

ENHANCED MANAGEMENT TOOLS FOR DEVELOPING ENTERPRISE INNOVATIVENESS

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Abstract

Sustainable socio-economic development of a country depends on the competitiveness of enterprises, a key factor of which is continuous development of innovativeness. The low level of innovativeness of Belarusian enterprises is due to insufficiently effective management tools of innovativeness development and the unsatisfactory state of the enterprise resources.

The study object: management of the development of enterprise innovativeness.

The aim of the study: to research the conditions of the development of enterprise innovativeness and offer a system of management tools to improve their competitiveness.

The research methodology is based on the use of scientific methods of cognition (abstraction, generalization, and logical method), analysis of literary sources, methods and techniques of systemic and economic analysis.

The paper suggests approaches to developing a system of measures and controlling the level of enterprise innovativeness development as a set of tools, assessment methods and means having impact on the resources and innovative processes aimed to develop innovative capacity and its transformation into an innovative product, and includes:

- a system of input and output indicators whose dynamics characterize the development of innovativeness;
- a set of techniques for quantitative measurement and analysis of the level of innovativeness;
- statistical data – the basis of objective economic information;
- a roadmap of innovative development;

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- the development and substantiation of management solutions related to the achievement of objectives and implementation strategies;
- new programme methods of state support and regulation, taking into account all the factors of production innovation.

Keywords: enterprise, innovativeness, management.

JEL Classification: O12, D04, O38.

1. Introduction

Sustainable socio-economic development of a country depends on the level of competitiveness of its industrial enterprises. For example, the branch of industrial production has the largest contribution to the GDP of the Republic of Belarus – more than 25% (National Statistical Committee of the Republic of Belarus, 1998–2015). Innovations determine the success and competitiveness of separate industrial enterprises, as well as their groups, clusters and whole industries (Baranenko, Dudin et al., 2014). In the conditions of a changing external and internal environment, the key factor of the enterprise competitiveness is its innovative activity, defined as “continuous maintenance of productivity on level higher than in the case of its competitors by continual acquisition and implementation of innovations” (Wakelin, 1998), as well as the achievement of the necessary level of innovative development. The level of enterprise innovativeness development depends on the quality of all spheres of innovative activity: technological, financial, human, scientific, marketing, as well as the quality management system based on strategic and operational planning.

The study object: management of the development of enterprise innovativeness.

The aim of the study: to research the conditions of the development of enterprise innovativeness and offer a system of management tools to improve their competitiveness.

The applied research methodology is based on the use of scientific methods of cognition (abstraction, generalization and the logical method), analysis of literary sources, as well as methods and techniques of systemic and economic analysis.

The article presents an attempt to develop a system of management measures related to enterprise innovativeness development as a set of tools, evaluation methods and means of impact on the resources and innovative processes directed to the innovative capacity development.

A competitive environment requires the formation of an effective managing mechanism of enterprise innovativeness development based on innovativeness measurement system.

Developing strategies, setting objectives and planning innovative development require the determination of a set of specific quantitative indicators (R. Simons, 1994) of viability of economic activities. It comprises:

- a complex of methods of quantitative measurement and analysis of the innovativeness level;
- a system of input and output indicators whose dynamics characterize the development of innovativeness;
- data from accounting and statistical reports as the basis of objective economic information;
- a roadmap of innovative development;
- development and justification of management decisions on the achievement of objectives and implementation strategies;
- new methods for the programmes of state support and regulation, taking into account all the factors of innovative production.

2. Enterprise innovativeness

The researchers drew attention to the key role of innovativeness among all the components of the product competitiveness (M. Porter, 1985), claiming that only innovation allows enterprises to win the competitive struggle. Enterprise innovativeness is an important competitive advantage because it allows to protect the business from emerging threats from the external environment in time through a system of outrunning and continuous search for new opportunities of survival and development. This enhanced adaptive capacity of enterprises, expanding the horizon of management decisions, increases the variety and variability of products and technologies. Experience of the world's leading corporations shows that companies which successfully implemented innovations are more successful financially than their competitors (Fortune 500). Most empirical research studies and surveys of enterprises show that innovation leads to new products and services that are higher in quality and lower in price. The investigation of world practice of sustainable development in regard to industrial enterprises and modern theoretical and empirical concepts shows that sustainable development of industrial enterprises is correlated with their innovation activity (Baranenko, Dudin et al., 2014).

