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## Modern Tools for Sustainable Development of Territories. Special Topic: Project Management in the Regions of Russia

# SPATIAL DEVELOPMENT DICHOTOMY: ASSESSMENT OF THE POTENTIAL AND IMPLEMENTATION OF TERRITORIAL SYSTEMS

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## *Abstract*

Formalization and implementation of a set of tasks of the spatial development of territorial systems, with regard to the conditions of the Russian Federation, is traditionally carried out at the intersection of theoretical, methodological and practical research and development. This process is designed to radically change the configuration of the socio-economic space, leading to the emergence of new properties and transforming the relations of the subjects of the regional economy. It is important to understand that these trends may conflict with the principles of sustainable development of the territory. This situation explains the necessity to revise the current management methodology arising from the increasing role of the challenges to the innovative economy concerning territorial systems. It is not obvious that the emergence of socio-economic processes of new types will inevitably cause qualitative improvements in the functioning of territorial systems, stimulated by management. First of all, the changes will manifest themselves in the spatial organization of territorial systems, structure and infrastructure. Under these conditions, localized forms of territorial systems' development initially become an anti-crisis measure of regional policy, and then determine its essence, adjusting the existing order of socio-economic space. The trends mentioned above are still not taken into account in the formation of territorial spatial development concepts and their scenarios. At the same time, the institutional environment is developing quite dynamically and creates prerequisites for minimizing the problems of territory management. The presented research aims at determining the optimal directions of territorial systems' change management in modern Russian conditions.



**Keywords:** Change management, dichotomy, localization, optimization, regional policy, territorial system.

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## 1. Introduction

The research devoted to the study of the phenomenon of territorial systems' spatial development has become widespread in different countries of the world. The analysis of modern works on this problem in Russia makes it possible to speak about the consistent formation of the scientific basis of the management system, which allows for a targeted impact on the objects of the study, increasing the guarantees of the feasibility of planned activities. The objective existence of the uniform and polarized territorial systems' development concepts (Gritsai & Treivish, 1990; Nefedova & Treivish, 2003; Anokhin & Fedorov, 2017) requires an assessment of their impact on regional policy-making. Meanwhile, some well-known models of spatial development, for example, "Center-Periphery" Model are undergoing noticeable changes due to the inability to implement institutional prerequisites everywhere (Artobolevskii, Baklanov, & Treivish, 2009; Glezer & Vainberg, 2014; Streletsky, 2017). Apparent extrapolation of the previous stages of evolutionary development of individual territorial systems, their constituent elements, as well as associations of a higher order is noted. This affects the conceptional view on the spatial development processes. At the same time, forecasting such processes, if they do not imply the possibility of significant transformations of the socio-economic space, cannot be considered as the leading methodology of scientific and technological progress. This explains the total spread of ideas describing the emergence of innovative forms of spatial formations that can radically change the existing relative order of territorial systems' functioning (Nefedova & Treivish, 2003; Kunth & Thorez, 2005; Lenz, Meyer, Miggelbrink, & Waack, 2007; Shuper, 2011; Druzhinin et al., 2017; Silva, 2018; Yushkova, Gushchina, Gaponenko, Dontsov, & Gushchin, 2019). The unconditional acceptance by territorial systems of all the diversity of spatial innovations and the reliance solely on the existing potential of the regions seem to be too idealistic. The translation of such processes requires the development of strictly defined standards, indicated, inter alia, by the framework of regional policy coordinated with the management system (Kotlyakov, Treivish, Shvetsov, & Glezer, 2013; Treivish, 2017; Rodionova, Krejdenko, & Madry, 2018). In this regard, the works explaining the need for personification of measuring methods of the processes occurring within territorial systems should be noted (Kolosov, & Galkina, 2001; Kunth & Thorez, 2005; Lentz, Meyer, Miggelbrink, & Waack, 2007; Silva, 2012). The synchronization of the institutional environment influence on the process of formation of innovative forms of territorial systems and change management systems is becoming a fairly new aspect of the research of a multifaceted and interdisciplinary problem (Gushchina, Yushkova, & Dontsov, 2019).

