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CONCEPTION OF THE FORMATION OF INNOVATION INFRASTRUCTURE IN THE SPHERE OF SERVICES ON THE MESO- LEVEL

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Abstract: This paper examines the conception of the formation of innovation infrastructure in the field of services in the region. It discusses the conditions of state regulation of the economy, i.e. economy in transition, in mutual conjunction with human capital, with a business based on the use of leasing, marketing, economic methods and models of deployment, optimization, factor analysis and forecasting of socio-economic processes on the meso-level, and recreational-landschaft potential.

Key words: innovation, infrastructure, services, region, human capital, state regulation

Introduction

The term “infrastructure” (from Latin *infra* – under, *structura* - mutual position, construction) appeared in 1950 and was submitted for consideration to NATO. This term at first meant the system of military buildings, airports, gas stations, radars, etc. (Meadows, 1994). In the years that followed, thanks to the works of local and foreign researchers, the term “infrastructure” began to suffer development in the frames of economic category. In parallel with the development of scientific views on infrastructure as an economic category, the understanding of its special forms deepened. Economic category of regional infrastructure (as a form of infrastructure) was introduced in the scientific sphere in the 60s of the XX century thanks to the works of American economist W. Isard (Isard, 1966). Developed infrastructure is an indicator of the level of social development, which to a significant extent determines the quality of life of the population (Fedorov, 2000, Alaev, 1983).

At the present stage of development the national economy of the innovative type is the basis for the creation of competitive advantages in achieving stable and (or) above average growth. One of the conditions of development of that

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economy is the development of innovation infrastructure. Innovation infrastructure is the totality of the facilities connected with the process of innovation development. Innovation infrastructure services sphere is the basis in the development of social 'vector' of Russia. In the opinion of authoritative sources, experts, the formation and development of innovation infrastructure is the most important factor in the provision of basic conditions for the function of the services sphere. At the same time, insufficient development of infrastructure lowers the rates of economic growth of the regions taken separately, reduces the Russian participation in the international division of labour, thus weakening the competitive advantages of Russia, its ranking in the global market system (Mordovchenkov, 2003).

Contemporary processes of globalization and state regulation of the economy are characterized by the necessity of many functional solutions of infrastructure problems of Russia including those on the meso-level. The most important priority in the economic development is the innovation activity in the sphere of services, which enables their intensification and work productivity to be increased. There are no alternatives to innovation infrastructure of the sphere of services as necessary for the effective modernization of the Russian economy.

The Innovation Infrastructure of the Sphere of Services on the Meso-Level

The experience of operation of the enterprises of sphere of services testifies that their organizational structure has real opportunities to positively affect innovation transformations. In addition, leading structural sections appear to be most capable of competing in terms of increased exogenous factors. Thus, integration of organizational compartments improves coordination in the process of mutual interaction of several innovative projects and programs, the process of joint planning of their measures and thereby seeking innovative projects and programs in general. Integration is effective in those segments of the social sphere for which the gradation of accumulation of knowledge and technologies (cumulative effect) is the most important.

Innovation as an economic category is considered in the form of a certain totality of dynamic processes in which knowledge varies and relies on each other through the most unusual, but stable combinations, contributing to obtaining economic benefits in the new conditions. Emphasizing process category in relation to the conditions of 'growing' knowledge (innovation processes), it is necessary to also agree with the term 'innovation scenario'. In the frameworks of similar scenarios-processes stable transformations are born and developed at all levels of the infrastructure – from the infrastructure of the national economy to

the infrastructure of the region and similar. In addition, the scope effect and the multiplicative effect are fully applicable to innovations.

Fundamental impact of the innovations on the economics of the region continues to grow in this regard that the rate of their development significantly exceeds the actual rates of economic growth of appropriate business entity. However, there are still not enough scientific research explanations of the influence of innovations and innovation processes on solving complex infrastructure problems.

Conceptual study of innovation processes occurring assumes the formation of competitively capable organizational-economic mechanisms and instruments of mutual interaction of the infrastructure of small business and entrepreneurship, oriented to innovations and technology audit (Mordovchenkov, 2007a, Mordovchenkov, 2011).

Practice relating to the allocation of funds for SRECR (Scientific Research and Empirical-Constructor Research) in the sphere of services, often ending in 'wasting' the government funds (including funds from the regional budget), is not always justified from the standpoint of social and economic effects for business entities. Therefore, economically based infrastructure is necessary, which due to the effect of scale and others strengthens innovation 'steps' that enable positive development of the regional business and entrepreneurship, focused on their 'usefulness' and socially important quality of life of the population (Mordovchenkov, 2010).

