

# Information system of the activity of the personnel as a factor in the development of enterprise

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**Abstract.** The object of research in this article is the modeling of the processes of the personnel service of an enterprise. The subject of the research is the information support of personnel work processes. The system allows you to perform actions automatically, whether it is a calculation, or addition of information, or the usual execution of commands using written code. The article presents the functional and organizational structure of the enterprise and describes the conceptual representation of the information system.

## 1 Introduction

Today, computer technology has swept the whole world. Educational institutions, shopping centers, companies and many others are equipped with systems that control some part of a certain activity. The system can now be expressed in different guises: as an informative website or an online store, a social network or a mobile application. Enterprises cannot do without a software product that can significantly speed up their activities [1-3].

The goal is to compile a separate application for the convenience of the personnel department using calculations and formulas. The use of reports will help to have with you blanks for preparing workflow, mathematical modeling - to make the system more dynamic with the conclusion of the final results.

The main objectives of the study are:

- analysis of the activities of the personnel department, detection of advantages and disadvantages
- formalization and algorithmization of personnel work processes
- implementation of the program using PL/SQL based on C# Windows Forms building tools.

The mathematical part is taken over by the analysis of functional completeness and the indicator of employee evaluation based on applications.

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## 2 Pre-project analysis of the information system

The basis of the personnel department is the implementation of the company's goals through the organization of personnel and the effective use of the potential of employees [4, 5].

The recruitment of future employees is based on a multi-level system: vacancies are posted in the employment center, personnel are sorted according to test results. In addition, this activity is engaged in conducting courses to improve the skills and positions of employees, issuing sick leave, vacation, business trips, many of which are their main tasks.

During the recruitment of new employees, a report is submitted on the shortage of employees for certain vacancies. The data is collected for information, which is given to the employment center. The personnel department receives information about who is interested in individual vacancies.

Recruitment is a system of testing personnel of their basic (and sometimes even necessary) knowledge in the field of their possible work. At the enterprise "Control" two-sided and two-phase selection is carried out. Bilateral selection implies the 1st phase of testing, consisting of 2 options: in the enterprise itself and remote testing (through the system). Two-phase selection includes a test solution and an interview. This technique allows to reduce the number of unnecessary personnel to a minimum. After passing the test, the remaining staff undergoes an oral interview between a specialist of the enterprise.

If both phases of testing are passed, a personal file is drawn up and a bypass sheet is submitted to the future employee.

Drawing up a time sheet for each of the vacancies is the main work. The management of the enterprise can make recommendations for the convenience of employees. The mark of attendance of employees with the specified time will be entered. The schedule changes 2 times a year, regardless of the vacancy. An employee information view will be installed to find out information about those who work at the Control enterprise. For employees of the personnel department, the function of the personal file of the employee and the preparation of the personal file itself will also be provided. Viewing information about vacancies will allow you to attract new employees, as well as find out about the number of vacancies. And the remote testing system will help to check the basic knowledge of those people who want to get a job, but cannot come to the enterprises due to personal reasons.

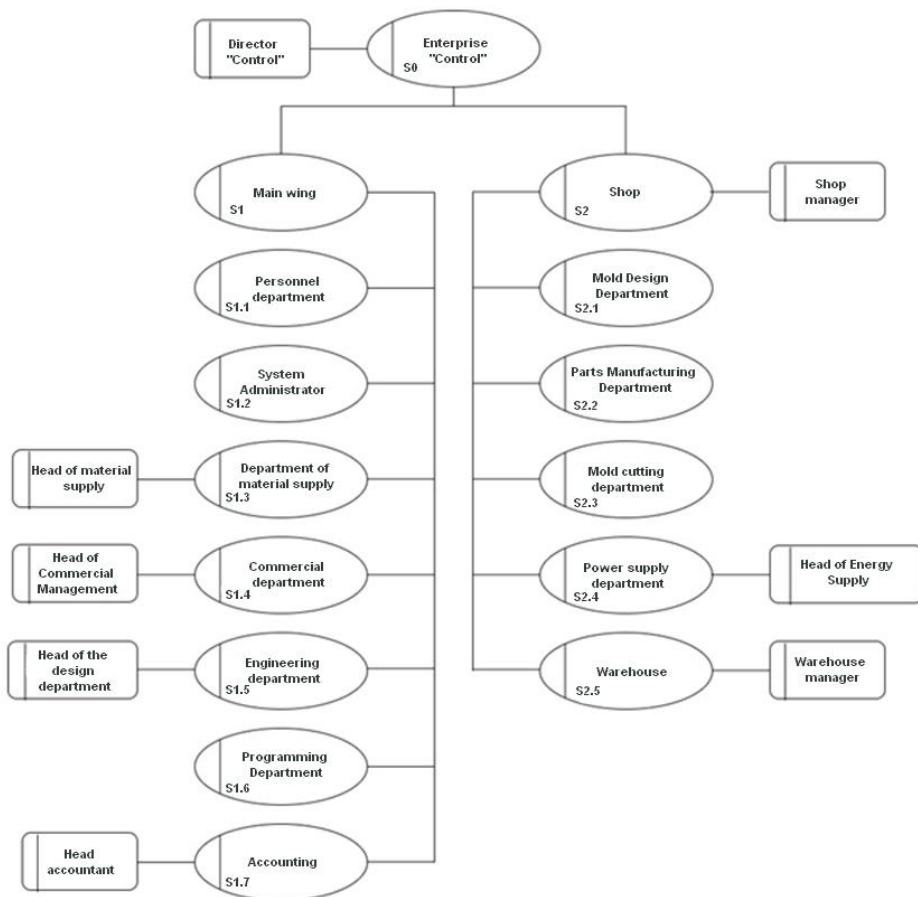
User authorization and registration is the main part, because role assignment will play a major role. For employees of the personnel department and for the director of the company, logins and passwords from the system will be provided in advance. The system administrator will also have all the work data to solve problems.

