

DOI: <https://doi.org/10.33216/1998-7927-2023-278-2-50-55>

УДК 658.152

ENSURING THE COMPETITIVENESS OF REGIONAL ENTERPRISES ON AN INNOVATIVE BASIS

Klius Y.I., Syvochka V.V.

ЗАБЕЗПЕЧЕННЯ КОНКУРЕНТОСПРОМОЖНОСТІ ПІДПРИЄМСТВ РЕГІОНУ НА ІННОВАЦІЙНІЙ ОСНОВІ

Клюс Ю.І., Сивочка В.В.

National and regional innovation systems are being formed in Ukraine. In the era of global transformations, innovations become the main factor in increasing the efficiency of industrial enterprises of the region in order to ensure its competitiveness. The solution to this problem requires a comprehensive analysis and rethinking of existing approaches, the creation of theoretical foundations for ensuring the effective development of industrial enterprises in the region. The activity of corporate structures in creating new innovations and effective communications for their transfer becomes a factor of economic development, increasing the competitiveness of the region. The cost of modern products is determined not only by the costs of material production, but also by research and development works, which, in turn, can be an innovative component of the development of industrial enterprises. The use of innovations makes it possible to increase not only the efficiency of individual components of the corporate structure, but also, if proper attention is paid to integration processes, of the entire corporate management system. This determines the increased interest of society, in particular scientists and practitioners, in the ways of effective formation of the corporate innovation management system of an industrial enterprise.

The following tools can be used to stimulate the modernization of industry in order to ensure the competitiveness of the region on the basis of innovations: the formation of the sales market for competitive products and services using mechanisms that regulate the purchase of domestic science-intensive products for state needs; stimulation of investments in the modernization of industry based on innovations by improving the mechanisms of partial financing of large innovative projects by the state and private business; motivation of enterprises to adopt innovations on the

basis of incentives for domestic enterprises to purchase modern technologies created by Ukrainian developers; stimulation of industrial reform processes; creation of corporate structures that unite the spheres of production and scientific and technical activity. Among them are state centers of science and high technologies. Further development of the country's national innovation system should be aimed, first of all, at ensuring the system integration of all its elements and their effective interaction.

Keywords: *innovative activity, enterprise, region, competitiveness, development, strategy*

Introduction. In Ukraine, since independence, the President and the Government have repeatedly emphasized that only scientific and technical innovations can be the main factor in the sustainable growth of the state's economy. The development of an innovative model of structural restructuring of the economy is determined by the main principle of state policy, according to which the state promotes the introduction of modern achievements of science and technology (innovative developments) into production at industrial enterprises of the region in order to ensure its competitiveness. Transformations in the Ukrainian economy should be considered within the framework of a holistic socially oriented management mechanism. The traditional scientific approach to economic research, associated with the genetic aspect of the dialectical method of cognition and the analysis of cause-and-effect relationships between economic phenomena, allows studying the patterns of emergence and changes in socio-economic for-

mations, but it must be supplemented with a functional aspect, which is associated with the already established reproduction of the economy at this historical moment.

Analysis of basic research and publications. A significant contribution to the research of innovation management problems was made by foreign and domestic scientists Bazhal Y., Valdaitev S., Ilyenkova S., Zavlin P., Kaletski M., Kondratiev N., Koryennoi A., Lapko O., Neikova L., Santo B., Solow R., Twiss B., Chervanov D., Schumpeter Y. Isolation of previously unsolved parts of the general problem. However, to this day, the issue of the development of corporate innovation management at enterprises in the region remains an object of discussion.

The main **goal** of this work is to determine the role of the development of corporate innovation management at industrial enterprises of the region precisely in the aspect of ensuring its competitiveness.

Materials and results of the study. We will determine the composition and reveal the content of the main principles that should be guided at the stage of forming the criteria for the development of corporate innovation management at the enterprises of the region with the aim of further including them in the multi-purpose model of the tasks of ensuring its competitiveness.

Formalizability – accounting for the existence of an objective possibility to mathematically describe an indicator recommended for inclusion in a multi-objective problem model as an optimality criterion.

Independence – the absence of a real possibility to express one criterion through another by appropriate aggregation.

The principle of completeness reflects the need and possibility of improving all or most of the main elements of the investment planning system due to the inclusion of a certain set of criteria in the problem model. Implementation of this principle will ensure obtaining an integral (synergistic) economic effect.

