

The object of research is the innovative activity of organizations. Papers that consider the assessment of the benefits of Ukraine's accession to the European Union (EU) ignore innovation activity in the context of acquiring competence for the integration of organizations into the European space. This predetermined the study to assess the state and prerequisites for effective innovation activity of Ukrainian organizations. An uneven concentration of innovative organizations by types of economic activity has been determined, which is explained by imperfect mechanisms for regulating regional development. The negative dynamics of the science intensity of the gross domestic product (GDP) of Ukraine (by 0.32%), its lowest level among the EU countries (0.99%) were noted. This makes it impossible to compete with supplier countries of new technologies and products with a high degree of added value. A reduction in the cost of fundamental research and the number of innovative organizations (by 72.09%), a decrease in the number of employees engaged in scientific research was identified. The smallest amounts of funding for employee training in accordance with EU requirements have been determined, which reduces the competitiveness of the economy.

A distinctive feature of the study is its standpoint of the influence of indicators on the formation of conditions for the acquisition of competence by organizations in the European market. This means the technological renewal of production, intensification of research into the latest areas of science, achievement of intellectual leadership, reorientation of finance to investment in human capital. The results are useful for executives who, on the way to joining the European space, seek to successfully overcome the barriers of the world's largest market owing to organizational competence

Keywords: competent organization, innovative activity of organization, organizational competence, scientific and innovative potential of organization, competitiveness of organization, European integration

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DEFINING THE PREREQUISITES FOR EFFECTIVE INNOVATIVE ACTIVITY OF UKRAINIAN ORGANIZATIONS IN THE CONTEXT OF ACQUIRING COMPETENCE ON THE EUROPEAN MARKET

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1. Introduction

Ukraine's European future is recognized and legally registered at the EU level, which signals the beginning of its preparations for EU membership. This increases the likelihood of approaching the standard of living of Ukrainian society to the level of EU member states, opening access to financial and technical assistance, grants, and investments of the EU. There is an opportunity for Ukraine to participate at the level of other countries with similar status in EU programs, joining the culture of market management and raising the national economy to the appropriate level [1–4]. However, having gained access to the largest market, Ukrainian organizations will inevitably face increased competition. The risk of partial loss of the Ukrainian buyer due to a wide range of European products increases [5], the influence of multinational companies, which, seeking to monopolize certain industries, will push organizations that are smaller in size and level of success. Consequently,

there is an obvious need to set up and develop organizations competent in the European market capable of competing with experienced players. It is important to create favorable conditions and practical basis for their effective functioning by increasing the level of competence and competitiveness in the international environment.

Scientific research into this area is important. Active innovation activity of organizations is a component of competence, it positively affects business efficiency, increases the competitiveness of organizations and Ukraine among EU member states, causing rapid integration into the European space. Innovative development is a factor influencing the level of organizational competence; European integration of Ukraine and globalization of the world economy are the reasons for the intensification of competition and increased attention to ensuring the innovative activity of Ukrainian organizations. Therefore, it is expedient to analyze the indicators for assessing the state and prospects of functioning of organizations, possible obstacles and directions for overcoming

ing them on the way to integration into the European space. The research results are necessary for practice because understanding the causes and consequences of innovation activity of organizations not from the position of impact on the economy, but as a prerequisite for acquiring competence in the market, accelerates adaptation to the processes of European integration. This will allow organizations, in their quest to operate effectively in the European market, to determine the direction for the development of priority organizational competencies, ensuring a stable market position in the long term.

2. Literature review and problem statement

The issues of building scientific and innovative potential through progressive management of organizations with the development of abilities to use the opportunities to occupy leading positions in the European market have been actively discussed for a long time. The study of innovation policy of Ukraine, taking into account world trends in scientific and technological development in relation to political, economic, socio-psychological, and cultural factors of innovative dynamics is reported in work [6]. The author noted the conservative business model of Ukrainian organizations with the prevalence of strategies for transferring and borrowing world innovations into the economy, copying the production of developed countries without their adaptation. However, the work does not indicate possible ways to solve the problem, which complicates the determination of the prospects of organizations in the context of European integration [6]. This issue was tried to be solved in [7], which determined the prerequisites for changing this model to an innovative one. Hopes were pinned on European integration processes that would accelerate the pace of technological renewal, reduce the product life cycle, maintain the competitive advantages of national producers, increase investment in human capital, and expand research topics. However, the authors ignored the internal characteristics of organizations, in particular the level of their competence, which would allow full use of the opportunities offered by European integration and globalization. Close in content to this study is work [5]. It focuses on identifying not only the advantages of joining Ukrainian organizations to the European market but also problems associated with increased competition, the risk of lower demand for Ukrainian products, the negative impact of transnational corporations. But, trying to solve this issue, scientists rely more on external factors. Among them are improving the innovative support of Ukraine's economy, settling the issues of its rapprochement with the EU, ensuring its position as an investment-attractive country with a high level of international competitiveness. Also, the authors in [8] focused more attention on the intensification of investment and innovation activity in Ukraine as a whole. They determined the impact of globalization on the formation of trends in the development of the Ukrainian economy, taking into account the importance of information and communication technologies and the prospects for digitalization. However, the authors did not consider it appropriate to consider it as an environment capable of both accelerating and significantly hampering the acquisition by Ukrainian organizations of competence sufficient for successful functioning in the European market. The issues of overcoming possible problems caused by the intensification of integration and globalization

