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**FORMATION TERMS OF INNOVATIVE DEVELOPMENT  
OF THE ENTERPRISE IN UKRAINE: TRENDS AND ISSUES**

*Current trends in provision of innovative development company in Ukraine have been offered for consideration. The characteristic of changes in the system of state management of innovation as an important component of providing innovation development of economy of Ukraine is presented in the article. Suggestions for determining directions of state support of innovative development of enterprises as a means of economic modernization has been provided. The necessity of introduction of innovative modernization model of development of economy is proved and perspective «points of growth» are proposed.*

*Key words: innovation development of enterprise, state management system of innovation activities, growth point, government funding, innovative development conditions, financial support for innovation activities, modernization's model of economy development.*

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**ФОРМУВАННЯ УМОВ ІННОВАЦІЙНОГО РОЗВИТКУ  
ПІДПРИЄМСТВА В УКРАЇНІ: ТЕНДЕНЦІЇ ТА ПРОБЛЕМИ**

*Пропонуються для розгляду сформовані тенденції забезпечення інноваційного розвитку підприємства в Україні. Подана характеристика змін у системі державного управління інноваційною діяльністю як важливої складової забезпечення інноваційного розвитку економіки України. Запропоновані перспективні напрями державної підтримки інноваційного розвитку підприємств як засобу модернізації економіки. Обґрунтована необхідність впровадження інноваційної модернізаційної моделі розвитку економіки та запропоновані перспективні «точки росту».*

*Ключові слова: інноваційний розвиток підприємства, система державного управління інноваційною діяльністю, точки росту, державне фінансування, умови інноваційного розвитку, фінансова підтримка інноваційної діяльності, модернізаційна модель розвитку економіки.*

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### **ФОРМИРОВАНИЕ УСЛОВИЙ ИННОВАЦИОННОГО РАЗВИТИЯ ПРЕДПРИЯТИЯ В УКРАИНЕ: ТЕНДЕНЦИИ И ПРОБЛЕМЫ**

*Предлагаются для рассмотрения сложившиеся тенденции формирования инновационного развития предприятия в Украине. Представлена характеристика изменений в системе государственного управления инновационной деятельностью как важной составляющей обеспечения инновационного развития экономики Украины. Предложены перспективные направления государственной поддержки инновационного развития предприятий как средство модернизации экономики. Обоснована необходимость внедрения инновационной модернизационной модели развития экономики и предложены перспективные «точки роста».*

*Ключевые слова: инновационное развитие предприятия, система государственного управления инновационной деятельностью, точки роста, государственное финансирование, условия инновационного развития, финансовая поддержка инновационной деятельности, модернизационная модель развития экономики.*

**Problem formulation.** The economic and financial crisis in Ukraine, the drop in production, reduction in GDP and other negative tendencies («shadow» economy, corruption and poverty) that are amplified through the difficult military and political situation in the east of Ukraine, sharply put the leadership and economic elite of the country's problem out of the crisis and identify ways of economic growth.

Economic growth is usually understood as increased the volume of activity, accelerate growth, increase productivity and jobs growth. [8]. However, for certain enterprise the real economy these last two trends are usually contradict one another, and therefore, increase production efficiency in manufacturing plants in practice is not associated with an increase in the number of employed workers. Or the increase in the number of employees as extensive development trend of increase in production is justified by existing old technologies. As for the economy in whole, the growth in employment and labour productivity are considered as attributes of economic well-being of the country.

Experience of leading countries of the world, that inherent high rates of economic growth and steady socio-economic development, shows that the sources of development are introductions of high-tech, active innovative activity in all economic sectors, especially in base industries that is able to create a considerable multiplier effect. Diffusion and transfer of innovation in other spheres of the economy, associated primarily, provide forming of hi-tech clusters able to modernize an economy on the whole.

Modernization of the Ukrainian economy and intensification of innovation activity, creating conditions for the innovative development of enterprises is considered as a prerequisite for economic and military security and for ensuring the nation's security and its competitiveness as well as its existence at all.

The last years the substantial changes there have been in the system of innovation development of enterprises that require analysis and interpretation, determining influence on the formation of innovative activity of economic agents.

**Analysis of recent research and publications.** Changes in the structure and schemes of state regulation of innovation activity do not remain without attention of scientists and experts analysts. Results of scientific research on the effectiveness of changes in the system of state regulation of innovative activity, volumes and directions of state support of innovation are published in the literature. For example, I. Egorov analyzed the main provisions of national report «Innovation Ukraine – 2020» [4], O. Amosha, A. Zemlyankin and I. Pidorycheva analyzed the innovation management system in Ukraine in terms of structural assistance reforms [1], O. Salikhova generalized the experience of government support as a necessary component of innovative development of industry [12].

