also worth noting that the results of credit loss scenarios are not necessarily linear. In other words, an increase in unemployment by 1% may have a more negative impact than a positive effect caused by a decrease in unemployment by 1% [6].

The calculation of the provision for expected credit losses should be carried out according to formula 1 [2]:

$$ECL = EAD * PD * LGD * D, \quad (1)$$

where ECL (expected credit losses) – the present value of all amounts of cash shortages in the event of default during a certain period of validity of the financial asset (expected credit losses); EAD (exposure at default) – the amount of debt at the reporting date, subject to the risk of impairment; PD (probability of default) – probability of default; LGD (loss given default) – expected level of losses in case of default; D (discount) – discount rate; PD and LGD can be represented as a single factor LF (loss factor).

Then the general formula takes the form:

$$ECL = EAD * LF * D. \quad (2)$$

Modeling of expected loans on receivables can be carried out using the principles and approaches similarly described for the loan portfolio:

1. Deciding to conduct modeling on a collective or individual basis. However, it is important to remember that for collective modeling, receivables must be segmented into homogeneous segments.

2. Deciding on the criteria for recognizing receivables as default.

3. Determining the period for which the simulation of expected losses will be carried out.

4. Application of the general formula for estimating reserve payments (V) for modeling the expected credit funds for receivables, according to the formula:

$$V = EAD * PD * LGD * D. \quad (3)$$

The company can use a «simplified» approach to determining the risk of credit loss, given that the main segment of the activity is to provide loans (short-term) to individuals at their own expense [3].

If we consider PD in the context of trade receivables, the requirements of IFRS9 to track a significant increase in credit risk (SICR) in the process of distinguishing between the expected 12-month ECL and the ECL for the entire term is extremely difficult. This is due to the fact that trade receivables usually remain outstanding for a short period of time, and therefore it is impractical to try to find a SICR for it. For example, the typical terms of trade receivables lending can be 30 days. The application of the «general approach» requires the enterprise to determine the trade receivables under which the SICR has arisen since tax recognition. On this basis, it will conduct a separate assessment for 12-month ECLs and full-term ECLs, as described above in the «general approach». It depends on the general principles of evaluation, the «general approach» will not lead to excellent results for the 12-month ECL and the ECL for the entire period. This is due to the fact that the loan term is only 30 days. This is the need for simplification. It is impractical and ineffective to require an enterprise to take a general approach to short-term receivables.

Therefore, IFRS9 allows an entity to apply a «simplified approach» to trade receivables, contractual assets and lease

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receivables. The simplified approach allows companies to recognize full-time ECLs for all of these assets without having to define a SICR. However, not all trade receivables, contractual assets or lease receivables are short-term. That is, for long-term receivables, the difference between the 12-month ECL and the ECL for the entire term is significant. In such situations, the recognition of the ECL for the full term may lead to an increase in the estimated allowance for losses and more significant impairment losses compared to the ECL for 12 months. This approach is used to eliminate situations where the full-term use of the ECL for an asset that has not experienced an increase in credit risk will result in an excessive provision for expected credit losses compared to the 12-month ECL.

For trade receivables and contractual assets that do not contain a significant component of financing, it is necessary to recognize the provision for ECL for the entire period (ie the company should always apply a «simplified approach» and stipulate this in the accounting policy).

For other trade receivables, other contractual assets and lease receivables, you can choose an accounting policy that will be applied separately to each type of asset (but it must apply to all assets of a certain type) [1].

Scope of the simplified approach: trade receivables, lease receivables, contractual assets that do not contain a significant component of financing.

The main characteristics of the simplified approach include: does not require tracking changes in credit risk; expected credit losses can be modeled for the entire life of the financial asset (Table 1).

The «simplified approach» using the matrix of estimated reserves is used for short-term trade receivables, for example for debtors with 30-day maturities, the definition of promising economic scenarios is not appropriate, whereas, during a period of credit risk exposure, a significant change in economic conditions is usually unlikely, and the increase in credit losses of previous years may be an appropriate basis for assessing the ECL.

The Provision Matrix, or simply the Provision Matrix, is nothing more than the application of appropriate levels (ratios) of losses to outstanding trade receivables (that is, the analysis of receivables by maturity). For example, an enterprise may apply different loss ratios, depending on the period of delay in repayment of receivables. Given the diversity of its customer base, an enterprise may use appropriate groupings for debtors if its past credit loss experience shows significantly different loss patterns for different categories of customers.

In cases where historical loss ratios are used as input, these losses need to be properly verified to confirm the completeness and accuracy of key parameters, including the credit risk characteristics used (for example, repayment dates) [8]. If the results are significant, a separate provision matrix based on general credit risk characteristics should be applied to the relevant receivables groups. An entity should examine historical credit loss ratios to determine whether there are significant differences in loss patterns for different customer segments.

Examples of criteria that can be used to group assets include geographical region, product type, customer credit rating, collateral or trade credit insurance, and customer type (for example, wholesale or retail) [10, p. B5.5.35].

Adjustment of historical loss ratios for use in ECL forecasting – to determine whether credit losses have occurred in the past in economic conditions similar to those expected to exist during the period of exposure of the risk debt portfolio [7].

It is important to consider whether the general approach to the portfolio is justified and whether past loss ratios have been calculated and properly adjusted for expected future changes in portfolio status and losses based on information available at the reporting date.

When determining the allowance for impairment it is necessary to take into account the following issues:

– expected losses within 12 months and during the term of use of assets;

– for financial instruments for which credit risk has not increased significantly or has increased significantly since initial recognition;

– is a shortfall during the life of the assets in the event of default within 12 months after the reporting date (or a shorter period if the expected useful life of the financial instrument is less than 12 months), weighted by the probability of default;

– the expected credit loss that arises as a result of all possible events of default during the expected life of the financial instrument.

To calculate the reserve for expected credit losses, the company, first, needs to group financial assets by type and group of impairment.

Overall assessment – a combination of the principle of homogeneity of credit risk to model the expected credit losses and distribution of loans:

− it is often almost impossible to reassess the risk for each financial instrument included in a homogeneous portfolio;

− the process of risk management for homogeneous loans is usually also carried out on an aggregate basis;

− financial assets can and should be valued on a collective basis in the absence of information for valuation on an individual basis.

Individual valuation – atypical instruments that cannot be attributed to any homogeneous portfolios (for example, a large atypical loan to a corporate borrower).

Table 1 – Application of approaches to the characteristics of financial assets

Simplified approach	
Trade receivables and contractual assets that do not contain a significant component of financing	A "simplified" approach is always used
Trade receivables, which contain a significant component of financing	Choice of accounting policy (between "simplified" and "general" approach)
Contractual assets that contain a significant component of financing	
Rental receivables	

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An enterprise may group financial assets on the basis of general characteristics of credit risk by maturity, date of initial recognition, credit risk ratings, type of counterparty, geographical location of the borrower [5].

The entity should perform analytical procedures on a regular basis to ensure that instruments that are assessed collectively continue to have similar credit risk characteristics:

− it is possible to resegment the portfolio in case of changes in credit characteristics over time;

− the credit risk of financial instruments included in the portfolio must be uniform both at the reporting date and throughout the period of validity of financial instruments;

− segmentation can be performed not only on the basis of the probability of default (PD), but also, for example, on the basis of the level of penalties (Recovery Rates), the level of losses in case of default (LGD);

− sub-portfolio divisions should be made taking into account the amount of available statistical information – if the amount of available statistics is limited, then excessive small segmentation can lead to distorted estimates.

Conclusions

Thus, taking into account the above information, we can conclude that there are two approaches to the formation of the provision for credit losses: «general» and «simplified». Under the «general» approach, the amount of expected credit losses is determined based on the current credit quality of the asset and changes in the level of expected credit risk compared to the date of initial recognition. IFRS9 allows companies to apply a «simplified» approach to trade receivables, contractual assets and lease receivables. The «simplified» approach allows the recognition of expected credit losses over the term of all these assets without the need to determine a significant increase in credit risk (SICR). «General» and «individual» estimates of the grouping of financial assets by types and groups of impairment are also taken into account. When estimating the provision for expected credit losses, the company must also take into account the economic situation in the country, and determine the appropriate additional forecast ratio. That is, the application of a non-banking financial institution «simplified» approach using the matrix of valuation reserves today is more appropriate.

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FIXED ASSETS OF THE ENTERPRISE: ECONOMIC CONTENT, CLASSIFICATION AND REGULATORY REGULATION

Proskurina N.M., Pushkar I.V.
Zaporizhzhia National University
Ukraine, 69000, Zaporizhzhia, Zhukovsky str., 66
profauditzp@ukr.net, iv_pushkar@ukr.net

Key words:
fixed assets, accounting, classification, production, operation, regulatory requirements

The article reveals the essence of fixed assets. The grouping of fixed assets by criteria has been studied. The economic essence of fixed assets is revealed. The classification of fixed assets into material categories is considered: non-residential buildings; residential buildings; buildings; machines and equipment; vehicles designed to move goods and people; production and household inventory; productive, breeding, working cattle; perennial plantings. Classification features of fixed assets, depending on their participation in the economic activity of the enterprise. The process of formation of the active part of fixed assets with the help of working machines and equipment, technical facilities, measuring instruments and devices directly involved in the production process is reflected. The current legislative and legal framework for accounting and the system of taxation of fixed assets has been studied and systematized in order to determine the vectors of its further development and improvement. The analysis is carried out on the basis of such normative - legal acts, such as: Tax Code of Ukraine (TCU), National Accounting Regulations (Standards) (NP (S) BU), International Accounting Standards (IAS), International Financial Reporting Standards (IFRS) . The study was conducted using methods of systematization and generalization. The key problematic aspects of the classification of fixed assets in the context of their place and role in the accounting process of the enterprise within the existing legal field in Ukraine are highlighted.

ОСНОВНІ ЗАСОБИ ПІДПРИЄМСТВА: ЕКОНОМІЧНИЙ ЗМІСТ, КЛАСИФІКАЦІЯ ТА НОРМАТИВНО-ПРАВОВЕ РЕГУЛЮВАННЯ

Проскуріна Н.М., Пушкарь І.В.
Запорізький національний університет
Україна, 69600, м. Запоріжжя, вул. Жуковського, 66

Ключові слова:
основні засоби, облік, класифікація, виробництво, експлуатація, нормативні вимоги

У статті розкрито сутність основних засобів. Досліджено угруповання основних виробничих засобів за критеріями. Розкрито економічну сутність основних виробничих засобів. Розглянута класифікація основних засобів до матеріальних категорій: нежитлові будинки; житлові будинки; споруди; машини та обладнання; транспорт, призначений для переміщення вантажів та людей; виробничий та господарський інвентар; продуктивна, племінна, робоча худоба; багаторічні насадження. Виділено класифікаційні ознаки основних виробничих засобів, залежно від їх участі у господарської діяльності підприємства. Відображено процес утворення активної частини основних засобів за допомогою наявності робочих машин та обладнання, технічних споруд, вимірювальних приладів та пристроїв, безпосередньо задіяних у виробничому процесі. Досліджено та систематизовано діючу законодавчо-правову базу з питань ведення бухгалтерського обліку та системи оподаткування основних засобів з метою визначення векторів її подальшого розвитку та удосконалення. Проведено аналіз на основі так нормативно – правових актів, таких як: Податковий кодекс України (ПКУ), Національні Положення (стандарти) бухгалтерського обліку (НП(С)БО), Міжнародні стандарти бухгалтерського обліку (МСБО), Міжнародні стандарти фінансової звітності (МСФЗ). Дослідження відбувалося з використанням методів систематизації та узагальнення. Виділено ключові проблемні аспекти класифікації основних засобів в контексті їх місця та ролі в обліковому процесі підприємства в межах існуючого правового поля в Україні.

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Formulation of the problem

Both the financial and property condition of the enterprise depends on the effective use of fixed assets. This necessitates improving the quality of accounting information and the efficiency of its receipt for use in all enterprise management.

Historically, the principles and objectives of fixed asset accounting have been constantly changing due to changes in the economic situation and political system of the country. Today we can mark a new stage in the development of accounting, which is associated with the introduction of IFRS by reviewing the priorities of financial reporting in general and the state of assets in particular, the emergence of fair value and its gradual introduction into business and accounting processes. That is why there is an urgent need to study the classification of fixed assets for the purposes of accounting for fixed assets and preparation of financial statements in enterprises in the context of changes in the legal regulation of fixed assets.

Analysis of recent research and publications

Well-known works of domestic scientists: F. Butynets, P. Haidutsky, V. Zhuk, G. Kireitsev, V. Mossakovsky, M. Ogiychuk, L. Suk and others are devoted to the theory and methodology of fixed assets accounting.

The vast majority of modern domestic scientists and economists who dedicate their work to the accounting and analytical aspects of fixed assets, the subject of their research choose issues related to the organization and methods of accounting for fixed assets of industrial enterprises. Thus, S. Kafka [2], D. Kuzmin [3] V. Mishura and A. Spitsyn [4] study the classification and economic essence of the very concept of fixed assets; G. Vlasyuk [1] and R. Ostroverkha [6] focus on the theoretical and practical aspects of the organization of accounting for fixed assets; N. Potryvaeva and V. Pogorelova [7] consider the problems of accounting for fixed assets in the system of current state legislation; I. Svyatenko [8] raise the issue of forming the accounting policy of the enterprise regarding the accounting of fixed assets; S. Skomorokhova, S. Nikolaenko, L. Heivych [9] and O. Shchyrska [12] dive in detail into the issue of accounting and control of depreciation of fixed assets; A. Ozeran, and R. Korshikova [5], K. Utenkova [11] and Yu. Susidenko [10] dedicates his work to the harmonization of the requirements of the NP (S) BU of Ukraine with IFRS for the accounting of fixed assets and other scientists and economists.

Highly appreciating the scientific contribution of these scientists, it should be noted that the identified issues require further intensification of research to adapt existing principles and objectives of accounting to the needs of efficient and rational use of fixed assets in accordance with the principles and requirements of international standards. Therefore, the primary task of research on this topic is to achieve an understanding of the essence of fixed assets and compliance with the requirements of regulations on their accounting process.

Formulation of goals

The purpose of the article is to reveal the essence of fixed assets as an economic category and research and critical analysis of the classification of fixed assets through the prism of the required regulatory framework for accounting for fixed assets in modern business conditions.

Presentation of the main material of the research

It is difficult to overestimate the role of efficient use of fixed assets in the enterprise. Effective use of fixed assets involves: increasing the level of production, increasing the return on existing production capacity, the fullest satisfaction of consumer needs, reducing the cost of production (services), increasing the profitability of production and savings.

It is believed that fixed assets, as an economic category, are part of the means of production, ie are actually means of labor. Using the means of labor in the production process, man (or technology) influences the objects of labor, modifying them to achieve a certain goal. From the objects of labor, the means of labor differ in that they repeatedly participate in the production process, while retaining their natural material form, and partially wear out, transferring their value to the finished product. In addition, their peculiarity lies in the fact that they do not have the general interchangeability that is characteristic, for example, of a potential workforce.

In the scientific literature on research, and in the process of practical use, the definition of means of labor are mainly used such terms as: «fixed assets», «fixed assets», «fixed capital».

I. Sviatenko claims that fixed assets are one of the most important factors of any production, and their condition and efficient use directly affects the final results of economic activity of the enterprise. More complete and rational use of fixed assets of the enterprise contributes to the improvement of all technical and economic indicators: increasing productivity, increasing return on assets, increasing output, reducing its cost, saving capital investment [8].

In terms of economic category, V. Mishura and A. Spitsyn define fixed assets as part of fixed production capital, which takes the form of means of labor and gradually, over many production cycles, transfers its value to the manufactured product [4].

Fixed assets are a set of material objects and values that operate in unchanged natural form for a long period [1]. Fixed assets are part of the enterprise's assets used as means of labor in the production, performance or provision of services, or management of the organization for a period exceeding one year or the normal operating cycle, if it is more than twelve months [6].

D. Kuzmin notes that after the abolition of the concept of «fixed assets» the concept of «fixed assets» acquires in any case a materialized form that does not contradict its meaning, so fixed assets should be understood as actually available fixed assets and their value in accounting [3].

Fixed assets are the most important factor in the production and acceleration of scientific and technological

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progress. The economic and social importance of fixed assets at the macro level is explained as follows:

− fixed assets are a significant part of the national wealth of the country;

− competitiveness of domestic products and production efficiency depend on the size of fixed assets and their quality;

− the level of mechanization and automation of labor depends on the quantitative and qualitative state of fixed assets of the enterprise;

− the rate of economic growth depends on the quantitative and qualitative state of fixed assets;

− economic security of the country and its defense capability depends on the availability of sufficient fixed assets.

Fixed assets have a significant role at the micro level, for example, the value of their value and quality directly depend on: production capacity, output and sales, product quality and competitiveness, cost of production and profitability, financial and economic condition enterprises.

In our opinion, the economic essence of fixed assets is multiple participation in the production process; material embodied in the means of labor; transferring its value to the value of products (manufactured); maintaining the natural shape for a long time as it wears out; reimbursement, taking into account depreciation deductions, after the end of the established useful life.

In order to keep records of fixed assets and compile reports, plan their reproduction, conduct revaluations and inventories in practice, it is necessary to somehow group fixed assets by individual characteristics into homogeneous groups, ie to classify. Under the classification of fixed assets should be understood as grouping them on certain grounds into qualitatively homogeneous groups. Classification facilitates the current accounting of fixed assets, simplifies reporting on the availability and movement of fixed assets [4].

Modern scientists [9, 11] define a multilevel classification of fixed assets, which can at least be expanded, because the features that can distinguish one object from another, are extremely many. But it should be noted that in each case it is necessary to limit the classification of objects, based on the principle of reasonable expediency.

The main classification features (criteria) include the following: by type, life cycle of the object, ownership of it, the method of acquisition and origin, the degree of uniqueness, functional purpose and more. Consider how the grouping of fixed assets by some of the above criteria.

The active part of fixed assets include machinery, equipment, measuring and regulating devices and devices, etc. To the passive part – those groups of fixed assets that create conditions for the normal production process (buildings, structures, transmitting devices, etc.).

Carrying out various activities, companies feel the need for different types of fixed assets. Fixed assets are economically homogeneous. However, they differ in: purpose and purpose; natural and material characteristics in the production process; terms of reproduction and features that require their classification.

The main means of production are divided into: active and passive part. Let's show schematically this classification (Fig. 1).

The nature and classification of fixed assets determine their role in the labor process. They characterize the production capacity of the enterprise and determine the level and scale of technical equipment. The increase in fixed assets will increase these indicators. Their renewal and improvement is the most important condition for the production of high quality products with reduced labor costs, increased productivity and reduced production costs. Classification of fixed assets is based on their types and purposes.

Fixed assets are also quite logical to divide into two types: tangible and intangible. It depends on their purpose

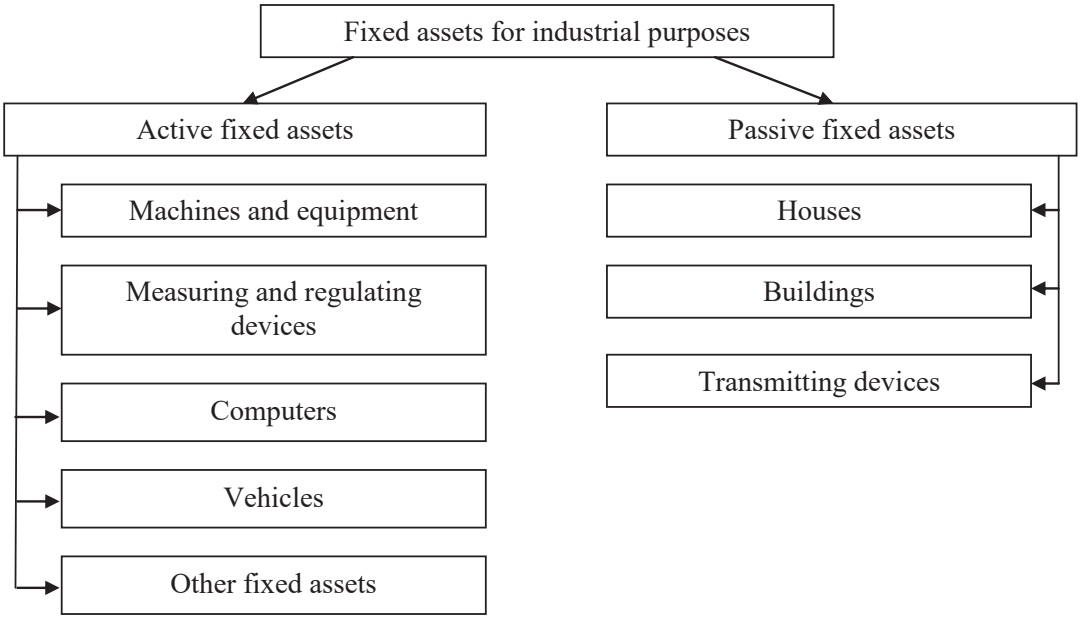

Fig. 1 – Classification of fixed assets of the enterprise

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and use in the organization. Thus, the classification of fixed assets to the material category includes the following objects:

1. Non-residential buildings – facilities designed to create working conditions, storage of material values (houses of factories, warehouses, pumping stations, laboratories, etc.).

2. Dwelling houses – objects intended exclusively for temporary residence.

3. Buildings – engineering and construction facilities that ensure the implementation of production. In this case, they mean individual structures, including devices that form a whole (bridges, oil wells, main pipelines, etc.).

4. Machinery and equipment – devices designed to convert information, energy, materials. This group of fixed assets should be divided into two subgroups:

− power machines and equipment – objects that produce or convert energy;

− working machines and equipment – technological equipment, information equipment (computers, information storage, office equipment, communication systems equipment, etc.).

5. Transport designed to move goods and people: cars, locomotives, ships, icebreakers, buses, trailers, aircraft.

6. Production and household equipment. The first type includes containers used for storing liquids, containers for bulk materials, as well as furniture designed to facilitate production operations. The second type includes objects that are not used in the production process (fire items, watches, etc.).

7. Productive, breeding, working cattle – include animals that are repeatedly or continuously used for food (cows, pigs, sheep), as well as animals-producers. This group does not include young animals and cattle for slaughter.

8. Perennial plantings – green plantations (park trees, vegetation that forms alleys, etc.).

Classification and structure of fixed assets excludes from their composition the following:

− all items that have a service life of less than one year;

− items worth less than 20,000 hryvnias per unit (from 23.05.2020, according to item 14.1.138 of the TCU). At the same time, it should be remembered that agricultural machinery, mechanized construction tools, productive and working cattle are the main means, even if their value is less than the specified amount;

− temporary structures, devices – are overhead and are included in the cost of construction and installation;

− machines and equipment that are considered as finished products in warehouses that are on the road or put into installation.

The classification of fixed assets includes two parts depending on their participation in the economic activities of the enterprise. Thus, working machines and equipment, technical facilities, measuring instruments and devices are directly involved in the production process. They form the active part. Buildings and equipment have an indirect impact on production. They are the passive part. The share of the active part shows the level of technical excellence, production capacity, capabilities of the enterprise. The share of each part can be distinguished from the structure of fixed assets.

According to the degree of use, the classification and structure of fixed assets is divided into objects that: 1) are in operation – fixed assets listed on the balance sheet of the enterprise; 2) are in reserve – fixed assets temporarily decommissioned; 3) are under reconstruction, partial liquidation; 4) are on conservation.

According to ownership, fixed assets are classified as follows: owned enterprises; which are in operational management and economic management; leased without redemption.

In the scientific literature [4; 6; 9; 12] the classification of fixed assets with their participation in the production process is considered. On this basis, there are two types of objects – production and non-production. The first type operates in the field of material production. Such facilities are involved in the production process repeatedly. They gradually wear out. Their value is transferred to the finished product. This is partly due to the degree of use. The second type is not involved in the production process. The cost of fixed assets decreases during operation. These include houses intended for housing, or they have a cultural and household purpose and are listed on the balance sheet of the organization. Such fixed assets do not have a direct impact on production, but indirectly affect the results of the enterprise. They are associated with improving the welfare and working conditions of workers. As a result, it will have a positive effect on the final performance of the enterprise.

S. Kafka notes that most authors classify fixed assets by purpose, distinguish between productive and non-productive fixed assets [2]. It should be noted that the regulations governing the accounting of fixed assets do not contain a criteria for the division of fixed assets into objects of production and non-production sphere. Why so? Because different companies have different management goals. Some will use fixed assets in production, others in the non-manufacturing sector. Or the situation when the object of fixed assets is used by the enterprise in economic activity for the purpose of receiving income, both in the production and in the non-production sphere. For example, recreation center – rehabilitates employees of the enterprise and provides services to third parties or business entities on the basis of a contract; motor transport – takes employees of production shops and workers of the canteen, medical center, sports complex to work; transformer substation – serves production shops and dormitory or hospital of the enterprise. In our opinion, the division of fixed assets into productive and non-productive is extremely conditional. Given the correctness of the conceptual apparatus, increasing the level of reliability of disclosure in financial statements, the transition to IFRS, more appropriate is the classification in terms of participation of fixed assets in income, namely: fixed assets 1) used in income; 2) partially used in income; 3) are not used to generate income.

In addition, such a division makes it possible to classify the objects of the first two groups depending on the activities in which fixed assets are used in relation to the object of VAT – fixed assets used in transactions subject to VAT or fixed funds used in transactions that are

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not subject to VAT. This division of fixed assets has value in the context of the requirements of tax legislation in the commissioning of fixed assets, depreciation, determination of financial results.

Given the proposed classification of fixed assets from participation in the income of the enterprise, it is urgent to divide the fixed assets depending on the source of income of the enterprise into two groups: objects used in operating activities and, accordingly, have the opportunity to participate in the optimization process expenses for the purpose of taxation of the enterprise's profit and objects that generate income, such as investment real estate transactions. Such a classification will facilitate the prompt generation of information in the notes to the financial statements of property, plant and equipment.

Successful classification of fixed assets affects the effective organization of accounting for fixed assets, which in turn should provide:

− clear documentation and timely reflection in the accounting registers of receipt, transfer, liquidation and disposal of fixed assets;

− the strictest systematic control over the preservation of each object of fixed assets and the efficient use of machinery, equipment, vehicles and production areas;

− correct calculation and timely reflection in the accounting of depreciation deductions and depreciation amounts of fixed assets;

− correct reflection of the cost of repair of fixed assets [6].

G. Vlasyuk [1] believes that the accounting of fixed assets should provide: control over the storage of fixed assets; timely, correct documentation of the reflection in the accounting of fixed assets (funds), their internal movement (from shop to shop, from warehouse to warehouse, from department to department, etc.), efficient use, disposal (liquidation, sale, free transfer); timely (monthly) reflection in the accounting of depreciation (amortization) of fixed assets; reflection in the accounting of expenses for repair of fixed assets; determination of the results of liquidation, as well as losses from the write-off of not fully depreciated fixed assets; identification of redundant and obsolete fixed assets.

The choice of accounting methodology for fixed assets, in particular the adequacy of their recognition criteria and valuation principles, affects a number of important analytical indicators that characterize, in particular, the state of financial balance between assets and liabilities [5].

