РЕГУЛЮВАННЯ ІННОВАЦІЙНО-ІНВЕСТИЦІЙНОГО РОЗВИТКУ

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METHODICAL APPROACHES TO THE PROBLEM OF THE MECHANISM OF ENTERPRISE INNOVATIVE DEVELOPMENT FORMATION

S. M. Makhnusha, PhD, Sumy National Agrarian University

In the article the author conducted research on the formation of mechanism of innovative development at the enterprise. It is formed a conceptual scheme of formation and functioning of organizational-economic mechanism of innovative development of enterprise, singled out its basic principles and the basic components of the tools of such mechanism. Concretized main approaches to study the formation of innovative development areas at the enterprise within the specified tools.

***Keywords**: innovative development, management, mechanism, organizational and economic principles, principles of innovation, efficiency of direction of innovative development*

Formulation of the problem in general. Under market conditions, producer should focus its activities on the needs and demands of consumers, to keep the search and implementation of existing and future market opportunities, above all – innovative development opportunities. This implies increase in the degree of openness of the economic mechanism of the enterprise, and the degree of interaction with the environment. Accordingly, the organizational and economic mechanism of enterprises should operate in close cooperation with market and regulatory mechanisms. The complexity and diversity of this interaction suggests the necessity of forming the organizational and economic mechanism of innovative development of enterprises and methodical approaches to the management and evaluation of the development within the established mechanism.

Analysis of recent research and publications shows that issues of innovative development of enterprise were given sufficient attention in the works of a wide range of scholars, including such as Verba V.A., Novikova I.V. [1], Illyashenko S. [5, 9], Kulik T. [6], Malchykov K. [7], Marchenko O.V. [8], Picus R. [12] and others. In their works first of all were lightened the basic principles of innovative development of enterprises and mechanisms of assessment of risk for it.

Remaining part of the problem. *Requires additional attention the consideration of specificity of existing approaches to the development of innovative enterprises, the isolation of specific principles and the formation of organizational and economic mechanism of innovative development of the company and its main tools.*

The aim of the article is the formulation of methodological approaches to the problem of creating the organizational and economic mechanism of innovative enterprise development and evaluation of the effectiveness of such development by leverages of appropriate toolkit.

The main results of the research. The conceptual scheme of formation and functioning of organizational-economic mechanism of innovative development of the enterprise we believe to be possible to submit in a form (Fig. 1).