## 2. Problem Statement

When working out modern methodological approaches to the development of the change management system, as a rule, organizational systems capable of implementing the processes of innovative development within their own goals and objectives, relatively independently of other subjects of the regional economy, are determined as objects of research. Such research approaches have become quite widespread. Less researched to date are the issues related to the possibilities of building a change management system in relation to complex, nonlinear, hierarchically organized territorial systems that have pronounced spatial parameters of functioning and different duration of the stages of evolution. The

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acuteness of this scientific problem is enhanced by the fact that the concepts of spatial development of territorial systems are influenced by the following vectors: sustainable development and innovative development. However, the institutional environment does not take into account this dependence fully. In addition, the manifestation and consolidation of specific trends in the asymmetry of development, which determine not only the peculiarities of the formation of regional policy with regard to various Russian territories, but also diverse problems, are becoming increasingly obvious. There is no doubt that the processes of determining the content of regional policy and the direction of improving the methodology for managing changes in territorial systems are interrelated. Given this, it should be understood that the available scientific ideas and knowledge about the factors, opportunities and prospects for the development of territorial systems in the conditions of increasing uncertainty of the external environment is not enough. It is necessary to obtain arguments explaining the need to develop new conceptual approaches to the assessment of existing models and management tools, as well as justifying a set of requirements for their form, structure and content for the purposes of long-term development. It is assumed that the increase in the effectiveness of such models and management tools is due to their ability to combine formal basic conditions of development, objectively existing trends, as well as to take into account regional identity as much as possible.

## 3. Research Questions

3.1. To characterize the factors that can have a significant impact on the processes of spatial development of territorial systems in the conditions of their transition to a new technological order. To establish a logical relationship between the development of territorial systems and the state of the institutional environment, the specific features of which determine the priorities of regional policy at the present stage of its formation.

3.2. To identify current trends in the implementation of regional policy in terms of their compliance with the basic principles of sustainable development of territorial systems, to assess them. In case of ascertaining the facts of decrease in efficiency of strategic plans, programs and projects of territorial systems development at the regional level, to reveal the reasons of their emergence and to substantiate possible directions of reorganization of the existing methods of management.

3.3. To substantiate the expediency of improving the current methodology of research of change management of territorial systems at the regional level from the standpoint of the spatial approach and to offer the best solutions to this problem. The development of new conceptual provisions of the management system is predetermined by a set of properties, features and characteristics of territorial systems. The received descriptions and indicators of territorial systems development should allow to carry out their ranking that is one of the main requirements to correction of initial (planned) parameters of their transformation.

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## 4. Purpose of the Study

This research is aimed at obtaining evidence of the necessity to re-evaluate the existing methodological approaches to the formation of a change management system in relation to complex territorial objects, their cluster formations, localizations of various functional purposes, subsystems and systems. The authors identify territorial systems of regional level as an object of research in the aspect of their spatial development, which determines the formulation of the subject of research as the definition of the degree and parameters of variability of their current and future states affected by the institutional environment. The variable possibilities of the institutional environment are expressed in the construction of its new structure as a whole, as well as in the structural and functional organization of its constituent elements. In the presence of such dependencies, it is possible to identify the principles and order of formation concepts of territorial systems' spatial development. Each of them is personified with certain hierarchically organized characteristics of changes in territorial systems. Theoretically, the possible balancing of changes between two border states (alignment and differentiation of development levels) can qualitatively change the process of working out the scenarios for the development of territorial systems. Thus, in relation to territorial systems in the conditions of modernization of the institutional environment, it is required to establish the degree of interdependence of change management models and optimization of transformational changes.

## 5. Research Methods

5.1. To confirm the existence of a hypothetically possible interrelation between the development of territorial systems and the state of the institutional environment that allowes to use the method of system-structural analysis. The general principles of its implementation were applied with regard to the object of the study - the territorial systems of the regional level in the spatial aspect of their development.

In the process of its implementation the following provisions were established:

- the phenomenological nature of the integrity of territorial systems' spatial development caused by interaction of multidirectional forces of various intensity and a vector orientation is proved;
- the two basic components of the whole – te sources of this development: sustainable and innovative development are identified, with sustainability being defined as a paradigm, and innovation as an imperative;
- the concepts of spatial development are presented as the core of the system approach in the study of the regularities of elements interrelations in the system. They are based, on the one hand, on the optimization of the use of the resource potential of the territorial system, and, on the other hand, on the possibility of working out the scenarios of spatial development within the framework of regional policy, adapted to the conditions of implementation in territorial systems possessing specific but not generalized parameters of development.

