

Infrastructure Projects Management in Service Sector

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ABSTRACT

The urgency of the problem under study is due to the fact that the development and improvement of services sphere acquires special significance and exerts a noticeable influence on the gross domestic product, which is accompanied by new jobs creation and infrastructure development as a whole. At present, infrastructure projects better management is required, since most organizations and enterprises do not develop evenly. The innovative component introduction stimulates the service sector development, and as a result, the national and world economy development. The paper purpose is to explore the scope of Russia's services in the infrastructure projects management and to identify social and economic activity directions that require development and improvement, as well as to identify the innovative activities specifics and trends in the service sector. The leading method to investigate this problem is the system approach with the conjoint study use aimed at identifying the links that have developed in the service sector within the framework of innovative development. The study structure. The paper presents foreign and Russian interaction practice between science and services sphere, assesses the infrastructure projects effectiveness using the externalities theories, examines innovative and investment activities in the infrastructure development, that is, the authors optimizes the "triple helix" model, including the population as the fourth entity. The service sector development analysis in Russia has been carried out, and recommendations have been developed to improve it. The paper materials are of practical value to the state administration bodies when developing and implementing federal and regional innovative development programs in the service sector, as well as for private entrepreneurs in the infrastructure projects management in the service sector.

Keywords: services sphere, infrastructure projects, innovations, triple helix, infrastructure management, population, services quality

INTRODUCTION

The Study Relevance

The service sector development at the world level dictates the need to enhance Russia's competitiveness. Strategic objectives realization of the state policy within the framework of the study subject is possible by modernizing the relevant material and technical base, which presupposes the modern facilities availability and on which the

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potential for national service sector development is based. The modern material and technical base for the services production must meet the current market requirements and world standards. In recent decades, investment in the services sector has had a significant impact on the world economy, which is accompanied by resource mobilization. As part of long-term socio-economic development, Russia is at the transition stage to the economy innovative model, which is based on the human capital development. In this regard, an important area of the domestic economy modernization is innovation activity in the services provision.

The large infrastructure projects development, in turn, is one of the state main tasks, since it is they that allow developing the economy key sectors, promote new jobs creation through their implementation. Infrastructure projects implementation in the service sector is not an easy task for the state, and this direction better management is required. It is necessary to activate innovative and investment activities aimed at the services new types' introduction that meet the requirements and satisfy the quality of population service, as well as allowing to ensure a high level of services competitiveness.

The infrastructure projects implementation in the service sector should allow creating a qualitatively new infrastructure system aimed at the development innovative way and lead to institutional changes.

Within the framework of the institutional approach to the management of infrastructure by the services sphere, researchers paid attention to the notion "externalities" and their prerequisites. The externalities management emphasizes the role of the economy political regulation at government all levels. The external effects management is a lever for regulating issues in the environmental pollution field, fines imposition, etc. Until 1960, among those who were engaged in the study of external effects were J. Meade [1], T. Skitovsky [2], E. J. Dolan [3], P. Sraffa [4], G. Ellis & W. Fellner [5], P. Samuelson [6], V. Pareto [7], S. Fisher [8]. However, the scientific literature does not pay attention to the external effects study in the service sector, including its subsystems.

Within the framework of the concept "triple helix" model, interaction of only institutional innovation three subjects is considered: the state, business and science. The works of H. Etzkowitz [9], L. Leydesdorff [10], E. V. Babkina & V. A. Sergeev [11], D. Satinsky & S. Botot [12]. A. I. Shinkevich & F. F. Galimullina [13] are devoted to the study of this model. The work emphasizes the need for the fourth actor of the "triple helix" model in managing infrastructure projects in the service sector-the population, which gives the model a socio-economic character.

The study hypothesis is based on the assumption that the service sector's certain subsystems require specific techniques for infrastructure projects effective management.

METHODOLOGICAL FRAMEWORK

The Study Theoretical Basis

The theoretical foundation of the dissertation research was the innovations theory, studied by domestic and foreign scientists, as well as the problems study of the service sector infrastructure forming. The object of research is the material and technical base that ensures the service sector functioning and development. The subject of the study is the modernization and management of infrastructure services innovative development. The study aim is to identify tools for managing infrastructure projects in the service sector.

