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Analysis of the System of Automation of Material Assessment of Cutting Sites in Geo Information Systems

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Abstract: In this paper, geographic information systems (GIS) are processed using three primary data structures: feature classes; feature tables; raster data set. Each of these basic data can be expanded with additional functions for data integrity (e.g., topology application), modeling geographic relationships (network connection or flow), or extended behavior. To this end, GIS is used to process several different data sets, each of which contains information about a specific set of features (e.g., road networks) that are geographically connected to the Earth's surface.

Keywords: Information technology, geoinformation systems, road network, data sets, features.

Introduction. Computerized methods of processing, storing, transmitting and using information in the form of information through information technology. Among them are two main elements - the machine and the human.

The concept of technology usually includes a set of scientific and engineering knowledge that combines labor methods, materials, technical, energy, sets of labor factors of production, methods that combine them to create products or services that meet certain requirements, standards. In this sense, the term technology is inextricably linked with the mechanization of production or the production (social) process. In the absence of information technology, informatics could not exist in the era of processing and presentation of information. The functional purpose of information technology is to process information using a computer and to develop new knowledge related to the goals of the users.

If data is a universal category specific to an entire historical period, then computer science is only a clear historical category specific to modern and future historical periods. Previously, when there was no computer object, the information was not regularly processed by the computer. Computer-based computers are born to introduce special technologies for the collection, processing, transmission and use of information, which is the core of the modern scientific and technological revolution [1].

- Description of information technologies in the forest industry.
- Expanding the concept of information technology in forestry;
- Defining procedures with data performed on GIS control of processes;

Data sets are logical sets of geographical features. Any GIS has a data set. The CBS database design is based on a series of topics, each with separate geographic authority. For example, individual geographic elements (dots, lines, and polygons) can be represented as bitmaps or properties, surfaces that use lines and TINs, as well as identifier attributes in tables [2].

In GIS, geographic features are uniformly collected and conducted on data-related issues such as land, wells, buildings, orthoimages, and raster-based digital elevation models (DTM). A clear and simple definition of geographic data is very important for the benefit of geographic information systems, and the concept of data subject is important for the concept of GIS.

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Geographic data is organized in a series of data sets or layers. Most data sets are a collection of simple geographic elements, such as road networks, land boundaries within certain boundaries, soil types, topography, well-defined satellite imagery, location of wells and others [3].

In GIS, typical data sets are usually organized as dataset data sets or raster-based data sets. Many data topics are represented as the best data set, such as soil types or wells. Other topics, such as the road network, are presented in several data sets (separate feature classes for streets, intersections, bridges, railroads, etc.). For example, a transportation network can be represented as many street facilities, street intersections, bridges, highways, railroads, and so on. The following table shows that lands can be represented using multiple data sets [4].

Raster datasets are used to display attached images in width, as well as to represent the continuous surfaces of elevations, slopes, and sides.

Table 1. General CBS versions

Subject	Geographical description
Stream	Lines
Large reservoirs	Polygons
Vegetation	Polygons
forest area	Polygons
Central layers of roads	Lines
Administrative boundaries	Polygons
Wells	Points
Orthophoto	Rasters
Satellite images	Rasters
The height of the soil	Rasters DEM
	Isolates
	Elevation points
	Rasters are washed with a washer
plots of land	Polygons
plot records	Tables

The exact layers remain a data set. This is the basic principle of organization in a CBS database. Each GIS covers many topics for a common geographic area.

The set works as a set of layers. With each topic, you can work as a data set that is independent of the other topics. Each has its own ideas (dots, lines, polygons, surfaces, rasters, etc.) [5].

Since the layers are expanded, they stick together and can be combined on a common map screen. In addition, GIS analysis tools, such as polygon coatings, can collect data from multiple layers of data and work with the interactions obtained based on it [6].

Any effective CBS database will have the same general principles and understanding. Trucks require GIS description geographic data etix terminyx, security control, use and a mechanism for takje obshirny tools for the exchange of this information.