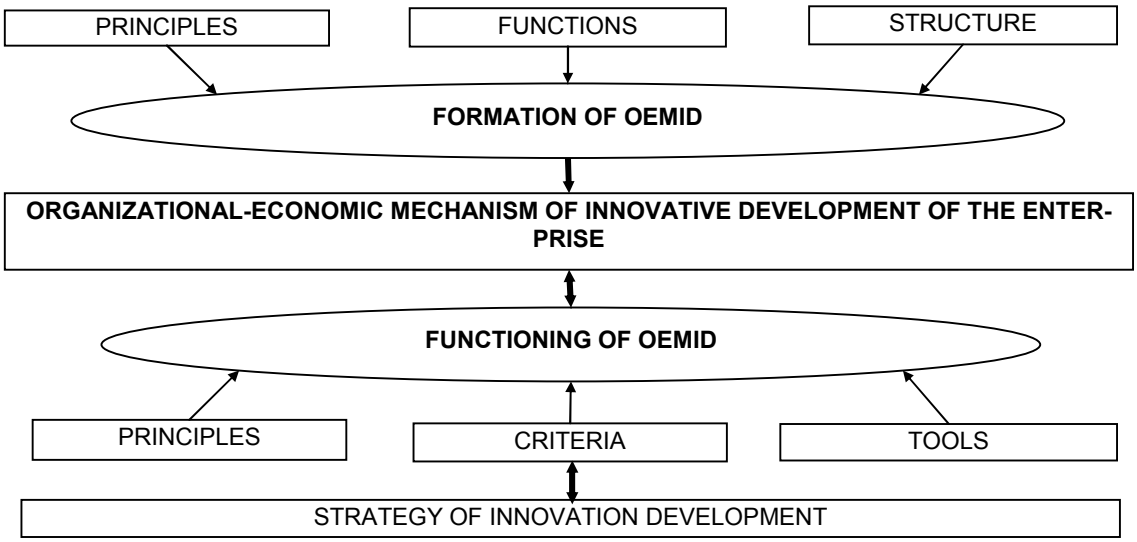

Fig. 1 Diagram of formation of organizational-economic mechanism of innovative development of enterprise

As it follows from the scheme, the formation of organizational-economic mechanism of innovative development provides for principles which should be the basis of it, the definition of its functions and the development of structures [18].

To implement the functions of organizational-

economic mechanism of innovative development in the course of its operation as an open, dynamic, adaptive system which is self-regulating, self-organizing and self-developing it is necessary to develop a corresponding criteria base and appropriate tools. During the operation of the organizational-economic mechanism of innovative development it is the development of innovative strategies of business entity, and the possible changes in the criteria base and system tools.

Organizational-economic mechanism of innovative development should focus on the activities of entities targeted at search and implementation of innovative market opportunities that are open to them to ensure their continued survival and growth in an uncertain market environment, according to the chosen mission. So the organizational-economic mechanism of innovative development is one of the key elements of the system of undertaking adaptation to changing environmental conditions, ensuring their long-term survival and sustainability.

Formation of the organizational-economic mechanism of innovative development should be based on the following principles (Fig. 2):

Systems principle. The system means a series of elements that are interrelated and interdependent with each other and are creating a unity.

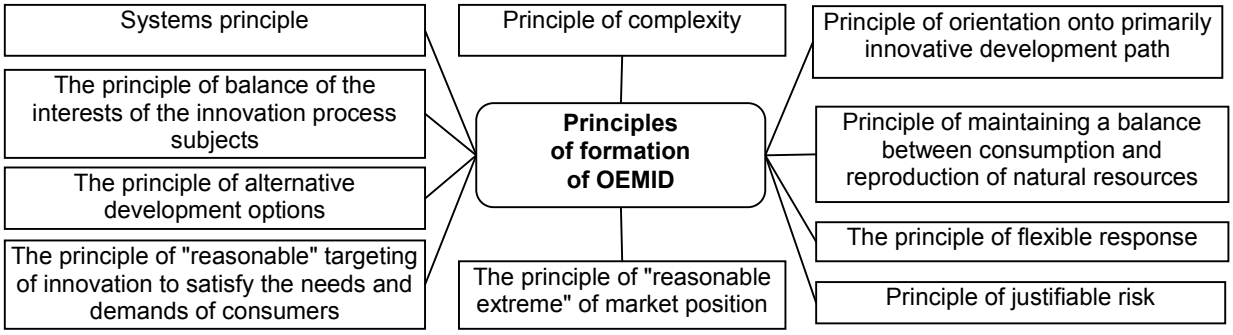

Fig. 2 The principles of the organizational-economic mechanism of innovative development of entities

The principle of complexity. The complexity is understood as mutually agreed and proportionally mutually corresponded development of the system as a whole, providing connection of all subsystems and components. This includes management of entities' innovative development in the framework of methods outlined under state and regional regulation by targeting their marketing, and through it – innovational, investment, productional and sales activities to identify and to use comprehensively existing and future market opportunities, while maintaining a balance of external and internal development of opportunities to achieve success in the competition, maximize current and future revenues and so on.

The principle of orientation onto primarily innovative development path. Provides for guidance of entities on continuous search for and use of new methods and areas to realize their potential in variable environmental conditions according to the chosen mission and accepted motivation activities.

