

Assessment of service sector quality as an area of urban environment

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Abstract. The article considers the specifics of the urban environment functioning from the viewpoint of the implementation of service companies' activities. The paper contains the main methods for assessing the quality of life in an urban environment. The research also provides a modern classification of service sectors. The main value of the work is the results of assessing the development level of infrastructure in the service sector in terms of the Urban Environment Quality Index. The authors arrive at a conclusion about the peculiarities of the functioning of service enterprises in an urban environment.

Key words: Service sector; Conditions of the urban environment; Quality of the urban environment.

1 Introduction

The role of modern cities is essential for both economic growth and social and environmental impact. According to reports from the Global Commission on the Economy and Climate, "3.9 billion people live in urban areas, and the urban population is expected to grow by another 2.5 billion people by 2050. More compact, connected, and coordinated cities are worth up to US\$ 17 trillion in economic savings to 2050." Cities store the bulk of population growth, over two-thirds of the world's energy consumption. "Cities face a range of socio-economic and environmental challenges such as depletion of natural resources, loss of biodiversity, climate change, air pollution, excessive noise, waste generation and disposal, land use, availability of drinking water, etc." [1]. Therefore, the quality of the urban environment is becoming one of the most important aspects of the balanced socio-economic development of the territory.

In various regulatory documents and scientific papers, the urban environment is characterized by a combination of natural, architectural, planning, environmental and other factors that form the habitat in a certain area and determine the comfort of living in this area [2]. In the same context, researchers use the terms "urban space" and "urban ecosystem". Urban space is usually interpreted as "the spatial part of the city, usually not administratively defined." While "urban ecosystems are defined as those systems in which people live in high density and where built structures and infrastructure cover most of the earth's surface, in which most of the world's population lives" [3]. These concepts are often used in foreign

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studies of the quality of the urban environment, their criteria, indicators and assessment methods are often relatively similar.

Studies of various aspects of the urban environment affect many problematic aspects, including: "the image of the city, the quality of the urban environment, urban zoning, individual urban spaces, urban transport, the visual component of the urban environment, the urban soundscape" [4]. Thus, the assessment of the quality of the urban environment is a key area of research on this topic.

In Russia, various studies highlight different problems of urban development, for example, the involvement of citizens in the implementation of programs for the formation of a comfortable urban environment, the implementation of projects and planning solutions for programs, and, of course, the organization of financing programs for the formation of a comfortable urban environment [5]. Therefore, the areas of development of the urban environment are traditionally divided into: support for the population, development of the city's economy, sustainable development and environmental protection, provision of comfortable transport infrastructure, development of the urban environment, formation of urban identity, inter-municipal interaction. In general, the main directions for the development of the urban environment in Russia are formulated in the national project "Housing and the urban environment", its main projects are: "Sustainable reduction of non-residential housing stock", "Formation of a comfortable urban environment", "Housing" and "Mortgage".

To form a comfortable urban environment, it is necessary to assess its quality. Numerous domestic and foreign studies are devoted to the identification of various factors, parameters and indicators of the quality of the urban environment. First, it is necessary to focus on the urban environment quality index, which is formed by the Ministry of Construction, Housing and Communal Services of the Russian Federation. The index calculation methodology includes 6 spaces, 6 criteria and, accordingly, 36 indicators. Among the main spaces: residential and adjacent territory, street and road network, green spaces, public and business infrastructure and adjacent spaces, social and leisure infrastructure and adjacent territories, citywide space. In 2022, the city of Moscow became the leader among the largest cities in Russia, with 299 points out of 360.

Although the Urban Environment Quality Index is in many ways a benchmark for the development of Russian cities, it is certainly not the only approach to determining the factors and indicators of the quality of the urban environment; various city quality ratings are also offered. For example, in the study of an Urban Resilience Index on the example of 50 Spanish cities, the authors conclude that "the most important factors contributing to the strengthening of urban resilience are diversity, modularity, close feedback, social cohesion and innovation" [3]. In the study of the system of urban sustainability indicators, the authors combine numerous indicators into the following groups: environmental, social, economic, and institutional [1]. The authors of the "smart sustainable cities" methodology identified such categories of indicators as "use and result", "health and well-being", "appearance", "management", "environment" and "safety and security" [6]. When studying the quality of the environment on the example of the city of Chongqing, the authors take 40 evaluation indicators from five aspects: the quality of economic development, the quality of the ecological environment, the quality of cultural construction, social public quality and the quality of life of residents, and also introduce a method for estimating the value of entropy [7]. When studying the relationship between the quality of the urban environment and the quality of life of citizens, the authors group the indicators of the urban environment into: economic environment, social environment, natural environment, anthropogenic environment, cultural environment, leisure, demographic data, education, health care, democratic institutions, and road transport [8]. In this regard, it should be noted that a number of studies are devoted to assessing the relationship between the quality of the urban

environment and the quality of life of citizens. An example of a Russian study is the assessment of the relationship between human development indicators, quality of life and the quality of the urban environment [9]. In another study, the authors “determine the relationship between the level of satisfaction of citizens with urban infrastructure (SUI) and their quality of life, the impact of SUI on the perception of the area as an ideal place to live, and the relationship between the amount of green space and MIS residents and their quality of life” [10].