3. Measuring innovativeness

Measuring innovativeness is an important issue, as business growth and profitability in the knowledge era depend on innovation. The innovation measures are necessary, as they assist companies in understanding their current innovation practices/capabilities and clarify what areas the organization needs to focus on in order to maximize its innovation success (Gamal, 2011). Achieving a high level of innovativeness in an organization:

- is a motivational stimulus, as organizations meeting the criteria innovativeness may claim state support within the framework of the Innovative Development Program;

- creates the possibility of the maintenance of optimal statistical records of innovative activity, enabling the understanding of the organization's innovation potential and the dynamics of its growth, as well as the evaluation of promising sectors of innovative activity;
- is necessary for comparing the indicators of the state innovation system with European or global ones, as well as for assessing the region's innovative capacity and comparing it with other regions.

The index of enterprise innovativeness development could be a starting point for gathering information enabling the acceleration of innovation development. Each enterprise can independently calculate the index of innovation development and compare it according to industries, regions and countries. Such approach enables the enterprise top management to determine situation of their company compared with other enterprises in a given branch of industry in the context of innovative development and therefore to assess the possessed competitive advantage, as well as to develop an appropriate strategy for further market penetration.

Which enterprises can be considered to be innovative? For example, on the basis of legal acts of the Republic of Belarus, an innovative enterprise, that is the subject of the innovative activities, makes effort to transform novelties into innovation. Statistical data allow for revealing innovation activities implemented by organization, under which, as a special feature, it receives the status of an innovative (innovative-active) one. However, this approach does not always explicitly provide the possibility to see what the results of this activity are and whether it has any effect.

Such approach allows attributing the organization to the 'innovative-active' (as opposed to the 'innovative-passive') category upon meeting certain levels of selected criteria of innovation activity but fails to take into account the effects (economic, social, ecological and others) obtained through expending resources and using assets. Currently, in Belarus no regulatory document clearly defines the criteria by which an organization could be attributed to the 'innovative' category. On the other hand, it should be remembered that in the current economic conditions effectiveness is an aspect having most significant influence on the functioning of economic systems of any level of complexity. Innovative transformation that is effective for one company may be ineffective for another due to certain objective and subjective factors. Many of them are difficult and in some cases impossible to quantify but they do have decisive influence on the final efficiency of innovation.

There are several alternative approaches for measuring innovation, productivity and competitiveness. They lead to different assessments, since there is no universally accepted definition and measuring technique of the aforementioned concepts (Carayannis, Grigoroudis, 2014). All developed approaches to assessing the innovativeness level (Belousova, 2012) can be divided into two major groups: the analysis of preconditions and the analysis of results. The indicators of potential

usually take into account factors that enable and stimulate the development of innovativeness. The indicators related to results take into account the outcomes and outputs of the innovative activity.

Thus, the foreign studies of the innovative component estimated within complex indexes of competitiveness also take into account some innovative and special aspects. The annual review of the Global Economic Forum, “Global Competitiveness Report”, uses two complementary indicators of macroeconomic (GCI) and microeconomic competitiveness (BCI), the development of communication media indicator (Networked Readiness Index – NRI) and the UNDP index of technological advances (Technology Achievement Index – TAI). The specialized indices include, for example, the index of the ability to innovate (Innovation Capacity Index). In all of these indexes a priority direction of evaluation is the actually existing achievement measured by surveys and objective statistics (Trifonov, Veretenikova, 2013). It is a priority for the development of national indicators which often accumulate only prerequisites for the creation of innovations and fail to monitor their results. For instance, efforts in the European Union have been made to measure country innovation capabilities through objective economic measures, such as the Oslo Manual (2005), the European Community Innovation Survey (CIS-4) or the European Innovation Scoreboard (EIS 2007). National measurement of innovation is currently based on an old paradigm of an industrial economy and for the most part measuring inputs to innovation (R&D expenditures, education expenditures, capital investment) and intermediate outputs (publications, patents, workforce size and experience, innovative products). The Global Innovation Index, developed by the international business school INSEAD (France) and the World Intellectual Property Organization (World Intellectual Property Organization) (Study INSEAD) is also worth paying attention. Conducted annually since 2007, the study includes a ranking of countries by level of innovation development. The study’s authors believe that the success of the economy is associated with the presence of the innovation potential and the conditions for its implementation. Finally, there is also the “Expenses – Results” ratio index, which allows for the objective evaluation of the effectiveness of efforts to stimulate innovative development in each country.

