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PECULIARITIES OF INNOVATIVE RISK MANAGEMENT AT INDUSTRIAL ENTERPRISES OF UKRAINE

Formulation of the problem. The formation of a market management system and the development of perfect competitive relations between its subjects in Ukraine require the introduction of both managerial and managed organizational and economic mechanism capable of ensuring stable and efficient high-profit operation of key structural units – industrial enterprises – and mobile intensify reproduction processes both locally and at the global level. Therefore, in practice it is important to find effective ways to improve the efficiency of enterprises.

The unpredictability and instability of post-conflict conditions are forcing companies to find new ways of economic growth. The implementation of innovative projects in modern economic conditions is becoming a key factor in maintaining the position and competitiveness of industrial enterprises in the market. The implementation of innovative activities is always accompanied by a number of risks. One of the main factors hindering the innovative activity of enterprises is the high level of riskiness of innovative measures.

Analysis of recent research and publications. Scientific aspects of innovation processes are considered in scientific works of domestic and foreign scientists. Among them are researchers: N. Krasnokutskaya, V. Ilenkova, V. Popova, T. Skripko, R. Fatkhutdinova, S. Kravchenko, Yu. Vertakova, I. Afonin, J. Schumpeter, E. Dandon and others. Issues of risks during the implementation of innovative projects, the prerequisites for their occurrence are considered in the

works of many scientists. It should be noted M. Denisenko, O. Volkov, who outlined in their textbook on innovation the main trends, features, strategies and mechanisms of innovation [1]; M. Grachev, S. Lyapin, who highlighted in their textbook the knowledge that forms the necessary skills, basic competencies: from risk identification and analysis to the development of solutions in the organization of risk management to overcome them, which are necessary for managers and specialists in innovation management [2].

The purpose of the article there is an analysis of the features of innovation risks of industrial enterprises in post-conflict conditions.

Presentation of the main research material. The formation of economic relations at the present stage of development in Ukraine requires companies to find new approaches to their activities, new approaches to business management and new approaches to meet consumer needs. The solution of the above problems should be innovation, which should become a priority of the enterprise in the face of fierce competition and marketing orientation of enterprises.

Innovation is a process aimed at developing and implementing the results of completed research and development or other scientific and technical achievements in a new or improved product sold on the market, in a new or improved technological process used in practice, as well as related research and development [3, p. 19].

The main factor that hinders the successful implementation of innovation activities by enterprises, on a par with the lack of financial resources, the weak effectiveness of state support mechanisms is the increased innovation risk. Risk is generally associated with the possibility or threat of deviation of the results of specific actions or decisions from those expected. Yes, the risk may be manifested in the fact that in a particular market or its part of the new product may not be sold in the amounts that were calculated on based on the results of insufficient marketing research. Or, when choosing a pricing strategy to enter new markets, it is not possible to say with certainty that the company expects success, because competitors can respond with adequate action. As a result – the possibility of losses or loss of income [4]. It should be noted that in foreign dictionaries to denote the category of "risk" consonant words are used: in English – "risk", in French – "risque", in German – "risiko" and so on. According to philologists, this category comes from the Latin term "resecum", which means "rock" or "danger", it was used by ancient sailors to denote the danger of colliding with a coastal rock. In the modern economic literature, risk is often defined as an element of uncertainty that may affect the business of an entity or the outcome of a particular economic transaction. When carrying out

innovation activities, the company faces various risks: macro risks (inflation risk; tax risk; risk of instability; risk of changes in legislation; political risk; foreign economic risk; environmental risk); micro-risks (market risk; marketing risk; purchasing risk; sales risk; competitive risk; assortment risk; price risk; price risk; communication risk; personnel risk; integrity risk; financial risk [5, p. 174]. The process of risk management in the enterprise in the framework of innovation (innovation risks) should include the following stages: monitoring and analysis of external and internal risk factors, assessment of innovation risks, planning of risk management, development of measures to reduce innovation risks. Monitoring and analysis of external and internal risk factors should provide management with information on the ranking of risk factors by risk probability and degree of risk.

