DOI 10.52468/2542-1514.2025.9(4).88-99

THE LEGAL FRAMEWORK FOR SMART CITY CONCEPTS: CHALLENGES AND OPPORTUNITIES

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Article info
Received –
2025 July 10
Accepted –
2025 September 20
Available online –
2025 December 20

Keywords
Smart city, digital transformation, legal regulation, international standards of smart sustainable cities, key performance indicators of smart cities in Russia, municipal-territorial structure, administrative-territorial structure, spatial development

The subject. The content of a smart city as a subject of legal regulation is revealed, taking into account various interpretations of both the concept itself and the models of smart cities developed in world practice and urban theory (technocratic model, triple helix model, quadruple helix model). Various options for legal formalization of the smart city concept in the Russian Federation are considered.

The purpose of the article is to identify problems and deficiencies in the existing legal framework for smart cities in the Russian Federation and to develop proposals for overcoming them.

Methodology. The methodological basis of this research includes, in addition to formal legal method, methods of comparative legal analysis, historical-legal method, and modeling method. Moreover, sociological methods were used.

Main results. Based on the analysis of international legal documents, the necessity of transition to a comprehensive perception of a smart city is substantiated. This perception includes, in addition to the technological element, the achievement of sustainable development goals at the local level, involvement of all stakeholders (science, business, civil society) in the decision-making process, and effective interaction of all levels of public authority.

Conclusions. The legal framework of Russian smart cities, represented by sublegislative acts implementing plans and programs, is characterized by flexibility, mobility, and inconsistency.

The practice of implementing the departmental project for digitalization of urban economy in the Russian Federation, as well as related projects of safe city, environmental well-being, and digitalization of state and municipal governance, demonstrates the urgent need for streamlining and internal coordination of indicators included in the smart city standard.

Furthermore, it is necessary to develop a unified approach to basic concepts of territorial structure and spatial development, and to overcome the confusion between municipal and administrative-territorial structure. Only on this basis is it possible to achieve a systematic perception of territories where comprehensive development using information technologies is ensured.

ISSN 2658-4050 (Online)

1. Introduction

Addressing the challenge of comprehensive territorial development at the present stage is impossible without the use of information and communication technologies (ICT) aimed at achieving sustainable development and ensuring a decent standard of living for citizens in their places of residence. These objectives are most fully and accurately embodied in the concept of the *smart city* — a global trend that has gained traction and recognition not only at the municipal, regional, and national levels, but also at the supranational and international scales.

The Russian Federation is also actively moving in this direction. Since 2019, Moscow has held a UN certificate recognizing its achievements in developing a smart and sustainable city within the framework of the global initiative *United for Smart Sustainable Cities* (U4SSC). This certificate was reaffirmed in 2024 following an evaluation based on 80 criteria[1]. In addition, domestic rankings and competitions assessing the progress of municipalities in implementing the smart city concept are becoming increasingly widespread. In 2020, by order of the Ministry of Construction, Housing and Utilities of the Russian Federation (Minstroy RF), a new category was introduced in the *Best Municipal Practice* competition, focusing on the integration of digital technologies and platform-based solutions into the modernization of urban infrastructure[2].

Despite the noticeable boom in the development of smart city concepts and technologies worldwide, and the growing interdisciplinary research interest in this phenomenon among scholars from diverse fields — including economics, geography, urban studies, regional development, public administration, environmental science, computer programming, information technology, engineering, architecture and urban planning, sociology, political science, and law — there remains a wide variety of approaches to both understanding what constitutes a "smart" city and interpreting the indicators of its effectiveness. At the same time, the search for adequate legal instruments lags significantly behind — tools that are essential for developing an optimal smart city model and ensuring its effective implementation while minimizing and preventing the negative consequences of digitalization at the municipal level.

Let us take a closer look at what is encompassed by the concept of a smart city (Section 2), the significance of international legal regulation of smart city concepts and indicators (Section 3), the specific features of the legal regulation of smart cities and their effectiveness indicators in the Russian Federation (Section 4), and the prospects for a comprehensive integrative approach to this regulation (Section 5).

2. The Smart City as an Object of Legal Regulation

The term *smart city* is a rather conditional concept, and its meaning extends far beyond the literal sense of the words. Accordingly, the adjective *smart* — which can also be translated into Russian as "rational," "intelligent," or "intellectual" — is not limited to associations with information technologies. It also refers to innovation across all spheres of life and to the achievement of sustainable development goals. At the same time, the term *city* should not be understood solely as an urban settlement — that is, a municipality, populated

[1] Moscow received a United Nations certificate recognizing its achievements in smart city development on October 15, 2024. (URL:https://www.mos.ru/news/item/145234073/).

