

# ORGANIZATIONAL, METHODOLOGICAL AND ECONOMIC IMPERATIVES OF DEVELOPING AN INNOVATION STRATEGY OF A REGION'S SUSTAINABILITY ON THE BASIS OF INTELLECTUAL CAPACITY BUILDING

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**Abstract.** The *purpose* of the paper is the research of organizational, methodological and economic imperatives of developing an innovation strategy of sustainability for a region on the basis of intellectual capacity building. *Methodology.* Methods of scientific analysis and synthesis, structural, factor, system and functional analysis, methods of economic and statistical analysis were used as main methods in this research. In addition, we used special methods of complex economic analysis: monographic method during the research on the specific features of intellectual capacity building, historical method during the research on principles and factors of a region's intellectual capacity building and development strategy, abstract and logical methods in defining modern requirements for the intellectual potential of a region, systematic and comprehensive methods in formulating a model of economic sustainability of intellectual capacity development in a region, structural objectives to develop the strategic mechanism of intellectual capacity development in a region. *Results.* An innovation strategy of a region economic sustainability is proposed in this paper. The strategy is a scheme of achieving significant long-term competitive advantages and the main tool of a sustainable region development that creates a possibility for the efficient use of intellectual, productive, technological and market resources. Structural interconnection of resource components of innovational capacity in the system of a region strategic sustainability support is analyzed. The research presents the algorithm of innovation strategy development in the system of a region strategic sustainability support. An integrated benchmark and indicator system that helps to choose a certain innovation strategy of region development is characterized. The mentioned criteria and indicators provide more rational and effective choice of innovative behavior. We proposed principal directions of investment in the intellectual capacity of a region and developed a scheme for evaluation and selection of investing alternatives for the intellectual capacity of a region. *Practical implications.* The proposed organizational and economic tools allow implementing relevance and efficiency of intellectual capacity management in order to ensure its strategic sustainability. *Value/originality.* The acquired results show a theoretical base of organizational, methodological and economic imperatives of developing an innovation strategy of region sustainability and the growth of the regional economics.

**Key words:** innovation, innovation strategy, intellectual capacity, sustainable development, investment, regional economic.

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## 1. Introduction

The intellectual capacity is a basic premise for the development and implementation of specific innovations that provide competitive advantages and strategic sustainability of a region. The innovation plays the most important role in its economic life. An efficient innovation strategy of a region is the main mechanism of achieving significant long-term competitive advantages on the market by making new and improved products and/or implementing new and improved procedures, i.e., the main tool of sustainable development.

In current context, the sustainability of a region in different business sectors is acquired by a means of operational use and commercialization in its economic activities of innovations that allow for strategic competitive advantages. Therefore, an innovation strategy of region sustainability, based on the innovational and creative capacity building, is the main tool of its implementation.

## 2. The concept of "Strategy"

Before covering conceptual frameworks for developing and implementing innovation strategy it is necessary to determine the meaning of the term "strategy". Key definitions of the concept are given in Table 1.

It must be noted that according to the definition of strategy it takes into account baseline processes of the region and its external environment and the possibilities of economic capacity building. Strategic management decisions form the basis of strategy development and its practical implementation.

These decisions are typically made by choosing qualitatively different variants from a discrete set accordingly. Generally, strategic management decisions are focused on anticipated or predicted changes in the external environment and in the region itself and aimed on the extensive use of intellectual

capacity and innovative technologies that are constantly evolving.

During the process of making strategic decisions such basic systemic principles of the region must be taken into consideration as: innovative behavior – readiness for continuous improvement of technology, techniques and labor organization, product and market policy; flexibility and adaptability – rapid introduction of necessary changes depending on changing market conditions; economic efficiency, practicality and ability to implement strategies, as well as consistency with the resource capabilities of a region; accounting for internal priorities and strengthening the motivation of the region's staff, etc.

