

**RPTSS 2018**  
**International Conference on Research Paradigms**  
**Transformation in Social Sciences**

**DETECTION AND ANALYSIS OF MODEL CONSTRUCTION OF  
INNOVATIVE DEVELOPMENT IN RUSSIAN REGIONS**

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***Abstract***

The development of the region's innovative economy is formed at the expense of the educational, scientific, technical and innovation potential of the higher educational institution. The higher educational institution is considered as one of the main centers of innovative development of the region, which creates a new level of development of education (Schulte, 2003).

The article is aimed at various prerequisites and conditions for the formation of the region's innovative economy and models for the construction of an innovation system in the region with the participation of the university are identified. These allow one to apply the corresponding approaches to the organization of innovation activity of the university and the university's interaction with the regional innovation system.

The authors have revealed that the model for building an innovation system in the region is determined by the level of interest of regional leaders, the degree of concentration and use of applied scientific research in the region, the level of business activity of citizens (Polterovich, 2009a).

The models of the innovation system of the region have been determined, which depend on the relationship between the university and the government of the region. Differences between the models of the construction of an innovation system in the region and the participation of the university show that educational institutions exert a tremendous influence on the development of innovation activity in the region and predetermine the model of the region's innovation system.

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**Keywords:** Innovation, innovation activity, region, innovative models.



## 1. Introduction

Many subjects of the Russian Federation see in the development of innovation activity on their territory a source of stability, a basis for bringing new competitive products to the domestic and international markets.

The development of the region's innovative economy is formed at the expense of the educational, scientific, technical and innovative potential of the higher educational institution. The higher educational institution is considered as one of the main centers of innovative development of the region, which creates a new level of development of education (Varlamov, 2011).

Cooperation between the university and the region is of mutual interest among the participants of the innovation process. Participation of the university in the innovative activity of the region creates for the university the following positive effects of its development:

- increasing the role of the educational institution in the economy of the region;
- an increase in the volume of R&D and services of the university through the receipt of regional and municipal orders;
- development of university cooperation with leading companies in the real sector of the economy;
- the possibility of attracting additional regional investments for innovative projects of the university;
- the possibility of attracting additional financial resources to the innovative infrastructure of the university;
- increasing the level of integration of the university with the centers of science and production;
- increasing the attractiveness of the university for students (including potential);
- increasing the competitiveness of a higher educational institution engaged in innovation activities, compared with other educational institutions;
- the possibility of obtaining additional areas and territories of a regional fund for the placement of new innovative structures in the university;
- increasing the level of concentration of scientific and technical potential and technological base for achieving a fundamentally new level of obtaining new knowledge and innovative technologies;
- increasing the innovative image, business reputation of the university;

In turn, the participation of the university in the innovative development of the region leads to the following positive results in the economy of the region:

- the regional innovative infrastructure is actively formed by using the modules of the innovative infrastructure of the educational institution;
- the level of innovative development of the region's economy is increasing;
- there is an opportunity to create new jobs;
- the investment rating of territories is increased;
- there is an opportunity for training and advanced training of participants in the innovative process of government and business structures;

- the quality of products and the competitiveness of enterprises in the region are raised through the use of university developments;
- the level of training of highly skilled personnel that can effectively work in market conditions is increasing (Polterovich, 2009b).

## **2. Problem Statement**

Universities are becoming the center of development of innovation activity in the regions of the Russian Federation. This is explained by the fact that universities need to look for new ways of development, to which innovative activity belongs, for effective training of competitive specialists of the new formation, as well as finding additional financial resources for their functioning (Moiseev, 2007).

Now the importance of the university is determined by the level of development of scientific and innovative structures, the ability to commercialize scientific and technical ideas and developments, the degree of influence of the educational institution on the innovation economy of the region. The innovative activity of the university is based on the constant interaction of education and science with the use of the results obtained in the socio-economic development of the economy of the region and the country.

Scientific and innovative activity in universities is traditionally a source of new developments, but they become innovations only in the context of their market commercialization, the success of which depends on effective management of the processes of interaction between science and the market. The innovative activity of the universities contributes to the possibility of implementing the "Strategy for Innovative Development of the Russian Federation for the Period to 2020" and other programs of the Government of the Russian Federation. The problem of formation of effective management of innovative activity of the university at the level of regional innovation systems acquires a special aspect for the whole of Russia and requires special approaches to its implementation that take into account the specifics of universities and regions, as well as their interaction with other participants in the innovation implementation process (Galstyan, 2001).