[2] Order of the Ministry of Construction, Housing and Utilities of the Russian Federation dated July 9, 2020, No. 368/pr, "On the Approval of the Application Form for Municipalities and the Methodology for Evaluating Municipal Applications Submitted for Participation in the Nomination 'Modernization of Urban Management through the Introduction of Digital Technologies and Platform Solutions ("Smart City")' of the All-Russian Competition "Best Municipal Practice". *ConsultantPlus Law Information System: URL: https://www.consultant.ru* (Sources of publication for the regulatory legal acts and judicial decisions cited here and below can be found in the *ConsultantPlus* Law Information System, unless otherwise indicated).

ISSN 2542-1514 (Print)

area, or administrative-territorial unit — but also as any other type of territory, such as rural settlements, communities, or even parts of urban or rural areas implementing smart city projects. For example, participants in the second category of Russia's "Smart Cities" competition include rural settlements. Across the world, *smart cities* may take the form of communities, municipalities, communes, or other local entities (*communities*) that implement local innovation systems and smart city projects[3]. Finally, the term *smart city* is also applied to specially created areas without independent municipal status, designed for the implementation of innovative pilot projects and forming part of other cities — often themselves large smart metropolises. Examples include Expo City in Shanghai, China, and Rublyovo-Arkhangelskoye (SberCity) in Moscow (see also: [1, p. 810]).

The substantive content of a smart city varies depending on the chosen *smart city* model. Modeling, in turn, is linked either to the type of smart city or to the stage of its formation and development. The typology of smart cities is generally based not only on criteria such as population size and the municipal or administrative-territorial status of the area being modernized, but also on the manner in which the smart city project is implemented. According to this latter criterion, two main categories can be identified: (1) **Newly created innovative smart cities**, which are purpose-built — either specializing in a specific area or designed for comprehensive development based on ICT and artificial intelligence. Examples include Songdo (South Korea), Masdar (UAE), Dholera (India), Fujisawa (Japan), Neom (Saudi Arabia), Skolkovo and Innopolis (Russia), among many others. (2) **Existing cities with historical roots**, which had been functioning as independent municipal or administrative-territorial entities prior to the launch of a smart city project and are now undergoing modernization of their urban infrastructure and governance systems under new conditions [1, p. 810; 2, p. 3].

The stages of creation and subsequent modernization of smart cities also serve as the basis for their differentiation by *generations*. This evolutionary perspective on smart city development was highlighted in a report by the "Center for Strategic Research North-West" Foundation on technologies for smart cities (Foundation's report). Drawing on foreign sources, the authors identified three generations of smart cities:

- **Smart City 1.0** – providing city managers with access to digital infrastructure;
- **Smart City 2.0** – developing urban governance through the inclusion of business structures in the market segments of the smart city;
- **Smart City 3.0** – engaging all stakeholder groups — the private sector, academia, clusters, communities, citizens, and government — in building sustainable ecosystems [2, pp. 5–6].

In Russian economic literature, somewhat different interpretations of smart city generations can also be found, though they generally align with the approach presented in the Foundation's report [3, p. 795]. Thus, it can be concluded that the choice of a smart city model depends on multiple factors: the type of territory being modernized; the stage and level of development of urban and digital infrastructure; the socio-economic and environmental condition of the city or municipality; cultural characteristics; and the degree of civic engagement and participation of residents in addressing urban issues.

As analysis of urban studies literature shows, models for smart cities can draw upon concepts proposed by urbanization researchers as early as the second half of the twentieth century. These earlier ideas have been successfully adapted to align with current trends in smart city development. For example, the technocratic model of the city of the future proposed by Peter Hall [4] laid the groundwork for contemporary interpretations of smart cities as entities that primarily rely on advanced technologies. The technocratic concept focuses on the implementation of digital technologies and the evaluation of efficiency based on the degree of

[3] The Technical Committee 268 of the International Organization for Standardization (ISO), which develops standards for smart cities, is therefore called "Sustainable Cities and Communities"

digitalization of urban infrastructure and the automation of processes. Accordingly, the technocratic model of the smart city is most characteristic of newly created, purpose-built innovative cities that attract residents around them. It is also typical of the **first** stage of smart city development, where the primary objective is the introduction of digital technologies into urban governance and management — corresponding to the first generation of smart cities.

