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CONCEPT OF BUILDING INFORMATION-ANALYTICAL SYSTEM ASSESSMENT OF ENVIRONMENTAL PROTECTION

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The main conceptual elements of information- analytical systems proposed principles of information- analytical system for environmental assessment . An example of the concept of synthesis of such systems to analyze the impact of natural and anthropogenic origin.

Environment, Information- analytical system , data, data warehouse , OLAP.

Each year, the issue of environmental pollution is becoming increasingly require changes in the approach to its solution and methods to counteract the effects of negative factors on the environment. Modern pace of information-analytical systems can apply the methods of decision support systems for an increasing range of problems of different nature.

Analysis of the specific object of pollution and development for a data-processing system can by applying the general principles used to develop such systems [2, 3 , 5].

The purpose of research - review the basic principles of the development of information-analytical systems for decision support in the business and identify the main components of such systems for environmental assessment .

Materials and methods research. The effectiveness and efficiency of information-analytical systems depends on the chosen methods and models of analysis for a particular scope, their architecture and principles . In general, most of the information and analytical systems have similar architecture and components (Fig. 1).

The data received by the system can come in different forms, have a different format and come from several different data sources: sensors, laboratory analysis and other reports . For efficient use of these data, their storage and analysis using data warehouse , which is a special package for database management that is separate from operational systems, and structured renewed for urgent operational needs and management results. The content and horizon data warehouse differs from operational systems. It contains subject- oriented , integrated , chronologically ordered datasets . This repository is unchanged over time, and therefore able to support various types of analysis . Preferably, such a database is operational data archives , selected to support decision making and optimized for interaction with the DSS organization [4]. In Fig. 2 shows a simplified diagram of the formation and use of DSS data warehouse .

If you want to collect data about a particular item and separate this information from shared data stores can use the data mart - thematic database containing specified information.

Online analytical processing (OLAP) is a category of software technology that enabled analysts, managers and performers enhance the presentation of data through fast, consistent , interactive access to a wide range of possible image information which has been obtained by converting raw data to be displayed in real dimension , comprehensible to users.

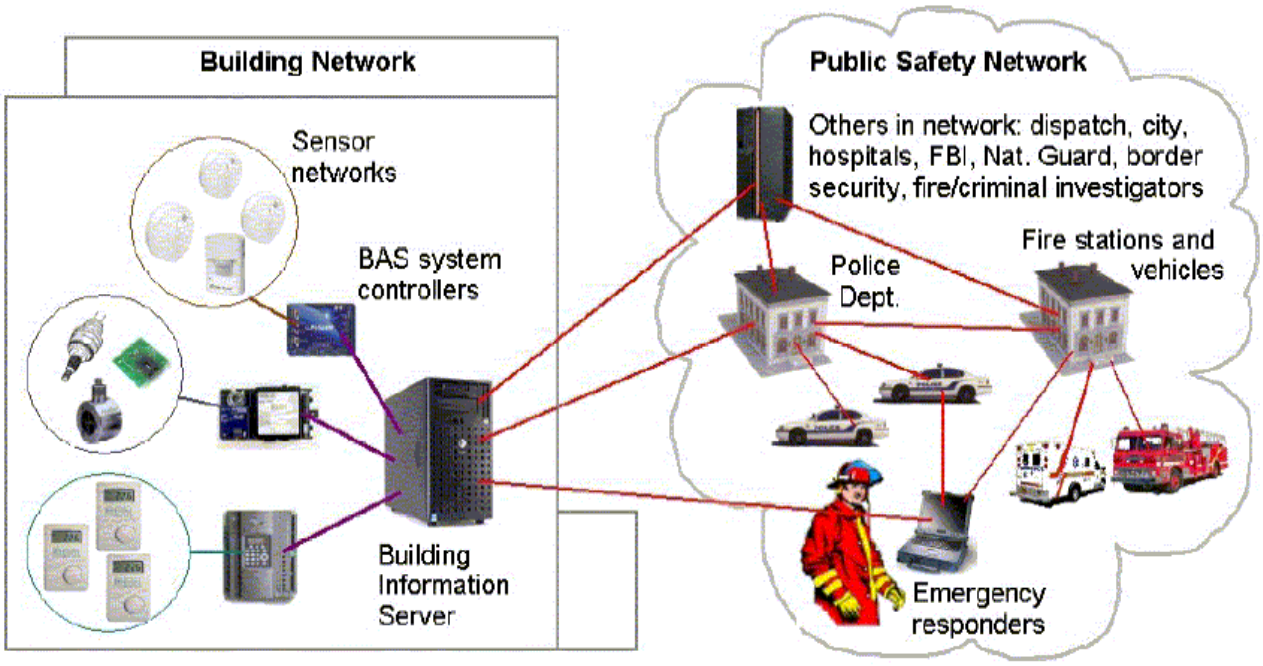

Figure 1. The general scheme of data-processing system

From a practical point of view OLAP is a promising system that is easy to use and includes specialized information tailored to the needs of users. This system uses a data warehouse , but also contains a large number of end-user tools for providing access to data and conduct analysis.