It should be emphasized that concepts of a strategy and strategic decisions are intimately related to the concept of a region's capacity. Every region has a certain production and economic capacity. It can be represented as overall resources at the disposal of a company that are essential to the use of region's internal capacity on solving its strategic problems. Moreover, the resources are considered as basic for a region only if their types, level and structure couldn't be changed except by making and implementing appropriate strategic decisions.

Production and economic capacity of any region is not a constant. It has a tendency either to increase or to decrease. If a region intends to ensure its firm position in the market, it develops and implements a set of measures thus contributing to its efficient increase.

In our view, the term the strategy of a sustainable region development refers to a set of organizational, productive, market, financial and economic measures that is aimed to achieve competitive advantages to provide its long-term and efficient functioning and development.

As previously stated, the intellectual capacity is a basic premise for the development and implementation of specific innovations that provide competitive advantages and strategic sustainability of a region.

Table 1

### Key Definitions of the Concept of "Strategy"

Definition	Source
Strategy is a set of rules for decision making to guide the behavior of an organization	(Ansoff, 1989)
The term strategy refers to a specification of a development path based on the dynamics of the external environment with the help of long-term goals, securing resources for their achievement and planning forward-looking actions	(Yevenko, 1996)
The term strategy refers to a dynamic system of interconnected rules and techniques that provide efficient and long-term development and support of competitive advantages on internal and external markets of the individual and common good	(Gradov, 2003)
Strategy is the managerial plan to enhance the organization's position in the market, boost customer satisfaction and achieve performance targets	(Thompson, Strickland, 1998)
Strategy is a long-term qualitatively defined direction of development related to the sphere of activity, means and forms of its activity, the system of relations within the region, as well as the region's position in the environment, which leads the region to its goals.	(Vikhansky, 1995)
Strategy is a qualitative consistency of operations and states used for achieving its goals	(Trenyov, 2000)

Generally, an innovation in business is an implemented idea that generates income and social benefit. For example, Peter Drucker views an innovation as a phenomenon of the demand context rather than a supply context. That is to say, it is changing the value obtained from resources by a customer (Drucker, 1994). It should be noted that the term "innovation" can be applied to any novelties in productive, commercial, financial, scientific, research, marketing, management and other spheres, any changes and improvements that provide progress in the economic system on any level. From this point of view, innovations are the exact opposite of conservatism aimed to preserve the current state and are focused on a qualitative change and an improvement of economic activities.

However, the state of the utilization of innovations and intellectual capacity in Ukrainian economic system is far from satisfactory. In fact, the system undergoes the negative trends associated with an unprecedented loss of intellectual capacity. This proves that the innovational approach to Ukrainian economic development should be strengthened on the governmental level, and the mechanisms of economic stimulus – on the micro levels, thus enhancing regional innovations.

From this perspective, the transition to an economics that is based on the factor of knowledge implementation rather than on the export of raw materials and energy resources is the main goal for Ukraine. The development of such economic system will preserve the intellectual capacity and provide the possibility to take a favorable position in the world.

### **3. Innovation strategy of a region's sustainability**

The key condition to strategic sustainability support of a region in a highly competitive environment is the constant improvement of innovation (and intellectual) capacity and its effective use. It is the innovation capacity that provides production of such quality and quantity that ensures its sustainability under the negative influence of external environment factors.

Subsequently, it means that the innovation capacity is primarily aimed on the adaptive capabilities of a system and the qualitative changes in it. Thus, the increase of the capacity implies not only the quantitative increase, but also the ability to compensate the influence of the negative factors and to use innovations.

It follows that the indicators of innovation production level, qualifications and motivation level of staff, flexibility of production technology, adaptive capacities to changes in the external environment or the strategic sustainability in relation to such changes should be taken into account in the structural composition of innovation capacity. The mentioned above criteria and equivalent parameters

basically reflect the effective development of a region and its ability to implement its strategic objectives of economic development.

It must be mentioned that Ukrainian business structures are able neither to ensure the implementation of the existing innovation potential nor to formulate the efficient mechanism of its development.