Orderliness – determines the need for priority inclusion in the multi-objective model as optimality criteria of those indicators that are under the direct (direct) influence of the result of solving this investment-planning task. In the case of accepting as a criterion those indicators that have an indirect effect (that is, through a system of other indicators) on the final result of solving the task, it becomes impossible to determine in full and quite precisely the potential economic effect of its implementation.

Non-redundancy – means the impracticality of including in the problem model the criteria that duplicate each other, as well as those of them that exert an approximately equal influence on the final economic result through the same system of indirect indicators.

Consistency – observance of non-contradiction between indicators recommended as optimality criteria of a multi-objective problem model.

We recommend the following principles as additional principles:

The principle of scientificity. It determines the need to justify the composition of criteria of the model of the investment task on a calculated basis.

The principle of adaptability. It consists in the fact that in multi-criteria models of investment tasks, the main goals formulated in the mission of the enterprise should be adequately taken into account.

The principle of efficiency. It foresees the need to quickly make the necessary corrections to the limitations and criteria of the task model due to changes in the macro- and microenvironment.

The initial stage from which the process of justifying the choice of the most appropriate set of optimality criteria for a multi-objective model of an investment task begins is the construction of a graph scheme. It is designed, firstly, to specify the composition of indicators that claim the role of optimality criteria, secondly, to reflect the multi-level nature of the relationship between the relevant indicators and the final economic result, thirdly, it serves as the necessary information basis for the development of a calculation methodology for determining the specific impact of a specific indicator (criterion) on the achieved final economic result. As measures of the final result (criterion) of the implementation of the investment task solution, the following can be recommended: NPV, etc. In each case, the composition of optimality criteria included in the EMM of the planning and investment task requires a separate justification.

Multi-criteria (vector) optimization is understood as a procedure, the essence of which is the need to use special mathematical methods (rules, techniques, calculation schemes) that ensure obtaining effective values of variables (or, in other words, a plan) in conditions when there are several criteria in the problem model, and the main one of them is not established.

When setting the task as a multidimensional optimization, the following requirements are applied to the private criteria:

1) compliance with the goals that will be achieved as a result of solving the multi-criteria optimization problem;

2) sensitivity to a change in the choice of the adopted decision;

3) the presence of a clear technical and economic interpretation;

4) fairly easy computability using available raw data.

With the transition to the vector criterion, additional requirements arise for its creative set of private criteria:

1. The set of criteria must be fully characterized by the set of values of private criteria, and the introduction of additional private criteria does not affect the selection results.

2. A vector criterion must contain a minimum number of private criteria. At the same time, private criteria characterize various properties of the compared options.

3. The vector criterion should allow simplification of the task by moving to the consideration of individual private criteria independently of others. In this case, it is understood that in setting the task, private criteria are independent in preference.

With a multi-criteria setting, the task of finding the optimal solution becomes significantly more complicated compared to a single-criteria approach. The complexity of the problem of using the vector optimization methodology to solve investment problems is to narrow down the set of non-dominated resulting estimates to obtain one best solution by using additional information.

Multicriteria (vector) methods can be classified into four main classes.

The methods of the first class include:

1) «northeast corner rule»;

2) method of pairwise comparison of vector estimates.

Methods of the second class include the following methods:

1) chains;

2) reference sets;

3) ordinal coefficients of importance.

Methods of the third class include the following methods:

1) the main criterion;

2) symmetrical and lexicographical;

3) generalized criterion;

4) the total deviation of the vector criterion from the «ideal point» (or, in other words, the target programming method);

5) decision-making in the presence of linguistic criteria;

6) scalarization;

7) successive concession;

8) decision matrices;

9) Thurstone;

10) theories of multidimensional utility;

11) analysis of hierarchies;

12) Monte Carlo - (method of statistical tests).

The implementation of any method of forming an optimal portfolio of real investment projects is related to the preparation and collection of the necessary expert information, which should be subjected to analysis for compliance with its necessary requirements. For this, methods of analysis of information obtained by expert means can be used.

The innovative strategy of the enterprise is a functional strategy and should reflect the innovative policy of the enterprise, which allows to increase and/or maintain the competitive status of the enterprise's products. The formation of corporate management of innovations at the enterprise must take into account their strategic orientation. So, we can say that the enterprise's innovation strategy should reflect the content and main directions of the enterprise's innovative development process. The key factors determining the goals and means of achieving the goals of the innovation strategy within the framework of its influence on the formation of corporate innovation management are [3]:

the balance between the products produced and the technological capabilities of the enterprise, which determines the limit of variability of the enterprise in the conditions of changes in the external environment, as well as the possibility of satisfying the consumer with the required level of quality;

the balance between fundamental and applied scientific developments, which determines the innovative department or real key competencies that can be implemented in the foreseeable future;

positioning in the market taking into account obtaining competitive advantages, which allow to produce competitive products for those market segments that are of interest to the top management;

time of development and market entry, which ensures high and stable profit.

