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Research paper



Design and Development of the Information System for the Support of Human Resources

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Abstract

The type of information system depends on whose interests it serves and at what level of management. According to the nature of the concept and the logical organization of stored information, informative concepts are divided into factual, actual, geoinformational [1].
Numerous large firms in the US and Europe have switched to the use of ERP information systems several years ago.
The relevance of this project is that the development of an information system that is aimed specifically at the activities of the CJSC Muslumovsk serving several collective farms building organizations will enable the automated recording of the activities of the enterprise, accelerate the processing of documents, systematize the work with employees and will be aimed at automating and improving the work of the enterprise by example subsystem "Managing staffing".

Keywords: *Information system; subsystem; system; ERP-concept, IDEF0-model, IDEF3-model, database, management of staffing.*

1. Introduction

The purpose of information systems is to solve problems related to the quality and timely servicing of customers and employees of the enterprise, it performs such tasks as:
- solving problems of processing and collecting relevant data to achieve a specific goal;
- automation of office work;
- search for information about customers and applications;
- storage processing of information about employees.

The design of information systems always begins with the definition of the goal of the project, such as:
- availability of the system for processing user requests;
- reduction of time spent on information processing;
- simplicity of operation and support of the system;
- the required system capacity;
- the required response time of the system to the request;
- ensuring the safety of the system being designed.

The structure of the information system is the totality of its individual elements, called subsystems. The subsystem is a part of the system, allocated on some basis.
The subsystems of the CJSC Muslumovsk serving several collective farms building organizations include:
1. management of production preparation;
2. management of the main production;
3. management of material and technical support;
4. marketing management;
5. sales and service management;
6. financial management;
7. accounting management;
8. management of transport;
9. management of personnel;
10. power supply management;
11. management of information support;
12. product quality management.

The subsystem "Personnel management" is designed to automate the functions of operational planning and accounting of personnel, the recording and analysis of personnel movements, upgrading of skills, etc. Personnel management of the organization is a necessary structure when organizing the activities of the enterprise, it also allows you to monitor the work of employees, store their personal information [2].
The subsystem is designed to automate the functions of operational planning and accounting of personnel, the recording and analysis of personnel movements, upgrading of skills, etc.
The subsystem "Human Resource Management" solves such problems as:
9.1.1 Calculation and analysis of the need for labor resources;
9.1.2. Accounting and analysis of labor resources;
9.1.3 Staffing;
9.1.4 Planning of training and retraining of workers;
9.1.5 Accounting for advanced training;
9.1.6 Calculation of performance indicators of staffing.
The CJSC Muslumovsk serving several collective farms building organizations produces brick products and tiles, as well as provides construction services of various types, and has a multi-level structure of the organization of the enterprise, including such a subsystem as "Managing staffing", and in it the task "Accounting and analysis of the movement of labor resources" which includes:
- maintenance of personal cards of employees of the enterprise;
- drafting employment contracts with new employees;
- drawing up reports on employment of employees, etc.

The task is to create an information base for the subsystem "Personnel management", which supports the work of this subsystem of the CJSC Muslumovsk serving several collective farms building organizations and performs its tasks using 1C: Enterprise 8.3 [3].

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2. Methods

Thus, the data warehousing is detailed. ER-diagram contains information about the essence of the system and the ways of their interaction, includes the identification of objects that are important for the subject area (entities), the properties of these objects (attributes) and their relationships with other objects (links). In many cases, the information model is very complex and contains many objects [5].
The information flow is generated by the material flow. In information logistics, the information flow is considered only in the logical construction, between the links of the logical concept or between the external environment and the logical system.
One with more meaningful fuller of informative logistics is the effective application of existing material resources.
Within the framework of this work, two ways of describing systems specialized for analysis and studying the distinctive features of their functioning will be considered from the position of logistics [4].
Each system can be viewed from different points of view. It is possible to construct system models, taking into account fundamentally important features. Further analysis of system models will reveal ways to improve the efficiency of work.
Nowadays more than 1 000 000 organizations use products included in the 1C: Enterprise software system to automate their activities.
The composition of applied mechanisms 1C: Enterprise is focused on solving tasks of automation of accounting and enterprise management [5].
In 1C: Enterprise 8.3, a modern ergonomic interface is implemented, which increases the user experience when working with the system for a long time.
Technological platform 1C: Enterprise 8 provides various options for the work of the application solution: from a personal single-user, to work on the scale of large workgroups and enterprises. The key point of scalability is that the performance enhancement is achieved by means of the platform, and the application solutions do not need to be improved with the increase in the number of concurrent users.
The scheme of information links of tasks and resource flows of the information system (IDEF0) is presented in Figure 1.

