



METHODOLOGICAL PRINCIPLES OF SPATIAL URBAN DEVELOPMENT MANAGEMENT ASSOCIATED WITH THE TRANSITION TO TERRITORIAL INTEGRATED DEVELOPMENT AS EXEMPLIFIED BY ST. PETERSBURG

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ABSTRACT

Currently, there is a sharp increase in interest in the issues of “spatial science”, which means not only regional politics and regional economics, but also urban planning activities. The study of spatial development of cities is interdisciplinary in nature and is associated with political, economic, social and environmental issues. The purpose of the presented research is to elaborate universal methodological principles for the development of cities as exemplified by a large metropolis of St. Petersburg. In addition, in large cities, there is an acute problem of the urban integrated development – it is referred to alignment of culture and entertainment, tourism, business, trade and communication functions and housing. Other problems of the integrated development of the city involve: the deterioration of the external investment background in the Russian Federation, leading to the need to find new ways of implementing projects for the development of a spatial grouping of settlements; a decrease in the quality of life of the population due to a delay in the pace of infrastructure development from housing construction rates; deficiencies in the legal regulation of the development of St. Petersburg territories in the context of the implementation of environmental functions. As a result of these problems, the costs of maintaining the city are increasing and the efficiency of using its territory is decreasing. Scientific research methods are: the synthesis method acting as a function of theoretical research and combining the methodological principles of managing cities’ spatial development. The synthesis method acts as a function of the interrelationship of the theories of spatial infrastructure relating to the subject area of the study – the regional economy and regulatory acts governing St. Petersburg’s integrated development. Our proposals in terms of the methodological principles of cities’ spatial development allow improving the institutional mechanisms for

increasing the efficiency of the system of government management of St. Petersburg's spatial development in order to upgrade the level of complexity of the territorial development.

Keywords: Spatial and Territorial Development, City, Methodological Principles, St. Petersburg.

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1. INTRODUCTION

The development of cities as geographical objects is determined by the concentration of economic functions and population growth in limited territories. Furthermore, most investment projects are carried out in urban areas, and the majority of the population also lives in cities. Cities need to improve the system of state management of their development, including a spatial structure planning based on elaborated economic functions and activities. In addition to the spatial issues of urban development, the problems associated with the complex development of territories and infrastructure affecting the development of the city arises and requires solution. The methodological principles of urban development management proposed by the authors will help solve spatial and territorial urban problems, the effective construction of infrastructure facilities, and the economic growth of the city, which will make it competitive with other cities.

2. LITERATURE REVIEW

The study of the economic role of the city is grounded on the internal analysis of the spatial structure. Awareness of the importance of space in the economic life of cities occurred in the 19th century in the works of scientists of the German school, connected with the development of the concept of economic space.

The first experience of regional studies of spatial infrastructure is associated with the names of J. Thünen, W. Christaller, A. Lösch and other scientists. The characteristics of the main provisions of the theories belonging to these researchers are given in Table 1 [18].

Table 1 Characteristics of theories of spatial regional infrastructure

Research scientists	Theory name	Characteristics of theory
Johann Heinrich von Thünen	“The Isolated State” Theory	It was supposed to have an economically isolated state from the rest of the world, within which there is a city for marketing agricultural products and industrial goods.
Walter Christaller	Central Place Theory	It was the first theory about the location of settlements in the market space. According to it, central places are economic centers that serve themselves and the population of their neighborhood with goods and services. Over time, they tend to form into regular hexagons (crystal lattice).
August Lösch	The economics of location	The scientist expands the subject of the theory of location, moving from the micro level (particular enterprises and settlements) to the problems of forming economic regions. The pinnacle of A. Lösch theory is the development of the fundamental principles of the spatial economic equilibrium theory.

A.G. Granberg [4] explains the essence of “The Isolated State” theory by Thünen, containing the idea of optimizing the location and minimizing transport costs. The spatial model of Thünen is grounded on two provisions: first, the presence of a state that is economically isolated from the rest of the world, within which there is a central city, which is the only market outlet for agricultural products and a source of providing industrial goods; and secondly, the price of each product at any point in space differs from its price in the city by the amount of transportation costs.

L.E. Limonov [10] writes that according to Christaller’s theory, cities form a network of “central places covering the whole space. Some goods and services should be provided in each locality (essential goods); others in medium-sized settlements (clothing, personal services); the third ones – only in large cities (luxury goods, theaters). In addition to the products necessary for the area of its rank, the center produces goods typical of all centers of lower ranks.