The mechanisms of innovation management in Ukraine are investigated by A. Zemlyankin and I. Pidorycheva, and they set the Public-Private Partnership as the priority direction of innovative development [7].

The authors-developers of «The strategy of innovative development of Ukraine for 2010-2020 in the conditions of globalization challenges» made proposals to improve the state system of implementation of priority directions of science, technology and innovative activities in Ukraine [15].

In several scientific publications O. Zhovtanetska and G. Nikiforuk explore the existing system of state management of innovative activity in Ukraine from the viewpoint of implementation of management functions and the distribution of these functions for certain authorities [5].

The necessity and expediency of introduction of innovations as a component of the modernization model of development for advancing and the innovative modernization of economy are substantiated in the monograph by T. Kovalchuk and N. Kovalchuk [9].

We cannot agree with the opinion expressed in the work of O. Kovalenko [8] that «the crisis – both in the economy and its sectors – good time to search for innovation in the enterprise or organization» because a crisis and the presence of problems (i.e., of contradictions, inconsistencies current state to the development goals) make to search new ways to improve the efficiency of company. Improving the efficiency of the company is carried out not only through the implementation of technical and technological improvements, but also due to organizational changes in the production and management processes, such as through new business models.

I. Tyuha and V. Kuznetsova explore intra-organizational aspects of motivation and stimulation of innovation in Ukrainian enterprises [16].

In addition to these authors, innovation issues, problems intensify innovation and support innovative development of the economy covered in the works of famous Ukrainian scientists and economists as V. Geyets, V. Gerasymchuk, V. Ilchuk, V. Seminozhenko, L. Fedulova, A. Suhorukov, G. Androschuk, I. Zhilyaev, B. Chizhevsky, Ye. Sych, M. Shevchenko and many others.

**Unsolved parts of the general problem.** The problems of high material capacity and energy intensity of the Ukrainian industrial enterprises as well as of critical state of fixed assets in various industries have been highlighted in the scientific sources many times. A low degree of competitiveness of production of industrial enterprises affects the decreasing of volume of product output and exports of these producers, reduces their profits. The backwardness of Ukraine's export industries economy causes deterioration of the overall socio-economic situation in the country, because of the worsening payments balance in the direction of decline in exports, the foreign currency deficit in the country, reducing the number of jobs and fiscal revenue in taxes and so on.

The issues innovation of different types (from technical to organizational, the «pioneer» to «jet») on Ukrainian industrial enterprises should be considered in several

aspects. One of these aspects is the question of ownership and assignment of responsibility for the level of innovative development and use of various mechanisms to encourage innovation, the essence of which according to the law is the development and implementation of research results and developments in the commercial activities of companies, which leads to output of new of competitive goods and services [6]. The share of public and state enterprises together accounted for 0.37% of the total number of subjects of economy of Ukraine at the 1st of Nov., 2015. [3]. Consequently, industry is largely private, and therefore the degree of innovation and innovative activity – it is their owners' (shareholders', stakeholders') business. The state may only create conditions for the innovative development of businesses.