This is necessary for management decisions regarding the ongoing monitoring of those factors that are a source of probable occurrence of high and medium risk. In order to solve this problem, when monitoring external and internal risk factors, such indicators as the probability of risk and the degree of risk should be analyzed. The map of risk factors depending on the probability of risk and the degree of risk is presented in Fig. 1.

		Characteristics of risk probability	minimal	small	insignificant	significant	high
Characteristics of the degree of risk	No risk	Factors that do not require much attention during monitoring					
	Low						
	Minor						
	Average	Factors that require great attention during monitoring					
	High						

Fig. 1. Map of risk factors depending on the probability of risk and the degree of innovation risk (compiled by the authors based on sources [2])

The problem of improving production efficiency is to ensure the maximum possible result for each unit of labor, material, financial and other resources spent. Therefore, the criterion for the efficiency of production on a macroeconomic scale is the growth of social labor productivity. In general, all measures to improve the efficiency of enterprises can be reduced to three areas: 1) cost and resource management; 2) development and improvement of production and other activities; 3) improving the management system of the enterprise and all its activities. Forming a system of performance indicators of economic entities, it is advisable to adhere to certain principles, namely: ensuring an organic relationship between the criterion and the system of specific performance indicators; reflecting the efficiency of use of all types of resources used; possibilities of application of efficiency indicators to

management of various links of production at the enterprise (activity in the organization); performance of the leading indicators of the stimulating function in the process of using the existing reserves to increase the efficiency of production (activity) [6, p. 453 – 454].

Having studied the directions and measures to increase the innovative activity of industrial enterprises, there is a need to specify the directions of action and use of the main internal and external factors, among which are: 1) innovation. Technological innovation innovations, especially modern forms of automation and information technology, have the most significant impact on the level and dynamics of production efficiency (services); 2) equipment. The equipment has a leading place in the program of increase of efficiency first of all production, and also other activity of subjects of managing; 3) material resources. Materials and

energy have a positive effect on the level of efficiency if the problems of resource conservation, reduction of material consumption and energy intensity of products (services) are solved, management of stocks of material resources and sources of supply is streamlined; 4) finished products (products). The products of labor offered by the company for sale must appear on the market in the right place, at the right time and at a well-thought-out price. In this regard, the entity should ensure that there are no organizational or economic barriers between production (provision of services) and individual stages of marketing research; 5) employees. The main source and determining factor in the growth of efficiency are employees – managers, managers, specialists, workers. Business qualities of employees, increase of productivity of their work are in many respects conditioned by the effective motivational mechanism at the enterprise, maintenance of a favorable social microclimate in labor collective; 6) organization and systems. Unity of labor collective, rational delegation of responsibility, proper management standards characterize the proper organization of the enterprise, which provides the necessary specialization and coordination of management processes, and hence a higher level of efficiency (productivity) of any complex production and economic system; 7) methods of work. With the predominance of labor-intensive processes, more advanced methods of work become promising enough to ensure increased efficiency of the enterprise.

The assessment of innovation risks of industrial enterprises should include an expert assessment of the level of risk and risk acceptability. In the system of innovation risk management of the enterprise considerable attention should be paid to the subsystem of planning work on risk management, because the effectiveness of the innovation risk management system as a whole depends on this process [7, p. 62]. Planning of work on innovation risk management should include: planning of research of external and internal risk factors; analysis of the parameters of the risk object; development of proposals for improving the object of risk; economic justification of work on risk management; stimulating the performance of works at a high level; formulation of principles of risk management organization; development of organizational structure of risk management; choice of measures and models for risk management; ensuring the adaptability of risk management processes; automation of work on innovation risk management; development of information architecture of risk management system [5, p. 176]. The development of measures to reduce innovation risks should include a choice from the total mass of methods to reduce innovation risks, those whose use is more appropriate, ie their use can lead to the desired result and for which the company has the necessary potential.

Methods that should be considered as alternatives are: preventive methods, risk avoidance method, risk allocation method (between project co-executors), risk diversification method, risk source localization method,

risk dissipation method, risk compensation method, risk compensation method, risk insurance method and hedging method. You should choose those methods of reducing the risks of innovation, which received a high and medium rating of acceptability. It should be noted that innovation is not only the use of high technology, but also innovation in the field of management decisions. To implement the innovative tasks facing the company requires a reorganization of the enterprise management system based on new management technologies – innovative approaches in enterprise management. The model of innovation organization management is characterized by the management of innovations on the scale of the expanded organization, ie including consumers, suppliers, strategic partners. An important innovative resource of the enterprise is the staff, the innovative potential of which is based on the ability of employees to produce and effectively implement both their own and third-party new ideas and projects.