processes are of concern to scientists from all countries of the world, therefore, the substantiation of ways to solve them is contained in the works of foreign authors. The authors of [9], seeking to understand the essence of innovation, studied the characteristics of innovative behavior of employees, their ability to cooperate with external sources, considering these factors in the implementation of innovations in the context of the public sector. This seems like a rather limited view of the problem. Employees are, of course, valuable but only one of the components of organizational competence, exploring which, without interconnection with others, scientists significantly reduce the likelihood of successfully solving urgent problems of organizations. Interesting is the experience of German organizations, described in [10], where the main emphasis is placed on the relationship between financial incentives and innovation activity. The authors analyzed the level of use of financial incentives by organizations, noted its impact on the innovative activity of employees, drawing the conclusion that external motivation is not always positive for the innovation activity of different groups of employees. Not all the findings can be implemented in the activities of Ukrainian organizations due to the peculiarities of the conditions of activity, the use of different approaches to management, the difference in the mentality of employees, their values, norms, motives of behavior. A transparent wage system was recognized as a more effective way to intensify research innovations by scientists in [11]. They developed recommendations for the implementation of centralized measures to stimulate innovation activity of organizations in regions with a low level of development. Having chosen the Greek regions for analysis, scientists proved that centralized programs are a means of taking the first steps towards the creation of a regional innovation system. They stressed that the underdeveloped economic and intellectual environment creates dependence of regions on public funding, which leads to their inability to support regional needs after the completion of state programs. It should be noted that the conclusions of scientists are limited because they are valid for organizations operating in regions with a low level of development. Comparing the experience of functioning of Greek and Ukrainian organizations, it can be assumed that the developed recommendations for low-developed regions of Greece will be useful for the vast majority of Ukrainian regions. But, in Ukraine, there are regions with a high level of development, therefore, the formulated conclusions lose their meaning for them. Thus, the issue of ensuring the universality of the developed recommendations remains relevant. More flexible methodology for improving the efficiency of innovation activities of organizations is proposed by authors in [12]. The authors quite accurately identified the reasons for the low innovation activity of small, medium and micro enterprises, but limited their study exclusively to the industry of production of consumer goods. They ignored such important industries for innovative development of the country as industrial production, information and telecommunications, land and pipeline transport, etc.

Summarizing the results of the study of existing achievements, it can be noted that the vast majority of them focus on the analysis of innovation policy of countries with the identification of existing shortcomings, justification of the role of innovation activity of organizations in ensuring the status of an investment-attractive country [6, 8]. Others, on the contrary, insist on the primary importance of the state in intensifying this process, focusing on the introduction of

various methods of state support for innovation activities of organizations [5, 7, 9, 11]. Some, exploring the advantages of joining Ukrainian organizations to the European market, form requirements for innovative behavior of employees, developing state and regional financial incentive systems [9, 10]. Some experts limit the scope of their research to the level of development of the region or the type of economic activity [11, 12]. But none of the considered works explores the innovative activity of organizations as an important component of their competence, which would allow successful integration into the European space. The change in the level of innovation activity of organizations as a reason for reducing the level of their competence and a prerequisite for the loss of competitive advantages is not investigated. There are also no scientific developments aimed at embedding the innovative position of the organization into the structure of its competence, the probabilistic reason for which may be an inactive scientific discussion on the formation of a rational structure of organizational competence with a detailed description of its individual components. In order to eliminate gaps in scientific research, it is advisable to analyze the state of innovation activity of Ukrainian organizations, assess the activity of their innovative position as a component of competence, and form directions for successful integration into the European market.

3. The aim and objectives of the study

The aim of this study is to determine the prerequisites for effective innovation activity of Ukrainian organizations as a factor in acquiring competence. This will make it possible to determine the prospects for the functioning of organizations in the European market.

To accomplish the aim, the following tasks have been set:

- to evaluate the innovative activity of organizations in various fields of activity, to identify existing trends, their likely causes and consequences;
- to study the dynamics of the science intensity of Ukraine's GDP in comparison with the EU countries and the leading countries of the world as an indicator of the innovative orientation of the state;
- to analyze the indicators of implementation of priority directions of innovation activity of Ukraine, the degree of their financing to determine the level of interest of the country in innovation activity of organizations.

4. The study materials and methods

The object of research is innovative activity of Ukrainian organizations in the context of intensification of European integration processes. The subject of the study is indicators characterizing the level of innovation activity of organizations and the degree of its support from the state. The working hypothesis of the study is as follows: active innovation activity of the organization is a prerequisite for increasing the level of its competence and the likelihood of success in the European market.

The substantiation of the relationship between the innovative activity of the organization and the level of its competence was carried out using the methods of scientific induction and deduction. Generalization of approaches to the analysis of innovation activity of the organization and identification of its impact on the efficiency of functioning in

the European market took place through the use of the dialectical method. Methods of content analysis, logical analysis, and generalization allowed us to form a set of key indicators for assessing the innovation activity of organizations and the degree of state support for its various types. The method of system analysis and synthesis has become useful for studying the structure of innovation, analyzing the distribution of budget allocations for financing its types, identifying existing trends, their likely causes and consequences for Ukraine's successful accession to the EU. Identification of the dynamics of indicators during the analytical period, comparison of the scientific intensity of Ukraine's GDP with the value of a similar indicator in the EU countries and the leading countries of the world was carried out by grouping and comparative analysis. The study and explanation of the relationship between the level of indicators and prospects of Ukrainian organizations in the European market were carried out by the method of descriptive statistics. Visual presentation of information and substantiation of the formulated conclusions became possible through the use of formalization methods and graphical method. Data processing, necessary calculations, construction of diagrams and graphs on their basis to present the results of the analysis were carried out using computer technologies, in particular, the capabilities of the Microsoft Excel software (manufacturer: Microsoft; country of origin: USA).