The principle of "reasonable" targeting of innovation to satisfy the needs and demands of consumers. In modern conditions the manufacturer to succeed in the market should focus its production and sales activities (including innovation) to satisfy the interests of target consumer groups. This is the traditional market approach. However, customer orientation, especially in the innovative path of development, has a number of limitations.

Let's mention the main ones:

- consumers may not always perceive the substantial modification of traditional products and the more innovative products;
- when modifying or developing new products based on surveys of consumers questionnaries it is necessary to consider that consumers are generally sensitive to small but significant changes of the product:
- consumers may not perceive some products or changes in the traditional products, designed to protect their health or to create more comfortable conditions;
- manufacturers must not rely on harmful or dangerous to the public interests of consumers.

Principle of maintaining a balance between consumption and reproduction of natural resources. The scarcity of natural resources, the existence of the limits of their self-restoring create a task of their artificial reproduction. This is due to the fact that in modern industries with their large scale production objectives are achieved through environmental ones, achievement of purely environmental goals usually hinders the development of production. In these circumstances, it is necessary to radically change the technology mainly towards ensuring continuous and closed process of nature and usage of nature.

The principle of alternative development options. In terms of permanent instability and constant changes of political, economic, environmental and so on situations development of future events almost always has an alternative

character. There is a number of possible consequences for the decision with different probabilities of development. Therefore, when deciding to select one of the options of innovative development one should always take into account the various developments and consider it in the appropriate calculations and conclusions. Which option will receive the development is previously unknown. Therefore it is necessary to develop several options (at least most likely) and have appropriate for future certain market strategies, at least, optimistic, most likely, and pessimistic one.

The principle of support for a compromise between risk and expected results (principle of justifiable risk). Multiplicity of events is connected with the risk that is caused due to the fact that it is often impossible to predict both the possible scenarios and their probability of occurrence (uncertainty), and thus there is a risk of inadequate acceptance of the decision.

The principle of flexible response. The transition period in Ukraine's economy requires high efficiency and flexibility to respond to changing market opportunities and threats. Depending on the direction of these changes specifically taken company must quickly rebuild its operations, choosing precisely those variants of developmemnt which correspond to the new situation in the market and available capacity.

The principle of "reasonable extreme" of market position. According to some experts, to obtain high profits, at least above average, the company must be clearly marked by advantages over actual and potential competitors. Following this principle means that the company should focus on a niche market or to work on most market segments (ideally the whole market in general). Average position is dangerous. Therefore, companies that have the means to achieve leading market positions, should concentrate their efforts on niche of markets (multiple niches) or targeted market segment. Concentration of efforts simultaneously on several selective market segments with limited opportunities of enterprise is almost hopeless [8].

Combining these principles in a single complex allows to consider the organizational-economic mechanism of innovative development of an entity as an open, adaptive, dynamic system, with probabilistic nature (principle of consistency), which operates in the market environment within the outlined methods of state and regional regulation (principle of complexity), which provides long-term survival and development of the business entity in an unstable environment through the continuous search for and use of new methods and fields of the realization of its potential (principle of orientation to innovation).

Organizational-economic mechanism of innovative development should be seen as a multi-level hierarchical system that includes macro level (the level of the region or state) and micro-level (the level of a particular business entity).

Top-level action is manifested through the mechanism of state regulation and incentives. Micro-level should consist of such structural and functional systems: forecasting and planning of development, motivation, organization and information system [15].

Organizational-economic mechanism of innovative development is a multileveled and multisystemed one. Achieving the goals of such a mechanism can only be agreed at the interaction of its systems and components, as well as maintaining structural integrity. The coordination of all of the systems is provided by motivation system, so it is matching and uniting one [11].

Speaking of ***tools of mechanism of innovative development*** at the enterprise, as its basic components should be considered the following one (Fig. 3).