Accounting for fixed assets of the enterprise is regulated by current regulations:

− for enterprises that use NP (S) BU – NP (S) BU7 «Fixed assets»; NP (S) BU14 «Rent»; NP (S) BU27 «Non-current assets held for sale and discontinued operations»; NP (S) BU28 «Impairment of assets»; TCU (item 14.1.138; subsection 4 of section XX); Methodical recommendations on accounting of fixed assets (IFI Order of 30.09.2003 № 561); The procedure for drawing up standard forms for accounting and write-off of fixed assets by public sector entities (IFI Order of 13.09.2016 № 818); On approval of standard forms of primary accounting (Order of the Ministry of Statistics of December 29, 1995 № 352), etc .;

− for enterprises that apply IAS – IAS16 Property, Plant and Equipment; IFRS5 «Non-current Assets Held for Sale and Discontinued Operations»; IFRS16 Leases.

The structure of normative regulation of accounting and analytical operations with fixed assets is quite successfully presented by Yu. Susidenko [10], highlighting the relevant levels:

− Level I–$5aws of Ukraine;

− Level II – NP (S (BU)) and other regulations approved by orders of the IFI of Ukraine;

− III level – normative-legal acts of other bodies, approved on the basis of NP (S) BU;

− Level IV – decisions on the organization of accounting at the enterprise level.

According to the Law of Ukraine «On Accounting and Financial Reporting in Ukraine» (Article 4) and paragraph 18 P (S) BU1 «General requirements for financial reporting» accounting and financial reporting in Ukraine is based on ten basic principles. These principles are an important element of the accounting methodology and the basis for the development of uniform rules of accounting and reporting in Ukraine. They are interconnected and ensure the use of accounting in the microeconomic environment to perform its functions. The accounting of fixed assets of enterprises is based on these principles.

We support K. Utenkova [12], who summarizes that the current state of accounting for fixed assets in Ukraine to some extent meets the requirements of IFRS, but has some differences. This situation is quite natural, as the process of adapting the regulatory framework of Ukraine to the requirements of international accounting and reporting standards continues. In our opinion, at this stage it is important to understand the need for Ukraine's direct participation in the process of forming international standards in order to take into account national interests.

Conclusions

Modern business conditions require each company to successfully manage fixed assets and find new reserves to improve their efficiency. Solving this problem encourages management staff to careful analytical accounting work, which allows you to identify and implement both internal potential and external sources.

The study of the role and place of existing classification of fixed assets in the accounting process of the enterprise on the basis of scientific sources, regulations governing accounting, allowed to re-evaluate their own understanding and clarify the components of individual classification features. The proposals will be useful in the preparation of accounting, management and financial reporting, as well as in the analysis of the effectiveness of the use of fixed assets in the enterprise.

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ECONOMIC AND STATISTICAL ANALYSIS OF SUSTAINABLE DEVELOPMENT INDICATORS OF EU AND UKRAINE COUNTRIES

Somchenko V.V., Sayenko O.R., Viter M.V., Ruskykh S.M.
Zaporizhzhia National University
Ukraine, 69600, Zaporozhzhia, street Zhukovsky, 66
vika_znu72@ukr.net
ORCID: 0000-0003-4860-0964, ORCID: 0000-0001-8979-9354

Key words:
sustainable development, indicator, strategy, vector of development, vector of security, vector of responsibility, vector of pride, welfare of the population, monitoring, resolution

The article examines the approaches to assessing sustainable development used in the world, namely: integrated indices or systems of indicators of sustainable development. Data on sustainable development indicators used to assess socio-economic and environmental-economic development of systems and models are presented. Existing systems of sustainable development are considered. It has been studied that in Germany the system of assessing the sustainability of development is an integral part of the program for the implementation of the national strategy for sustainable development and is integrated with the management rules and objectives of the strategy. Each postulate of sustainable development is characterized by one or more indicators, in turn, each indicator corresponds to one specific goal, defined numerically. It is determined that in Ukraine in the process of defining the goals of sustainable development, relevant tasks and indicators for the long term take into account global development guidelines, principles of sustainable development and public opinion on the vision of future development. To this end, the movement forward will be carried out according to the following vectors: vector of development, vector of security, vector of responsibility, vector of pride. Statistical indicators of Ukraine and Germany are considered. Analyzing the economic content of indicators and targets, it can be argued that although these systems have some differences, because the adjustment is made to individual regional characteristics, they have a common focus. The reasons and conditions for the increase of these indicators on the territory of Ukraine are also highlighted: high unemployment, low investment attractiveness, high resource intensity of production, not high indicators of social protection. It is proved that the system of indicators of sustainable development is a tool to improve the welfare of the population not only now but also in the future. Thanks to the powerful database obtained as a result of research in this area, it is possible to make more accurate forecasts and make effective management decisions.

ЕКОНОМІКО-СТАТИСТИЧНИЙ АНАЛІЗ ІНДИКАТОРІВ СТАЛОГО РОЗВИТКУ КРАЇН ЄВРОСОЮЗУ ТА УКРАЇНИ

Сьомченко В.В., Саєнко О.Р., Вітер М.В., Руських С.М.
Запорізький національний університет
вул. Жуковського, 66, м. Запоріжжя, Україна

Ключові слова:
сталий розвиток, індикатор, стратегія, вектор розвитку, вектор безпеки, вектор відповідальності, вектор гордості, добробут населення, моніторинг, резолюція

У статті досліджено підходи щодо оцінки сталого розвитку, що використовують у світі, а саме: інтегральні індекси або системи індикаторів сталого розвитку. Наведені дані стосовно індикаторів сталого розвитку, що використовуються для оцінки соціально-економічного і еколого-економічного розвитку систем та моделей. Розглянуто існуючи системи сталого розвитку. Зазначено, що у Німеччині система оцінки сталості розвитку є невід'ємною частиною програми реалізації національної стратегії сталого розвитку та поєднана в єдине ціле з правилами управління та цілями стратегії. Кожний постулат сталого розвитку характеризується одним чи декількома індикаторами, своєю чергою кожний індикатор відповідає одній конкретній цілі, визначеній чисельно. Визначено, що в Україні у процесі визначення цілей сталого розвитку, відповідних завдань та показників на довгострокову перспективу враховують глобальні орієнтири розвитку, принципи сталого розвитку та суспільну думку щодо бачення майбутнього розвитку. Задля цього рух уперед

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здійснюватиметься за такими векторами: вектор розвитку, вектор безпеки, вектор відповідальності, вектор гордості. Розглянуто статистичні показники України та Німеччини. Проаналізувавши економічний зміст індикаторів і цілей, можна стверджувати, що хоч ці системи і мають певні відмінності, бо робиться поправка на індивідуальні регіональні особливості, вони мають спільну направленість. Також висвітлено причини і умови збільшення цих показників на території України: високий рівень безробіття, низька інвестиційна привабливість, велика ресурсоємність виробництв, не високі показники соціального захисту населення. Доведено, що система індикаторів сталого розвитку є інструментом покращення добробуту населення не тільки зараз, а й у подальшому. Завдяки потужній базі даних, отриманих в результаті досліджень цього напряму, можна робити більш точні прогнози й приймати ефективні управлінські рішення.

Statement of the problem

Modern economic conditions are characterized by instability of the financial environment and a significant change in management methods to adapt to new environmental conditions, which can be described by the rapid pace of change. Ukraine is going through a difficult period, which is characterized by contradictory processes, namely the impact of both positive reforms and regression components. Crisis phenomena arising in the economy threaten the stable functioning of both individual regions and, above all, the state.

The peculiarities of Ukrainian national and regional policy are due to both historical disparities and the lack of proper attention to regional sustainable development, in the period of not only institutional but also socio-economic transformations in recent years. Despite the fact that many domestic and foreign scientists have made efforts to build the Ukrainian concept of sustainable development – the result of the efforts is currently quite low. Under these conditions, there is a need to develop special approaches to the analysis of the regional economy as a system of interrelated social, political and economic factors. This means that the problems and issues of the region must meet national goals and objectives, but also have an adjustment for territorial features [2].

Now the world, together with it and Ukraine are in an era of radical change, there are social and political changes under the influence of new ideas and views, and in order not only to keep up, but to keep up with the times, countries must make significant efforts.

And the first such step is support for the United Nations General Assembly resolution of 25 September 2015 № 70/1 global sustainable development goals, which is a benchmark for development. It will also be supported by Ukraine, namely the ratification of the Association Agreement between Ukraine, on the one hand, and the European Union, the European Atomic Energy Community and their Member States, on the other hand; and in order to ensure the national interests of Ukraine in sustainable development of the economy, civil society and the state to achieve growth and quality of life, respect for constitutional human rights and freedoms, the President of Ukraine adopted a decree of September 30, 2019 № 722/2019 «On Sustainable Development of Ukraine for the period up to 2030». And the Cabinet of Ministers – Order of August 21, 2019 № 686-r «Issues of data collection to monitor the implementation of sustainable development goals».

The strategy of sustainable development determines the purpose, goal, direction of movement, and priority priorities and indicators of appropriate socio-economic, organizational, political and legal conditions of formation and development of the country.

Thus, the issue of data collection and analysis to monitor the implementation of sustainable development goals is extremely relevant today, it benefits the state and public welfare, and serves to regulate stability on the part of the state, identify key indicators and identify stagnant factors affecting the environment.

Analisis of recent studies and publication

Many works of scientists are devoted to the problems of the goal of sustainable development. Were engaged in the solution of such problems such scientists as Burkinsky B.V., Galushkina T.P., Dolishniy M.I., Kharchenko V.O., Futalo T.V., Martyusheva O.O., Derkach M.I., Ogorodnya E., Gubareva IO., Voitko S.V., Vakhovych I.M., Shkolenko O.B., Zastrozhnikov A.G., Guk O.V. and other. They note that the process of developing strategies for sustainable development of the region has a number of features. The region is not only a subsystem of the socio-economic complex of the country, but also a relatively independent part of it with a complete cycle of reproduction, special forms of manifestation of its stages and specific features of social and economic processes. Sustainable development of the region, on the one hand, can be seen as a positive process of improving the economic, social and environmental components, and on the other – as a process of achieving a balanced state of all these components. The problem of developing methods for collecting and analyzing data on the development of the region is studied systematically, as information is needed to regulate the market of goods and services, provide social protection, improve living standards and competitiveness, administrative management [3].

Objectives of the article

The purpose of the study is to analyze the main problems of data collection to monitor the implementation of sustainable development goals, the state of action and consequences of reforms and identify opportunities to increase compliance with the results of comparison of key indicators.

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The main material of the research

The general concept of the Sustainable Development Goals (CSDs, also known as the Global Goals) can be described as the key areas of development of the countries approved by the UN Summit on Sustainable Development. Where they were replaced The Millennium Development Goals (which expired at the end of 2015) were adopted by the CSBs for the period from 2015 to 2030 and which have 17 Global Goals, which in turn include 169 tasks.

The official document regulating them is the UN General Assembly Resolution «Transforming Our World: The 2030 Agenda for Sustainable Development», which aims to bring the world on the path to sustainable and sustainable development.

Ukraine, like other UN member states, has joined the global process of sustainable development. During 2016–2017, a large-scale and comprehensive process of adapting the Sustainable Development Goals to the Ukrainian context continued. It involved representatives of central executive bodies, UN agencies in Ukraine, the National Academy of Sciences of Ukraine, research institutes, NGOs and business, primarily participants in the UN Global Compact in Ukraine (more than 200 experts took part in the discussion). Each global goal has been revised to take into account the specifics of national development. The result of this work was a national system consisting of 86 tasks of national development, which can be divided into four main areas of goals: economic, environmental, social and institutional [1].

The world uses different approaches to assessing sustainability, it can be integrated indices or systems of indicators of sustainable development. Sustainable development indicator systems are being developed by international organizations such as the United Nations and its various agencies, the World Bank, the European Commission, the Environmental Modeling Committee (ISEM), the Organization for Economic Co-operation and Development (OECD), and the Scientific Committee on the Environment. (SCOPE) and others [4].

Creating integrated, aggregate indices of sustainable development is a time-consuming and resource-intensive task. However, the costs in this area are justified and necessary, because the fruits of this activity allow you to quickly model different options for development, with high accuracy to predict their results and choose the best way to solve problems.

The final document of the Summit «Transforming our world: the agenda for sustainable development until 2030» approved the following 17 Sustainable Development Goals [5]:

1. Overcoming poverty.
2. Overcoming hunger, achieving food security, improving nutrition and promoting sustainable agricultural development.
3. Ensuring a healthy lifestyle and promoting well-being for all at all ages.
4. Ensuring comprehensive and equitable quality education and promoting lifelong learning for all.
5. Ensuring gender equality, empowerment of all women and girls.
6. Ensuring accessibility and sustainable management of water resources and sanitation.
7. Ensuring access to low-cost, reliable, sustainable and modern energy sources for all.
8. Promoting progressive, inclusive and sustainable economic growth, full and productive employment and decent work for all.
9. Creating sustainable infrastructure, promoting inclusive and sustainable industrialization and innovation;
10. Reduction of inequality.
11. Ensuring openness, security, sustainability and environmental sustainability of cities and other settlements;
12. Ensuring the transition to rational models of consumption and production.
13. Take urgent measures to combat climate change and its consequences.
14. Conservation and sustainable use of the oceans, seas and marine resources for sustainable development.
15. Protection and restoration of terrestrial ecosystems and promotion of their rational use, rational forest use, combating desertification, stopping and reversing the process of land degradation and stopping the process of biodiversity loss.
16. Promoting a peaceful and open society for sustainable development, ensuring access to justice for all and creating effective, accountable and participatory institutions at all levels.
17. Strengthen the means of implementation and intensify work in the framework of the Global Partnership for Sustainable Development.

The goals should be to integrate efforts for economic growth, the pursuit of social justice and environmental management.

In Germany, the sustainability assessment system is an integral part of the national sustainable development strategy program and is integrated into the governance rules and objectives of the strategy. Each postulate of sustainable development is characterized by one or more indicators, and in turn each indicator corresponds to one specific goal, defined numerically. A total of 38 sustainable development indicators are used, grouped into 4 groups (equality of generations; quality of life; social cohesion; international responsibility) and 21 subgroups [4].

In Ukraine, the process of defining the Sustainable Development Goals, relevant objectives and long-term indicators takes into account global development guidelines, sustainable development principles and public opinion on the vision of future development. The purpose of the Strategy is the introduction of European living standards in Ukraine and Ukraine's leading position in the world [6].

To do this, forward movement should be carried out on the following vectors [7]:

– the vector of development is ensuring sustainable development of the state, carrying out structural reforms and, as a consequence, raising living standards. To do this, first of all, it is necessary to restore macroeconomic stability, ensure sustainable economic growth in an environmentally friendly way, create favorable conditions for economic activity and a transparent tax system;

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– security vector – is to ensure the security of the state, business and citizens, security of investment and private property. The key to security must be to ensure fair and impartial justice, the immediate cleansing of the authorities at all levels and the implementation of effective anti-corruption mechanisms. Attention must be paid to the safety of human life and health, which is impossible without effective medicine, protection of socially vulnerable groups, safe environment and access to quality drinking water, safe food and industrial goods;

– the vector of responsibility is to ensure that every citizen, regardless of race, color, political, religious or other beliefs, gender, ethnic and social origin, property status, place of residence, language or other characteristics, will have access to high quality education, health care systems and other services in the public and private sectors;

– the vector of pride is the provision of mutual respect and tolerance in society, pride in one's own state, its history, culture, science, sports.

Analyzing the economic content of indicators and goals, we can say that although these systems have some differences, because the adjustment is made to individual regional characteristics, they have a common focus. This can be seen in the main statistics of the two countries (Table 1).

Comparing the indicators of development indicators, we see that in many respects Ukraine lags behind a country like Germany. We can trace such socio-economic phenomena as high unemployment, low investment attractiveness, high resource intensity of production, not high rates of social protection. We see that even with such limited data, certain conclusions can already be drawn about the general state of the country, which shows the effectiveness of such a system of indicators.

Table 1 – The main goals of sustainable development and statistical indicators that describe them [8; 9; 10; 11]

<table>
<tr><td colspan="4">Ukraine</td><td colspan="4">Germany</td></tr>
<tr><td colspan="8">Goal 1. Overcoming poverty</td></tr>
<tr><td colspan="8">Objective: to reduce poverty, in particular by eliminating its extreme forms</td></tr>
<tr><td colspan="8">Indicator: Proportion of persons whose daily consumption is less than 5.05 US dollars per PKS,%</td></tr>
<tr><td>2015</td><td>2016</td><td>2017</td><td>2018</td><td>2015</td><td>2016</td><td>2017</td><td>2018</td></tr>
<tr><td>2,4</td><td>2</td><td>1,9</td><td>1,8</td><td>0,2</td><td>0,5</td><td>–</td><td>–</td></tr>
<tr><td colspan="8">Goal 2. Overcoming hunger, agricultural development</td></tr>
<tr><td colspan="8">Objective: to reduce the volatility of food prices</td></tr>
<tr><td colspan="8">Indicator: Consumer price index for food, %</td></tr>
<tr><td>May 2021</td><td>June 2021</td><td>July 2021</td><td>August 2021</td><td>May 2021</td><td>June 2021</td><td>July 2021</td><td>August 2021</td></tr>
<tr><td>101,3</td><td>100,2</td><td>100,1</td><td>99,8</td><td>108,7</td><td>109,1</td><td>109,7</td><td>109,8</td></tr>
<tr><td colspan="8">Goal 3. Good health and well-being</td></tr>
<tr><td colspan="8">Objective: To reduce the prevalence of smoking among the population
with the use of innovative means of informing about the negative effects of smoking</td></tr>
<tr><td colspan="8">Indicator: Proportion of smokers among women over 15,%</td></tr>
<tr><td colspan="2">2017</td><td colspan="2">2020</td><td colspan="2">2017</td><td colspan="2">2020</td></tr>
<tr><td colspan="2">5,2</td><td colspan="2">5,6</td><td colspan="2">22</td><td colspan="2">22</td></tr>
<tr><td colspan="8">Indicator: Proportion of smokers among men aged 16-29,%</td></tr>
<tr><td colspan="2">2017</td><td colspan="2">2020</td><td colspan="2">2017</td><td colspan="2">2020</td></tr>
<tr><td colspan="2">28,9</td><td colspan="2">25,1</td><td colspan="2">30</td><td colspan="2">28</td></tr>
<tr><td colspan="8">Objective: To reduce the level of serious injuries and deaths due to road accidents, including through the use of innovative practices of resuscitation, treatment and rehabilitation of victims of road accidents</td></tr>
<tr><td colspan="8">Indicator: Accident mortality per million inhabitants</td></tr>
<tr><td>2016</td><td>2017</td><td>2018</td><td>2019</td><td>2016</td><td>2017</td><td>2018</td><td>2019</td></tr>
<tr><td>79.9</td><td>83.3</td><td>80.6</td><td>82.2</td><td>38.9</td><td>38.5</td><td>39.5</td><td>36.7</td></tr>
<tr><td colspan="8">Goal 4. Quality education</td></tr>
<tr><td colspan="8">Objective: To eliminate gender inequality among school teachers</td></tr>
<tr><td colspan="4">Indicator: Share of men among teachers, %</td><td colspan="4">Indicator: Gender parity index for participation in organized learning</td></tr>
<tr><td colspan="2">2016</td><td colspan="2">2017</td><td colspan="2">2016</td><td colspan="2">2017</td></tr>
<tr><td colspan="2">14,41</td><td colspan="2">14,32</td><td colspan="2">0,99</td><td colspan="2">0,99</td></tr>
<tr><td colspan="8">Goal 5. Gender equality</td></tr>
<tr><td colspan="8">Objective: To ensure equal opportunities for representation at higher levels of decision-making in political and social life</td></tr>
<tr><td colspan="8">Indicator: Proportion of seats held by women in national parliaments, %</td></tr>
<tr><td>2017</td><td>2018</td><td>2019</td><td>2020</td><td>2017</td><td>2018</td><td>2019</td><td>2020</td></tr>
<tr><td>12,29</td><td>12,29</td><td>11,58</td><td>20,8</td><td>36,98</td><td>30,75</td><td>30,89</td><td>31,17</td></tr>
<tr><td colspan="8">Indicator: Proportion of women in management positions, %</td></tr>
<tr><td>2015</td><td>2016</td><td>2017</td><td>2018</td><td>2015</td><td>2016</td><td>2017</td><td>2018</td></tr>
<tr><td>39,57</td><td>40,87</td><td>41,06</td><td>40,43</td><td>29,29</td><td>29,29</td><td>29,21</td><td>29,39</td></tr>
<tr><td colspan="8">Goal 6. Clean water and proper sanitation</td></tr>
<tr><td colspan="8">Objective: Ensuring the availability and sustainable management of water resources and sanitation</td></tr>
<tr><td colspan="8">Indicator: Proportion of population using safe sanitation services,%</td></tr>
</table>

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Ending of Table 1

Ukraine				Germany			
2014	2015	2016	2017	2014	2015	2016	2017
61,64	63,9	66,18	68,45	97,1	97,22	97,23	97,23
Indicator: Water efficiency (USD per cubic meter)							
2014	2015	2016	2017	2014	2015	2016	2017
6,8	6,89	6,93	7,75	118,21	122,0	126,52	129,17
Goal 7. Available and clean energy							
Objective: To increase the share of energy from renewable sources in the national energy balance							
Indicator: Share of renewable energy sources in total final energy consumption, %							
2014	2015	2016	2017	2014	2015	2016	2017
3,5	4,14	5,47	6,47	13,38	14,21	14,15	15,25
Goal 8. Decent work and economic growth							
Objective: To ensure sustainable GDP growth							
Indicator: Annual real GDP growth rate per employee, %							
2015	2016	2017	2018	2015	2016	2017	2018
-9,8	3,7	3,5	3,4	0,7	0,6	1,2	0,4
Objective: To increase employment							
Indicator: Unemployment rate, %							
2015	2016	2017	2018	2015	2016	2017	2018
9,14	9,35	9,51	8,8	4,62	4,12	3,75	3,38
Objective: To promote reliable and safe working conditions for all employees							
Indicator: Fatal occupational injuries among workers (per 100,000 workers)							
2012	2013	2014	2015	2012	2013	2014	2015
5,68	5,02	4,3	4	1,19	0,99	1,1	0,97
Goal 9. Industry, innovation and infrastructure							
Objective: To promote the accelerated development of high- and medium-high-tech sectors of the processing industry							
Indicator: Share of value added in manufacturing to GDP, %							
2015	2016	2017	2018	2015	2016	2017	2018
11,9	12,05	12,34	12,42	20,67	21,15	21,26	21,21
Goal 10. Reduce inequality							
Objective: To ensure the accelerated growth of incomes of the poorest 40% of the population							
Indicator: Proportion of people living below 50 percent of average income,%							
2013	2014	2015	2016	2013	2014	2015	2016
5	4	5	5	10	-	11	12
Goal 12. Responsible consumption and production							
Objective: To reduce the resource intensity of the economy							
Indicator: Total domestic consumption of materials per unit of GDP (kilograms to constant dollars in 2010)							
2014	2015	2016	2017	2014	2015	2016	2017
3,94	4,37	4,36	4,34	0,33	0,33	0,32	0,31
Goal 17. Partnership for sustainable development							
Objective: To mobilize additional financial resources based on investment incentives for foreign and domestic investors							
Indicator: Foreign direct investment inflow (FDI) (million USD)							
2015	2016	2017	2018	2015	2016	2017	2018
2961	3284	2601	2335	41443	23500	36931	25706

Conclusions

The concept of sustainable development has many definitions. One of them, in our opinion, best describes this concept. In one of its reports, the Brundtland Commission put it this way: «sustainable development is development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs» [12].

Therefore, the system of indicators of sustainable development is a tool to improve the welfare of the population not only now but also in the future. Thanks to the powerful database obtained as a result of research in this area, it is possible to make more accurate forecasts and make effective management decisions.

A large number of countries are adopting and beginning to implement this method of development, but there are many countries that are not interested in sustainable development and do not accept it, which poses a threat to their neighbors and partners. This is not surprising, because such statistical studies require a lot of time and resources. But it should be added that, as mentioned above, such investments pay off later.

Therefore, countries that do not have their own methodological framework should adopt foreign experience, such as Germany, for future generations, in order to avoid economic, social and environmental crisis in the context of globalization.

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

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ASSESSMENT OF THE CURRENT STATE OF DEVELOPMENT OF THE CULTURAL ENVIRONMENT OF THE REGIONS OF UKRAINE

Hamova O.V., Vertel M.O.
Zaporizhia National University
Ukraine, 69600, Zaporozhye, street Zhukovsky, 66
gamova5oxana@gmail, vertel.marina1999@gmail.com
ORCID: 0000-0002-9752-6900, ORCID: 0000-0002-7890-3336

Key words:
cultural environment,
social and economic consequences,
the market economy,
cultural progress of society,
the cultural level of the population

In the course of writing the article, the cultural environment is analyzed, which is the most important prerequisite for qualitative improvement of productive forces, increasing the efficiency of social production. An urgent problem is the implementation of large-scale transformation, exacerbated the problems of culture, unresolved which has led to negative social and economic consequences, among which a special place is occupied by problems at the regional level. Approved standards, deterioration of logistics, dismissal of a significant number of employees, etc.). At the same time, an important condition for strengthening the market economy is a high level of education and intellectual training of the population, intensification of spiritual renewal and cultural progress of society, the cultural level of the population. Attention is paid to the factors of preservation and development of the existing network of cultural institutions in all regions of the country, providing them with modern material and technical base, stimulating the development of film production and improving film service, its transfer to new screening technologies, museum development, creative unions of Ukraine, in particular their local organizations, ensuring the further development of cultures of national minorities, improving the conditions of creative activity and life of masters of arts, cultural workers, increasing their wages, etc. All this testifies to the dynamism of the cultural sphere, its focus on adapting to social change and international integration. The main goal of Ukrainian business culture is that it should take on more concrete forms. With the age of social media and the availability of information, reputation is becoming increasingly important. The institute of reputation is born in the Ukrainian realities and it happens not in politics or other spheres of life, but in business.

КУЛЬТУРНІ ФАКТОРИ В БІЗНЕСІ ТА МІЖНАРОДНОМУ МАРКЕТИНГУ

Гамова О.В., Вертель М.О.
Запорізький національний університет
Україна, 69600, м. Запоріжжя, вул. Жуковського, 66

Ключові слова:
організаційна культура,
корпоративна культура,
бізнес-культура,
міжнародний маркетинг,
міжнародний бізнес

В ході написання статті аналізуються культурні фактори бізнесу та міжнародного маркетингу. У міжнародному маркетингу та бізнесі найбільші труднощі створюють фактори культурного середовища. Тому все більшого значення набуває правильна оцінка відмінностей національних культур та їх адекватне врахування. Приділено увагу чинникам культурного середовища на багаторівневу структуру культури, що визначає різноманітність її функцій у житті кожного суспільства. Дано оцінку впливу культурних факторів на підставі проведеного дослідження методів багатовимірного аналізу культурних факторів, що впливають на розвиток міжнародного маркетингу та бізнесу в різних країнах. На підставі проведеного дослідження запропоновані методи багатовимірного аналізу культурних факторів, що впливають на розвиток міжнародного маркетингу та бізнесу в різних

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країнах. За результатами дослідження запропонований комплексний підхід до оцінки факторів впливу на розвиток міжнародного бізнесу у кожній країні. В умовах національного розмаїття ділових культур особисте значення мають соціокультурні чинники. Мета на підставі проведеного дослідження методів багатовимірного аналізу культурних факторів, що впливають на розвиток міжнародного маркетингу та бізнесу в різних країнах, застосування на практиці запропонованих рекомендацій. Повинен бути застосований комплексний підхід до оцінки факторів впливу на розвиток міжнародного бізнесу у кожній країні. Це тим, що у умовах національного розмаїття ділових культур особисте значення мають соціокультурні чинники.