OLAP is in multi-user client / server mode and enables consistent rapid response to requests regardless of the volume and complexity of the database. OLAP helps the user synthesize enterprise information through comparative , specified view data, and through analysis of actual and estimated values in the analysis of options like " what ... if ... ? ". This is achieved through the use of server OLAP, which is, multi- mechanism data manipulation , specifically designed to support and carry out operations with multidimensional data structures. Multidimensional structure ordered so that each data element was placed and secured access based on section dimension components that define a specific item .

Below is an example of the development of information- analytical system for managing complex processing wastewater infiltration domestic and industrial wastes.

Landfill disposal infiltration of wastewater is a complex system that includes elements of automation, irrigation components , elements chemical analysis of wastewater . Information flows are set on the data flow diagram (Fig. 3). Data on the quality and condition of wastewater entering the system with sensors salinity , acidity and chemical composition. Information-analytical system processes the data , which are then delivered to the laboratory database , a data warehouse and then to the complex.

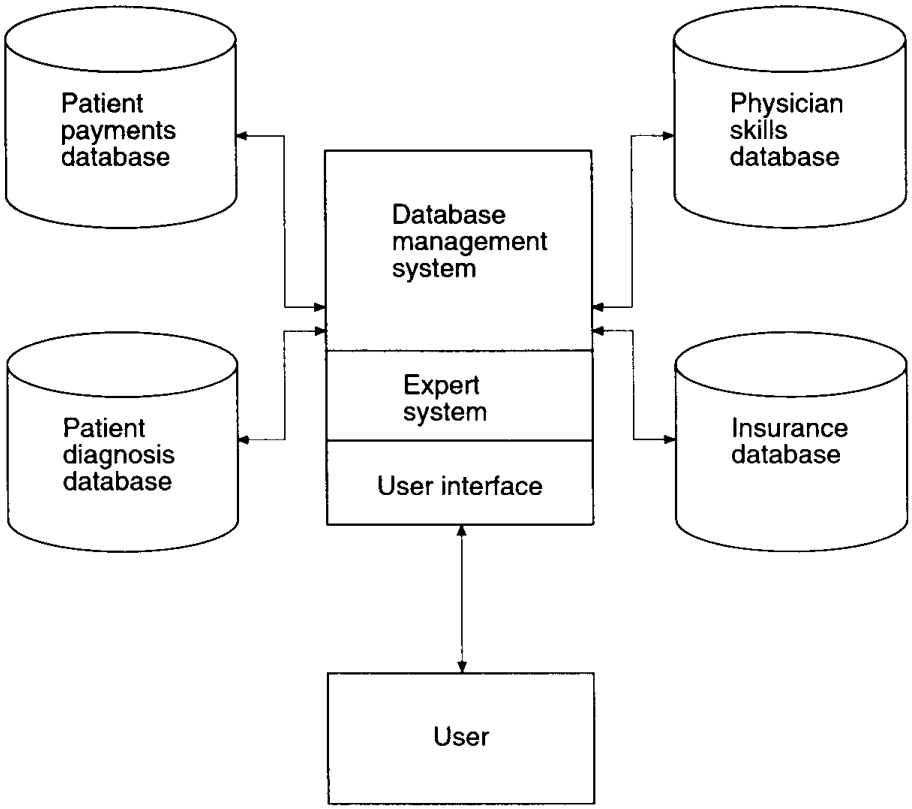

Figure 2. Scheme of formation data in DSS

Studies . Today, among the many problems caused by anthropogenic human activities, is one of the main problem of global climate change on our planet. An important role in this process is of solid waste (MSW), so the problem of recycling - relevant.

The main sources of data in complex has sensors that determine the relevant parameters and passes them to the system. In built a data set of information from the sensors is stored in appropriate ways «chem», «PH», «salt».

For the synthesis database was developed data warehouse that contains the fact tables and dimension tables (Figure 4). This is a data warehouse built on the topology of the "star" . The tables dimensions are codes and values of , which will be determined by the main criterion of the system , such as a filter , filtrate volume and rate of filtration , filtration date and place for data input from input to output . Depending on the values of these parameters are subject to change important facts: acidity, salinity , chemical parameters : nitrite , nitrate and phosphate .