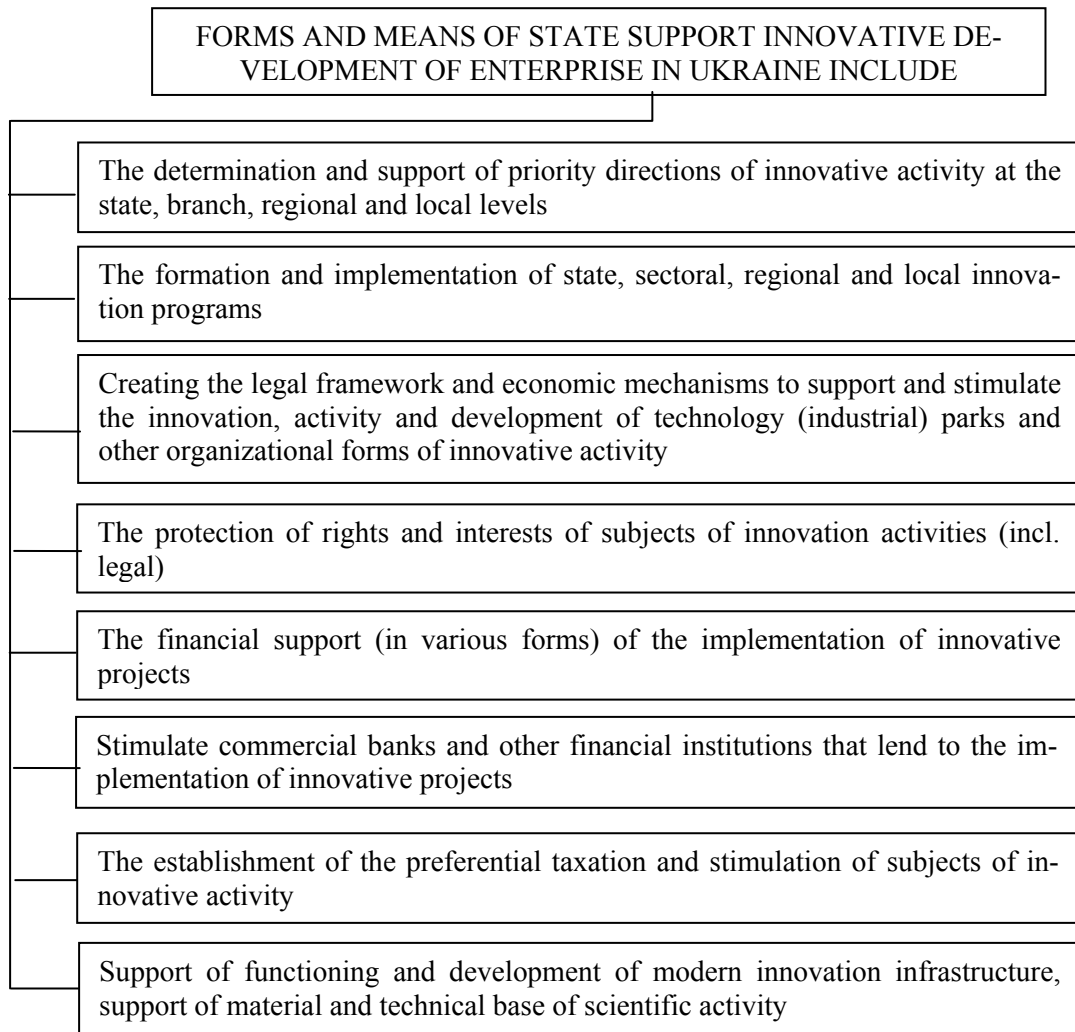
**The purpose of this article** is to identify trends and directions of improvement management of system of innovation activities and to determine the conditions of formation of innovative development of enterprises in Ukraine under conditions military aggression and economic and finance crisis.

**Presentation of the main research material.** The state may activate the innovation in industry and in the public sector and stimulate innovative development of private enterprises through certain mechanisms (levers), which together form a system of government innovation activities (fig. 1).

These functions in relation to the innovation management perform a number of state bodies such as the Cabinet of Ministers of Ukraine, relevant ministries (primarily the Ministry of education and science), the Verkhovna Rada of Ukraine, representative and self-governing organization, the number of specially authorized bodies of Executive power, specially authorized financial institutions and so forth. These government bodies together form a unified system of state management of innovative activities. Zhovtanetska O., Nykyforuk G. prove convincingly, that the regulation is one of the functions of the system of state innovation management. [5]. Therefore, the state support of innovative development of enterprises is one of the functions of this system.

The state management system of innovation activities in Ukraine has been transformed significantly during the last years. A number of state institutions have been liquidated or reorganized. So, the State Department of intellectual property has been removed from the structure of the Ministry of education and science of Ukraine and the State intellectual property service of Ukraine (SIPS) was established on its basis [11]. There was the SIPS resubordinating to the Minister of Economic Development and Trade (up to October 2013, this structure was subordinated to the Cabinet of Ministers of Ukraine through the Minister of education and science of Ukraine) [11]. These changes are caused by the need to improve the business and investment climate in Ukraine, protection of intellectual property rights. There are impossible an effective trade and investment cooperation with European countries and the USA without such changes.

The SIPS management includes: State Enterprise «Ukrainian Industrial Property Institute» (April 10, 2015 renamed the State Enterprise «Ukrainian Institute of Intellectual Property» with the approval of the statute, also restored historic brief name of the company – «Ukrpatent»), which carries out the examination of applications for industrial property objects (the branch «Ukrainian Center of Innovations and Patent Information Services» acts in that structure); Public organization «Ukrainian Agency of Copyright and Related Rights», which manages the rights of authors (property rights management of copyright proprietors); State Enterprise «Intelzakhyst» that performs the function the issuance of control marks for marking copies of specific objects of copyright and related rights [11].