The next step in advancing ideas about the modernization of territorial economic development was the so-called "Triple Helix Model," proposed back in 1995 by Henry Etzkowitz and Loet Leydesdorff [5, pp. 14–19]. The scholars conceptualized innovative development as the interaction of three elements of the helix—three groups of actors, namely: universities, industry, and government. The Triple Helix Model is characteristic of the stage of the service-oriented state and service-oriented municipality; it assumes, as its framework conditions, a well-developed scientific and educational foundation as well as a favorable entrepreneurial environment. In relation to contemporary smart city concepts, the Triple Helix Model presents the smart city as an effective collaboration among science, business, and all levels of government aimed at ensuring the quality of services provided (the second generation of smart cities). In other words, the emphasis is placed on the service-oriented nature of the smart city and on public–private partnerships.

A significant contribution to understanding the complex nature of innovative development was made by the "Quadruple Helix Innovation Model," presented in a series of articles by Elias G. Carayannis and David F. J. Campbell. In 2009, they proposed adding a fourth element—civil society—to the original Triple Helix Model [6, pp. 201–234]. It is noteworthy that even before 2009, urban studies had been actively promoting the idea of the smart city as one based on the intelligent combination of the abilities and actions of autonomous, independent, and conscious citizens. This was precisely how the smart city was defined by the Centre of Regional Science at the Vienna University of Technology (CRS-VUT) in its report for the project *"Smart Cities: Ranking of Medium-Sized European Cities by Area and Population"*[4].

The further development of this integrative model also aims to take into account, alongside democratic participation, environmental aspects and needs, which can be viewed as the fifth element of the helix [7, pp. 2050–2082]. This comprehensive approach, when applied to the concept of the smart city, makes it possible to view the city as a holistic ecosystem. The integrative model of the smart city—also known as the "subject-based" model—has gained wide acceptance in Russian urban and regional studies literature. It provides for a more comprehensive consideration of the roles of all stakeholders in implementing the smart city concept, further strengthening civic participation in smart decision-making and achieving sustainable development goals, as well as fostering urban identity that takes into account cultural and national characteristics [8, pp. 53–62; 9, pp. 16–30; 10, p. 73]. The Quadruple Helix Model and its subsequent modifications are associated with the latest generation of smart cities, the growing complexity of smart city objectives, and the use of participatory democracy mechanisms and the potential of civic engagement to address them. These models reinforce a comprehensive approach to the concept of the smart city, emphasizing environmental aspects and sustainable development goals.

3. International Legal Regulation of Smart Cities: Soft Law

The international legal framework for smart city concepts includes both general international

[4] The report was presented by the Center of Regional Science at the Vienna University of Technology in 2007, based on the results of a project aimed at developing a system for ranking European cities of medium size and population (from 100,000 to 500,000 residents) in order to assess the attractiveness of urban regions. Although the term "smart city" was already known in spatial planning and urban studies literature at that time, it still lacked a unified conceptual understanding. (Smart Cities: Ranking of European Medium-Sized Cities. Vienna: Vienna University of Technology, 2007, p. 11) (URL:www.smart-cities.eu/download/smart_cities_final_report.pdf).

ISSN 2542-1514 (Print)

"soft law" instruments that establish fundamental principles related to access to information, information technologies, the development of digital infrastructure and e-government, and the use of artificial intelligence across all sectors[5], as well as documents, programs, initiatives, and standards that directly regulate the functioning of smart cities and are likewise of a recommendatory nature. The latter are primarily associated with the above-mentioned global UN initiative U4SSC (United for Smart Sustainable Cities), launched in May 2016 as a continuation of previous UN programs and projects on united smart cities[6]. U4SSC serves as an international platform for exchanging experience in institutional reforms and digital transformation in line with the Sustainable Development Goals (SDGs)—especially SDG 11, which aims to make cities and human settlements inclusive, safe, resilient, and sustainable. The integration of the smart city idea with sustainable development goals and civic participation is also reflected in the Recommendations of the International Telecommunication Union (ITU)[7]. In addition to providing general approaches to defining the concept of the smart city, ITU recommendations create an international legal basis for the standardization of smart sustainable cities, establishing nonbinding Key Performance Indicators (KPIs) to assess efficiency and effectiveness in three key areas: economy, environment, and socio-cultural development (society and culture)[8].

At the same time, an important form of international legal regulation of standards for smart sustainable cities is represented by the documents of the International Organization for Standardization (ISO)—an independent, nongovernmental expert association and a global federation of national standardization bodies from more than 170 countries[9]. The international standards issued by ISO, which are periodically reviewed, are not mandatory and also have a recommendatory nature. They serve as guidelines for the development of national policies in the relevant field, for strategic planning, accounting organization, reporting standardization, monitoring, and control.

