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**INNOVATION POTENTIAL OF REGIONS AS A FACTOR  
OF NATIONAL ECONOMY COMPETITIVENESS**

*The paper analyzes the concept of innovation potential. Its basic elements and approaches to their assessment are identified, key characteristics of regional innovation systems from the standpoint of innovation potential effective use are revealed, the feasibility of constructing a model of increasing the competitiveness of Russian economy based on regional innovation systems creation and development is substantiated.*

*Keywords:* competitiveness; innovation process; innovation potential; regional innovation system.

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**ІННОВАЦІЙНИЙ ПОТЕНЦІАЛ РЕГІОНІВ ЯК ЧИННИК  
КОНКУРЕНТОСПРОМОЖНОСТІ НАЦІОНАЛЬНОЇ ЕКОНОМІКИ**

*У статті проаналізовано явище інноваційного потенціалу, виявлено його основні елементи та підходи до оцінювання, а також ключові характеристики регіональних інноваційних систем з позицій ефективності використання інноваційного потенціалу. Зроблено висновки про доцільність побудови моделі підвищення конкурентоспроможності російської економіки на базі створення та розвитку регіональних інноваційних систем.*

*Ключові слова:* конкурентоспроможність; інноваційний процес; інноваційний потенціал; регіональна інноваційна система.

*Рис. 2. Табл. 2. Літ. 26.*

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**ИННОВАЦИОННЫЙ ПОТЕНЦИАЛ РЕГИОНОВ  
КАК ФАКТОР КОНКУРЕНТОСПОСОБНОСТИ  
НАЦИОНАЛЬНОЙ ЭКОНОМИКИ**

*В статье проанализировано понятие инновационного потенциала, выявлены его основные элементы и подходы к их оценке, а также ключевые характеристики региональных инновационных систем с позиций эффективности использования инновационного потенциала, сделан вывод о целесообразности построения модели повышения конкурентоспособности российской экономики на базе создания и развития региональных инновационных систем.*

*Ключевые слова:* конкурентоспособность; инновационный процесс; инновационный потенциал; региональная инновационная система.

**Problem setting.** Since Russia joined the World Trade Organization the objective to provide national competitiveness has become especially crucial. The widespread introduction of innovations is currently acknowledged as an effective way to improve competitiveness. Today Russia's economy is unequally developed in different regions and the resource base of innovations is heterogeneous. Thus, effective mobilization and integration of innovation potential of regions in order to enhance the competitiveness of national economy is a contemporary scientific issue which is of great economic importance.

**Recent research and publications analysis.** Recognition of the role of innovations in the modern world has generated a large number of theoretical and applied

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researches. The nature of innovations and innovation processes and their role in competitive advantages formation are the subject under consideration in (Porter, 1998a, 1998b; Dosi, 1988; Buchwald, 1990; Feldman and Audretsch, 1999; Foray, 1999; Krivoruchko, Zaitsev and Lobanov, 2000; Zhits, 2000). One of the main focuses is the analysis of innovation processes at national and regional levels. We can mention the following researches in this field: K.M. Misko (1991), G. Schienstock (1996), L. Botazzi and G. Peri (2003), B. Asheim and M. Gertler (2004).

**The research objective** is to propose the model which can effectively mobilize and integrate innovation potential of regions for enhancing the competitiveness of Russia's national economy.

**Key research findings.** There is a number of approaches used when giving a definition to the notion of competitiveness. On the whole, one can speak about competitiveness of a certain object (product, service) or an economic system (company, region, national economy) as of its capability to compete with other similar objects or systems at the market.

As competitiveness characterizes the ability of a region to compete effectively with other regions for resources, investments and target markets, the general approach to assess competitiveness is based on the system of individual potentials. Thus, according to (Expert-RA, 2011) the investment rating of a region (which, as we believe, is an important competitiveness characteristic – the higher the investment rating is, the easier it is for a region to attract resources for development) comprises investment potential and investment risk related. The potential reflects the share which the region has at the all-Russian market, whereas risk characterizes the size of problems investors may experience in a certain region. Each of these synthetic parameters, in its turn, is classified in the system of individual measurements in Table 1. Every individual potential or risk has a specific group of indices.

