FORMATION AND USE OF INNOVATIONAL AND INVESTMENT POTENTIAL OF MACHINE-BUILDING ENTERPRISES IN THE SPHERE OF PRODUCTION MEANS

ФОРМУВАННЯ І ВИКОРИСТАННЯ ІННОВАЦІЙНО-ІНВЕСТИЦІЙНОГО ПОТЕНЦІАЛУ МАШИНОБУДІВНИХ ПІДПРИЄМСТВВ СФЕРІ ЗАСОБІВ ВИРОБНИЦТВА

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The article deals with the development of the organizational and functional support for the formation and use of innovational and investment potential in the sphere of production means. A new model of development management in the field of industry, including machine-building, is proposed for implementation, which should be oriented to the realization of technology of system managerial influence and principles of self-improvement, self-regulation, the creation of favorable business environment, the financial and economic empowerment of territorial communities, the determination of peculiarities of administrative structure reform in the future, the coordination of activities of central and local authorities. The possibilities of innovative development of the machine-building complex of the region, which depends on the arrangement and coordination of the interaction between central and regional authorities, are suggested. Suggestions for innovative development opportunities in the sphere of production means were proposed, which depends on the orderliness and coordination of interaction between central and local authorities.

Key words: *innovation and investment potential, engineering, management model, strategic planning, sphere of means of production.*

В статье представлено организационно-функциональное обеспечение формирования и использования инновационно-инвестиционного потенциала в сфере средств производства. Предлагается к внедрению новая модель управления развитием в данной сфере, в частности машиностроения, которая должна быть направлена на реализацию технологии системного управленческого воздействия и принципов самосовершенствования, саморегуляции, создания благоприятной предпринимательской среды, расширения финансово-экономических возможностей развития территориальных общин, определения особенностей реформирования территориального устройства в перспективе. Обосновывается целесообразность действий по реализации стратегии – выделение таких объектов управления, как точечные, кластерные образования, межотраслевые интегрированные образования, технополисы, технопарки. Представленные предложения о возможностях инновационного развития в сфере средств производства, зависит от упорядоченности и координации взаимодействия центральных и местных органов власти.

Ключевые слова: *инновационно-инвестиционный потенциал, сфера средств производства, машиностроение, модель управления, стратегическое планирование.*

У статті розроблено організаційно-функціональне забезпечення формування та використання інноваційно-інвестиційного потенціалу підприємств сфери засобів виробництва. Пропонується до впровадження нова модель управління розвитком в сфері засобів виробництва, зокрема машинобудування, що повинна бути спрямована на реалізацію технології системного управлінського впливу та принципів самовдосконалення, саморегуляції, створення сприятливого підприємницького середовища, розширення фінансово-економічних можливостей розвитку територіальних громад, визначення особливостей реформування територіального устрою у перспективі, узгодженню діяльності центральних та місцевих органів влади. Обґрунтовується доцільність дій щодо реалізації стратегії в сфері засобів виробництва – виділення таких об'єктів управління, як точкові, кластерні утворення, міжгалузеві інтегровані утворення, технополіси, технопарки. Представлені пропозиції щодо можливостей інноваційного розвитку в сфері засобів виробництва, зокрема машинобудівного комплексу регіону, що залежить від упорядкованості й координації взаємодії центральних та місцевих органів влади. Запропоновано створення і функціонування Обласних наукових центрів соціально-економічних досліджень як важливих елементів інноваційної інфраструктури регіонів, діяльність яких передбачає подолання розриву між ланками інноваційного процесу «освіта – наука – виробництво». Визначені основні елементи моделі інформаційного забезпечення контролю за реалізацією інновацій на основі формування збалансованої системи показників і алгоритм «випереджуючого» коригування реалізації інноваційного проекту в сфері засобів виробництва, зокрема в машинобудівній галузі, протягом його життєвого циклу. Реалізація на практиці даних пропозицій дозволить підвищити не тільки оціночне значення інноваційно-інвестиційного потенціалу в сфері засобів виробництва, а й збільшити ефективність його використання. Враховуючи результати попередніх досліджень, нові методичні підходи до вдосконалення стратегічного планування та впровадження інновацій у виробничій сфері, мають стати основою для впровадження інноваційно-інвестиційного потенціалу.

