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TÍTULO: Desarrollo de soporte informativo para el sistema nacional de emprendimiento innovador.

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RESUMEN: El documento aborda los problemas del apoyo a la inversión en infraestructura regional e indica que es necesario crear sistemas de innovación nacionales y regionales para acelerar la actividad de inversión. Se propone un modelo de sistema de innovación regional que incluye un centro de coordinación basado en el gobierno electrónico y se indican los resultados esperados de la implementación. Se consideran las principales funciones y procesos del infraestructura del sistema de innovación y se analiza la eficacia de la creación de empresas innovadoras, la comercialización de los resultados de las actividades científicas y la prestación de servicios a las empresas. Se considera la interrelación de subsistemas de apoyo de empresas innovadoras con organismos gubernamentales, empresas, instituciones científicas y educativas.

PALABRAS CLAVES: empresa, infraestructura, emprendimiento innovador, sistema de innovación regional, sistema socioeconómico.

TITLE: Development of information support for the national system of innovative entrepreneurship.

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ABSTRACT: The document addresses the issues of supporting investment in infrastructure in regions and indicates that it is necessary to form national and regional innovation systems to accelerate investment activity. A regional innovation system model including a coordination center based on e-government is proposed and the expected results of implementation are indicated. The main functions and processes of the infrastructure of innovation system are considered and the effectiveness of creation of innovative enterprises, commercialization of the results of scientific activities and provision of services to business are analyzed. The interrelation of support subsystems of innovative enterprises with government bodies, business, scientific and educational institutions is considered.

KEY WORDS: enterprise, infrastructure, innovative entrepreneurship, regional innovation system, socio-economic system.

INTRODUCTION.

In the modern economy, the activation of innovation processes is largely connected with the state policy. It is necessary to form a national innovation system (NIS), that is, to create a system of relations between elements of the national economic complex that ensure economic development and increase the quality of life based on innovations in order to speed up innovation activity.

The essence of the system is to create an innovative equal partnership of state power and entrepreneurship. At the same time, the state supports the science and technology sector and the education system, provides free access to research results in the public sector, creates the conditions for their commercial use, the necessary innovation infrastructure, the system for training qualified

personnel and the regulatory framework to stimulate innovative entrepreneurship. The business takes on the commercial risk of working on the innovation product market. Mutual trust and reliable guarantees are important factors of such partnership, which must be supported by law.

The goal of the national innovation system is to ensure the sustainable development of the country's economy through the effective use of intellectual potential, the generation, distribution and implementation of new knowledge (Sandu, Ryzhenkova, 2006).

NIS has a specific infrastructure that ensures the functioning of the system. Infrastructure includes innovation and technology centers, business incubators, technology parks. They are designed to accelerate the transfer of development in production, development of high-tech and competitive products (Sandu, Ryzhenkova, 2006).

Prerequisites for the formation of a national innovation system are the exchange of the results of innovation activities; innovation interests, consisting of the desire for improvement, socio-economic status through innovation and path for novelty, diversity; innovative values that are practically embodied in the innovative strategies of firms, regions, and the state.

The innovation system is formed under the influence of a set of objective factors for a given country, including its size, availability of natural and labor resources, features of the historical development of government institutions and forms of business activity. These factors are long-term determinants of the direction and speed of the evolution of innovation activity. In addition, each NIS is characterized by a certain structure and a certain degree of orderliness, which implies a sufficient stability of institutional interaction (and each country has its own configuration of institutional elements).

The simplest model describing the interaction of NIS elements shows that the role of the private sector is to develop technologies based on our own research and market development of innovations, the role of the government is to facilitate the production of fundamental knowledge and a complex of

technologies of a strategic nature, as well as to create infrastructure and favorable institutional conditions for innovation. Within the framework of this general model, the national characteristics of the NIS are formed: a greater or lesser role of the state and the private sector in the performance of these functions; the relative importance of large and small businesses; the ratio of basic and applied research and development; development dynamics and sectoral structure of innovation.

Thus, the national innovation system determines the strategy for the development of innovation activities in the country, but it takes into account that the country consists of regions, which determine the level of its (country) development. Based on this, it can be argued that the formation of regional innovation systems within the national innovation system is an important aspect of the socio-economic development of the region.

Regional innovation system belongs to the class of complex organizational dynamic structures of open type, whose behavior is difficult to formalize and predict. Therefore, the problem of creating an effective management mechanism for a regional system of innovative entrepreneurship requires special attention.

As I. Sandu notes, in terms of methodology, the innovation system is an integral system. Not a scattered attempt to use specific developments in a particular production, not partial measures to debug one or another link in the infrastructure of the innovation process, but the formation of a holistic, flexible and dynamic innovation system capable of solving the problem of changing or modernizing the technological basis of society are of social importance. Therefore, the methodology of the systems approach here acquires fundamental importance not only in theoretical, but also in practical terms (Sandu, Ryzhenkova, 2006). But in general, the methodological approaches are determined by the goals that are put before the innovation system, and these can be: the creation of additional jobs, the development of advanced technologies, the creation of new products and services, and the increase in competitiveness of the regional economic system.

Corresponding Member of the Academy of Sciences of the Republic of Bashkortostan, Doctor of Economics A.M. Mukhamedyarov and Doctor of Economic Sciences E.A. Divaev defines a regional innovation system "as a complex (set of) organizations that initiate and carry out the process of knowledge production, their distribution and use. These organizations contribute to the financial and economic, legal, informational support of innovation processes and function in a single socio-cultural space, are interconnected and have stable relationships" (Divayeva, Mukhamedyarov, 2010).

Candidate of Economic Sciences K.A. Zadumkin, under the regional innovation system, understands the complex of institutions and organizations of various forms of ownership located in the region and engaged in the creation and dissemination of new technologies. This complex carries out its operation taking into account and under the influence of the national innovation system and the socio-economic policy of the region (Zadumkin, 2008).