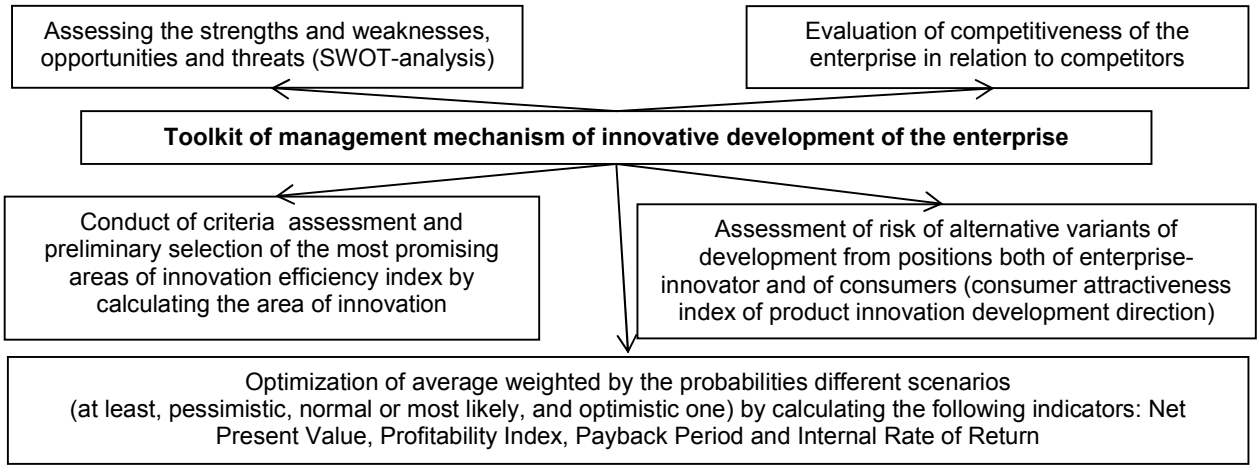

Fig. 3 Toolkit of management mechanism of innovative development of the enterprise

The main approaches to study the formation of innovative development directions of the company within the toolkit are: assessing the strengths and weaknesses, opportunities and threats (SWOT-analysis); evaluation of the company in relation to competitors; an evaluation of criteria and pre-

selection of the most promising areas of innovation efficiency index by calculating the area of innovation; assessment of risk of alternative development from positions of enterprise-innovator and consumers (consumer attractiveness index of a product innovation development direction).

So, let's consider how SWOT-analysis is conducted in the framework of the formation of mechanism of innovative development of the company, assessment of the competitiveness of enterprises, the choice of innovative development direction (K_{did}) from the position of innovator and consumers [13].

Since the 60*s* of the last century and still SWOT-analysis is widely used in the strategic planning process, which is to separate the factors and phenomena into four categories: strengths (Strengths) of the project; weak (Weaknesses) sides of the project; opportunities (Opportunities), which are opened in its implementation; and threats (Threats), associated with its implementation.

Evaluation of the competitiveness of the enterprise in relation to the competition is conducted as follows [10].

Assessment is advisable to be maintained in terms of products, ensuring their comparison. For calculations one should use the following formula:

$$I_{ij} = \frac{M_{ij}}{M\max_{ij}} \quad (1)$$

if the higher meaning of the indicator is more desirable;

$$I_{ij} = \frac{M\min_{ij}}{M_{ij}}, \quad (2)$$

if the lower indicator is more desirable,

where I*ij* – *j*-th parameter of the *i*-th product;

M*ij* – meaning of *j*-th parameter of the *i*-th product;

Mmax_{ij} and Mmin_{ij} – correspondingly the highest and the lowest value of j-th parameter among of all of comparable products.

In this case, the comparison is with the "perfect product", the characteristics of which are formed from the best ones of all of comparable products.

Comprehensive (integral) index of the *i*-th product is calculated as follows:

$$I_{\text{int}} = \sum_{j=1}^{n} I_{ij} \cdot B_j, \quad (3)$$

where B_j – the weight of *j*-th indicator.

Evaluation is usually conducted separately by groups of quality, service and technical indicators and economic ones.