Ключові слова: *інноваційно-інвестиційний потенціал, сфера засобів виробництва, галузь машинобудування, модель управління, стратегічне планування.*

Problem setting. In the context of the economic reform of the country, there is much concern about management of innovation and investment activity. The strategic course chosen by Ukraine, focused on the innovational and investment model of economic growth, is based on the structural reorganization of leading branches of the national economy, in particular the field of machine-building, with the subsequent technological renewal of the production means sphere. The level of development and use of innovational and investment potential of this industry has a significant impact on the implementation of innovation processes.

Innovation management at machine-building enterprises is a multifaceted system of actions that enables to solve the problem of choosing the way of investing in various innovation projects, necessary forms and methods of managing the process of investment by these innovations, organizing the production process at the enterprise using new fixed assets, marketing final products and consumer services with the help of modern machinery and equip-

ment, provided the level of use of innovational and investment potential at enterprises in this area is increased.

The need to solve the problems concerned and the urgency for a theoretical and methodological substantiation of measures concerning the creation and implementation of an effective mechanism for managing the formation and use of innovational and investment potential of machine-building enterprises determined the choice of the research direction and its relevance.

Analysis of recent research and publications. The problem of so-called "production potential of the enterprise" was discussed in the economic literature for a long period of time [6; 8; 20; 23]. Using this category, they tried to characterize the frontier of the enterprise defined as the maximum possible output of products with the fullest use of production functions and personnel. In such a case, there was always a question of the unit of production capacity measurement.

In the context of the market characterized by volatility of production system (PS) goals driven by supply and demand volatility, instability of prices for goods and production factors, changes in the competitive environment and other macro and microeconomic factors, it is impossible to identify what the enterprise is capable of, what its frontier is [1; 15; 17], what this enterprise “will be able to do” and in the long run.

However, without a characteristics of the potential, one can neither set any promising goals of PS nor develop an optimal (preferred) strategy for achieving them. It should be noted that the concept of “potential” is closely related to the nature of goals. For some goals, the existing potential of PS (i.e. the set of capabilities) will be high, for others – low. To achieve one set of goals, there is no need to reorganize the enterprise, for another – there is such a need [9; 11; 12; 19].

Therefore, we propose our own definition of innovational and investment potential as the ability of the enterprise in a competitive environment to ensure the realization of its own investment opportunities in processes of generation, accumulation, with the subsequent transformation of scientific ideas and results of scientific and technical activities into innovative products and technologies that are able to meet the needs of the market.

When identifying resources as goal-achieving opportunities, we must, first of all, define the very concept of these opportunities. In generally accepted terms, opportunity is the means, condition, circumstance necessary to accomplish something. To have the opportunity means to have the necessary conditions and means of production at the disposal [7].

High quality innovation and investment components of growth are necessary to improve the efficiency of the production enterprise. Economic growth of any production enterprise of production means sphere is influenced by the following factors: the quantity and quality of natural resources used in the production process; the volume of fixed capital; the number and quality of labor resources; technology. They can be attributed to the group of factors that form the potential production supply of the enterprise. They make the growth of the production enterprise physically possible. Only the availability of greater number of better resources, including the innovational and investment potential of the enterprise, can increase competitive capacity of the enterprise [14; 18; 21; 22]. In practice, innovation activity and capital (investment) are closely interrelated: innovative progress is constantly accompanied by investment in new machinery and equipment, personnel and technology.

Goal setting. The purpose of the study is to analyze the processes of formation and use of innovation and investment potential in the sphere of production means.

Presentation basic material. A new model of development management in the sphere production means, in particular in the machine-building field should be oriented to the implementation of technology of system managerial influence and principles of self-improvement, self-regulation, the creation of favourable business environment, the financial and economic empowerment of territorial communities, the determination of peculiarities of administrative structure reform in the future, the coordination of activities of central and local authorities.

In order to implement the strategy at each stage, it is advisable to allocate such management objects as point ones (enterprises that are defined by economic growth points and are capable of creating a multiplicative effect at the regional level or wield major influence on the global parameters of the socio-economic development of the region [2; 4; 16; 26]; cluster formations (integrated industry associations); interbranch integrated entities, technopolises, technoparks.