The Study Methods

The research is based on the service sector evaluation using a survey method of collecting information from the public in a questionnaire form. Subsequently the statistical data systematization assessing the real situation on the market with further comparative-matching method and SWOT analysis was carried out. The obtained quantitative indicators are summarized in the analytical tables.

Evaluation of infrastructure projects effectiveness management was carried out on the basis of statistical data systematization characterizing the foreign and Russian practice of managing infrastructure development in the service sector, as well as by methods of comparison, analysis and synthesis, which in a complex determined the objectivity of conclusions formulated by the authors.

The Study Stages

In the process of research:

- 1) the externalities theory for the service sector has been adapted;
- 2) the services sphere in Russia has been studied with the help of conjoint analysis;
- 3) an optimized "triple helix" model in infrastructure projects management in the service sector was developed

The Study Theoretical and Practical Significance

The study theoretical significance is the institutional approach development to the infrastructure projects management in the service sector based on the adaptation of externalities theory to the service sector.

The study findings and results practical significance is the optimized "triple helix" model development for infrastructure projects in the service sector.

RESULTS AND DISCUSSION

The Externalities Theory Adaptation for the Service Sector

To evaluate the management efficiency it is proposed to use the institutional approach by the infrastructure based on adaptation for the services sphere of externalities theory, which allows taking into account the meso-system development reserves that are not observed in the framework of traditional approaches to the effectiveness evaluation.

The basic concepts of externalities theory were indicated by the supporter of neo-institutionalism A. C. Pigou in 1920 [14]. The theory was first applied to the environment: A. Pigou proposed to introduce in London in 1920 a tax on emissions of pollutants into the atmosphere.

The term "external effects" was introduced by P. Samuelson in 1958 [6]. Scientists believed that the external effects presence violates the effective market equilibrium and Pareto efficiency (Pareto, 1897) - the optimal allocation of resources is achieved when it is impossible to improve the value of one indicator without worsening the value of the other.

Economist S. Fisher [8] believed that externalities arise when the activity of one economic entity has a direct effect on the profit and costs of the other entity. In this case, externalities are not fully displayed in the market price.

Thus, externalities are a key term in the integration of environmental and economic policies, used to formulate strategies and tools for sustainable development.

As the services sphere is involved in the society economic sphere, it becomes important to assess the economic effect of the service sector functioning, i.e. the question of an external effect appearance (externalities). This study was conducted on the example of activities implementation in the service sector. The events economic effect in the