According to Ph.D. M.K. Fayzulloyev, "the regional innovation system (RIS), is a set of interrelated organizations (structures) engaged in the production and (or) commercial realization of knowledge and technology, and a complex of legal, material, financial, informational and social institutions providing the interaction of educational, scientific , business and non-profit organizations and structures in all areas of the economy and public life at the regional level" (Fayzulloyev, 2010).

After analyzing the various definitions of the regional innovation system, which are found in the economic literature, Ph.D. E.A. Erokhina highlights the following common features of the regional innovation system:

- The system is a set of institutions that initiate, create and broadcast innovations in the form of new types of products, technologies.
- Performance in the subsystems determine the knowledge and a person as their carrier.

- The system performs basic and specific functions. The main functions include forecasting, planning, organization, coordination, promotion and control. The specific functions of the system are the production, generation, distribution and use of knowledge.

- A necessary condition for the existence of a system is the presence of connections and the established types of relations between elements and subsystems.

It is clear that the listed features are common, but it is necessary to take the peculiarities of economic entities of the region into account, the main "sources" of innovations, consumers of new products and technologies, real possibilities of commercialization while forming a regional innovation system.

In the regional innovation system, as a rule, the following subsystems are distinguished:

- Regional socio-economic policy.
- Knowledge production.
- Knowledge support (regulation, financial, economic and regulatory support).
- The spread of knowledge.
- Use of knowledge and implementation of their results.
- Production system of high technology products and services.
- Preparation and provision of innovative receptivity.
- A system of regional innovation infrastructure.
- A system of education and training and retraining.
- Evaluation and protection of intellectual property results.
- Information support and preparation of scientific and methodological base.
- Innovative, scientific and technical regional legislation (Erokhina, 2013).

In this set of subsystems, PhD in Mathematics N.E. Egorov proposes to pay particular attention to the three subsystems of the regional innovation system: the knowledge generation subsystem, the technology transfer and incubation subsystem, the high-tech business subsystem. Such an allocation

of components of the regional innovation system, in his opinion, will allow to carry out a targeted impact on the regional innovation process at its three main stages: the generation of new knowledge, its transfer and transformation into innovation. In addition, the cumulative presence in the region of these three elements is a necessary condition for the formation of a model of a regional innovation system and innovative development of the territory (Egorov, 2010).

The main purpose of creating a regional innovation system is to increase the level of functioning of the socio-economic system, which is the region, through the use of innovations. Thus, the innovation system assumes, firstly, the creation of new-type production and research companies focused on creating and mastering economic and socially efficient innovations, secondly, the development of infrastructure serving the development and commercialization process of developments, and thirdly , increasing the role of the state in the coordination and financing of basic science, education and innovation infrastructure (Batov, Kandrokova, 2010).

To create an effective regional innovation system, it is necessary to consider the following circumstances:

- It is necessary to increase the demand for innovations from most of the branches of the regional economy, since at present the innovation activity is concentrated in a limited number of sectors, and the technological renewal of production relies mainly on the import of technologies, and not on domestic developments.

- To increase the efficiency of the knowledge generation sector (fundamental and applied science), as there is a gradual loss of the reserve created in previous years, aging of personnel, there is a decrease in the level of research, weak integration into the global market for innovations and a lack of orientation to the needs of the regional economy.

- To overcome the fragmentation of the created regional innovation infrastructure, since many of its elements are created, but don't support the innovation process throughout the course of generation, commercialization and innovation at the regional level.

- The creation on the basis of the information technology platform of the regional e-government a coordinating center for the support of innovative entrepreneurship, which is responsible for the search and introduction of innovations, the search for innovations both within the region and beyond.

- Improving the system of organized and regulatory legal support for the development, adoption and implementation of innovative development programs in the region.

Solving these problems will create a real basis for the formation of regional innovation systems as a specific part of the national innovation system.

As noted by Ph.D. E. Erokhina, in the world economy, a number of organizational and economic measures have been developed and tested in practice, contributing to the intensification of the process of regional innovation development, such as:

- Implementation of special targeted programs at the national, regional and local levels.

- Direct state subsidies and targeted allocations of regional (local) authorities.

- Local tax incentives aimed at stimulating the innovation activity of enterprises.

- The formation of science parks and regional centers of advanced technologies and the creation of innovation business incubators.

- Attracting venture capital and mobilizing private sector resources to meet the challenges of regional development.

- Formation of business networks and clusters.

- Improving the information, communication and financial infrastructure.

- Organization of management consulting for entrepreneurs (Erokhina, 2012).

DEVELOPMENT.

