

Artículo de investigación

The concept and the means of agglomeration processes controlling

El concepto y los medios de control de los procesos de aglomeración
O conceito e os meios de controle de processos de aglomeração

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Abstract

Within this article, we considered the theoretical and empirical approaches to the understanding of agglomeration processes, highlighted the main foreign and domestic paradigms for classifying territories as agglomerations, as well as studied the works of the authors who first introduced the concept of "agglomeration". It has been found that the foreign authors most often interpret the concept according to geographical, administrative and economic approaches, while the domestic literature uses an economic-geographical approach. At the same time, the formation of agglomerations is based on the development potential of territories, and the agglomeration processes actively influence the factors of a territory development.

At the present stage of development of agglomerations abroad, the potential and effectiveness of the agglomeration processes based on the benchmarking research are being actively studied. At the same time, foreign scientists identify various aspects for controlling the agglomeration development process. The article highlights the problem of the lack of the agglomeration development concept in Russia at the federation level, which hampers the development of relevant documents at the regional and territorial levels. The development of this concept is proposed to begin with the scheme of regulatory and legal support for the agglomeration development. There are three interrelated stages in the proposed scheme: the development of a specific agglomeration development strategy, the creation of a scheme

Resumen

En este artículo, consideramos los enfoques teóricos y empíricos para la comprensión de los procesos de aglomeración, destacamos los principales paradigmas extranjeros y nacionales para clasificar los territorios como aglomeraciones, y estudiamos los trabajos de los autores que introdujeron por primera vez el concepto de "aglomeración". Se ha encontrado que los autores extranjeros a menudo interpretan el concepto de acuerdo con los enfoques geográficos, administrativos y económicos, mientras que la literatura nacional utiliza un enfoque económico-geográfico. Al mismo tiempo, la formación de aglomeraciones se basa en el potencial de desarrollo de los territorios, y los procesos de aglomeración influyen activamente en los factores del desarrollo de un territorio.

En la etapa actual del desarrollo de aglomeraciones en el extranjero, se están estudiando activamente el potencial y la eficacia de los procesos de aglomeración basados en la investigación de evaluación comparativa. Al mismo tiempo, científicos extranjeros identifican varios aspectos para controlar el proceso de desarrollo de la aglomeración. El artículo destaca el problema de la falta del concepto de desarrollo de aglomeración en Rusia a nivel de federación, lo que dificulta el desarrollo de documentos relevantes a nivel regional y territorial. Se propone el desarrollo de este concepto para comenzar con el esquema de apoyo legal y regulatorio para el desarrollo de la aglomeración. Hay tres etapas interrelacionadas en el esquema

for its territorial planning, the formation of a comprehensive investment program for agglomeration.

Keywords: Agglomeration, urban agglomeration, development potential, agglomeration processes, benchmarking

propuesto: el desarrollo de una estrategia específica de desarrollo de aglomeración, la creación de un esquema para su planificación territorial, la formación de un programa de inversión integral para la aglomeración.

Palabras claves: Aglomeración, aglomeración urbana, potencial de desarrollo, procesos de aglomeración, benchmarking.

Resumo

Dentro deste artigo, consideramos as abordagens teóricas e empíricas para a compreensão dos processos de aglomeração, destacamos os principais paradigmas nacionais e estrangeiros para classificar os territórios como aglomerações, bem como estudamos os trabalhos dos autores que primeiro introduziram o conceito de “aglomeração”. Verificou-se que os autores estrangeiros interpretam mais frequentemente o conceito de acordo com abordagens geográficas, administrativas e econômicas, enquanto a literatura nacional utiliza uma abordagem econômico-geográfica. Ao mesmo tempo, a formação de aglomerações baseia-se no potencial de desenvolvimento dos territórios, e os processos de aglomeração influenciam ativamente os fatores de desenvolvimento de um território.

No estágio atual de desenvolvimento de aglomerações no exterior, o potencial e a eficácia dos processos de aglomeração baseados na pesquisa de benchmarking estão sendo ativamente estudados. Ao mesmo tempo, cientistas estrangeiros identificam vários aspectos para controlar o processo de desenvolvimento da aglomeração. O artigo destaca o problema da falta do conceito de desenvolvimento da aglomeração na Rússia no nível da federação, o que dificulta o desenvolvimento de documentos relevantes nos níveis regional e territorial. O desenvolvimento deste conceito é proposto para começar com o esquema de apoio regulatório e legal para o desenvolvimento da aglomeração. Há três estágios inter-relacionados no esquema proposto: o desenvolvimento de uma estratégia específica de desenvolvimento de aglomeração, a criação de um esquema para seu planejamento territorial, a formação de um programa abrangente de investimento para aglomeração.