A. Lösch [11] summarizes all the known theories of the location of production and resettlement created over 100 years, and is moving forward in almost all directions, linking the theories of J. Thünen, A. Weber, W. Christaller, and others. Lösch concluded that firms must be placed at the vertices of the crystal lattice, and each firm must serve customers within the limits of “their” regular hexagon.

A. Lösch’s model was developed in the works by M. Kubi, M. Sonis and other scientists. M. Kuby [9] continued his research in the field of modeling and expansion of the central place theory. Sonis [15, 16] performed a critical reassessment of the central place theory, which, in his view, should help narrow the existing gap between formal theory and empirical research.

There are followers of A. Lösch’s ideas among Russian scientists. A.G. Granberg’s works [5] deserve attention in the field of spatial economics. The scientist consistently proves that the enormous scale of the national economy, the increased economic opportunities and the public needs of the country dictate the necessity to seriously raise the level of all economic activities; to substantially increase the efficiency of the economy, to turn the whole huge economy into an even better, well-established mechanism. A significant role in the implementation of these tasks should be assigned to the improvement of the territorial organization of the national economy.

According to Bulgarian scientists, the city’s spatial and economic development is associated with the following factors [6, 7, 8]:

- Market factors affecting the city’s development;
- Models of urban land use;
- Spatial aspects of habitat development;
- The tax policy of city executive power.

Analyzing the above points of view of research scientists, we can state that they have a common vision of the city’s economic role, and it is perhaps exactly due to this fact that generations of scientists-economists return to German economists’ theories one after another, consistently developing and improving them.

3. METHODS AND METHODOLOGY

3.1. St. Petersburg's Spatial-Territorial Development

Economic activity of cities is a kind of intermediary between consumers, producers and local governments. It is generally believed that the urban agglomeration is a compact spatial grouping of settlements, united by diverse connections (industrial, labor, cultural, welfare and recreational) into a complex system. As a rule, it emerges around the core city.

St. Petersburg, being one of the largest and most attractive cities in Russia, has certain limitations in its development. The city has an expensive and prestigious, but a low-functional historical center. Simultaneous combination of cultural, entertainment, tourist, business, and trade and communication functions in the city center leads to the city's considerable congestion, an increase in the cost of routine maintenance. In St. Petersburg, a number of imbalances have been formed that reduce the efficiency of the urban economy in comparison with the main competitors. The peripheral zone of aging residential area, which prevailed mainly in the 1970s, and 80s, as well as the new development spaces (1990-2000), "stretch" the city and associated engineering and social infrastructure.

St. Petersburg has a large territory, which includes, in addition to dense buildings, long river and sea coasts. The discrepancy between the regulatory and legal framework governing the spatial aspects of urban development, long-term trends in the economy and the social sphere has conditioned, on the one hand, the rapid pace of housing construction, on the other – a reduction in the level of provision of social, engineering and transport infrastructure facilities, which led to significant disparities in the city's urban development.

A significant impact on the development of St. Petersburg's economy is provided by the features of its spatial and territorial structure. St. Petersburg went through several cycles of development and in the early years of the 21st century entered the stage combining the active expansion of the built-up area at the expense of the former agricultural lands, with the intensive transformation of previously built up lands. The planning structure of the city is changing; a regular large-scale grid of neighborhoods and urban districts is supplemented by a complex construction of the boundaries of land plots, passages and thoroughfares. At the same time, there is an increase in imbalances in St. Petersburg's spatial and territorial structure. And all this updates the search for solutions to problematic issues in the management of the metropolis development.

3.2. Methodological Principles Determining the Cities' Competitive Development

As the initial methodological prerequisite for improving the management of urban development, the principles are proposed, the implementation of which will solve the existing problematic issues in the formation of the spatial and territorial structure of megacities, including St. Petersburg.

1. Stability of territories.

This principle is prescribed in the Urban Planning Code of the Russian Federation [14] and means ensuring the sustainable development of the territories and taking into account the citizens' interests by defining the destination of territories based on a combination of social, economic, environmental and other factors in territorial planning documents. Scientists-practitioners in the field of urban planning and spatial management [3] determine the main task of St. Petersburg master plan as the balanced development of the city's territories by distinguishing the functional zones: residential, public-business, recreational and industrial. The balance of the city's territories, determined in the general plan, must correspond to the

modern significance of the city in the settlement system, take into account the continuity of the previously adopted town-planning decisions, the historically established structure of basic, city-forming and city-service activities.