The evaluation of innovative development is performed with such instruments as InnoCERT, Inno-Biz, NESTA, IMP³rove, innovation Radar, INNOV’CHECK, etc.

4. General methodological scheme of the author’s assessment of the innovativeness level

In order to evaluate innovativeness, a composite indicator (Singh, Murty, Gupta, Dikshit, 2007) has been selected, as it can provide information about several of the measured parameters. Also, the most significant advantage of this index is

the absence of dimension. The index formula allows to provide interpretations (related to the output / input ratio).

The criterion of innovativeness has an integrative nature, as it covers the main internal processes in various functional areas of enterprise and can be represented as a multi-dimensional object. For example, an integral evaluation of two factors in a graphic form can be represented as an area and of three factors – the double integral – as a volume; while in the case of an n-dimensional integral a multidimensional figure is obtained, where n is number of factors (factor group), which is quite difficult to imagine but enables the evaluation of the projections (sections) of each of the factors (factor groups).

1. Set the list of available factors (factor group parameters) S_i , where $i = 1, \dots, n$ is the number of factors associated with the appropriate properties (resources) of the enterprise.
2. Set the list of indicators K_{ij} , where $j = 1, \dots, m$ is the number of indicators in each factor group, I_{ij} is the input subsystem and O_{ij} is the output subsystem.

$$K_{ij} = \frac{O_{ij}}{I_{ij}}$$

3. On the basis of statistical data for the investigated organization:

Calculate the index of the dynamics of the efficiency of the corresponding figure for period of t years:

$$K_{ij}^{cp} = t^{-1} \sqrt[t-1]{\prod_1^{t-1} \frac{K_{i+1j+1}}{K_{ij}}}$$

For further study, depending on the purpose, the basis for comparing innovativeness level is determined. The basic innovation indicators of the investigated enterprise can be based on the data from the previous study period or the maximum values of the metrics achieved by the nearest competitor in a strategic group, industry, region or other unit.

The area of the resulting polygon reflects the current level of innovative activity of the organization. In order to assess a complex indicator of innovative activity of the organization, the author proposes to use the graphical method, in which the integral value of innovation activity is defined as the area of a polygon with vertices having coordinates corresponding to the values of the quantitative and qualitative component of the resource component, as well as to the values of scoring and statistical components of the innovation activity.

$$I_i = \frac{1}{2} \sin \frac{360}{m} \left[K_{i1} \cdot K_{im} + \sum_{p=1}^{m-1} (K_p \cdot K_{p+1}) \right]$$

On the basis of the values of the components of innovation activity a radar chart analogous to graphics in the polar coordinate system is built – its aim is to display the distribution of values relative to the origin. An example of such a chart based on particular characteristics is shown in Figure 1.

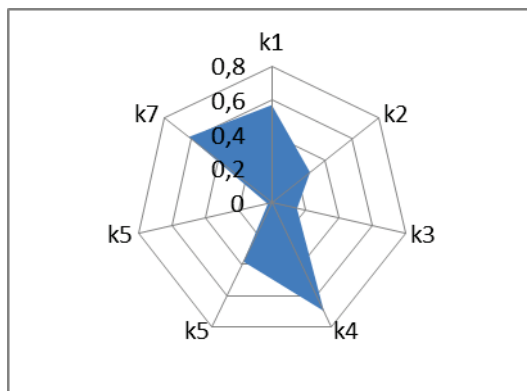


Fig. 1. Innovativeness index of a factor group

Source: own elaboration

Similarly, an index is calculated for all the innovativeness factor groups. A comparative analysis of the investigated organizations with benchmarks for each of the factors is then carried out (Fig. 2).