Palavras-chave: Aglomeração, aglomeração urbana, potencial de desenvolvimento, processos de aglomeração, benchmarking

Introduction

The world and Russian trends of the population settlement point to the strengthening of the processes of resource concentration around large cities and the formation of both monocentric and polycentric agglomerations, as a new framework for territorial development.

In Russia, urban agglomeration is one of the most important forms of territorial organization of the economy. According to a research made by P. Polyan there are from 50 to 100 agglomerations formed in the country for today. They contain more than 35% of the population and about 40% of the scientific and human potential. At the same time, most of them, namely 83%, are located in the European part. It is important to note that there are no agglomerations in 25 Russian regions (Polyan, 1988).

Agglomeration provides a favorable environment for the creation and development of various

types of infrastructures and economic relations, where a strong industrial potential, characterized by intensive domestic production and technological infrastructures and social and labor relations, is concentrated. They are also characterized by a high level of diversification, resulting in the greatest stability in difficult market conditions.

The potential of territory development, which includes, above all, human resources, innovative capital, natural and climatic conditions, advanced social and production technologies, which create the basis for the life of the population and improve the quality of life, pushes towards the creation of agglomerations. In addition, the agglomeration processes of the region develop the basic factors of the “first nature” and the “second nature”, including from natural

resources to agglomeration effect (Galiullina & Mironova, 2018).

In the federal strategic documents, the main directions of the country's spatial development indicate an increase in the saturation of human capital, infrastructure, resources in the large cities and the creation of twenty agglomerations with a population of over 1 million people, which will contribute to Russia's role in the global labor division, the formation of new growth locomotives, the creation of conditions for the development of innovative clusters. The negative foreign policy processes somewhat slowed down the practical implementation of the agglomeration restructuring of the spatial development of Russia, but did not reduce the degree of relevance of this problem. In this regard, it is necessary to understand the development of the conceptual-categorical apparatus, as well as to investigate and systematize the various approaches to the essence of the agglomeration processes.

Methods

The study was conducted on the basis of a systems approach, general scientific methods of knowledge. When forming the study results, we used the logical-structural method.

Results and Discussion

When studying the agglomeration processes, along with the term "agglomeration", the studies include the definitions of "urban agglomeration", "city agglomeration", "settlement agglomeration", "inter-municipal agglomeration or agglomeration of municipalities", "constellation of cities", "large city areas", "local settlement systems", "group resettlement systems".

The concept "agglomeration" has been widely spread in various fields of science: public (economics, economic geography, urban planning, demography) and in other sciences (biology, metallurgy). Such a wide use of the concept is associated with the general essence of the term for all areas derived from the Latin "agglomerare" - "to add" (Ulyaeva, 2017).

There are many foreign and domestic approaches to the definition of "agglomeration". The concept of agglomeration has come a long way since 1898, when the British researcher of urbanization and city planning, Ebenezer Howard, proposed the concept of an "urban

cluster" in his book "The Garden - City of the Future" (Fang & Yu, 2017). The founder of the modern theory of urban planning, Patrick Geddes, proposed the definition of "conurbation" (a new form of grouping of the population) and "conglomeration" ("conurbation of agglomerations"), which are inherently close to the modern understanding of the term "agglomeration".

The concept of "urban agglomeration" was introduced by the French geographer Michel Rouget in 1903 in relation to the settlement system, denoting the exit of non-agricultural activities beyond the administrative framework of a settlement and the involvement of surrounding settlements (Petrov, 1988). The first scientists in Russian science who came to the conclusion about the formation of urban agglomeration were A.A. Kruber, V.P. Semenov-Tian-Shansky, M.G. Dikansky.

The foreign authors distinguish the approaches that differ in complexity and understanding of the definition essence. According to the geographical approach, the terms "city unification", "continuously urbanized territory" are distinguished (Institut National de la Statistique et des Etudes Economiques, 2018). According to the administrative approach, agglomeration is understood as a territory that extends beyond the administrative boundaries of the original cities, covers two or more administrative units that have local governments and their own development potential, setting different priorities and not coordinating their activities". According to the economic approach, "agglomeration" is "a concentration of economic activity in related industries in a geographic area, caused, in particular, by the features of foreign economic policy, that is, the quantity and quality of skilled labor, the increasing effect of scale, the cumulative causality, the features of the local planning system level, as well as the random factors" (Oxford Dictionary of Geography, 2018).