5. Results investigating the state of innovation activity of Ukrainian organizations and factors of its activation

5.1. Research into the innovative activity of organizations in various fields of activity

The research results allowed us to outline the problem that impedes the uniform innovative development of Ukraine. It consists in the existence of interregional differences due to historical natural and geographical factors, unequal potential of regions, their different economic structure, not always perfect mechanisms for regulating regional development. This has led to an uneven concentration of innovation-active organizations in terms of various types of economic activity. Thus, their share in wholesale trade is three times higher than in food production and information and communications. It exceeds by almost 7 times the same indicator in the production of machinery and equipment, activities in the fields of architecture and engineering; technical testing and research, research and development. In other industries, the gap is even larger – 26.6 % of innovative organizations in the field of wholesale trade against a total of 32.34 % in more than 50 sectors of the economy [13].

There is an obvious tendency to a decrease in the indicators. The decrease in the growth rate of the share of innovation-active organizations in their total number was slower than the value of absolute indicators. However, the explanation is the rapid reduction in the number of these organizations in Ukraine as a whole – by 72.09 %, that is, almost by four times (Fig. 1).

The indicator at the level of 8.5 % in 2019–2020 is below the threshold (25 %) and almost 10 times lower than its level in developed European countries (70–80 %) [1, 4–6]. The reasons are the weakening of the national economy due to the deterioration of external and internal factors, including the global coronavirus pandemic, aggravated by the military invasion of the Russian Federation on the territory of

Ukraine with the temporary occupation of a large number of regions. The problem of reducing the negative impact of these events through constructive intensification of the use of innovations with the modernization of production, increasing the prestige of mental work as a means of development and adaptation of organizations to the processes of European integration and globalization is urgent. We are talking about the development and implementation of innovative technologies, the development of innovative entrepreneurship to ensure the competitiveness of the economy [14, 15].

Against the background of these trends, the volumes of innovative products sold increased significantly – by USD 20387.6 million (52.11 %) in Ukraine in 2019–2020 compared to the previous period. That led to an increase in the rate per innovation active organization by almost 5 times. The leaders were land and pipeline transport, warehousing and auxiliary activities in the field of transport, production of machinery and equipment, food, information and telecommunications, where the growth rate was 347.34; 99.63; 70.10; 36.62; and 25.67 %, respectively. Negative is the reduction of production volumes in the fields of architecture and engineering, technical testing and research, research and development, where negative growth rates were recorded at 41.24 % in the first case and 19.25 % in the second (Fig. 2).

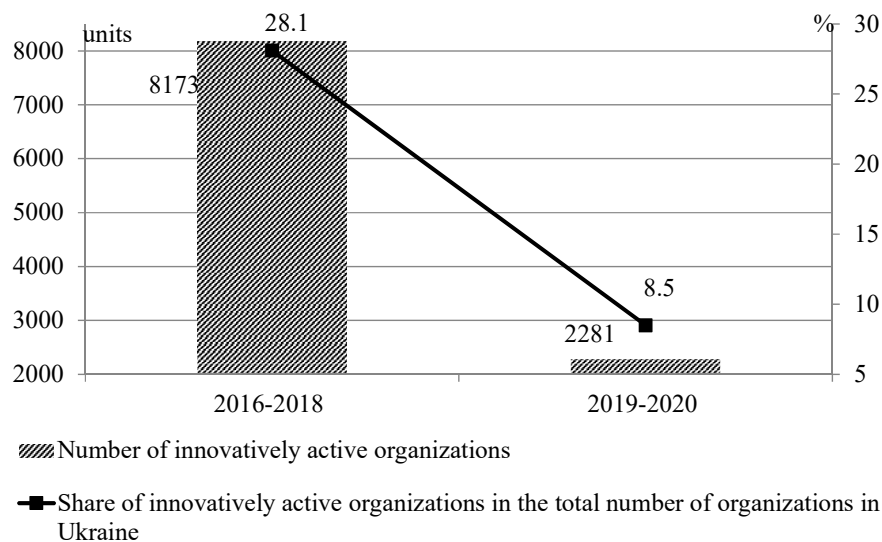


Fig. 1. Dynamics in the number of innovatively active organizations in Ukraine
Source: compiled by authors based on [13]

Negative is the reduction of production volumes in the fields of architecture and engineering, technical testing and research, research and development, where negative growth rates were recorded at 41.24 % in the first case and 19.25 % in the second (Fig. 2).

The reduction in the number of innovative organizations has led to a decrease in the number of employees engaged in research and development by almost 16 %. This is also the impetus for the growth of migration of innovators, which, according to the World Intellectual Property Organization, is several times higher than the average [16]. The growth of indicators per organization also has a negative color because it was due to a reduction in their number.