In our opinion, the innovation infrastructure of the sphere of services on the meso-level (at regional level) is a system for specialization of market-oriented economic entities in the social sphere, which includes technoparks, technopolises, innovation and technology centres, small innovation, credit and banking, investment and financial institutions, common, reserve funds that are institutional market participants, intended for the realization of innovation potential, self-financing and the introduction of SRECR in the sphere of services, while also drawing utility effect during the increase of competitive ability of the innovation economy of the region and the quality of life of the population.

We consider it necessary to create such innovative sphere of services on meso-level which provides:

- Economic security from the standpoint of efficient functioning of the infrastructure in the region particularly taken;

- The flow of investments;
- 'Usefulness' of the spectrum of services for their consumers;
- Improvement of the quality of life of the population.

At the same time, it is necessary to understand that the infrastructure is service. A very important component in the study of functioning of the infrastructure is a complex, systematic research of services that it provides.

From its part, the innovation infrastructure of the sphere of services can be represented as a decomposition system which includes in itself such forms as the human, financial capital, political and legal, transport and logistics, telecommunication, geographic, socio-demographic sub-system, and also business and entrepreneurship. On the other hand, it should be a sphere of services as invariant model in which the peculiar convergence of above mentioned zones and elements occurs (Mordovchenkov, 2011).

Also with this, in terms of architectonics of the infrastructure of sphere of services in the system of innovation economy some of its elements must be transformed. It is the material-technical base, development of transport, tourism services, communications services, trade from the point of view of expanding the range of possible services that they provide. In conditions of growth of competitiveness of regional economy new infrastructure branches need to be actively developed, including consulting institute, controlling institute, database, marketing services, engineering, reengineering, leasing, time-share, institute of development and others.

The complex analysis of the functioning of branches of the economy of the region testifies that the services are divided into manufacturing and non-manufacturing, and also by the functional load they realize in the economy. For example, transport services are intended to move the natural-actual products and population, and services of communications - to transfer information. At the same time, freight transportation provides services for coordination and the interaction of branches of material production, and passenger transport for delivery of workers to the place of work and vice versa, delivery of consumers to market infrastructure facilities or its corresponding points (b stations, etc.) depending on the aim of travelling, market conditions and demand.

From the standpoint of the possibility of economic-mathematical modelling, it is necessary to isolate a factor such as the factor of attraction of concrete service for a customer. For example, the impact of the attractiveness of river passenger transport by taking into account the possible investments in human capital,

which increase the level of profitability of passenger transport in general, the growth of GRP (gross regional product) and the efficiency of formation and functioning of infrastructure, is expedient to determine by integrating gravitational econometric model which includes twenty five factors. On the whole, elaborated methodological recommendations for the creation of econometric models of gravitational analysis and forecasting in the field of passenger transport services can be exploited by marketing departments and structural departments of transport and logistic infrastructure (Mordovchenkov, 2011).

The tendency of development and transformation of the innovation market creates real assumptions for growth of competitive advantages in this branch. In conditions of strong competition of the organizations of sphere of services, increased attention needs to be assigned to qualitative satisfaction of the growing needs of citizens. For companies that do not operate in a similar direction, the perspectives of survival are minimal. Therefore, innovation infrastructure in the sphere of services requires ongoing training of professional staff who understand the importance of the problem of innovation development, timely formation of consumer demand, on the one hand, and who are capable of making and spreading innovations throughout the development of experience of given sphere of the economy, on the other hand. Therefore, economically based program conception of the innovation infrastructure development in the sphere of services is necessary, which must have a systematic and a complex character (Mordovchenkov, 2008). In our opinion, the innovation infrastructure in the sphere of services on the meso-level must include four basic criteria: price, quality, usefulness, time. In addition, it is necessary to point out that in the contemporary innovative infrastructure of the sphere of services there are special rings of mutual action of separate buildings and entire segments, which form special logistical and spatial-agglomeration rings (rings modifications originally formulated by Thünen (et al.), allowing progressive modifications of infrastructure and the emergence of its new forms.

In developing programs of innovative infrastructure in the sphere of services on meso-level it is necessary for the region to use experience of methodological research of scientific ideas and conclusions that have been obtained in the frameworks of institutional-sector and territorial-recreational conceptions of the efficiency increase in the functioning of organizations and enterprises of all kinds of property, and also balanced coordination in the frameworks of creating a complex system of capital and services, global experience of paradigmatic and structural changes through the managing solutions and others (Mordovchenkov, 2008). It should be noted that the experience of using the conclusions of national

and international researchers in a similar direction already exists. In particular, with our involvement a regional strategy of complex engineering and economic cooperation was approved within the frameworks of international innovation reengineering program of the elaborations of modifications of ships with underwater wings and the screen plans (g. NJ. Novgorod, CKB for SPK named R. J. Aleksejev). Strategy was developed in order to increase mobility and ecological degree of passenger and cargo transport in conditions of international cooperation within the frameworks of the globalization of the world economy (Mordovchenkov, 2004, Mordovchenkov, 2007b).