Russian science has also an economic-geographical approach: "actual merging of many cities and towns into a single urban settlement, as well as the settlement itself"; "compact arrangement, grouping of settlements, united not only in a spatial sense, but having developed production, cultural, and recreational connections" (Raizberg & Lozovsky, 2007); "a territory that covers several adjacent

settlements, where a large number of industrial enterprises are located and, as a result, economic, environmental, social and other interests are interlaced" (Encyclopedic Dictionary of Constitutional Law, 2000).

Today, one of the most relevant tools for the agglomeration process controlling is the benchmarking methodology, using which, based on a comparison of different agglomerations, the researchers identify key indicators, the control of which is most important for the successful development of agglomerations. For example, Pricewaterhouse Coopers identifies the following key indicators that need to be monitored for the agglomeration development (Coopers, 2017):

- economic specialization;
- reduction of transaction costs;
- concentration of intellectual capital;
- high quality of life;
- balanced public transport infrastructure;
- effective management of economic development.

The methodology of the Global Urban Competitiveness Index of the research division of the Economist magazine includes 32 indicators in 8 categories: economic potential, tangible assets, financial maturity, institutional features, socio-cultural features, human capital, environment, global attractiveness (Report from the Economist Intelligence Unit, 2013).

Jones Lang LaSalle Inc (JLL), evaluates the effectiveness of the city and agglomeration development controlling using the following criteria (Decoding City Performance, 2017):

- innovation development;
- effective use of human capital;
- infrastructure investment;
- strategic planning;
- infrastructure support;
- ensuring transparency;
- manufacturability and automation;
- financial and economic efficiency;
- brand management;

- global appeal.

The studies of the United Nations Human Settlements Program (UN-HABITAT) indicate the need to monitor adherence to the key agglomeration development principles in the area of (World cities report 2016):

- geography;
- ecology;
- economy;
- culture;
- institutions;
- technologies

In Russia, the legal status of agglomerations, their statistical accounting and the regulation mechanism are not defined, which does not allow for rational and effective development of plans and programs for the territory development. The official definition of agglomeration is fixed in the recommendations on the selection of pilot projects for approbation and improvement of management mechanisms for the development of urban agglomerations in the Russian Federation, where the agglomeration is "a collection of municipalities, within whose territory a number of settlements, mainly urban, are compactly combined into a complex dynamic developing system with an intensive production, infrastructural, social and economic relations, common use of adjacent territories and resource development" (Chertkov & Zabelina, 2012).

In the strategy of socio-economic development of the regions of Russia up to 2020, agglomeration is understood as a compact territorial group of urban and rural settlements, united into a complex dynamic local system by various intensive industrial, communal, economic, labor, community, recreational connections, as well as joint use of a given area and its resources.

In the analytical reviews of the Russian Institute of Urban Planning and Investment Development, agglomeration is considered as a single socio-economic, investment space with a common economic, social, transport and engineering services system, a natural-ecological framework, which implies the development and coordination of development plans for the entire territory of the agglomeration. Without the development of a single urban planning documentation, agglomeration cannot make municipal and

territorial changes, respectively, the consistent and systematic development of the urban area, as well as urban agglomerations, is extremely difficult.

The lack of a coherent agglomeration development strategy can lead to serious

negative consequences, overcoming of which will require a significant amount of resources. In this regard, we propose to develop a regulatory and legal framework for the development of each agglomeration of the Russian Federation according to the scheme shown in Figure 1.