This circumstance makes it necessary to analyze these specific conditions and mechanisms for the implementation of innovative activity in universities in different regions of the country, taking into account the best foreign and domestic experience, and to offer scientific and methodological approaches to solving problems of increasing the effectiveness of innovation activity, and to test the results of scientific research in the activities of the national research university.

## **3. Research Questions**

Based on the experience of universities in Europe, the US and Russia, which are actively involved in the development of innovative projects and the training of the necessary personnel, it can be noted that at the present time the development of the market for innovative goods and services has caused a drastic reduction in the financing of university activities by the state with increasing requirements for the quality of scientific research and educational services. The answer to this should be the aspiration of universities to become innovative (entrepreneurial) structures whose strategic tasks are to train qualified personnel and to introduce into the economic turnover the results of scientific research works that contribute to positive changes in the economy of the region (Gaponenko, 2001).

The higher educational institution is a dual subject of the economic system. On the one hand, its main goal is to preserve the cultural and educational potential of the country, on the other hand, the university is the most important subject of the economy, which is a commodity producer of intellectual products and educational services (Etzkowitz, 2011).

#### **4. Purpose of the Study**

The purpose of this study is to analyze the innovation activity of universities in different regions of Russia in conditions of differentiation of social and economic development of the subjects of the Russian Federation.

#### **5. Research Methods**

The model for building an innovation system in the region is determined by the level of interest of regional leaders, the degree of concentration and use of applied research in the region, the level of business activity of citizens.

The model of the region's innovation system, depending on the relationship between the university and the government of the region, can be of three types:

1. A university initiative in which the university and its innovative infrastructure act as the initiator of innovation activity, and the region around it builds all innovation activity.
2. A governmental initiative, when the regional government acts as the initiator of innovation activity, and universities are involved in the process of building an innovation system.
3. A reciprocal initiative of the region and the university, in which the university and the regional government take part in building the innovation system of the region.

As a model in which the university is the initiator of innovation activity, it is possible to consider the innovative system of the Irkutsk region, where the Irkutsk State Technical University (ISTU) is the main element of the model for building the innovation system. It was this university that first acted as the initiator of innovation activity in the region and built the only Technopark in the region, which is now the main center of the region's innovation infrastructure. This university was the only educational institution in Eastern Siberia and the Far East, which was awarded the prestigious status of a national research university (Kulikova, 2012). Thanks to this, on the basis of Irkutsk State Technical University, as the main element of the development of innovation activity in the region, a regional innovation infrastructure has started to be formed. Other modules of the regional innovative infrastructure began to appear on the basis of this university: the regional innovation development center, the collective use center "Baikal Nanotechnology Center", the regional school of innovation management, the Baikal Technology Transfer Center, the Baikal coaching center for venture entrepreneurship and others. ISTU is a leader in innovative development and sets the pace for the development of all innovative activities in the region (Mindeli & Zavarukhin, 2001). The University acts as an innovative center that facilitates the transfer of new technologies across the entire innovation chain of projects (Polterovich, 2009). Such model for building an innovative regional economy creates the following positive effects:

- combination of innovative infrastructure elements into a single whole by concentrating all infrastructure modules in one building, or in the immediate proximity of each other, to increase economic efficiency and accelerate the implementation of innovative projects;

- generation and formation of young, ambitious teams of students, graduate students and young scientists of the University for the implementation of innovative projects;
- the use of new knowledge in the form of results of intellectual activity received at the university, without the cost of obtaining them;
- minimization of training costs for innovative companies;
- improving the quality of students' education due to the constant consolidation of theoretical knowledge in practical innovation activities;
- development of youth entrepreneurship.

At the same time, the drawbacks of the model of building the "University Initiative" in the innovation economy of the region can be attributed:

- the low efficiency of the implementation of the Triple Coil model of university-business-state interaction, which is the key to successful innovation, economic and social development of the region, due to the weak interest of the regional government in innovative activities;
- when selecting projects for further promotion to the market, preference is given to university projects, which significantly increases their chances of commercialization, to the detriment of non-university commercially attractive projects, scientific and production organizations of the region;
- insufficient consideration of directions of the program of innovative and social and economic development of the region in the selection of priorities for the innovative activity of the university;
- lack of a holistic mechanism for supporting innovation activities by the regional government;
- insufficient support by the regional government for the development of the University's innovation infrastructure;
- the lack of uniform criteria for the effectiveness of commercialization of innovative projects within the framework of innovation activity;
- the lack of the necessary regulatory framework that regulates the relationship between the key players in the innovation process and all innovation activities, taking into account the specifics of the region. As a rule, regional power is limited to one regional law on innovation, which does not significantly affect the region's innovative development. There are no real tax incentives and preferences that encourage the business to develop innovative products, as well as introduce technological innovations into production. Executive Director of the Association of Innovative Regions of Russia Bortnik (2011) believes that the problem of building an innovation system at the regional level is the lack of desire for the leaders of the regions to personally engage in the implementation of an innovative development path of the territory.