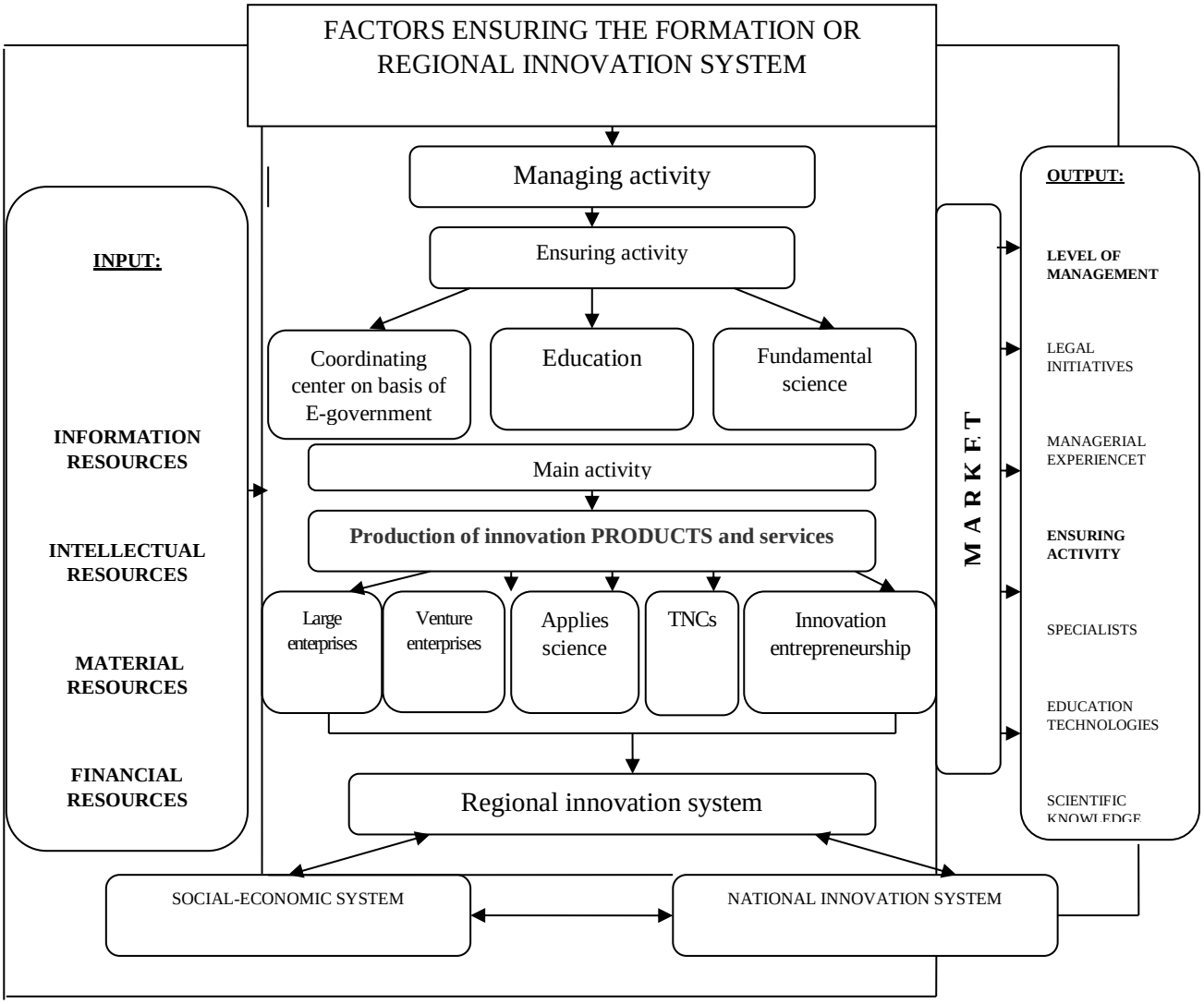
Summarizing the above, we want to offer our vision of a regional innovation system. In our opinion, the regional innovation system is an element in the socio-economic system of the region, the main functions of which are to ensure efficient and streamlined relationships between all participants in the innovation process, consolidate science, education, business and the state on a mutually beneficial basis, generate knowledge and disseminate new knowledge, production and innovation in the production process, the development of infrastructure and information support of innovation development strategy of innovation development, integration into the national innovation system. The ultimate goal of the innovation system is the creation of conditions for achieving a high level of socio-economic development of the region.

In our opinion, each region should have its own regional innovation system, created and formed according to the particularities of this region, its weak and strong sides.

The main activity involves the selection of the main participants that form the profile of the scientific and technical reserve, providing the main part of innovative high-tech products in the gross regional product.

It is necessary to note the presence in the system of such an element as the market, which can be both an internal segment and external to the system itself. Moreover, a necessary condition for the effective functioning of the innovation system of the region is the existence of institutional links between this element and all other components of the system (Figure 1).

Figure 1 - General model of the regional innovation system.



In general, the regional innovation system should become a link between the socio-economic policy of the region, science, education, high-tech industry and the market and have sufficient stability allowing it to function normally in conditions of possible destabilization of the economic situation. In addition, a regional innovation system is required to be able to integrate into higher level innovation systems (Fayzulloyev, 2010).

The regional innovation system should become part of the socio-economic system, within which it works, from which comes the main flow of resources: labor, material, intellectual, informational, financial. The main purpose of the regional innovation system is to ensure the effective functioning

of the innovation system, which will contribute to active economic growth and, therefore, a change in the qualitative characteristics of the socio-economic situation of the population. It should be included in the national innovation system, which not only forms the vector for the further development of innovation systems in the region, but also the entire country.

An important step, showing the importance of the development of innovation and the interest of the authorities in it, can be the allocation of innovative subjects into a separate block, which will be supervised by a special administrative body. Similar structures should be created at the level of municipalities.

The practice of supporting innovation in various regions of Russia shows that this body can function in one of the following organizational and legal forms (Abayev, 2008): department in the structure of the regional executive authority; government agency (agency); state unitary enterprise; non-commercial partnership; autonomous non-profit organization; division of a leading higher education institution;

As part of this research, it is proposed to supplement the list with the focal point of innovative entrepreneurship based on regional e-government.