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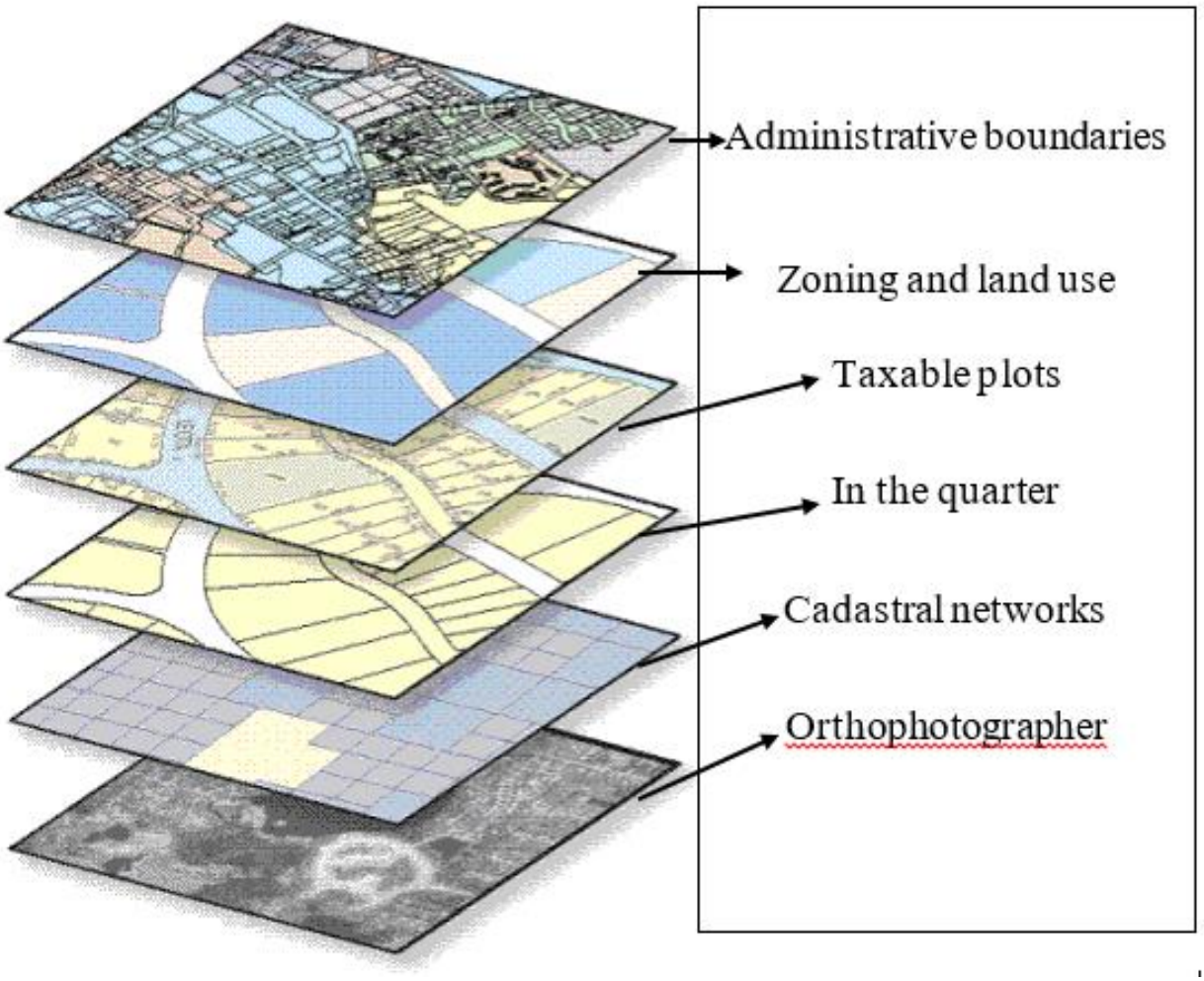

Figure 1. How GIS users work with geographic information

Data set quality, homogeneous Collection of geographical objects, tone and vice versa. Collections of geographical objects In ArcGIS, art collections of geographic objects are organized on topics such as land parcels, colloquia, estrogen, ortho-photography, and digital terrain models (DZM) [7].