*Figure 1. Forms of state support of innovative development of enterprises*

Legislation in the field of copyright and related rights (especially of protection the rights of authors or participants of the creation of audiovisual works and phonograms, rights to a fair remuneration) is improved in Ukraine, as well as solving issues faced by European investors in Ukraine.

Such changes in whole can be interpreted as favorable to achieve the proper and effective level of protection and enforcement of intellectual property rights, improving the efficiency of the state system of intellectual property protection on the basis priority direction of European integration of Ukraine.

The government reorganized the State Agency on science, innovations and informatization. In this case the authority for the management of science and innovation returned to the Ministry of education and science that will allow developing the infrastructure of scientific research, in particular through the integration of higher education and science [17]. Department for scientific-technical development with responsibilities for the formation and implementation of state policy in the field of science, scientific and technical activities is a structural subdivision of the Ministry of education and science [10].

The Ministry of education and science of Ukraine is the only executive authority, which has a task to create an enabling environment in the areas of scientific, technical, innovation activities and technology transfer for innovative enterprises in Ukraine for today [10].

The Ministry carries a competitive selection of scientific and technical projects in order to develop proposals for state orders for scientific and technical products, receives information from key spending units of the main results of scientific, scientific-technical, innovative activities in technology transfer [10].

The State Agency for investment and national projects management («the Agency») – specially authorized central executive body, whose function was of holding tenders (contests) for the implementation of innovative national projects at the expense of the State Budget and headed by V. Kaskiv, – was liquidated in 2015.

The activities of the «Agency» cannot be considered as effective, the institution was even involved in scandals and corruption affairs. A new institution has not been created on the base of «Agency». Unfortunately, the number of existing in Ukraine institutes of stimulation and financial support of innovation activity on the whole has been reduced significantly.

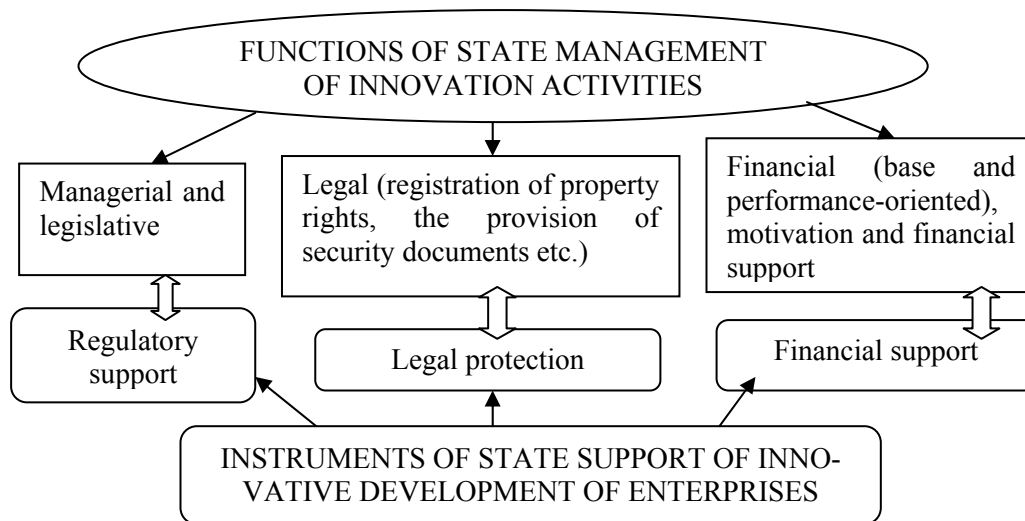
The State innovation non-Bank financial institution «Fund of support of small innovative business» was created in December 2011. The task of the Fund consists in realization of competitive selection and grant of sponsorship to the innovative projects on stages before contest. «In fact, this is the first in Ukraine specialized institution of the state of venture financing of innovative startups, so it is very important that it finally began its activity», – said V. Semynozhenko, the academician of The National Academy of Sciences of Ukraine [13].

Thus, the system of state management of innovation activities has become more specialized and less costly by reducing the duplication of functions; that creates conditions for the formation of innovative enterprise development, foreign investment, enhance innovation in Ukraine.