When achieving the mentioned goals through the example of Poltava region, the innovation and investment model of its economy should play a major role. Many studies have shown that real investment in production is crucial to stabilize the economy and achieve economic growth. Therefore, in investment flows, it is necessary to clearly identify priority areas of inputs that would enable to maximize economic impact.

The economic policy in the region should be developed so as to promote the level of investment attractiveness, to optimize investment flows from all sources for structural changes in the machine-building industry, to ensure its innovative development, sustainable economic growth (fig.1).

The crucial task for development of the innovation and investment model of Poltava region is to make structural changes in the economy towards bolstering the role of high-tech industries, in particular machine-building, with a great share of value added,

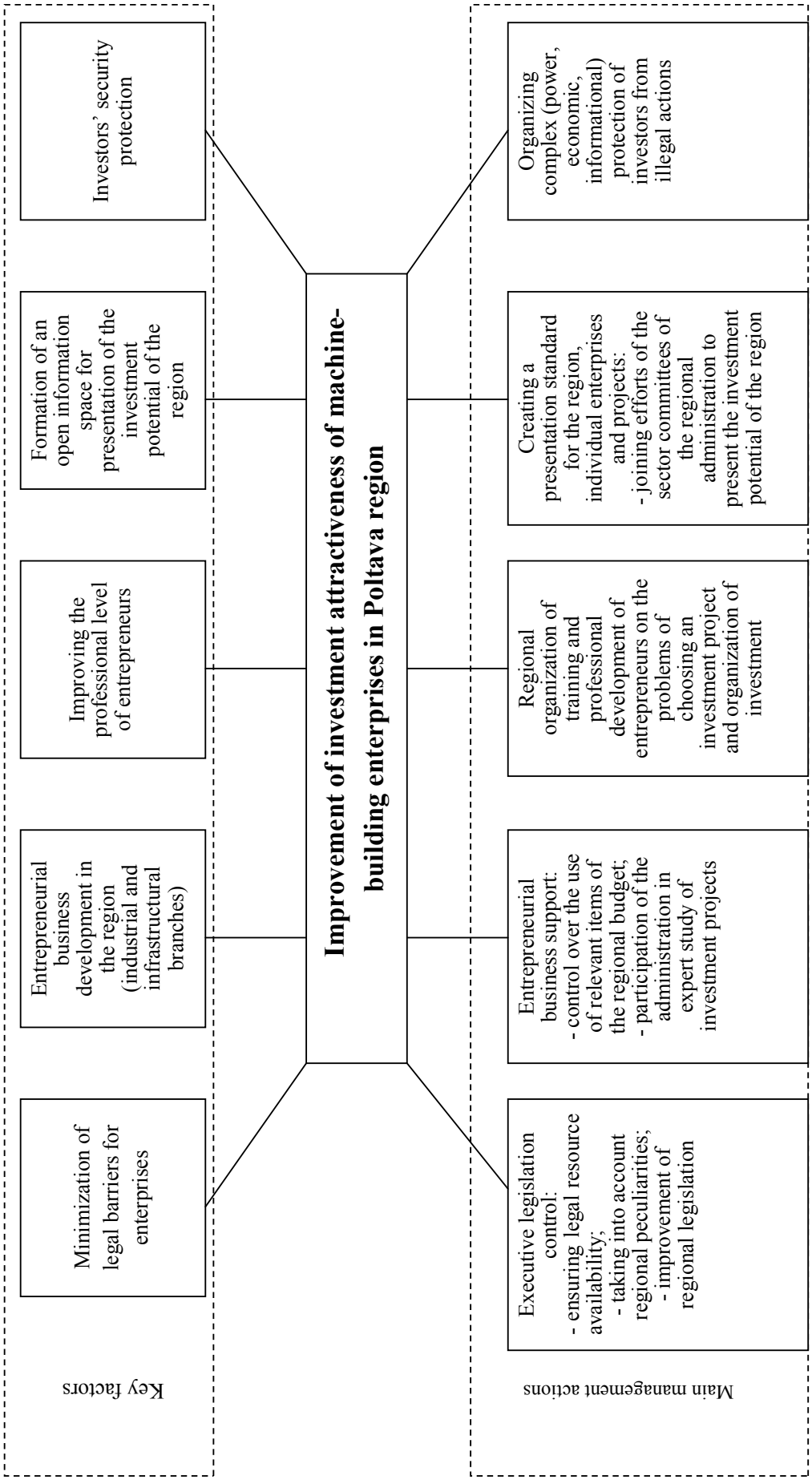


Fig. 1. Ways of improvement of investment attractiveness of machine-building enterprises in Poltava region

high technological complexity. In this context, the advanced increase in production and export of products with a high degree of processing and a rapid turnover of capital is expected. An important task in implementing the innovation and investment strategy for the development of machine-building enterprises in the region should be to create a regional information system in the field of scientific, technological and innovation development (fig. 2).