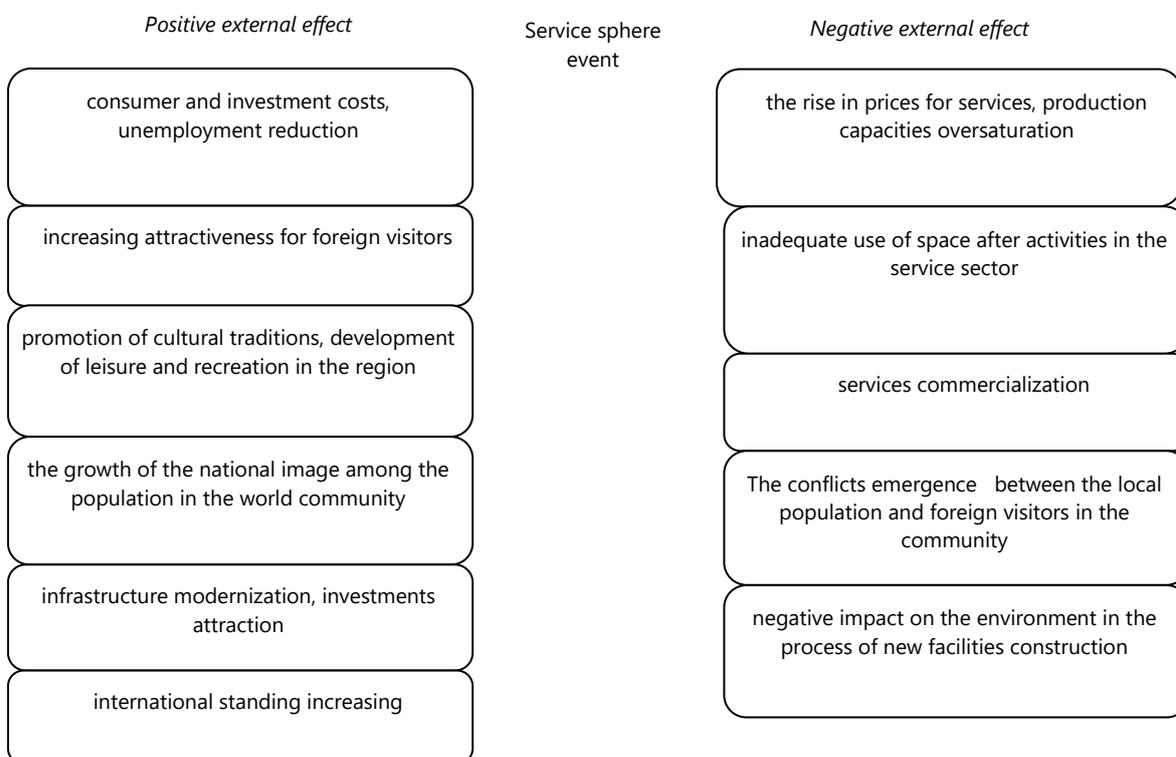


Figure 1. The activities' external effects in the service sector (systematized by the authors)

service sector is a pre-planned stage in the event organization. It is necessary to take into account the increasing deficit of the state budget in connection with obtaining a loan [15]. However, the measures effect is of a dual nature (Figure 1).

Thus, the activities positive externalities in the service sector include:

- new infrastructure facilities construction related to the upcoming event;
- modern telecommunication capacities construction is associated with attracting significant investments, positively affecting economic activity;
- the constructed objects can be used after their carrying out for many years and decades. The transport infrastructure development will provide a significant impetus for improving the municipal and regional economy;
- reduction of transport costs through the improvement of the road network;
- commercial effect of events from advertising;
- an increase in the total costs from foreign guests coming from other cities and countries to attend events.

Indirect benefits include the advertising effect, as the host city becomes a potential destination for business development in the future, which increases the sense of civic pride, national community, and prestige of the territory.

The main negative aspects of the activities are:

- possible overspending of the event budget pledged funds,
- inefficient use of territory and facilities.

Thus, negative externalities contribute to the institutional traps emergence between the service sector as a business partner and the social sphere. Models for eliminating institutional traps in the economy were in the works of A. I. Shinkevich & F. F. Galimulina [13]. As one of the tools for managing infrastructure projects, it is advisable to consider technological platforms that are able to minimize the negative external effect and contribute to the service sector sustainable development.

Conjoint-Study of Russia Services Sphere

Analyzing the service sector state in Russia by the Gross Domestic Product production structure, it can be seen that the mining and processing industries share is high and amounts to 26.1%, wholesale and retail trade, as well as motor vehicles repair, took the second place and amounted to 21.3% the service sector - 19.8% and in a detailed section is presented as:

- transportation and storage - 6.2%;
- hotels and public catering enterprises activity - 0,7%;
- activities in the information and communication field- 1.9%;
- financial and insurance activities - 4.1%;
- education - 2.6%;
- activities in the health and social services field - 3.4%;
- activities in the culture, sports, leisure and entertainment field- 0.9%[16].

Thus, the service sector is underdeveloped and represented in GDP, but it has a significant impact on the world economy. There is also innovative services lack, but the innovative component introduction stimulates the service sector development.

The conducted research on Russia big cities allowed generalizing the strengths and weaknesses in infrastructure projects management and identifying possible threats and opportunities for the service sector development (Table 1).

Table 1. SWOT - analysis of services sphere development

Strengths	Weaknesses
<ul style="list-style-type: none"> - communication - entertainment in the central areas of the city; - developed network of sports complexes in big cities of Russia 	<ul style="list-style-type: none"> - entertainment centers are required in remote areas from the city center; - there are no interest clubs for pensioners and for youth; - insufficient domestic services;
Opportunities	Threats
<ul style="list-style-type: none"> - investment projects development and their implementation; - Socially important directions development (parks, children's institutions, sports schools, etc.); - balanced development of the city districts; - effectively functioning organizations; - new jobs creation 	<ul style="list-style-type: none"> - Insufficient equipment of the city remote areas with necessary services; - workload of business units by homogeneous types of services per 1 m2 in the city central districts - consumers dissatisfaction; - bankruptcy of small business; - the services market inefficiency

From the analysis carried out it is clear that in the Russia big cities there are strengths and weaknesses in the infrastructure development and it is required to implement the necessary investment, social and innovative projects with their implementation balance. For public policy more competent alignment in the infrastructure projects management, a program is needed to develop services and build effective and competitive cities that meet the population needs.