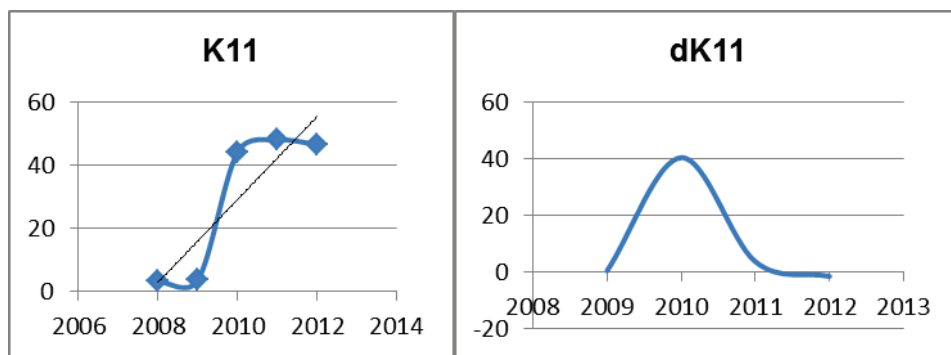


Fig. 2. The dynamics of change indicator and the indicator

Source: own elaboration

Figure 3 shows a diagram that demonstrates the level of innovativeness of each of the factor groups. Based on these data an integral innovativeness index is calculated and conclusions regarding the level of innovativeness are drawn.

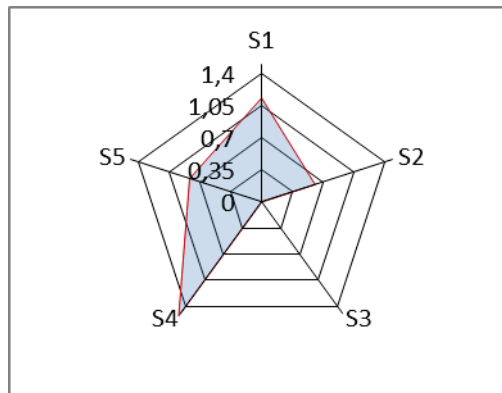


Fig. 3. Enterprise innovativeness index

Source: own elaboration

Each of the factors affects the achievement of the goal of the strategic development of the organization. The graphical interpretation of the integral index contributes to a better perception of the factors that determine the level of enterprise innovativeness. With similar data from other enterprises of a given branch, a manager can perform comparative analysis identifying changes in practically any period of time and analysing the dynamics of innovation development. For example, if this method is used by the government departments for the purpose of statistical reporting (monitoring), the industry average can be accepted for comparing the values or setting the target value. Such subsystems of innovativeness factor groups are multi-indicative and each of them can be viewed as a complex self-control object allowing for the investigation of the dynamics of the indicators and their changes.

5. Evaluation of innovative development indicators

The complexity of the innovative development evaluation analysis of a socio-economic system requires compliance with certain principles (Mingaleva, Platyniuk, 2012) – it should be:

- multidimensional (all aspects of innovative activity have to be evaluated);
- multi-variant (analysis is carried out by comparing the results obtained on the basis of several comparison bases);
- multi-critical (the analysis is carried out using a number of criteria selected by taking into account both the interests of the organization and the positions of other participants in the innovation process).

Continuous development of enterprise innovativeness is possible if the innovation process affects all aspects of enterprise resources and provides a combination of factors increasing its competitiveness. Let us consider system of evaluation

indicators divided into factor groups based on the process approach. It should be noted that the same indicators, characterizing certain economic activity factors in different groups, may appear at the output and at the input of the system. Within the framework of systemic-process approach the organization performance was systematized – the operation included the factors within its appropriate inputs and outputs, at the entrance to the organization as a system and as innovative potential outputs, the results of innovation and innovative products (services).