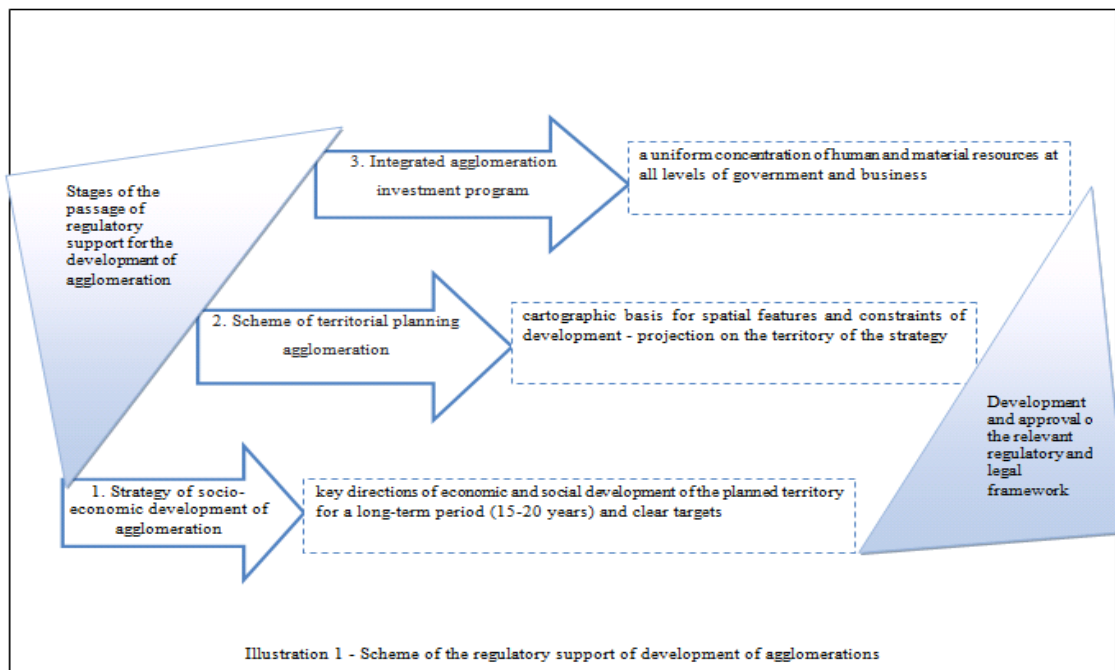


Figure 1 - Scheme of regulatory support for the agglomeration development⁹⁷

After going through three stages of forming the regulatory framework, developing relevant documents with an active dialogue between the authorities, business, science, and population, it is possible to resolve many of the accumulated problems and form an image of the future agglomeration taking into account the interests of stakeholders. When developing the regulatory documents, the indicators of the effectiveness of agglomeration development will be formed, taking into account the potential development of a particular territory.

The absence of a clearly formulated federal strategy for the agglomeration development hampers the formation of similar documents at the regional and territorial levels. Thus, the Alabuga SEZ and two priority development areas created in such monocities as Naberezhnye Chelny and Nizhnekamsk are located in the

Kama agglomeration of the Republic of Tatarstan, within a radius of 30 km. The third agglomeration monocity — Mendeleevsk — will receive a similar status in the near future (on July 13, 2018, the Russian Ministry of Economic Development and Trade Commission approved the TASED creation on the territory of Mendeleevsk). The Kama Innovation-Territorial Production Cluster, the industrial park KIP Master (the first Russian industrial park) has been operating for more than 10 years on the agglomeration territory, and the residents of 6 industrial parks are invited there. The lack of a single vision of the agglomeration territory development leads to scattered governing actions of the authorities and excessive competition for the development resources (Galiullina, 2016).

⁹⁷ Compiled by the authors

The current situation shows that the conceptual provisions for the development of the Kama agglomeration, presented in the relevant sections of the Strategy for Social and Economic Development of the Republic of Tatarstan until 2030, are not enough. It is proposed to develop the documents regulating the interaction of all stakeholders (six municipalities, existing and new development institutions, operating enterprises, scientific and business communities, population of the agglomeration territory), namely the Development Strategy of the Kama agglomeration, the Kama agglomeration territorial planning scheme, the Kama agglomeration integrated investment program.

Summary

Currently, when studying the agglomeration processes, the foreign researchers pay great attention to assessing their effectiveness, using the benchmarking methodology. In the Russian Federation, the formation of agglomerative development strategy of the country remains an urgent task. Taking into account the extremely uneven population of the country's territory and the catastrophic income gap of different regions, the formation and consolidation of a long-term program for the agglomeration development at the federal level will offer different ways to solve many issues related to the development of large centers of the country and the periphery.

Conclusions

The issues of the formation and development of agglomeration processes have long attracted the representatives of various scientific schools that examine them from various positions. In foreign literature, geographic ("city unification", "continuously urbanized territory"), economic (economic activity, skilled labor, cumulative causality) and administrative (agglomeration determined by the administrative borders of the territory) approaches are taken into account when studying the definition of agglomeration. The economic-geographical method prevails in Russia.

Using the example of the development of the Kama agglomeration of the Republic of Tatarstan, it is proposed to develop the concept of its development with the formation of a regulatory framework, which includes the agglomeration development strategy at the initial stage, the agglomeration territorial planning scheme and the comprehensive investment program for the agglomeration.

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