If the innovation is successfully implemented, the company significantly changes its competitive position in front of other actors in a particular industry, increases profits and more. In the textbook "Commodity Innovation Policy" by S. Ilyashenko and Yu. Shipulina gives a table of positive and negative features of innovation risk for the enterprise-innovator (Table 1) [8, p. 146].

The high level of risk in innovation is explained by the fact that the implementation of innovations requires significant costs, while not all innovations bring the expected profit. It is necessary to take into account the peculiarities of the implementation of innovative developments, such as the long period of their implementation and the significant number of participants involved in this process, including from various sectors of the economy and other countries. There are several types of innovation risks, the most characteristic of modern business conditions [9]: the risk of erroneous choice of innovation projects [10].

The reasons for this type of risk may be insufficiently reasoned choice of priorities of economic and market strategy of the enterprise. The prospects of the company's market position and its financial stability may be erroneously assessed. In addition, the author of an innovative project often overestimates its importance to the consumer - in this case, the cause of the risk is an erroneous assessment of the consumer market; risks of failure to provide the innovation project with a sufficient level of funding. Includes the risk of underfunding for project development and the risk of incorrect choice of funding sources (inability to implement the project at its own expense, lack of available sources of borrowed funds, etc.); risks of non-performance of economic agreements, namely: the risk of the partner's refusal to enter into an agreement after negotiations (in the event of a sharp change in economic conditions), the risk of concluding agreements on unfavorable terms, the risk of concluding agreements with insolvent partners, the risk

Positive and negative features of innovation risk
(compiled by the authors based on source [8, p. 146])

Constraining factor (negative side)	Chance of success (incentive side)
<ul style="list-style-type: none"> – Direct financial losses due to non-acceptance of the novelty by the market; – lost opportunities due to the concentration of efforts on unpromising areas; – restructuring of the established system of interaction with economic counterparties; – difficulties in financing innovation, the outcome of which is uncertain; – restructuring of the traditional system of functioning of the enterprise and its management; – high costs for attracting highly qualified specialists from other institutions; – loss of image due to the failure of innovations 	<ul style="list-style-type: none"> – Outpacing competitors; – the opportunity to take advantage of the discoverer, in particular the pricing strategy of "removal of cream"; – expanding the adaptive capabilities of the enterprise-innovator to change the market situation; – maintaining the interest of consumers by providing them with better products; – growth of the image of the enterprise-innovator; – penetration into new, most economically attractive areas of activity; – realization of creative potential of employees and managers of the enterprise-innovator; – improving the organizational structure of management; – improving financial results

of non-fulfillment of contractual obligations by partners in time (mainly due to sharp fluctuations in economic conditions); marketing risks of current supply and marketing. This group is quite large, but in most cases is determined by the lack of professionalism of marketing services of the company or the lack of such [11].

A necessary condition for making effective decisions based on innovation risks is the ability to manage them, which is not to completely eliminate them, but to determine acceptable limits, which will minimize the negative consequences of a risky event. Innovation risk management is a process by which the company identifies innovation risks, estimates their

magnitude, monitors and controls, and identifies measures to reduce their impact [12].

The process of innovation risk management includes a set of measures aimed at increasing the effectiveness of innovation activities of the enterprise and minimizing (or almost complete elimination) of possible losses (losses) in the process of its implementation. The process of innovation risk management requires the implementation of certain stages. Scientists have developed different approaches to the division of this process into stages, they do not differ much in essence, but have certain features. In Fig. 2 shows the authors' generalized approach to the process of innovation risk management.