*Table 1. Components of Region's Investment Attractiveness (Expert-RA, 2011)*

Parameter	Individual measurements	Effect on competitiveness
Investment potential	Labor potential	Makes positions in labor market stronger
	Financial potential	Helps to obtain competitive position
	Production potential	Improves positions at commodity market
	Consumption potential	Improves positions at domestic market
	Institutional potential	Tools which provide competitiveness to be created
	Infrastructure potential	Infrastructure which provides competitiveness to be built
	Natural resources potential	Strengthens positions at a resource market
	Tourist potential	Creates specific advantages at domestic and external markets
	Innovation potential	Creates sustainable competitive advantages
Investment risk	Financial risk	Financial security risk when creating competitive advantages
	Social risk	Risk of social unrest
	Management risk	Risk of inefficiency and management
	Economic risk	Risk of economic inefficiency
	Environmental risk	Risk of unfavorable environmental situation
	Criminal risk	Threat to creation of competitive advantages, risk of uncontrollability

As stable competitiveness may be achieved on the basis of a wide range of competitive advantages, different individual potentials are worth developing. However, innovation potential is that of a particular priority, since that is exactly the one which

becomes the platform for developing a set of competitive economic sectors. Due to dynamic growth of innovation industries it is possible to form competitive advantages of regions that do not have a significant raw material or labor potential. From this perspective a region is considered to be a place where innovatively active companies are concentrated. Consequently, one has to improve interaction between companies, universities, research centers, small and big businesses in the region, which is meant to create long-term competitive advantages relying on regional intellectual resources.

The term "*potential*" is widely spread in many fields of economic and social life. Traditionally, potential implies a combination of sources, facilities, funds, reserves which can be called into operation, used for solving some task or achieving some goal. Speaking about innovation development of a region the term "*potential*" can be reasonably referred to the Latin word *potential*, i.e. "possible in case there are respective conditions".

When looking into economic potential of a region as a whole system, some researchers highlight the following potentials as its key elements: labor, investment, natural resources, and innovation potentials.

In our view, innovation potential is the backbone element of the potential for competitiveness growth. Other subsystems of economic potential can be, at the same time, innovation potential subsystems.

In order to identify the ways for better competitiveness of a region, it is important to assess, first of all, its innovation potential as a basis for competitiveness development. The problem of innovation potential assessment of Russian regions has been investigated by different researchers. Thus (Untura, 2011), has been researching the innovation potential of regions. The authors of the project "Strategies of innovation development "Innovative Russia – 2020" (Innovative Russia, 2012) also distinguish successful innovatively active subjects of Russian Federation (regions), which according to (Expert, 2012) include St. Petersburg, Novosibirsk district, Tomsk district, Republic of Tatarstan and Mordovia.

G.I. Zhits (2000) defines innovation potential as a system of resource provision for the system to function at the level which corresponds to the world's level or higher. The system of innovation potential nominally consists of 4 interconnected segments:

1. Technical scientific potential, which ensures availability of innovations meant for production use in the macrosystem.
2. Educational potential, which characterizes the abilities of the microsystem to create and use technical scientific innovations.
3. Investment potential, which characterizes the abilities of the macrosystem to implement production use of technical scientific innovations and diffuse them in the whole macrosystem.
4. Potential of the consumer's sector – all individuals and legal entities, which, on one hand, are consumers of the innovations offered for use and, on the other one, initiate subsequent activity of other segments due to creation of new needs.

Technological potential lies at the centre of innovation potential and embraces all the 4 mentioned elements in the sphere which is related to creation, mastering and distribution of cutting-edge technologies. It comprises available domestic and global technologies, including new and cutting-edge ones. Thus, technological potential is based on the aforementioned potentially available knowledge stock (PAKS).