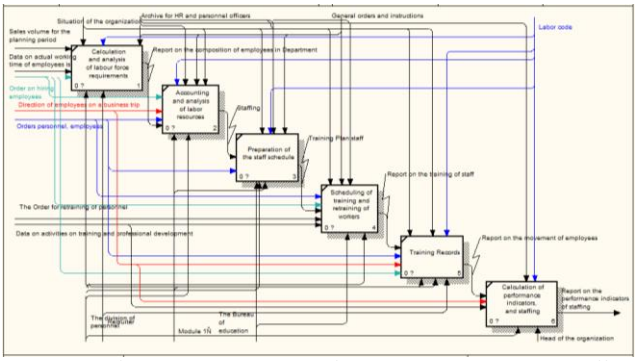

Figure 1:. Information linkage tasks of the subsystem "Managing staffing"

In this subsystem, two tasks were considered, figure 2-3:
1) "Planning of training and professional development of employees", functional model) (IDEF3);
2) "Accounting and analysis of the movement of labor", functional model (IDEF3).

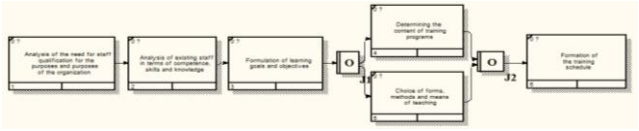

Figure 2:. Organizational-logical essence of the task "Planning of training and professional development of workers"

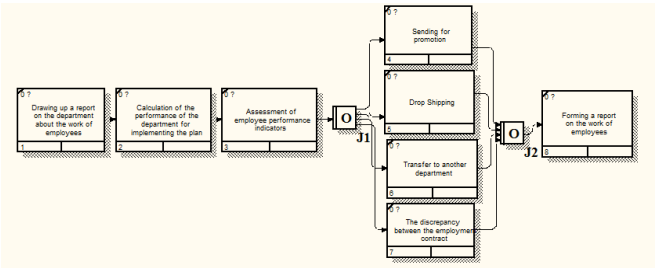

Figure 3:. Organizational-logical essence of the task "Accounting and analysis of the movement of labor resources" (functional model)

3. Results and Discussion

The program 1C: Enterprise 8.3 was used as a platform for system development.
In the configuration were made such objects as:
- Subsystems;
- Directories;
- Documentation;
- Reports;
- Registers of information;
- Accumulation registers.

Subsystems:
1. Personnel (personnel) is the entire staff of the organization's employees performing various production and economic functions.
2. Training and development is the subsystem which is responsible for recording the training and development of employees.
3. Recruitment is responsible for viewing the questionnaires, identifying relevant candidates for the position and drafting vacancies and requirements for them.
4. Information on departments contains information about the departments of the enterprise, their activities and managers.

Directories:
1. Employees - the directory contains information about the employee, personal, on the work activity and education of all staff.
2. Departments - contains information about the departments of the enterprise, their activities and managers.
3. Applications for training and development - contains information on applications for future training activities for staff.
4. Training and development activities - information on activities, starting and ending dates.
5. Type of event - lists the types of existing activities.
6. Currency - contains information on the currency used for this operation.
7. Position - lists all existing positions at the enterprise, types of their responsibilities.
8. Vacancies - are created for the purpose of placing vacancies on certain sites for recruiting, or sent to the search office for new employees.
9. Candidates - the candidates considered suitable for the position or for work at the enterprise.