The “Triple Helix” Model Optimization in the Infrastructure Projects Management in the Service Sector

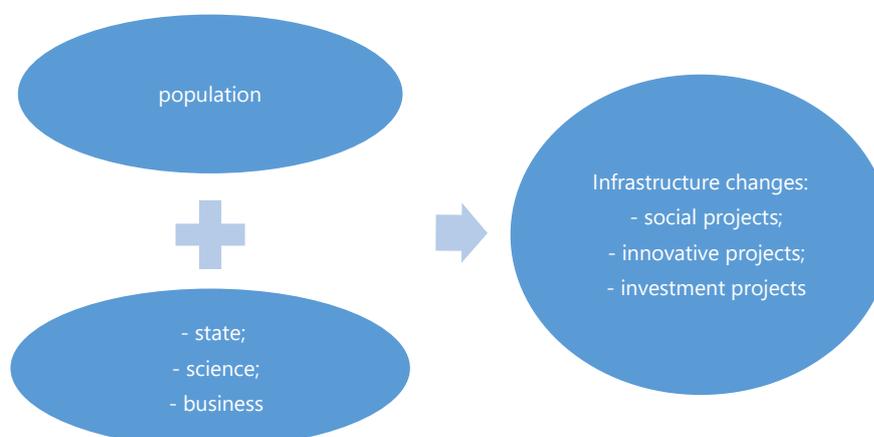
Developing the “triple helix” model provisions, it is proposed to include in the institutional model of innovative development the fourth institution - the population, as the main services consumer that affects the service sector with the help of their needs and the entire infrastructure as a whole.

Institutional changes are the institutional structure reform - a set of interrelated formal and informal rules. As the main reasons for these changes the founder of institutionalism T. Veblen considers a person's ability to creative activity and experimentation, that is, the individual independently determines his own basic needs [17]. According to J. Schumpeter, the main factor of institutional development is the innovative activity of entrepreneurs and other members of society [18]. D. North sees changes in the tastes and preferences of society as important prerequisites for institutional changes [19].

In this regard, the main institutional development can be traced with the help of institutional innovation entities, which are the state, science, business and population, where their close interaction directly contributes to structural and institutional changes.

The need for an integrated approach to this interaction is due to the fact that paired interactions are characterized by a sufficiently high degree of uncertainty, lack of feedback, and create institutional traps, which leads to the system closure and its underdevelopment [20].

Thus, innovations are created for the population, which, through needs, affects institutional development. In this regard, the population is an integral part of the innovation process. In this case, it is proposed to develop a mechanism for interaction between subjects of institutional innovation (**Figure 2**).

**Figure 2.** Interaction of infrastructure projects subjects (systematized by the authors)

In this case, the organized work of each participant in infrastructure projects is required:

1. it is necessary to conduct the population surveys about the development degree of the region infrastructure (city) and the new economic facilities creation (social and investment facilities);
2. statistical data analysis and the actual situation analysis on the market, with the help of entrepreneurs (business);
3. The obtained results are proposed to be tested with the help of science (new knowledge and technologies) and submitted to the state for consideration and investment by entrepreneurs.

To achieve the effect of the new emergence within the framework of the model under consideration, the state acts as a legislative body and creates conditions for social and economic development, business is a producer of goods and services on the market, and the population is a consumer in the market. Consequently, with the society development, the productive forces growth, the market for goods and services is improving. The market entrepreneurs, in turn, need information about the changes taking place in the market, as well as the needs of consumers [21, 22].

Thus, within the framework of the proposed model, a conjoint is conducted - the infrastructure study, which involves the society's social and economic spheres integration. At the same time, within the framework of the social aspect, the state support and budget financing issues are being solved, and within the framework of the economic aspect, entrepreneurs and the state are investing in these projects. Based on the proposed model, a service development program aimed at the infrastructure projects effective management can be developed.

CONCLUSION

Thus, the main methods of infrastructure projects effective management in the service sector are:

- infrastructure projects evaluations based on the externalities theory;
- technological platforms use to minimize the negative external effect;
- technological platforms use to minimize the negative external effect;
- a particular city or region infrastructure comprehensive analysis conducting in order to identify strengths and weaknesses, and identify threats and opportunities for development;
- the participants actions balance in infrastructure projects aimed at the necessary services joint creation;
- innovative services development necessary for sustainable service sector development;
- public-private partnership organization in the project implementation.