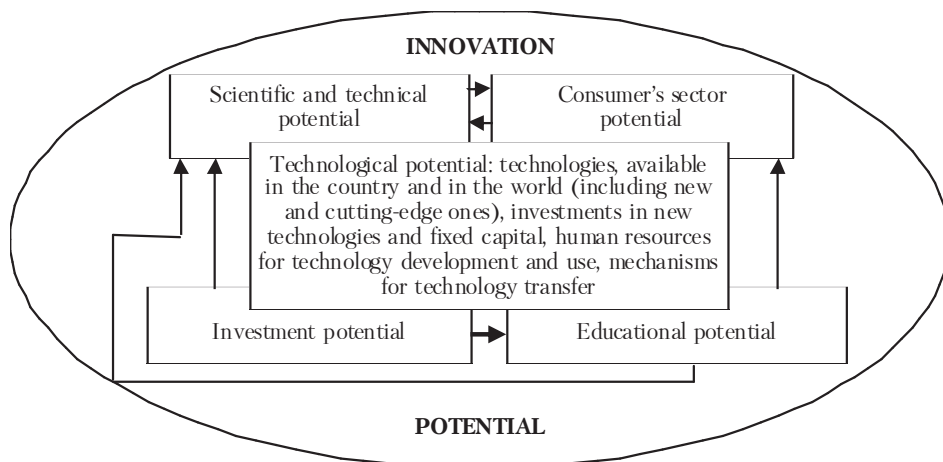


Figure 1. **Place of technological potential within innovation potential** (Zhits, 2000)

Basic elements of innovation potential include:

1. *HR element*: number and qualification of technologists, their educational level, creative abilities, experience, background, knowledge of progressive technologies, ambition for continuous education, readiness for development and implementation of the new made and open-mindedness to innovations.

2. *Institutional element*: the number of organizations which supply specialists into key technologies, their status, departmental identity, dimensional structure etc. The same information about organizations which are the key consumers of technologies.

3. *Investment and financial element*: the amount of investment into development of new technologies within a certain period of time; volume and structure of financial resources for investment in technologies; available equipment, material, devices, office appliances and computers etc.

4. *Organization and management element*: control mechanisms for development and transfer of technologies, protection of intellectual properties.

5. *Consolidate indices*: involvement of a region in technological exchange, share of innovation products in the gross regional product etc.

It is worth considering that various regions have specifics, which cannot but influence the level of innovation potential and its structure. The literature dedicated to innovation activities of regions covers different approaches to the ways how regional specifics has to be taken into account when assessing innovation potential of a region.

1. As a rule, innovatively active companies and research institutes are concentrated in large conurbations.

2. Industrial and industrial innovative clusters help knowledge and new technologies spread and at the same time they can be located quite far away from big regional centers.

3. Commonly, regions located on the outskirts of the country are notable for lower innovation activity comparing to the ones which are close to the largest scientific and financial centers.

The concept of regional innovation systems is used to control innovation potential of regions with due consideration of their differences.

The idea of a regional innovation system and regional network economy, which emerged at the end of the 20th century, was based on the changes that were happening in economic policy: adequate measures were needed to increase region's competitiveness. Many countries and unions of states (like the EU) began to introduce measures to stimulate "regional growing points" or regional clusters. In their research, the authors have relied on the following characteristics of contemporary business environment and achievements.

**Research of industrial regions with fast development due to innovations.** The first of the region under research is the so-called "Third Italy", region Emilia-Romagna in the north of Italy where a large number of small innovation companies are concentrated. Fast economic growth of this region has illustrated one of the dominating features of modern economy – shift from mass production to a flexible, customer-oriented, specialized production, which requires large cooperation of companies which is possible in the conditions of network economy (Bianchi and Labory, 2011). The second region – the Silicon Valley in the USA – is an example of hi-tech industrial region, based on the integration of universities, venture capital and advance of information technologies (Ayala and Echeverri-Carroll, 2004; Muro and Katz, 2010).