Liaise between Innovation Infrastructure and Human Capital

It is necessary to emphasize also the importance of the development factor of human capital as a process. The social sphere, in our opinion, being formed parallel with the operation of primary production, provides realistic conditions for positive functioning of the innovation economy as a whole. It creates real conditions to meet demand at the institutional level and the level of structural changes of the transitive economy and, at the same time, the demand of the population for the development of various services (Mordovchenkov, 2011). Therefore, it is necessary to strengthen the social component in solving innovation infrastructure problems and, above all, human capital (Mordovchenkov, 2006). Qualitative development of human capital creates real chances for the emergence, development and introduction of innovations in the sphere of services. Innovation processes, associated with the transformation of technical and technological infrastructure in the era of innovation economy are entirely overlapped with the development of human capital (Mordovchenkov, 2009a, Mordovchenkov, 2011).

The system of liaise between the innovation infrastructure and human capital allows by using powerful IQ to make visible what is hidden in the depth of the object, subject matter and subject of scientific research. It is necessary within the frames of the human capital institute innovation infrastructure to 'build' in it local blocks of regulation (including micro-and meso-structures) of rational functioning of regional infrastructure - industrial clusters, national research institutes, successful companies in the field of services, including consulting ones within the system of private-public partnerships (Mordovchenkov, 2003, Mordovchenkov, 2006).

We consider that innovation infrastructure in the sphere of services is a cumulative self-development system of the formation of innovative ideas that

have the utility function in the services market, which is generated during the positive use of human capital.

Taking into account the decisions of the state infrastructure problems in the social sphere from the viewpoint of economic priorities, it is necessary to achieve the search for reserves and possibilities for the establishment and operation of the strategic model of the i-elements complex system of innovation infrastructure in the registry of services (Oslo Manual, 2010), which allows taking into account the effects of the market on the reproductive process of regional development (Mordovchenkov, 2009a, Mordovchenkov, 2011).

For its part, the complex system of the transformation of i-elements of innovation infrastructure in the sphere of services in the region in conditions of global marketing and state regulation of the economy and finance includes the following components: intellectual capital, innovations, investments, infrastructure, institutes, information, integration, indication, inventory, internationalization, intensification, establishment, invariance.

Above emphasized specific logistical and spatial-agglomeration rings and other 'rings' are within the frames of convergence with social infrastructure, providing a complex system of state regulation, economic and social security, an increase in rating of the region and the state as a whole (Mordovchenkov, 2004). In this connection it should be noted that the author of this article formulated conceptual bases of forming the infrastructure of small and medium-sized businesses based on the use of leasing, with the possibility of modelling an unmet demands for services in the region. A specific original methodology of the formation of consumer demand in marketing research has also been developed and alternative models of the function of consumer demand by R. Stone proposed. It has been shown that not only that the use of chrestomathic econometric models of optimization of the consumer demand function does not cause significant difficulties in modelling, but it also creates real assumptions for searching and rational solution to the problem of infrastructure in conditions of transformation of innovation infrastructure in the sphere of services (Mordovchenkov, 2005).

Conclusion

The contemporary market relations in transformational economy, particularly in Russia, have to be built through a balanced economic growth of the region. Regional infrastructure is an instrument of handling of the economy of the region, the criterion of balanced growth which in conditions of the post-industrial era becomes a quality of life of the population. In recent years, with

growing of the economic importance of the region and especially starting from 2000 with the creation of the federal districts, and the separation of the regions as independent economic units, the role and importance of regional infrastructure increases on the level of the region, the inter-system connection of regional infrastructure and quality of life of the population reinforces and the importance of creating innovative infrastructure of the sphere of services increases on the meso-level.

Thus, measures proposed by the author of the article for the development of the innovation infrastructure in the sphere of services will become the guarantee of the creation of the regional program of the strategy of development and the institutionalization of the innovative and investment infra-economy on the meso-level, and the realized research have been one of the components of the author's scientific school (Mordovchenkov, 2009b) and its transformation direction in 2012: "Institutional Infrastructure as a Factor of the Economic Security of the Region."

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