Then a calculation of competitiveness for the whole complex of quality, technical, operational and economic characteristics is conducted [3]:

$$K = I^{tech} \cdot I^{econom} \quad (4)$$

For the criteria assessment and preliminary selection of the most promising areas of innovation development analyzing of past experience and determinining of the effectiveness of possible directions are conducted.

For this purpose, indicator of the effectiveness of innovative development direction is calculated as follows:

$$K_{did} = \frac{\sum_{t=1}^{T} E \cdot (1+r)^{-t}}{\sum_{t=1}^{T} IC \cdot (1+r)^{-t}}, \quad (5)$$

where K_{did} – efficiency ratio of innovation development direction;

E – the expected effect of the introduction and implementation of direction in period *t*, monetary units;

IC – expected innovative capital for introduction and implementation of direction in the *t*-th period, monetary units;

r – discount rate, %;

T – the expected period of time from the start of the innovation cycle by the end of the life cycle of product innovation, years.

If K_{did}> 1, the direction of innovative development is effective, but if K_{did} <1, then it is economically disadvantageous, and if K_{did} = 1, then your money are returnet back, but the effect of company-innovator is not received. In this case the condition of optimum variant for enterprise-innovator is written as $K_{did} \to \max$ [4, 5].

Also are determined risk in each direction using a probabilistic approach.

Assessment is carried out both from company-innovator position and from the consumer position.

The expected value of profits (E) is calculated as the mathematical expectation [5].

From the standpoint of consumers it is estimated the rate of consumer attractiveness of the product direction of innovative development, which is calculated by multiplying the index which takes into account correlation between the value of consumption of innovative products and the average price on the market, and index, which takes into account the evaluation of the benefits received by the consumer using innovative product [6]:

$$K_{CA} = K_P \cdot K_B \quad (6)$$

where K_{CA} – an indicator of consumer attractiveness of product direction of innovative development;

K_P – an indicator that takes into account the correlation of value of consumption of new or updat-

ed products and the average price of existing products in the market;

K_B – an indicator that takes into account the assessment of the benefits obtained by the customer using innovative products.

Conditions for optimal variant under consideration by enterprise-innovator is written as follows: $K_{CA} \to 1$.

To calculate K_P it is proposed to use the formula:

$$Kp = \frac{P_{\min}}{P_i}, \quad (7)$$

where P_i – price of product innovation, monetary units;

P_{min} – minimum of prices onto innovative products on the market, monetary units.

Assessment of the benefits received by the consumer using innovative products is carried out as a calculation of an integral coefficient of quality of a product [7]:

$$K_B = \sum_{i=1}^{n} B_i \cdot (1 - \partial_i), \quad (8)$$

$\partial_i = \frac{P_{ij}}{P_{\max}}$, if higher value of parameter is better, (9)

$\partial_i = \frac{P_{\min}}{P_{ij}}$, if lower value of parameter is better, (10)

where P_{ij} – i-th parameter of competitiveness (i = 1, 2, 3, ..., n) of product j (j = 1, 2, 3, ..., m);

P_{max} – the maximum value of i-th parameter of all of the goods;

P_{min} – the minimum value of i-th parameter of all of the goods;

B_i – weight ratio of i-th parameter (the total amount should be equal to 1).

These are the basic methodological approaches to study the formation of innovative directions of the company in the context of solving the problem of the formation of mechanism of the management of its innovative development.

Conclusions and recommendations for further research. Thus, in the work it was carried out a research on the formation of mechanism of innovative development at the enterprise. It was formed the main toolkit of mechanism of innovative development of enterprise: assess the strengths and weaknesses, opportunities and threats (SWOT-analysis); evaluation of the company in relation to competitors; conducting criteria assessment and preliminary selection of the most promising areas of innovation efficiency index by calculating the area of innovation; assessment of risks of alternatives from the standpoint of enterprise-innovator and consumers (consumer attractiveness index); evaluation of the effectiveness of innovative projects and choices of production based on the net present value, profitability index, payback period and internal rate of return. Further development of the study plans to implement quantitative assessment of the prospects of innovative development on the example of specific entities within the established toolkit.

