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HISTORY OF GEOGRAPHICAL INFORMATION SYSTEMS DEVELOPMENT

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The development of modern society is almost impossible without information concerning, for example, information about where a product is produced, what its cost is, how to get to the place of its sale, etc. Often, many disparate organizations have the information necessary for the purpose of consumers, which reduces the effectiveness of its application. Thus, the purpose of the formation of information systems is the concentration, concentration of information in specialized centers in order to use it most effectively by the general population.

The term "system" is derived from the Greek system and is interpreted as "a whole made up of separate parts". Therefore, a system is understood as a set of heterogeneous elements that represent an object as a whole. In computer science, the concept of "system" has many semantic meanings. It is most often used in relation to a set of technical tools and programs. In particular, the information system (IS) consists of a set of independent, but interrelated elements. The modern understanding of the information system involves the use of a personal computer as the main technical means of information processing. Computers together with software are the technical base and tool for the formation of information systems. Thus, an information system is an interconnected set of technical means, software and methods used by operators for storing, processing and issuing information to consumers. An information system is unthinkable without a human (operator) interacting with a computer.

Information systems are currently used in various spheres of human activity. Often, users have a need to establish the spatial position of the objects under study. each spatial information system is defined on the principles that are inherent in absolutely all information systems. similar systems are presented as well as automated information systems designed to display and analyze natural and artificial objects located within the earth's surface. The spatial reference of the studied objects served as the basis for the introduction of the term "geographical information systems" (GIS). Over time, this term acquired a more extensive interpretation and was transformed into the concept of "geoinformation system", since the scope of the study of GIS included objects and phenomena that have not only a certain location on the earth's surface, but also various schematic characteristics. In the broad sense of the word GIS is perceived as a model of a realistic world, and in the close sense it is a system of accumulation and storage of data tied to the earth's surface. At the same time, the possibility of supporting decision-making processes is recognized as a mostly promising direction in the formation of GIS. The component of the complex words " geo "in Greek means "earth". The field of GIS use, of course, is not limited to geography, geodesy, or other "geosciences". The use of GIS is infinitely effective in every subject area, in which information about the relative location and forms of the objects described or studied in space has significant significance. Thus, a more significant difference between geographic information systems and other information systems is that they include spatiotemporal and geographically coordinated data that establishes a certain object. The concept provided corresponded to the latest technology of using electronic computers for data storage and processing. Later, on the basis of such systems, the previously mentioned agricultural information systems were formed, which characterize the legal, economic and spatial location of insignificant land plots.

The introduction of information systems contributes to obtaining mainly practical alternatives to the conclusion of tasks through the use of automated methods, intelligent and expert systems. They provide a further reduction in the share of everyday work of operators by automating the processes of generating truthful information in conditions of repeated use. The creation of an information system is carried out under the condition of its full multifunctional compliance with the established goal and the tasks to be solved. The inclusion of additional functions in the system makes it more expensive. This can significantly reduce the prestige of the information system for potential users. progressive systems are based primarily on open systems, and will be discussed later. the joint structure of the information system, regardless of the scope of application, should be analyzed as a set of supporting components created for the implementation of its main functions. industrial support covers a complex of industrial means and the corresponding scientific and technical processes created for the functioning of the information system. A set of technical means, in its own turn, consists of devices for collecting, storing, processing, transmitting, converting and solving information.

Mathematical support means include accurate statistics, methods of accurate modeling and programming of scientific and technical processes, and other methods. Legal support is determined by a set of legal norms that regulate the legal status and functioning of information systems, in addition to the procedure for obtaining, processing and using information. Information support is a set of methods for systematization and encoding of information. This includes additionally unified documentation systems, information flow diagrams, and database construction techniques. coordination support is defined by a set of methods and rules governing the interaction of the system administrator with operators. At the same time, the procedure for the use of technological supply in the operation of the information system is established. In addition, the coordination support determines the algorithm for the preparation and solution of tasks, the distribution of the approach to information in order to effectively apply the information system and respect the confidentiality of information.

Geographic information systems contain information about the real world in the form of a set of thematic layers, which are combined according to the principle of object typing. To represent, for example, a built-up area in GIS, you can select several layers: "Buildings", "Streets", "Underground utilities", "Green spaces", "Water bodies". This simple and at the same time very flexible approach has proved its relevance in the process of solving various tasks, the main ones of which include tracking the movement of vehicles, determining the shortest distance between two points, taking into account the availability of transport communications, etc. At the same time, it is possible to study any objects in detail, without overloading the image with secondary elements. The usual topographic map does not allow you to achieve this. Thus, by connecting the layers necessary for studying and superimposing them on each other, the user can solve any problem (calculating areas and distances, determining the coordinates of objects, etc.).

Conclusion: The creation and development of geographic information systems (GIS) has given to Geography a new tool for studying and implementing the spatial geographic system. A completely new science has appeared, which previously was not noticed. Geo informatics is a science that opens up an "informational" approach to the study of the natural geosystem. Every year, its relationship with the traditional Earth sciences is becoming more known. Geographic information systems can include natural, biological, cultural, demographic, or economic information. Thus, it can manifest itself in the natural sciences, social sciences, medical sciences, and engineering, as well as for business planning and geomarketing. Today, Geographic Information Systems are a multi-million dollar industry that millions of people around the world are interested in.

This technology is used in virtually all areas of our human activity. With the use of multifunctional GIS technology, all the acquired information can be used not by GIS

specialists themselves, but by also ordinary people - scientists, doctors, businessmen, builders, etc. With the help of GIS, public utilities plan and carry out activities for the maintenance of urban networks. Organizations that are engaged in the protection of the natural environment monitor the state of forests, rivers, and soil.

References

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