Thus, economic growth is impossible without increasing the economy functioning and all actors interaction of institutional innovation that lead to structural, institutional and innovation changes. With the economic entities effective interrelation aimed at achieving specific objectives for services joint production in the infrastructure projects management, the transition to the service sector development innovative path, as well as the new social, investment and innovative projects development and additional jobs creation is traced. The scientific study materials represent theoretical and practical significance for the federal and regional programs development and implementation for the service sector development, as well as for an innovation policy strategy development in this field.

REFERENCES

1. Meade, J. (1952). External Economies and Diseconomies in a Competitive Situation. *Economic Journal*, 62(245), 54-67.
2. Skitovsky, T. (1954). Two Concepts of External Economies. *Journal Political Ec.*, 57, 143-151.
3. Dolan, E. J., & Lindsey D. E. (1991). Market: Microeconomic Model. London: Cengage Learning EMEA.
4. Sraffa, P. (1926). The laws of returns under competitive conditions'. *Economic Journal*, 36(4), 535-550.
5. Ellis, H., & Fellner, W. (1943). External Economies and Diseconomies. *Am. Ec. Rev.* 33, 493-511.
6. Samuelson, P. (1958). An exact consumption-loan model of interest, with or without the social contrivance of money. *Journal of Political Economy*, 66, 467-482.
7. Pareto, V. (1897). The New Theories of Economics. *Journal of Political Economy*, 5, 485-502.
8. Fisher, S. (1973). A Environmental Externalities and the Anow-Lmd Public Investment Theorem. *Am. Ec. Rev.* 63(4), 722-725.
9. Etzkowitz, H. (2002). Incubation of incubators: innovation as a triple helix of university-industry government networks. *Science and Public Policy*, 29(2), 115-128.
10. Leydesdorff, L. (2005). The triple helix model and the study of knowledge-based innovation systems. *International Journal of Contemporary Sociology*, 42, 1-16.

11. Babkina, E. V., & Sergeev, V. A. (2011). The triple helix of innovation development: the experience of the US and Europe, opportunities for Russia. *Innovations*, 12(158), 68-78
12. Satinsky, D., & Botot, S. (2011). The model of the triple helix in the regional development of Great Britain, the USA and Russia. *Innovations*, 4, 43-46.
13. Shinkevich, A. I., & Galimulina, F. F. (2012) Managing institutional traps within a triple helix model of innovation in the field of chemical technology. *Bulletin of Kazan Technological University*, 9, 311-312.
14. Pigou, A. C. (1920). *The Economics of Welfare*. London: Macmillan and Co.
15. Shinkevich, M. V., Misbakhova, C. A., Bashkirtseva, S. A., Fedorova, T. A., Martynova, O. V., & Beloborodova, A. L. (2017). Institutional Factors of Micro, Mezzo and Macro Systems' Innovative Development. *Journal of Advanced Research in Law and Economics*, 1(23), 229-236.
16. Russia in figures. (2016). *Brief articles collection*. Moscow: Rosstat.
17. Veblen, T. (1984). *Theory of idle class* (Trans. by S.G. Sorokina). Moscow: Progress.
18. Schumpeter, J. A. (2008). *The theory of economic development. Capitalism, Socialism and Democracy*. Moscow: Eksmo.
19. North, D., & Thomas, R. (1973). *The Rise of the Western World: A New Economic History*. Cambridge: Cambridge University Press.
20. Dezhina, I. G., & Kiseleva, V. V. (2008). *State, science and business in the innovation system of Russia*. Moscow: IET.
21. Shinkevich, A. I., & Barmina, K. V. (2016) Managing the infrastructure of the city as part of a triple helix model in marketing. *Economic Bulletin of the Republic of Tatarstan*, 2, 50-55.
22. Galimulina, F. F., Shinkevich, A. I., Ivanov, G. G., Kharisova, R. R., Lushchik, I. V., Ishmuradova, I. I., & Shiryaev, D. V. (2017). Economic Models for Institutional Gaps' Elimination in the Framework of Innovation. *International Journal of Environmental and Science Education*, 12(1), 57-67.

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