Let us consider a system evaluation indicator, systematized at factor groups level based on the process approach:

1. Production and resource base:
 - equipment upgrade coefficient,
 - the energy intensity of production,
 - upgraded equipment power,
 - materials consumption of production,
 - the scale of the production of new products,
 - labour funds,
 - etc.
2. Financial component:
 - the share of contributions to the innovation fund in the total amount of costs,
 - own funds ratio of R & D funding,
 - the financial independence,
 - the share of revenue in the total volume of commodity output,
 - the return on equity coefficient,
 - return on investment,
 - the ability to attract investment.
3. HR component:
 - the resource endowment coefficient,
 - the share of employees with higher education in the total number of employees,
 - the proportion of workers who improved their skills or undertook similar self-improvement activity,
 - the level of managerial personnel professionalism,
 - the share of researchers in the total number of employees.
4. The intellectual component (intangible assets – IA):
 - the share of investment in IA,
 - the percentage of intangible assets in the total amount of fixed assets,
 - the relation of the amount of money spent on the purchases of software etc. to the total cost of IA,
 - the share of development related to the automation of production,
 - the coefficient of intellectual property provision of IA.

5. The informational component:
 - the share of computer equipment and software purchase costs in the total costs,
 - the degree of information protection,
 - the utilization of personal computers,
 - the extent of the interest of employees in the development of professional skills,
 - the share of development related to ICT in the total development fund,
 - the level of automation of the collection, processing, storage and transmission of information,
 - active communication links within the enterprise.
6. The results of innovation activities:
 - the coefficient of innovation commercialization,
 - the degree of practical orientation of scientific research,
 - the degree of concern for the environment,
 - the degree of environmental orientation of development efforts,
 - the volume of investment in innovation,
 - high technology products.
7. Management and Marketing:
 - the proportion of managerial staff,
 - management efficiency,
 - the extent of the demand for research and development,
 - the amount of the innovation demand.

As a result, in order to evaluate the level of enterprise innovativeness it is necessary to assess the degree of the enterprise economic activity components involvement in the innovation and the economic benefits resulting from their use. Considering the flow of resources in terms of funds flowing through the company, the level of its innovativeness is investigated. The proposed system of indicators is characterized by a number of factors of the internal enterprise environment based on a multidimensional and integrated approach, presented in an accessible form, with sufficient availability of basic statistical and accounting reporting forms enabling its correct performance as a pre-condition. For assessing the state of innovation development an algorithm implementing the information about all the integrated evaluation indicators required for the integral index (innovation index) was used, which allows to formulate conclusions regarding the level of enterprise innovativeness in the analysed period.

6. Design and rationale of managerial decisions

A comprehensive analysis of particular socio-economic innovativeness level indicators forms the basis for management decisions regarding the implementation of the innovation processes aimed at the most efficient implementation of investment programmes for the development of a regional socio-economic system.

The main instruments of the state innovation policy are:

- 1) according to the type of state control of the innovation activities of economic entities:
 - administrative practices;
 - methods of indirect effects;
 - financial (investment) methods.
- 2) according to the form of the participation of national and regional authorities in investing in innovative activity of economic entities:
 - direct budget funding;
 - participation in public-private partnerships in the innovation sphere;
 - government subsidies and guarantees.
- 3) according to the equity participation in research activities:
 - tools aimed at creating incentives and conditions to enhance innovation activity of enterprise structures of the real sector of the economy;
 - creation of a network of financial institutions and investment support mechanisms;
 - tools to optimize the activities of public sector innovation;
 - the development of regulatory institutions, technology parks and business incubators.
- 4) according to the scale of the innovative activity of entrepreneurial structures:
 - stimulating the development of small and medium enterprises in the sphere of innovation;
 - the use of instruments to support innovation activities;
 - the development of corporate structures providing for the interaction between universities, businesses and regional authorities.
- 5) according to the object of study:
 - regulation of the market of innovations;
 - stimulating investment in enterprise innovative development (in the region).
- 6) according to the cyclical nature of the innovation process:
 - activation of innovations at the stage of the new technological order;
 - encouraging renovation of technical equipment, production facilities and manufacturing technologies;
 - management of intellectual property;

- acceleration of the process of commercialization of innovations, as well as the organization of communication between innovators and business entities implementing innovations;
- stimulating the development of innovative products and services.