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Thus, the formulation of these provisions makes it possible to present objective prerequisites for the transition to the concepts of spatial development construction. They differ from the existing isolated and fragmentary consideration of individual issues of territorial systems spatial development management processes and ways of their presentation. This determines the expediency and feasibility of measures to forecast the processes of territorial systems development caused by the influence of intrinsically multidirectional forces. An important point in this regard is the definition and design of potentially possible forms of reproduction of the institutional environment factors that do not violate the stability of systems, determining the dynamics of changes in their parameters as a result of their interaction, both among themselves and with the objects of the environment, i.e. the results of their joint influence.

5.2. The use of the dichotomy method allowed to identify modern trends in the implementation of regional policy in terms of their compliance with the basic principles of sustainable development of territorial systems, as well as to assess them.

Dichotomy analysis is based on the principle of duality, the sequential division of a certain integrity into two mutually exclusive groups of properties. It was applied to the object of this study – territorial systems at the regional level. As a result, the presence of two diametrically opposite groups of properties, features and characteristics of the current and projected changes in territorial systems is substantiated. Further formation (branching) of parts in each of the identified groups is based on compliance with one of the vectors of development: sustainable development or innovative development.

The dichotomy method allowed to identify such groups, the appearance of one of which is caused by the influence of the sustainable development vector, and the other – the innovative development vector. Thus, the observed increasing influence of innovative economy on territorial systems is manifested mainly in the content of infrastructure processes occurring within them, but indirectly affecting their organization.

Such elements are usually regarded as support subsystems (Yushkova et al., 2019):

- transport support (highways, railways, waterways, transport hubs and facilities (airports, bridges);
- engineering and technical support (water supply and sanitation, energy supply, waste disposal);
- social support (a complex of structures, enterprises and institutions of non-productive sphere, functioning to meet the material and spiritual needs of the population, including housing, public services, education, science).

Infrastructure service subsystems (ensuring functioning) of territorial systems carry out various functional tasks. The combination of their solution results ensures the achievability of the goals in various forms. Reproduction of newly identified socio-economic processes takes place in new spatial forms. Consequently, the emergence, renewal, speciation of such elements provokes and stimulates the reorganization of the territorial system as a whole.

In turn, the structural organization of territorial systems responds to innovative challenges mainly inertially. This is due to the heterogeneity of the functions, which the structure and infrastructure are

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designed to perform. With the increasing role of the innovative economy, the importance of infrastructure within the territorial system will constantly grow, so it cannot be limited to the maintenance or support of material production processes.

5.3. It is proposed to apply the methods of comparative and spatial analysis in combination with the known methods that allow to distinguish the comparative characteristics of the objects under study.

To solve such problems, the visualization method is most often used. This results from the analysis of bibliographic sources summarizing scientific achievements both in Russia and abroad. Their methodological imperfection is shown by the fact that the analytical component is present in insufficient volume and quality. The novelty of the approach proposed by the authors lies in the fact that, without denying the possibilities of this method, it is supposed to combine the methods of comparative and spatial analysis. This choice is due to the fact that it allows not only to simultaneously identify current trends in the implementation of regional policy provisions in territorial systems, but also to monitor them, almost in real time, and also assess them. The use of this combination of methods significantly expands the palette of existing regional studies.

## 6. Findings

6.1. Modern features of the institutional environment of spatial development concepts of territorial systems: dichotomy of properties, signs and characteristics of territorial systems in the conditions of their transition to a new technological order

To substantiate the concepts of spatial development of territorial systems at the regional level in the modern conditions of the Russian Federation, it is fundamentally important to establish the role of factors of sustainable and innovative development. Provided that, it is necessary to distinguish their features, and to differentiate the spheres of their influence. By the end of the twentieth century, the Sustainable Development Concept, aimed at resolving social, economic and environmental contradictions, has become one of the leading achievements of world scientific thought. The effect of the imperatives of the innovative economy, in turn, is inseparable from the advances of scientific and technological progress, conditioned by the processes of the "new economy", its globalization and internationalization. Both the first and the second groups of factors affect the formed institutional environment, causing the necessity of its reorganization. They have a significant impact on the structure, content and dynamics of territorial systems. Their combination and interaction form the basic characteristics of the new structure of the institutional environment (Yushkova et al., 2019; Gushchina, Yushkova, & Dontsov, 2019; Fikhtner, 2019). To achieve consistency of these factors in the process of subsequent reorganization of the institutional environment, continuous improvement of its adaptive capacity is required. In this case, territorial systems in the process of developing the concept of spatial development are able to make a full and diverse use of their own available resource potential.