Our analysis shows the need to consider the innovation capacity at the level of regions not only as the existing resources but also as the ability of their use in order to develop the economy and ensure the strategic sustainability. This type of capacity defines opportunities, the depth and efficiency of innovations depending on its quantity and quality.

A structural and innovation capacity of a region can be represented as a set of such resource components as intellectual, productive, technical, informational and marketplace resources. The structural interconnection of the main innovation capacity components of a region are depicted in Figure 2. It is worth mentioning that the resource component of the innovation capacity is the basis of its development. It comprises of the following components that have different functional aim: productive and technical, informational, intellectual and other types of resources.

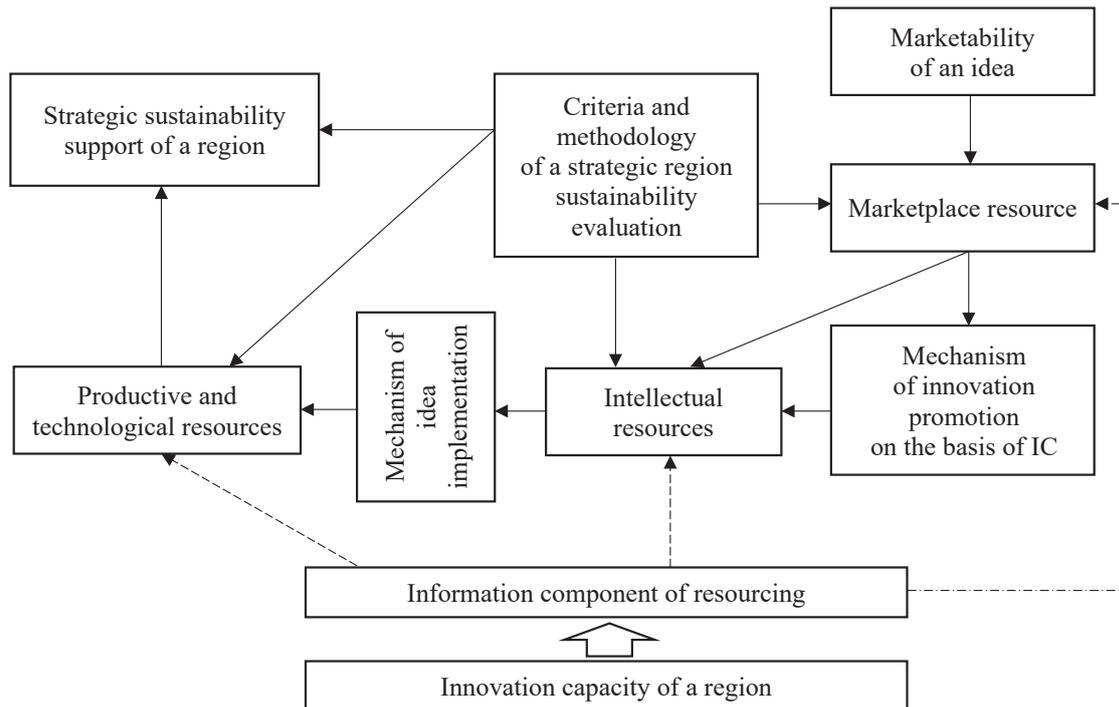
Therefore, the productive and technologic resources as a physical base define technical and technological capacity base that eventually will influence the expansion and pace of regional innovations.

From this point of view, developing an innovation strategy of region sustainability on the basis of intellectual capacity building is a strategically important task.

The innovation strategy of a region is in fact a complex set of measures aimed on the achievement of its objectives. A strategic plan as a forward-looking set of interconnected actions includes the objective of an efficient resource use, the highest level of adaptation to the external environment, the flexibility of internal structure of a region. The plan describes its future plan, that is to say, it is based on the vision of the future in terms of management, the envisioning change of external environment parameters and status indicators of a region.