In most ArcGIS operations, data sets work as new inputs or create a new data sheet. CBS is also provided as part of CBS access to all media. Map, Globe, 3D Scene: Geographic information is mainly described as a sloa map. Each card is specified in CBS and is used to edit data items and data. By default, the slot card is a "live" GIS data packet.

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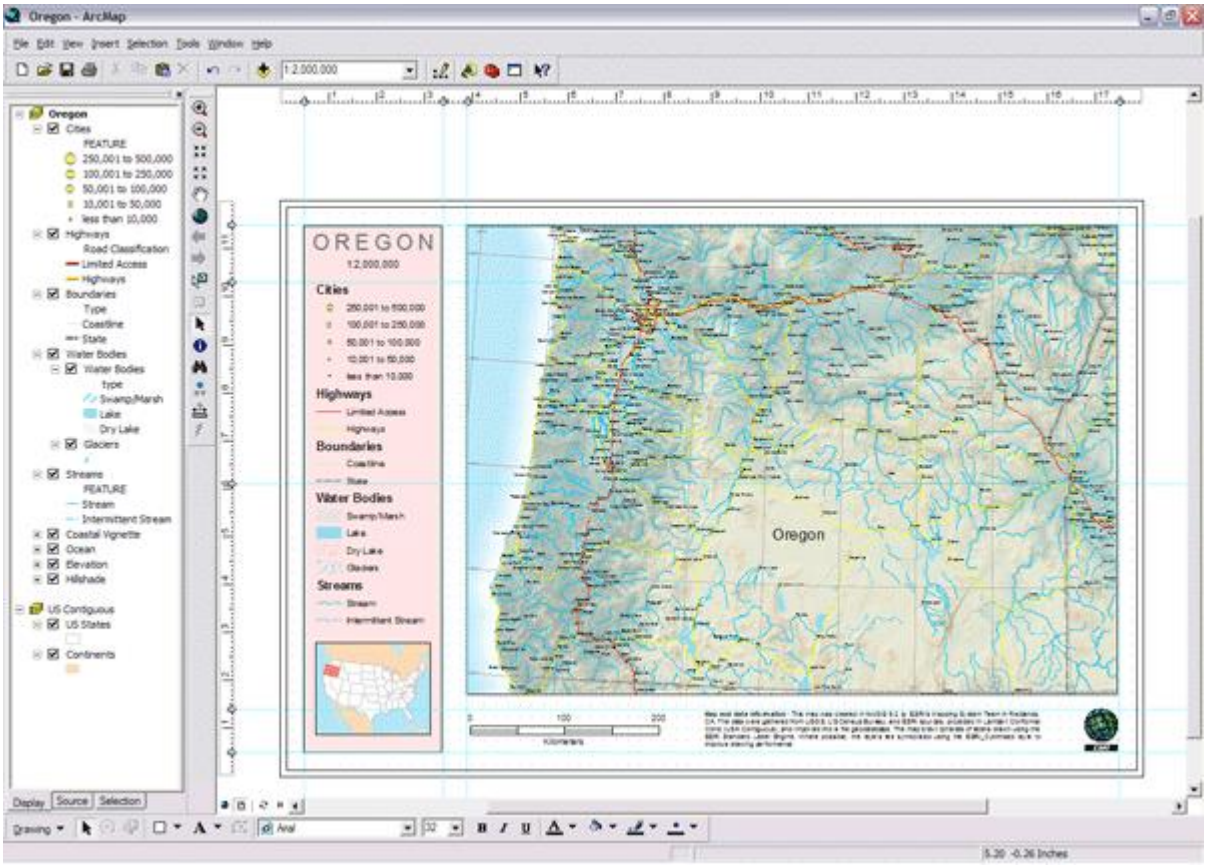