Formulation of the problem

Today, the country's cultural wealth is still inaccessible to many people due to their low socio-cultural activity, which requires changes in the economic base of regional development, increasing human capital, improving cultural education as the main condition for harmoniously developing strategic goals. persons. One of the reasons for the decline in state interest in addressing these issues is the different social conditions for the consumption of cultural goods and services. During the transformation processes in the country there were not only new relations between subjects and institutions of culture, but also new content of their activities, new priorities, as well as significant changes in the system of values, norms and principles of cultural life.

The peculiarity of the cultural sphere is that the main results of cultural activities are expressed, as a rule, in the delayed social effect and are manifested in increasing intellectual potential, changing values and norms of human behavior, reflected in the modernization of society. Obviously, the consequences of this kind do not undergo the usual statistical measurements.

Analysis of recent research and publications

For example, Airbnb's online rental service is an organization that values employee experience. The company's management worked on programs to improve interaction with employees and provide them with favorable working conditions. Because the company is primarily service, all its activities are through employees, so it is in their hands is the success and reputation of the company. As a result of the introduction of such programs, Airbnb's profits have increased many times over. The company pays more attention to employee training. It is increasingly important for employees to find out what their employer will offer them as professionals. They want to understand that they will be moving up both professional and career ladders.

Formulation of goals

The purpose of the work is to characterize and study the development of the existing network of cultural institutions in all regions of the country.

Objectives of the study:

– providing them with modern material and technical base;

– stimulating the development of film production and improving film service;

– analyze the cultural environment of international marketing;

– to study the impact of cultural factors on the efficiency of doing business;

– promoting the activities of national creative unions of Ukraine.

Presentation of the main material of the research

The peculiarity of the cultural sphere is that the main results of cultural activities are expressed, as a rule, in the delayed social effect and are manifested in increasing intellectual potential, changing values and norms of human behavior, reflected in the modernization of society. Obviously, the consequences of this kind do not undergo the usual statistical measurements. However, in the practice of domestic statistics, state and regional government there is a system of indicators that can be used to assess the development of the cultural environment: indicators that characterize the financial support of the cultural sphere; indicators of the level of development of elements (most often data on the state of infrastructure are used); indicators of the served contingent of the population, in particular the level of involvement of people in various forms of service; Indicators of human resources in the field of culture.

It should be noted that the location of cultural facilities is influenced by economic factors (for example, the amount of costs for the development of culture in a particular region). However, there is an underestimation of the role of culture in administrative practice in cities, and hence the uneven location of cultural objects in Ukraine, in particular in rural areas. Analyzing the territorial infrastructure of the cultural environment, it is advisable to use indicators of location of objects, in particular their territorial accessibility. Also, among other important indicators for assessing the state of infrastructure is the share of cultural institutions (libraries, theaters, clubs, museums) that are in disrepair or in need of major repairs.

The development of the cultural environment also depends on the factor of financial security. It should be noted that the need for budget funding in the field of culture is due to the fact that its activities require a certain stability of financial security given its long-term nature due to the uncertainty of the results. In addition, budget funding also helps to meet the needs of highly qualified professionals, in contrast to the private sector. Unfortunately, today the main problems of cultural development are related to the formation of the residual principle of allocation of funds for the needs of the sphere. It is possible to expect a significant increase in budget expenditures in the field of culture, in particular, the development of standards and standardization of costs for the maintenance and

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development of cultural institutions, only if the stabilization and growth of budget revenues.

The influence of factors related to the legal provision of the effective functioning of the cultural environment determines the development of its network, state.

The main reasons for complicating the further development of the cultural environment are that cultural institutions are poorly integrated into regional socio-economic systems; secondly – there are no methodological principles of socio-economic evaluation of the effectiveness of their activities, there is no system of criteria for organizing the planning and material incentives for cultural workers; thirdly, it is difficult to carry out a comparative analysis of the activities of different types of institutions, as this is not always possible due to the fact that each area uses a significant number of indicators and criteria that cannot be compared.

Based on the analysis of the relationship between the infrastructural provision of the cultural environment and efficiency [4, p. 69], seven groups of regions of Ukraine were identified according to the level of its development, namely:

1. Regions with a high level of efficiency in the use of cultural facilities with a high and medium level of development of their infrastructure – Mykolaiv, Kharkiv, Khmelnytsky, Cherkasy and Chernivtsi regions.
2. Regions with a high level of efficiency in the use of cultural facilities with a low level of development of their infrastructure – Kyiv.
3. Regions with average and below average level of efficiency of use of cultural objects at a high level of development of their infrastructure – Vinnytsia and Chernihiv regions.
4. Regions with an average level of efficiency in the use of cultural facilities with an average and below average level of development of their infrastructure – Kyiv and Poltava regions.
5. Regions with lower than average level of efficiency of use of cultural objects at average, lower than average and low level of development of their infrastructure – Dnipropetrovsk region.
6. Regions with a low level of efficiency in the use of cultural facilities with a high and medium level of development of their infrastructure – Ivano-Frankivsk, Kropyvnytskyi, Ternopil, Kherson, Rivne and Volyn regions.
7. Regions with a low level of efficiency in the use of cultural facilities with low and lower average level of development of their infrastructure – Zhytomyr, Zakarpattia, Zaporizhia, Lviv, Odessa and Sumy regions. Based on the integrated assessment of socio-cultural activity of the population, the regions of Ukraine were divided into groups (Table 1).

In conditions when the population evaluates cultural institutions as conservative, which do not take into account current trends and requirements of cultural life, there is an urgent need to expand the economic independence of cultural institutions. At the same time, in the new economic realities, the preservation of the country's previously created cultural potential is an urgent problem.

Current issues of preservation and development of the existing network of cultural institutions in all regions of the country, providing them with modern material and technical base, stimulating the development of film production and improving film service, transferring it to new screening technologies, museum development, state program informatization. unions of Ukraine, in particular their local organizations, ensuring the further development of cultures of national minorities, improving the conditions of creative activity and life of masters of arts, cultural workers, increasing their wages, etc. All this testifies to the dynamism of the cultural sphere, its focus on adapting to social change and international integration.

The main thing in Ukrainian business culture is that it acquires more specific shapes. With the age of social media and the availability of information, reputation is becoming increasingly important. The institute of reputation is born in the Ukrainian realities and it happens not in politics or other spheres of life, but in business. And although low price is still a priority in the mass Ukrainian market, the brand reputation and corporate culture are beginning to become more important. There are more and more social projects and environmental initiatives in the framework of corporate responsibility, the attitude of management to employees is changing. Therefore, gradually from the wild jungle of post-Soviet heritage under the influence of global processes, Ukrainian business culture acquires the features of post-industrial business culture, which is characterized by the desire for intellectual added value, brand value and social responsibility.

Conclusions from this study

We can conclude about the cultural environment in Ukraine, the definition of socio-cultural priorities is a specific tool for solving problems of socio-economic territories, and objective and comprehensive assessment of factors in each region allows to identify and characterize the specifics of its socio-economic system. Based on the analysis and assessment of the current state of the infrastructural potential of the cultural environment, the efficiency of its use and socio-cultural activity of the population at the regional level, it can be concluded that the mismatch of its level and quality of national and cultural revival in Ukraine. Unfortunately, this has negatively affected the self-sufficiency and reproducibility

Table 1 – Distribution of regions of Ukraine by level of socio-cultural activity of the population, 2020

Evaluation criteria				
High level (more than 80 %)	**Average level (more than 40 %)**	**Level below average (30–40 %)**	**Low level (20–30 %)**	**Low level (20–30 %)**
Kyiv	Odessa, Cherkasy, Chernihiv	Kropyvnytskyi, Lviv, Ternopil, Khmelnytsky, Chernivtsi	Vinnytsia, Volyn, Zhytomyr, Mykolaiv, Poltava, Sumy, Kharkiv	Dnipropetrovsk, Zakarpattia, Zaporizhia, Ivano-Frankivsk, Kyiv, Rivne, Kherson

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of socio-economic processes in the regions of the country. Therefore, we can say that our country has accumulated a set of territorial problems, among which are significant differences in the regional development of the cultural environment.

But one way or another, business culture is still a reflection of the general culture of society. In order to fully assess the state of affairs with the experience of the employee in Ukraine, it would be necessary to conduct a large-scale study. However, it can be assumed that such an element as the professional and life experience of the employee is of less interest to Ukrainian employers. This is especially true for large companies, where they often try to achieve a high level of service by such methods as strict regulation of actions, a system of penalties for mistakes and errors, the bet that «there are no irreplaceable workers.» Accordingly, the flow of staff is quite rapid, and the company spends money on constant recruitment of new employees.

Of course, there are examples of enterprises in Ukraine where global innovations are embodied: in particular, IT companies, PR and communication agencies, creative industries, etc. However, the experience of the employee is most often emphasized by either small young companies or local divisions of foreign companies that bring their own corporate culture to Ukrainian branches.

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THE IMPACT OF DISTANCE LEARNING ON THE EMOTIONAL CAPITAL OF HUMAN AND TEAM

Pereverzieva A.V., Volkov V.P.
Zaporizhzhia National University,
Ukraine, 69600, Zaporizhzhia, Zhukovsky str., 66
pereverzeva@ukr.net, volkovvp49@gmail.com
ORCID: 0000-0001-8391-6636, ORCID: 0000-0002-1270-895X

Key words:
emotional capital, distance learning, interaction, educational process, management, social environment, team, communication

The article is devoted to the study of the impact of distance learning on emotional capital, which determines interactivity levels between team members. The tools we offer are universal and can be used for various economic entities from macro- to micro level - enterprises, associations of people and others. The peculiarity of the approach to the department as to the team having intellectual work is characterized by the level of participation intensification in joint activities and projects. The emotional component is of paramount importance for a high interactivity level and is determined by the form of educational process organization. That is, a high level of emotional capital and interaction can determine the effectiveness of human resource management methods in the team and the level of its self-organization. The hypothesis of the study (H1) is the assumption that distance learning reduces emotional capital level. Methodology. The study methodology is emotional capital impact analysis, including the calculation of the coefficient. The interaction coefficient in a team indicates emotional capital. Some mathematical dependences have been used as analytical tools. Algorithm for calculating the interactivity level applying the example of the educational institution`s department, using online organization forms of the educational process and offline learning. Comparative analysis of team interaction under the specified conditions have been carried out. Results. It has been determined that online learning causes lower interaction level in comparison with offline organization of the educational process, which proves the decrease in emotional capital level. The methodological approach proposed in the study allows not only to quantify the interactivity level on the basis of the coefficient, but to identify "weaknesses" that reduce interaction level and "strengths", which are the prerequisite for successful team coexistence. The practical value of the obtained results is the ability to justify the use of the most effective forms of educational process` organization, to determine positive and negative outcomes for qualitative and quantitative indicators of management efficiency amid social distancing.

ВПЛИВ ДИСТАНЦІЙНИХ ФОРМ НАВЧАННЯ НА ЕМОЦІЙНИЙ КАПІТАЛ ЛЮДИНИ ТА КОЛЕКТИВУ

Переверзєва А.В., Волков В.П.
Запорізький національний університет
Україна, 69600, м. Запоріжжя, вул. Жуковського, 66

Ключові слова:
емоційний капітал, дистанційні форми навчання, взаємодія, освітній процес, управління, соціальне середовище, колектив, комунікація

Стаття присвячена дослідженню впливу дистанційних форм навчання на емоційний капітал, що визначає ступінь взаємодії членів колективу. Запропонований нами інструментарій є універсальним і може бути використаний для різних економічних суб'єктів від макро- до мікрорівня – підприємств, об'єднань людей та інші. Особливість використання цього підходу до такого колективу як кафедра полягає в тому, що для колективу з інтелектуальним характером праці, що характеризується рівнем активізації участі у спільних заходах і проектах. Емоційна складова має провідне значення для високого рівня взаємодії та обумовлюється формою організації освітнього процесу. Тобто високий рівень емоційного капіталу та взаємодії може визначати ефективність методів управління людськими ресурсами у колективі та рівня його самоорганізації. Гіпотезою дослідження (H1) є припущення, що дистанційні форми навчання зменшують ступінь

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емоційного капіталу. Методологія дослідження впливу дистанційних форм навчання на емоційний капітал передбачає розрахунок коефіцієнту взаємодії k_{int}. Коефіцієнт взаємодії в колективі є індикатором емоційного капіталу. Як аналітичний інструментарій використано певні математичні залежності Побудовано алгоритм розрахунку рівня взаємодії на прикладі колективу кафедри освітнього закладу за умови використання онлайн форм організації освітнього процесу та офлайн навчання. Здійснено порівняльний аналіз взаємодії в колективі за зазначених умов. Визначено, що за умови використання онлайн форм навчання рівень взаємодії є меншим, ніж за умови офлайн форм організації освітнього процесу, що доводить зниження ступеня емоційного капіталу. Запропонований у дослідженні методичний підхід дозволяє не лише кількісно визначити рівень взаємодії на основі розрахованого коефіцієнта, але виокремити «слабкі» місця, які знижують рівень взаємодії та «сильні» позиції, що є передумовою для успішного співіснування в колективі. Практична цінність отриманих результатів полягає в можливості обґрунтування доцільності використання найбільш ефективних форм організації освітнього процесу, визначати позитивні та негативні наслідки щодо якісних та кількісні показники ефективності управління в умовах соціальної дистанційності.

Problem statement

Modern education affected by socio-economic changes requires constant improvement of education forms to support high development rate and achieve harmonious team cooperation.

COVID-19 pandemic is one of the key challenges, which has affected all countries around the world, regardless of geopolitical position and level of economic development. Educational sector which is in a continuous process of development, is in a critical situation. It is impossible to postpone or stop learning, so it is necessary to maintain the achieved level of training quality. Distance forms of learning with the help of information and communication technologies have become effective means of ensuring the continuity of educational process.

Distance learning is interaction between participants of the educational process, which involves typical components of traditional methods, and information and communication technologies as well.

Analysis of recent studies and publications

In the scientific literature there are different views on the advantages and disadvantages of distance learning. Scholars [1] state the positive impact of online forms of educational process, which involve modern information and communication technologies, which improve the quality and effectiveness of learning. Conclusions reached by scientists [2] are considered as significant results. They have proved that those participants of educational process who use all the possibilities of information and communication technologies were able to increase personal development (18.5%), deepen professional skills (18,7%), keep and strengthen health (10%).

There is a diametrically opposed position referring to the impact of distance learning on various areas of human life, including emotional capital. Researchers [3] have proven that online learning has a negative impact on the quality and effectiveness of knowledge acquisition. Statistical analysis showed that 59% of respondents believe that distance learning technologies have negatively affect the quality of education and 66%, respectively, the effectiveness of the educational process. The position is supported by scholars [4], whose study showed that more than 50% of educational process' participants showed low level of satisfaction with the organization and implementation of the online educational process. There is another important conclusion – distance learning could reduce stress levels. In addition, online learning has changed attitudes towards the lifestyle and consumption (higher consumption of caffeine and energy drinks, high-sugar foods and fast food), sleep (reduced hours of sleep), lower physical activity and bad habits. This ultimately has a negative effect on physical and psychological health [5].

Objectives of the article

The study objective is to determine the impact of distance learning on emotional capital, which determines interactivity levels between team members.

The main material of the research

Based on the above mentioned, one can summarize that the positive features of distance learning are the ability to obtain more knowledge and skills, learning process flexibility, lower costs of educational process' organization. Disadvantages of distance learning include: significant time for doing homework, negative impact on physiological state and mental health of a person, due to the lack of «live» communication between the participants of educational process.

Distance learning provides communication between the subjects of educational process, its continuity and quality, but reduces the level of emotional capital, the ability to use emotions to achieve certain goals and to create interaction between people.

Thus, emotional capital is the highest point of emotional intelligence, determined by tangible and intangible benefits. Management system reveals that the ability to manage team emotional capital increases the overall performance, reduces the probability of conflicts and forms the potential for its further development. Emotional capital is vital for

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the assessment of intangible motivation efficiency, which is extremely important for a modern successful creative employee.

Daniel Goleman [6] paid considerable attention to the study of emotions', emotional intelligence's and emotional capital's impact on the effectiveness of economic entities' performance. He defined the main competencies of emotional intelligence as the ability to identify, evaluate and control his/her own emotions, other people's emotions and emotional state of a team.

Based on the abovementioned, we conclude that emotional capital is an integral indicator of the degree of interaction between members of a particular group. In the field of higher education, it can be a student group, department staff, the interaction «teacher-students» and the interaction «management-teachers».

Personal interaction plays a key role in a team, because: it makes it possible to perform tasks and achieve goals that are unattainable for one person, but are achievable only in case of institutional energy accumulation; there is a long term interaction stability, taking into account emotional intelligence to increase the effectiveness of collective actions and create prospects for the future; there is synergetic effect determined due to interaction by additional outcomes and benefits caused by the process' intensification.

The system approach proves that the issues of coexistence and interaction of people within a certain system become especially important, because the quality of this interaction affects system's success and its development in the future. Any system has a certain set of elements that interact with each other. The result of this interaction is achieved on the basis of its full strength, rather than of its parts' capacity.

As a result of the interaction of system elements is the achievement of a certain synergistic effect, which shows the nature and strength of the interaction of the system elements, for example, of human resources within a team. The synergistic effect can have both positive and negative results, i. e. it characterizes the direction of the interaction vector. The interaction strength directly affects system development, i. e. the stronger its elements are connected through the possibility of coexistence, the greater the probability of their successful development.

Only a positive synergetic effect should be achieved for a team, as it impacts collective's ability to achieve common goals and determines the opportunities for future development. It should also take into account the features of different teams' actions. For example, the nature of work, (mental or manual), age, number of employees, etc.

In case the negative impact of synergies has been revealed, it is necessary to develop strategy to increase the interaction effect of human resources within the team. The strategy development aimed to enhance the interaction of human resources is an integral part of the process of managing the socio-economic system, i. e. the department staff.

We have conducted a study of the distance learning impact on emotional capital changes by calculating the coefficient of interaction applying a team as an example – the department of a higher education institution. The analysis is based on the results obtained before shifting to distance learning (online) when traditional educational technologies were used (offline).

Mathematical dependences have been applied by us as an analytical tool to calculate the coefficient of interaction. The algorithm has been developed; it involves the following steps: list of scientific, social and cultural activities of a structural unit; assessment of team members' participation in individual activities by the proposed scale; mathematical calculations to determine the coefficient of interaction of team members.

Let us consider in detail the algorithm steps for assessing the interactivity level of a university department staff, assuming 1) offline educational process and 2) online educational process.

The coefficient of interaction (k_{int}) could be used for the quantitative assessment of the interactivity level of human resources within the stud. It has a synergistic effect on team's functioning and development. The coefficient is a multiplier of team members' interactivity level, i. e. it can be either increased (enhanced) through collective cooperation, or decreased (weakened) in case of conflict culture, which largely depends on emotional capital. The strength or quality of this interaction causes a synergistic effect.

Let us study in more detail the sequence of the algorithm implementation. Let us choose the list of N activities (d_i) in which team members can participate, and characterize the quality of interaction. Participation in each event will be assessed according to the scale determined by the indicator d_i.

Total coefficient of interaction is determined by the formula:

$$k_{\text{int}} = 1 + \frac{\sum_{i=1}^{N} d_i}{\overline{i=1}}, \quad (1)$$

$$N$$

where d_i = [–1;0]; 1 – there is an event and team members take part in it; 0 – there is an event and team members do not take part in it; –1 – there is no such an event.

When determining the coefficient of interaction within the team, we will take into account the number of participants in an event.

Total coefficient of interaction, taking into account the number of participants will be:

$$k_{\text{int}} = 1 + \overline{Q_{HR}} \times \frac{\sum_{i=1}^{N} d_i}{N}, \quad (2)$$

where $\overline{Q_{HR}}$ – mean value of the department teachers' ratio who took part in an event

$$\overline{Q_{HR}} = \sqrt[m]{\prod_{j=1}^{m} \frac{p_j}{p}}, \quad (3)$$

where p – total number of a department staff, persons; p_j – number of department staff who took part in the event, persons; m – number of events, for which d_i = 1.

Let us analyze the example of calculating the coefficient of interaction for a department in terms of offline and online mode of educational process. Data which illustrate participation of the department members in the activities amid offline mode of educational process are presented in Table 1 and online – in Table 2. The department staff selected for the study includes 12 people. Note that the

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team is balanced in terms of age and gender equality. We have identified 4 main events for staff members' participation, including: scientific projects, conferences, sport competitions, various joint projects and joint events (birthday parties, concerts, picnics and shared recreation).

We determine the coefficient of interaction for a structural unit's team – offline and online modes of educational process:

– offline mode of educational process:

$$k_{вз} = 1 + 0{,}786 \times 0{,}8 \approx 1{,}63;$$

– online mode of educational process:

$$k_{вз} = 1 + 0{,}376 \times 0{,}68 \approx 1{,}23.$$

The calculation results are presented in the Table 3.

Calculations of the coefficient of interaction presented in table 3 clearly show that the level of cohesion of the department staff amid offline mode of educational process is higher (1.63) than amid online mode (1.23). The calculated coefficient makes it possible to assess a set of activities that would facilitate team members' participation in joint activities and achievement of a common goal by them.

Conclusions

The calculations confirmed hypothesis H1 and proved that distance learning modes reduce the level of emotional capital. The team coefficient of interaction amid traditional modes of learning is 1.63, and amid distance modes of learning is 1.23. This confirms lower level of communication in a team and the reduction of emotional capital.

The study results have showed that the existing modes of distance learning using modern information and communication technologies: first, reduce the intensity of accumulating new knowledge due to the lack of emotional component, which is formed in the process of traditional modes of learning application and personal communication; 2) there is a need for new ways of organizing the educational process by combining online and offline communication between participants of educational process – both teachers and students.

The main value of this study is the ability to disseminate the results and methods of calculation for the interactivity level in different forms of labour organization and the emotional component for any socio-economic actors. These can be businesses, individual business departments and associations of people. Based on the obtained results, it is possible to develop effective measures that will increase the interactivity level and thus create a positive synergistic effect.

Additional significance of this study is to substantiate the idea of the conditional dependence of the interactivity

Table 1 – Data of a «department staff» to determine of the coefficient of interaction when shifting to distance mode of educational process (offline)

Activities	d_1	**Number of structural unit`s team members (*HR*), persons**	**Amount of human resources, participated in the event (HR_1), persons**	
Column 1	**Column 2**	**Column 3**	**Column 4**	
			persons	**ratio**
1. Participation in scientific projects	1	12	10	0,833
2. Participation in conferences	1	12	11	0,917
3. Sport competitions	0	–	–	–
4. Joint projects	1	12	8	0,667
5. Joint events: holidays, concerts, picnics	1	12	9	0,75
Geometric mean value	0,8	–	–	0,786

Source: Made by the authors themselves

Table 2 – Data of a «department staff» to determine of the coefficient of interaction when shifting to distance mode of educational process (online)

Activities	d_1	**Number of structural unit`s team members (*HR*), persons**	**Amount of human resources, participated in the event (HR_1), persons**	
Column 1	**Column 2**	**Column 3**	**Column 4**	
			persons	**ratio**
1. Participation in scientific projects	1	12	5	0,417
2. Participation in conferences	1	12	7	0,583
3. Sport competitions	-1	–	–	–
4. Joint projects	1	12	7	0,583
5. Joint events: holidays, concerts, picnics	-1	–	–	–
Geometric mean value	0,6	–	–	0,376

Source: Compiled by the authors

Table 3 – Calculation of the coefficient of interaction for different modes of educational process(offline and online)

Coefficient of interaction	**Value**
$k_{вз}$ (offline)	1,63
$k_{вз}$ (online)	1,23

Source: calculated by the authors themselves

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level on the emotional component, which determines the possibility of coexistence in one group.

The importance of the study is also determined by the fact that it allows to quantify the coexistence of people in the same structure, which are combined not only by objective characteristics, but also taking into account the emotional component. Moreover, the results allow a business entity to redistribute financial costs, reorient efforts and direct them to increase the level of cohesion and interaction in a team, support emotional intelligence to disseminate positive synergistic effect on the deliverables.

Thus, in our opinion, the most successful mode of educational process' organization is mixed one, namely: online mode for lectures and offline mode for practical classes.

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PROBLEMS AND PROSPECTIVE DIRECTIONS OF UKRAINE'S INTEGRATION INTO THE EU

Cherep A.V., Kondratenko V.O., Homik V.P.
Zaporizhzhia National University
Ukraine, 69000, Zaporizhzhia, Zhukovsky str., 66

Key words:
integration, EU,
European integration,
foreign economic relations,
mutual relations, community

European integration processes in Ukraine have been studied. The relations between Ukraine and the EU in the conditions of globalization are analyzed, the prospects of Ukraine 's European integration into the EU are determined. The processes of adaptation of the legislation of Ukraine to the legislation of the EU are investigated. Ukraine's trade partnership with EU countries is analyzed. Rated indicators of trade and economic cooperation between Ukraine and the EU. It is established that according to the results of 2020, the EU remains a key trading partner of Ukraine with a share of 40.7% (in 2019 - 40.1%). Prospects for further cooperation between Ukraine and the European Union have been identified. Barriers in relations between Ukraine and the EU have been identified. Specific proposals have been made for further cooperation between Ukraine and the EU. The expediency and necessity of partnership relations and cooperation between Ukraine and the countries of the European Union are established.

ПРОБЛЕМИ ТА ПЕРСПЕКТИВНІ НАПРЯМКИ ІНТЕГРАЦІЇ УКРАЇНИ В ЄС

Череп А.В., Кондратенко В.О., Хомік В.П.
Запорізький національний університет
Україна, 69600, м. Запоріжжя, вул. Жуковського, 66

Ключові слова:
інтеграція, ЄС, євроінтеграція,
зовнішньоекономічні відносини,
взаємовідносини,
співтовариство

Досліджено євроінтеграційні процеси в Україні. Проаналізовано взаємовідносини України з ЄС в умовах глобалізації, визначено перспективи євроінтеграції України в ЄС. Досліджено процеси адаптації законодавства України до законодавства ЄС. Проаналізовано торгівельне партнерство України з країнами ЄС. Оцінено показники торговельно-економічного співробітництва Україна-ЄС. Встановлено, що за результатами 2020 року ЄС залишається ключовим торговельним партнером України із часткою 40,7% (у 2019 р. – 40,1%). Визначено перспективи подальшої співпраці України з країнами Європейського Союзу. Виокремлено бар'єри у відносинах України і країн ЄС. Внесено конкретні пропозиції щодо подальшої співпраці України з країнами ЄС. Встановлено доцільність та необхідність партнерських відносин та співробітництва між Україною та країнами Європейського Союзу.

Problem statement

In recent years, integration processes have begun to play an important role in the world economy, which significantly affects Ukraine's competitiveness on the world stage. Today, Ukraine defines the direction of its foreign policy as a way of integration into the European Union (EU). Ukraine's choice is due to the understanding that integration is one of the main factors contributing to the independence of our state, national security, political stability, economic development, scientific and technological development, helping to establish Ukraine as a European state.