The process of innovation strategy development in the system of strategic sustainability support in a region can be represented as the following algorithm depicted on Figure 2.

It is worth mentioning that innovation strategies for the systematic management area of its implementations should be reformulated into innovation goals that in qualitative terms could reflect following results of: creation of new products and materials, transition to new technologies, production of new services, transition to new resources or new priorities of any resource, new methods of production organization and the use of a new approach in a chain



**Figure 1. Structural interconnection of resource components of innovational capacity in the system of a strategic regions sustainability support**

of the marketing mix, the implementation of a new logistic scheme or its element, development of new methods of income and new business model, transition to a new organizational structure, a new communications network, new elements of corporate culture, transition to a new management system and a new system of incentives (Dovba, 2019).

#### 4. The criteria and indicators for evaluating and selecting the concept of sustainable development of the region

It should be noted that the choice of a specific innovation strategy is carried out subject to the internal and external conditions of the regional development based on a system of balanced criteria.

In this context, the paper defines a comprehensive system of criteria and indicators that allow choosing a certain innovation strategy for the development of the region (Table 2).

These criteria and indicators allow us to ensure region more rational and effective choice of innovative behavior.

For example, evaluating the intellectual resources of the region implies an analysis of the abilities of business entities located in the region to conduct R&D, as well as the possibilities of implementing the accumulated scientific and technical developments on the market. Analysis of the intellectual potential involves: evaluating the effectiveness and use of

existing scientific experience; identifying the ability to reproduce intellectual potential; finding out ways to transform existing opportunities into a product, promoting it to the market, or choosing the optimal path for technology transfer.

Assessment of the level of production and technological potential of the region provides for the analysis of existing mechanisms for the materialization of an idea or the assessment of technical bringing a scientific and technical idea to the stage of commercial implementation on the market in competitive conditions, and so on.

As mentioned above, the formation of an innovation sustainability strategy of the region based on the development of intellectual potential is a strategically important task. It should be noted that the intellectual potential of the region has a powerful reserve of entrepreneurial activity, which acts as an innovation development vector of the modern region. That is, intellectual potential is a strategic factor, a creative resource, the development of which ensures stability and scientific and technological steadfastness of local development. In the conditions of fierce competition without a highly developed intellectual potential no region will be able to carry out its innovation development. Intellectual potential, as the main competitive advantage of the region's development, forms the possibility of improving the technological production facilities and its products. This makes it possible to characterize

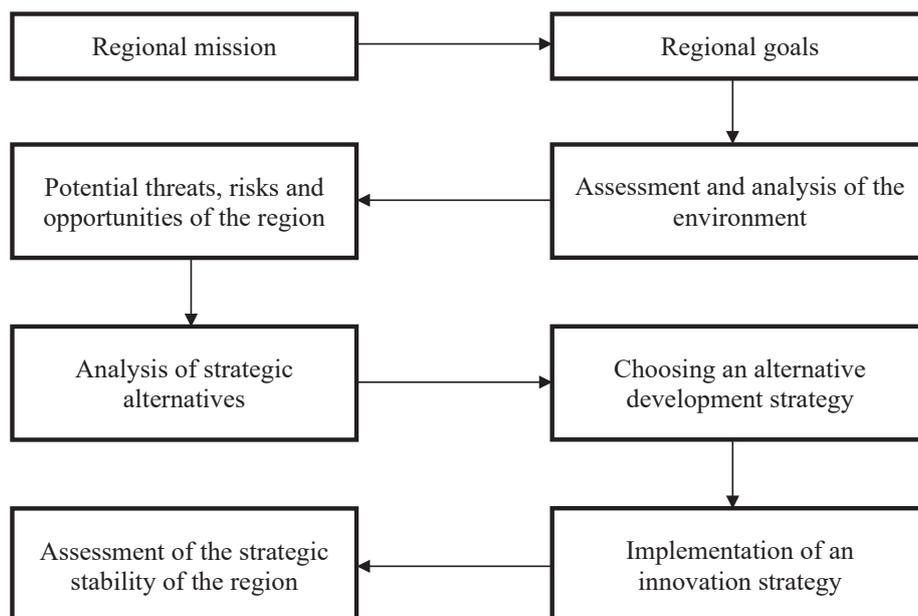


Figure 2. Algorithm for forming an innovation strategy in the regional sustainability system

intellectual potential as a system of characteristics that determine the quality of the labor force of an individual, an aggregate employee of a company materialized in the process of carrying out labor activity on the basis of mechanisms of personalized material interest.