Drawing up a workflow, such as a personnel analysis or a salary card, will help the personnel department to easily use automated formulas and prepare documents for printing [6-8].

The other side of the coin in the quality of the work of the personnel department is the identification of strong and weak links in the company. Modeling situations is indispensable: in the HR department, many formulas are used to derive any decisions, starting with the monetary system and ending with each employee as a whole. The interaction between an employee and a personnel officer is as important as attracting new employees. Sometimes there are questions from the staff that only the staff can answer. This is why the human resources department is a vital chain in the complex "circulatory system" of the company.

## 3 Functional-organizational structure

The information system of the personnel department of the enterprise "Control" covers several components of the enterprise, one of which is the personnel department itself. Figure 1 shows the organizational structure of the enterprise.

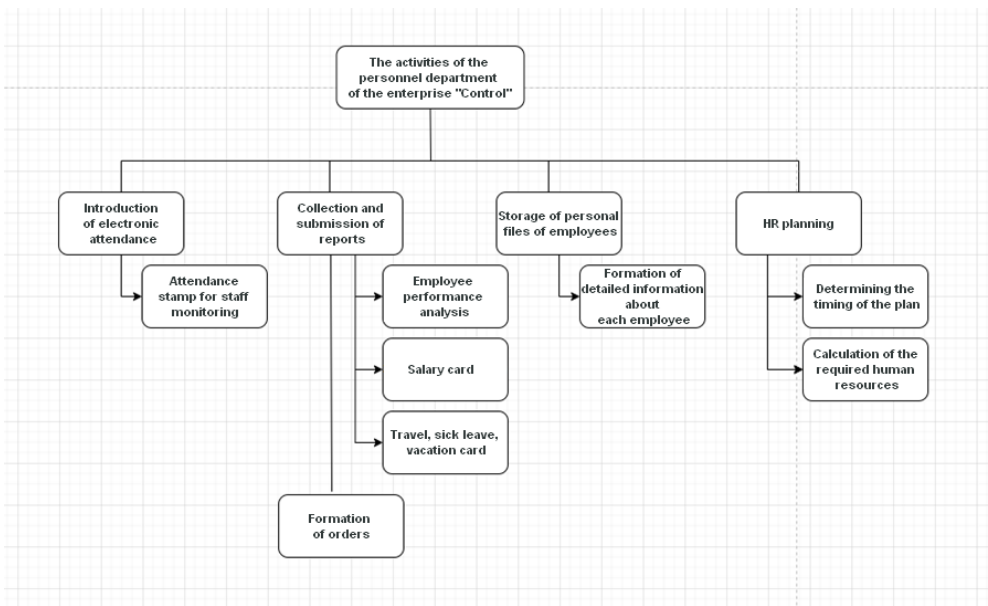


**Fig. 1.** Organizational structure of the enterprise.

The director of the enterprise must first of all have all the resources. He, under his individual role, will be able to view and manage all the functionality of the system. This organization is divided into two wings: the main wing is the place where the manufactured goods of the Control enterprise are sold, the necessary materials are purchased, as well as the control departments that supervise the work of employees. The second wing of the enterprise is the workshop. In the workshop, according to the data received, parts, machine shapes and bottle shapes are made. In addition, there is a power supply department to control the consumption of electricity in the enterprise.

Figure 2 describes the functionality of the information system itself, which includes the following components:

- 1) attendance introduction
- 2) providing a set of reports
- 3) detailing a personal file
- 4) personnel planning



**Fig. 2.** Functional system diagram.

The introduction of an electronic time sheet will be a useful component for the enterprise. The personnel department will be able to track the work schedule of each of the employees, and if he did not show up for work before the allotted time, his absence will subsequently be noted in the employee attendance report [9, 10].