Ukraine is already gradually forming the preconditions for joining the European Union, so our country understands that our economy will take a step towards joining the European economic processes that must be met. Therefore, a whole system of national legal framework in the field of customs relations is being created, the mechanism of regulation of foreign economic activity is being adjusted through its harmonization in accordance with the norms and standards of GATT / WTO and EU countries. But such integration should be carried out taking into account the peculiarities of the transitional stage of its development, as well as the expected changes in the near future on the European continent, both geopolitical and economic, related to the accession of new countries to the European Union. European will be a complex and lengthy process.

Analysis of recent research and publications

Researchers have studied the problematic issues of Ukraine's integration into the EU. Some of them: Artyomov I. [1], Asheim B. [2], Baganarenko A. [3], Brykova I. [6], Gemi D. [4], Cooke P. [2], Wongrowska M. [4], Zhuravski V. [4], Grajewski P. [4], Efremov O. [5], Poruchnik A. [6], Saban M. [7], Sytnyk S. [8]. But the issue of taking into account

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the peculiarities of Ukraine's economic development, uncertainty about the prospects of Ukraine's cooperation with the EU and ways to accelerate it remains unresolved.

Formulation of the goals of the article

Investigate European integration processes, analyze Ukraine's relations with the EU, determine the prospects for European integration.

Presentation of the main material of the study

Ukraine is a priority partner of the European Union (EU). The EU supports Ukraine in ensuring a stable, prosperous and democratic future for its citizens, as well as the idea of its independence, territorial integrity and sovereignty, as evidenced by the situation with the annexation of Crimea, the European Union and violation of the integrity of Ukraine's borders, which goes against legal actions [9].

Currently, the process of adapting the legislative framework of Ukraine to EU legislation is underway, its essence is to approximate to the modern European legal system, this step will ensure the development of political, entrepreneurial, social, cultural activity of Ukrainian citizens. gradual increase in the welfare of citizens, bringing it to the level prevailing in the EU member states.

Adaptation of Ukrainian legislation involves reforming its legal system and gradually bringing it into line with European standards and includes private, customs, labor, financial, tax legislation, legislation on intellectual property, labor protection, life and health, environment, consumer protection, technical rules and standards, transport, and other areas identified under the Partnership and Cooperation Agreement. An important factor in reforming Ukraine's legal system is Ukraine's participation in Council of Europe conventions, which set common standards for this organization and the EU [10].

The European Union is Ukraine's main trading partner. According to the results of 2020, the EU remains a key trading partner of Ukraine with a share of 40.7% (in 2019 – 40.1%). According to the State Statistics Service of Ukraine, the volume of trade in goods and services with the EU decreased by 9% compared to 2019 and amounted to 48.1 billion dollars. USA [11].

During this period, exports of goods and services to the EU decreased by 9.4% and amounted to 21.9 billion dollars. USA. Imports of goods and services from the EU fell by 8.7% to $26.3 billion. USA [12].

The trade balance with the EU in 2020 remained negative for Ukraine, but fell to –4.4 billion dollars. US (in 2019 the balance was –4.6 billion US dollars).

The volume of trade in goods between Ukraine and the EU in 2020 amounted to 42.1 billion US dollars, which is 8.1% less than in 2019. At the same time, exports of goods to EU countries decreased by 10.3% and amounted to 18.6 billion dollars. US imports of goods fell by 6.2% to $23.5 billion. USA [13].

Since European integration has both advantages and risks, Ukraine should focus on using the positive aspects of European integration, but also calculate the risks, implement a policy to manage these risks. The analysis of the strengths and weaknesses of Ukraine's integration into the EU allows us to state that Ukraine needs to focus on its strengths and potential opportunities, which will provide the prospect of entering the European political and economic space [7].

Regarding the prospects of Ukraine's accession to the EU, Lithuanian Ambassador to Ukraine V. Sarapinas recently stated that this is possible in the near future. According to him, during Lithuania's second leadership in the Council of the European Union in 2027, the European Union could declare Ukraine a candidate for EU membership. He reminded of the initiative of Lithuanian Prime Minister A. Kubilius «Ukraine-2027», which aims to help unite the efforts of member states and EU institutions to help Ukraine implement reforms [14].

D. Shmygal also announced the launch of new areas of strategic partnership between Ukraine and the European Union. According to him, first, this is the direction of critical raw materials. The development of modern technologies and green energy poses new challenges to Europe. It is estimated that the European Union estimates that the demand for lithium used in the manufacture of batteries will increase 18 times by 2030 and 60 times by 2050. Ukraine has the largest lithium deposits on the European continent [15; 16].

He also noted that the second area of cooperation with the EU is cooperation in the field of hydrogen production, a promising energy resource. As Ukraine has 15 nuclear power units, Ukraine has a huge potential for stable hydrogen production and is ready to develop it together with Europe, having a constant market there. The third area is cooperation in the space industry. Ukraine has advanced technologies, enterprises, a strong production and personnel school, and scientific potential in this area. All this is extremely interesting for the European Union today [17; 18].

Despite some misunderstandings in the relations between Ukraine and the EU, the attention to our country is quite high. It should be noted that even the lockdown did not prevent the holding of the Association Council with the participation of MEPs and the delegation of Ukraine live, headed by the Prime Minister of Ukraine D. Shmygal. Back in October, the EU held the first «live» summit with the President of Ukraine V. Zelensky since the beginning of the pandemic. In February, the Prime Minister of Ukraine D. Shmygal was received in Brussels. The result of his visit was the Ukraine-EU Association Council, which took place on 11 February [15; 19].

The EU held a similar event with Serbia in December via video conference. The same fate awaits the meeting with Tajikistan. Instead, the EU postponed the Council of the Association with Ukraine from December to February to meet with Ukrainian officials live. And this meeting took place, despite the fact that the situation with the COVID-19 pandemic has not improved.

According to observers, this demonstrates Ukraine's importance for the EU. EU High Representative for Foreign Affairs and Security Policy J. Borrell told a news conference following the Association Council: «Everyone knows that the partnership with Ukraine is one of the most strategically important of all we have in the world.» Mr Borrell also stressed that the EU-Ukraine Association Agreement is the most comprehensive of all EU treaties [20; 21].

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Authorities say Ukraine's relations with the European Union are at a good level and will only improve – first of all, deepening economic cooperation, but experts predict that Ukraine will be able to join the European Union in a decade [1].

Own suggestions

The best-case scenario so far is to learn from European experience, actively cooperate and exchange technology and human resources with the EU. Before joining the EU, Ukraine must first solve its internal problems, comply with EU requirements and adhere to the rules established by the Association Agreement. It is promising to focus on the experience of countries that have recently joined the EU.

Conclusions

So, in the end, I would like to say that Ukraine's accession to the European Union will be the beginning of a new Ukraine. These relationships give us the opportunity to show what we are capable of, open new markets, ways to improve all areas, the establishment of the legal framework may finally be completed, which will clearly regulate the spheres of public relations. Technology will eventually elevate us to the level of European countries. These processes will launch a number of processes that will be aimed at the economic growth of our country. Starting from the modernization of enterprises to improve any products or services, while reducing production costs and be able to adapt to changing consumer needs, these modernization processes will increase profits and image of enterprises, which will form a good attitude of consumers to Ukrainian enterprises, and the attitude not only of our citizens but also of foreign citizens to our products. This will help the overall economic growth of the country and the formation of the image, will form a favorable attitude towards our country.

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ORGANIZATIONAL AND ECONOMIC MECHANISMS FOR ATTRACTING INVESTMENT IN THE HYDROGEN SULFUR MIXTURE PROCESSING OF THE BLACK SEA

Andrushkiv B. M., Hahaliuk O.I., Kyrych N.B., Pohaidak O.B., Sherstiuk R.P.
Ternopil Ivan Puluj National Technical University
Ukraine, 46001, Ternopil, st. Ruska, 56
andrushkiv.bohdan@gmail.com, gagaliuk.olya@gmail.com, nkuruch@gmail.com,
pog.ola77@gmail.com,romsher85@gmail.com

Key words:
hydrogen, sulfur,
hydrogen sulfide, hydrogen sulfide mixture processing,
ecological safety, absorption,
mass transfer process,
electrochemical reactor,
tools and means

The article is devoted to the hydrogen sulfide mixture usage containing in the depths of the Black Sea as a raw material for processing into hydrogen and obtaining sulfur as a by-product. Some prospects and problems of energy resources utilization under the energy crisis in Ukraine have been considered. Hydrogen sulfide mixture reserves have been established as a result of geological exploration and analytical studies; the procedure for its processing into hydrogen has been proposed. The expediency of application of absorption-electrochemical method of hydrogen purification from sulfur has been considered. It can be used as a by-product for the branches of national economy. It was found that long-term operation leads to partial destruction of the electrochemical reactor elements, so the efficiency of existing treatment equipment is reduced compared to the allowable values. It was established that sanitary protection measures for the processing of raw materials do not comply with the State Sanitary Rules for the Protection of Atmospheric Air of Settlements. The economic and mathematical modeling of mass transfer processes in a gas-liquid system taking into account hydrodynamic processes in absorption-electrochemical installations of air purification from hydrogen sulfide has been proposed from the ecological point of view. The ways to intensify scientific research on this and related issues of its economic efficiency have been identified. The economic, ecological and safety factors influencing the hydrogen sulfide processing have been studied. Some measures to develop the appropriate scientific and technical programs and create a favorable investment climate to attract investment for their implementation have been proposed.

ОРГАНІЗАЦІЙНО-ЕКОНОМІЧНІ МЕХАНІЗМИ ЗАЛУЧЕННЯ ІНВЕСТИЦІЙ У ПЕРЕРОБКУ СІРКОВОДНЕВОЇ СУМІШІ ЧОРНОГО МОРЯ

Андрушків Б.М., Гагалюк О.І., Кирич Н.Б., Погайдак О.Б., Шерстюк Р.П.
Тернопільський національний технічний університет імені Івана Пулюя
Україна, 46001, м. Тернопіль, вул. Руська, 56

Ключові слова:
водень, сірка, сірководень,
переробка сірководневої суміші, екологічна безпека,
абсорбція, процес масообміну,
електрохімічний реактор,
інструменти та засоби

Стаття присвячена використанню сірководневої суміші, що міститься в надрах Чорного моря, як сировину для переробки на водень та отримання сірки як побічного продукту. Розглянуто деякі перспективи та проблеми використання енергетичних ресурсів в умовах енергетичної кризи в Україні. В результаті геологорозвідувальних і аналітичних досліджень встановлені запаси сірководневої суміші; запропоновано процедуру його переробки на водень. Розглянуто доцільність застосування абсорбційно-електрохімічного методу очищення водню від сірки. Може використовуватися як побічний продукт для галузей народного господарства. Встановлено, що тривала експлуатація призводить до часткового руйнування елементів електрохімічного реактора, тому ефективність існуючого очисного обладнання знижується порівняно з допустимими значеннями. Встановлено, що заходи санітарного захисту при переробці сировини не відповідають Державним санітарним правилам охорони атмосферного повітря населених пунктів. З екологічної точки зору

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запропоновано економіко-математичне моделювання процесів масообміну в системі газ-рідина з урахуванням гідродинамічних процесів в абсорбційно-електрохімічних установках очищення повітря від сірководню. Визначено шляхи інтенсифікації наукових досліджень з цього та супутніх питань його економічної ефективності. Досліджено економічні, екологічні та безпечні фактори, що впливають на переробку сірководню. Запропоновано заходи щодо розробки відповідних науково-технічних програм та створення сприятливого інвестиційного клімату для залучення інвестицій для їх реалізації.

Problem Formulation

In the context of the energy crisis, the use of hydrogen as a high-energy resource is the subject of security, environmental and other discussions. However, the reserves of natural gas on the Black Sea shelf, in the maritime economic zone of Ukraine are about 50 billion cubic meters. Gas flows from the bottom of the Black Sea are divided into conductive (scattered) and convective (concentrated) gas flow types. The Ukrainian scientist-geophysicist, Doctor of Geological Sciences, Professor, Corresponding Member of the National Academy of Sciences of Ukraine V. Kobolev classifies the methane seeps as scattered, and gas torches, gas fountains and mud volcanoes as concentrated. There are hundreds of mud volcanic channels and other tectonic faults in the sedimentary stratum of the Black Sea bottom, through which powerful streams of deep hydrocarbon degassing enter the bottom surface. The reserves of gas hydrate fields are more than 20 trillion cubic meters according to geological and geophysical data of the Black Sea. These reserves would be enough to supply the whole of Europe for 400 years, provided they are processed efficiently. In fact, these and other circumstances determine the timeliness and relevance of the issues discussed in the article.

Analysis of recent research and publications

The analysis of scientific papers on the research topic shows that this scientific aspect is not fully revealed by the Ukrainian scientists. Numerous articles and the targeted comprehensive research program of the National Academy of Sciences of Ukraine (Hydrogen in Alternative Energy and New Technologies) (scientific reporting session December 9, 2014, Kyiv, abstracts and session programs) focused on studying the ways to obtain, preserve and use the hydrogen. Based on the available information, they can be divided into scientific researches concerning:

I. The hydrogen production.

1.1. Development of highly productive processes of hydrogen production from water with the nano-structured energy-accumulating substances using activated zinc, manganese, aluminum, bismuth, iron and other components with the recovery of waste oxides by carbothermic method (Kozin L.H., Volkov S.V., Svyatogor A.V., Daniltsev B.I., Institute of General and Inorganic Chemistry named after V.I. Vernadsky of the National Academy of Sciences of Ukraine).

1.2. Research of regularities of anodic synthesis of hydrogen peroxide and development of a process of alternative anodic oxygen evolution in the production of hydrogen by electrolysis of an alkaline solution (Kozin L.H., Manilevich F.D., Kutsiy A.V., Lisogor N.M., Institute of General and Inorganic Chemistry named after V.I. Vernadsky of the National Academy of Sciences of Ukraine).

1.3. Optimization of catalyst composition and CO vapor conversion conditions during carbon vapor conversion (Trypolsky A.I., Kalyshyn E.Yu., Institute of Physical Chemistry named after L.V. Pisarzhevsky of the National Academy of Sciences of Ukraine).

1.4. Steam reforming of liquid oxygenates on oxide catalysts modified by functional impurities (Dolgikh L.Yu., Stolyarchuk I.L., Stara L.O., Vasylenko I.V., Pyatnitsky Y.I., Strizhak P.E., Institute of Physical Chemistry named after L.V. Pisarzhevsky of the National Academy of Sciences of Ukraine).

1.5. Research and design of new nanocomposite electrode materials for hydrogen-oxygen fuel cells, hydrogen release and CO2 utilization (Titov V.E., Kuris Y.I., Mishura A.M., Ustavitska O.O., Koshechko V.G., Pokhodenko V.D., Institute of Physical Chemistry named after L.V. Pisarzhevsky of the National Academy of Sciences of Ukraine).

1.6. Influence of reagent ratio on the course of paroxygen reforming of methanol with the catalyst ZnO-MgO-CuO / AL2O3 / cordierite (Kapran A.Yu., Orlyk S.M. Institute of Physical Chemistry named after L.V. Pisarzhevsky of the National Academy of Sciences of Ukraine).

1.7. The role of hydrogen in the catalytic processes of oxidative conversion of C1-C4-alkanes with NI-AL2O3-catalysts (Gubareni E.V., Solovyov S.O., Kurylets P., Institute of Physical Chemistry named after L.V. Pisarzhevsky of the National Academy of Sciences of Ukraine).

1.8. Development of technological schemes for obtaining hydrogen in the treatment of natural and wastewater by photocatalytic and electro membrane methods (Kucheruk D.D., Dulneva T.Yu., Institute of Colloid Chemistry and Water Chemistry named after A.V. Dumansky of the National Academy of Sciences of Ukraine).

1.9. Information support of scientific works concerning the programme projects «hydrogen in alternative energy and new technologies» (Chernyshev L.I., Bilan I.I., Gudimenko T.V., Levina D.A., Kovaleva L.A., Institute of Problems of Materials Science named after I.M. Frantsevich of the National Academy of Sciences of Ukraine).

1.10. Developing new modified environmentally friendly solid fuels using biomass and organic waste for hydrogen production (Dudnyk O.M., Sokolovska I.S., Institute of Coal Energy Technologies of the National Academy of Sciences of Ukraine).

1.11. Determination of parameters of hydrogen production with the use of electrolyzers and renewable energy sources and for automatic processing and

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transmission of information (Kudrya S.O., Morozov Y.P., Kuznetsov M.P., Institute of Renewable Energy of the National Academy of Sciences of Ukraine).

1.12. Investigation of hydrogen production by tungsten-steam method under concentrated radiant heating using tungsten-containing wastes (Zenkov V.S., Pasichny V.V., Ostapenko S.O., Rogozinskaya A.O., Rogozinsky A.A., Institute of Problems of Materials Science named after I.M. Frantsevich of the National Academy of Sciences of Ukraine).

II. Hydrogen storage.

2.1. Photoelectrochemical properties, efficiency of hydrogen release and accumulation in electrochemical system based on modified photoanodes and their use in photo accumulator with cathodes (Rusetsky I.A., Slobodyanyuk I.O., Kolbasov G.Ya., Shcherbakova L.G. (1), Solonin Y.M. (1) Institute of General and Inorganic Chemistry named after V.I. Vernadsky of the National Academy of Sciences of Ukraine, (1) Institute of Problems of Materials Science named after I.M. Frantsevich of the National Academy of Sciences of Ukraine).

2.2. Development of physical and chemical bases for the creation of new highly porous metal-organic frame materials for hydrogen accumulation (Lampeka J.D., Tsymbal L.V., Gavrish S.P., Gurtovy R.I., Institute of Physical Chemistry named after L.V. Pisarzhevsky of the National Academy of Sciences of Ukraine).

2.3. Detection of the R and ME impact on the hydrogen absorption of AB5 alloys (Zaginaichenko S.Y., Matisina Z.A., Shchur D.V., Shaposhnikova T.I., Zolotarenko A.D. Institute of Problems of Materials Science named after I.M. Frantsevich of the National Academy of Sciences of Ukraine).

2.4. Investigation of hydrogen desorption processes from hydrofullerites and their structural and physicochemical features (Shchur D.V., Savenko O.F., Kopilova L.I., Zolotarenko A.D., Zaginaichenko S.Yu., Institute of Problems of Materials Science named after I.M. Frantsevich of the National Academy of Sciences of Ukraine).

2.5. Investigation of electrodes destruction processes from AB5 alloys during hydrogen absorption in reversible electro- and photoelectrochemical systems (Shcherbakova L.G., Spodaryk M.I., Solonin Yu.M., Institute of Problems of Materials Science named after I.M. Frantsevich of the National Academy of Sciences of Ukraine).

2.6. Mechanical synthesis of hydride-forming magnesium alloy with NI, TI, AL and study of hydrogen-absorbing properties, temperature and kinetics of its decomposition (Dobrovolsky V.D., Ershova O.G., Solonin Yu.M., Institute of Problems of Materials Science of the National Academy of Sciences of Ukraine).

2.7. Development of methods for estimating hydrogen damage of ferromagnetic materials according to the parameters of magnetoelastic acoustic emission signals (Skalsky V.R., Pochapsky E.P., Klim B.P., Sergienko O.M., Dolishniy P.M., Velyky P.P., Physico-Mechanical Institute named after G.V. Karpenko National Academy of Sciences of Ukraine).

2.8. Investigation of the insoluble components impact on the accumulation and release of hydrogen from magnesium composites (Neklyudov I.M., Morozov O.M., Zhurba V.I., Progolaeva V.O., Kuprin O.C., Ovcharenko V.D., Kolodiy I.V., National Research Center «Kharkiv Institute of Physics and Technology» of the National Academy of Sciences of Ukraine).

III. Hydrogen usage.

3.1. Development of polymer electrolyte membranes based on organo-inorganic hybrids of different types for hydrogen fuel cells (Shevchenko V.V., Klimenko N.S., Stryutky O.V., Lysenkov E.A., Yakovlev Y.V., Klepko V.V., Institute of Chemistry of Macromolecular Compounds of the National Academy of Sciences of Ukraine).

3.2. Investigation of the influence of conditions and methods of obtaining nano porous carbon materials based on natural organic substances on their adsorption (nitrogen and hydrogen) properties (Yaremov P.S., Shcherban N.D., Filonenko S.M., Ilyin V.G., Institute of Physical Chemistry named after L.V. Pisarzhevsky of the National Academy of Sciences of Ukraine).

3.3. Investigation of the influence of titanium oxide nanospheres structure on the physicochemical and final proton-conducting properties of nafion composite polymer membranes (Telbiz G.M., Leonenko E.V., Romanovska N.I., Khizhun O.Y., Gorbanyuk T.I., Institute of Physical Chemistry named after L.V. Pisarzhevsky of the National Academy of Sciences of Ukraine, Institute of Problems of Materials Science named after I.M. Frantsevich of the National Academy of Sciences of Ukraine, Institute of Semiconductor Physics named after V.Ye. Lashkaryova of the National Academy of Sciences of Ukraine).

3.4. Synthesis and research of thick films of zirconium dioxide stabilized with complex scandium-containing additives for low-temperature (600°) fuel cell (Vyunov O.I., Yanchevsky O.Z., Kovalenko L.L., Solopan S.O., Belous A.G., Institute of General and Inorganic Chemistry named after V.I. Vernadsky of the National Academy of Sciences of Ukraine).

3.5. Establishment of the structural-phase mechanism for products recombination of destructive hydrogenation of intermetallics and alloys (Kucheryavy O.V., Skorokhod V.V., Bratanich T.I., Dobrovolsky V.D., Institute of Problems of Materials Science named after I.M. Frantsevich of the National Academy of Sciences of Ukraine).

3.6. Investigation of structural and chemical heterogeneity of the PDA electrolyte, which occurs during its manufacture and operation, and its impact on its mechanical and electrochemical properties (Vasiliev O.D., Brodnikovsky E.M., Brichevsky M.M., Brodnikovsky D.M., Brodnikovskaya I.V., Lisunenko N.O., Podgurskaya V.Ya., Vasyliv B.D. (1), Ostash O.P., Samelyuk A.V., Ushkalov L.M., Golovkova M.E., Institute of Problems of Materials Science named after I.M. Frantsevych of the National Academy of Sciences of Ukraine, Institute of Physics and Mechanics named after G.V. Karpenko of the National Academy of Sciences of Ukraine).

3.7. Development of basic local criteria of strength and serviceability of structural steels in hydrogen environment and construction of diagrams of their local destruction (Dmytrakh I.M., Sirotyuk A.M., Barna R.A.; Leshchak R.L., Physico-Mechanical Institute named after G.V. Karpenko National Academy of Sciences of Ukraine).

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3.8. Development of a method for manufacturing sintered magnets from nanostructured anisotropic powders of alloyed alloys based on Nd2Fe14B compounds and research of their properties (Bulyk I.I., Trostyanchin A.M., Burkhovetsky V.V., Physico-Mechanical Institute named after G.V. Karpenko National Academy of Sciences of Ukraine, Donetsk Institute of Physics and Technology named after O.O. Galkin of the National Academy of Sciences of Ukraine).

3.9. Investigation of the microstructure evolution of powder systems based on zirconium and titanium hydrides with powders of alloying elements under the action of solid-phase diffusion (Ivasyshyn O.M., Savvakin D.G., Institute of Metal Physics named after G.V. Kurdyumov National Academy of Sciences of Ukraine).

3.10. Computer and physical mod modeling of the increasing the permeability process of collectors of oil and gas well reservoirs taking into account the hydro conversion of asphalt-resin-paraffin substances and the effect of hydrogen activation of diffusion (Kravchenko O.V., Veligotsky D.O., Avramenko A.M.).

3.11. Investigation of catalytic characteristics of electrocatalysts in real electrodes of a fuel cell and identification of factors influencing energy characteristics (Pirsky Yu.K., Ogenko V.M., Lysyuk L.S., Panchyshyn T.M., Tupchienko O.S., Sharanda L.F., Krupennikova O.S., Institute of General and Inorganic Chemistry named after VI Vernadsky National Academy of Sciences of Ukraine).

In all scientific papers, the authors note that the optimal efficiency of hydrogen sulfide removal, for example, in sewerage from the air by absorption-electrochemical method is achieved at values of redox potential for catholyte from –250 mV to –300 mV and anolyte 3 from +250 mV up to +300 mV. It is established that the maximum volumes of hydrogen sulfide release are observed from 60 to 120 C from the starting of pumping pumps.

The authors propose the calculating method of the mass transfer apparatus and practical recommendations for improving the absorption-electrochemical method of air purification from hydrogen sulfide. This method reduces the material consumption of treatment equipment, improves energy performance and increases the efficiency of hydrogen sulfide emissions, which is the most common in utilities.

Meanwhile, the problems of the hydrogen sulfide mixture processing from the depths of the Black Sea to hydrogen and its subsequent transportation to consumers and use for an intended purpose, developing the ways to obtain a by-product of sulfur, remained in the field of view of Ukrainian scientists.

Main research material presentation

It is known that the Black Sea water are saturated with hydrogen sulfide H_2S and methane CH_4 at depths of more than 150–200 meters. Methane is a swamp or ore gas, colorless, odorless gas. Methane is found in the Black Sea in several types.

The scientists Kovalev I.O., Kobyzsky D.S. in their paper on «Hydraulic installation and the extraction of fuel gases of the Black Sea» consider that methane dissolved in water is at depths of about 200 meters in a layer 100–150 meters thick. This is methane of biological origin due to methane-forming bacteria. The main methane reserves in the Black Sea are methane gas hydrates. There is a layer of 300–400 meters thick with dissolved methane at the sea bottom. Therefore, the scientists consider that methane production involves the gas hydrates extraction and processing.

Hydrogen sulfide is a colorless gas (at high dilution has the smell of rotten eggs). It exists as a solution in seawater at depths of more than 120–150 meters. This gas is a product formed in the process of decay of organic residues as well as coming from the subsoil. The concentration of dissolved hydrogen sulfide at a depth of 200 m is from 0,07 to 0,16 ml/l and gradually increases to 13 ml / l at a depth of 2000 m.

At least 108 tons per year (or 66*109 m^3 per year) of hydrogen sulfide is generated annually in the Black Sea. Calculations show that no more than 25 % of all hydrogen sulfide is processed into sulfates per year as a result of oxidation in the Black Sea. Therefore, about 250 million tons of hydrogen sulfide can be taken from the Black Sea annually without harming the environment, which exceeds the current needs of Ukraine. The estimated reserves of hydrogen sulfide are 1012–1013 m^3 or at least one billion tons. In terms of energy (heat of combustion), one cubic meter of hydrogen sulfide is equivalent to 0.65 m^3 of methane. When hydrogen sulfide burns, sulfur dioxide is formed. Its further processing allows to obtain additional thermal energy and sulfuric acid $2SO_2 + 2H_2O = 3O_2 + 2H_2S$; $2S + 2H_2O = O_2 + 2H_2S$. It is known that a mixture of hydrogen sulfide and air is explosive, especially at a concentration of 4 to 45 %. Thus, hydrogen sulfide can be obtained from Black Sea and used as an unconventional fuel gas or as a valuable chemical product for hydrogen and sulfur: $S + H_2 \rightarrow H_2S$.