With regard to smart sustainable cities, the International Organization for Standardization (ISO) has developed an entire series of international standards. For example, ISO 37120, created by Technical Committee TC 268 "Sustainable Cities and Communities" and updated in 2018, contains indicators of urban services and quality of life. These are based on a combination of indicators reflecting

[5] For the development of smart city projects, the following documents are of particular importance: the Okinawa Charter on the Global Information Society of July 22, 2000 (Diplomatic Bulletin, 2000, No. 8, pp. 51–56); and the OECD Recommendations on Artificial Intelligence, adopted on May 22, 2019 (Recommendation of the Council on Artificial Intelligence, adopted on May 22, 2019, and amended on November 8, 2023, and May 3, 2024). https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449#adherents Date accessed: July 1, 2025.

[6] Since 2014, the topic of smart sustainable cities has been a priority in the work of the United Nations Economic Commission for Europe (UNECE). That same year, the "United Smart Cities" project was launched. See more in: Habitat III Report, Issue Papers 21 "Smart Cities," 2015. https://habitat3.org/wp-content/uploads/Habitat-III-Issue-Paper-21_Smart-Cities-2.0.pdf.

[7] See the definition of "smart city" in ITU-T Recommendation Y.4900, dated June 6, 2016.(URL:https://www.itu.int/ru/ITU-T/publications/Pages/recs.aspx)

[8] See also: ITU-T Recommendation Y.4901/L.1601 (KPIs on ICT use); ITU-T Recommendation Y.4902/L.1602 (KPIs on the impact of ICT on sustainability); ITU-T Y-series Recommendations – Supplement 39 (2015), ITU-T Y.4900 Series – *Key Performance Indicators Definitions for Smart Sustainable Cities*; and ITU-T Recommendation Y.4903/L.1603 (Comprehensive Guide for the Evaluation of Smart Sustainable City Development). (URL:https://www.itu.int/rec/T-REC-Y.4903-202203-I), ITU-T Recommendation L.1430 (Methodology for Environmental Impact Assessment—EIA—on Reducing Greenhouse Gas Emissions and Energy Consumption through the Use of ICT). (URL:https://www.itu.int/rec/T-REC-L.1430-201312-I/en); ITU-T Recommendation L.1440 (Methodology for Environmental Impact Assessment—EIA—of Information and Communication Technologies at the City Level). (URL:https://www.itu.int/rec/T-REC-L.1440-201510-I/en).

[9] https://www.iso.org/about

the "smartness" or "intelligence" of a city (smart city), on the one hand, and its sustainability and resilience (resilient city), on the other[10]. Despite the conditional division of indicators into these two groups, the standard establishes a methodology for a comprehensive and holistic assessment of the effectiveness of urban services and quality of life based on a system of indicators. This system ensures a unified approach to what and how is measured and is applicable to cities and municipalities regardless of their size or location. The proposed standard is grounded in the principles of governance set out in ISO 37101[11] and other strategic documents [2]. The ISO 37122 standard, released in 2019 as a continuation of ISO 37120, integrates indicators of smartness and sustainability as performance metrics for "smart cities," offering a comprehensive definition of the smart city concept[12].

ISO standards are adopted by member states as national standards and thereby become part of their national legal systems. In the Russian Federation, these standards have been approved as national standards and enacted by orders of Rosstandart[13] (the Federal Agency on Technical Regulating and Metrology of the Russian Federation) in accordance with Federal Law No. 162-FZ "On Standardization in the Russian Federation," dated June 29, 2015 (hereinafter referred to as Federal Law No. 162). According to Article 26 of Federal Law No. 162, the application of these standards within the Russian legal system is voluntary; however, they may become mandatory for any entity that assumes the obligation to comply with a given standard. Moreover, the inclusion of national standards within the Russian legal framework creates opportunities for their voluntary use by sectoral ministries in developing indicators for smart cities — for example, the Smart City Standard established by Minstroy RF, and the digital maturity indicators for public authorities, approved by orders of the Ministry of Digital Development, Communications, and Mass Media (MinTsifry RF).