The system of state management of innovations is able to generate incomes in some cases – in case of registration of objects of intellectual property, which can get the legal protection marks in compliance with the Ukrainian legislation. If we do not take into account the execution of these patent and registration functions, the system of state management of innovation activities ultimately aimed at the allocation of scarce budgetary resources. This distribution can occur directly (through base funding, the conclusion of government orders or contracts on implementation of State target programs, financing of investment projects in the form of public-private partnership etc.) or indirectly (through formation of the Priority directions of innovative development of the country, due to the mechanism of application of tax benefits (exemption) or accelerated depreciation and the like).

So, numerous levers of state influence on the level on business innovative activity may be classified into such three groups of functions as shown in Fig. 2.

Since the financial regulation has the most incentive impact among management functions, so every law (normative act), in order to be effective should include a clear implementation mechanism of formation and distribution of funds and clearly defined functions of state authorities.



*Figure 2. The grouping of the levers of state support of innovative development of enterprises (created by author)*

In «The Strategy of innovation development of Ukraine for 2010-2020 in globalization challenges» (see add. 7) [15] the analysis of the existing system of state management of scientific, technological and innovation development is performed and conclusion is made that «...an unacceptable uncoordinated actions between Ukrainian executive authorities in the implementation of the scientific-technological and innovative priorities of the state» that «...casts doubt on the possibility of implementing a consistent state policy in this sphere». It says that «...During the last 10 years<sup>2</sup> on the implementation of state scientific and technical programs of priority directions of science and technology were allocated less than one percent of the funds, allocated by the state budget to finance research and development (except in 2000, when they accounted for 3 %), although the law provides that these programs must spend at least 30 % of these assignments» [15].

Strategy authors concluded that the status of state innovation programs, mechanisms of their formation and implementation remain legally uncertain in Ukraine.

Suggested in the project «The Strategy» organizational changes included the creation of a new Ministry of science and innovation, which would have a coordinating role in the scheme of management of innovative development. Newly created ministry should form the national scientific-technological and innovative programs, to control and to direct budget costs in science and technology and innovation sphere, to organize expertise of level and effectiveness of research teams.

At the existing in Ukraine the level of corruption the creation of such Ministry in the state management system is unlikely to give positive results, which was expected by the authors of this proposal. We can foresee that the creation of such authority would lead to the creation of a mechanism for the interests of oligarchic clans who would trying to obtain government funding by making the state programs of development of those programs and projects that meet the interests of specific beneficiary.

In this difficult period for the country's government funding and support innovation in the energy, defense, agriculture and IT sectors are needed to ensure national security and

<sup>2</sup> *The Parliamentary Hearings "The Strategy of innovative development of Ukraine for 2010-2020 in Conditions of Global Challenges" took place on June 17, 2009.*

defense, protecting its sovereignty and territorial integrity. Such innovative products are for example the unmanned flying vehicles (drones) for reconnaissance and control areas of our country that are designed with all the latest scientific and technological achievements. Their manufacture at the domestic enterprises is relatively cheap, because it does not need acquisition of foreign licenses and technology transfer, funded by means of state funds and of volunteer organizations.

Financial support for innovation activities is growing due primarily by the needs of defense and medicine [14]. On innovation in 2014 from the State Budget was allocated UAH 344.1 million, which is almost 14 times more than in 2013, and 1.5 times more than in 2012 [3].

In the structure of financing of innovation activities has increased the share of government funding: in 2013 it accounted for 0.3 % of the total financing of innovative activity, then in 2014 to 4.5 %. At one enterprise in 2014 had an average of UAH 0.28 million of budget expenditures, (UAH 0.02 million in 2013). The most amount of the budget funding on innovations in 2014 was accounted for the production of basic pharmaceutical products and pharmaceutical preparations (average UAH 35.46 million, in 2013 – UAH 14.99 million); the spending on production of weapons and ammunition was increased [14, p. 99].

Spends on scientific and scientific-technical activity in absolute terms in Ukraine are growing every year, but their share in GDP remains less than 1 %. In 2014, the technology-intensity of GDP is 0.66 % – the lowest value for the period 2005-2014, which indicates the loss of science's ability to fulfill the economic function. The share of the state budget as a percentage of GDP in 2014 amounted to 0.26 % (in 2013 – 0.33 percent) [14, p. 144].