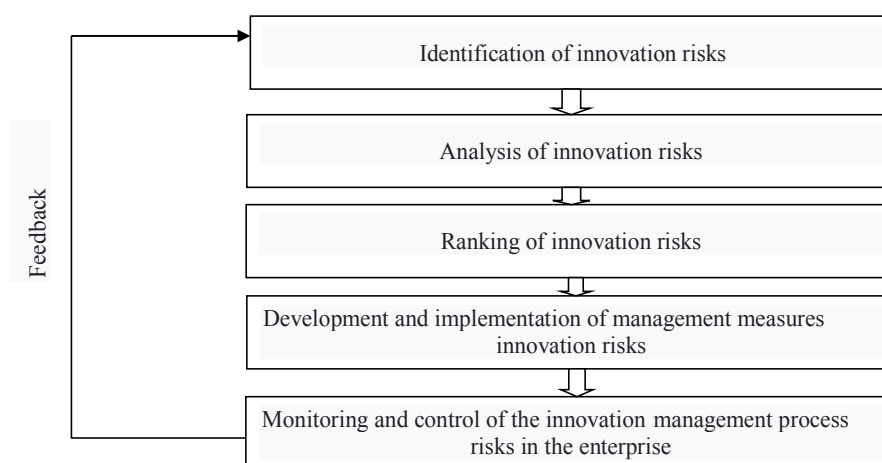


Fig. 2. The process of innovation risk management in the enterprise
(compiled by the authors based on source [13])

The first and perhaps the most important stage of the process of innovation risk management is their identification. Because the timely detection of innovation risks allows you to make informed management decisions to minimize their negative

impact on the effectiveness of innovation. The next step is to analyze the already identified innovation risks. This stage is the most responsible and methodologically complex, the effectiveness of the whole process of innovation risk management depends on the quality of

its implementation. At this stage, a qualitative and quantitative analysis of innovation risks is envisaged. Qualitative analysis of innovation risks involves identifying sources and causes, stages and works that most often cause innovation risk, ie identifying potential areas of innovation risk, as well as identifying practical benefits and possible negative consequences that may arise in the process of innovation. The main task of qualitative analysis of innovation risk is to identify factors of innovation risks, as well as to identify its potential areas [14].

The results of qualitative analysis of innovation risks serve as an important source of information for the implementation of quantitative analysis of innovation risk, which involves the quantification of individual innovation risks and project risk (decision) as a whole. Quantitative analysis is performed provided that sufficient information is available. Quantitative analysis is based on probability theory, mathematical statistics, theory of operations research [13]. The task of quantitative analysis of innovation risks is to numerically measure the impact of changes in project factors that are tested on the risk and behavior of project performance criteria. The main goal is to obtain the necessary information for making management decisions on the feasibility of innovative activities and

develop measures to protect the company from possible losses.

The development of measures to manage innovative risks requires an assessment of the acceptability of the risk level and the choice of risk management methods. It should be noted that in theory and practice the most common methods of responding to innovation risks are [13]: avoidance of innovation risks, most often by eliminating the cause of such risks (acquisition of property rights for ready-made innovative developments, involvement of a qualified contractor in the implementation of an innovative project, etc.); transfer of innovation risks, which consists in shifting responsibility for risk to another party; acceptance of innovative risks, which can be as passive (when those risks are consciously accepted, which have a low level of negative impact on the implementation of the innovation project) and active (when developing an action plan in case of risks that threaten the innovation project); optimization (reduction) of the degree of innovation risks (through the creation of appropriate reserves, risk insurance, etc.).

Here are six basic rules to follow in order to improve the efficiency of innovation risk management (Fig. 3).