Furthermore, the development of smart city projects is one of the priority areas of the Organisation for Economic Co-operation and Development (OECD), which in July 2019 launched the OECD Programme on Smart Cities and Inclusive Growth. This program is aimed at assessing and measuring the effectiveness of smart cities and their contribution to inclusive growth and overall well-being[14]. The OECD program, along with its proposed indicators and recommendations, serves as an important reference point for the development of national, regional, and municipal programs, development strategies, modernization and digitalization plans. It also provides a methodological foundation for creating national approaches to evaluating the effectiveness of urban development based on unified criteria, for establishing urban monitoring systems and investment control mechanisms, and for ensuring a balance between technological advancement and social needs. Finally, the global advancement of smart sustainable cities also aligns with the goals of the World Bank (WB) as an international financial institution committed to implementing long-term economic projects and reducing global poverty. This commitment includes the Global Smart City Partnership Program (GSCP),

[10] ISO 37120:2018, Sustainable cities and communities — Indicators for city services and quality of life, https://www.iso.org/ru/standard/68498.html

[11] ISO 37101:2016, Sustainable development in communities — Management system for sustainable development — Requirements with guidance for use https://www.iso.org/standard/61885.html

[12] ISO 37122:2019, Sustainable cities and communities — Indicators for smart cities, 3.4 https://www.iso.org/ru/standard/69050.html

[13] See: National Standard of the Russian Federation GOST R ISO 37101-2018 "Sustainable Development in Communities," approved by Order No. 461-st of Rosstandart of the Russian Federation on August 7, 2018, and put into effect on March 1, 2019; and National Standard of the Russian Federation GOST R ISO 37120-2020 "Indicators for City Services and Quality of Life," approved by Order No. 523-st of Rosstandart of the Russian Federation on August 25, 2020, and put into effect on August 1, 2021. (URL https://meganorm.ru/mega_doc/norm/gost-r_gosudarstvennyj-standart/1/gost_r_iso_37120

[14] URL:https://www.oecd.org/en/about/programmes/the-oecd-programme-on-smart-cities-and-inclusive-growth0.html

ISSN 2542-1514 (Print)

launched in 2018, which supports the development and implementation of smart city initiatives worldwide[15].

The lack of legally binding force in international instruments dedicated to smart cities does not diminish their role as an auxiliary and methodological foundation — a guiding framework for developing national strategies on information society development, e-government, and smart cities, as well as for shaping national policy and legislation in these areas.

4. Development of the Legal Framework for Smart Cities in the Russian Federation

In Russia, the task of developing smart cities is recognized as a national priority within the framework of national projects, as well as federal, regional, and municipal programs and strategic plans[16]. At the same time, Russian laws regulating the exercise of public authority at the regional and local levels continue to focus primarily on "analog" rather than digital legal relations. For example, even in the Russian laws adopted after the 2020 constitutional reform concerning the organization of public authority and local self-government in the constituent entities of the Russian Federation, the new digital capabilities of regional and local governments have been scarcely reflected. The only exceptions are provisions allowing for "remote interaction between bodies within the unified system of public authority" and for the "remote participation of deputies in meetings of representative bodies," with the specific procedures for such interactions determined by the laws of the constituent entities of the Russian Federation and the charters of municipal formations[17].

Thus, the current legal framework for smart cities in Russia is represented by a set of fragmented subordinate regulations adopted on the basis of strategic and programmatic documents. These primarily include acts issued by the Ministry of Construction, Housing, and Utilities of the Russian Federation (Minstroy RF), which, in implementation of the departmental project "Smart City," has approved by order the "Smart City Standard." This standard establishes a list of basic and additional indicators that characterize the achievement of target requirements for the digitalization of urban management, their planned values, the methodology for calculating and assessing the effectiveness of digital transformation of urban systems in the Russian Federation (the so-called "City IQ"), as well as the procedure for selecting municipalities to implement pilot projects and evaluate their effectiveness[18]. The indicators of the "Smart City"

[15] See for more details: URL:https://www.worldbank.org/en/programs/global-smart-city-partnership-program. As of 2023, the GSCP2 supported 22 projects, primarily in the fields of urban management and transportation, with Africa accounting for the largest share—32%.

[16] In the Russian Federation, a departmental project on the digitalization of urban management, *"Smart City"* (project charter approved by Order No. 1014/pr of the Minstroy RF dated December 27, 2021), is being implemented as part of the federal project *"Formation of a Comfortable Urban Environment"* under the National Project *"Infrastructure for Life"* (until 2025—under the National Project *"Housing and Urban Environment"*). (See: Project Charter *"Formation of a Comfortable Urban Environment."*) https://minstroyrf.gov.ru as of January 22, 2025). The departmental project is aimed at achieving the national goals and strategic development objectives of the Russian Federation, as set out in the programmatic Presidential Decrees of the Russian Federation (see: Decree No. 309 of May 7, 2024, covering the period up to 2030 and extending through 2036). (http://pravo.gov.ru, 07.05.2024). The Strategy for the Socio-Economic Development of St. Petersburg for the Period up to 2035, approved by the Law of St. Petersburg No. 771-164 dated December 19, 2018 // Official Website of the Administration of St. Petersburg: http://www.gov.spb.ru, 20.12.2018).