Documentation:
1. The application for leave is created for the account of the employees leaving on holiday.
2. Student contracts are formalized for obtaining additional education, between the employee and the enterprise.
3. Employment contract is an agreement which is made between the candidate and the enterprise for the provision of a place.
4. Employment of employees is prescribed for this period.
5. Projects are description of existing projects.
6. Activity and its description.

Registers of information:
1. Information on candidates keeps information on candidates and specialties.

Savings registers:
Employees information collect information on employees, the date of employment.

The main window includes a desktop and 5 partition panels, Figure 4:

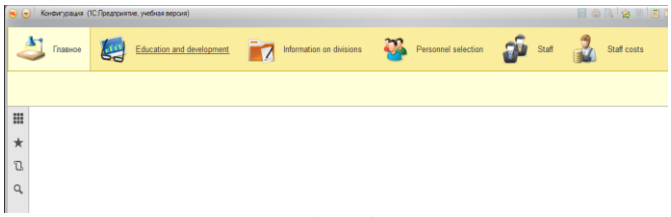

Figure 4:. Screen form of the main page

1. Information about departments
2. Training and development
3. Staff
4. Staff recruitment
5. Staff costs

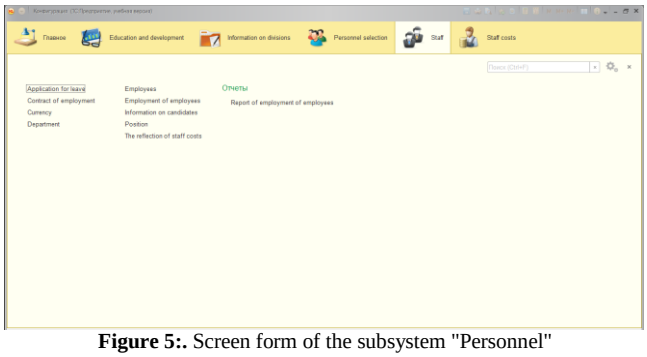

Figure 5:. Screen form of the subsystem "Personnel"

When you move the cursor to the "Personnel" section, the help is displayed on the subsystem. Personnel is the entire staff of the organization's employees, performing various production and economic functions. Personnel management is a set of logically related actions aimed at optimizing the workforce of an enterprise (personnel) in the aspect of their activities, qualitative and quantitative characteristics, in order to rationally achieve the goals set for the organization. It is carried out through a certain mechanism. This mechanism consists of control elements [5].

The appendix shows that important documents and reference books of the "Personnel" section contain:

- Reflection of staff costs;
- Information on candidates;
- Employee employment;
- Employment contract.

Also there are data on the positions and employees of the enterprise.

In the section you can display reports on employment of employees and new employees.

The "Employee" handbook opens a window that contains information about employees, such as the name, address, telephone number, passport data, year of commencement, etc.

To add a new employee, click the "Create" button. The window for adding a new employee of the directory is shown in Figure 6.



Figure 6:. The screen form "Create a new employee"

Adding a new employee comes with the document "Employment contract", which looks like this:

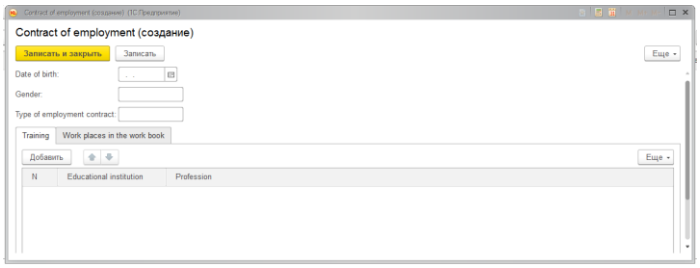

Figure 7:. The document "Employment contract"