In determining the directions of improvement of enterprise innovation, the management mechanisms should take into account the external competitive environment and the level of innovation orientation of socio-economic parameters of development of the region (country).

With this regard, the development of management tools related to enterprise innovativeness development based on the evaluation of its level should be considered.

7. Management tools related to the development of innovativeness

The process of innovativeness development level assessment, determining the success of an enterprise on the way from formulating its mission to meeting specific strategic challenges, is constantly evolving in order to meet the changing conditions of the external environment and internal capabilities, and can be represented as a *Strategic Map*, developed on the basis of a balanced scorecard (Kaplan, Norton, 2007) and the results of a quantitative assessment of the state of innovativeness development at a particular time, performed with the use of process-systemic and dynamic approach. To this end, the degree of influence of innovative activity and its results on the efficiency of production, human resources, management, intellectual, informational, financial, marketing and ecological subsystems of the enterprise (innovation development factors) is estimated based on statistics. Depending on the assumed goals, the performance of competitors, industry, region or other units can be used as basic measures of comparison when building a strategy map.

As a result of assessing the state of enterprise innovativeness development based on leadership vision, financial goals and benchmarks are defined. A more determined action is needed to improve internal business processes (development of new products, improved quality of service, increased productivity, etc.), which need to be implemented in order to create a high-quality supply to the consumer and to achieve desired financial results of the enterprise. All components of the balanced scorecard should help to implement the strategy, and depending on the conditions of internal and external environment, it can be supplemented by other components.

The Strategic Map – a visual image of the strategy, architecture, causes and effects – shows how the integrated target components add up to a unified strategy and allows the company to clearly define the purpose and the process of value creation with respect to long-term periods. The strategy is being implemented simulta-

neously in mutually supportive ways of investing resources in each of these aspects and the efficiency and implementation of strategy maps is based on the assessment of the state of innovation development of the company at any given time, depending on the mechanism for its implementation, which can be clearly described using a road map.

The “*road map*” of innovative development is a document that contains a step-by-step scenario aimed to achieve the objectives and development of an enterprise in the form of routes in key areas – such as market, products, technologies and competitors – on the basis of coordination of all sectors of its economic activity. Road maps are helping to focus attention on long-term planning, improving the relationship of all processes that provide information and control tools for effective decision-making for the management of the development of enterprise innovativeness due to the efficient allocation of resources. This occurs through the identification of the necessary processes, new features of an enterprise or the mistakes that need to be addressed in the development of competitive and realistic goals and innovation development plans (Barmuta, 2010). The main feature of such “*road maps*”, in contrast to traditional action plans, is that they should provide for variation of ways and the availability of alternative measures depending on the nature of the risks that inevitably arise during the development of enterprise innovativeness. A necessary condition for the effective implementation of the roadmap of innovativeness development is the ongoing monitoring of its condition in order to adjust the development of the route in accordance with the changing conditions.

Indicative enterprise management is the process by which management decisions are made based on analysis of the current situation by identifying the orientation of the studied process or phenomenon (Sirotkina, 2008). At the same time, the indicators underlying the indicative management allow to visualize the changes occurring within the controlled object. Indicative management is aimed at achieving sustainable development of enterprises, effective positioning and reinforcing the positive reputation of the company, as well as ensuring its stability in the market through the achievement of its economic and social development goals. The effectiveness of indicative management depends on the compliance with its implementation assumptions, such as the compliance with the principles of indicative management structures and the improvement objectives or the construction of a network of innovative processes in accordance with the indicative management system, ensuring high sensitivity of the personnel of innovative industrial enterprises, the integrated use of indicative management tools etc.