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Махнуша С.М. Методичні підходи до вирішення проблеми формування механізму управління інноваційним розвитком підприємства

У статті автором проведено дослідження з проблеми формування механізму управління інноваційним розвитком підприємства. Сформована концептуальна схема формування і функціонування організаційно-економічного механізму управління інноваційним розвитком підприємства, виділені основні його принципи та визначено основні складові інструментарію механізму такого управління. Конкретизовано основні підходи до обґрунтування напрямків формування інноваційного розвитку підприємства в рамках зазначеного інстр-рументарія.

***Ключові слова**: інноваційний розвиток, управління, механізм, організаційно-економічні основи, принципи інноваційного розвитку, ефективність напрямки інновації-ційного розвитку.*

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МЕТОДИЧНИЙ ІНСТРУМЕНТАРІЙ ОЦІНКИ ЕФЕКТИВНОСТІ ІНВЕСТИЦІЙ В КОНТЕКСТІ ФОРМУВАННЯ КОНКУРЕНТНОСПРОМОЖНОГО УПРАВЛІННЯ ПРОЕКТАМИ

Т. О. Харченко, к.е.н., Сумський національний аграрний університет

У статті досліджено методичний інструментарій оцінки ефективності інвестицій, висвітлено напрями використання показників для оцінки проектів з нерівномірними грошовими потоками, спрямованих на економію власного капіталу, з нерівнозначними життєвими циклами інвестицій, з різним рівнем інтенсивності та ефективності виробництва тощо. Розглянуто можливості корегування критеріїв оцінки в залежності від певних умов впровадження проекту в системі управління проектами.

***Ключові слова**: інвестиції, проект, інвестиційний проект, управління проектами, оцінка ефективності інвестицій, грошовий потік.*

Постановка проблеми. Трансформаційні процеси, котрі відбуваються в Україні та супроводжуються комплексом певних економічних перетворень зумовили необхідність створення нових та вдосконалення існуючих моделей та механізмів в системі економічних відносин, як в цілому в державі так і безпосередньо на підприємстві. В контексті цих змін управління проектами набуває все більшого значення, адже конкурентна фінансово-господарська діяльність підприємств можлива за умови ефективної оцінки проектів і відповідно обґрунтованого їх вибору. Найбільш вагомою складовою управління проектами є оцінка ефективності інвестицій в короткостроковій та довгостроковій перспективі, чим і обґрунтована актуальність досліджуваного питання.

Методичний інструментарій оцінки ефективності інвестицій має в своєму складі групу показників, котрі дозволяють провести адекватну оцінку ризиків, розрахувати очікуваний дохід, визначити конкретні строки реалізації проекту тощо, тим самим створивши об'єктивне підґрунтя в системі управління проектами.

Аналіз останніх досліджень і публікацій. Методичні підходи до оцінки ефективності репрезентовані широким ареалом досліджень, котрі проводяться, як зарубіжними, так і вітчизняними вченими впродовж багатьох років. Питанням економічного аналізу та оцінки інвестиційних проектів присвячені праці В. Беренса, Х. Бірмана, І. Бланка, З. Боди, А. Дамодарана, Ю Немтинової, С. О'Бірна, М. Ример, С. Янга. В працях В. Борзенка, В. Захарової, Р. Ібрагімова, Н. Кісєльової, В. Косова, В. Ловшица, Т. П'ятак, Ю. Решетняка, А. Шахназарова висвітлено можливі математичні та економічні трансформації показників оцінки ефективності інвестицій. В дослідженнях О. Артемової, М. Кравченко, В. Нєчаєва увагу приділено дослідженню показників оцінки ефективності інноваційних проектів.

В наукових працях ґрунтовно досліджено фундаментальні аспекти оцінки ефективності інвестицій, проте потребує уточнення методичний