[17] Article 2, Part 2 of Federal Law No. 414-FZ of December 21, 2021, "On the General Principles of the Organization of Public Authority in the Constituent Entities of the Russian Federation" (Federal Law No. 414); Article 4, Part 4 of Federal Law No. 33-FZ of March 20, 2025, "On the General Principles of the Organization of Local Self-Government within the Unified System of Public Authority" (Federal Law No. 33).

[18] Order of the Ministry of Construction and Housing and Utilities of the Russian Federation No. 696/pr of September 28, 2023, "On the Organization of the Implementation of the Departmental Project of the Ministry of Construction and Housing and Utilities of the Russian Federation for the

standard are defined across 15 areas: digital transformation of state and municipal governance; urban environment development and housing and utilities; construction; energy; security; geoinformation technologies; healthcare; culture; youth policy; science and higher education; general education; entrepreneurship; sports; transport; and ecology[19].

The accounting entities to assessment are the subjects of the Russian Federation and only certain types of municipalities - the urban and municipal district (raion). Accordingly, the "City IQ Index" is proposed to be calculated for these types of municipalities, depending on their population size. Only municipalities of these types, within their respective categories, are eligible to participate in the competition selection process for project implementation under the order of the Ministroy of the Russian Federation. They also act as the third party to the agreement with Minstroy RF and the subject of the Russian Federation on implementing a pilot project for the digitalization of urban management within the municipality, provided they successfully pass the selection process.

At the same time, nearly every one of the above-mentioned areas of assessment extends beyond the basic and additional indicators of the "Smart City" standard. The evaluation of their condition and development is further elaborated in orders issued by other competent ministries and within other related national projects. For example, the basic and additional indicators for the "safety" domain in the "Smart City" standard do not cover the full range of issues related to a safe urban environment; they address only the share of certain categories of vehicles used for the transportation of hazardous materials (Clause 5 of Appendix No. 1 to the Order of the Minstroy RF). Thus, the "Safe City" system has not yet been legally integrated into the "Smart City" standard — it is implemented in parallel and has its own programmatic and legal framework at all levels of public authority, along with its own performance evaluation indicators. According to the Concept for the Development of the Hardware and Software System "Safe City"[20], the main coordinating role for the system's implementation and oversight at the federal level is assigned to the Ministry of the Russian Federation for Civil Defence, Emergency Situations and Elimination of Consequences of Natural Disasters (EMERCOM). This ministry also establishes the criteria and performance indicators for the use of the "Safe City" system by the subjects of the Russian Federation, which, in turn, through their competent bodies, define the corresponding criteria and indicators for municipalities[21].

In the same way, the field of ecology extends beyond the indicators covered by the "Smart City" standard. It is further developed through the indicators used to implement the national development goal and the national project "Environmental Well-Being", as well as the state program of the Russian Federation "Environmental Protection," which includes several federal projects such as "Clean Air," "Biodiversity Conservation and Development of Ecological Tourism," "General Cleanup," "Clean Water," and others[22]. These indicators are defined by the relevant authority — the Ministry of Natural Resources and Environment of the Russian Federation (Minprirody RF)[23].

Digitalization of Urban Management 'Smart City' and on the Invalidation of Certain Acts of the Ministry of Construction and Housing and Utilities of the Russian Federation" (hereinafter — the Order of the Minstroy RF No.696).

[19] Appendix No. 1 to Order of the Minstroy RF No. 696

[20] Approved by the Order of the Government of the Russian Federation dated December 3, 2014, No. 2446-r (hereinafter referred to as the "Safe City" Concept).

[21] Section VI of the "Safe City" Concept; Action Plan for the Implementation of the Concept for Building and Developing the Hardware and Software System of Technical Means "Safe City" for the Period 2016–2020, approved by the Ministry of the Russian Federation for Civil Defense, Emergencies, and Elimination of Consequences of Natural Disasters on June 15, 2016, No. 2-4-35-64-14.

[22] Clause 1(g), Clause 5 of Decree of the President of the Russian Federation No. 309 dated May 7, 2024; Act of the Government of the Russian Federation No. 326 dated April 15, 2014, as amended on May 14, 2025, No. 640, "On the Approval of the State Program of the Russian Federation 'Environmental Protection'".