Nowadays, a number of an advanced projects have already been developed for the extraction of methane and hydrogen sulfide from Black Sea by exposure to water by electro-hydraulic shock according to the effect of Yutkin L.O.; acidification of sea water to a pH of 4.5 to 5 with the vibrations with a certain frequency; pumping air into the deep layers and raising water to the surface, etc. It is clear that the project with the least cost may be of the greatest interest. Thus, given the fact that the maximum concentration of hydrogen sulfide at a depth of 2000 m is under a pressure of 21 MPa, the experts suggest lowering a pipe of appropriate diameter from the platform to this depth. From the upper part of the pipe the pump pumps a certain amount of sea water and in its place will raise the water from deeper layers, where it will begin to emit excess dissolved gas. The movement of a two-phase medium (sea water-gas fraction) is expected in the pipe, and the movement of sea water upwards will be observed, as in the known airlifts. In addition, the movement of sea water will be carried out under the difference of hydrostatic pressure at the same depths inside the pipe and outside. The gas-water mixture is collected on the surface in a special apparatus, where the gas fraction (hydrogen sulfide) and sea water are separated.

Oxygen-enriched water can be returned to the depths, and hydrogen sulfide is further processed according to a defined process. It should be noted that the rise of sea

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water and the release of dissolved gas from it will not require any external energy costs. Thus, we can conclude about the development prospects of energy potential of the Black Sea fuel gases and the efficiency of the above-described method for its implementation as one of the options.

In order to preserve the environment and achieve zero emissions and decarbonization, as well as the abandonment of fossil fuels in 2020, the EU presented a hydrogen strategy aimed at using the «green» hydrogen [2]. The expected investment in the «green» hydrogen production in Europe will range from 180 to 470 billion Euros till 2050. The EU wants to achieve climate neutrality, when greenhouse gas emissions can be absorbed by the ecosystem. The experts distinguish four types of hydrogen. The most common is gray hydrogen obtained from gas. Blue hydrogen is produced in a similar way, but with subsequent disposal of CO_2 emissions, and black or brown hydrogen is produced from coal. The «green» hydrogen should be produced from electricity obtained from renewable energy sources (RES), such as wind or solar energy.

NJSC Naftogaz of Ukraine and German energy trading company RWE Supply & Trading have signed a Memorandum of understanding in the hydrogen economy. Furthermore, Naftogaz and RWE intend to jointly explore commercial opportunities for the sale of Ukrainian green hydrogen in European markets, with a focus on RWE's core markets. Ukraine is projected to have incredible prospects in the production and supply of «green» gas to Europe. The experts say we can start exporting by 2024. According to various estimates, it is planned to reach a capacity of 9,8 GW by 2030. Anka Feldguzen (Ambassador Extraordinary and Plenipotentiary of the Federal Republic of Germany to Ukraine) has noted that Ukraine should become a pilot country for the export of «green» hydrogen. It is planned to produce «green» hydrogen in four regions of Ukraine: Zaporizhia, Kherson, Dnipropetrovsk and Odesa and transport hydrogen through the existing gas transmission system. The experience has shown that ecological gas is not entirely safe. In addition, this gas corrodes a standard low pressure metal pipe in a few hours and a high pressure pipe in months [2]. Therefore, this system requires total modernization with expensive composite materials that do not chemically react with hydrogen or build a new one near the old one. The experts consider that the addition of about 20 % of hydrogen to the transported gas will avoid costly modernization of the gas transmission system.

The diplomat and many other experts consider the hydrogen as our energy future. «Green» hydrogen is going to produce by electrolysis of water. As known, freshwater reserves are quite low and according to the UN account for only 2,5 % of all water reserves, the rest of the reserves are concentrated in glaciers.

Ilyenko B. (Scientific Secretary of the Gas Institute of the National Academy of Sciences of Ukraine) [3] pointed out that Spain is better suited for solar electricity and the North Sea for wind turbines, and the efficiency of these two sources in Ukraine is about 13 %. In particular, Germany is richer in fresh water reserves than Ukraine. According to the European Economic Commission standards, if the water reserves of the country do not exceed 1,5 thousand m^3 of annual runoff per person, the state is considered not supplied with water.

Available water reserves per capita in Ukraine are 1,09 thousand m^3 in medium water years, and 0,62 thousand m^3 in low water years. That's why Ukraine is one of the least water supplied countries in Europe. However, the biggest problem is not the lack of water, but its poor quality and constant pollution. In addition, the above-mentioned southern regions of Ukraine depend on water supplied on schedule, and imported water is used for food purposes [4]. Also B. Ilyenko in his article notes that to obtain 1 ton of hydrogen by electrolysis requires 9 tons of distilled water or about 20 tons taken from fresh water, and taking into account 13 % efficiency of solar and wind turbines, which have already been mentioned, and to ensure 9,8 GW is about 500 thousand tons of water. Therefore, it can be concluded that the use of drinking water to produce hydrogen is not entirely rational and all the benefits must be considered in detail.

Conclusions

Thus, an alternative to the use of fresh water (and other water sources) to obtain ecological hydrogen is a patented Ukrainian scientist D. Turchenko's method of extracting hydrogen from the Black Sea hydrogen sulfide water mixture. The main idea of this method is to obtain hydrogen found in the deep sea layers of the Black Sea from various substances by decomposing hydrogen sulfide into hydrogen and sulfur. By the way, this is not the only one patent of this author for the extraction of hydrogen sulfide gas from the seabed.

The solution of the current scientific and practical problem is to improve the environmentally friendly method of absorption and electrochemical purification of hydrogen sulfide by substantiating the rational parameters of treatment equipment and the mass transfer process between hydrogen sulfide and absorbents generated in the electrochemical reactor.

The features of hydrogen sulfide extraction, the characteristics of existing methods of its purification from sulfur impurities and sulfur obtaining as a by-product for certain sectors of the economy have been revealed based on the analysis of scientific literature and papers. In particular, the expediency of using the absorption-electrochemical method of purification of hydrogen from sulfur, which is used as a by-product for the national economy, has been substantiated. It was found that long-term operation leads to partial destruction of the elements of the electrochemical reactor, so the efficiency of existing treatment equipment is reduced by 10 % compared to design levels. It was found that sanitary protection measures for the processing of raw materials do not comply with the State Sanitary Rules for the Protection of Atmospheric Air of Settlements, etc. The economic and mathematical modeling of the mass transfer process in a gas-liquid system taking into account hydrodynamic processes in absorption-electrochemical installations of air purification from hydrogen sulfide has been offered to use from the ecological point of view.

According to the experimental study results, the new data were obtained on the efficiency of using regression dependences to determine the rate constant of the chemical reaction and the average mass transfer coefficient for different absorbents. Practical recommendations for

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improving the absorption-electrochemical method of purification of hydrogen sulfide from other impurities have been offered. These recommendations are aimed at reducing the material consumption of treatment equipment and improving energy performance. Scientific and practical recommendations concerning the sulfur as a by-product that can be widely used in various sectors of the national economy have been given.

In general, the benefits of this method are to reduce energy costs for the production of hydrogen in large industrial quantities and at the same time the production of sulfur as a by-product. In addition, the industrial extraction of large amounts of hydrogen sulfide from seawater can improve the ecology and hydrology of the Black Sea.

We consider that the Cabinet of Ministers of Ukraine, the State GeoCadastre, other ministries and public authorities should take measures to develop the appropriate scientific and technical programs and create a favorable environment for attracting investment in their implementation.

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PRACTICAL EXPERIENCE IN COMPETITIVE TAX SYSTEM DEVELOPMENT

Oleinikova L.H.
Academy of Financial Management of the Ministry of Finance of Ukraine
Ukraine, st. Olesia Honchara, 46/48, Kyiv
oleynikova.mila@ukr.net
ORCID: 0000-0001-8204-4434

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tax system competitiveness, concept, advantage, characteristics, disadvantages, danger, factors, practical experience, principles

Currently, the problems of increasing competitiveness, which are being studied by scientists from all over the world, are of utter relevance. The article examines the content of such a large-scale phenomenon as competitiveness of the state with consideration of the tax system competitiveness, identifies the concepts characterizing the definition of the competitiveness essence in the light of the key parameters, all of them being components of competitiveness. The key factors of the modern, mainly technological, competitiveness of the tax system are studied. The article highlights the views in respect of the factors determining the level of competitive advantages held by the economic schools' representatives, who put forward various suggestions concerning the measures to be taken to strengthen competitiveness within the country, which is a player in such competition. The following unresolved issues are identified, namely: the factors influencing the competitiveness level of the tax system; the ways to solve the problems of increasing the competitiveness of economic systems; distinguishing the country's competitive advantages. The author suggests the definition of the essence of the concept "competitiveness of the state" as an ability to ensure the stability and transparency of state and non-state institutions' activities within a long term based on the generally accepted international standards and rules, ensuring fundamental rights and freedoms to citizens, guaranteeing property rights and performance of duties in order to obtain competitive advantages in foreign markets. The institutional conditions for ensuring the tax system competitiveness are suggested, and its key characteristics are given.

ПРАКТИЧНИЙ ДОСВІД ФОРМУВАННЯ КОНКУРЕНТОСПРОМОЖНОЇ ПОДАТКОВОЇ СИСТЕМИ

Олейнікова Л.Г.
ДННУ «Академія фінансового управління»
Україна, 02000, вул. Олеся Гончара, 46/48, Київ

Ключові слова:
конкурентоспроможність системи оподаткування, концепція, перевага, характеристики, недоліки, небезпека, чинники, практичний досвід, чинники, фактори

Встановлено, що на сьогоднішній день, проблеми підвищення конкурентоспроможності є актуальними та досліджуються вченими в усьому світі. Досліджено змістовне наповнення такого місткого явища, як конкурентоспроможніть держави з урахуванням конкурентоспроможності податкової системи, виокремлено концепції, які характеризують визначення сутності конкурентоспроможності через призму ключових параметрів, всі з яких є складовими конкурентоспроможності. Досліджено ключові чинники сучасної, переважно технологічної, конкурентоспроможності податкової системи. Виокремлено погляди на фактори, що визначають рівень конкурентних переваг представниками економічних шкіл, які висувають різні пропозиції щодо того, які заходи необхідно вживати для зміцнення конкурентоспроможності в межах країни, що є суб'єктом такої конкуренції. Виокремлено невирішені проблеми: фактори впливу на рівень конкурентоспроможності податкової системи; способи вирішення проблем зростання конкурентоспроможності економічних систем; виокремлення конкурентних переваг країни. Запропоновано авторське визначення сутності поняття «конкурентоспроможність держави» як здатність у довгостроковій перспективі забезпечувати стійкість і прозорість діяльності державних та недержавних інститутів на засадах загальноприйнятих міжнародних

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стандартів і правил, забезпечуючи фундаментальні права й свободи громадянам, гарантуючи права власності та виконання обов'язків з метою здобуття конкурентних переваг на зовнішніх ринках. Запропоновано інституційні умови забезпечення конкурентоспроможності системи оподаткування та надано ключові її характеристики.

Analysis of recent research and publications

There are two opposite approaches to understanding the essence of competitiveness at the state level, which are of significance in the scientific community.

Being a well-known opponent of the national competitiveness concept, P. Krugman in his article *«Competitiveness: a Dangerous Obsession»* [1], and later in his book *«Pop Internationalism»* [2] harshly criticizes this concept as well as the politicians who use this concept to distract attention from the real causes of economic problems in the United States.

The logic of Krugman's theory is based on two main arguments. First, what is called competitiveness by business experts is actually productivity. Various definitions of competitiveness given in the first section of his paper indicate the difficulties in defining this concept. In addition, in scientific articles and international institutions' reports, competitiveness is often identified with the productivity of factors. This is clearly seen in the approach proposed by the World Economic Forum, i. e. forecasting growth potentials. Recent developments in the theory of economic growth still consider the productivity of factors to be a key indicator in the long-run prospect. Second, the concept of competitiveness emphasizes the importance of confrontation between the players, and thus does not promote cooperative behavior. This contradicts the main conclusions of the international trade theory, where relations are based on common interests of countries. This confrontation can become dangerous and paradoxical if the emphasis is placed on the rivalry of states in economic relations, given the development of globalization processes.

According to Krugman [1], it is impractical to distinguish the definition of «competitiveness of the state». He argues that competitiveness only manifests itself at the micro level, where enterprises supply goods/services to both domestic and foreign markets, and therefore it is enterprises rather than the state that participate in the competition. Krugman also believes that it is quite difficult to determine the level of the state's competitiveness, but it is quite simple to assess the level of enterprises' competitive positions by comparing the income received and expenses incurred, determining the size of losses and debt. In his research, it is emphasized that it is only enterprises that produce goods for sale in the foreign market, whereas countries are partner-oriented in relations with other states.

Another approach can be seen in M. Porter's *The Competitive Advantage of Nations*, where he analyzes the economic foundations of national competitiveness [3]. In his paper, Porter starts with the «classical» definition of national competitiveness, as the share of goods in the market manufactured by a given country.

It should be noted that in this regard, mercantilists consider international trade to be a «zero-sum game», since an increase in the market share in one country simultaneously means a decrease in the share of another country, and historically, the task of increasing the market share has been too often used to justify industrial subsidy policies and optimize the cost of labor in order to stimulate exports. This approach neither takes into account the aspirations to improve the population's well-being, its intellectual and innovative potential, nor corresponds to modern approaches to determining the essence of competitiveness of nations globally.

At the same time, Adam Smith considered international trade as an activity bringing gains to all partners. Yet in 1776, in his work *The Wealth of Nations*, he described the law of the «invisible hand» of the market and noted that through individual well-being, advantages are achieved at the national level. According to Smith, ensuring competitiveness provided for minimal interference of governments in economic processes, where each economic entity makes a share of the national wealth [4].

At different times, some well-known economists also made their contribution to the development of understanding the competitive advantages of nations in international trade and competition for the production factors [2; 4; 5; 6] by developing the approaches to understanding such a complex phenomenon as competitiveness of nations: from the theory of comparative advantages, which was later developed by the Swedish economists in the Heckscher-Ohlin model, to the models, which considered the need to redistribute a nation's wealth through taxation (the Stolper and Samuelson's Theorem), approaches to equalization of factor prices and capital flows, influence of capital and labor (Leontief's paradox), cyclicality (commodity cycle hypothesis), scale and size of markets (trade modeling based on increasing returns to scale by P. Krugman and K. Lancaster), etc. All these approaches have developed an understanding of international competition at the micro and macro levels, defining the role of the state in ensuring competitive advantages. However, none of these theories solely can fully explain the complex processes of today. The economic processes inherent in modern international relations are much more complicated than they were even 50 years ago, which requires further scientific research on the role of the state in ensuring competitive advantages of the economic system, and the role of individual components of competitiveness in its overall rate.

For a long time, it has been widely stated in scientific and expert circles that the lower cost of labor increases the competitiveness of the state. However, Michael Porter believes this approach is fundamentally wrong and considers reduction in labor costs to be a disadvantage, despite the fact that subsidizing adversely affects national

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income and distorts market dynamics, distracting market forces from the most efficient natural opportunities for using resources. He suggests that national competitiveness should be determined through living standards and levels of national welfare. That is, economic system competitiveness increases when a nation's living standard as well as material and living supplies available to population increase. A nation's standard of living is determined by productivity of its economy, which is measured by the value of goods and services produced per unit of the nation's human and other resources. Thus, true competitiveness of a country is measured by the productivity of its economy, which allows the nation to achieve a high level of remuneration and an attractive rate of return to capital – and with them a high standard of living [3].

According to Porter, productivity of economy is determined by productivity of individual companies. Thus, the efficiency of a nation's economy is determined by the efficiency of its economic entities, which provides for two components: the level of sophistication of the existing economic entities; the quality of the microeconomic (business) environment.

Porter conceptually presented the quality of companies' business environment in the form of diamond, which involves four interrelated areas: factor conditions that is specific elements (e. g. skilled labor or infrastructure) necessary for successful competition in this industry; quality of demand: demand in the domestic market for these products, level of customer requirements for the quality and complexity of products; related supporting industries: availability (absence) of related industries that support their competitiveness in the world market; quality of companies' strategic management, rivalry [7; 8].

Results and Discussion

The macro-level factors presented, in particular, in the above concept of the global competitiveness index remain outside the scope of the concept of competitiveness and the list of its factors. Porter agrees that macro-level factors affect a nation's competitiveness significantly. However, improving the quality of macro-level factors is a necessary but insufficient condition for the growth of national wealth, which is created at the level of microeconomics [3].

In this context, Yu. Polunieiev presents an interesting opinion arguing that a nation's competitiveness cannot be identified with competitiveness of companies, enterprises, regions, and these are interrelated concepts as there is no nation's competitiveness without competitiveness of enterprises. The author also states that a nation's competitiveness affects its population's standard of living, allows regulating internal and external processes for enterprises development for the purpose of manufacturing high-quality goods, providing services in accordance with the existing needs, which will increase competitive positions in the international market, raise the population incomes. Polunieiev concludes that a nation's competitiveness is a socio-economic category, which considers the level of state resources, determines the amount of available capital, and reflects the internal and external factors of influence [9, p. 190–196].

We cannot but pay attention to the research by Zhalilo et al [10], who identify several approaches to interpreting the state competitiveness essence, namely: competitiveness is aimed at improving the life of society, effective and balanced use of labor and material resources, with the state obliged to establish social and budget programs; the state should be responsible for the level of competitiveness gained, since competitive advantages are achieved on condition of using economic policy levers, mechanisms for adjusting business entities' activities, reducing influence of the external and internal environment factors, which enables economic development improvement; the level of competition depends on business entities' activities, and especially on the socio-economic development of the state; the premises for competing in the international market are strengthening competitive positions and enhancing the competitiveness level in the domestic market; the basis of the state's competitiveness is increasing profits of economic entities as well as manufacturing goods with consideration of the international community needs [10, p. 13–20].

The authors' approaches differ in the content of such a capacious phenomenon as competitiveness of the state; however, these approaches should be distinguished in the concepts that characterize the authors' attitude to determining the essence of competitiveness in the light of the key parameters, all of them being competitiveness constituents.

It is established that K. Nazirov [11, pp. 46–51] suggested a conditional division of the concepts of a nation's competitiveness, which allows us to determine the essence of this category, mechanisms for competition implementation, factors influencing the national economy development. Among the main concepts of a nation's competitiveness there are as follows (Figure 1).

In our opinion, competitiveness of the state is its ability to ensure, in the long run, the stability and transparency of state and non-state institutions' activities based on generally accepted international standards and rules, guaranteeing fundamental rights and freedoms to citizens as well as securing property rights and performing duties in order to gain competitive advantages in foreign markets (Figure 2).

If we consider this issue in global economic processes from the standpoint set out by M. Porter, such provision is an important task of a nation's economic policy (including Ukraine) for the years to come. Globalization and the limited production factors force countries to compete with each other and take measures aimed at attracting owners of production factors by developing an optimal combination of public goods and tax preferences. According to K. Shvabii, a significant feature of today is high mobility of the factors of production, which are important objects of taxation in many countries of the world. Thus, tax policy is turning into a significant factor in competition for limited production resources, and therefore the requirements for its content and quality are constantly increasing. In the modern world, only the state that is able to establish and implement a consistent, transparent and competitive (attractive for economic agents) tax policy will receive benefits and advantages from a growing scale of globalization [14].

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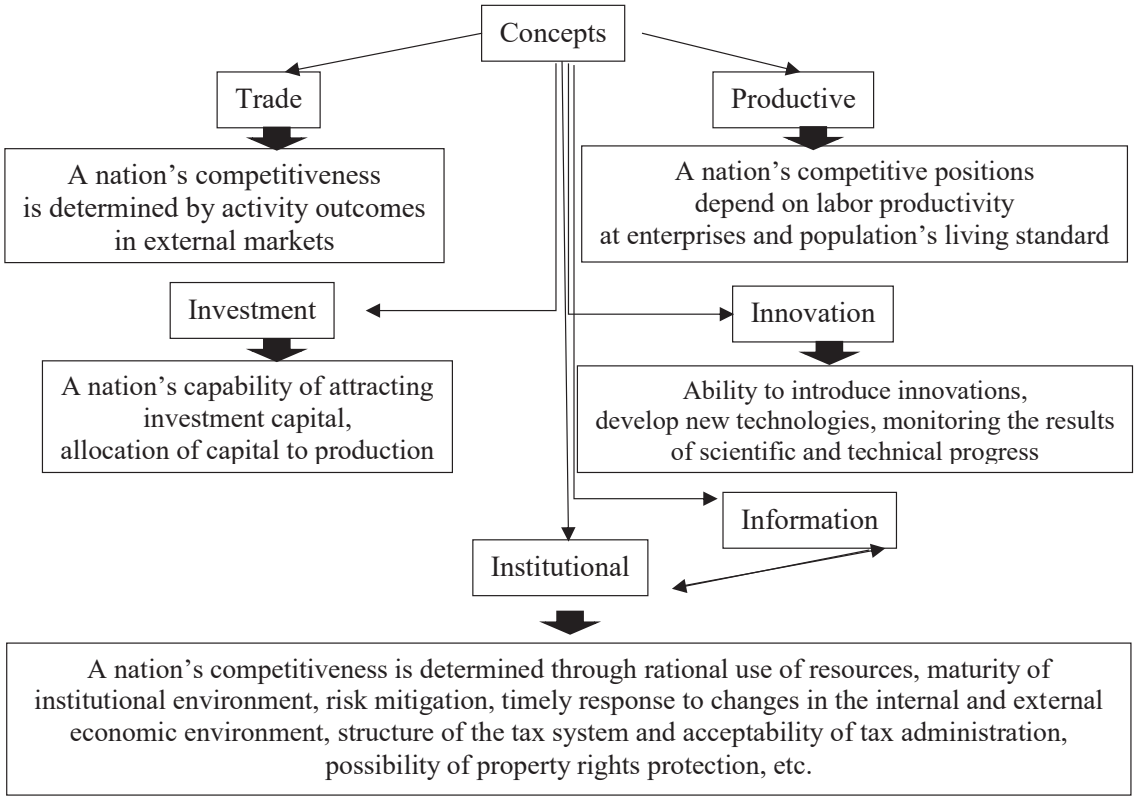

Fig. 1 – Types of the concepts of a nation's economy competitiveness

Source: developed by the author on the basis of [11, p. 46–51; 12]

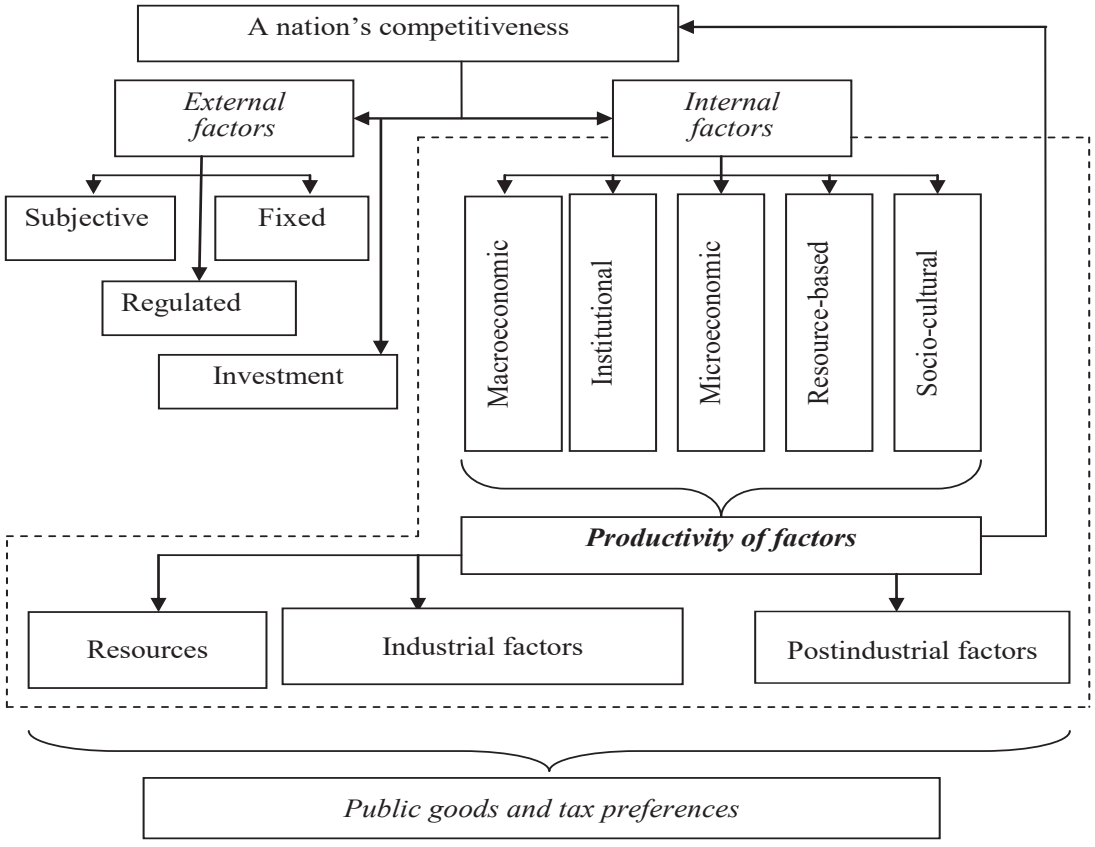

Fig. 2 – Factors of a nation's competitiveness and competitive potential of national economy

Source: compiled by the author on the basis of [13]

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According to Porter [3], government plays the role of catalyst and initiator of any changes. However, despite the obvious nature of the problem, scholars are not alone in addressing the issue of whether the concept of competitiveness applies to nations. Here it is necessary to take into account the views of economists who consider competitiveness of the state to be an independent category.

There is a certain amount of truth in each of the given viewpoints. In the modern world economy, there are both the elements of imperfect competition that adversely affect the ability of national goods to enter world markets (supply theory) and the dependence of competitiveness on the exchange rate, which, in turn, is associated with a state budget deficit (monetarism). At the same time, such basic factors as production efficiency and state regulation of market mechanisms for resource allocation (structuralism) have a crucial influence on competitiveness. Probably, monetarists have approached the truth closer than others, if we consider the problem in the short run. However, in the long run, structuralists are most likely to be right arguing that market mechanisms alone do not work when it comes to determining promising areas of scientific and technological progress and structural changes in the economy.

It is established that countries with high levels of competitiveness can better manage their economic and human potential [15]. Thus, the competitiveness of a country is interpreted as the ability to create more wealth annually than its rivals [16].

Conclusions

In their strategic plans, the world's leading countries do not focus on strengthening their competitive positions in a certain area, but attempt to comprehensively fulfill the tasks of developing their national economies, with the competition outcomes to be an increase in the population's standard of living in compliance with international environmental standards. The competitiveness of nations is determined by a reasonable strategy for optimizing the sectoral structure of national economies, given the long-term geo-economic prospects.

Based on the study of practical experience in the development of a competitive tax system, it is proved that the balance in the field of taxation is ensured by the relationship of the legislative and regulatory framework, which is a formal institution, and the current stereotypes of behavior, norms and rules that reflect informal standards of tax relations, which can change affected by external and internal factors.

At the same time, the institutional conditions for ensuring the competitiveness of a tax system, in our opinion, depend on the following key characteristics:

− regulatory framework for taxation;
− structure and regulation of fiscal service bodies' work;
− conditions and procedures for tax administration;
− methods of tax control;
− economic conditions and economic policy;
− forms and methods of international cooperation in the tax field.

They significantly affect the competitiveness of the state in general and tax system in particular.