It is not difficult to notice that, firstly, all factors are aimed at ensuring that innovative activity provides high-quality corporate management and certain competitive advantages to the enterprise on one or another market of goods and services, and, secondly, factors can influence not only as separate «aspects of influence», but also in certain combinations, which complicates the process of forming an

innovative strategy in corporate innovation management [5].

The share of funds allocated for the innovative activity of the enterprise in the total amount of financing of the enterprise's activity is determined by its management individually and is determined by a number of factors, the main of which are:

1. Industry affiliation of the enterprise.
2. Basic strategy of the enterprise.
3. Amount of financial resources of the enterprise.

In the process of developing a budget for innovative activities at the enterprise, economic and technological criteria, such as the volume of sales, achieving a leading position in the market, and income per investment unit, can be used to determine and estimate the costs of individual innovative projects and the effectiveness of innovative activities as a whole.

The sequence of formation of the innovative strategy of the enterprise in the formation of corporate innovation management is shown in fig.

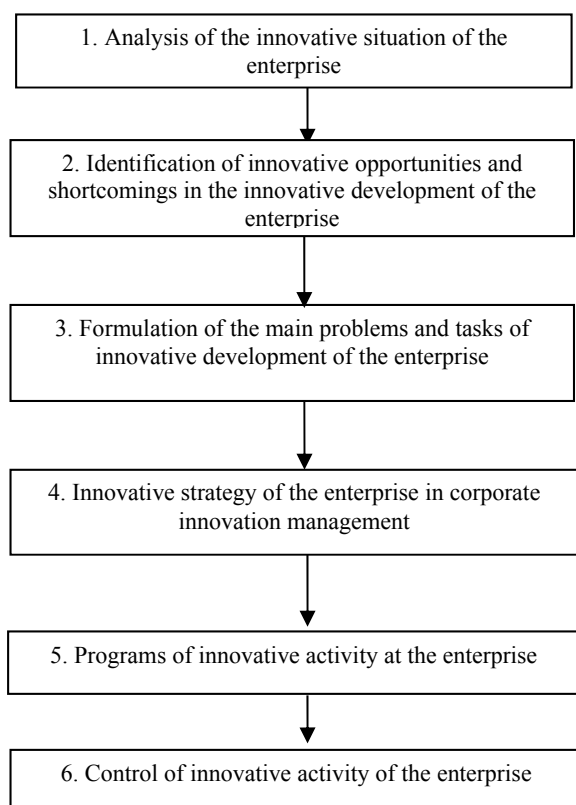


Fig. The proposed scheme for the formation of the enterprise's innovation strategy when forming the criteria for the development of corporate innovation management

The analysis of the innovation situation at the enterprise should be the starting point of the process of forming the enterprise's innovation strategy

in the formation of corporate innovation management in order to ensure the competitiveness of the region. It should begin with a brief description of the main goals and tasks facing the enterprise in this field of activity. At the same time, special attention should be paid to the analysis and assessment of the market position of the enterprise. At the same time, it is advisable to give a description of the innovative potential of each manufactured product or product group; applied at the modern stage of innovative strategy and tactics; identify and evaluate specific factors of the external and internal environment; analyze and evaluate the positions and actions of competitors [4].

It is expedient to identify innovative opportunities and shortcomings in the innovative development of the enterprise in order to assess its emerging innovative opportunities, as well as potential dangers. This stage should contribute to the implementation of the processes of predicting the impact on the economic sustainability of the enterprise in the process of implementing innovative planning. It should be noted that computer technologies provide great opportunities in this area. Moreover, it is necessary to use the specific, innovative advantages of these technologies.

On the basis of the results obtained at the two previous stages, at the third stage of substantiation and development of the enterprise's innovation strategy, in the formation of corporate innovation management, it is necessary to formulate the main problems and tasks of its innovative development for the planned perspective [3].

We consider it necessary to focus attention on the existence of strategic alternatives for the innovative development of the firm, which allow the implementation of the innovative strategy of the enterprise in the formation of corporate innovation management.

Technological innovations. Technological innovations are based on a variety of ways of transforming the subject of work or initial products into final products.