8. Conclusions

Sustainable socio-economic development of a country depends on the competitiveness of its enterprises, and the continuous development their innovativeness plays a key role in it. Low level of enterprise innovativeness is due to insufficiently

effective management mechanisms of enterprise innovativeness development and the poor state of resources. Thus, it is necessary to develop a system of measures (instruments) in order to improve the efficiency of management of enterprise innovativeness development in the form of targeted methods of state regulation and stimulation of innovation activity and investment flows, as well as in the form of policies and programmes of enterprise innovativeness development.

In creation of the technological programme (road maps) of enterprise innovativeness development, consistent with the interests of the objects and subjects of the innovation process and taking into account current economic conditions, it is necessary to apply the tools of analysis and assessment of innovation through their integration into the control mechanism at all stages of the innovation process.

Continuous development of enterprise innovativeness is possible when the innovation process affects all aspects of the enterprise resources and provides a combination of factors enabling the increase of its competitiveness. The mechanism of management development of industrial enterprise innovativeness is as a set of tools, assessment methods and means of influencing the resources and innovative processes aimed at the development of innovative potential of an enterprise and its transformation into innovative products.

Improving the efficiency of management of development of enterprise innovativeness at the regional or industry level is possible through the creation of new institutional foundations of innovation growth, as well as the development and use of complex new software methods of government support and regulation, taking into account all the factors of innovative production (technological, human, financial, information, environmental, marketing, etc.), based on:

- objective and comprehensive study of production factors;
- determining the effectiveness of the use of production resources;
- controlling the conditions innovativeness development;
- the identification and measurement of internal reserves;
- checking the optimality of administrative decisions;
- improving the scientific and economic feasibility of the changes.

Therefore, the improvement of the innovative development of economic system management mechanism – understood as purposeful and organized activities – has impact both on the process of development of the system and on the innovative factors of production or the conditions of their optimal composition.

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Streszczenie

W warunkach zmieniającego się otoczenia zewnętrznego i wewnętrznego kluczowym czynnikiem konkurencyjności przedsiębiorstwa jest jego aktywność w zakresie innowacji, która zależy od zasobów technologicznych, finansowych, ludzkich, naukowych, marketin-

gowych, a także od systemu zarządzania jakością opartego na planowaniu strategicznym i operacyjnym. Konieczne jest zatem zbadanie warunków rozwoju innowacyjności przedsiębiorstw i zaoferowanie systemu narzędzi zarządzania służących poprawie ich konkurencyjności. W artykule przedstawiono próbę opracowania systemu środków zarządzania związanych z rozwojem innowacyjności przedsiębiorstw jako zestawu narzędzi oraz metod oceny opartych na systemie pomiaru innowacyjności oraz sposobów oddziaływania na zasoby i procesy innowacyjne ukierunkowane na rozwój zdolności innowacyjnych.

Indeks rozwoju innowacyjności przedsiębiorstw może być punktem wyjścia do gromadzenia informacji umożliwiających przyspieszenie rozwoju innowacji. Ciągły rozwój innowacyjności przedsiębiorstwa jest możliwy, jeśli proces innowacji wpływa na wszystkie aspekty zasobów przedsiębiorstwa i zapewnia połączenie czynników zwiększających jego konkurencyjność. Kompleksowa analiza poszczególnych wskaźników poziomu innowacyjności społeczno-ekonomicznej stanowi podstawę decyzji zarządczych dotyczących wdrażania procesów innowacyjnych mających na celu najbardziej efektywną realizację programów inwestycyjnych dla rozwoju regionalnego systemu społeczno-gospodarczego. Poprawa innowacyjnego rozwoju mechanizmu zarządzania systemem ekonomicznym – rozumianym jako celowe i zorganizowane działania – ma wpływ zarówno na proces rozwoju systemu, jak i na innowacyjne czynniki produkcji lub warunki ich optymalnej struktury.

Słowa kluczowe: innowacyjność przedsiębiorstw, narzędzia zarządzania, innowacyjny rozwój.

Klasyfikacja JEL: O12, D04, O38.