Consequently, competitiveness of the state depends on the effectiveness of its tax system, availability of competitive advantages, and the current tax policy. Therefore, in general, an increase in competitiveness of the state is possible on condition of the tax policy regulation, improvement of the tax system, meting fair competition conditions, adaptation to the international market requirements, and strengthening of enterprises' competitive position, which plays a significant role in establishing economic and political stability, and restoring investment activities.

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LABOUR ECONOMICS, PERSONNEL MANAGEMENT AND MARKETING

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GENERAL APPROACHES TO PERSONNEL SECURITY OF THE ENTERPRISE

Dashko I.M., Lepokhin O.V., Rudenko O.V.
Zaporizhzhia National University
Ukraine, 69600, Zaporizhia, st. Zhukovsky, 66
irina.znu@i.ua, lepekhyn@ukr.net
ORCID: 0000-0001-5784-4237, ORCID: 0000-0003-4817-5742, ORCID: 0000-0001-5784-4237

Key words:
security, personnel, employees, staff, development, qualification, salary, psychological climate, motivation

It is established that the most acceptable principles of building a system of social security indicators are: objectivity; practicality; complexity; end-to-end presentation, taking into account the need to determine social security criteria by levels (state, regional, personal); unambiguous interpretation for decision-makers to eliminate and minimize the impact of threats; compliance with the current features of decision-making; clarity of construction, transparency, simplicity and lucidity; flexibility and reflection of changes; representativeness for comparisons; quantity limit. Theoretical campaigns to the essence and content of personnel security by different authors have been studied. It is analyzed that the process of ensuring personnel security in most researchers is associated with the measures for preventing theft, damage to property and various destructive actions by the staff of the organization. The focus is on the assessment of the elements of personnel security of the enterprise, which is proposed to be carried out by establishing the normative value of costs for the relevant activities of enterprises in a particular industry. Levels of ensuring of personnel security are considered in connection with the complexity, variety and complication of tasks. Personnel security is revealed on the basis of JSC "Kryvbaszalizrudkom", where the main elements of personnel security are: establishing strategic priorities for personnel security in general and by components, monitoring the state of personnel security, determining specific measures to maintain or change personnel security parameters based on scientific application of methods in general and some of its aspects, the implementation of measures to ensure personnel security. The main methods of ensuring personnel security of JSC "Kryvbaszalizrudkom" are revealed. A comparative analysis of the integrated index of personnel security and the total value of indicators for certain components on the example of the studied enterprises: JSC "Kryvbaszalizrudkom" and PJSC "Zaporizhzhia Iron Ore Plant". It is noted that the formation of personnel policy of JSC "Kryvbaszalizrudkom" is a process of determining the key characteristics of its staff in accordance with current and strategic production demands. The ways of effective use of personnel technologies of JSC "Kryvbaszalizrudkom" are revealed, which will allow to solve a number of important tasks concerning personnel safety of the enterprise.

ЗАГАЛЬНІ ПІДХОДИ ЩОДО КАДРОВОЇ БЕЗПЕКИ ПІДПРИЄМСТВА

Дашко І.М., Лепьохін О.В., Руденко О.В.
Запорізький національний університет,
Україна, 69600, м. Запоріжжя, вул. Жуковського, 66

Ключові слова:
безпека, кадри, працівники, колектив, розвиток, кваліфікація, заробітна плата, психологічний клімат, мотивація

Встановлено, що найбільш прийнятними принципами побудови системи індикаторів соціальної безпеки є: об'єктивність; практичність; комплексність; наскрізне подання, що враховує необхідність визначення критеріїв соціальної безпеки за рівнями (державний, регіональний, особистісний); однозначність інтерпретації для осіб, які приймають рішення щодо усунення та мінімізації впливу загроз; відповідність діючим особливостям прийняття рішень; ясність побудови, прозорості, простоти і зрозумілості; гнучкість та відображення змін; репрезентативність для порівнянь; обмеження кількості. Досліджено

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теоретичні походи до суті та змісту кадрової безпеки за різними авторами. Проаналізовано, що процес забезпечення кадрової безпеки у більшості дослідників асоціюється з процесом запобігання крадіжкам, псування майна і різного роду деструктивних дій із боку персоналу організації. Зосереджена увага на оцінці елементів кадрової безпеки підприємства, яку пропонується проводити методом встановлення нормативної величини витрат на відповідні заходи підприємств окремої галузі. Розглянуто рівні забезпечення кадрової безпеки у зв'язку з комплексністю, різноманітністю і складністю завдань. Розкрито кадрову безпеку на основі АТ «Кривбасзалізрудком», де основними елементами забезпечення кадрової безпеки є: встановлення стратегічних пріоритетів щодо кадрової безпеки в цілому і за складовими, моніторинг стану кадрової безпеки, визначення конкретних заходів по збереженню або зміні параметрів кадрової безпеки на основі застосування науково-обґрунтованих методів загалом і окремих її аспектів, реалізація заходів по забезпеченню кадрової безпеки. Розкриті основні методи забезпечення кадрової безпеки АТ «Кривбасзалізрудком». Зроблений порівняльний аналіз інтегрального індексу кадрової безпеки та сумарне значення індикаторів за певними складовими на прикладі досліджуваних підприємств: АТ «Кривбасзалізрудком» та ПРАТ «Запорізький залізорудний комбінат». Зазначено, що формування кадрової політики АТ «Кривбасзалізрудком» є процесом визначення ключових характеристик його кадрового складу відповідно з поточними та стратегічними виробничими запитами. Розкриті шляхи щодо ефективного використання кадрових технологій АТ «Кривбасзалізрудком», що дозволить вирішити низку важливих завдань щодо кадрової безпеки підприємства.

Formulation of the problem

Analysis of different points of view on the concept of personnel security allows us to note that some approaches characterize it narrowly and do not fully disclose the content. Therefore, from the standpoint of systemic and resource-functional approaches, the content of the category «personnel security» is characterized by the presence of the most effective structure of personnel of the enterprise, upon which the effective functioning of all components of the economic system is occured, providing security and ability to withstand internal and external influences, related to staff, ensurence of mutual satisfaction of their interests and development.

Based on the methodology of scientific analysis, the most acceptable principles of building a system of social security indicators are the following:

– objectivity, i. e. scientific validity taking into account the achievements of natural and social sciences;

– practicality (applied), which characterizes the possibility of practical application of indicators to assess the depth of socio-economic problems in the country (region) and accurate diagnosis of threats to the social security system;

– complexity, i. e. the ability to combine and reflect the economic and social aspects of security;

– end-to-end presentation, taking into account the need to determine social security criteria by levels (state, regional, personal);

– unambiguous interpretation for decision-makers to eliminate and minimize the impact of threats;

– compliance with the current features of decision-making;

– clarity of construction, transparency, simplicity and lucidity;

– flexibility and reflection of changes;

– representativeness for comparisons;

– limited quantity.

However, we note that the full set of these principles is not ideal. Therefore, the assessment of the elements of personnel security of the enterprise is proposed to be carried out by establishing the normative value of costs for the relevant activities of enterprises in a particular industry. This will allow to determine the compliance of costs in comparison with the general trend. The calculation standard can be taken as the industry average. Indicators must meet the maximum number of criteria and contain thresholds for indicators.

Analysis of recent researches and publications

Theoretical approaches to personnel security have become the subject of study of domestic and foreign authors, such as: O. Arefieva, I. Burda, E. Hrechko, A. Meheda, I. Moisienko, M. Petrov, N. Reverchuk and others. However, the analysis of the theory and practice of personnel security shows that in many enterprises its provision is not always effective, mainly because there is no full scientific, methodological and informational basis in this area of management, absence of effective experience in personnel risks management in the organization and their audit.

Formulation of the goals of the article

The purpose of this article is to summarize the conceptual approaches to defining the essence of the concept of personnel security of the enterprise.

Presentation of the main material of the study

Analysis of theoretical approaches to the essence and content of personnel security will show that the process of personnel security in most researchers is associated

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with the measures for preventing theft, damage to property and various destructive actions by staff of the organization [1; 10]. However, most scientists define personnel security as part of the general or economic security of a particular socio-economic system. In particular, I. Burda interprets personnel security as an integral part of economic security of the enterprise, the priority of which is protection against threats and risks to create the most effective personnel management, as a determining resource for ensuring a high level of enterprise competitiveness [1]. N. Reverchuk argues that personnel security of the enterprise is to prevent and reduce the risk of negative impact on the economic security of insufficiently qualified employees of the enterprise, inefficient personnel management to preserve and develop the intellectual potential of the enterprise [10]. Within the framework of this definition, negative influences on the part of staff are limited only to their illegal actions, which is not entirely true, as threats to personnel security can be both actions and inaction of staff, as well as their lack of qualifications, inappropriate behavior in conditions of risk or uncertainty. The focus of personnel security on the prevention of threats allows us to argue about the use of a preventive approach to personnel security management of the organization. N Meheda and N. Marenych claim that the personnel security of the enterprise can be studied as a combination of such components of life safety as social-motivational, professional and anti-conflict [7]. It is obvious that the subject of personnel security chosen by the author is only the interests of the organization, which can often contradict the vital interests of staff, which, in turn, leads to threats to personnel security. The interests of both the organization and the hired staff should be the subject of personnel security, and its result should be their mutual protection in relation to all participants in social and labor relations. Noncompliance with the balance of vital interests, when the security of one facility is achieved by limiting the interests of another, leads to a violation of personnel security. M. Petrov clarifies the definition of personnel security from the standpoint of subject-object approach: personnel security is a position of the organization as a social community and the individual in it, in which they are influenced by the natural, economic and social environment, as well as internal environment of man himself is not capable of causing any harm. S.V. Kondratieva determines the personnel security of the enterprise as a set of actions aimed at ensuring the process of interaction between employees to perform basic personnel work and measures that will reduce the negative impact of factors both external and internal environment of the enterprise. O. Lytovchenko identifies personnel security as a set of management measures related to the effective formation and use of human resources of the enterprise to ensure and maintain economic stability and efficiency of economic activity of the enterprise [5].

Due to the complication, diversity and complexity of the tasks of personnel security, it is advisable to consider them in terms of the following levels:

1. Strategic level is to eliminate contradictions or their localization and weakening. This level is characterized by the development of system-forming solutions, which are reflected in strategies, promising programs to ensure personnel security. Ensuring social responsibility of the enterprise.

2. Tactical level is to solve problems related to the elimination of specific types of threats or prevent their impact. It includes a set of preventive measures.

3. Operational level. Personnel security should be reflected in the elimination of the consequences of threats and negative impacts, compensation for losses; contains a set of operational security measures.

We consider personnel security on the basis of JSC «Kryvbaszalizrudkom», where the main elements of personnel security are:

– setting strategic priorities for personnel security in general and by components;

– monitoring of the state of personnel security;

– determination of specific measures to preserve or change the parameters of personnel security based on the use of scientifically sound methods in general and its individual aspects;

– implementation of measures to ensure personnel security.

The main methods of ensuring the personnel security of the enterprise include:

– clear accounting and financial accounting of activities, audit of documentation;

– careful selection of personnel, certification of jobs under working conditions, monitoring of relations in the team, communications at the enterprise, checking employees for belonging to any risk group, detailed analysis of staff movements and their causes;

– control over communications at the enterprise, attention to the relationship in the team, audit of documentation, the requirement for mandatory reporting on business transactions within the enterprise;

– promoting team cohesion, increasing staff commitment;

− conducting a social audit – a specific form of analysis, verification of the social environment of the enterprise, in order to identify social risk factors and implement proposals to reduce them – is the result of development of other forms of audit, including management and financial, by expanding performance criteria because it includes many social factors [2].

For example, an employee of JSC «Kryvbas-zalizrudkom» of a certain qualification receives a salary at the company below the industry average, despite the fact that the company earns more profit than other companies, then he may feel resentment because of underestimation of his work. In the future, resentment can escalate into dissatisfaction and conflict with management, diminished productivity, reduced self-sacrifice, degraded loyalty and many other negative consequences. This employee can become an object of personnel security that can be easily influenced in order to cause material damage to the company. All this will negatively affect the level of personnel security of the enterprise in the future. If there are a large number of such dissatisfied workers, the level of personnel security decreases sharply and the threat

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to the economic security of the enterprise as a whole appears.

In the table 1 the components of personnel security are shown: weights of the j-component of bj, coefficients that determine the degree of contribution of the i-indicator in the integrated index aij (bj and ai, determined by experts) for the studied enterprises: JSC «Kryvbaszalizrudkom» and PJSC «Zaporizhzhia iron ore plant».

Thus, the integrated index of personnel security of the enterprise (Fig. 1) is determined hierarchically: at the lower

Table 1 – Components of personnel security

Components of PS	**Personnel security indicators**	**Weight coefficients., a ij**
Social and motivational security (b 1 =0,35)	Staff turnover coefficient (C st) 0,045	Staff turnover coefficient (C st) 0,045
	Indicator of staffing (I staff) (R afWT / mpWT) 0,0151	The ratio of the actual fund of working time of the 1st employee and the maximum possible 0,0059
	Ratio of the actual value of the industrial enterprise and the optimal in the field of industrial enterprises (R avIE/ofIE) 0,0184	Coefficient of age structure of personnel (C age st) 0,0294
	Coefficient of personnel specialization (C per spec) 0,0196	Ratio of average monthly salaries in the enterprise and the average monthly salary in the industry (R enS/inS) 0,0386
	Salary motivation indicator (I motS) 0,0518	Proportion of employees who received the minimum salary during the year (P minW) 0,0561
	Ratio of growth of industrial enterprises and salary (R gIE/S) 0,0282	Coefficient of social protection of personnel (C spp) 0,0419
	Indicator of staffing (I staff) (R afWT / mpWT) 0,0151	The ratio of the actual fund of working time of the 1st employee and the maximum possible 0,0059
	Ratio of the actual value of the industrial enterprise and the optimal in the field of industrial enterprises (R avIE/ofIE) 0,0184	Coefficient of age structure of personnel (C age st) 0,0294
Professional security (b 2 =0,25)	Coefficient of educational level of employees (C ed.l) 0,0505	Coefficient of use of personnel qualification (C use.pq) 0,0363
	Coefficient of intellectual level and invention (C int.l. and inv) 0,0207	The coefficient of defect-free work of staff (C d-fwork) 0,0296
	Proportion of employees trained during the year (P etr) 0,0146	Proportion of employees who improved their skills during the year (P imp sk) 0,0159
	Coefficient of information resources (C inf.r) 0,0358	Coefficient of information security (C inf.sec) 0,0466
	Coefficient of educational level of employees (C edu.l) 0,0505	Coefficient of use of qualification of personnel (C use.qp) 0,0363
	Coefficient of intellectual level and invention (C int.l. and inv) 0,0207	The coefficient of defect-free work of staff (C d-fwork) 0,0296
	Proportion of employees trained during the year (P etr) 0,0146	Proportion of employees who improved their skills during the year (P imp sk) 0,0159
	Coefficient of information resources (C inf.r) 0,0358	Coefficient of information security (C inf.sec) 0,0466
Anti-conflict security (b 3 =0,25)	Level of development of corporate culture (L corp.c) 0,0258	Level of regulation of social and labor relations (L regl.SLR) 0,0208
	Level of value-oriented unity of the team (L VOU) 0,0127	Degree of satisfaction of employees with leadership style (D sat.em) 0,0196
	Degree of employee satisfaction with work (D sat.w) 0,0517	Degree of employee satisfaction with the work of the management staff service (D sat.MSS) 0,0224
	Correlation of the level of conflict at the enterprise with the average industry level (C eLC / iLC) 0,0218	Share of resolved destructive conflicts at the enterprise (Sh des.confl) 0,031
	Level of staff loyalty (L loya) 0,0442	
	Level of development of corporate culture (L corp.c) 0,0258	Level of regulation of social and labor relations (L regl.SLR) 0,0208
	Level of value-oriented unity of the team (L VOU) 0,0127	Degree of satisfaction of employees with leadership style (D sat.em) 0,0196
	Degree of employee satisfaction with work (D sat.w) 0,0517	Degree of employee satisfaction with the work of the management staff service (D sat.MSS) 0,0224
	Correlation of the level of conflict at the enterprise with the average industry level (C eLC / iLC) 0,0218	Share of resolved destructive conflicts at the enterprise (Sh des.confl) 0,031
Security vital activity (b 4 =0,15)	Coefficient of labor discipline (C ld) of acts on production safety (A ps) 0,0571	Coefficient of reduction of the number of jobs that do not meet the requirements of regulatory requirements of sanitary norms (C red. san n) 0,033
	Coefficient of reduction of the number of employees working in conditions that do not correspond to (C red. Non-cond) 0,0326	Coefficient of reduction of cases of occupational diseases and injuries (C red. DI) 0,0273

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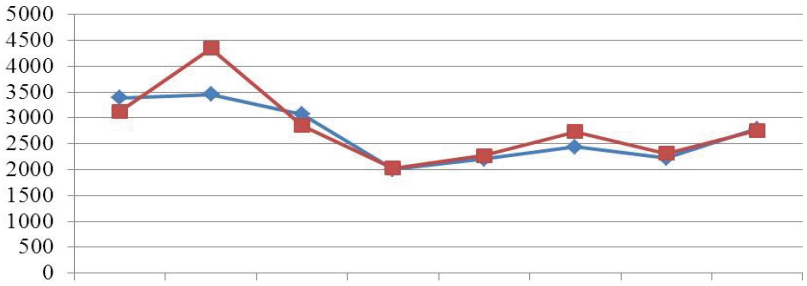

Fig. 1 – Integrated index of personnel security of the surveyed enterprises and the total value of indicators for certain components

level the indices of individual components are situated, at the top level – the generalized index.

If we draw conclusions about the value of the integrated index on the Harrington scale, we should distinguish the company JSC «Kryvbaszalizrudkom», which has a «high level of personnel security» (numerical score = 0.6497), and PJSC «Zaporizhzhia Iron Ore Plant» has an «average level personnel security» (numerical score in the range from 0.37 to 0.62).

Thus, the formation of personnel policy of JSC «Kryvbaszalizrudkom» is a process of determining the key characteristics of its staff in accordance with current and strategic production demands.

Effective use of personnel technologies will allow solving a number of important tasks related to personnel security of JSC «Kryvbaszalizrudkom»:

1) identification and prevention of threats associated to personnel: their illegal activities, disclosure of «trade secrets», collusion with competitors, direct damage to the company, creating a negative moral, ethical and psychological climate in the team;

2) collection and processing of information about future employees for further decision by the manager on their employment or refusal;

3) data compilation and processing about employees, for further decision on their access to confidential information, or participation in particularly important projects for the company;

4) observation of socio-psychological aspects in the process of personnel management, the study of the psychological climate in the workforce and relations among employees;

5) conducting official investigations in cases of revealing the facts of employees' activities that harm the safety of the enterprise;

6) identification of potential «risk zones» among those employees of the enterprise who work and those who are hired – people who in certain circumstances may harm the enterprise;

7) obtaining information for making problematic management decisions: assessment of the candidate for the vacancy, adjustment of motivation policy, development and retention of key employees, analysis of employee loyalty, evaluation of corporate culture, recognition of structural units that are a source of threats, management errors.

Conclusions

The main goal of ensuring personnel security of JSC «Kryvbaszalizrudkom» should be to comply with the principle of permanent productive employment of each employee, i. e. the entire stay of the employee at the company should be spent on job responsibilities and production tasks, taking into account, of course, intermittent breaks for leisure and personal needs. If the employee spends time inefficiently and there are downtimes caused by violations of technology and organization of production, neglect of discipline and internal labor regulations, such an employee is a potential threat to the company in terms of personnel and economic security in general. Free and unproductive time can be used by a «threat worker» to obtain confidential or secret information of the company, to provoke conflicts with other employees or direct management, to cause direct material damage to the company, and so on. Depending on the reasons for the unproductive waste of time, the scale and extent of damage that may be caused by such an employee to the company or individual employees differ.

Researches show that the concept of «personnel security» is difficult to achieve and depends on internal and external actions. In general, it is necessary to distinguish between internal and external threats to economic security that hinder the smooth running of business, namely, threats from business, government, competitors and employees, and so on. Threats to personnel security in Ukrainian enterprises are the result of negative changes in the high economic environment, labor market and related to systemic problems of enterprises themselves.

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EVENT-MARKETING AS A TYPE OF CREATIVE SOLUTION FOR MARKETING ACTIVITIES

Ihnatenko R.V.
CEO Heavy Value OU Harju maakond,
Tallinn, Nõmme linnaosa, Pärnu mnt 388b, 11612, Estonia
ORCID: 0000-0002-1700-9939

Key words:
event-marketing,
event, corporate party,
conferences, presentations,
promotion of goods and services

The article studies the essence of event-marketing and the basic principles of such activities in modern economic conditions. It is established that event-marketing is marketing aimed at organizing special events to form an opinion of the audience invited to the event. The main purpose of this activity is to make the event, which initially may be routine and uninteresting, an effective marketing tool that will allow extracting the maximum benefit, as well as to influence the external (consumers, partners) or internal (staff) audience. The main stages of event-marketing are defined, which include the following: prior notification of the event; conducting the event in the form of various conferences, presentations, promotions, concerts, exhibitions; formation of the subsequent information wave. Three event-strategies of enterprises in modern marketing activities of enterprises were also outlined. In particular, such strategies are defined as holding events (conferences, exhibitions, symposiums, concerts, promotional performances, forums, presentations, VIP-events, parties, etc.), visiting events, and sponsorship of events. The most popular event-events of marketing activity have been determined, among which the characteristic of conferences, seminars, forums, VIP-events, presentations of new goods and pop-up stores, parties, and different kinds of corporate holidays are presented. The practice of realization of event-events of marketing activities on the example of global companies' cases is studied, in particular, successful practices of event-marketing of companies Google, Coca-Cola, IMG Worlds of Adventure, Lean Cuisine, Guinness Zappos in the USA, UAE, India, Pakistan, and others are highlighted. The prospects for further research are determined by the economic and social effects of the application of event-marketing.

EVENT-МАРКЕТИНГ ЯК РІЗНОВИД КРЕАТИВНИХ РІШЕНЬ МАРКЕТИНГОВОЇ ДІЯЛЬНОСТІ

Ігнатенко Р.В.
CEO Heavy Value OU Harju maakond,
Tallinn, Nõmme linnaosa, Pärnu mnt 388b, 11612, Estonia

Ключові слова:
event-маркетинг, подія,
корпоративне свято,
конференції, презентації,
просування товарів і послуг

У статті досліджено сутність event-маркетингу та основні засади здійснення такої діяльності у сучасних умовах господарювання. Встановлено, що event-маркетинг – це маркетинг, спрямований на організацію спеціальних заходів, з метою формування думки у запрошеної на захід аудиторії. Головна мета цієї діяльності – зробити з події, яка спочатку може бути рутинною та нецікавою, ефективний маркетинговий інструмент, який дозволить отримати максимальну користь, а також впливати на зовнішню (споживачі, партнери) або внутрішню (персонал) аудиторії. Визначено основні етапи event-маркетингу, до яких віднесено наступні: попереднє сповіщення про захід; проведення заходу у формі різноманітних конференцій, презентацій, промоушн-акцій, концертів, виставок тощо; формування подальшої інформаційної хвилі. Також окреслено три event-стратегії підприємств у сучасній маркетинговій діяльності підприємств. Зокрема, такими стратегіями визначено – проведення заходів (конференції, виставки, симпозіуми, концерти, промоційні виступи, форуми, презентації, VIP-заходи, вечірки і т. д.), відвідування заходів, спонсорство заходів. Визначено найпопулярніші event-заходи маркетингової діяльності, серед яких надано характеристику конференціям, семінарам, форумам, VIP-заходам, презентаціям нових товарів та pop up магазинам, вечірках та різного роду корпоративних свят. Досліджено практику втілення event-заходів маркетингової діяльності на прикладі кейсів світових компаній, зокрема висвітлено успішні практики

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event-маркетингу компаній Google, Coca-Cola, IMG Worlds of Adventure, Lean Cuisine, Guinness Zappos у США, ОАЕ, Індії, Пакистані та інших країнах світу. Перспективами подальших досліджень визначено з'ясування економічної та соціальної ефективності застосування event-маркетингу.

Problem statement

To meet the challenges of modern marketing activities, when advertising and other ways to promote products becomes a holiday, and the idea of the need to consume a particular product to the consumer in the form of some memorable bright action, in which he is often involved was created event – marketing, used to find a new way to get closer to the target audience, as already known techniques no longer work, and markets dotted with identical proposals with similar advertising ideas.

Analysis of recent research and publications

The study of modern events in marketing activities is reflected in the works of domestic and foreign scholars.

In particular, I. Muntian, O. Kniazieva and R. Znachek note that «Event industry is an industry of live communications, seeking direct and personal contact» [3].

According to me. Budnikevych, I. Havrysh, and I. Krupenna, «event marketing is a set of special events and actions held to promote a brand or product, territory invited to the event target audience» [1, p. 122].

In their study A. Mohylova and V. Perekhodiuk highlight the following «the main objectives to be achieved by using event-marketing: attracting new customers; increasing the degree of popularity and raising the image; attracting the attention of the media; increasing employee loyalty to the company; strengthening team spirit; attracting potential employees» [2].

O. Nikoliuk, Yu. Diachenko and T. Savchenko correctly note – «a planned event (event) is primarily a space-time phenomenon, each of which is unique as a result of coherent interaction of the public, the environment, the management system, given the development of individual elements and the program» [4, p.102].

The scientist G. Rathnakar notes the effectiveness of the use of social networks in the successful activities of event-marketing. Such a conclusion was made based on a survey of 180 employees of various departments of the organization [8, p.783].

Thus, given the results of scientific research in the chosen field, and given the creative specificity of event-marketing and the changing conditions of the information society, the elucidation of its features is constantly relevant.

Statement of purpose

To study the essence of event-marketing with the definition of its key principles in the practice of global and domestic companies in the market. The theoretical basis of the study are the scientific developments of domestic and foreign scientists on event-marketing. The authors used a dialectical approach to the study of event-marketing activities and such general scientific and special methods as analysis and synthesis, comparison, generalization, association, analogy, case method, and others.

Presentation of the main material of the research

Event marketing – or so-called event marketing – is the organization of special events to shape the opinion of the audience invited to the event. The task of marketers is to make an event, which at first may be routine and uninteresting, an effective marketing tool that will maximize the benefits and influence the external (customers, partners) or internal (staff) audience. For example, awarding distinguished employees can be held at an ordinary meeting, but it is much more effective to do it at a special celebration, involving the entire staff. This will further emphasize the value of the results achieved, a positive impact on team building. If we talk about the effect of events aimed at an external audience, they allow you to expand business and professional contacts, share experiences and ideas.

Organization of event-marketing includes the following stages (Fig. 1).

The last stage is very important because it, through the involvement of the press and the publication of press releases, allows you to form the necessary public opinion.