As a highly effective tool for the strategic breakthrough in the competitive market environment, innovation and investment processes of the machine-building enterprise development in Poltava region require the creation of an adequate system of its information support. This is also due to the fact that today information is no longer a simple set of certain data, but is one of the most important resources of the enterprise.

When making a decision on certain innovative changes, it is important not only to ensure completeness, quality, timeliness, quantity and measurability of information resources for the machine-building enterprise itself, but also to create oriented to the objectives of innovative development system of transformation of the internal information field into interconnected information-resource flows [3; 5; 10; 13], which are capable of maximizing the efficiency of specific business processes within the industrial environment.

In our opinion, formation of such a system, on the one hand, is more in line with a lateral structure of the business process of the machine-building enterprise, and on the other hand, it becomes the center of congruence of the interests in the external and internal environment of the enterprise activity and a tool for eliminating contradictions. The proposed scheme is more efficient due to the absence of restrictive filters and barriers in the form of functional units. This system enables not only to monitor each individual business process more quickly, but also allows for a more discreet and purposeful distribution of information resources between them, depending on the expedi-

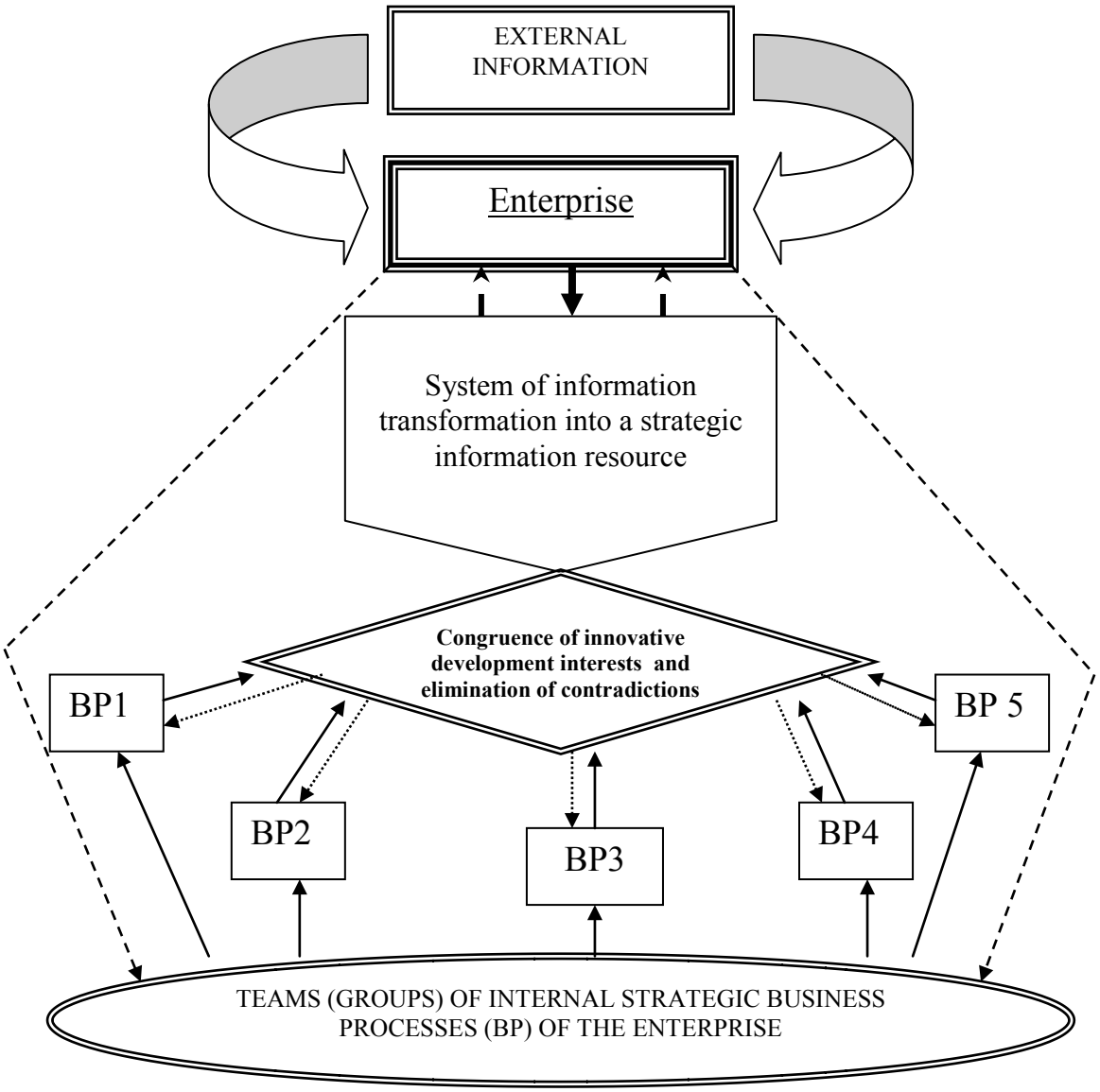


Fig. 2. Scheme of interconnection of information flows in innovational and investment activity

ency, competence, functional and operational tasks of each particular team.

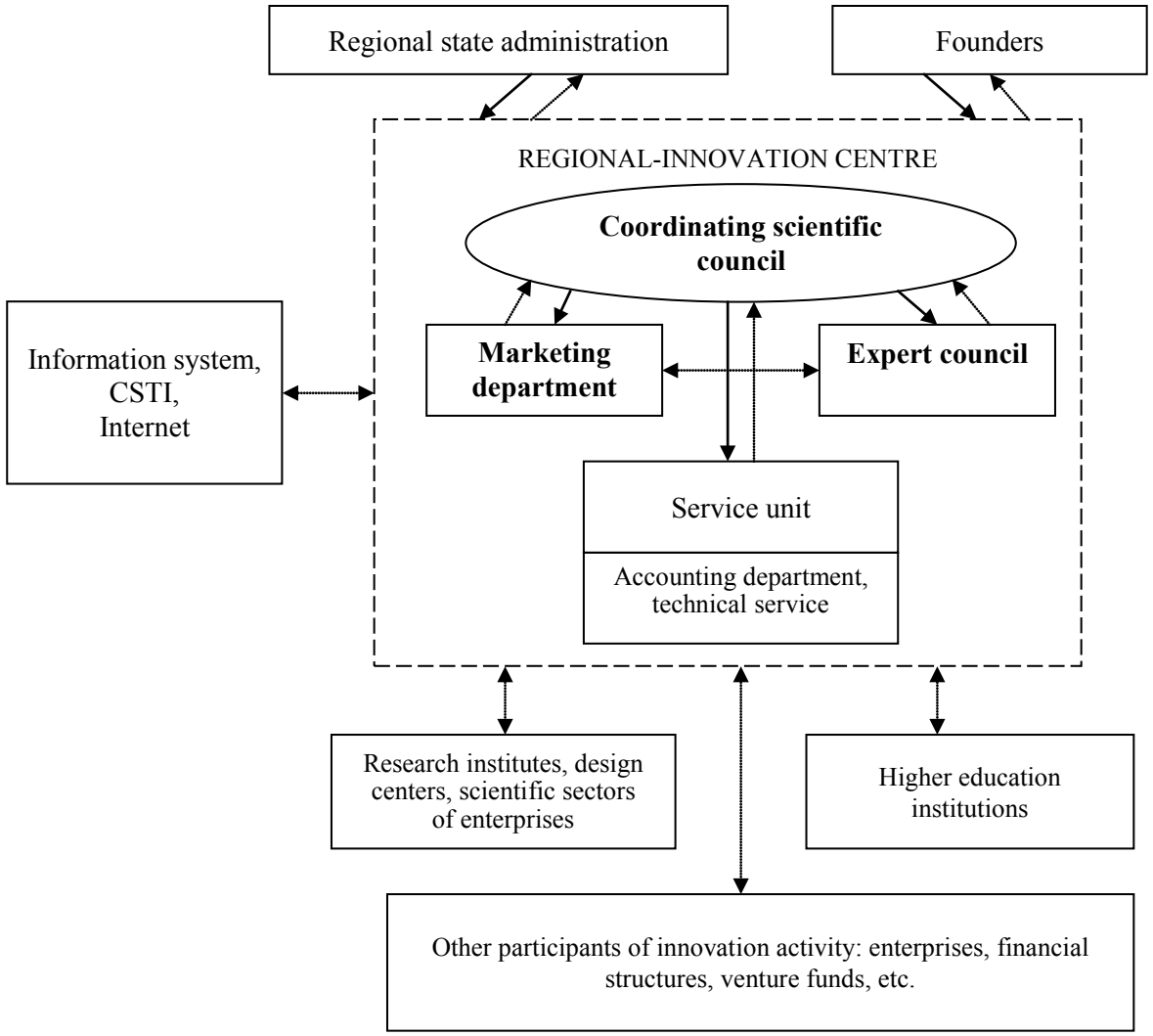
With the revival of the process of the economy transition to an innovative way of development, the task of formation of high intellectual potential for machine-building enterprises in Poltava region becomes especially relevant, the growth of innovativeness level is due to the development of various forms of education, the information dissemination, the growing number of highly qualified specialists. A complex approach to the development of university science requires a clear understanding of its role in achievement of the objectives of the economy knowledge, the objectives of determining regional priorities, which are dominant focuses in the development of the region [24; 25].