The theoretical framework for further research is the work (Porter, 1998b) where an idea about production or industrial clusters as locomotives of economic development was suggested. If such a cluster is located in a region, it makes the region somehow different from other regions of a country due to the specifics of its economy. Such a region has higher competitiveness.

Another basis for development of regional innovation systems has become a more evolved conception of a national innovation system, which can be, to an extent, applied to the regional level. According to this conception, regional innovation system has the same components as the national one. However, organizations within the framework of a regional innovation system function within the limits of a certain region. Consequently, the development goals for such a system have to be the goals which are primarily important for this region.

A theoretical justification of regional innovation systems can be found from the perspective of the evolution theory and the new theory of growth, which view innovations as a socially important process influenced by many factors, both internal and external for the companies which implement these innovations.

The models of the new theory of growth accounts for the fact that profitability of investments in human capital assets, new technologies and knowledge grows in course of time as a result of the so-called "innovation added effect". This effect, which foreign authors refer to as "spillover" (Grossman and Helpman, 1991; Aghion and Howitt, 1992; Grupp, 1996; Czarnitzki and Kraft, 2007), shows that firms cannot use, in full, the advantages of their investments in research and development on their own, without their partners being involved and relevant infrastructure being developed. Therefore, investments in new knowledge, technologies and human capital bring economic advantages to the society as a whole. Thus, the effectiveness of innovation activities can increase in the case there is systematic interaction, cooperation of different agents, which allows speaking about innovation systems from the per-

spective of regional economy, which emphasizes the importance of a region's competitive advantages as a location where innovatively active companies are concentrated. Consequently, it is essential to reinforce the interaction between companies, universities, and research centers, small and big companies in a region in order to create long-term competitive advantages with the help of regional intellectual resources.

**Table 2. Specification of research of regional innovation systems**

Research	Target of research	Goal of research	Main results
Regional innovation systems: designing for the future (REGIS)	11 European regions (Baden-Württemberg, Wallonia, Brabant, Tampere, Lower Silesia, Basque Country, Friuli, Stiria, Wales)	To study theoretical basis of the organization and measurement direction of effective performance of RIS	Innovation potential of regions is described in detail, strong and weak regions are identified
European research of regional innovation systems (ERIS)	11 European regions (Vienna, Stockholm, Barcelona, Alsace, Baden, Lower Saxony, Girona, South Holland, Saxony, Slovenia, South Wales)	To identify quality and quantity the characteristics of a region's innovation potential, establish interconnection between the participants of innovation processes	Innovation activity is a result of network interaction. Innovation policy should be directed on the increased effectiveness of such interaction
Regional evaluation of innovations and policy with regard to small and medium business (SMEPOL)	11 European regions (Upper Austria, Wallonia, Jutland, Lombardy and Apulia, North and South-West Norway, Valencia, London boroughs and Hertfordshire)	To carry out a comparative research of regional innovation policy tools with regard to SME in Europe	Innovation policy should increase the effectiveness of interaction between small and medium enterprises and should stimulate team teaching
Scandinavian small and medium-sized enterprises and regional innovation systems	13 regions in Scandinavia and Northern Europe (Oslo, Stockholm, Helsinki, Malino, Aalborg, Linkoping, Jyvaskylam etc.)	To research similarities and differences between regional clusters of small and medium-sized enterprises in Northern Europe and Scandinavia	It has been found out that the most effective systems are the ones where knowledge is transferred through informal relationship
Innovations of regional clusters in Canada	9 regional clusters	To study the phenomenon of the companies involved in different industries concentrated in regions	Two types of clusters have been revealed: in the regions with strong innovation potential and in the regions that need to obtain and distribute new knowledge (often through its transfer from other regions)
Research of regional innovation clusters	10 European regional clusters	The problem of cluster approach suitability in innovation policy	Regional clusters in every country (region) have specific features, they can distribute the results of innovation activities outside the boundaries of countries and regions and they are important for choosing innovation policy

Source: Report on the Committee's Inquiry into Developing the Northern Ireland Economy through Innovation, Research & Development ([www.niassembly.gov.uk](http://www.niassembly.gov.uk)).