Conducting a corporate party is also an event that belongs to the sphere of interest of event-marketing. You need to do a sufficiently large amount of work so that the

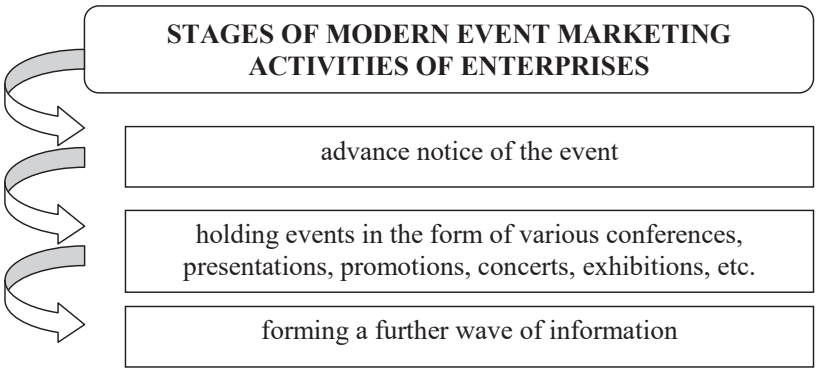

Fig. 1 – The main stages of modern event-marketing activities of enterprises

Source: compiled by the author based on [1; 2; 3; 6]

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event includes elements that form a team or solve other important corporate problems.

Event marketing, along with practical organizational skills, requires knowledge of the theory of this element of marketing, which can be learned in specialized training courses. As a result, the specialist will be able to master the necessary knowledge in this area, independently organize and conduct important corporate events.

In addition, Event marketing can be used in different ways (Fig. 2).

The most obvious option, as already noted, is to hold events. Depending on the goals set and the type of event chosen, the brand can attract potential customers, strengthen relationships with existing audiences, increase sales, present a new product, and even find new partners.

Another strategy is to attend events as a guest. In this case, a company representative can promote products or services and build a brand reputation by showing their expertise.

Another option is to sponsor events. Such an approach increases brand awareness and helps attract the attention of potential clients.

That said, there are many formats of measures that can be done both online and offline. Among the most common types of such measures are the following (Table 1).

Also, in the context of the study, we should consider successful practices of event-marketing of world market leaders.

IMG Worlds of Adventure in Dubai: surprise with dinosaurs One of the most indoor theme parks in the world IMG Worlds of Adventure in Dubai opened in September 2016. Global Event Management Group put on an interactive show with dinosaurs to open the Jurassic-style Lost Valley area, which instantly attracted viewers and went viral on social media. Within days of the opening, more than 5,000 selfies with dinosaurs appeared on various social media platforms, helping the newly opened park make a name for itself [7].

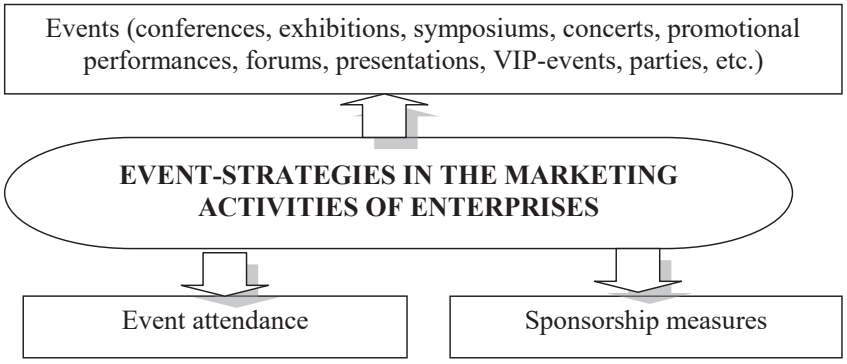

Fig. 2 – Event-strategies in modern marketing activities of enterprises

Source: compiled by the author based on [2; 3; 6]

Table 1 – Popular types of events in event-marketing

№	Event name	Essence
1	Conferences	Large-scale events based on educational presentations by industry leaders and experts. They often include workshops and networking sessions to double the benefits for attendees. Statistically, 40% of companies believe that conferences are the most effective way to achieve their business goals.
2	Seminars and trainings	Such events involve educational presentations by experts, followed by discussions of topics to enhance the skills of the participants. Therefore, seminars are often held in small venues and involve a limited number of participants. Approximately 8% of companies consider seminars crucial to achieving their business goals.
3	VIP events	These measures are aimed at increasing sales and customer loyalty. To achieve this goal, it is important to gather the room with influential shareholders, key customers, and other distinguished guests at a VIP event. According to statistics, 7% of business representatives said that VIP events have the greatest impact on the company's key performance indicators.
4	Forums for industry leaders	One of the advantages of forums is networking. A group of professionals with the same interests gets together to exchange opinions, share experiences, discuss global industry issues, find partners, and even clients. Forums allow organizers to raise their credibility in a particular area and take their business to the next level.
5	New product presentation	Companies use this type of event to introduce new products to potential customers and clients. The main goal is to attract the attention of the target audience, to demonstrate product features and their characteristics to stimulate sales. A well-designed presentation helps promote the new product to consumers and demonstrate its benefits.
6	Pop up stores	Temporary outlets that allow companies to sell their goods or services in a specific context. As a rule, such outlets are organized by e-commerce brands that do not have permanent locations. Also, exhibition spaces with sales opportunities are organized by digital brands to promote their products live, give customers an experience of interaction and immersion, and this is an interesting example of event marketing.
7	Holidays and parties, quests, sports competitions	Despite the entertainment nature of such events, they are a powerful tool for increasing brand awareness and building a strong emotional connection with the audience. Celebrations come in a variety of themes and vary in scale. Depending on your goals, an event can help you find new customers and partners, increase sales, increase the number of mentions of your company on social networks, and attract media attention.

Source: compiled by the author based on [1; 2; 3; 6]

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Happy Campaign by Coca-Cola: India and Pakistan. Relations between these two countries are clearly strained. Coca-Cola decided to unite its people through its «happy campaign». Using common vending machines, the Internet, webcams, and touchscreens, Coca-Cola created an interface through which people from these countries could see each other and convey their messages of peace and love without borders. This touching campaign made millions of people smile and start associating Coca-Cola with a combining, bringing happiness and peace brand. The videos produced were able to garner several million views and huge popularity on social media [5].

Guinness First Class – This campaign is a great example of how a brand with a 257-year history was able to apply a modernized marketing effort without changing its product. In this experiential campaign, the alcohol producer had to associate people with something luxurious. Guinness people dressed up as pilots went to pubs and restaurants across Britain and unsuspecting customers were given a lot of surprises from the brand, including the grand prize of a flight in a luxury private jet with four more of their friends. The promotion went viral on social media right away [6].

Lean Cuisine's #WeighThis campaign. In a world where fitness, nutrition, and weight loss require people to make constant changes to themselves, Lean Cuisine's #WeighThis campaign, among all others, had a competitive edge due to its simplicity and power. Instead of promoting the diet idea, the campaign organizers weighed not the weight in women, but the weight of the accomplishments of which they are proud. Such scales appeared on the wall of a train station in New York City. No one was asked to try the brand's products or interact with them in any way for marketing purposes. The Lean Cuisine logo and special hashtags were placed on the wall. The campaign gained more than 205 million views on different social networks [7].

Zappos vs. Google: the cupcake surprise. When Google launched its photo app, marketers produced a clever experiential campaign. People were offered cupcakes in exchange for photos taken in the app. It was a good campaign until Zappos made it even better and funnier. Zappos set up mobile vending machines that offered gifts like sunglasses, t-shirts, shoes, and other accessories in exchange for the same cupcakes from Google. So, to get Zappos gifts, people had to take a picture with Google, collect the cupcakes, and get to the Zappos vending machines. This brand interaction played into the hands of both companies, and people were happy with the gifts [7].

Google's corporate social responsibility in the San Francisco Bay Area. Few companies take corporate social responsibility as seriously as Google. So, when the brand decided to donate $5.5 million to San Francisco nonprofits, it invited the public to decide who gets the money through a well-designed event campaign. Google set up touchscreens in public areas of the Bay Area where people could read about the brand's initiative and vote for one of the charities. Citizens could also cast their vote on social media or use the hashtag #GoogleImpactChallenge. As a result, Google received more than 400 thousand votes, for which the campaign can be considered very successful. Thus, the brand was able not only to fulfill its program on corporate social responsibility but also gave people the opportunity to choose the organization most in need of support [6].

Conclusions

Thus, event marketing is a powerful tool to achieve business goals. This type of marketing helps to build and maintain strong relationships with the target audience, attract new customers and strengthen partnerships. The main thing is to choose the right type of event, to think thoroughly through all the nuances of its organization and promotion and establish key performance indicators to monitor the results. Therefore, the prospects for further research are to determine the economic and social effectiveness of the event-marketing.

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PECULIARITIES OF THE ORGANIZATION OF MARKETING ACTIVITIES OF THE TOBACCO PRODUCTS MARKET

Shcheblykina I.A., *Shcheblykina Z.V., Labenskaya Yu.D.
Zaporizhzhia National University
Ukraine,69600, Zaporizhzhia, Zhykovsky str., 66;
**Bogdan Khmelnitskiy Melitopol State Pedagogical University*
Ukraine, 72300, Melitopol, Zaporizhzhia region, Getmanska str., 20
innasheblykina@gmail.com
ORCID: 0000-0002-4886-5850, ORCID: 0000-0002-3214-8478

Key words:
marketing research,
marketing activity,
tobacco products market,
marketing product policy

The peculiarities of the organization of marketing activities of the tobacco products market are studied, the analysis of the marketing product policy of tobacco products in Ukraine is carried out on the example of Philip Morris International. It is noted that the product policy plays an important role in the commercial and marketing activities of the enterprise, as it determines the actions aimed at meeting the needs of consumers and achieving economic efficiency of the enterprise in the sale of products. The tobacco market in Ukraine is developing dynamically, despite efforts to reduce the consumption of tobacco products, and occupies a leading position in terms of tax contributions to the state budget. The tobacco industry is a highly competitive environment. Cigarette and tobacco production in Ukraine is controlled by multinational tobacco corporations that have set up joint ventures with former state-owned enterprises. As a result of the marketing analysis it was determined that the main representatives of the national market of tobacco products are Philip Morris Ukraine, Imperial Tobacco Group, Japan Tobacco International, PJSC «Pryluky». The SWOT analysis analyzed Philip Morris International's product policy and identified the company's strengths as it develops and sells dozens of popular regional, national and international brands, from Marlboro to Parliament. Despite various measures aimed at limiting the advertising and marketing opportunities of the tobacco industry, the company continues to transform its own brand into an annual company. One of the main shortcomings of the company's global development is insecurity against the problems of the local economy. Changes in exchange rates can have a significant impact on business in key regions. Analyzing the effectiveness of the company's product policy, on the example of products from different price segments of the market, it was determined that the product structure of Philip MorrisInternational is quite balanced and suggested possible ways to improve the company's marketing activities.

ОСОБЛИВОСТІ ОРГАНІЗАЦІЇ МАРКЕТИНГОВОЇ ДІЯЛЬНОСТІ РИНКУ ТЮТЮНОВИХ ВИРОБІВ

Щебликіна І.О., *Щебликіна З.В., Лабенська Ю.Д.
Запорізький національний університет
Україна, 69600, м. Запоріжжя, вул. Жуковського, 66;
**Мелітопольський державний педагогічний університет імені Богдана Хмельницького*
Україна, 72300, м. Мелітополь, Запорізька область, вул. Гетьманська, 20

Ключові слова:
маркетингові дослідження,
маркетингова діяльність,
ринок тютюнових виробів,
маркетингова товарна політика

Досліджено особливості організації маркетингової діяльності ринку тютюнових виробів, проведено аналіз маркетингової товарної політики тютюнових виробів в Україні на прикладі компанії Philip Morris International. Зазначено, що товарна політика відіграє важливу роль в комерційній і маркетинговій діяльності підприємства, оскільки, визначає дії, спрямовані на забезпечення потреб споживачів та досягнення економічної ефективності підприємства при реалізації продукції. Ринок тютюну в Україні динамічно розвивається, незважаючи на зусилля щодо скорочення споживання тютюнових виробів, і займає провідне місце за обсягами податкових відрахувань до держбюджету. Тютюнова галузь є висококонкурентним середовищем. Виробництво сигарет

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та тютюну в Україні контролюють транснаціональні тютюнові корпорації, що створили спільні підприємства з колишніми державними підприємствами. В результаті проведено маркетингового аналізу було визначено, що основними представниками національного ринку тютюнових виробів є Philip Morris Ukraine, Imperial Tobacco Group, Japan Tobacco International, BAT «Прилуки». За допомогою SWOT-аналізу було проаналізовано товарну політику компанії Philip Morris International і визначено, що сильними сторонами компанії є те, що вона розробляє та продає десятки популярних регіональних, національних та міжнародних брендів, починаючи від Marlboro до Parlament. Незважаючи на різні заходи, спрямовані на обмеження рекламних та маркетингових можливостей тютюнової індустрії, компанія продовжує трансформувати свій власний бренд у щорічно зростаючу компанію. Одним з основних недоліків глобального розвитку компанії є незахищеність перед проблемами місцевої економіки. Зміни валютного курсу можуть суттєво вплинути на бізнес у ключових регіонах. Проаналізувавши ефективність товарної політики компанії, на прикладі продуктів з різних цінових сегментів ринку, визначено, що товарна структура Philip MorrisInternational є досить збалансованою та запропоновано можливі шляхи вдосконалення маркетингової діяльності компанії.

Statement of the problem

The formation of a market economy in Ukraine raises many problems, the practical solution of which is complicated by the lack of relevant theoretical developments. One of the most relevant problems today is the formation of the product policy of enterprises. In the current conditions of market relations, the issues of effective management of marketing product policy of the enterprise taking into account the long-term perspective, due to the changing functioning of the external environment, increasing competition for markets, increasing consumer importance, implementing concepts of socio-ethical marketing and marketing. actualization of intangible assets of the enterprise. Commodity policy plays an important role in the commercial and marketing activities of the enterprise, determines the actions aimed at meeting the needs of consumers, and achieves economic efficiency of the enterprise in the sale of products.

Analysis of recent studies and publications

In modern economic literature, much attention is paid to the components of marketing product policy, marketing product policy management system, methodology for assessing the strategic product position of enterprises, socio-economic efficiency of marketing product policy management. These issues were considered in the works of M.P. Afanasyev, L.V. Balabanova, V.M. Vlasova, S.S. Garkavenko, P. Doyle, S.M. Ilyashenko, I.V. Korneeva, F. Kotler, T.S. Maksimova, A.N. Romanov, B.A. Solovyov, N.B. Tkachenko, V.M. Shcherban. However, the developed strategic concepts, approaches, and actions for the management of marketing product policy need further development and improvement based on the use of the systemic, integrated, strategic, process, and forecasting approaches.

Objectives of the article

This work aims to analyze and develop suggestions to improve the methods for evaluating the effectiveness of marketing product policy of tobacco products on the example Philip Morris International,

The main material of the research

The tobacco market in Ukraine is developing dynamically, despite efforts to reduce the consumption of tobacco products, and occupies a leading position in terms of tax contributions to the state budget. In particular, in 2020, tobacco producers paid more than 65 billion hryvnias in taxes, which is 8% of all tax duties of the state [1]. The specificity of tobacco products causes many problems for manufacturers and sellers in both global and domestic markets. The main ones in Ukraine are regulatory conditions that significantly restrict the rights of tobacco market players, increase excise taxes and, accordingly, product prices, ban on open advertising campaigns, restrictions on labeling, packaging, placement on the packaging of trademarks, logos, multicolored and more than 1 color, illegal cigarette products, the volume of which from the beginning of 2017 to the end of 2020 increased 7 times [1–5]. Therefore, to ensure the demand of the population for quality legal products, the analysis of marketing product policy and adaptation to modern market conditions becomes relevant.

Companies in the tobacco market have a competitive advantage through product quality, brand recognition, brand loyalty, taste, research and development, innovation, packaging, customer service, marketing, advertising, and retail prices. Consolidation of the industry and privatization of state-owned enterprises has led to increased competitive pressure [8].

Philip Morris International (PMI) is an American global cigarette and tobacco company that entered the Ukrainian market in 1994. In 2016, Ukraine became one of the first markets where PMI introduced its revolutionary product IQOS, based on innovative technology that reduces the risk of smoking-related diseases due to the absence of smoke [7; 9]. PMI has the largest market share due to its focus on identifying the hidden needs of consumers and their satisfaction. More and more smokers are switching to Reduced Risk Products (RRPs) to stay healthy.

Table 1 shows the main indicators of the company's activities over the past two years [11].

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Table 1 – The main financial indicators of the enterprise

Indicators	Currency	Years		Deviation	
		2019	2020	absolute, thousand UAH	відносне, %
1. Net income (revenue) from sales	thousand UAH	11 767 758	12 025 925	258 167	2,2%
2. Cost of goods sold	thousand UAH	6 904 443	6 634 350	-270 093	-3,9%
3. Administrative expenses	thousand UAH	823 550	866 470	42 920	5,2%
4. Selling expenses	thousand UAH	262 551	247 452	-15 099	-5,7%
5. Total costs of production and sales	thousand UAH	7 990 544	7 748 272	-242 272	-3,0%
6. Profit from sales	thousand UAH	4 863 324	5 391 575	528 251	10,9%
7. Profit (loss) from operating activities	thousand UAH	2 946 286	3 776 610	830 324	28,2%
8. Net financial result	thousand UAH	2 598 558	2 727 658	129 100	5,0%
9. Costs per 1 UAH. net sales revenue	kop.	67,9	64,4	-3,5	-5,14%
10. Profitability of sales	%	41,3%	44,8%	3,5%	2,9%
11. Cost-effectiveness	%	60,9%	69,6%	8,7%	14,3%

Source: developed by the author according to the financial statements of PMI [11]

The absolute deviation of sales revenue to 2019 amounted to UAH 258 thousand, and revenue from sales increased by 2.2% with a moderate reduction in cost by 3.9%. Net financial results for the analyzed period increased by 5.0%, which indicates a positive trend. There was a decrease in sales and marketing costs compared to 2019, which was mainly influenced by the company's marketing strategy aimed at promoting an innovative, safer product and the devaluation of the hryvnia.

Profitability indicators in the reporting period are higher than in the previous period, which indicates the efficiency of the company. Thus, the profitability of sales increased by 2.9%, the profitability of costs – by 14.3%. According to the analysis of activities and key financial indicators, the company has a fairly stable position in the highly competitive market of tobacco products and a strong marketing development strategy. Despite the significant impact of the negative dynamics of world markets and the economy of Ukraine, associated with both the coronavirus pandemic and the political situation in the country, the company remains a leader and has a large number of loyal customers. This is due to the high quality of products and focuses on meeting the needs of consumers.

The level of efficiency of the company's product policy depends on the position of products on the market, as well as the ratio of sales growth and the relative share of goods in the market at different stages of its life cycle.

The composition of indicators characterizing the level of effectiveness of product policy is unique for each enterprise, taking into account the features and desired prospects for its development, product characteristics, market characteristics, experience with consumers. All methods of product policy analysis differ in the number of indicators and factors that they operate. These techniques make it possible to assess the product policy of the company in many ways, covering almost all the main features such as prices, costs, gross margin, profit, profitability, turnover, sales variations, product life cycle, etc. [13].

The Philip Morris International has the largest and most diverse range of brands in the industry, with Marlboro, the world's most popular, in the world. In total, the company owns 6 of the 15 most famous cigarette brands in more than 180 countries. PMI represents brands in different price categories. Marlboro is in the premium price range along with the Parliament and Virginia S brands. The leading brands in the middle price segment are L&M, Lark, Merit, Muratti, and Bond Street. Also, such global brands as Philip Morris, Chesterfield, Next, and Red & White are popular.

The goal of the PMI is to replace cigarettes with smoke-free products. The company's current smoke-free product portfolio includes four platforms at various stages of development and commercialization. PMI is developing alternatives to cigarettes that contain nicotine and meet the needs of adult smokers but do not contain smoke [7; 10].

The company's product policy was analyzed by using SWOT analysis (table 2).

The purpose of this method is to determine the advantages and disadvantages of the enterprise, as well as to identify opportunities for further successful activities and events that may threaten it [15].

The company's strengths are that Philip Morris International develops and sells dozens of popular regional, national, and international brands, from Marlboro to Parlament. Despite various measures aimed at limiting the advertising and marketing opportunities of the tobacco industry, RMI continues to transform its brand into an annual company. The global demand for products with a high margin of Philip Morris International provides a steady increase in cash. Excess cash is used to fund innovations such as electronic and low-risk products.

One of the main shortcomings of the company's global development is insecurity against the problems of the local economy. Changes in exchange rates can have a significant impact on business in key regions. For example, recent economic problems in Western Europe have forced the company to rely more on Asian and African businesses. Sudden waves of political struggle can also have serious consequences for supply and business in different regions. As the company continues to expand into developing countries, many potential risks need to be considered [15]. In addition, the nature of PMI's business is subject to exceptional levels of attention, taxation, and regulation. Among the many measures taken by foreign governments to reduce the national level of smoking, packaging

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Table 2 – SWOT analysis of product policy of Philip Morris International

Strengths	Weaknesses
High-level R&D activity. Has regular customers. Strong brand. Unique products. Prestigious image of stamps Strong (stable) distribution channels. A wide range of nomenclature. Stable competitive position. High profitability of the business Reliable sales system. Reliable suppliers.	The company is not diversified. There are weak, outdated brands. High prices for products. There is a lack of communication with the public and consumers
Opportunities	Threats
Acquisition of assets. Growth potential. Development of innovative products. High entry barriers. Implementation of foreign economic activity.	Aggressive marketing campaigns of competitors. Economic downturn. Long maturity of brands, products, or services. Anti-tobacco campaign. Increased taxes and duties on both imports and production of cigarettes The emergence of a substitute product Legal barriers against cigarette consumption and advertising. Reducing the proportion of people who smoke.

Source: developed by the author according to the official website of RMI [10]

simplification mandates are the last major challenge for the company.

The company has great opportunities on the international market since PMI identifies growing regions with insufficient demand for tobacco products. As some countries apply new rules and increase tobacco taxation, this global flexibility allows companies to make the most of potential business in other areas.

Among the restrictions on the consumption of traditional tobacco products are new opportunities for industrial growth. Over the past few years, the growth of the low-risk cigarette segment has accelerated in combination with various smoking bans in society and other factors. Philip Morris International, for its part, received exclusive rights to distribute and market alternative products [8].

The main threat to the company's activities is competition not only with large companies but also with small ones. That is, given the growing global focus of the tobacco business, some regionally focused companies may take control of their local smoking markets. Another threat is that working in the tobacco industry requires expert brand marketing and exceptional cash generation. In recent years, there has been increasing pressure from governments and health care institutions to phase out smoking. To attract more customers, Philip Morris International needs to invest heavily in e-cigarette technology, as well as various lobbying and legal efforts to maintain a favorable operating environment.

In this way, the company maximizes its opportunities for growth in the brand stock market and innovative products and remains financially strong in a profitable industry. To further strengthen its position, minimize threats and develop opportunities, PMI needs to diversify its range, which can be done by focusing on realizing innovation potential and promoting new e-products with reduced health risks.

The product policy of Philip Morris International, including the most popular brand in each price segment was analyzed in Table 3 [10].

One of the most well-known tools of business management is the BCG Matrix method, the purpose of which is to analyze the relevance of the company's products depending on the growth of the market for this product and its share. The matrix stipulates that to ensure productive profitable long-term growth, a company must generate and extract funds from successful brands in mature markets and invest them in fast-growing attractive new segments, strengthening the position of its products and services for sustainable income [16].

Based on the data given in the table a matrix BKG was created (fig. 1).

The IQOS brand belongs to the category of «Difficult children» and is located in the first square of the BCG matrix. It is represented in a fast-growing segment but has a low market share, less than 1, ie occupies a weak position in the market. This is because the product is completely

Table 3 – Data for BKG analysis

Brand PMI	**Sales volume**		**Market growth rate**	**Market share (2020)**	**Relative market share**
	2019	**2020**			
Marlboro	26 009	26 397	1,5 %	33,8 %	3,9 %
Bond Street	4122	3671	-10,9 %	4,7 %	0,75 %
Philip Morris	3298	4741	43,75 %	6,07 %	1,06 %
IQOS	674	3514	100+ %	4,5 %	0,7 %

Source: developed by the author according to the official website of RMI [10]

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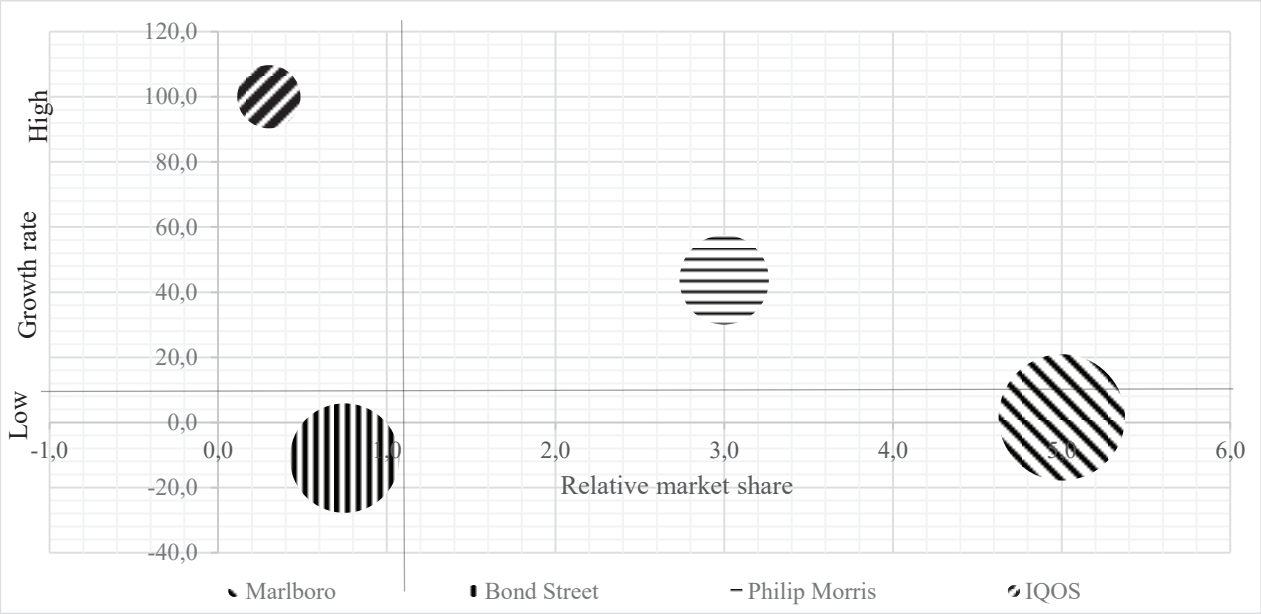

Fig. 1 – Philip Morris International's BKG product policy matrix

new, innovative and many consumers are not familiar with it. To grow in line with the market and strengthen its position, this product requires a high level of investment. Companies need to decide whether they currently have sufficient resources to develop a product in this market. Philip Morris International is actively investing and developing this product, as it can revolutionize the tobacco market by making smoking safer. In the second square of the BCG matrix – «Stars» is the brand Philip Morris. Now this line of business of the company is a leader in its fast-growing industry. This is due to rising cigarette prices, so consumers tend to switch to cheaper product. In addition, it is of better quality and positions itself as a premium compared to competitors. Quality rebranding and marketing strategy played an important role in the rapid growth of the brand.

The Marlboro brand belongs to the Dairy Cows, it has a high relative market share, more than 1, in a slow-growing market, the market growth rate is less than 10. The company's products and services presented in this square BCG matrix are usually the main generators of income and cash. This brand does not require high investment, only to maintain the current level of sales. PMI uses the cash flow from the sale of such goods and services to develop its more promising areas of business IQOS and Philip Morris.

