INTELLECTUAL PROVIDING SUPPORT INFORMATION OF MANAGEMENT DECISIONS

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We discuss the importance of full and timely analysis of statistical data on the activities of the enterprise to detect hidden patterns and dependencies. A primary function of corporate information systems is considered. The need for a multi-agent systems technology, which offers intelligent algorithms for finding solutions, is explained. The article describes the purpose and means of integrating these technologies to provide information support for management decisions in the field of economic management.

Current state of the economy reflects the growing impact of information and communication technologies on economic processes that create new opportunities for effective management of the business. Modern information technology can use the massive amounts of data in real time, as well as its analysis.

In the course of action in any modern organization to accumulate a considerable amount of statistical information in electronic form. Nowadays many businessmen come to conclusion that a fix system for collecting, processing and analysing of information contributes significantly to the effective management and successful business. The lack of timely and objective information had a negative impact on all economic processes of the company. Incomplete or erroneous information leads to wrong decisions, loss and so on[1].

Recent research statistics have become increasingly popular, the methods of conducting, such an analysis is the generic name data mining[2]. The main task of data mining is to detect hidden patterns and relationships as well as prediction. The result of the popularity of data mining was a whole class of programs KDD (knowledge discovery in databases, knowledge discovery in databases). Planning for any statistical study and interpretation of the results are very difficult tasks. It is very important in the right way to set goals and be able to correctly interpret the results. It is impossible to obtain accurate and reliable results, while experimenter not fully explores the raw data, not evaluate the overall structure of the problem, not excluding the questionable data or did not take other subjective decisions. Set conjecture and assumptions can not be otherwise than relying on subjective opinion. At the same objective and rationale - only a secondary means for the transfer of ideas to other people. This requires special knowledge and skills that are not always acceptable to those in need of simple and effective means of analyzing large amounts of data.

The availability of corporate information system (SIS) is one of the factors of good governance. The system is seen as a tool enhances manageability company accelerates the process of collecting and processing information, the accuracy and completeness of the latter. In addition to work in a unified information space KIS should implement a single technology, processing and reporting, provide a single data entry at the place of occurrence, scalability, reliability and consistency of information, speed of input and information. Based on the receiving information, the head can quickly adapt and plan of action. The architecture of any SIS can be presented as a three-tier client-server architecture, consisting of client level, the level of business logic and data levels. The value of KIS increases only when using advanced information technology, implementing the business logic applications. Technology Systems (MAS) - is one of modern information technology, the cause of which was the need for parallel searching and processing the collected information[3].

The essence of multi-technology is a new method of solving problems. In contrast to the classical method, where a search of a well-defined algorithm to find the best solution to the problem of multi-technology solution is to obtain

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automatically by the interaction of many self-focused software modules - the so-called agents[4].

Agent-oriented programming is the next step in the evolution of object-oriented programming (OOP). But unlike sites in the OOP agents are autonomous objects. To realize its self-agents have the ability to react to events, receive and review decisions and interact with other agents[5].

Thus, establishing conditions for building an information management system based management integration KIS and MAS.

The integration of these two technologies into a single architecture will provide ample opportunities for both end-user (effective user interface, predostovlenie accurate and timely information, ease of use through automation of user actions, the interpretation of results) and developer product (simplifying the design, flexibility of a software product).

Java 2 Platform, Enterprise Edition (J2EE) - software platform for the development KIS[6]. J2EE applications:

- ♦ based on component model;
- ♦ are multilevel and distributed;
- ♦ are portable;
- ♦ are scalable.

Using a template division of the functionality of MVC (Model-View-Controller) provides the following advantages:

- ♦ shared various aspects of design (data storage, behavior, presentation, management);
- ♦ allows the reuse of code;
- ♦ centralizing management of program performance and simplifies changes to the system.

MVC pozvlyaet divide the business logic into three separate components (Fig. 1):

- ♦ Introduction (View) is responsible for displaying information.
- ♦ Model (Model) (business logic) is responsible for the behavior of applications that provide data (usually to View), as well as responding to requests to change its state (usually from Controller).
- ♦ Controller (Controller) interprets the data user, and informs the model and of the need for an appropriate response.