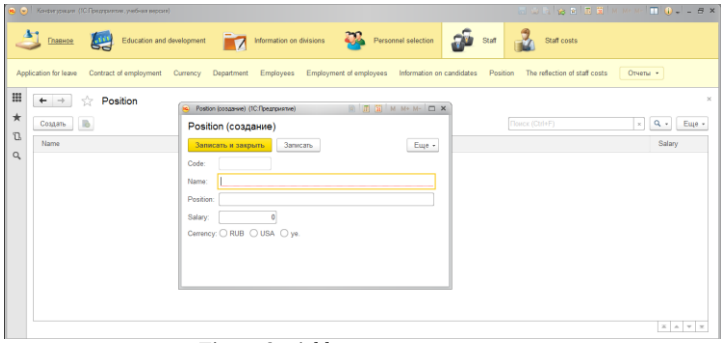

Figure 8:. Adding a new post

The register of information for the task "Accounting and analysis of the movement of labor resources" has the form:

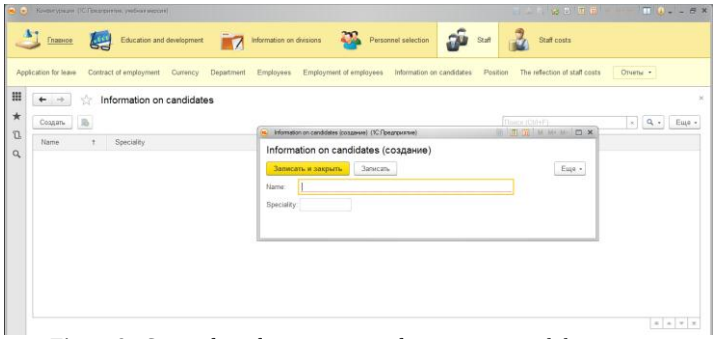

Figure 9:. Screen form for requesting information on candidates

A report is a group of teams for the formation of various reports. "Employee Employment Report" shows the work of the selected employee for a certain period of time. In order to generate a report, you need to click on the "Generate" button on the toolbar. The structure of the report "Employee Employment" looks like this:

Also in the panel you can draw up a report on new employees, which show candidates more suitable for a certain position.

4. Summary

The subsystem "Personnel management" is designed to automate the functions of operational planning and accounting of personnel, the recording and analysis of personnel movements, upgrading of skills, etc. Personnel management of the organization is a necessary structure when organizing the activities of the company, it also allows you to monitor the work of employees, store their personal information [6].

The subsystem is designed to automate the functions of operational planning and accounting of personnel, the recording and analysis of personnel movements, upgrading of skills, etc. [7].

The subsystem "Human Resource Management" solves such problems as:

9.1.1 Calculation and analysis of the need for labor resources;

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5. Conclusions

Addition to the concept of "system" of the phrase "information" reflects the purpose of its formation and functioning. Information systems guarantee the receipt, preservation, processing, selection, issuance of data necessary for decision-making tasks in each field. They can help to investigate tasks and form new products [8].
The general structure of the information system can be considered as a set of subsystems regardless of the scope of application.
12 subsystems of the CJSC Muslumovsk serving several collective farms building organizations were considered, the organizational and logical essence of the subsystem "Personnel management", the scheme and composition of the interrelationships of the tasks of this subsystem are depicted. Also, two tasks of the subsystem "Accounting and analysis of the movement of labor resources", "Planning of training and retraining of employees" were analyzed and an object model of these tasks was designed.
The subsystem "Personnel management" is designed to automate the functions of operational planning and accounting of personnel, the recording and analysis of personnel movements, upgrading of skills, etc. Personnel management of the organization is a necessary structure when organizing the activities of the company, it also allows you to monitor the work of employees, store their personal information.
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9.1.6 Calculation of performance indicators of staffing.
The task was set to create an information base for the subsystem "Personnel management", which supports the work of this subsystem of the CJSC Muslumovsk serving several collective farms building organizations and performs its tasks with 1C: Enterprise 8.3.
Before using the developed module, it is necessary to correctly install and configure the information base.
The information system "Human Resource Management" was developed to automate the activity of the personnel department of the CJSC Muslumovsk serving several collective farms building organizations, it allows to reduce the time of data processing for employees of this enterprise, their registration in the organization, dismissal, promotion, etc .; allows you to keep track of the movement of resources, their training; helps to form staffing; Also in the information system you can view information about candidates and vacancies.

Acknowledgements

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