The manageability of any system directly depends on the ordering of its spatial organization. This condition is of paramount importance for territorial systems.

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The authors understand the structuring of territorial systems as one of the leading principles of regional policy. It is a range of management actions planned and implemented continuously and incessantly, with the use of supplemented and updated set of tools, in regard to the specifics of the object functioning. As a result of its implementation, structural elements performing certain functions are formed. Meeting the requirements of fixed interrelation construction between them allows to obtain a multilayer structure, at intersections of which certain groups of elements are identified – the basis for building subsystems in the future. The establishment of stable links between objects increases the stability of the territorial system as a whole (Figure 01).

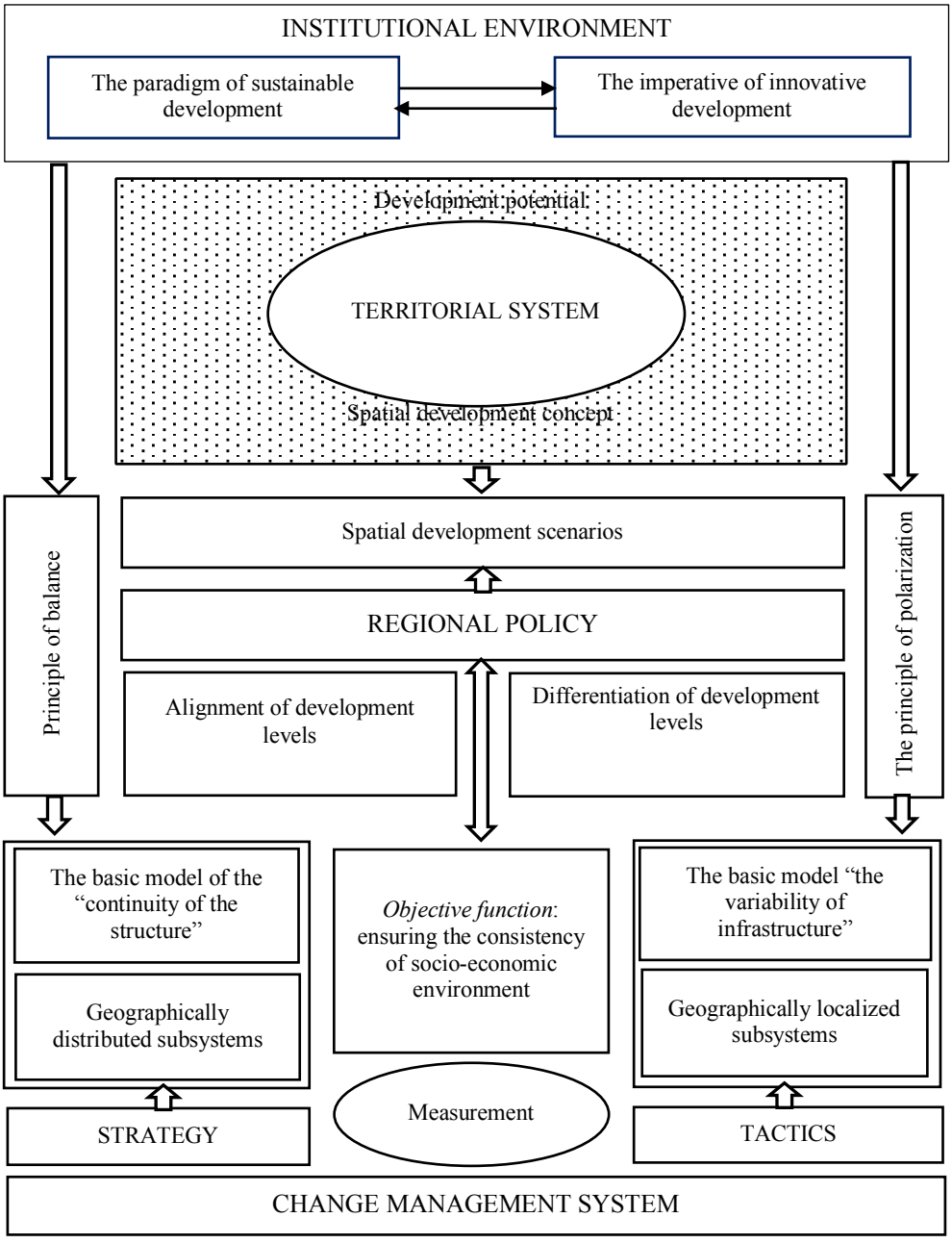


**Figure 01.** Schematic diagram of regional policy formation on the basis of dichotomy of features, properties and characteristics of changes in territorial systems