Technological innovations can cause innovations in organizational structure, accounting and personnel training. The potential of technological innovations in the conditions of competition is great, as they are the only means of gaining an advantage or forming one's own niche in the goods market.

Product (service) innovations. The following types of product innovations are possible:

- switching to a new type of product, but within the framework of satisfying the same need;

marketing formation of demand for a new type of product mastered by production;

mastering the production of goods, in order to diversify the company's portfolio or production program, which is new for it, but not necessarily new in general;

partial renewal of individual elements of the product, which leads to an increase in quality and an increase in demand.

Product innovations are the result of applied scientific research and development carried out in combination with marketing studies [5].

Marketing innovations. Marketing, as a product promotion system, is diverse in terms of procedures and operations. Each of them differs in its technology, but in general, the main thing in marketing is information about the product or service and the benefits of owning it.

Innovations in marketing arise due to various combinations of individual procedures and operations, the use of more advanced algorithms for checking and processing information. The goal of marketing innovations is to expand the potential demand for goods or services, and with time-controlled dynamics, which allows to achieve synchronization in terms of the time of reaching the type of demand and the maximum production capabilities for the release of the corresponding product.

At the same time, it is necessary to take into account that each competitor sets similar goals. Therefore, marketing innovation appears to a large extent thanks to a biased study of the behavior of rivals, scientific analysis and forecasting of their actions.

Financial innovations. Finances, which are considered as social-production relations regarding the creation and distribution of the aggregate gross product, have a complex internal structure, information flows that connect decision-making and responsibility centers on the one hand and cost centers on the other, algorithms of direct and reverse actions, technology of information collection, transmission, processing and storage, carried out within the framework of current laws and their corresponding by-laws.

Financial innovations include: improvement of the system of financing from the budget and lending; transition to new schemes of mutual settlements; creation and use of a mechanism for guaranteeing loan applications; introduction and cancellation of various benefits; steps to expand the rights and responsibilities of internal system structures in spending funds.

Innovations in organizational structure. The organizational structure of the firm in the formation of corporate innovation management is derived from: the owner's requirements; management technologies; production technologies; terms of sale of products (services); the state of regional, branch and intra-company infrastructure; current standard requirements [3].

Already from the given list of factors it is clear that the organizational structure is a fertile field for innovations, which in many cases are specific and immanent to the company. At the same time, there are some general canons of innovation (improvement) of the organizational structure. Among them: avoidance of subjectivism and conjunctural influences; improving the flow of information and reducing costs, primarily contingent and permanent; the use of cooperation and services of third-party organizations as a means (and in the event) of saving production costs; use of best practices, benchmarking potential. The main condition for implementing innovations in the organizational structure is that the costs associated with it should be covered by savings in production costs and additional revenue from expanding sales. As you can see, such a comparison requires conducting research and efficiency calculations on possible options for innovations in the organizational structure. This, in turn, is associated with costs that are justified by confidence in the validity of the decisions made.

Conclusions and proposals. The formation of criteria for the development of corporate innovation management is carried out taking into account the internal and external conditions of the enterprise's functioning. The basis of the development of an innovative strategy should be strategic management decisions that reflect consideration of all issues related to its implementation. The development of these solutions should be a promising direction of research.

References

1. Пономаренко В.С., Клебанова Т.С., Чернова Н.Л. Экономическая безопасность региона: анализ, оценка, прогнозирование. Харьков : ИНЖЭК, 2004. 144 с.
2. Цифрові технології в інноваційній трансформації економіки України : колективна монографія / І.Ю. Єгоров та ін. ; за ред. І.Ю. Єгорова, О.І. Никифорок, В.Е. Ліра ; НАН України, ДУ «Ін-т. екон. та прогноз. НАН України». Київ, 2020. 308 с. URL: <http://ief.org.ua/docs/mg/321.pdf>
3. Онофрійчук О.П. Економічна безпека підприємницької діяльності в умовах розвитку

цифрової економіки : автореф. дис. ... к.е.н. : 08.00.04. Маріуполь, 2021. 24 с.

4. Паншин Б. Цифровая экономика: понятия и направления развития. Наука и инновации. 2019. № 8(80). С. 48–55
5. Oliveria T., Vasco F. Assessing the pattern between economic and digital development of countries. InfSystFront. 2017. Vol. 9. № 4. P. 835–854. DOI: 10.ek07/ S10796-016-9634-1.
6. Ткачук Г.О. Економічна безпека підприємств в умовах трансформаційних перетворень : автореф. дис. ... д.е.н. : 08.00.04. Одеса, 2020. 48 с.