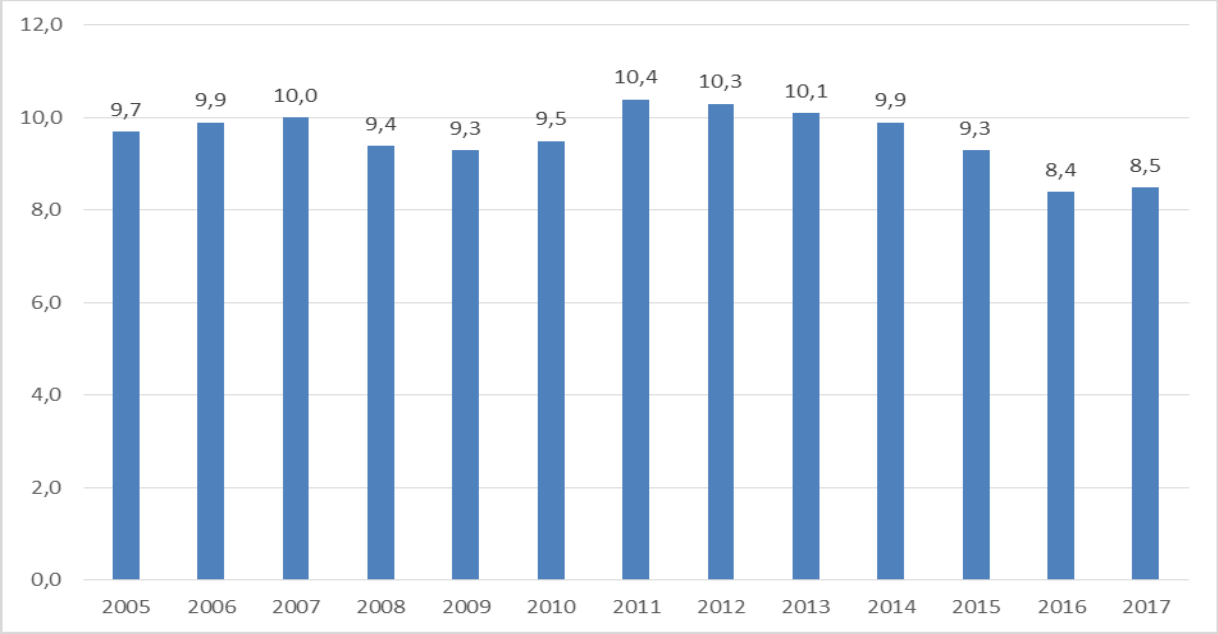
The work of this body should include two main blocks: the creation of an information space for innovation and targeted support for the region's priority areas of innovation development. On the whole, the creation of regional innovation systems within the framework of the national innovation system is one of the most important factors influencing the formation of an effective economic mechanism of innovation policy. The organization of a regional innovation system will allow at the regional level to solve priority problems in the development of scientific, technical and innovation activities and participation in the national innovation system. The regional innovation system will create a favorable external environment and form internal incentives for the growth of social capital, technological modernization of production and the development of branches of the new economy.

The creation of a regional innovation system should ensure the improvement of the quality of life of the population, the achievement of economic growth, create economic, legal and organizational conditions for the transition to an innovative development path, building an innovative economy.

Thus, the proposed RIS model can become an important tool for analysis of innovation processes occurring in the region, will allow to estimate the origin and structure of resource flows, to focus enterprises of the region on the use of innovations, to predict the risks and effects associated with the introduction of innovations, to ensure the transfer of the region to principles of strategic management.

Next, we shall consider organizational and economic mechanism of functioning of the coordination center for infrastructure support of regional innovative enterprises. At present, the development of the sector of innovative entrepreneurship is a strategic priority of Russian policy. However, the achieved level of development of this segment of the domestic economy indicates the presence of organizational and financial problems that limit the ability of small enterprises to perform their functions in the regional economy (Figure 2).

Figure 2 - Innovative activity of organizations (the proportion of organizations engaged in technological, organizational, marketing innovations in the total number of surveyed organizations) in the Russian Federation, percent of total.



Thus, as of 2017, the proportion of organizations implementing technological, organizational, and marketing innovations in the total number of organizations fell below the 2009 level.

To improve the current situation in the sector of innovative entrepreneurship, it is necessary to support its development in the regions actively. Thus, according to L.I. Abalkin, academician of the Russian Academy of Sciences, small business is a large economic reserve, therefore it is necessary "... to provide all forms of assistance to it. For example, to create special office and warehouse centers with access roads, gas supply, Internet ..., etc." (Nikitina, 2010).

The effectiveness of various directions of assistance to innovative enterprises depends on the balance of the organizational and economic mechanism for the functioning of the regional complex of their infrastructure support. The organizational and economic mechanism for the functioning of a regional infrastructure support complex for innovative enterprises includes the creation of a coordination center for supporting innovative entrepreneurship in the region on the information technology base of the regional e-government.

The creation of an appropriate support center is due to the specifics of the infrastructure support for the activity of an innovative enterprise, which consists in the variety of potential support tools and the need to select the actually possible ones. In addition, in most cases, managers of an innovative enterprise cannot independently determine the priority areas for action, therefore, cannot make a choice in favor of appropriate support measures. Therefore, for an informed choice of the composition of the regional complex of infrastructure support tools, which allows to get the best result, an innovative enterprise needs qualified assistance. The result of the creation of a coordinating center for supporting innovative entrepreneurship in the region should be the most effective use of the advantages of innovative enterprises in solving regional socio-economic problems.

The main objective of this center is to improve the conditions for the creation, operation and development of innovative enterprises in the regional economy through the organization of interaction with the subjects of the infrastructure of support for innovative enterprises. To achieve this goal, it is necessary to solve a complex of tasks, of which the most important are the following:

- First, the creation of a coordination center should be focused on solving actual problems in the development of innovative entrepreneurship in the region.