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Structure and infrastructure, from the standpoint of dichotomy, are opposed to each other in meaning and content. At the same time, they implement an integral (indivisible) process of spatial development of the territorial system, and therefore are endowed with characteristics that can be compared with each other, measured and evaluated. Formation, functioning and development of territorial systems at all stages of their life cycle are associated with sequential or parallel formation of structural and infrastructural elements. It is important to note that the main meaning of the structuring process is to achieve homogeneity of the territorial system, while the implementation of the formation process of infrastructure elements is expected to achieve their heterogeneity (lack of uniformity). However, due to the inclination of territorial systems to heterogeneity, the possibilities of typological diversity of infrastructure elements (subsystems) increase.

The results of the study confirm the increasing trend towards the acquisition of full-fledged infrastructure, relatively independent and individual forms and patterns of existence and development. The identified trend is expected to develop in the following directions:

- both spontaneous and planned diversity of infrastructural elements and multiplicity of variants of their functional complication;
- construction of both fragmentary and systemic interrelations of individual elements with each other, with the formation of infrastructure blocks - integrators of socio-economic processes;
- intuitive or guided initiation of infrastructural forms of territorial systems development that respond to the challenges of innovative economy;
- formation of exclusive or standard ways of implementation of infrastructure initiatives as factors of the increase of territorial systems competitiveness.

From the perspective of the availability of objective conditions for the potential diversity of functions, it is necessary to determine the external control action on the system in such a way that, ideally, allows to achieve optimal interaction of internal elements. And this, in turn, is associated with the necessity to maintain balance between functions and interrelations. They should be expressed in strictly defined quantitative and qualitative parameters of territorial systems.

The presented provisions within the framework of the new view on the processes of spatial development of territorial systems, formed by the authors, predetermine the need to identify modern determinants of regional policy.

### 6.2. Improvement of change management methodology and determinants of regional policy

Improvement of methodology of development management of territorial systems is aimed at overcoming the existing tendencies which are consequences of manifestation of threats and risks. Their appearance is also due to the fact that the relative self-sufficiency and expansion of the institutional environment, theoretically, should minimize such a negative impact. This is necessary for the progressive nature of spatial development. Such a result is quite possible provided that the sustainable development paradigm is complemented, enriched and detailed by the challenges of innovative ergonomics, defined as a modern imperative. Thus, the vectors of sustainability and innovation, together, increase not only the

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competitiveness of territorial systems, but also their adaptability. And the ability to plan regulatory impacts of these vectors on development processes can be achieved within the framework of the change management system. It forms a strict framework for the development of regional policy provisions.

The revealed dichotomy of properties, features and characteristics of territorial systems becomes a significant scientific achievement, as it allows to form a system of change management, guided by the principles of ranking (Figure 02).