References

1. Ponomarenko V.S., Klebanova T.S., Chernova N.L. (2004) Ekonomicheskaya bezopasnost' regiona: analiz, ozenka, prognozirovanie [Economic security of the region: analysis, assessment, forecasting]. Khar'kov: INZHEK. (in Ukrainian)
2. Yehorov I.Yu. Nykyforuk O.I. (2020) Tsyfrovii Tekhnolohii V Innovatsiinii Transformatsii Ekonomiky Ukrainy Kolektyvna Monohrafiia [Digital technologies in the innovative transformation of the Ukrainian economy: a collective monograph]. NAN Ukrainy DU "Instytut Ekonomiky Ta Prohnozuvannia NAN Ukrainy" [National Academy of Sciences of Ukraine, State University "Institute of Economics and Forecasting of the National Academy of Sciences of Ukraine"]. Available at: <http://ief.org.ua/docs/mg/321.pdf> (accessed 20 May 2021).
3. Onofriichuk O.P. (2021) Ekonomichna bezpeka pidpriemnytskoi diialnosti v umovakh rozvytku tsyfrovoy ekonomiky [Economic security of entrepreneurial activity in the context of the development of the digital economy] (PhD Thesis), Mariupol
4. Panshin B. (2019) Cifrovaya ekonomika: ponyatiya i napravleniya razvitiya [Digital Economy: Concepts and Directions of Development]. Science and Innovation, vol. 1 (80), pp. 48–55.
5. Oliveria T., Vasco F. (2017) Assessing the pattern between economic and digital development of countries, InfSystFront, vol.9, no 4, pp.835–854.
6. Tkachuk G.O. (2020) Ekonomichna bezpeka pidpriemstv v umovakh transformatsiinykh peretvoren [Economic security of enterprises in the context of transformational transformations] (PhD Thesis), Odessa.

Клюс Ю.І., Сивочка В.В. Забезпечення конкурентоспроможності підприємств регіону на інноваційній основі.

В Україні відбувається формування національних та регіональних інноваційних систем. В епоху глобальних перетворень інновації стають основним чинником підвищення ефективності роботи промислових підприємств регіону задля забезпечення його конкурентоспроможності. Рішення цієї задачі ви-

магає комплексного аналізу та переосмислення існуючих підходів, створення теоретичних основ забезпечення ефективного розвитку промислових підприємств регіону. Активність корпоративних структур у створенні нових інновацій та ефективних комунікацій для їх трансферу стає чинником економічного розвитку, підвищення конкурентоспроможності регіону. Вартість сучасних продуктів визначається не тільки витратами на матеріальне виробництво, але і на науково-дослідні та дослідно-конструкторські роботи, що, в свою чергу, може бути інноваційною складовою розвитку промислових підприємств. Використання інновацій дозволяє підвищити не тільки ефективність окремих складників корпоративної структури, а й при приділенні належної уваги інтеграційним процесам – всієї корпоративної системи управління. Це обумовлює підвищений інтерес суспільства, зокрема вчених і практиків, до шляхів ефективного формування корпоративної системи управління інноваціями промислового підприємства.

Для стимулювання модернізації промисловості задля забезпечення конкурентоспроможності регіону на основі інновацій можуть бути використані наступні інструменти: формування ринку збуту конкурентоспроможної продукції і послуг з використанням механізмів, що регулюють закупівлю вітчизняної наукомісткої продукції для державних потреб; стимулювання інвестицій у модернізацію промисловості на основі інновацій шляхом вдосконалення механізмів часткового фінансування великих інноваційних проектів з боку держави і приватного бізнесу; мотивація підприємств до прийняття інновацій на основі стимулювання до придбання вітчизняними підприємствами сучасних технологій, створених українськими розробниками; стимулювання процесів реформування промисловості; створення корпоративних структур, які об'єднують сфери виробництва та науково-технічної діяльності. У їх числі державні центри науки і високих технологій.

Подальший розвиток національної інноваційної системи країни має бути направлено, насамперед, на забезпечення системної інтеграції всіх її елементів та ефективної їх взаємодії.

Ключові слова: інноваційна діяльність, підприємство, регіон, конкурентоспроможність, розвиток, стратегія

Клюс Юлія Ігорівна – доктор економічних наук, професор, завідувачка кафедри обліку і оподаткування СНУ ім. В. Даля.

Сивочка Василь Васильович – аспірант СНУ ім. В. Даля.

Стаття подана 19.04.2023.