In order to promote scientific research towards solving the problems of development of the machine-building system, it is necessary to create the Regional Scientific Center of Socio-Economic Research as an important element of the innovation infrastructure of Poltava region, the activity of which involves overcoming the gap between the links of the innovation process "education – science – production".

An important role in scientific and information support for scientific activity in the field of implementation of the innovational and investment strategy for development of the machine-building complex can be played by Poltava Center of Scientific, Technical and Economic Information, the main activities of which are:

– promoting the integration of education, science and production;

– organizational and methodological support for the formation and functioning of innovative structures, priority areas of regional development;



Legend keys:

⟶ – management flows;

⟷ – information flows.

Fig. 3. Structure, management and information flows of the regional innovation center (RIC)

– information and analytical support for the state scientific, technical and innovation policy of the region, regional programs and projects;

– information and organizational support for facilitating the transfer of new technologies and inventions.

Creation and functioning of information support systems on a by-order basis, public, private enterprises and organizations on the basis of modern information technologies require creation and operation of a regional innovation center (fig. 3).

According to the given analysis, the process of implementation of the Strategy of innovational and investment development of Poltava region, and in particular its machine-building complex, will inevitably be accompanied by risks, which needs consideration, appropriate adjustment of strategic goals, priority areas, tasks, mechanisms of their implementation at both national and regional levels. Risks are a specific feature of the regional socio-economic system, they arise under the influence of external and internal factors and lead to the imbalance of the system. As risks are related to some uncertainty, impossibility to take into account all the peculiarities of the regional development in the medium and long term, it is necessary to implement constant monitoring of the socio-economic development of the region and achieving the goal, strategic goals of its development, to provide for the adjustment of the strategy and tactics towards its safe development through an appropriate system of management measures in the field of machine-building.

Monitoring should include all possible levels and groups of risks for the development of Poltava region. For quantity distribution of risks in projects, it is proposed to use so-called conceptual model based on traditional decision-making methods, the basis of which is the tree of “probabilities and decisions” used to identify the sequence of decisions. The sequence of decisions regarding the choice of one or another order is determined at the stage of forming the portfolio of orders. This problem is twofold due to the involvement of at least two parties in the investment project: a buyer and a seller or a customer and a contractor.

Increasing the quantity and duration of investment in machine-building projects, the variety and complexity, the introduction of new methods and technologies in their implementation, the high dynamism of the environment surrounding any business entity, competition, inflation and other negative factors lead to the increase of risk in the process of implementing the project of this type.

Proper distribution of risk means that project participants make a number of decisions that either extend or narrow the range of potential investors. The bigger risk sharing is going to be put on investors by the participants, the harder it is for project participants to attract experienced investors to finance the project.