Figure 2. map

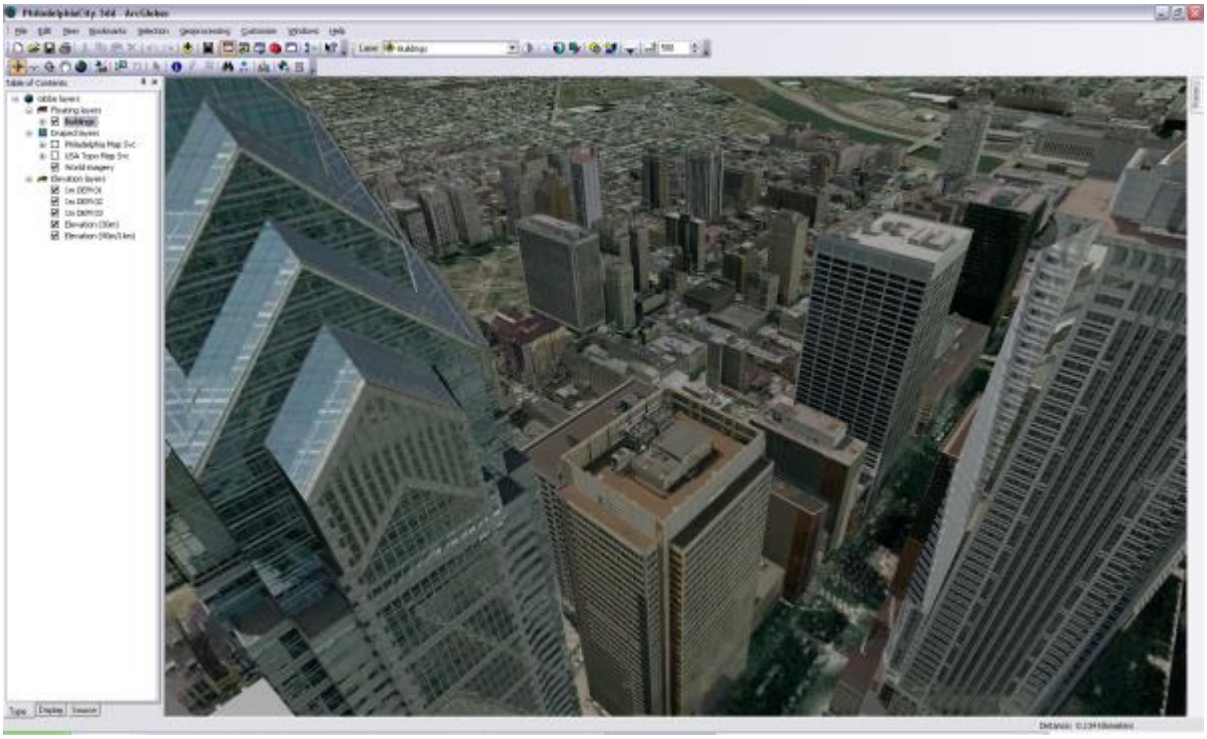

Figure 3 is a 3D view of the map.

Slides are on 3D scenes used to edit and edit 2D cards and GIS data. The sign is mainly on the map said sloï gorodov, avtostrad, regïyonalnıx and State Border, Society and Auxerre. Each image file is used for a GIS image [8].

Data input and proïzvodnie detailed geoprocessing Dial: GIS - General data sources geoprocessing eto, kotorya Monitor ïspolzwyutsya push data and GIS analysis. ïspolzwyutsya vxodnıx and how proizvodyatsya results raznoobraznıx Shoot Quality data dial from geoprocessing.

Geo-reboot is done automatically for multiple operations, so you can participate one or more times [9]. This allows for a repetitive, well-documented workflow processing process. Users work with ArcGIS data sheet and space analysis.