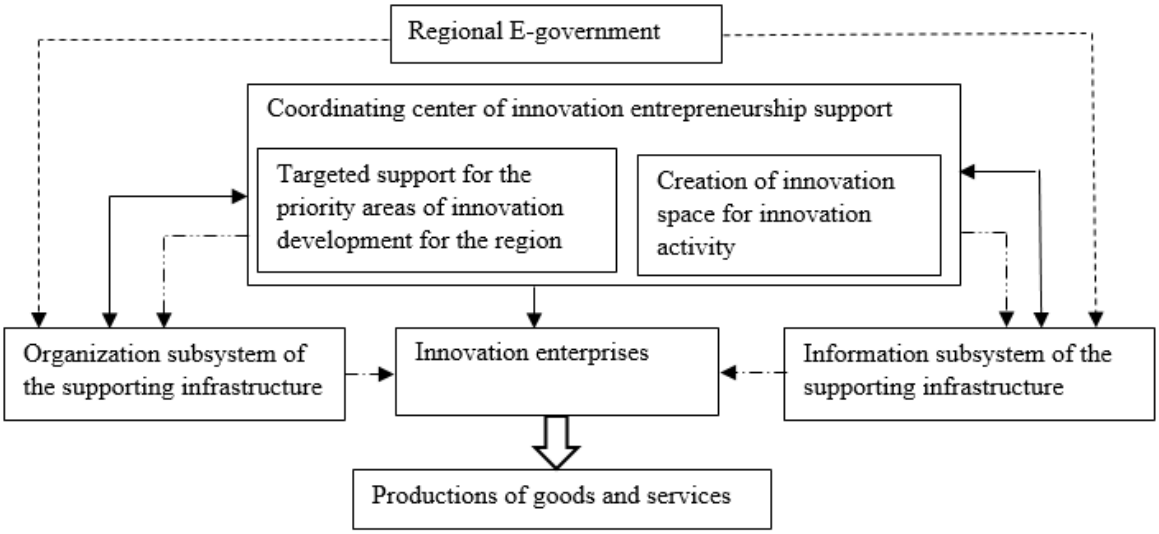
- Secondly, the activity of the coordination center involves ensuring the comprehensiveness and completeness of the actions necessary to solve the problems of the functioning of an innovative enterprise.

- Thirdly, the functioning of the center should be aimed at choosing such a regional complex of infrastructure tools to support innovative entrepreneurship, which, for a given set of problems and available resources, would allow to obtain the maximum economic effect.

- Fourthly, a mechanism for monitoring the effectiveness of support measures, based on feedback, should be developed.

The scheme of interaction between regional executive authorities, innovative enterprises, subjects of support infrastructure and a coordinating center of support is presented in Figure 3.

Figure 3 - Organizational and economic mechanism of the functioning of the coordination center for infrastructure support of regional innovative enterprises (Solid line – information, dotted – resource supply, dash-dotted with 2 dots – support services, dash-dotted with 1 dot – coordination).



The Coordination Center for Innovative Entrepreneurship Support based on regional e-government will be a link between the authorities and small businesses, through which authorities can ensure the coordination, focus and effectiveness of innovative entrepreneurship support programs designed to improve the conditions for the development of this sector of the economy.

The result of the formation of the organizational-economic mechanism of functioning of the regional complex of infrastructure support for innovative enterprises through the creation of a coordinating center for supporting innovative entrepreneurship will improve the provision of integrated and targeted support to innovative enterprises, which will accelerate the development of this segment of the economy.

Currently, most of the approaches applied at the regional level in the implementation of territorial policy are often a set of measures for the development of individual infrastructural elements that are not considered at the level of government as a single interacting complex that allows solving priorities for the region.

In addition, the scientific community also pays great attention to analyzing the functioning and development of specific infrastructure organizations implementing relevant functions, which, in our opinion, is a necessary but not sufficient condition for the possibility of summarizing and highlighting

general trends and problems of vital activity, as well as assessing the contribution to the economy territories of the participants in the innovation process.

In this regard, the formation of a unified methodological concept that considers the objects of the innovation infrastructure as an institutional complex based on the information technology platform of the regional e-government, aimed at the implementation of certain functions within the regional innovation system, is relevant.

There will be following infrastructure functions of the innovation system:

1. Creating innovative entrepreneurship.

2. Commercialization of scientific developments of universities, research institutes.

3. Provision of services to fill the missing competences of the innovative business, expressed in the formation, thereby, of additional competitive advantages (Chistyakova, 2009).

Selection of functions as a methodological approach in the development of a structural model of an innovation infrastructure, as a subsystem of a regional innovation system, allows to remove limitations in existing approaches based on either grouping services provided by infrastructure organizations or participating in an innovation chain.

Since each function implemented within the framework of the “innovation infrastructure” subsystem is a complex process aimed at an individual result, in our opinion, it is advisable to decompose the generalized infrastructure model of the region's innovation system into process components. This will allow a more detailed analysis of the structure of each of them and eliminates the need to form a cumbersome generalized model with the maximum degree of detail, and, moreover, will not break the whole picture of the vision of the infrastructure as an interconnected complex that implements functions that are strategically important for the region.

When forming models of each process, it is proposed to use the “black box” model (Chistyakova, 2009), which will allow to reflect all the resource flows at the input, identify the result of the implementation of the process formed at the output, as well as structure all its stages, which are accompanied by various services provided by organizations infrastructure. Moreover, these models will be a conceptual basis for the development of a follow-up methodology for monitoring and evaluating the effectiveness of infrastructure activities in the framework of the regional innovation system.

Thus, the process model “The process of creating innovative enterprises”, presented in Figure 4, can be characterized as follows:

I. First of all, the proposed model highlights the main resources consumed by these organizations at the input, which makes it possible in the long run to evaluate the effectiveness of the resources used when comparing them with the result obtained at the output. To form a more correct mechanism for assessing the performance of infrastructure, it is necessary to delimit resources into two components:

a) Resources aimed at supporting the process of organizing the activities of this infrastructure facility: the initial costs of creation and the current costs of maintaining the activities; effective management team, as well as a large amount of information resources.

b) Resources aimed at the implementation of functions, i.e. financial support of all stages of the process of creating small enterprises.

This will allow later to assess the possibility of the organization’s infrastructure becoming self-sufficient, as well as to identify the causes, which are a barrier to the implementation of the infrastructural functions, expressed in the lack of necessary resources.

II. Since the “black box” model assumes the availability of a processor, in our opinion, it is optimal to have the details of each stage of the process infrastructure implemented by the organization, as well as a description of the services accompanying the process steps.