Most major projects have a delay in their implementation, which can mean for the customer an increase in the cost of the work that will exceed the initial cost of the project implementation.

The way out is to transfer certain risks to an insurance company. The investor must determine the ratio, acceptable to him, between the insurance premium and the sum insured. An insurance premium, or an insurance fee, is a payment for an insurance risk. Risk should not be withheld, that is, the investor should not assume the risk if the size of losses is relatively large compared to the insurance premium savings.

Diversification enables to eliminate some of the risk by allocating capital between different activities. The availability of comprehensive information in decision making determines the quality of forecasts and reduces a risk. The cost of full information is calculated as the difference between the expected cost of any acquisition, when full information is available, and the expected cost, when the information is incomplete. Limitation is the fixing of a limit, that is, the ceiling of expenses, sales, credit, etc. It is an important means of reducing the degree of risk. The essence of insurance is that the investor is ready to abandon some part of the income to avoid the risk, that is, he is ready to pay for reducing the degree of risk to zero.

Development and implementation of the strategy of innovation and investment development of the machine-building complex in Poltava region should present a complex of necessary measures, which requires the formation of a general safety culture and appropriate resources (state and regional level definition); the preparation of the strategy of safe functioning of the production means sphere, in particular mechanical engineering, as a rule, is of a corporate nature (from a manager to directly a contractor, a worker). Having identified the threats, opportunities, strengths and weaknesses of the innovation and investment state of the machine-building sector in Poltava region, we choose the type of strategy that, under these conditions, will promote the introduction of innovative changes in the operation system of enterprises of this type and support the implementation of the innovation development of the region and the country as a whole.

When choosing a strategy for innovation development, machine-building enterprises must clearly determine the stage of their own economic development and choose a strategy that will accelerate economic growth, in accordance with the determined stage of the life cycle.

The use of BSC to implement the enterprise’s innovation strategy not only minimizes the costs for mastering of a new product, but also enables to extend the period of its presence in the market, showing the directions of its improvement (development) in view of changing consumer preferences. Both are

particularly important for regional machine-building enterprises, financial capacity of which is insufficient to deliver large-scale and radical innovations, as a result, they choose an innovation strategy of a security type.

At the same time, despite limited self-financing opportunities for major innovation projects, an enterprise strategy can also include offensive actions if they are based on promising innovation. Without touching upon the substantiation aspects of the optimal investment strategy for such a project, we will outline the most important moments of innovation activity planning in case of choosing an offensive type strategy.

The ability of a machine-building enterprise to master a new market niche through the implementation of an innovation offensive type strategy can be evaluated by the share of the relevant commodities market, in which its products are sold. For the enterprises of the machine-building complex in Poltava region, such a market includes two main segments – manufacturing enterprises and consumer market. Considering the specificity of machine-building products, the greatest value for the enterprises of this industry is represented by those buyers of products that use it as a means of production. These may be, on the one hand, consumers who know products of the enterprise well, recognize its brand and are loyal to it, and, therefore, they will be receptive to new products of the enterprise. On the other hand, they may be potential consumers of new products, who need to be convinced of their value to them, and, therefore, in addition to planning a purely innovative activity, when bringing new products to the market, it is necessary to develop a marketing strategy, using certain marketing tools for gaining desired market share.

Conclusions. Thus, the basis of implementation the results of previous studies, the new methodological approaches to improving the strategic planning and implementation of innovations in the innovations in the production means sphere, in particular of machine-building complex of Poltava region should become the basis for implementation of the innovation and investment development strategy. They include:

– methodological recommendations for the formation of industrial enterprises of the production means sphere innovation policy. These recommendations provide for the formulation of the key objectives of innovation policy in accordance with the basic strategy of the enterprise and the specification of the tasks of its functional services within the innovation policy of different types based on the relationship «goals-indicators-achievement criteria";

– the use of marketing methodological tools to identify the most important functional characteristics of new products in order to set priorities in formation of the innovation strategy for the machine-building enterprise;

– methodological recommendations for structural and organizational solution of strategic planning problems in terms of innovation activity on the basis of cross-functional interaction (creation of a cross-functional strategic group);

– the model of information support of innovation implementation control based on formation of the balanced system of indicators and the algorithm of «advanced» adjustment of the innovative project in machine-building industry during its life cycle.

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