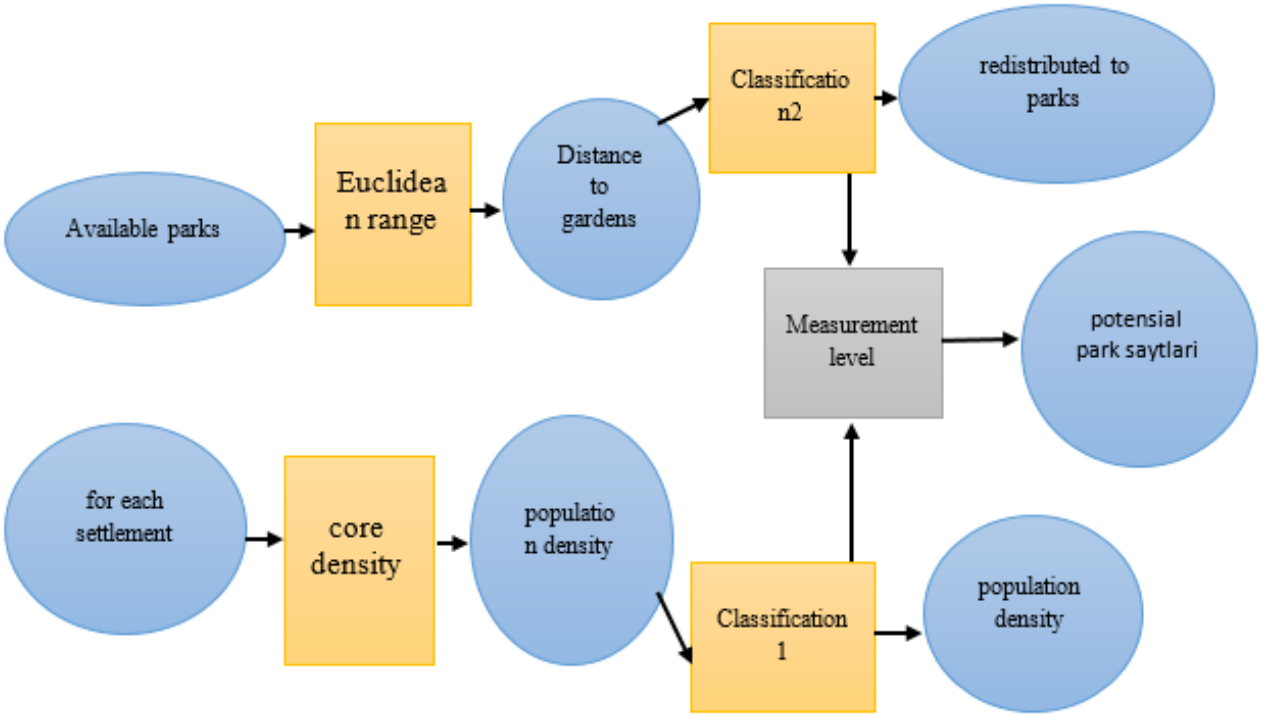

Figure 4. Geographic Data Collection Process Model.

This model shows how to find and identify places to place new gardens. There should be a high population in appropriate areas and they should not be close to existing gardens.

2.2. Working with individual properties and data sets

In addition to working with data collection, users work with personal data located in data sets. These elements include individual properties, attribute tables, and cells of columns and individual raster data sets. For example, if you click on a mouse and identify individual plots, you work with a separate item in the data set:

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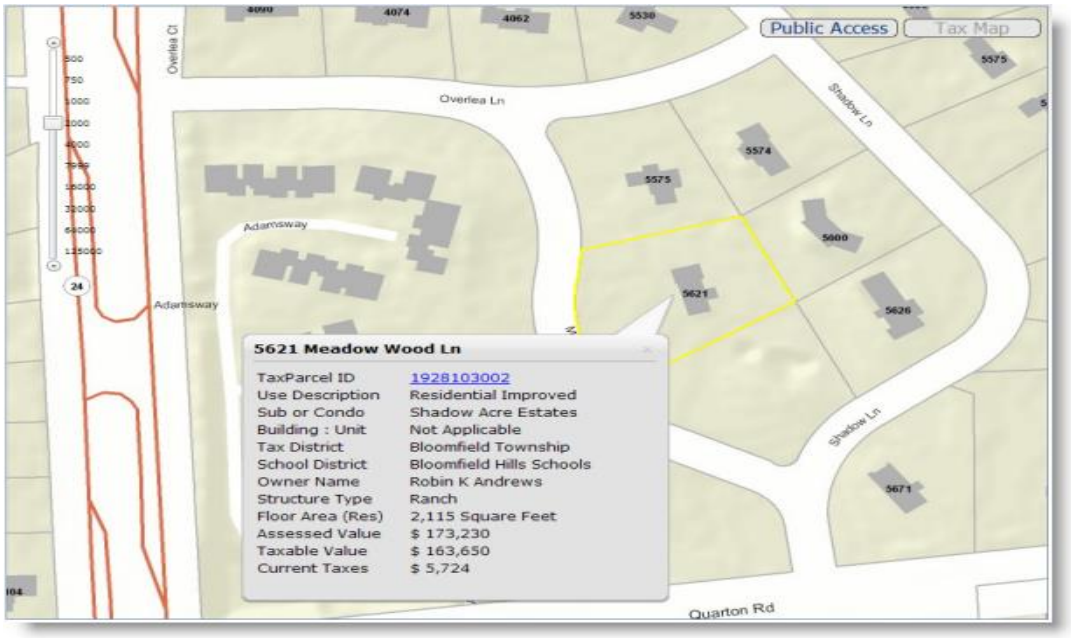

