

#### Rosreestr

Federal Service for State Registration, Cadastre and Cartography

### National Spatial Data System in the Russian Federation

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October, 2024





Domestic geo-basis

- Mechanism for obtaining up-to-date spatial data
- Unified legal and technical regulation of spatial data
- Typical digital profile on real property units



Degradation of the state geodetic network



Fragmentation of data in sectorial federal and regional authorities



Import dependence use of foreign software and services



### **International analysis**



In 2025 40% of the geospatial information market will be accounted for by location-based services and spatial data infrastructure



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Sources: https://geospatialworld.net/consulting/reports/geobuiz/2023/index.html

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### International analysis: capitalization



The direct economic impact of geospatial technologies is growing steadily and will increase through 2030 and beyond



## National Spatial Data System (NSDS) for heaple











Functional layers of spatial data

Data from **federal geoinformation systems**, including urban planning, housing and utilities, etc.

Data from the State Information System for Urban Planning of the regions

Data on cadastral and market value of the object

Data on price-forming factors and their values

**Information on property rights** (current and previous)

Cadastral data on land plots, buildings and structures

Materials of territorial planning and land management on rural areas

Unified Digital Basemap

Digital orthophotoplan, digital topographic map

**State Geodetic Network** 







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### **FSIS UDP NSDS**

is domestic geoinformation software

created to work with spatial data of federal and regional information systems, received on the platform within the framework of information interaction





System
>100 software products forming a

>800 virtual machines ensuring stable and fast operation of the



comprehensive information protection system

unified environment



>5 types of databases and data warehouses to store billions of records



**16 complex subsystems**, including the use of machine learning and artificial intelligence

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#### Land for construction Choosing land plot for construction **Urban planning online** Analysis of the possibilities of using land plots **SERVICES** 2023 Approvals in construction Obtaining special permits in the construction cycle **Residential housing**

construction State services for placing single-family houses

#### Land for tourism

Choosing land plot for recreational facilities

#### My property units

Monitoring of changes in property units

#### Smart cadastre

Detection of unregistered property units

Land simply

Granting land plot

### **Thematic data layers**

Creation of thermal and other thematic maps

#### Use of spatial data in control (supervision) activities

Prevention of violations in the field of land use

#### Integrated development of territories

Digital tool for integrated development

**SERVICES** 2024

#### **Spatial data authentication**

Verification of government decisions based on the most complete data

#### Tools of state cadastral valuation



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**Places for small business** 

Ensuring the placement of nonstationary retail facilities

#### Land for a farmer

Search for land plots most suitable for agriculture

#### **Correction of register errors**

Reconciliation of borders in digital and on the ground Fair cadastral value

#### Assistant of surveyor Ensuring engineering surveys

**NDMS** spatial service Development of NDMS in terms of working with spatial data

#### Visualization of spatial data

Creating graphics for text documents



#### My address Address geocoding



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### Cartographic component for work with spatial data of the FSIS UDP NSDS





**Work with spatial data** - a ready-to-use embedded service, which forms a window for GIS access to spatial data of FSIS UDP NSDS and tools for working with the map



Secure access to spatial data

**No development is required**, all capabilities of the FSIS UDP NSDS are united in one Service



Simple and flexible customization of the Service functionality (toolkit configuration):

- easy to add to your IS code
- customized tree of displayed spatial layers
- creating your own spatial data layers
- customize the possibility of placing information on public resources
- spatial analysis tools buffer zones, heat maps, etc.



#### **Service Performance:**

13,000 simultaneous requests per second
 no more than 2 seconds to display screen forms



### Capabilities of the FSIS UDP NSDS mapping component



Systematization and grouping of scattered data is provided, and it is possible to quickly obtain information in the required section

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Geographical reference of registry data makes it possible to link information to the location of objects on the ground

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### Capabilities of the FSIS UDP NSDS mapping component



Heat maps visualize the distribution of statistical information (for example rental housing costs)



#### **Geospatial analysis tools**



Possibility to generate information on the basis of data on required segments of the territory (for example, analysis of the population within the radius of accessibility of social facilities)



# Background to the establishment of NSDS unified system of classification and coding



### Example of different "points of view" on a spatial object



THE WAY TO SOLVE THE PROBLEM IS TO CREATE AND GRADUALLY IMPLEMENT A UNIFIED CLASSIFICATION AND CODING SYSTEM (UCCS) OF NSDS



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### **NSDS** data thematic areas



It is recommended to apply the list of thematic areas of data according to GOST P 70846.4-2023\* (Annex B "Generalized list of thematic areas of spatial data", including 31 thematic areas)

Government d public services	Statistics	Population, demography, migration	Culture and art	Energy	Communication and telecommunications	Industry, production	Transport networks
Jrban planning	Agricultural infrastructure	Geology, mineral resources	Geographical natural zones	Climate	Biotopes	Specially protected conservation areas	Plant species distribution
Animal species distribution	Land cover	Soils	Land use	Cadastre	Cadastral division	Facilities	Boundaries
Geographical names	Addresses	Hydrography	Relief	Reference systems of coordinates	Geographic grids	Geodetic basis	The number of thematic areas may expand

and heights

\*State standard GOST P 70846.4-2023 "Classification and Coding System. Development and application of spatial data classification and coding systems. General requirements"

### Geoportal of Spatial Data Infrastructure of CIS member states

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### **Prospects for cooperation**





**Development** of international standards, normative and technical documentation, **filling** the Geoportal with open-use spatial data in order to make complex interstate decisions



**Creation** of geospatial services for citizens and businesses in education, investment, tourism, transportation and logistics and other relevant fields

#### Implementation



of mechanisms of interaction between cartographic services and other agencies of CIS member states in the realization of complex joint projects based on work with spatial data



**Formation** of a single seamless space allowing organizations, businesses and citizens of CIS member states to find solutions to life situations beyond national borders



**Increasing** the importance of cooperation of CIS member states in the projects realization, including the development of an international knowledge base of spatial data



**Obtaining** a fully scalable tool to transfer the experience of its creation and use to other projects



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# Thank you for attention!



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