The best known standard for the development of MAS is the Foundation for Intelligent Physical Agents (FIPA), 7 international, nonprofit association. Standard FIPA completely covers the agent paradigm, but it defines a logical model agent platform and a set of services that can be provided. The platform should contain a mandatory service and may have a set of optional services (Fig. 2).

Architecture Integrated System (SIS and MAS), using the standards, as we have just told, can be described as a three-tier client-server provided in Fig. 3.

KCS interface provides a form of end-users, allows you to define queries and visualize the results of the research. The main components are:

- ♦ level of customer;
- ♦ levels of business logics;
- ♦ level data.

Clients of web-application is web-browser running on the user's machine. His appointment - to show data and user space to write and update data.

The level of business logic - that the bulk of the logic of the application. Business logic includes:

- ♦ compliance with all the necessary calculations and checks;
- ♦ handshaking operations (including monitoring data conversation);

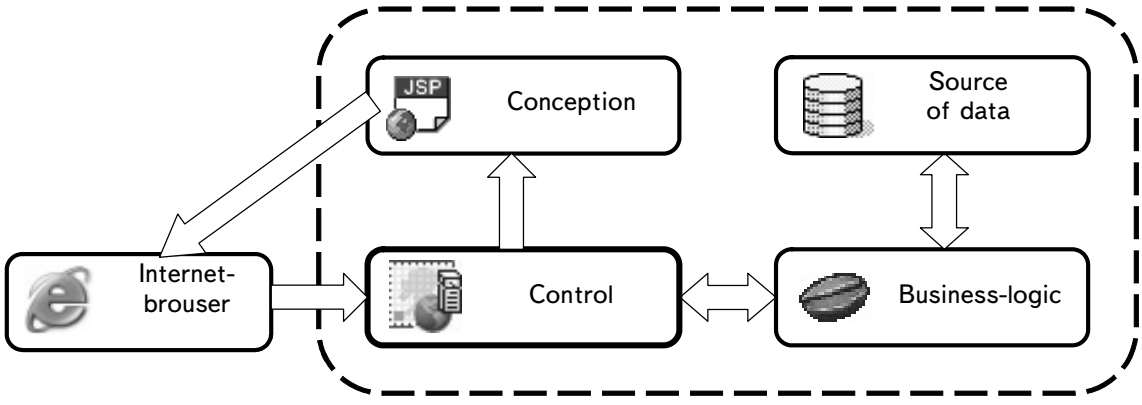

Fig. 1. **The architecture of the application of the template SIS MVC**

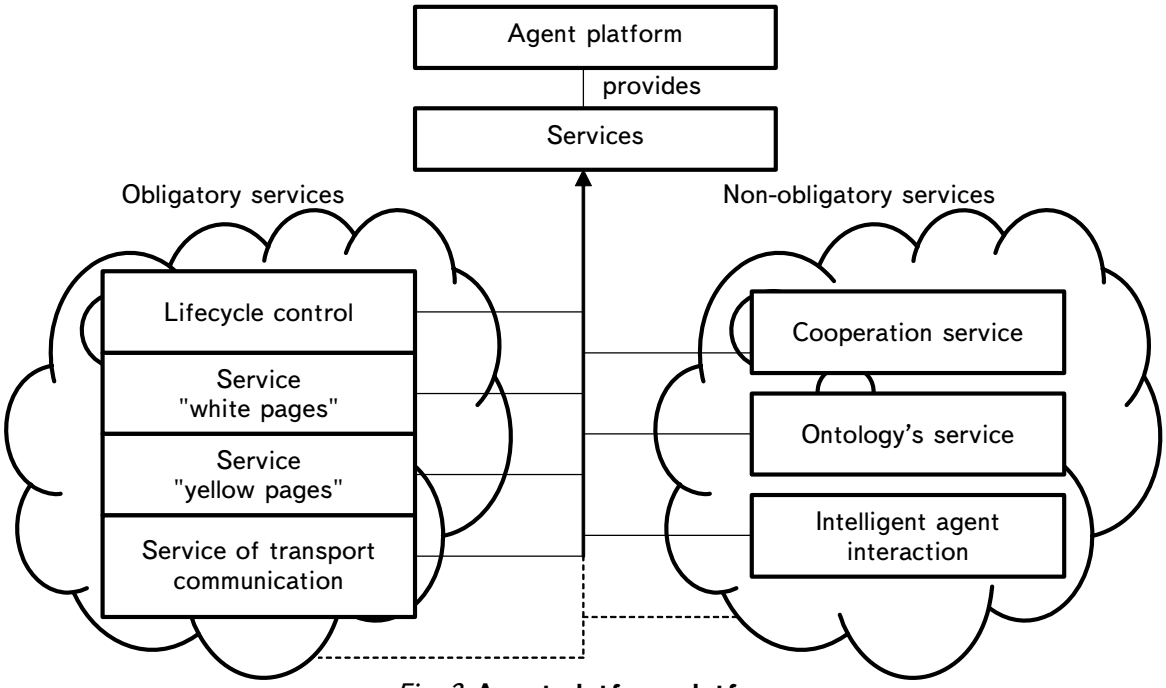

Fig. 2. **Agent platform platform**

♦ management of any data access for the presentation of data to clients.

The level of data includes information resources, funds sold relational databases. The level of data, if necessary, provide the level of business logic required data and store information on request.