Like all other departments of the Control enterprise, the personnel department is required to submit reports at the end of the working year. This automated system will allow you to transfer the created reports to the archive of reports after they are agreed with the director of the enterprise.

The report on updating the time sheet is necessary to check the control of attendance of employees, as well as to control the change of the time sheet for the winter-summer season. The employee renewal report shows: who got a job, who quit their job, who moved to a new position, etc. The report on the admission / non-admission of employees shows the results of passing advanced training courses.

The information system has a button to view all reports created by the HR department. It also includes reports on relations with the employment center: a report on applying for attraction and attracted personnel. In addition, it may include a recommendation from managers to change the time sheet.

Keeping employee files consistent with employee information will help facilitate HR retrieval. Individual employees, such as the director of the enterprise, will be able to see basic information about other employees, while the personnel department will be able to open their personal files along the way after the listed information. Information about dismissed employees will be deleted, and their personal files will be transferred to the archive for special cases.

Especially for people who cannot visit the enterprises due to personal reasons, a remote work system will be provided. This system will have the same scope as at work, only when connected to a virtual machine.

### 4 Conceptual representation of an information system

The initial conceptual representation of a system during its design and development is a use case diagram. This diagram describes the functional purpose of the system. The developed system is described as a number of performers that interact with the system using precedents.

Use case diagrams are used to represent the structure of the subject area and classify the functional requirements for an information system. A use case diagram is used to visualize the behavior of an element, which makes it easier to understand the system by showing how the elements can be used. A precedent is a description of a large number of sequences of actions that are performed by the system to obtain the desired result by the performer. In this diagram for the information system, these are: documents, directories, reports.

Figure 3 shows a diagram of precedents that describes a set of functional services of the "Rating of students" information system.

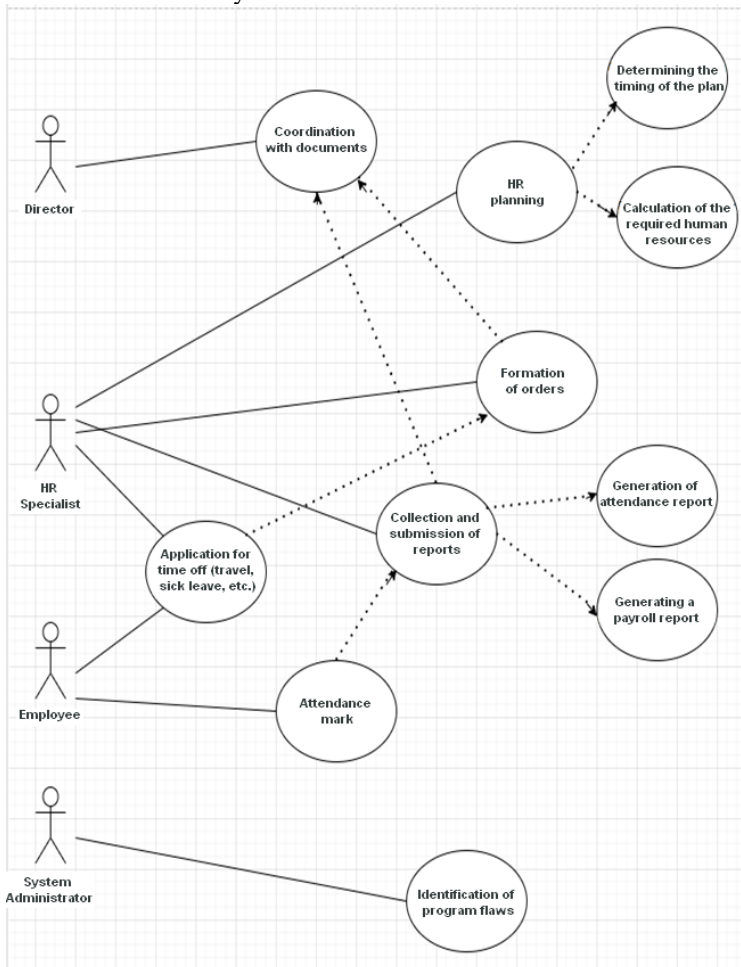


Fig. 3. Use Case Diagram.

The executor (actor) is a UML language construct that is necessary to represent an entity external to the system being modeled, interact with the system and use its functionality to achieve the goals or solve problems. In this diagram for the information system, this is the dispatcher.

## 5 Conclusion

Thus, an information system was obtained for the personnel department of the Control enterprise, which will help the personnel department to effectively manage the objects of their activities, as well as monitor employees in a remote environment.

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