In another model of building an innovation system, the regional government acts as the initiator of innovation activity, and universities are involved in the process of building an innovative economy. An example of the construction of such a model of the innovation system of the region is the Magadan Region, where all initiatives come from the Administration of the Magadan Region, which actively attracts universities to develop this direction (Golobokova, 2009).

This model of building an innovation system in the region has the following positive features:

- the university relies on the program of innovative and social and economic development of the region in its activity, while a clear hierarchical structure of the region's innovation activity is built;
- priority directions of innovative development of the University are determined taking into account the priority directions of innovative development of the region;
- comprehensive measures to support and stimulate innovation in the region with the participation of the university are being developed;
- the government of the region actively promotes the development of cooperation of all participants in innovation activities;
- any initiatives in the development of innovative activities in the region are supported.

However, such model for building an innovation system in the region has the following drawbacks:

- the "Triple Spiral" of university-business-state interaction is not effectively implemented, where universities do not properly perform the functions that are assigned to it as a participant in innovation processes;
- the level of education of students due to lack of practical skills does not allow to participate actively in innovation activities;
- Innovative activity is not considered as a possible source of income for the university. The government of the region has to look for additional motivation to "force" universities to engage in innovative activities. And although, from the point of view of building a regional innovation system, there are certain successes in the region, while the functional component of its university component is still insufficient.

The third model is called the "Mutual Initiative", it differs from the others in that all participants in innovation (regional government, universities, scientific institutions, business sector of the economy) are interested in building an innovative economy and the initiative for engaging in innovation comes from all its participants. In this model of construction, the "Triple Spiral" is successfully implemented and the development of innovation activity is the first priority for the government of the region. An example of building an innovation system of a region of this type is the Tomsk region, where the innovation economy is developed through the participation of all stakeholders: government, universities, business community. (Kuzmina, 2010).

So, the differences (table 1) between the models of building an innovation system in the region with the participation of the university show that educational institutions exert a huge influence on the development of innovation activity in the region and predetermine the model of the region's innovation system.

**Table 01.** Models of innovative development of the region with the participation of the university

Options	A university initiative	A governmental initiative	A mutual initiative of the region and the university
The "Triple Spiral" model	Not implemented efficiently due to low activity of the region	Not implemented effectively due to low activity of the university	It is realized effectively due to the interest of all participants in the innovation activity
Model for building an innovation system in the region	There is a construction around the university and its innovative infrastructure	Is implemented weakly, any initiative is supported	The construction takes place in a comprehensive manner, taking into account the participation of all stakeholders
Regional support of innovative projects	Mainly supported by university projects	Support is provided for enterprising innovative projects	Support is provided for promising innovative projects
Model of the development of programs and mechanisms to support innovation	The development of programs and mechanisms is weak	Complex programs and mechanisms for the development of innovative activities in the region are being developed	Comprehensive programs for the development of innovative activities of the region are being developed
Model for the development of the regulatory framework for innovation	It is weak	There is an active development of normative legal documentation	There is an active development of normative legal documentation taking into account the interests of the parties

## 6. Findings

The analysis showed that in the regions under study, the main conditions that influence the successful development of innovative processes are:

1. Creation and improvement of legislation in innovative activities, contributing to preferential taxation of innovative entrepreneurship (Mokhnachev, 2012).
2. The presence of a huge scientific potential, closely interacting with industrial production organizations.
3. High level of interest of regional authorities in the development of innovative processes in the region.
4. High level of interest of universities in the development of innovative processes in the region.
5. The presence of a developed university innovative infrastructure, which is the basis of the regional innovation infrastructure at all stages of the chain of innovation processes.
6. Presence of investment mechanisms to support innovative entrepreneurship.
7. Realization of coordination measures of the regional authorities on development of innovative activity and creation of an innovative spirit in the region.

## 7. Conclusion

In this way, based on the analysis of innovation activities in the regions, we can draw the following conclusion that the level of development of innovation processes in the regions of our country

depends on many factors, among which the climate in the region determining the desire of participants (government, business, university) with all the limitations to achieve efficiency in the economy (Glazyev, 2007; Inozemtsev, 2011).

The most effective model is the construction of innovative development of the region with the participation of the university, in which the regional government, educational institutions, the business community are initiators and consider the construction of an innovative economy a priority.

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