The McKinsey Global Institute has developed the Urban Sustainability Index (USI). The main provisions of the MGI study were published in the report “UCI Launch 2016 Urban Sustainability Index” [17]. The index allows quantifying the dynamics of urban growth by 18 factors combined into the following 5 groups of criteria: the degree of satisfaction of the population’s basic needs, the resource use efficiency, environmental cleanliness, urban infrastructure and commitment to sustainable development in the future.

2. Control of public participation

The principle means controlling the degree of political and public participation necessary to support cities in order to make them a comfortable urban environment. The city is not only the place of public mechanisms functioning aimed at establishing contacts and exchange between people, but also a place in which territorial control of political and public participation is established. The Strategy for Economic and Social Development of St. Petersburg for the period until 2030 [14] is an example of participation in its development of organizations, representing interests of the entrepreneurial and scientific community, and also of the society in St. Petersburg.

The creation of the Strategy information base was carried out with the participation of federal executive bodies, St. Petersburg state bodies, state corporations operating in St. Petersburg’s territory, the largest economic entities in St. Petersburg, scientific and educational institutions, branch associations (unions) of enterprises and public organizations of St. Petersburg.

3. The proactive stance of the city administration and the interest of developers in the implementation of major strategic projects affecting the spatial aspects of the city’s development.

The implementation of the principle presupposes the formation of new zones of industrial and public-business development, redevelopment of territories in old industrial areas, etc.

4. Distribution of responsibilities and commitments in the implementation of activities by stakeholders to ensure the city management.

The mechanisms and models are based on certain indicators. In the world practice, certain quality indices of urban management are applied: the index of the level of the city economy development (City Development Index, CDI); the Human Development Index (HDI), etc. Currently, new indices appear, for instance, the quality index of the urban environment [13]. The index is formed by the totality of capital construction objects and adapted natural territorial elements functioning in interconnection as a single town-planning system.

5. Consensus in solving environmental problems.

The implementation of this principle presupposes the obligatory negotiation process and the formation of various concepts in the field of management and monitoring execution of activities to transform urban cities into a harmoniously developed environment. In St. Petersburg, the solution to the problem of a developed environment is relevant for a number of reasons. In the world there is no other multi-million city located at 60° north latitude with this quantity of production and social facilities. The production and social facilities located on the territory of the city are characterized by high resource and energy consumption, which negatively affects the ecological situation. Beyond that, located in the mouth of the Neva, the city passes part of the sewage coming from other regions of the country through its main water artery.

6. Implementation of the policy of meeting urban needs, taking into account local traditions in the light of legal aspects of national and European legislation.

These are the aspects of politics, such as health, education, social development, housing, ecology, urban planning, etc.

7. Identification of strategic priorities for spatial development.

In turn, the definition of strategic priorities for the development of a metropolis should be preceded by the study of its “starting positions”. In S.A. Ershova’s opinion [2], for the moment, it is obvious that the “starting” natural and climatic and geodesic conditions of St. Petersburg represented on historical and modern maps, and St. Petersburg plan should be taken into account. Plans define the role and integration of spatial and urban planning.

8. Infrastructure provision for large cities.

Infrastructure plays a decisive role in sustainable urban development. The infrastructure creates certain conditions, without which the realization of their functions by business entities and the satisfaction of individuals’ needs would be impossible or unprofitable. The authors of the monograph, scientists from Russia and Bulgaria [1], believe that infrastructure is an objective reality, its accelerated or delayed development has a significant impact on the flow of economic processes and largely determines market conditions.

9. Integrated territorial development.

This principle implementation involves combination of cultural and entertainment, tourism, business, trade and communication functions and housing. A special feature of the complex development of St. Petersburg agglomeration is the transition from its spontaneous development to a controlled model with a modified system of economic guidelines under the conditions of tight budget constraints.

4. DISCUSSION AND CONCLUSIONS

In a large metropolis of St. Petersburg, there is an acute problem of the integrated territorial development, which is confirmed by the adoption of a large number of state programs: “On Saint Petersburg’s transport system development 2015-2020”, “On the Strategy for Economic and Social Development of St. Petersburg for the period until 2030”, “On the development of built-up areas in St. Petersburg” and 15 more programs, a list of which is formed by the sectoral principle in accordance with the main directions of the socio-economic city’s development. This confirms the importance of studying the issues of cities’ spatial development in the framework of the transition to the integrated development of the city’s territories. The theoretical proposals of the authors of the article in terms of the methodological principles of the cities’ spatial development use their inherent advantages in the field of institutional support. They are closely connected with the works of scientists in the field of spatial management and with regulatory acts governing the cities’ economic, social and infrastructural development.

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