Recently, foreign scientists carried out a comparative research in order to study and identify specific features of regional innovation systems. The specification of the most known studies is given in Table 2.

The main goal of RIS is to create conditions for permanent emergence and successful development of new innovation projects, designed to implement competitive advantages of a region.

The structure of a regional innovation system is schematically shown in Figure 2.

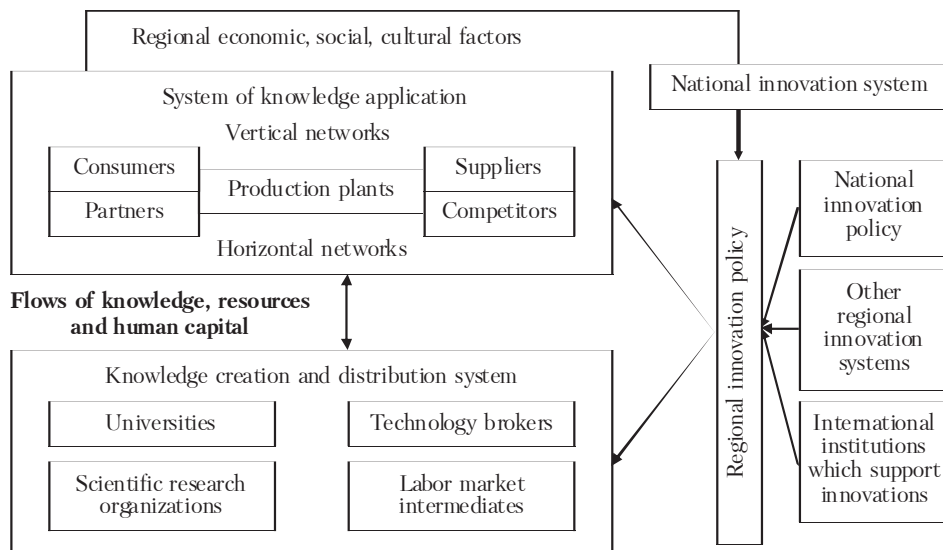


Figure 2. **Regional innovation system structure** (Untura, 2000)

"Innovation strategy of Russia 2020" suggests a number of tools which encourage innovation development of some regions and emergence of innovation clusters. Regions are to be supported on the basis of selection, which occurs twice a year through comprehensive evaluation of innovation potential in the regions and effectiveness of innovation policy implemented in the regions.

**Conclusions.** Thus, based on the research carried out, we can conclude that competitiveness of Russian economy, which is a priority task in the conditions of joining the World Trade Organization, can be provided only with due consideration of regional specifics.

Russia has a federal structure and its 83 regions have quite different competitive advantages. In order to achieve high competitiveness it is necessary to develop competitive advantages of regions on the basis of innovations. It becomes especially important for the regions which have no other competitive advantages, such as natural resources or availability of transport infrastructure.

Major theoretical principles of the evolution theory and the new growth theory in combination with the results of foreign applied researches, covering the countries with territorial extent or groups of states with differing levels of innovation potential can be used in forming the model of increasing the competitiveness of Russian economy subject to innovative potential of its regions.

The model of enhancing the Russian economy's competitiveness should distinguish the two types of regions – with high innovation potential and low potential for innovation. Priority of RIS operation in the regions belonging to the first type to be the most effective use of innovative potential for the creation of innovative export-oriented and import-substituting products, and for the regions of the second type – building up and development of innovation potential in order to create competitive advantages. The implementation of these priorities should be provided by the following directions of knowledge and technology transfer: cross-border transfer and inter-regional transfers between regions of one or different types. Informal channels of knowledge transfer in this case should not go beyond the legal and regulatory framework. Structural elements of the model, providing the perception and commercialization of knowledge, must not be limited to individual companies, but cover regional and interregional clusters.

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