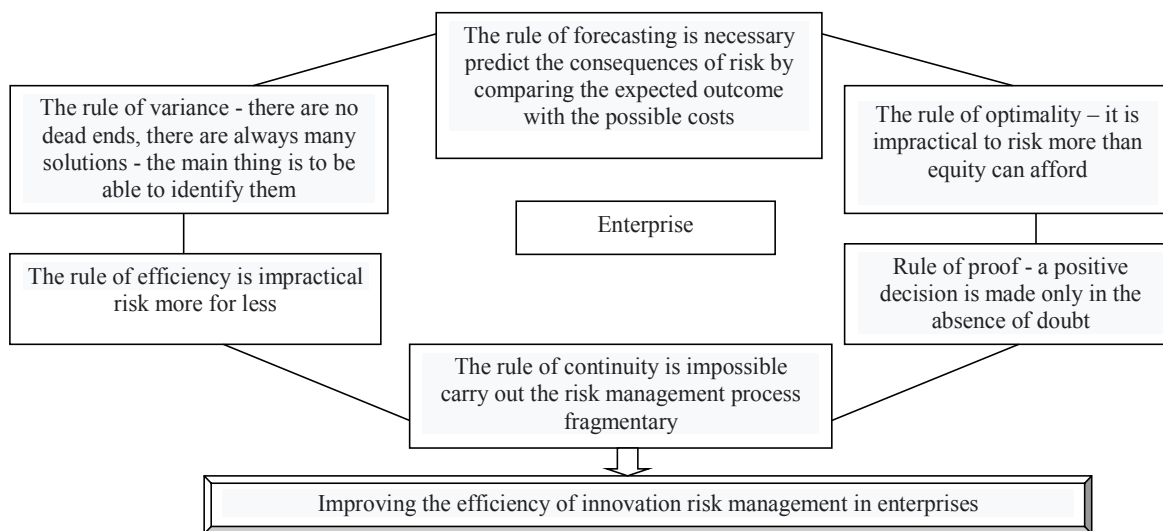


Fig. 3. Rules that must be followed in order to increase the effectiveness of innovation risk management in domestic enterprises
(compiled by the authors based on source [12])

O. Petukhov and G. Silakov distinguishes the following types of risks of innovation: risks caused by R&D and trial launch, or technological (negative R&D results, failure of tests, non-compliance of the technical level of production with the requirements of innovation); risks associated with production (equipment failure, disruptions in logistics); marketing risks (incorrect assessment of consumer preferences, poor product positioning, problems with "naming", trademark registration); risks of financing an innovation project (underestimation of project costs, inflation

processes, crisis processes in the economy, increase in costs); staffing risks (insufficient staff qualifications, staff turnover, resistance to staff changes); risks of the organization and management system (significant transaction costs, unskilled management, problems within the team, non-fulfillment of instructions and agreements, failures of suppliers, etc.); legal risks (infringement of intellectual property rights, problems of licensing and certification); information risks (information leakage, information system failures, etc.); environmental risks (threat to environmental safety in

connection with the implementation of an innovative project) [16].

V. Zhezhukha in his work identifies types of innovation risks depending on the consequences they

may have for the enterprise-innovator in the process of direct implementation of the innovation project [17]. Consider them in the form of a table (Table 2).

Table 2

Innovation risks and their impact on innovation projects

(compiled by the authors based on source [17])

The power of influence on innovative projects	Risks
Significant impact (micro-environment risks)	<ul style="list-style-type: none"> – Organizational risks (inefficient strategy of innovative activity of the enterprise, poor organization of units engaged in innovative developments, inefficiently constructed channels of information dissemination in the process of innovative activity, possible conflicts in the process of innovative developments, unsuccessful leadership styles and forms of government, etc.); – marketing risks (ineffective selection of appropriate marketing strategies to promote and implement innovations); – product risks (inefficient selection of appropriate technologies, resource suppliers, contractors, poorly organized inventory management system, etc.); – financial risks (lack of funds needed for the implementation of innovative projects, deterioration of the financial condition of the enterprise, the difficulty of obtaining external loans to finance innovative projects, etc.); – risks of personnel management (inability of full-time employees of the enterprise to independently implement an innovative project, staff turnover, inefficient system of motivation of employees involved in the process of innovation, etc.)
Average impact (market risks)	<ul style="list-style-type: none"> – Difficulty in forecasting the situation in a particular area of activity; – increasing the level of competition; – Existence of various barriers to entering the market with innovative products, etc.
Least impact (macro risks)	<ul style="list-style-type: none"> – Difficulty in forecasting the situation at the national and global levels; – change in exchange rates, interest rates; – change in the principles of taxation; – change of customs rules; – political circumstances; – change of tastes and preferences of consumers; – reduction of their purchasing power, etc.