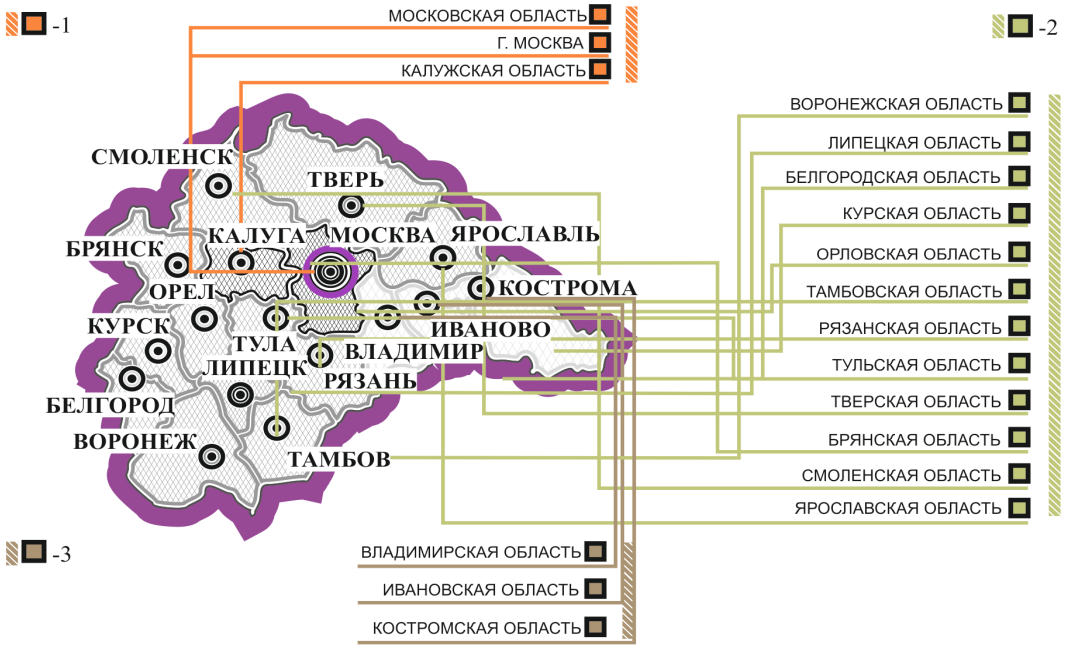


**СХЕМА ПЛАНИРОВАНИЯ СОЦИАЛЬНО-ЭКОНОМИЧЕСКОГО РАЗВИТИЯ ЦФО**

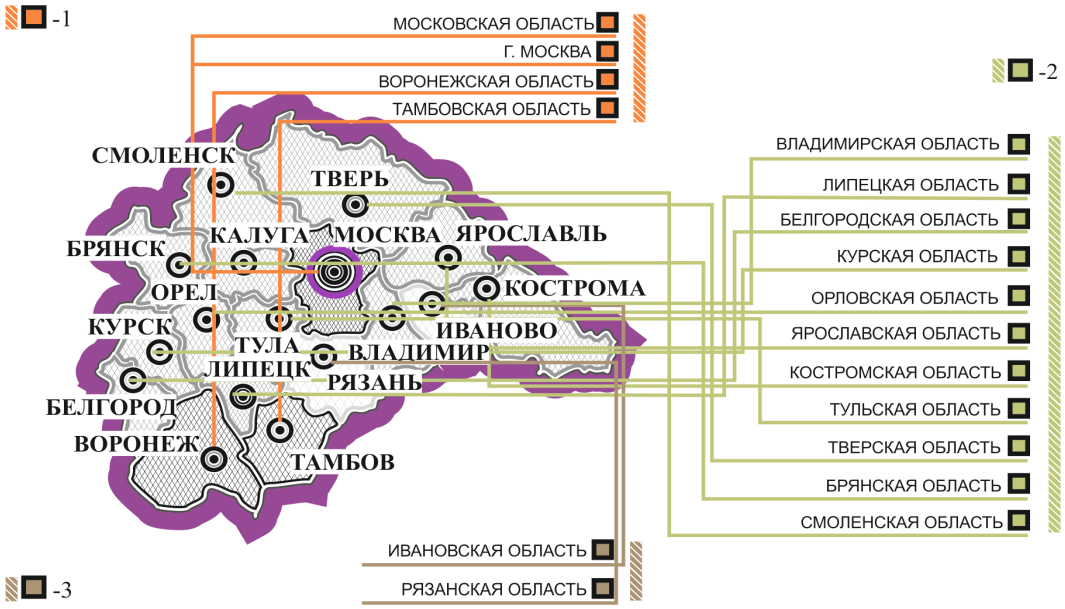


**СХЕМА ПЛАНИРОВАНИЯ ТЕРРИТОРИАЛЬНОГО РАЗВИТИЯ ЦФО**

1 - reflection of signs of high degree of adaptation of subjects of the Russian Federation
2 - reflection of signs of average degree of adaptation of subjects of the Russian Federation
3 - reflection of signs of low degree of adaptation of subjects of the Russian Federation

**Figure 02.** An example of the development of ranking schemes of territorial systems at the regional level as part of the macro-region (Central Federal District) using the methods of comparative and spatial analysis of their development strategies