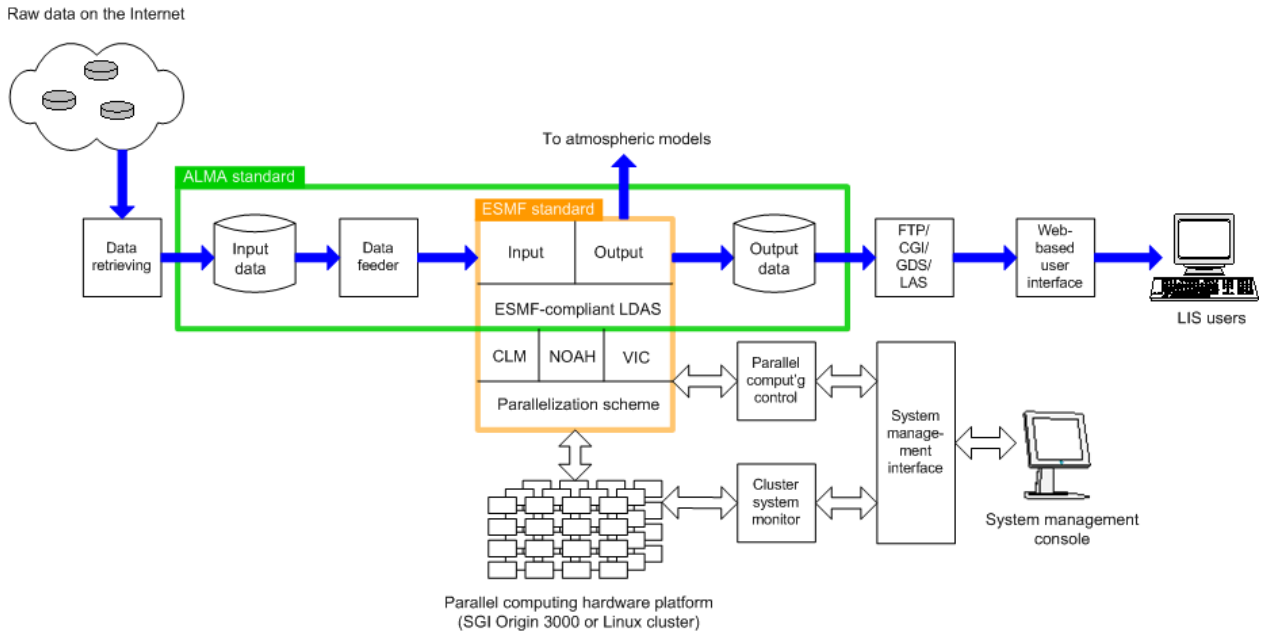

Figure 3. Data Flow Diagram

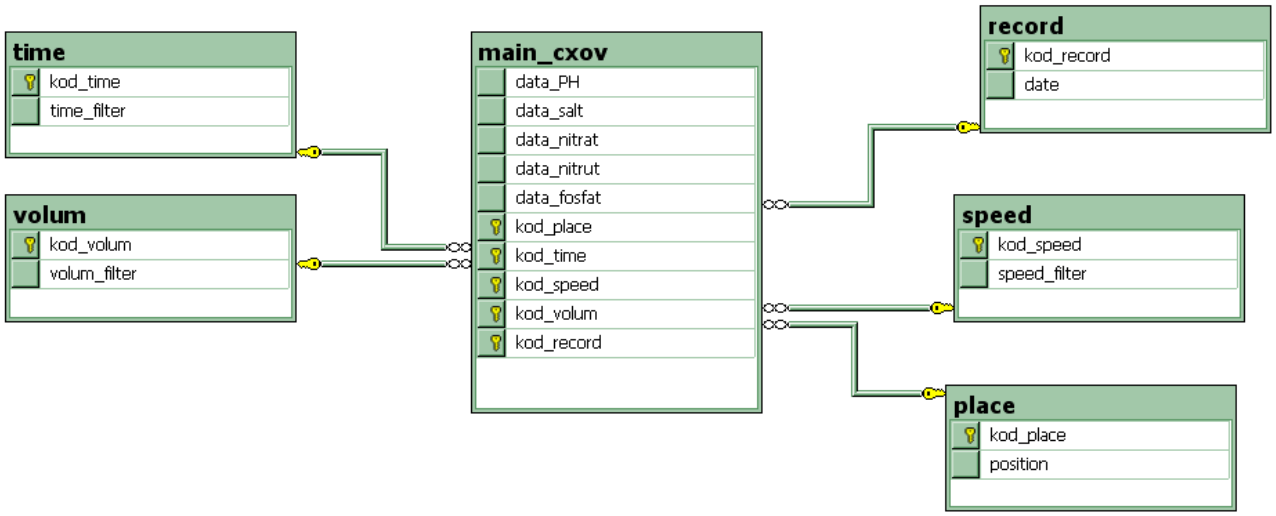

Figure 4. Structure of the Data Warehouse

Business Intelligence Tools help carry out analytics data contained in the data warehouse. One of these tools is a key performance indicator (KPI) - assessment system that helps organizations identify the strategic objectives. Use this tool makes it possible to assess the status and assist in the formation of strategy. KPI allows you to control business activities in real time.

Conclusions

Development of the basic elements of information- analytical systems for environmental assessment by applying the proposed concept will simplify the process of synthesis of such systems for more specialization in this field . Use appropriate systems for the protection of the environment will improve monitoring and performance decisions.

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The main elements Rassmotrenы kontseptualnыe information- analytical systems predlozhenы Principles of building information and of analytical systems for evaluation of okruzhayuschey environment. Example concept presented

synthesis of such systems in Emergencies Impact analysis of natural and anthropogenic origin.

Okruzhayuschaya Wednesday, analytycheskaya information- system, DATA, repository of data , OLAP.

The basic elements of information-analytical systems proposed principles of information-analytical system for environmental assessment. Examples of the synthesis of such systems is to analyze the impact of natural and anthropogenic origin.

Environment, information-analytical system, data, data storage, OLAP.