Thus, the following stages of the process of creating innovative entrepreneurship within the framework of infrastructure organization can be distinguished:

1. Selection of projects.

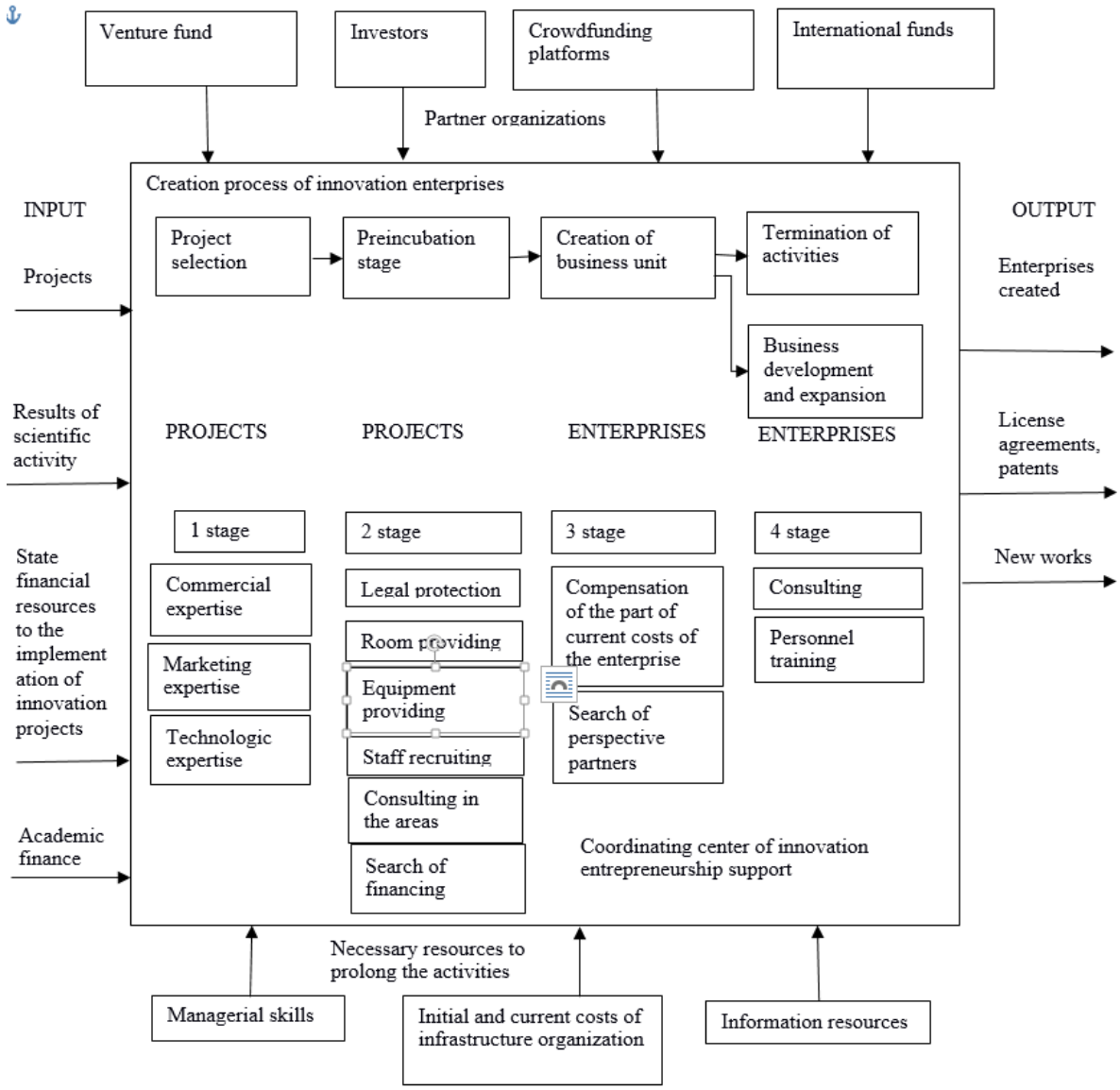
2. Pre-incubation stage.

3. Creating a business - unit.

4. Expansion of production or termination of activities.

III. A description of the results obtained at the output is necessary for the black box model, it is realized into the external environment. In this case, the proposed results of activities that are of main importance for the development of the region's economy. Thus, the result of the implementation of the process of “creating innovative entrepreneurship” within the framework of organizing infrastructure are additional jobs for the local population, as well as newly created innovative business enterprises in the region. It is for this reason that infrastructure organizations that perform this function are an instrument of regional policy, since the implementation of this process is often impossible without state support, as it is not profitable in terms of obtaining commercial benefits, but is particularly significant for the development of the territory’s economy.

Figure 4 - Model of the work of the coordination center for support of innovative entrepreneurship



Such a detailed decomposition of the process of creating an innovative enterprise makes possible to see the effectiveness of the implementation of such a function at the regional level, compare the level of infrastructure resources consumed by the organization with the result, track in case of inefficient work at what particular stage the bottlenecks that can be expressed in the irrational structuring the proposed services or resources manifested itself, and finally, make corrections at the level of authorities if it is necessary.

Another significant function is the commercialization of the results of scientific activity, which implements within the framework of infrastructure facilities that act as a structural unit in educational and scientific institutions, as well as independent organizations. So, despite the similarity of the services provided by infrastructure facilities in the implementation of this function with the services provided within the implementation of the function of "creating innovative enterprises", however, the result and structure of the process are significantly different from the previous one.

So, we can separate out the following features of the proposed model of infrastructure organizations that implement the function "commercialization of the results of scientific knowledge":

1. The principle of resource division applies the same as that used in the first model. However, it is proposed to use any result of scientific activity that has a potential commercial perspective, from the idea to the technologically completed development, as the resources necessary for the implementation of the function.