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The starting point of its development is the implementation of spatial and comparative analysis, which allow to characterize the state of increasing (asymmetry-symmetry) processes of spatial development and can minimize the vulnerability of existing research approaches. From this perspective, it is proposed to determine the directions of improvement of the current change management methodology of territorial systems at the regional level. For this purpose, it is necessary to reveal the objective factors demanding development of new conceptual provisions of the system predetermined by a set of properties, features and characteristics of territorial systems. The received descriptions should allow to carry out ranking of territorial systems and to correct initial (planned) indicators of their transformation. In this regard, it is important to take into account the existence of objective factors that do not allow for an absolute balance in development processes. Due to sufficiently extended and dispersed features within territorial systems, the exact determination of the configuration and its decomposition is not obvious. Given the fact that the model of polarized development is getting more and more distinct spatial fixation as the processes of social division of labor and constant redistribution of economic roles of regional market participants deepen, the loss of dominant importance by many of them is inevitable. Accordingly, the dominance of these processes leads to a pronounced spatial localization of territorial systems (Yushkova et al., 2019; Gushchina, Yushkova, & Dontsov, 2019). As a consequence, there is a mutual integration of structural and infrastructural components of territorial systems, the formations of the "collaboration" type.

The results of the conducted research allow us to conclude that the institutional environment is a formal basis for the development of regional policy, combining a set of necessary and sufficient conditions. But its formation and even the observed development dynamics are no longer sufficient for the proposed scenarios of the development of territorial systems to provide them with a competitive position both in the domestic and foreign markets. A sufficiently precise definition of structural and infrastructural elements means that each of these groups has a specific "field of responsibility".

In the first case, it is a question of equalization of conditions (and indicators) of development, and in the second – differentiation of conditions (and indicators) of development of territorial system. This makes it possible to combine the advantages of two methodological approaches, one of which implements the principles of sustainable development, and the other – the requirements of the innovative economy. As a result, a strictly defined (fixed) set of requirements and limitations to the system is established, which would allow it to implement scenarios of spatial development with minimal expenditure. In this regard, it is proposed to treat the formation of infrastructure and structure as complementary processes. This leads to a decomposition of the change management system. It is proposed to allocate two management blocks. The strategic block focuses on ways to manage the structure of the territorial system. In turn, the process of creating, determining the size and properties of infrastructure elements is concentrated in the tactical block. The conceptual orientation of regional policy directly depends on the way of their interaction.

## 7. Conclusion

The results of the research support the hypothesis that the basic conditions for the spatial development of territorial systems at the regional level are: a new design of the institutional environment,

in general, and the structure of its constituent elements, in particular. In this study, the consistency of the paradigm of sustainable (balanced) development and the imperative of innovative development of society is emphasized. Consistency requires the achievement of a permanent adaptation of the institutional environment in which territorial systems make a full-scale use of the existing development potential, effectively and diversely, in the process of development concepts' creation. The configuration of the framework of such concepts increases the flexibility of scenarios of changes in territorial systems, balancing between the states of alignment and differentiation of development levels. The choice of optimal variants of transformational changes of territorial systems is conditioned by the possibility of measuring, obtaining appropriate indicators and comparing the results of the regional policy. On the basis of the received characteristics, the model of territorial system spatial development at the regional level, translating the revealed innovative signs in regional policy is developed. This requires the sustainability of the development process through the integration of continuity and renewal (variability). The use of such a model is necessary for ranking and rating, which are understood by the authors as the basis for adjusting the strategy and tactics of change management. The modernization of management is based on their interaction, which combines strictly defined methods of influence (tools) on the existing state of territorial systems, depending on their location in the ranking. To implement changes in territorial systems with minimal deviations from the planned state and with maximum efficiency, special management tools based on “smart” management standards are offered. The significance of the results obtained in the course of the study in the theoretical aspect is that the concept of “sustainable development of the territorial system” as a basic condition for the reproduction of innovative challenges that become impulses of new socio-economic processes is clarified and expanded. The typological diversity of the forms of spatial consolidation is a consequence of the heterogeneity of the existing development potential and the variety of options for its use, depending on the ways of interaction of strategic and tactical techniques in the change management system. In practical terms, the formation and subsequent balanced development of new facilities and subsystems that reveal the essence of the innovative economy functioning at the regional level is emphasized in the research.

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