In addition to the Urban Environment Quality Index mentioned above, various ratings of cities are being developed, the metrics of which include the quality of their urban environment, for example: the rating of the international consulting company in the field of human resources Mercer's "Quality of Life"; the ranking of the Economist Intelligence Unit's annual Global Liveability Report, The Economist "World's Most Liveable Cities"; Monocle magazine's Most Liveable Cities Index ranking of the living standards of cities; Niche "Places to Live Rankings"; Livability website rating "100 best places to live"; Arkadis rating "Improving the quality of life" [2] and some others. Also noteworthy is the urban well-being index proposed by the McKinsey Global Institute, which assesses the urban environment through indicators of population density, the intensity of public transport use and the degree of greening of public space, as well as a comprehensive indicator of the urban environment quality by IRP Group [11].

Thus, a large number of approaches have been developed to assess the quality of the urban environment and its various aspects, including several dozen indicators combined into various groups. But no less important is the definition of methods for studying the quality of the urban environment. According to researchers, the main methods of studying the urban environment in Russia are: observation, mapping (using GIS), interviews and questionnaires, while methods such as associative experiment, content analysis and others are rarely used [4]. Attention is drawn to non-standard, modern approaches using geoinformation methods based on open data [12]. An interesting area is also empirical research on the relationship between emotions and urban lighting scenarios, where the focus is on the emotions experienced by participants in open public spaces [13].

Methods for integral assessment of the quality of the urban environment are also the subject of various studies. In particular, the model "Impact - State - Response" is proposed: indicators that have a negative impact on the environment and the quality of life of citizens are selected as indicators of the "Impact" group; the state of the system, which is influenced by the components of the "Impact" group, in turn, provides this group with resources, and it not only changes as a result of the actions of the component of the "Response" group, but also determines their well-being [14]. Another model proposes a multi-dimensional and multi-methodological framework for scoring the quality of open spaces in order to define a synthetic index to measure the urban quality of open spaces based on various attributes, namely accessibility; survivability; viability and identity [15]. The model of overall life satisfaction also deserves attention, including home activity, neighborhood activity (physical, work) and labor activity [16].

Thus, there are various indicators and methods for assessing the quality of the urban environment. They include various groups of indicators and evaluation criteria, such as environmental, social, economic, transport, infrastructure, housing, cultural and leisure, medical indicators and a number of others. However, among these indicators, only a few studies focus on business infrastructure. At the same time, opportunities to find a well-paid job and organize entrepreneurial activities are also important parameters of the urban environment, factors of attractiveness and quality of life in the city. It is no coincidence that public and business infrastructure is in one of six places in the Urban Environment Quality Index mentioned above. It includes such indicators as the share of illuminated sections of streets, driveways, embankments at the end of the year in their total length; a variety of

services in public and business areas of the city; share of the area of the city harvested by mechanized method in the total area of the city; concentration of cultural heritage objects; level of development of public and business districts of the city; level of external design of urban space. Also, the overall life satisfaction model mentioned above defines such an area as job satisfaction, which includes: place of work (travel time, access to public transport, safety of the area, availability of shops and restaurants); work situation (load, quality of work, wages, people at work); workspace (size, access, privacy, noise, furniture/tools, technology) [16].

The study of the quality of the urban environment is also based on various methods, it is advisable to assess the business infrastructure, first of all, using sociological methods, and it is advisable to conduct a survey of both the population and businesses, with the possible inclusion of other methods as necessary.

The service sector makes a significant contribution to the quality of the urban environment and, in particular, to the quality of business infrastructure. On the other hand, it places accents within the assessment of the urban environment.

2 Materials and methods

The impact of the service sector development on the urban environment quality predetermined the aim of the study – to assess the development of various branches of the service sector in Russian cities according to key criteria for the quality of the urban environment.