[23] See, for example: the Consolidated Index of Processing (Sorting), Utilization, and Disposal of Municipal Solid

ISSN 2542-1514 (Print)

Finally, the objectives of improving the quality and digitalization of municipal services, municipal functions, and public administration communications are addressed within another federal project — “Data Economy and Digital Transformation of the State”[24]. Within this framework, the “Digital Maturity” indicator of regional and municipal government bodies, as well as organizations in the sectors of healthcare, education, urban management and construction, and public transportation, serves — alongside other indicators such as quality of living environment and the condition of road infrastructure in key population centers, urban agglomerations, and cities — as one of the criteria for evaluating the performance of governors (heads of subjects of the Russian Federation)[25]. By order of the Russian Government, the MinTsifry RF acts as the competent federal executive body responsible for defining the digital maturity indicator for public administration, key sectors of the economy, and the social sphere, using digital platforms, artificial intelligence, and big data[26]. Within the social sphere, alongside education, healthcare, science, physical culture and sport, the domain of “Urban Environment and Housing and Utilities” is also distinguished, featuring the “Smart City” and “Safe Environment” platforms. Among the key sectors of the economy, in addition to the fuel and energy complex, manufacturing industries, and financial services, are construction, transport, agriculture, ecology and environmental management, the tourism industry.

Summing up the interim results of the analysis of such a diverse and dynamic body of subordinate regulations governing indicators that in one way or another characterize a territory as “smart,” it can be stated:

First, that the approach adopted by the Minstroy RF in defining the “Smart City” standard is quite narrow.

Second, there is insufficient consideration and integration of the National Smart City Standards (GOST R ISO) approved by Rosstandart and introduced between 2019 and 2023 for voluntary application. For example, although Clause 3.4 of the National Standard of the Russian Federation GOST R ISO 37122–2023 proposes a comprehensive definition of a smart city, Minstroy has focused primarily on its technological dimension—the digitalization of urban management—while addressing only tangentially, or altogether overlooking, indicators of safety, adaptability, sustainability, and citizen engagement in solving smart city tasks.

Third, the objects of evaluation within the smart city standardization framework include both municipal entities and subjects of the Russian Federation. A substantive analysis of the considered

Waste, approved by Order of the Ministry of Natural Resources and Environment of the Russian Federation dated December 29, 2020, No. 1119.

[24] The implementation of the federal project "Digital Public Administration" within the national project "Digital Economy of the Russian Federation" was completed on December 31, 2024. Since 2025, the federal project's passport has been updated within the framework of the national project "Data Economy and Digital Transformation of the State" (the updated project passport was approved by the project committee's protocol on November 26, 2024, No. 1-pr). Federal project passports have been generated and posted in the state integrated information system for managing public finances “Electronic Budget” at: https://budget.gov.ru/Национальные-проекты/Перечень-федеральных-проектов?regionId=45000000). (See: Explanatory Letter of the Mintsifry RF dated November 9, 2021 No. П19-20582-ОГ, SPS ConsultantPlus, Version Prof, www.consultant.ru).

[25] The list of indicators for assessing the performance of the governors and the activities of the executive authorities of the subjects of the Russian Federation is currently approved by Decree of the President of the Russian Federation No. 1014 dated November 28, 2024. See also: The Methodologies for Calculating the Actual and Planned Values of Indicators for Assessing the Performance of the Heads of the Subjects of the Russian Federation and the Activities of the Executive Authorities of the Subjects of the Russian Federation, approved by Act of The Government of the Russian Federation No. 58 dated January 28, 2025 (as amended on June 17, 2025).

[26] Methodology for Calculating the Indicator “Achievement of ‘Digital Maturity’ in Public and Municipal Administration, Key Economic Sectors, and the Social Sphere,” approved by Order of the Ministry of Digital Development, Communications, and Mass Media of the Russian Federation No. 1210 dated December 28, 2024.

indicators shows that, in many cases, municipalities lack the necessary powers to ensure their implementation. The categorization of municipalities used by Minstroy to define the "Smart City" standard and the "City IQ" index is carried out without taking into account the municipal or administrative-territorial status of the evaluated entities. Moreover, Minstroy's acts fail to explain why only complex municipalities—those encompassing multiple urban and rural settlements—were chosen as the objects of evaluation, despite their distinctive features and differing capacities and priorities for spatial development. Furthermore, the current acts of Minstroy exclude all other municipal entities (apart from urban and municipal districts) from the process of standardization, performance evaluation, and participation in pilot projects. These acts of the Minstroy RF are inconsistent with the recently enacted Federal Law No. 33 "On the General Principles of the Organization of Local Self-Government in the Unified System of Public Authority". This law permits the preservation of settlements within a two-tier municipal-territorial structure, as provided for by the laws of the subjects of the Russian Federation (Part 7 of Article 9, Article 89).