In the structure of budget financing remains a disproportionately large share of financing for fundamental research – 26 %, although according to experts, the optimum would be proportion is 15 %. On the contrary, the proportion of financing for applied research and scientific and technical developments it is advisable to increase. The funding structure complies with the structure of the final product: so, out of the total number established in 2014 at the expense of budgetary funds of scientific-technical products «technology» was only 11,3 %, «new products» – 3,2 %, and «methods and theory» – 24,3 % [14, p. 33]. Such structure of scientific and technical products is unlikely to bring Ukraine's economy out of crisis, to provide breakthrough «innovative modernization» of the country [9] and does not meet the modern needs of the national security and defense.

Modernization is considered as one of the ways of development. Modernization is understood as in the narrow sense – as a way of improving fixed assets; and in a broad sense – as a social and civilizational process of directed transformation of society. Economic modernization involves the intensification of economic reproduction process, which is achieved due to increased specialization and differentiation of labour, power equipment production, transformation of science into industrial power and development of production management.

Model «overtaking» modernization aims only to «reduce the backlog» Ukrainian companies, technologies and products from foreign competitors by transferring to Ukraine foreign technologies inevitably generates systemic risks [9, p. 143]. This upgrade can not bring Ukraine in the leading country of technical and technological development, despite the existing scientific and technical potential (which largely have been lost), existing scientific and technical development.

To bring the country out of crisis, to provide technical and technological breakthrough can only «outstripping» or innovative modernization.



Innovative modernization means systematic upgrading and qualitative renewal of the productive forces, as well as bringing the existing state of economy, the present organization and management of national economy, legislative and legal support of industrial relations in accordance with the most weight civilizational achievements. Innovative modernization means a qualitative leap in civilization development of the state and society [9, p. 139].

The modernization's model of development for advancing can be started if the State will cease to maintain (in fact, losing budgetary funds) uncompetitive ineffective sectors of industrial production [9, p. 138]. Instead, there are necessary; the creation of own innovative products that will ensure the competitiveness of the national economy; the creation of high-tech manufacturing («points of growth»), which will provide the diffusion of innovations and the forming of high-tech clusters of economy; transparency in the acceptance of investment decisions and budget allocation for certain innovative projects, and their reasonableness and appropriateness; the absence of corruption and public control over the implementation of competitions (tenders) and execution of state investment projects.

The share of innovative production in Ukraine declined steadily until 2013. However, statistics of introduction of innovations at industrial enterprises reflects positive changes in 2014: so, on 10.5% increased the number of introduced new technological processes compared with 2013; the amount of the implemented new products increased by 16.7 %, including new machinery – at 62.4 % [3].

The highest values of the innovation activity of enterprises is registered in manufacture of air and spacecraft, related equipment (56,7%), the manufacture of weapons and ammunition (50,0%), manufacture of basic pharmaceutical products and pharmaceutical preparations (by 38.2%). [14].

The results of monitoring of implementation in 2014 of the medium-term priority directions of innovation activity of national level indicate that of the 53 approved medium-term priority directions were financed 40 or 75.5 %. The largest amount of funding (67.2 per cent) focused on three priorities: «Development of aggregates and systems of a new generation for high-speed rail transport» (UAH 3.8 million); «Development of transport logistics» (UAH 4.0 million); and «The creating of new generations of equipment and technologies in aviation, shipbuilding, rocket and space industry» (UAH 4.1 million). [14, p. 126]. The implementation of such programs will allow creating «growth points», which the companies of railway transport and the defense industry will become, that will contribute to the dissemination of innovation and increasing the innovative activity in related areas of the economy.

**Conclusions and recommendations.** The direct negative effects of rising spending on the defense industry is the reduction of social programs (because of the total lack of funds), but there are also positive, though more distant economic results of development of scientific and technological progress through investments in the military industrial complex. So, world and domestic experience show that many pioneering inventions which had commercial success, have been developed in the defense sector [2]. Experts established that the optimal level of defense spending is from 4 to 5% amount of GDP in peacetime [18], but, probably, should be higher during military aggression. Effective investments in defense should be a pledge of the innovative development of industry and high technology, to lead the country into technological leaders, to increase the country's competitiveness, have a positive impact on exports of high-technology products and the labour market and will ensure sustainable economic development of the country.

Ukraine has not completely lost its scientific and technological potential. The unique products and technologies have developed in Ukraine, but their implementation requires effective state support and involvement of the various sources of funding.

The government should create conditions for activation of national scientific and technological potential and for effective innovative development, introduction of new technological structures, overcoming the gap between science and industry, ensuring of the real transfer of technologies.

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