Picture 5. Separate accommodation

When editing properties, you work with personal data elements - as in this example, arranging the central parts of the paths:

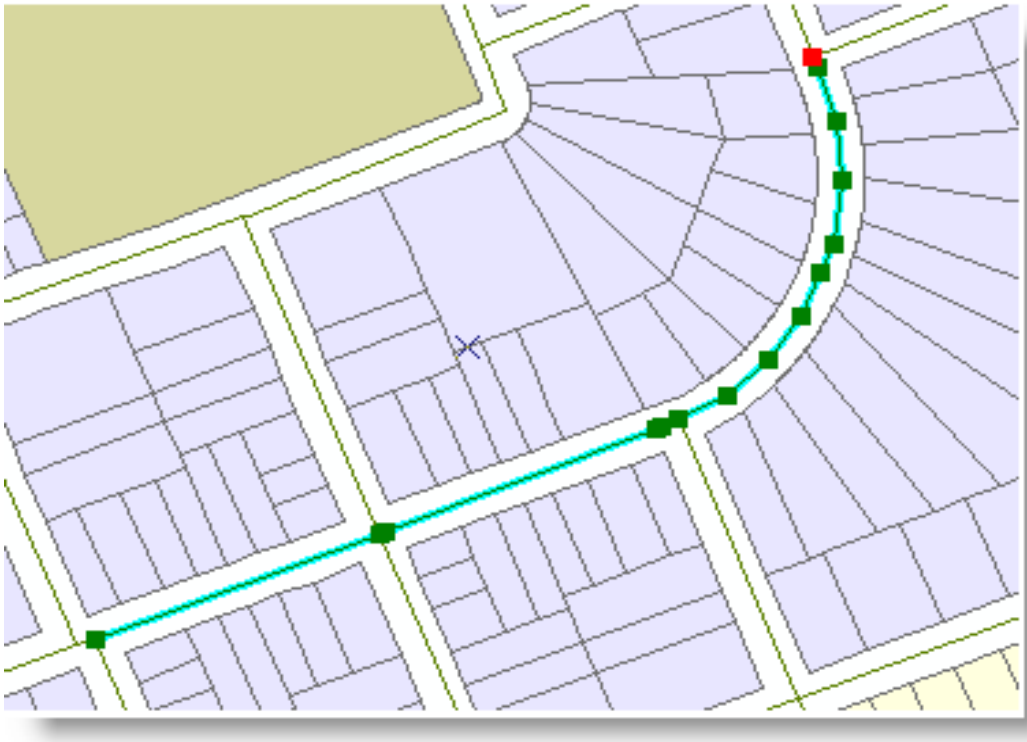

Figure 6. Identify the central parts of the roads

When working with tables, descriptive information in rows and columns is used as follows:

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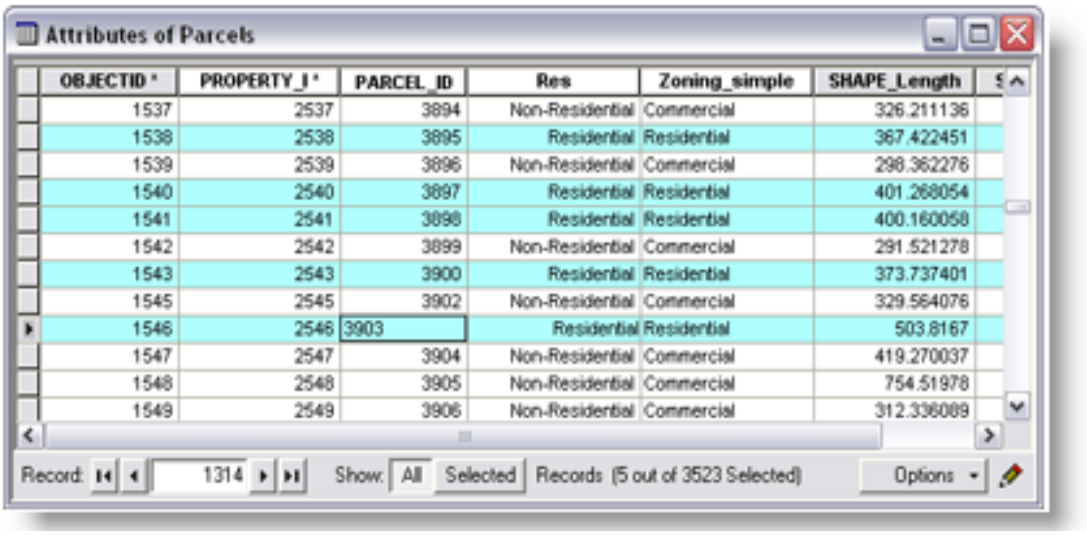

Figure 7. Descriptive information in rows and columns

Demand and analysis. If you have CBS and geographic information, you can get answers to simple questions (who owns? What is the distance between these objects? Where is this industrial area?) And more complex requirements, queries (construction where are the places for What is the main type of forest between the cloves? How will the construction of the new road affect transport?). Queries can be set by clicking on a specific object or using advanced analytics tools. With the help of CBS, you can mark and mark patterns for a call, play scenarios of "what if ...". Modern GIS has very powerful tools for analysis. Two of the most important are proximity analysis and coverage analysis. A process called buffering is used to analyze the proximity of objects in a CBS. It helps to answer questions like: How many houses are up to 100 meters from this reservoir? How many customers live within 1 km of this store? What is the share of oil extracted from wells 10 km from this OGPD administration building? The overlay process involves the integration of data from different thematic layers. In the simplest case, these are screen operations, but for a number of analytical operations, the data in the different layers are physically combined. Overlaying, or a combination of gaps, such as land, greenery, plants, and land ownership, allows for integration with land tax rates.

Create maps. Maps on CBS have a special place. The process of creating maps in GIS is much simpler and more flexible than traditional manual or automatic mapping methods. It starts with creating a database. As a source of initial data, you can use simple paper map numbering. GIS-based cartographic databases can be continuous (without separate tables and regions) and not on a specific scale. Based on such databases, you can decorate maps (in electronic form or as a copy) to any area of any scale, with the desired load, by selecting and displaying the desired characters. At any time, the database can be updated with new data (for example, from other databases) and the data in it can be corrected as needed. The topographic database created in large organizations serves as the basis for other departments and divisions, which can quickly transfer data and send it to local and global networks.

Conclusion

At the current stage of development of society, the volume of information will increase. It is known that the more information available to a person, the easier it will be to apply informed decisions and take effective action. But gathering information alone is not enough, we need a tool to make full use of it. Such tools are the automated systems and GIS-technologies available to you, which allow

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you to store, search for the necessary information in an organized manner, process it and analyze the results. All of this can be done on the basis of computer technology, and methods of obtaining information are becoming more and more industrial in nature. The forest industry has extensive experience in the use of automated systems and GIS technologies. Automated systems allow to solve specific, local tasks: material and material assessment of cutting areas, study of the growth of forest stands, automation of forestry specialists, processing plots, etc. The need to increase the reliability and efficiency of information on the Forest Fund required the transition to modern technologies for its collection, storage, processing and presentation. In forestry, such a tool is geographic information systems. Today, GIS is an integrated automated system that provides storage, processing, and spatial-thematic data, laying the groundwork for the integration of geographic data.

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