Fourth, when comparing the indicators of the "Smart City" standard developed by Minstroy with other departmental indicators of urban digital transformation in specific sectors, one cannot help but notice significant inconsistencies. These discrepancies concern both the substantive content of the areas of digital maturity being identified and measured, and the methodologies used for calculation — including how the territory under evaluation is defined. For example, while the Minstroy RF defines "cities" (municipal entities for accounting purposes) as *urban and municipal districts*, the decrees of the President of the Russian Federation, the Government of the Russian Federation, and the Mintsifry RF — which establish indicators of digital maturity in public and municipal administration — refer instead to the development of *key population centers, agglomerations, and cities*. These distinctions are, in turn, taken into account when evaluating the performance of regional heads and executive authorities.

Fifth, the difference in the legal nature of the established indicators is noteworthy. The indicators of the Ministry of Construction's "Smart City" standard are primarily intended to systematize the recording of achievements, organize reporting, and create rankings of the municipalities to which they apply. These indicators do not directly affect the constitutional or legal status of municipal entities and subjects of the Russian Federation, or their governing bodies. By contrast, the indicators of digital maturity in public and municipal administration form part of the legislative framework for assessing the performance of regional state authorities (Article 35 of Federal Law No. 414) and local self-government bodies (Article 40 of Federal Law No. 33). Under these provisions of the laws governing the organization of public authority at the regional and local levels, the lists of indicators for evaluating performance are approved by the President of the Russian Federation (or in a manner determined by him) and may influence the constitutional and legal status of governmental bodies and officials. The results achieved on these indicators are reflected in the annual reports of top regional officials and serve as grounds for incentives — such as receiving grants from higher-level budgets and interbudgetary transfers. At the municipal level, however, the systematic failure to meet performance indicators for local self-government bodies [27] is considered a legitimate basis for holding the head of a municipality accountable, including removal from office (Clause 6, Part 3, Article 21 of Federal Law No. 33).

5.Conclusion: Directions for Improving the Legal Framework of "Smart Cities" in the Russian Federation

At present, it can be stated that the emerging programmatic and legal framework for smart cities in the Russian Federation — consisting of strategies,

[27] The list of indicators currently in effect for assessing the performance of local self-government bodies, approved by Presidential Decree of the President of the Russian Federation No. 607 dated April 28, 2008, unlike the list established for evaluating the performance of the governors and executive authorities of the subjects of the Russian Federation, is clearly outdated and not aligned with the indicators of digital maturity. In this regard, its synchronization with the 2024 list can likely be expected in the near future.

ISSN 2542-1514 (Print)

projects, concepts, plans, and program documents on the one hand, and subordinate regulations issued by authorized executive bodies on the other — is characterized by flexibility, fluidity, and inconsistency, as well as by the absence of a systemic, integrative approach to interpreting the concept of a smart city. There also appears to be a certain gap between international legal standards for smart cities and the corresponding Russian indicators. In Russian scholarly literature, proposals have been made more than once to establish the concept of the smart city in legislation — either by incorporating relevant provisions into the Federal Law on the General Principles of the Organization of Local Self-Government [11, p. 40], or by adopting a separate law on smart city technologies modeled after South Korea's experience [1, p. 817]. The latter proposal, however, does not exclude — but rather presupposes — the need to align any new law with the existing legislation governing public authority and local self-government.

Despite the appeal and logical basis of promoting the idea of a distinct and independent regulatory framework governing the status and implementation of smart city projects in the Russian Federation—taking into account a comprehensive approach to their interpretation, the involvement of all levels of public authority on this issue, and, accordingly, the need to regulate forms of interaction among them as well as general universal rules dictated by digitalization [12, p. 18]—the implementation of this idea at the present stage appears to be premature.

First and foremost, it is necessary to establish a clear conceptual approach to the notion of the smart city, as well as to determine how international legal frameworks for smart city concepts can be understood and implemented within the Russian context. The inconsistencies in terminology found in Russian departmental acts concerning smart city indicators are largely due to the absence of a universal and systematic approach to territorial organization, to the basic concepts of territorial and spatial development, and to the ongoing conflation of administrative-territorial and municipal structures. The task of defining and distinguishing these concepts can be addressed in various ways: either by expanding the scope of regulation within the Urban Planning Code or by introducing independent legal regulation of the fundamental concepts and principles of spatial development — including the adoption of an ecosystem-based approach to the smart city.

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BIBLIOGRAPHIC DESCRIPTION

Gritsenko E.V. The legal framework for smart city concepts: challenges and opportunities. *Pravoprimenenie = Law Enforcement Review*, 2025, vol. 9, no. 4, pp. 88–99. DOI: 10.52468/2542-1514.2025.9(4).88-99. (In Russ.).