From this point of view, it is obvious that the resource of knowledge and the ability of individuals in the form of intellectual potential are the only economic value of this object. Thus, the intellectual potential in the process of dynamic development acquires new innovative properties, which are characterized by the presence and progressive development of intellectual property; the formation of a creative type of thinking of personnel, which forms and implements the main strategies for the development of a particular region. Ultimately

intellectual potential region gradually acquires its own original form of development, the integrated element of which is knowledge.

Intellectual and innovative capitals of the region are considered as the most important elements of strategic potential for creating its fundamental value. It follows that intellectual capital includes: intellectual capital of employees, human capital (as an integral amount of capital of employees' personalities), structural capital (as a corporate created conditions for organizing employees' work), intellectual property (which must be legally fixed) and intangible assets. Innovative production assets from this point of view will be such assets that, in combination with intangible assets, are used for the production implementation of the ideas put forward (as a result of a person's creative activity).

Table 2  
Comprehensive system of criteria and indicators for evaluating and selecting the concept of sustainable development of the region

Criteria	Key indicators
Strategic criteria	Compliance with the main development goals of the region; acceptable level of risk of implementing the innovation strategy of the region
Criteria for intellectual potential	Accumulated scientific and development developments, existing intangible assets, patentability of the idea; level of scientific and methodological support for the development of the region, professional personnel
Investment criteria	Cost of project implementation; estimate of cash flows; net present value; internal rate of return; budget and social efficiency, etc.
Innovative criteria	Sustainability of innovative development of the region; probability of scientific and technological success; availability and implementation of innovative developments, etc.
Production and technological criteria	Level of use of production capacity; technical and technological capabilities of the region's development; technological security of the region
Market criteria	Market volumes, assessment of consumers of intellectual products in the region; assessment of competing regions, assessment of the business reputation of the region, availability of service marks