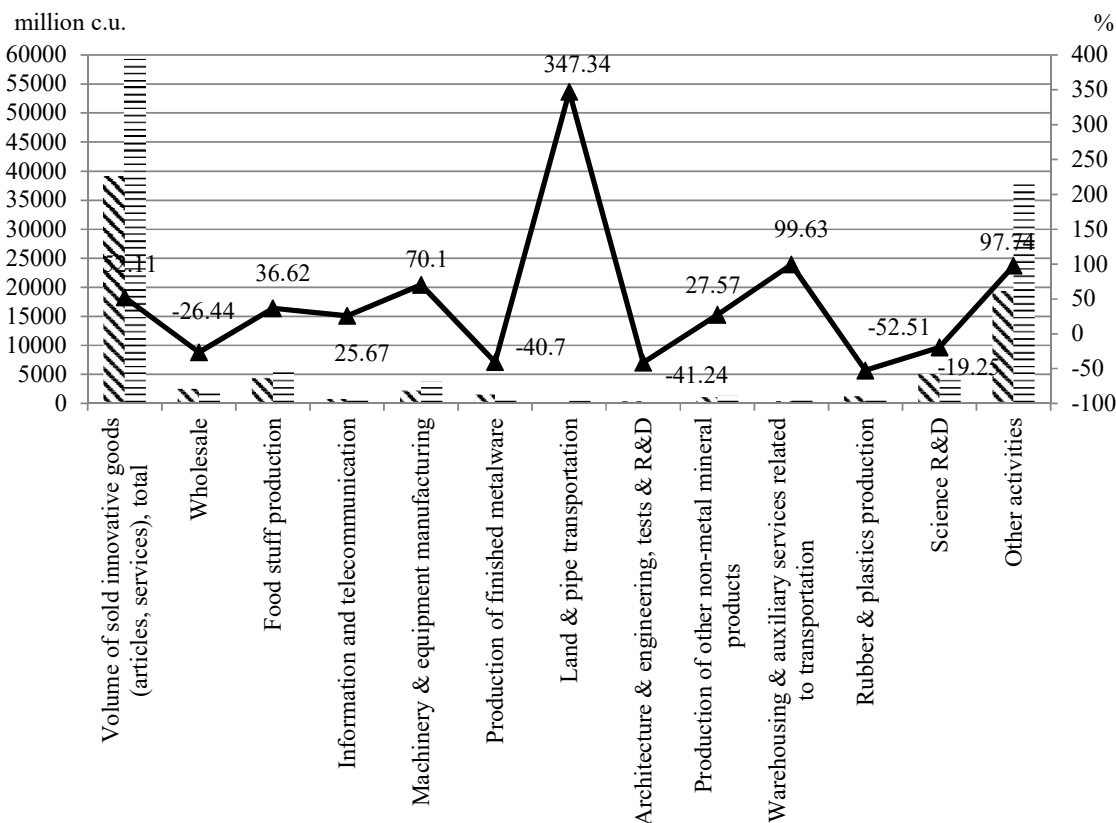


Fig. 2. Dynamics of volumes of sold innovative products by sectors of the economy of Ukraine
Source: compiled by authors based on [13]

5.2. Studying the dynamics of science intensity of Ukraine's GDP

The main indicator of the innovative orientation of the state is the share of total national expenditures on innovation and research and development in GDP – the science intensity of GDP. The reduction of national spending on innovation amounted to almost 7% and provoked its decrease in GDP from 0.84% to 0.57%. The volume of expenditures, growing by 23.35% during the analyzed period, reduced their share in GDP by more than 10% (Fig. 3).

Consequently, the level of indicators is much lower than in the EU countries and the leading countries of the world. The share of expenditures on innovation and research in the GDP of the EU countries was 2.16 and 2.32%, respectively, that is, it is 2 or more times higher than in Ukraine. It was above average (3%) in Japan – 3.17 and 3.2%, respectively, and in 2019–2020 in the United States – 3.08%. The indicator is lower in China; however, it also exceeds the Ukrainian level by almost 2 times [18–21]. The domestic science intensity of GDP remains below the average level of the EU countries, not to mention the leading countries with a science intensity of 3% or more, demonstrating negative growth rates of 24.43%. It is fair to conclude that this state is able to compete only with countries that are not suppliers of new technologies or products with a high degree of added value. One of the key goals of the EU is to increase the competitiveness of member states by stimulating investment in research. Therefore, Ukraine, striving for a full-fledged partnership, must implement this strategy for the prosperity of the economy, increasing the competitiveness of organizations, and the socio-economic well-being of society. Against the background of positive changes in the financing of innovations in the fields of wholesale trade, food production, information and telecommunications, there is a negative decrease in the level of similar indicators in organizations of other sectors of the economy (Fig. 4).

Positive are the tendencies to increase the volume

of expenditures on financing fundamental and applied scientific research, scientific and technological advancements, both in general and per one innovatively active organization (Fig. 5). But it should be borne in mind that this is due not so much to an increase in physical costs but to a decrease in the number of organizations.

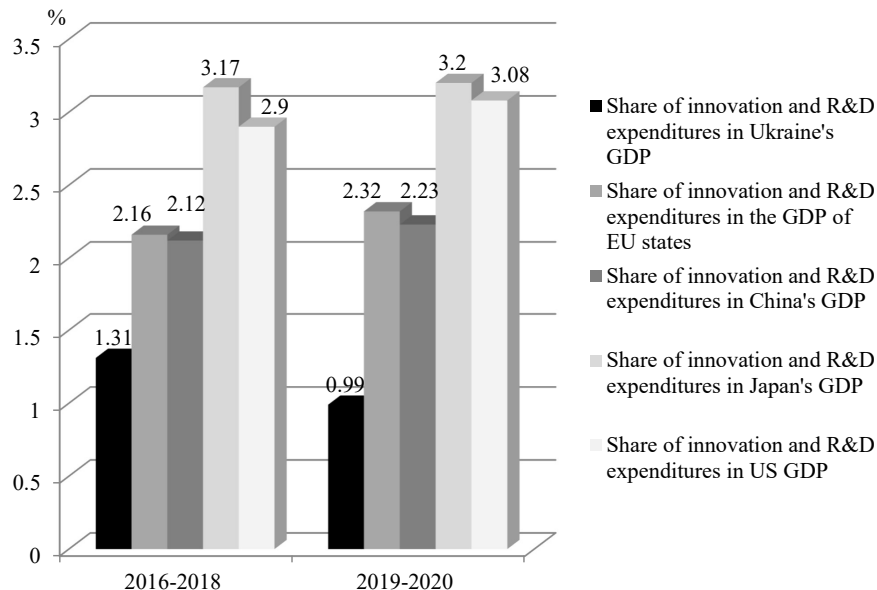


Fig. 3. Dynamics of expenditures on innovation and research in Ukraine, EU countries, and other developed countries, % to GDP
Source: compiled by authors based on [17–21]