2. The structure of the process of commercialization of the results of scientific activity can be represented as follows:

a. Selection of studies that have market potential.

b. Defining a strategy for commercializing future development

c. Creating a prototype.

d. Prototype marketing.

e. Registration of intellectual property.

f. Conclusion of license agreements (Chistyakova, 2009).

3. Considering that the process of commercialization is aimed at realizing significant scientific potential accumulated at universities and research institutes, the results include: the sale of patents in the form of concluded licensing agreements, as well as a large number of patents themselves obtained through infrastructure organizations as accumulated scientific and technical potential for further

work. It is also important that there are various business partners that perform the function of potential and real consumers, and interaction with them occurs not only at the final stage, but also at the first stage when the organization of the infrastructure undertakes the task of researching the potential market of scientific ideas in order to send developers in the direction of adjusting the direction of research and creating a product needed by the consumer.

4. In addition, the process can be not only linear in nature and consistently implemented, the absence of one or another stage is completely acceptable, depending on the degree of technological completeness of the development, as well as the level of its legal protection. So, for example, if the infrastructure organization receives a development that is a finished commercial product that already has its owner, all the intermediate stages of this process are therefore not in demand, and the sale of the license agreement becomes the next stage after determining the commercialization strategy.

The next function of the innovation infrastructure, expressed in the form of providing services to business, aimed at filling the missing competencies in order to form, thus, additional competitive advantages can be expressed directly through the model of the service delivery process.

Thus, the following features distinguishing this model can be distinguished:

1. Inside the processor, the proposed model presents not so much a detailed description of each stage (due to the reasons mentioned above), but rather a list of services provided by the coordinating point for supporting innovative entrepreneurship to various firms in order to strengthen their competitive position in the market, and the services are classified according to from the life cycle stage of an innovative enterprise. The model does not consciously reflect the range of services provided to enterprises at the creation stage, since this is a special process that was described in the previous scheme. In addition, the final stage of enterprise development suggests several possibilities for the further evolution of the enterprise: either bankruptcy and termination, or the likelihood of further functioning, but along a new trajectory.

Such an approach is particularly significant in the framework of the implementation of regional policies for the development of innovative entrepreneurship, since in this case, with parallel statistical observation, not only infrastructure organizations, but also innovative enterprises, it is possible to track the development dynamics of the latter, analyze the transition of firms from one category to another (from small to medium, and from medium to large), in order to identify barriers that arise as innovative enterprises function, which can be overcome through the creation of such infrastructure organizations (Chistyakova, 2009). Accordingly, this function infrastructure is one of the most significant by the priorities and directions of economic development of the region.

2. Since this process is aimed at improving the work of enterprises, satisfaction of their needs, the input parameters in addition to the resources necessary to ensure the operation of the infrastructure, is the innovative potential of the enterprise, which varies depending on the services received from the organization of the infrastructure.

Thus, the creation of a coordinating center for supporting innovative entrepreneurship within a regional e-government that implements such a function is one of the priority tasks of regional authorities in order to stimulate the development of innovative entrepreneurship as a source for the formation of an information economy built on knowledge.

CONCLUSIONS.

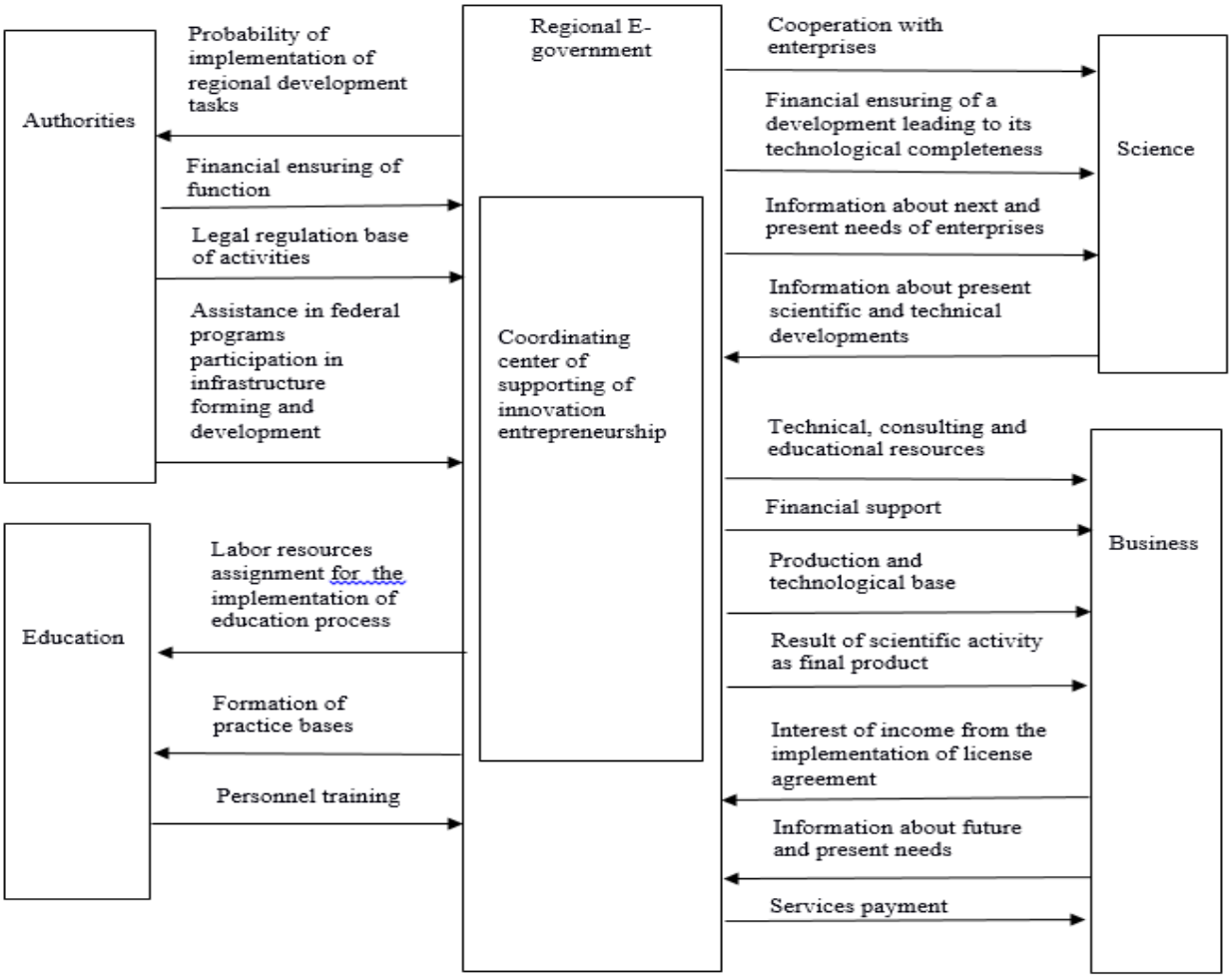
In summary, such a decomposition of the “innovation infrastructure” subsystem by functions implemented by the coordination center of innovative entrepreneurship support is an effective way to form the control algorithm for this subsystem, as well as the innovation system as a whole at the regional level. In addition, the proposed functional synthesis allows the construction of a generalized model of the “innovation infrastructure” subsystem that implements strategically significant tasks for the region, as well as formulating a method for monitoring and evaluating not only the generalized