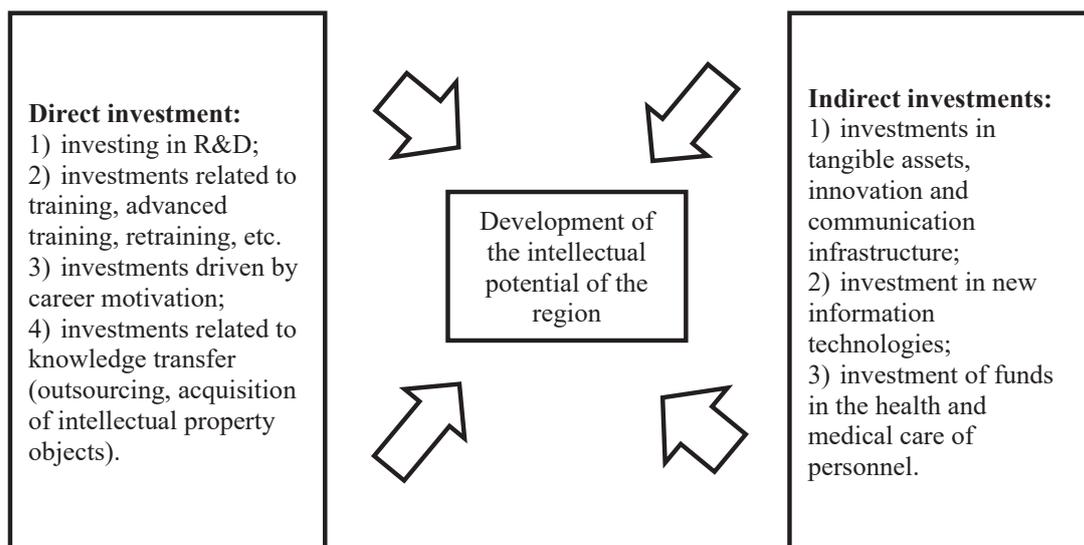


Figure 3. Key intellectual potential-focused investments

The information component (or potential) integrates all the relevant elements that form the fundamental value. The so-called communication assets act as an element of the information field and are considered as an element that manifests itself in internal and external communication activities, that is, in relationships of the region with the external environment. Objective processes of accelerated information dissemination, as well as a noticeable synergistic effect from joint actions, increase the role of the management system, which is focused on the interests of all participants of the process both internally and externally.

It is quite obvious that the main factor in supporting and developing intellectual capital of the region is the investment into the intellectual potential of the staff. However, issues related to the investments in the intellectual potential of the personnel and the estimate of their efficiency do not have an unambiguous assessment. Therefore, it is advisable to consider the system of main directions of investment in intellectual potential proposed by us.

Investments into the intellectual potential of the personnel can be divided into direct and indirect investments of monetary resources (Figure 3).

While analyzing investments in the intellectual potential of the organization's personnel, we identified the following specific features and forms of its manifestation.

First, it is quite difficult to determine the final result or return on investment in intellectual potential.

Secondly, the return on investment in intellectual potential is directly related to the life expectancy of a person, or rather his working age.

Third, in the process of disposal of investments, the intellectual potential of the organization's personnel is accumulated and developed.

Fourth, compared to the investments in other forms of funds placements, investments in intellectual potential bring a synergistic effect, which has prominent economic, innovative and social components.

Fifth, investments in the intellectual potential of the personnel have a fairly long payback period.

### 5. Evaluation of the effectiveness of investments in intellectual capital

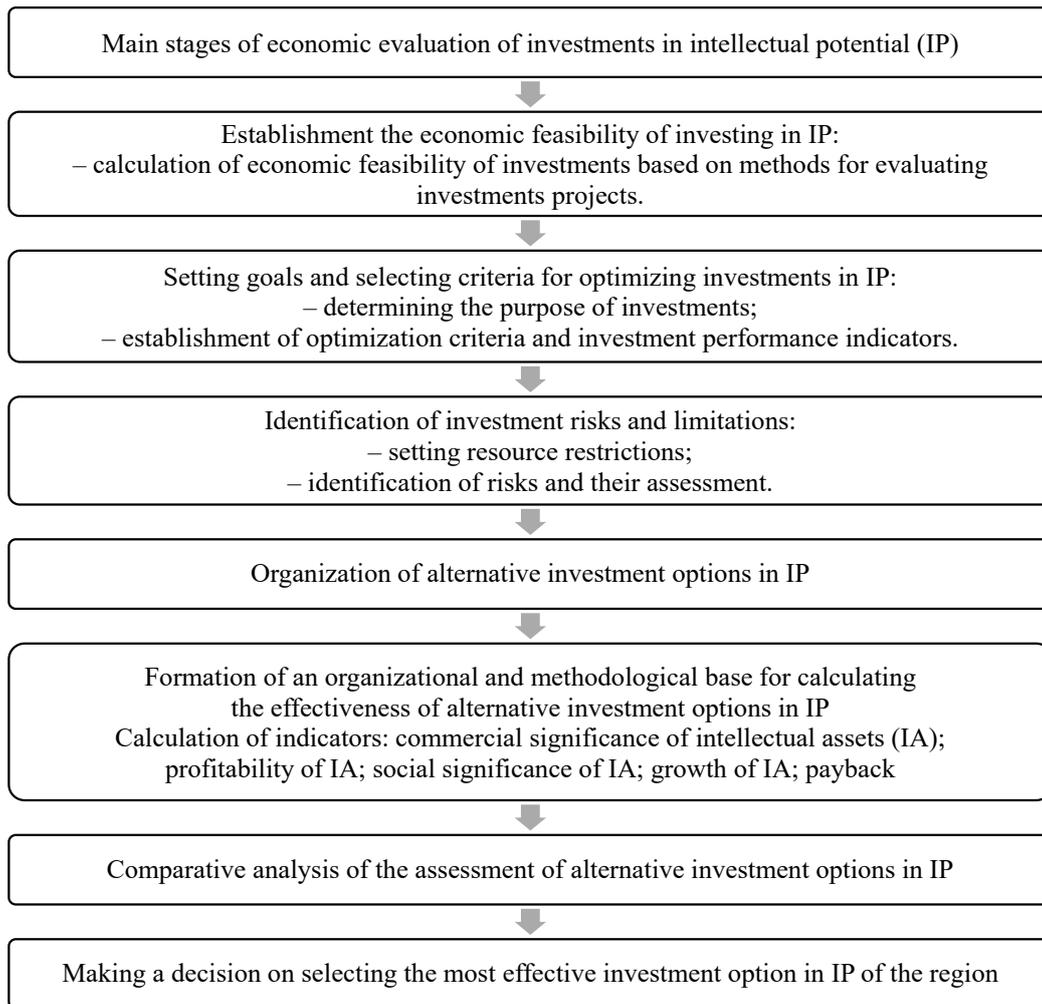
One of the main problems of forming, ensuring and developing of the intellectual potential is to evaluate the effectiveness of investments or economic feasibility. In this regard, the paper offers a consistent scheme for evaluating and selecting alternative options for investing financial resources of the development of the intellectual potential of personnel (Figure 4).