A systematic analysis of risks that have a medium level of impact on innovation shows that post-conflict conditions do not significantly affect the significance of these risks. The same situation is observed with regard to the difficulty of forecasting the situation in a particular area of activity. It is necessary to dwell on the analysis of the risk of increasing the level of competition. It is seen that post-conflict conditions affect the likelihood of these risks, their overcoming and avoidance. This is directly related to the loss of enterprises, and sometimes completely production, scientific capacity due to military conflict, loss of access to certain resources necessary for the conduct and improvement of economic activity, the severance of economic ties. All these factors have significantly complicated the competitive position of enterprises in the Ukrainian market and in the world. Regarding the existence of different barriers to entering the market with innovative products, the conditions for these risks and their overcoming are also different [20].

As a result of the military conflict in eastern Ukraine, economic relations with Russia as an aggressor were effectively suspended for some time, so companies that focused on trade with eastern partners and / or had production cycles related to Russian companies needed to find new ones. partners, new markets. The loss of production capacity, raw materials market and sales market significantly affected both the overall activities of the company as a whole and the ability to implement innovative projects. The least impact on innovation is exerted by risks that have the same conditions for all Ukrainian enterprises, in particular the difficulty of forecasting the situation at the national and global levels, changing tax risks, reducing the level of purchasing power.

Conclusions. Thus, innovation risk management is a complex process that requires clear management decisions to identify and reduce risks. The problem of improving the efficiency of production and innovation of the enterprise as a whole is to ensure the maximum

possible result for each unit of labor, material and financial resources spent. The main factors in improving the efficiency of the enterprise are to increase its innovation and technological level, improve management, organization of production and labor,

change the volume and structure of production, improve the quality of natural resources and more. Only the skillful use of the whole system of these factors can ensure a sufficient rate of growth of production efficiency and reduce innovation risks.

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Фоміченко І. П., Баштовий В. П., Баркова С. О., Пахомова О. В. Особливості управління інноваційними ризиками на промислових підприємствах України

Стаття присвячена дослідженню управління інноваційними ризиками на підприємстві, що обумовлює необхідність вивчення і узагальнення інноваційного досвіду України та інших країн. Обґрунтовано та висвітлено питання, що пов'язані з поліпшенням процесу управління інноваційними ризиками на підприємстві. Досліджено процес управління інноваційними ризиками на вітчизняних підприємствах. Виявлено існуючі проблеми, що виникають під час здійснення цього процесу, та визначено основні шляхи їх розв'язання. Виділено важливі правила, яких необхідно дотримуватися з метою підвищення ефективності управління інноваційними ризиками на вітчизняних підприємствах.

Ключові слова: інноваційна діяльність, інноваційний ризик, підприємство, процес управління інноваційними ризиками на підприємстві, постконфліктні умови.

Fomichenko I., Bashtovyi V., Barkova S., Pakhomova O. Peculiarities of Innovative Risk Management at Industrial Enterprises of Ukraine

The article is devoted to the study of enterprise risk management in innovation, which necessitates the study and generalization of innovation experience in Ukraine and other countries. Substantiated and highlighted issues related to improving the process of innovation risk management in the enterprise. The process of innovation risk management at domestic enterprises is studied. Identified existing problems that arise during this process, and identify the main ways to solve them. Important rules that need to be followed in order to increase the effectiveness of innovation risk management in domestic enterprises are highlighted.

Keywords: innovation activity, innovation risk, enterprise, process of innovation risk management at the enterprise, post-conflict conditions.

Фомиченко И. П., Баштовой В. П., Баркова С. А., Пахомова А. В. Особенности управления инновационными рисками на промышленных предприятиях Украины

Статья посвящена исследованию управления инновационными рисками на предприятии, которое обуславливает необходимость изучения и обобщения инновационного опыта Украины и других стран. Обоснованы и освещены вопросы, которые связаны с улучшением процесса управления инновационными рисками на предприятии. Исследован процесс управления инновационными рисками на отечественных предприятиях. Выявлены существующие проблемы, которые возникают во время осуществления этого процесса, и определены основные пути их решения. Выделены важные правила, которых необходимо придерживаться с целью повышения эффективности управления инновационными рисками на отечественных предприятиях.

Ключевые слова: инновационная деятельность, инновационный риск, предприятие, процесс управления инновационными рисками на предприятии, постконфликтные условия.

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