In the fourth quadrant of the matrix – «Dogs» is the brand Bond Sreet. Usually in this quadrant are concentrated areas of business with a low relative market share in slow-growing or stagnant markets. The reason for the decline in the popularity of this brand is the reduction of the boundaries between the high and medium price category of cigarettes due to higher prices. Thus, due to a small difference in price, consumers switch to premium brands or prefer a lower price segment. Now, this brand brings little profit so the company is looking for the right strategy.

Analyzing the effectiveness of the company's product policy, on the example of products from different price segments of the market, it can be seen that the product structure of Philip Morris International is quite balanced. The company makes big profits thanks to status brands in the premium price segment and can direct it as an investment to promote and improve innovative products such as IQOS, which is in the market, or Philip Morris, which is gaining popularity in today's market environment.

For the PMI, the most important criteria for assessing the effectiveness of product policy are:

– the importance of the product for the enterprise: part of the turnover, reliable performance, profitability;

– the position of the goods on the market: a part of the market for the main competitors, a stage for the cycle of goods, the possibility of modifying.

– competitiveness of goods: equal quality, technical and economic parameters, exploitation characteristics, thoroughness of design, imaging of goods.

Within the framework of the audit, an assessment of the effectiveness of the marketing product policy of the company is based on an additional ABC analysis, which additionally helps to assess the importance of the skin product position for the business and to the centralized value of goods. A high level of competition in on the tobacco market and the need for a consistently high-quality assortment of current methods in assessing the competitiveness of goods of PMI.

Conclusions

Philip Morris International has a strong position in the highly competitive tobacco market and a strong marketing development strategy based on an analysis of key financial performance indicators. This is due to the high quality of products and the focuses on meeting the needs of consumers. RMI cares about its image and positions itself as a socially responsible company. Despite a large number of risks on almost all operating fronts, the product structure of RMI is quite balanced, which makes the company a big profit.

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CHARACTERISTICS OF INDUSTRIAL MARKETING STRATEGY DEVELOPMENT BY METALLURGICAL ENTERPRISES

Labenskaya Yu.D., Ivanov M.M.
Zaporizhia National University
69063, Zaporizhia, pr. Sobornyi, 74
yulabenska@gmail.com

Key words:
marketing strategy, industrial marketing, enterprise, competitiveness, market, Metinvest Holding, efficiency

The article highlights the concept and essence of marketing strategy, theoretical and practical aspects of consumer and industrial marketing, and emphasizes their differences. The article presents an overview of the features and criteria of market segmentation which is an important stage of strategic analysis of the industry since it identifies the most attractive market segments and improves the structure of production and management by identifying the key success factors. The importance of the demand for industrial goods, ways to increase sales, innovation and communication policy of the enterprise is actualized. The strategy of industrial marketing of Metinvest Holding LLC was analyzed and the features influencing the efficiency and success of its activity as a whole were determined. The company builds long-term relationships with customers and provides high-quality services. The main priority of service is personal contact, which includes negotiations with customers, special ordering conditions, technical support and uninterrupted delivery. Metinvest Holding supports transparency of operations and emphasizes corporate responsibility, intensifies interaction with its stakeholders, introduces innovations and strives towards digitalization. Thus, domestic producers of industrial products in the formation of the marketing strategy of the enterprise must take into account both generally accepted market and economic factors of influence, and sectoral features of management. To ensure the efficiency of enterprises need to focus on expanding the scope of activities, use their market position, connections, financial opportunities, pay sufficient attention to creating quality, consumer demand, develop their presence in foreign markets, innovate and digitize.

ОСОБЛИВОСТІ ФОРМУВАННЯ СТРАТЕГІЇ ПРОМИСЛОВОГО МАРКЕТИНГУ МЕТАЛУРГІЙНИХ ПІДПРИЄМСТВ

Лабенська Ю.Д., Іванов М.М.
Запорізький національний університет
69063, м. Запоріжжя, просп. Соборний,74

Ключові слова:
маркетингова стратегія, промисловий маркетинг, підприємство, конкурентоспроможність, ринок, Метінвест Холдинг, ефективність

У статті висвітлено поняття та сутність маркетингової стратегії, теоретичні та практичні аспекти споживчого і промислового маркетингу, виявлено їхні відмінності. Розглянуто сутність, ознаки та критерії сегментування ринку, важливого етапу стратегічного аналізу галузі, що ґрунтується на пошуку ключових факторів успіху, визначає найпривабливіші сегменти ринку і сприяє удосконаленню структури виробництва і управління. Актуалізовано значення попиту на промислові товари, шляхів збільшення обсягу збуту, інноваційної діяльності та комунікаційної політики підприємства. Проаналізовано стратегію промислового маркетингу ТОВ «Метінвест Холдинг» та визначено особливості, що впливають на ефективність та успішність його діяльності в цілому. Компанія будує довгострокові відносини з клієнтами та надає послуги високої якості. Головним пріоритетом обслуговування є особистий контакт, що включає в себе переговори з клієнтами, особливі умови замовлення, надання технічної підтримки та безперебійну доставку. «Метінвест Холдинг» підтримує прозорість операцій та наголошує на корпоративній відповідальності, активізує взаємодію зі своїми стейколдерами, впроваджує інновації та цифровізацію. Таким чином, вітчизняні виробники промислової продукції при формуванні маркетингової стратегії підприємства повинні враховувати як загальноприйняті ринково-економічні фактори впливу, так

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і галузеві особливості господарювання. Для забезпечення ефективності роботи підприємствам необхідно орієнтуватись на розширення масштабів діяльності, використовувати свої ринкові позиції, зв'язки, фінансові можливості, приділяти достатню увагу створенню якісної, затребуваної споживачем продукції, розвивати власну присутність на зовнішніх ринках, впроваджувати інновації та цифровізацію.

Formulation of the problem

Industry plays a key role in the functioning of Ukraine's economy. In today's conditions, it is important for companies to quickly adapt to market conditions, ensure sustainability by expanding markets for products and services, as well as increase the competitiveness of their goods and services. Modern market relations are characterized by high dynamism, instability, so in the activities of industrial enterprises, in particular the metallurgical profile, there are always problems due to the feasibility of meeting the needs of existing and potential consumers in the required products. Industrial marketing tools are important for solving such problems.

The term industrial marketing covers all activities in the industrial market aimed at the sale of industrial goods to meet the production needs of commercial or non-commercial organizations, budgetary institutions, which include enterprises, government agencies, or trade intermediaries. These organizations use industrial products or services in further production as raw materials, semi-finished products and components, equipment or services, aimed at improving the efficiency of production and marketing of goods [1].

Enterprises in the Ukrainian market of industrial goods operate in difficult economic conditions, which are determined by the lack of financial resources, insufficient material and technical base, unfavorable price ratios for industrial products sox priorities for marketing strategy should focus on understanding market trends, competitive advantage, productivity growth labor at the enterprise, expanding markets and range of products [2; 3]. Therefore, it is important to study the most effective tools and measures of the marketing strategy of leading Ukrainian enterprises in the market of industrial goods.

Analysis of recent research and publications

The formation of an effective marketing strategy at the enterprise level was the subject of researches conducted by G. Armstrong, M. McDonald, V.R. Praude, R. Fatkhutdinova [4–7]. The works of F. Kotler, M. Porter and others are devoted to the problems of increasing the efficiency of the marketing strategy of enterprises under the influence of external factors [4; 8]. Nevertheless, the peculiarities of the formation of the marketing strategy of Ukrainian enterprises, taking into account the sectoral characteristics of the business entity, need significant study.

Formulation of the goals of the article

Several problematic issues of development and practical application of the company's marketing strategy in the Ukrainian market of industrial goods, taking into account the specifics and set of risks that need further improvement, and led to the relevance of our study. The purpose of the article is to characterize and study in-depth the promising combinations of tools and measures of the marketing strategy of the enterprise in the Ukrainian market of industrial goods.

The main material of the research with full justification of scientific results

Marketing strategy includes a set of measures aimed at forming and maintaining sustainable competitive advantages of the enterprise in the market of industrial goods, creating the best option for achieving the goals of enterprise development [2; 3]. The industrial market includes the market of means of production, technologies, information products and services, patents and licenses and others. Therefore, the activity of industrial marketing focuses on B2B, ie Business to Business. This is the main difference between industrial and consumer marketing. The latter focuses on the needs of end consumers who buy goods or services for their consumption [1]. The industrial market is characterized by a much smaller number of buyers and producers compared to the consumer goods market, as well as the ability to buy goods only in large quantities or for a certain amount. These constraints lead to low elasticity of demand, ie changes in prices for industrial goods are not able to affect demand for them [1]. In addition, demand is volatile and can change significantly in a short period under the influence of innovation and technical changes in production capacity, which indicates the need for constant analysis of the market and competitors, as well as the introduction of innovative methods and technologies. A significant difference between the industrial market and the consumer market is the presence of pair demand when a certain product can be useful only if it is used together with another product. There is also the opposite situation of cross-elasticity of demand – that is, demand for one product increases in direct dependence on changes in the price of another. Steel and aluminum can serve as an example of cross-elasticity of demand, as the amount of steel in demand is closely related to aluminum, which can act as a substitute for it [9].

The industrial market is also characterized by a high level of heterogeneity of customer needs. That is why it is very important to properly segment the market to identify groups of customers with uniform needs and expectations that constitute a potential target audience. Thanks to segmentation, it is possible to address consumer needs, which reduces competition and increases the efficiency of production and commercial activities of the enterprise by choosing the most effective means of communication for each segment. There are various criteria for market segmentation, but the basis for segmentation is difficult. One of the effective methods of applying segmentation

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criteria can be to determine their hierarchy, moving from the most general to more specific features (Figure 1). At the first level are the demographic criteria that describe the company as a whole, namely – industry, company size and location.

This information provides a broad understanding of the level of competition in a particular industry, customer needs, purchasing power, and its compliance with the production capacity of the enterprise, as well as possible logistics costs. Although demographic data is quite useful and easy to obtain, it is only the beginning of the segmentation process. At the next level are the operational features of consumer companies, which allow you to more accurately identify existing and potential customers. These features include their production technologies, which determine the purchasing needs of the enterprise, the status of use of the product or brand, indicating previous interaction with the manufacturer's product and similar products, as well as customers' capabilities – operational, technical and financial. The level of segmentation that is usually given insufficient attention is the approach to making a purchase. At this stage, it is very important to understand the organization and model of the consumer's purchasing function, which can be centralized or decentralized. Also at this level, it is necessary to determine which units have the greatest influence on the purchase of goods to develop an individual approach aimed at them. In addition, the criteria by which the consumer company chooses a particular supplier are important. This information will allow the correct positioning of the company and the product in each selected segment [10]. Proper positioning of industrial products is one of the decisive factors for the success of increasing and increasing profitability. It is important to convey the value of the product, which is expressed as the ratio of the usefulness of its purchase to the price. Therefore, it is important to pay attention to the pricing strategy to meet the needs of an individual customer or key account. It should also be noted that it is not mandatory for each industrial enterprise or to use each stage of this segmentation approach for each product.

Although at first glance it seems that fewer buyers in the industrial market who are easy to identify and determine their needs facilitate the market research process. However, the difficulty of industrial marketing is that the demand for industrial goods depends entirely on the demand for the final product, which is why the analysis of this derivative demand to forecast and develop a marketing strategy is more complex and expensive. Derivative demand also points to inconsistencies in the marketing of goods between enterprises that are producers and consumers. At a time when the main goal of the manufacturer is to sell only its own goods, the goal of the consumer enterprise to increase total turnover. That is why the supplier must adapt to the requirements of such intermediaries to ensure continuous supply and high quality. Only in this case, under the conditions of a guarantee of profitability, the consumer company will be profitable to cooperate with the supplier company. One of the ways to increase sales is to establish partnerships with representatives of consumer enterprises. Such connections enable each party to the contract to maximize profits, and manufacturers gain additional access to new markets, knowledge and production technologies, to use economies of scale by increasing sales. To successfully establish partnerships, it is necessary to develop and attract all resources to meet the demands and needs of business structures, as well as to create the right image and positioning of the enterprise. It is a positive image and reputation that provides access to borrowed funds, promotes the attraction and trust of employees, government agencies, partners and consumers. The key element of successful positioning and strong reputation is the development of social responsibility of the enterprise, ie activities aimed at positive change in society and economy, responsible attitude to the environment and support and development of employees [11; 12].

Concerning the portfolio of industrial goods, it can be expected that enterprises, compared to producers of consumer goods will be more oriented on market and customer needs. In this case, the innovative activity of the enterprise plays a very important role, which affects

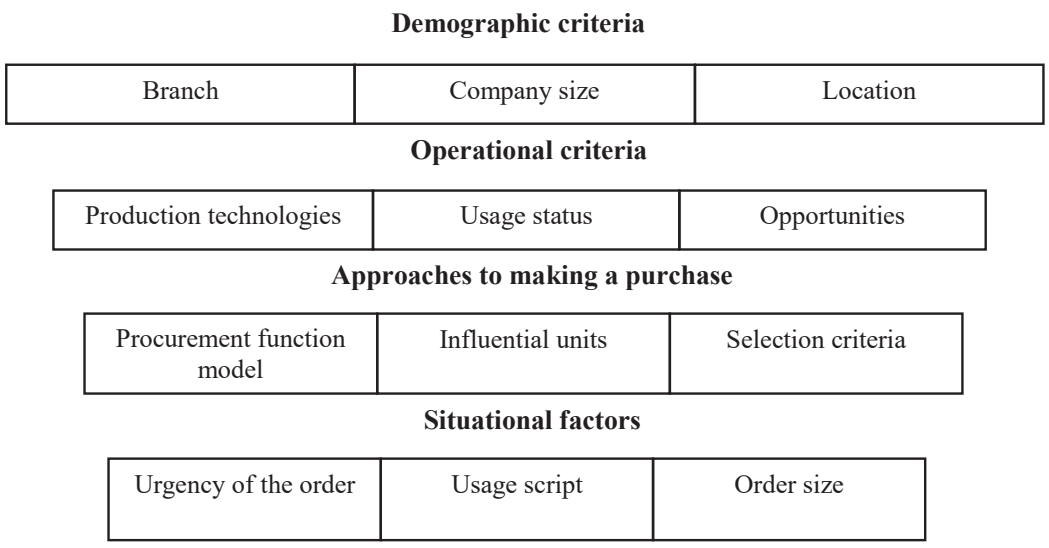

Fig. 1 – The process of market segmentation

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the quality and success of products, maintaining market position, the efficiency of the production process and the level of customer satisfaction. Innovative activity in industrial marketing plays a special role and creates close cooperation between engineering and technical departments and the marketing department. The joint work of these units aims to create and improve products, taking into account the requirements and needs of consumers, to adjust the technical and economic performance of new products. There is often a practice called the active customer paradigm, where customers play a leading role in innovation processes [13]. In contrast to the active producer paradigm, when an enterprise develops a product improvement idea based on consumer surveys and needs analysis, in the case of an active consumer paradigm, the customer not only offers an innovative product or process idea, but also offers a supplier to help the development company[14]. For the successful implementation of innovations in production and marketing process it is necessary to systematically conduct a detailed analysis of the market, the activities of competitors, as well as the internal environment of the enterprise.

An important element of the marketing strategy is the communication policy of the enterprise, which allows to convey the values and benefits of the product, and thus attract more consumers and increase their loyalty. Various marketing communication tools are available to businesses in the market to provide information, and industrial buyers to access information, including personal sales tools such as personal calls, company visits, trade shows and non-personal sales tools, i. e. specific marketing tools such as advertising, sales promotion, public relations. The Internet is between «personal» and «non-personal» marketing tools, as it provides opportunities to use both methods of marketing communication (Fig. 2) [15; 16].

An interesting example of the development of an industrial marketing strategy is Metinvest Holding LLC, an international vertically integrated mining and metallurgical group of companies. The group includes mining and metallurgical plants, a freight forwarding company, as well as service and engineering companies. Metinvest is in the middle of the sales chain, controlling, on the one hand, the entire production process from ore and coal mining to the creation of semi-finished and finished products at the metallurgical enterprises that are part of the group. On the other hand, the company organizes the supply and sale of raw materials and metal products to other consumers around the world.

Metinvest's plants are the main consumers of iron ore, coking coal and metallurgical coke, ie the company mainly uses these resources for domestic consumption, produces coke and covers the needs of metallurgical enterprises, and sells the rest to third parties. Thus, Metinvest is self-sufficient in the main raw materials for steel production. Steel plants supply semi-finished products to their rolling mills in Europe and around the world, as well as manufacture finished steel products for customers in the construction, engineering, railway and other industries, as well as for retail customers of steel service centers. In 2020, the key markets for finished metallurgical products were Europe, Ukraine, the Middle East and the Middle East, the CIS and Asia.

To maintain its competitive advantage and market position, the company is constantly improving its operational efficiency and striving to apply best practices in steel production through targeted investments in advanced technologies. That is, Metinvest optimizes the operating model and increases the efficiency of business processes and employee productivity. As a result, it leads to a constant increase in production and sales of finished steel products, as well as improving the product range. The company builds long-term relationships with customers and provides high-quality services. The main priority of service is personal contact, which includes negotiations with customers, special ordering conditions, technical support and uninterrupted delivery. In addition, the company supports transparency of operations and emphasizes corporate responsibility, which also helps to strengthen the corporate culture and maximize employee loyalty. Although the pandemic has created significant obstacles in the current realities of business, Metinvest has quickly overcome these problems, mainly due to the

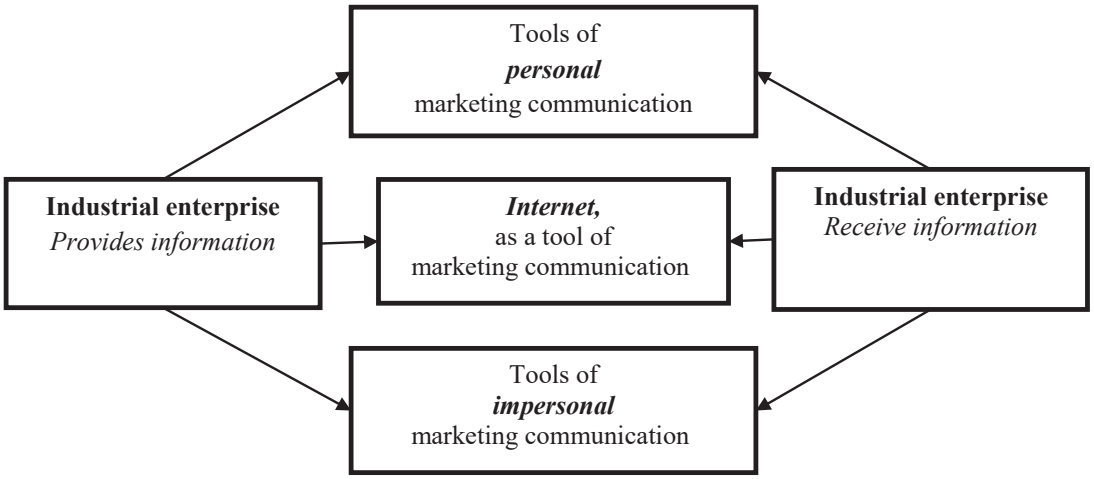

Fig. 2 – Communication tools for industrial marketing

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constant dynamics of digitalization, the introduction of comprehensive measures to protect staff and transfer workers to remote work where possible. Despite the crisis, the situation created an opportunity to further strengthen customer relationships. The sales team also quickly adapted to online customer service. Thus, although COVID-19 has caused unprecedented turbulence around the world, Metinvest has intensified its interaction with its stakeholders and achieved high results in rapidly changing market conditions [17; 18].

Conclusions and prospects for further research in this area

Summarizing the above, it should be noted that modern conditions to ensure the effectiveness of manufacturers require manufacturers to develop and adhere to the marketing objectives of their activities, a clear plan, mechanisms, tools for achieving goals. Focus on expanding the scope of activities, use their market positions, connections, financial opportunities, pay sufficient attention to creating quality, consumer-demanded products, implement innovations and digitalization.

Domestic producers of industrial products in foreign markets can develop their presence through the sale of quality and innovative products, through the development of technological base, science, increasing the competitiveness of products. When forming a marketing strategy, enterprises must take into account both generally accepted market and economic factors of influence, and sectoral features of management.

Further research should be aimed at monitoring the market needs of industrial entities and improving the marketing methods of a particular enterprise operating in the market of industrial goods in Ukraine.

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ВИМОГИ ДО ОФОРМЛЕННЯ СТАТЕЙ У ФАХОВОМУ НАУКОВО-ПРАКТИЧНОМУ ЖУРНАЛІ «ФІНАНСОВІ СТРАТЕГІЇ ІННОВАЦІЙНОГО РОЗВИТКУ ЕКОНОМІКИ»

З № 2(42) 2019 року фаховий науково-практичний журнал «Фінансові стратегії інноваційного розвитку економіки» виходить лише англійською мовою. **Стаття подається до розгляду в редакцію українською мовою. Після проходження внутрішнього рецензування – обов'язкове надання перекладу статті англійською мовою.** Переклад має бути професійним, у жодному разі не використовуючи інтернет-перекладач.

До друку приймаються наукові статті обсягом від 10 сторінок, що відповідають тематиці серії видання й містять нові наукові результати, не опубліковані раніше. Виклад матеріалу статті має бути послідовним, логічно завершеним, із чіткими формулюваннями, що виключають подвійне тлумачення або неправильне розуміння інформації; мова тексту має відповідати літературним нормам, бути професійною і лаконічною. Автор зобов'язаний забезпечити високий науковий рівень викладеного матеріалу, повноту і системність висвітлення питання, достовірність результатів і даних, що наводяться, правильність цитування та посилань на літературні джерела. Редакційна колегія приймає до друку статті, які характеризуються оригінальністю, високою мірою наукової новизни і практичною значущістю.

1. МАКЕТ СТОРІНКИ

Для оформлення статті автор використовує формат А4 з полями з усіх боків – 2 см. Порядок абзацу виділяється відступом 1,25.

☞ *До уваги авторів:* У разі необхідності для шрифтових виділень у таблицях і рисунках дозволяється застосовувати шрифт Courier New (наприклад, для ілюстрації текстів програм для ЕОМ). Для стилістичного виділення фрагментів тексту слід вживати начертання *курсив*, **напівжирний**, ***напівжирний курсив*** зі збереженням гарнітури, розміру шрифта та інтервалу абзаца.

2. ТИПОГРАФСЬКІ ПОГОДЖЕННЯ ТА СТИЛІ

Текст статті, яка подається до розгляду та рецензування українською, має бути побудований за такою схемою:

– індекс УДК у верхньому лівому кутку аркуша (Times New Roman, 14 пт., звичайний);
– назва статті великими літерами (по центру, Times New Roman, 14 пт., напівжирний);
– ПІБ авторів (по центру, Times New Roman, 14 пт., звичайний);
– назва ЗВО (по центру, Times New Roman, 14 пт., курсив);
– повна адреса ЗВО або місця роботи автора (по центру, Times New Roman, 14 пт., курсив);
– адреса електронної пошти;
– ORCID (обов'язково);
– анотація (200–250 слів), яка містить стисле формулювання змісту статті (вирівнювання – по ширині сторінки, Times New Roman, 14 пт., звичайний);
– ключові слова (до 10 слів) (вирівнювання – по ширині сторінки, Times New Roman, 14 пт., курсив).

Після цього з абзацу викладається основний текст статті (вирівнювання – по ширині сторінки, Times New Roman, 14 пт., міжрядковий інтервал 1,5).

Структура основної частини рукопису українською мовою:

I. Постановка проблеми в загальному вигляді та її зв'язок з важливими науковими чи практичними завданнями.

II. Аналіз останніх досліджень і публікацій, у яких започатковано розв'язання даної проблеми і на які спирається автор (з обов'язковими посиланнями в тексті на використану наукову літературу!!!), виділення невирішених раніше частин загальної проблеми, котрим присвячується стаття.

III. Формулювання цілей статті (постановка завдання).

IV. Виклад основного матеріалу дослідження з повним обґрунтуванням отриманих наукових результатів.

V. Висновки і перспективи подальших досліджень у даному напрямку.

VI. Література. Оформлюється відповідно до вимог Національного стандарту України ДСТУ 8302:2015.

ЛИШЕ ПІСЛЯ ПРОХОДЖЕННЯ ВНУТРІШНЬОГО РЕЦЕНЗУВАННЯ АВТОР НАДАЄ ПЕРЕКЛАД СТАТТІ АНГЛІЙСЬКОЮ МОВОЮ.

Схема побудови англомовної статті аналогічна українському варіанту:

– UDC у верхньому лівому кутку аркуша (Times New Roman, 14 пт., звичайний);

– назва статті великими літерами по центру (Times New Roman, 14 пт., напівжирний);

– ПІБ авторів (по центру, Times New Roman, 14 пт., звичайний);

– назва ЗВО (по центру, Times New Roman, 14 пт., курсив);

– повна адреса ЗВО або місця роботи автора (по центру, Times New Roman, 14 пт., курсив);

– адреса електронної пошти (по центру, Times New Roman, 14 пт., звичайний);

– анотація англійською мовою розширена (1800 знаків) (вирівнювання – по ширині сторінки, Times New Roman, 14 пт., звичайний);

– ключові слова (key words) – до 10 слів – (вирівнювання – по ширині сторінки, Times New Roman, 14 пт., курсив).

☞ *До уваги авторів*: після ключових слів англійською мовою необхідно надати цей блок інформації (крім УДК) також українською, вимоги до оформлення зберігаються.

Структура основної частини статті англійською мовою

(вирівнювання – по ширині сторінки, Times New Roman, 14 пт., міжрядковий інтервал 1,5)

I. Statement of the problem (Постановка проблеми).

II. Analysis of recent studies and publications (Аналіз останніх досліджень і публікацій).

III. Objectives of the article (Формулювання цілей статті).

IV. The main material of the research (Виклад основного матеріалу дослідження).

V. Conclusions (Висновки).

VI. References (Література), оформлюється за міжнародним бібліографічним стандартом. Приклади оформлення: http://journalsofznu.zp.ua/References.pdf

ВАЖЛИВО! Кожен рисунок включається до тексту у вигляді одного графічного об'єкта (положення об'єкта «В тексте»).

ДЛЯ ОПУБЛІКУВАННЯ СТАТТІ АВТОРУ НЕОБХІДНО:

надіслати на електронну пошту редакції збірника konf.econom.znu@gmail.com

1. Текст статті, оформлений відповідно до встановлених вимог.

2. Витяг із протоколу засідання кафедри з рекомендацією статті до друку (скан. копію).

3. Рецензію доктора або кандидата наук із відповідної галузі науки, завірену відповідним підписом та печаткою установи, яка є зовнішньою по відношенню до ЗНУ та установи, де працює автор (автори) статті (скан. копію).

4. Відомості про автора (авторів) у вигляді таблиці (бажано у файлі формату .xls):

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Довідки за телефонами:

(096) 485-31-99 – відповідальний за випуск, технічний редактор – заступник декана з наукової роботи економічного факультету ЗНУ Линенко Андрій Володимирович,

(061) 228-76-41 – відповідальний редактор – д.е.н., проф. Бабміндра Дмитро Іванович,

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Видавництво і друкарня – Видавничий дім «Гельветика»
69063, Україна, м. Запоріжжя, вул. Олександрівська, 84, оф. 414
Телефони: +38 (095) 934 48 28, +38 (097) 723 06 08
E-mail: mailbox@helvetica.com.ua
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