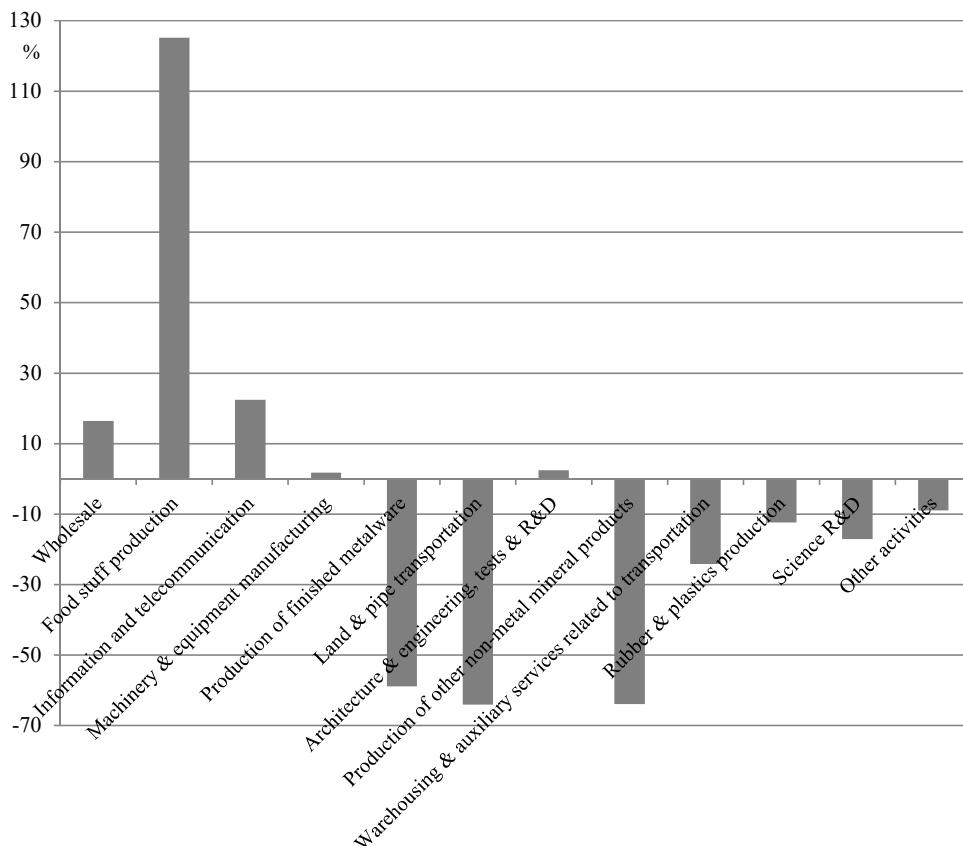


Fig. 4. The growth rate of expenditures on innovations in the sectors of the Ukrainian economy during 2016–2020
Source: compiled by authors based on [17–22]

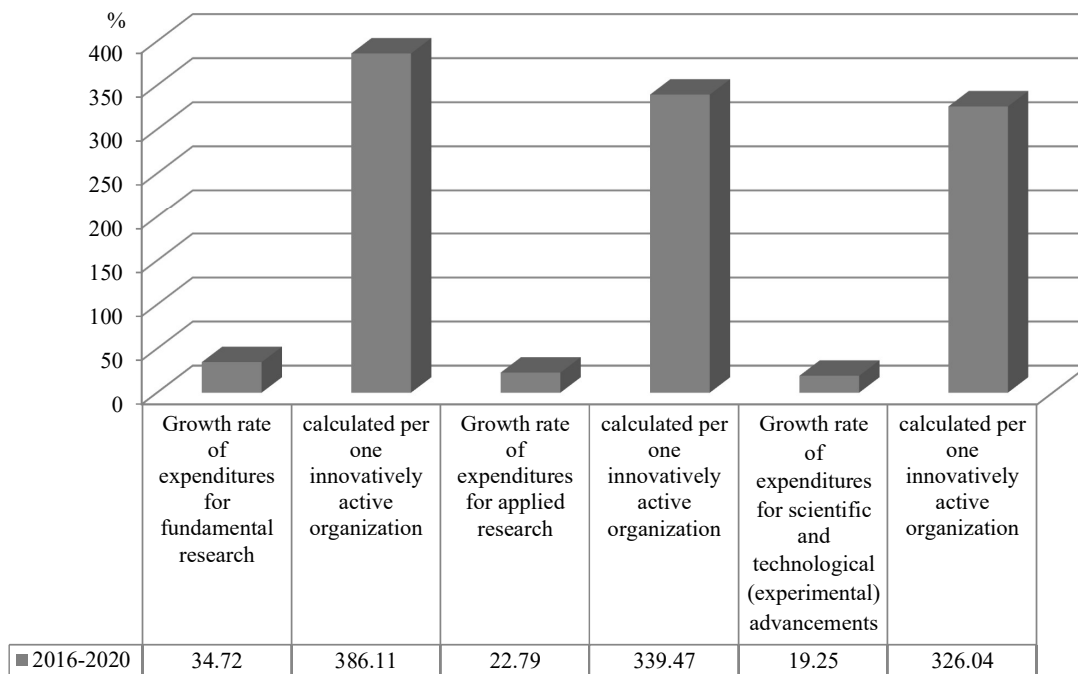


Fig. 5. Dynamics of expenditures on research and development in Ukraine (growth rate), %
 Source: compiled by authors based on [13, 17]

The increase in budgetary and extrabudgetary allocations for science and technology stimulates the development of organizations focused on fundamental research and the national economy as a whole. Experts note the reduction of spending on basic research in the total cost of research [23]. This causes a deep crisis in Ukrainian fundamental science, affecting the prospects for the development of the scientific and technological sector, and the status of Ukraine as a scientifically developed state [8].