In this paper, the intellectual potential of the region is considered as an internal resource, that ensures its competitive advantages and strategic stability.

The intellectual potential of the region can be assessed by the following indicators:

- share of the research & development (R&D) in total production costs;
- share of intangible assets in the total value of major production assets;
- share of innovative products in total sales;
- the number of licenses, patents, inventions, trademarks, industrial samples, etc.;
- the number of innovative offers for improving the production and technological activities of the region;
- the number of annually implemented innovative activities provided for by the strategic planning system.

The system of measures of the region for the development of intellectual potential in order to ensure strategic stability is characterized by such indicators as:



**Figure 4. Scheme for evaluating and selecting alternative options for investing financial resources in the development of the intellectual potential of the region**

- the level of costs for training, retraining and advanced training of personnel;
- the level of costs for the purchase of scientific and technical literature, the use of advanced information technologies related to improving the knowledge level of personnel;
- the level of costs for personnel participation in various exhibitions, conferences, symposia;
- the level of costs associated with the study of world experience in the formation and development of intellectual potential, etc.

It is to be noted that in order to ensure strategic sustainability, the region should form human resource management mechanisms that are generally focused on improvement and development of IP.

In general, these mechanisms are an integrated system of staff management that is based on the following principles:

- a staff orientation with the regard of objectives and missions of region development;
- the effective functioning of intellectual capacity management system (cost to results ratio, the need

for investment, the selection of evaluation criteria for work results of the staff);

- the structural balancing of the staff with the regard of certain types of activities and the social and psychological orientation of the staff;
- the development of intellectual capacity, creativity of the staff on the basis of formation and implementation of modern incentive mechanisms.

## 6. Conclusions

In this article we have modeled an innovation strategy of economic sustainability in a region as a scheme of achieving long-term and valuable competitive advantages and the main tool of sustainable development, described an integrated benchmark and indicator system of the sustainable development concept and an algorithm of evaluation and the selection of investing alternatives of financial resources for the intellectual capacity development in a region.

We have reached the conclusion that the intellectual capacity development is a multidimen-

sional task and it requires to use adequate management tools and methods in a region. The proposed organizational and economic tools allow

implementing relevance and efficiency of intellectual capacity management in order to ensure its strategic sustainability.

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