MAS carries out an information data analysis. Agents MAS carried out a study of the task and provide the results and interpretations analysis. Depending on their functions and in accordance with the standard design FIPA MAS technology could be agents and agents analysis. By process agents include:

♦ agent coordinator, responsible for the distribution of work among the other agents to make the request;

♦ agent access to data accesses to the data source;

♦ agent expert to monitor implementation of the request.

By analyzing agents can be agents responsible for a certain area of analysis. And the number of such agents can be changed. These agents could, for example, the agent for calculating aggregates, the agent correlation analysis, etc.

The foregoing leads to the following conclusion: the information as an economic resource

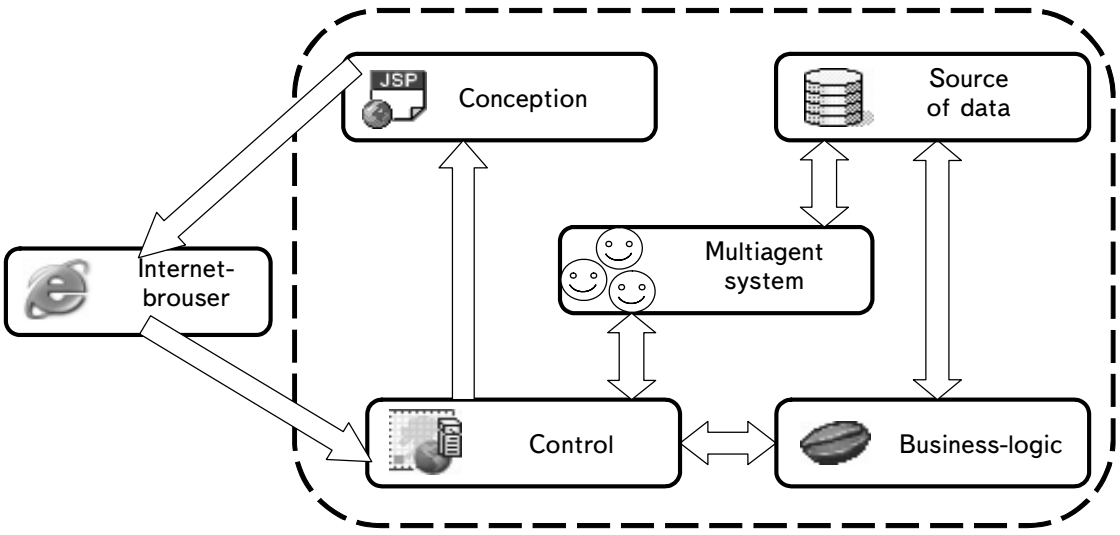

Fig. 3. **The architecture of the integrated system**

that has a strong impact on all economic processes effectively manage the business; lack of access to the source makes the management of inefficient and unprofitable.

Thus, to provide information support for management decisions:

1. Proposed use of data mining techniques to detect hidden patterns and dependencies in the statistical analysis of learning outcomes;

2. A structure of KIS using multi-agent technology for research, KIS allows you to define queries and visualize the results of research and MAS implements intelligent solutions and algorithms to interpret the results.

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