5. 3. Analysis of indicators of implementation of priority directions of innovation activity of Ukraine and the state of their financing

The consequence of the complication of the state of Ukrainian science may be a decline in the innovation sector with a corresponding decrease in the indicators of introduction of innovations in production and a slowdown in the pace of innovation activity of organizations. In order to identify prospects and real threats to the successful activity of organizations on the path of European integration of Ukraine, it is expedient to analyze the indicators of implementation of priority areas of innovation activity and the state of their financing. This will judge the country’s interest in the innovative activity of organizations, the introduction of innovations for the development of the domestic economy.

The amount of budget financing of strategic priorities of innovation activity and activities in the field of technology transfer in 2021 is 107.2 % of the value of the indicator in 2020, but only 30 % of the value of 2017. The crisis in financing occurred in 2018, when the reduction of the indicator several times led to its value at the level of 18.2 % of the previous period. But the gradual stabilization of the economy and the chosen course of integration into the world economic space stimulated the annual growth of the indicator [16–18].

The analysis of the distribution of budget funds showed that the most financed are the technological renewal and

development of the agro-industrial complex whose share in total funding exceeds 50 %. The share of other strategic priorities also increased, with the exception of financing the use of cleaner production technologies and environmental protection, where there was a decrease from almost 40 % in 2017 to 5.36 % in 2021. This negatively affects the compliance of Ukrainian products with European quality standards and the competitiveness of the country [16–18].

The analysis of budget expenditures for financing types of innovation activity shows that since 2017, funds have been directed to eight types of innovation, of which the largest share is occupied by the position “Other”. It includes research and development and the provision of scientific and technical services commissioned by enterprises and organizations. The dynamics of the indicator tend to grow, reaching 91.73 % in 2021, however, against this background, in 2020, its share in total expenditures decreased (by 0.17 %) due to the intensification of innovation activity in five other types (except for “Implementation of innovative projects, programs” and “Conducting R&D”) [16–18]. A smaller share of funds (about 5 %) is directed to “Marketing, advertising”, financing of the direction “Acquisition of new technologies” is negligible. The least amount of funding for the training of personnel is of concern against the background of rising costs for the purchase of machinery, equipment, and software (Fig. 6).

An effective economy is based on knowledge. Individual, corporate, and national competitiveness depend on the person, his/her knowledge, as an intellectual component of the organization’s competence. Innovative countries invest in talented people not only in their own country but also around the world [6].

The dynamics of financing of innovation activities in the context of strategic priority areas for medium-term priorities demonstrate an obvious downward trend in almost all of them. The purchase of machinery, equipment, and software remains in the best condition, almost no funds were allocat-

ed for the implementation of innovative projects, programs, creation and development of innovation infrastructure, marketing and advertising. R&D conducted by Ukrainian organizations, funded during 2017–2020, demonstrates a complete absence of expenditures in 2021. The situation with the allocation of funds for education and training of personnel is negatively unchanged, which is an important factor in ensuring a high level of competence of organizations in developed countries. Technical progress as an objective consequence of the introduction of scientific achievements and the application of world experience includes new methods and forms of labor organization, production management, and the organization as a whole. This requires new knowledge about a new combination of available resources, increasing and maximizing the use of internal potential to increase production, increase productivity, product quality, efficiency of production and management systems [12, 24–26]. Here we are talking about people as carriers of knowledge, the intellectual component of the scientific and technical potential of the country, a factor in improving the economic system, which allows better use of the benefits of international experience, increasing the socio-economic efficiency of production and the standard of living of the population. The reduction of funding, or its complete absence, in the development of employees, their training in accordance with EU requirements, is an extremely negative trend. This is, at least, incomprehensible in view of the rapid formation of the knowledge economy as a tool for innovative development in the context of Ukraine’s European integration.

the way. Free access to the world’s largest solvent market for goods and services, in addition to obvious advantages, forms a number of requirements for Ukrainian organizations. They are associated primarily with the need to modernize production, replace outdated inefficient management methods, ensure the quality of products and services in accordance with the standards of the European market. Accompanied by the appropriate acquisition of knowledge and experience from successful companies in highly developed countries, this will allow Ukrainian organizations to become competent in the European market, will increase their competitiveness and investment attractiveness. Given the above, it can be assumed that the active innovation activity of the organization is an important component of its competence. Most domestic organizations have talented and intelligent employees capable of creating innovative products that meet the requirements of European standards. This increases the level of organizational competence and chances for the organization to gain competitive advantages, strengthen its image, and the image of the country as a whole.