The service sector is a part of the economy that includes the production of any service, both commercial and non-commercial. Within the most common classification of services, they are divided into tangible and intangible. In the first case, we are talking about changing the consumer properties of products, their movement, as well as creating conditions for their consumption [17]. Intangible services, in turn, are not related to the product in its material form. According to the classification of the WTO (World Trade Organization), there are 12 service sectors: business services, communication services, construction services and related engineering services, distribution services, educational services, environmental services, financial services, medical and social services, provision, tourism and related services, services for the organization of recreation, cultural and sports events, transport services, other services. This classification is based on the specifics of the production and consumption of each type of service, so its authors propose to take it as a basis for analyzing the features of functioning in an urban environment [18]. The authors put the Urban Environment Quality Index as the basis for the formation of the analytical model, adapting it to the task of the study.

To complete the study, the authors chose sociological methods, including a questionnaire survey and an in-depth interview. Within the framework of the survey 670 representatives of the service sector from large cities (with a population of more than 1 million people) were interviewed, mainly holding senior positions in the respective companies. Experts rated 12 service industries of their city on a ten-point scale according to 6 criteria of the Urban Environment Quality Index. In addition, the experts were asked to rank the criteria according to the degree of importance for determining the weighting factor of each criterion. Thus, the activities within each of the 12 service sectors were analyzed according to all 6 criteria for the quality of the urban environment, taking into account the importance of each criterion for a particular industry. The weight of each factor in the context of the service sector was determined by the expert.

At the next stage, authors conducted an in-depth interview with individual experts from managerial positions in service sector organizations to determine the most significant areas of development of the service sector in the context of improving the quality of the urban

environment. This allowed us to draw conclusions about possible recommendations for improving the quality of the urban environment through the development of the service sector.

3 Results

The survey made it possible to assess the service industries according to the criteria of the quality of the urban environment. The results of the study are shown in Table 1.

Table 1. Service sector.

Service sector	Criterion												Total points
	Safety		Comfort		Environmental friendliness and health		Identity and Diversity		Modernity and relevance of the environment		Management efficiency		
Business Services	8	7	8	9	5	6	7	6	9	8	8	7	328
Communication services	9	6	8	7	5	7	7	6	8	6	8	7	291
Construction and related engineering services	9	5	8	5	8	6	8	7	8	8	9	6	307
Distributor Services	9	7	7	7	8	6	8	7	8	7	9	8	344
Educational services	9	8	8	7	9	8	8	9	9	7	8	6	383
Services related to environmental protection	7	6	8	6	7	7	7	6	7	6	8	6	271
Financial services	9	6	8	8	7	8	8	8	9	8	9	7	381
Health and welfare services	9	7	8	5	9	7	8	8	9	6	8	6	353
Tourism and related services	8	6	8	7	8	6	7	7	8	6	8	7	315
Services for the organization of leisure, cultural and sports events	9	6	9	7	8	6	8	9	8	7	8	6	341
Transport services	9	5	8	6	8	6	7	6	8	8	9	7	310
Other services (household services)	8	7	8	6	9	6	8	8	8	7	8	6	326

In terms of evaluating the importance of criteria, the most developed sector is the financial services sector. According to the results of the study and taking into account the weight of each criterion, the most developed sectors of the service sector in the urban environment can be called the sphere of educational services and the sphere of healthcare and social services. The least developed services are related to environmental protection.

In-depth interviews conducted with representatives of the service sector made it possible to determine the main features of the implementation of the service sector in the modern urban environment:

- relatively high degree of infrastructure development;
- high decision-making speed;
- personnel "hunger" in ordinary positions;
- the predominance of the service sector over the production sector (in terms of the number of employees);
- high level of competition between companies in all areas of services;
- the main directions of development of service enterprises: improving the quality of services, digitalization, cost optimization.

These areas make it possible to identify key observations, as well as "sore points" from the position of experts and managers of service organizations. In particular, positive trends deserve attention, including the development of infrastructure, the financial sector, and the speed of decision-making, which was also reflected in the questionnaire survey. In addition, the most acute problems should be noted, such as personnel shortage and the level of competition in the service sector. These problematic aspects can be partially reinforced by

the development of certain aspects of the quality of the urban environment, such as education, for example.

The experts also drew attention to the most important, in their opinion, areas of development of the service sector, among which the need to increase their quality was noted. The questionnaire survey made it possible to identify the least developed industries, according to respondents, among which environmental protection stands out. This, as well as other areas such as communication, transport, housing services in large Russian cities deserves special attention according to the results of the study. Improvements in these areas will contribute to improving the quality of the urban environment.

4 Conclusion

Thus, we can conclude that the service sector in the urban environment is developing actively and rapidly, in the context of the main economic trends. It has a number of specific features and a heterogeneous structure, including the degree of development. The identified sectors with low level require recommendations to improve the quality of these services and the development of this sphere. In general, the service sector in the urban environment is a promising part of the economy of any country.

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