model, but also a specific infrastructure object depending on the functions implemented. Thus, by consolidating the activities of all infrastructure organizations on the information technology base of regional e-government, and grouping them, as suggested above by function, we obtain a model of innovation infrastructure as a subsystem of a regional innovation system, using the formation principle proposed when creating a model of a regional innovation system, namely - the combination of two models - the structural and the black box model.

Consequently, the proposed model of the innovation infrastructure reflects the resource flows necessary for the existence and implementation of its function by the subsystem, identifies the products of the system's activities that transform into the external environment, and the elements of the external environment here are the socio-economic and innovation systems of the region; within this model, instead of a chain of processes, a structural – functional composition is proposed, consisting of individual organizations of innovative infrastructure grouped by function.

However, to assess the effectiveness of the functioning of the coordinating center for supporting innovative entrepreneurship, it is necessary, in our opinion, to consider the system of institutional interconnections of this subsystem with the other subsystems in the regional innovation system (Figure 5).

Figure 5 - Structure of interrelations of the regional e-government with other subsystems of the regional innovation system.



Analyzing the proposed scheme of interrelations of the regional e-government with other subsystems of the regional innovation system, we can single out the following structuring:

1. There is direct interaction with the “Authorities” subsystem, which is easy to explain, since the coordinating center for supporting innovative entrepreneurship is a tool for implementing regional policy and, accordingly, allows for the implementation of certain tasks for the development of the region, assigned to it, on the other hand, the center receives from the authorities regulatory, financial support of its activities, as well as the possibility of participation of various kinds of federal and regional programs and grants.

2. Through the subsystem "Education", the coordinating center of support for innovative entrepreneurship solves problems with staffing, and for its part are necessary platforms for practice bases for training labor resources as part of the educational process, in addition, a source of qualified personnel involved in training activities.

3. The most significant relationship is observed in the formation of relations with the scientific sector of the innovation system, since the development of innovation activity is impossible without the functioning of science, since it is the first link in the innovation chain. On the other hand, the coordinating center of support for innovative entrepreneurship is designed to promote the development of the necessary cooperation between science and industry, without which it is not possible to build an economy based on knowledge.

4. As for the sphere of small, medium and large businesses, these participants in the innovation process are the main consumers of infrastructure services, and besides, they provide the infrastructure with the necessary information, thus contributing to a more efficient implementation of their functions by the coordination center of innovative business support (Chistyakova, 2009).

The structural – functional model of the infrastructure proposed in the work makes it possible to analyze its main functions in the regional innovation system:

1. Generation of high-tech entrepreneurship.

2. Promoting the commercialization of scientific results.

3. Improving the competence of the existing business at different stages of its life cycle.

In addition, the developed approach to the consideration of disparate objects that perform significantly different functions as a complex of interconnected elements, allows you to create a generalized model of infrastructure - a subsystem of the regional innovation system. The proposed model is a conceptual basis for the formation of a mechanism for monitoring and evaluating the activities of the innovation infrastructure, which will improve the regional policy in this direction.

The experience of the developed countries of the world shows that the provision of various kinds of tax incentives for the development of innovative entrepreneurship on the ground is not so important as the development of innovative infrastructure, which is the basic component of the innovative potential of the territory. Small businesses need to cooperate with organizations that provide information, credit, marketing, patent and other services, thereby contributing to the formation of the high-tech sector of the economy and creating an effective mechanism for innovation (MERIT, 2019). With the help of various elements of the innovation infrastructure, such major tasks of promoting innovation activity are solved as:

- Information support.
- Production and technological support of innovation.
- Tasks of certification and standardization of innovative products.
- Assistance in promoting effective development and implementation of innovative projects.
- Provision of advice.
- Training, retraining and staff development for innovation.

An important problem for the region is the creation of an effective mechanism for information support of innovation activities.

When choosing a specific element of the innovation infrastructure presented on the public services portal, it is possible to contact one of the representatives of the innovation infrastructure of the required region.

Depending on the chosen representative, the system provides various possibilities, from clicking on a link to submitting an application in electronic form. Also, when selecting elements of the infrastructure, events held in the territory of interest to the subjects of the innovation infrastructure will be displayed.

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