However, the effectiveness of innovation activities of organizations significantly depends on the availability of the necessary conditions for this. This refers to the constant development of the national economy in the direction of creating powerful incentives for effective foreign economic activity of Ukrainian organizations, encouraging fundamental and applied scientific research, introducing the latest technical solutions and technologies. This becomes possible with strong financial support from organizations from the state. It

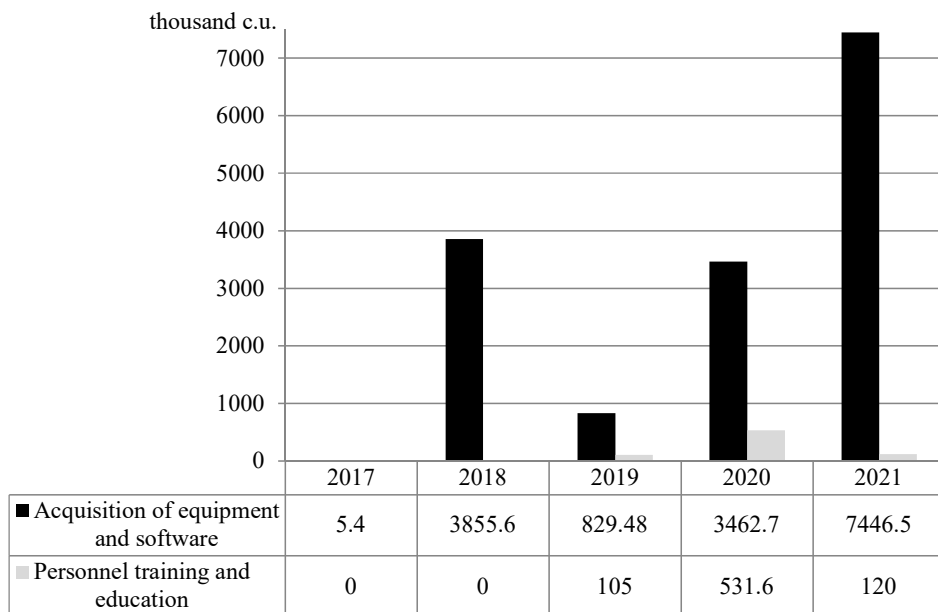


Fig. 6. Dynamics of budget financing of expenditures on purchase of machinery, equipment, software, and personnel education and training, USD thousand
 Source: compiled by authors based on [17]

is about increasing investment in innovation and research. It is important to rationally redistribute budgetary and extra-budgetary allocations between the priority areas of innovation, the introduction of progressive fiscal and innovation and investment policies to overcome the problem of limited resources of the Ukrainian economy.

The results of the analysis of indicators allowed us to find out the objective reasons for the situation observed in Ukraine. This contributed to the awareness of the prospects and real threats to the successful activity of Ukrainian organizations in the European market, allowed us to begin work on determining the directions for their prevention and elimination.

Thus, the analysis of the number of innovatively active organizations in Ukraine revealed their rapid decline and fall in the share of the total number of organizations below the permissible threshold, which is almost 10 times lower than its level in developed European countries (Fig. 1). This necessitated the search for causes and consequences of this situation. Analysis of the dynamics of volumes of sold innovative products (Fig. 2) revealed the opposite situation in different sectors of the economy – against the background of growth of the indicator by

6. Discussion of results of investigating the state of innovation activity of Ukrainian organizations and factors of its activation

Full participation in the political and economic life of Europe, which is Ukraine’s strategic benchmark, is associated with numerous economic, political, and legal consequences, necessitating the solution of problems arising along

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almost 5 times in some industries, its negative growth rates in others are recorded. Due to the impact of this indicator on the country's GDP, it became logical to analyze the science intensity of Ukraine's GDP. Its comparison with the value of a similar indicator in the EU countries and the leading countries of the world (Fig. 3) indicates a significant lagging behind of this country from the EU member states. Possible reasons for negative trends revealed uneven distribution of expenditures on innovations by sectors of economy and their significant reduction in some of them (Fig. 4). Also, among them is a reduction in the volume of expenditures on research and development in Ukraine (Fig. 5) with almost complete lack of budget funding for personnel education and training (Fig. 6). This led to the formulation of a pessimistic conclusion. A person is one of the most important factors of successful implementation of innovation activity and the main object of investment not only in highly developed countries but also in the world. Through his/her activities, s/he significantly increases the chances of achievement by organizations of a level of competence sufficient for effective functioning in the European market.

The dynamics of the level of described indicators are the subject of many scientific studies because the state of innovation in the context of globalization of the world economy and the integration of commodity, financial, investment, and other markets is a critical indicator. Acting as a factor in the intensification of global competition and the corresponding increase in the instability and unpredictability of the world economy, globalization objectively provides more opportunities for development to successful countries with an active innovative position. However, the overwhelming majority of specialists aims to address the issues of increasing the scientific and innovative potential of Ukraine, improving its innovation policy [6], improving the innovative provision of the economy, identifying the advantages and disadvantages of its accession to the EU [5]. Foreign colleagues devoted their work mainly to the study of innovative behavior of workers [9], or the relationship of financial incentives and innovative activity of organizations [10, 11]. Thus, the problem was studied either at a more global level – the level of the country, or its solution was based on narrower areas of activity of organizations – personnel and financial management. That is, studies of innovation activity and the prerequisites for its effective implementation as a component of organizational competence have hardly been conducted, which is not entirely clear, considering the importance of the organization as the basis for the development of the economy of any country. This is a distinctive feature of our study. However, it is incomplete without the examination of other components of competence, which actualizes the development of its rational structure. It is necessary to study the conditions for the formation of an innovative model of the national economy, the creation of an attractive investment climate for attracting domestic and foreign investment as a prerequisite for a favorable environment for the functioning of domestic organizations. And, of course, it is impossible to ignore the consequences of the shock state in which the Ukrainian economy found itself due to the full-scale military invasion of the Russian Federation, to estimate the amount of damage and losses caused to Ukrainian business. There may be certain difficulties in conducting the study related to the completeness and quality of the collected data, the acquisition of which from the temporarily occupied territories and territories of direct hostilities due to the aggression of

the Russian Federation is significantly hampered. But this will become a priority area for further research, as well as the search for possible ways of rapid adaptation of organizations not only in the European but also in the post-military Ukrainian market.

7. Conclusions

1. Against the background of an increase in the number of organizations (by 2.14 %) in 2012–2020, there was a rapid decrease (by 72.09 %) in the number of innovatively active organizations. They are the engine of development of the national economy, a means of its adaptation to the processes of European integration and globalization. An insignificant reduction (by 1 %) in the number of Ukrainian organizations, including innovative ones, leads to a significant reduction (by 20–40 %) in the volume of innovative products sold, in particular, in the field of architecture and engineering, technical testing and research. However, industries such as industry, transport, warehousing, postal and courier activities, information and telecommunications should be highlighted separately. Reducing the number of organizations within them by 0.4; 0.8 % and almost twice did not affect the volume of sold innovative products, which increased by 50, 99.63 and 25.67 %. Consequently, there are non-obvious factors of activation of innovation activity of organizations, identification of which is useful for developing recommendations for the establishment of competent organizations and ensuring their effective functioning. The tendency to reduce the number of innovation-active organizations by 72.09 % led to a reduction in the number of employees involved in research and development (R&D) by almost 16 %. This happened against the background of an increase in the volume of expenditures on the implementation of research projects by 23.35 %. In view of this, it is important to disclose the reasons for the liquidation of organizations in a certain sector of the economy with an increase in their funding. For example, wholesale trade, where the reduction in the number of organizations is almost 17 %, is one of the main recipients of budget funds to finance innovations.

2. Stating the reduction of total national expenditures on innovation and research and development and their share in Ukraine's GDP by more than 10 % during the analyzed period, we can say that the financing of innovation activity in Ukraine needs to be changed. The existing shortcomings, in particular, the lack of state allocations to support the innovative development of organizations in promising sectors of the economy, scientific support of a small share of Ukrainian production, which is a prerequisite for the work of Ukrainian scientists for foreign partners, an anti-incentive for creative dedication and responsibility of scientists, a factor in reducing the share of intellectual labor in the country's GDP. It is expedient to develop innovative organizations with a corresponding increase in budget allocations for science and education. Recognition of them as a national priority should be accompanied by stimulation of research work in the private sector of the economy. This requires the introduction of progressive fiscal, innovation and investment, depreciation policies to solve the problem of limited resources of the Ukrainian economy.

Generalization and graphical interpretation of the results of the analysis of the science intensity of GDP allowed us to determine the directions of state support for innovative sectors of the economy. This is useful for developing recom-

recommendations for the effective functioning of organizations that will be competent in the chosen field. That is, their ability to produce a competitive product will increase, using existing and forming new competitive advantages. This will strengthen positions in selected market segments and successfully overcome barriers in new ones, including markets in Europe and the world.

It is important to attract foreign capital. In addition to additional financial resources, it will provide advanced, technically efficient methods of production and sale of goods. This will contribute to improving the quality, availability, culture of service, therefore, the overall level of organizational competence and, accordingly, the competitiveness of Ukrainian producers, strengthening Ukraine's position in the European and world markets.

3. Understanding of the priority of certain innovative sectors of the economy was facilitated by the analysis of indicators of implementation of priority directions of innovation activity of Ukraine, in particular, the degree of financing of medium-term priority areas within each of them. It also made it possible to determine the prospects for the functioning of organizations within their boundaries and the directions of development, adaptation or reorientation of those representing other activities. As for the first direction, the absolute leader in terms of growth in financing is the development of new technologies for improving energy networks and equipment, taking into account the intentions to harmonize them with the energy system of the EU countries – by almost 165 %. This demonstrates Ukraine's steady intention to integrate into the European space. Among others, the best positions, judging by the growth rate of funding during 2012–2021, are occupied by:

- within the second strategic priority – development of navigation and control systems for aviation, ship, and missile technology (an increase from zero in 2012 to USD 5202.90 thousand in 2021);

- within the third strategic priority – industrial development of new technologies for obtaining, processing, and joining structural, functional, and tool materials – almost threefold growth;

- within the fourth strategic priority – development and implementation of technologies of adaptive soil protection agriculture;

- within the fifth strategic priority – development of new methods of diagnosis, treatment, and prevention of the most common human diseases;

- within the sixth strategic priority, there is a general tendency to reduce the amount of state support. An increase in funds for the use of rational subsoil and land use technol-

ogies, the introduction of advanced technologies of water supply, water use, and sewerage – 3 and 8 times, respectively, was noted. But, nevertheless, the value of their level in absolute terms is quite low;

- within the final strategic priority, the situation is similar to the previous one. There is a reduction or absence of budget expenditures to finance long-term priorities. Among them: development of intelligent modeling systems for solving problems in economic sectors; defense capability of the state; management of complex objects in ecology, biology and medicine. The same can be said about education; robotics and complex technogenic systems, development of technologies for long-term storage of information and management of “big data”, development of quantum computing technologies. Positive dynamics in 2021 are observed in the areas of development and implementation of Internet of Things systems and the development and standardization of fifth-generation communication technologies – 5G-technologies. The same group includes the development and implementation of artificial intelligence systems, the amount of funding for which has increased 7 times since 2019.

The increase in the share of financing of a particular strategic direction or type of innovation activity in total volumes indicates an increase in demand for certain types of innovative products and the state's interest in their production. This is useful for understanding the directions of state provision of the necessary conditions for the creation and development of Ukrainian organizations within a certain strategic priority. This will open up the possibility of developing recommendations for raising the level of competence and effective activities in the European market.

Conflicts of interest

The authors declare that they have no conflicts of interest in relation to the current study, including financial, personal, authorship, or any other, that could affect the study and the results reported in this paper.

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Data availability

All data are available in the main text of the manuscript.

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