

Role and Significance of Information Technologies in the System of Human Resources Management

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Abstract—This article touches upon the issue of the importance of information technology in human resource management. The results of the implementation of a software solution for human resources management support are described. The criteria for choosing a software solution in the development of technical specifications for automation are listed.

Keywords—informatisation; human resources; informational human resources management

I. INTRODUCTION

The object of corporate informatisation is presented by the management of three types of resources: financial, material and human through the automatization of informational flows.

Proper automatization is in a track of step-by-step organization modeling of strategies, structures and processes of a company and further development of quantity models (fig.1).

Operational task of informatisation is the provision of timeliness, volume and accuracy of input, exchange, storage, processing and output of information.

The strategic objective of competitiveness of individual labor is the support for the competitiveness of a company through the increase in activity, which in its turn is based on the preservation and enhancement of knowledge, core competencies of a company and professional competencies of personnel, the provision of effective organizational communications, the development of productivity both individual and collective labor.

Informational systems for human resource management as an obligatory attribute of a modern company have long been widely introduced in Russian companies. However, the volume and quality of personnel information used in them is not enough to make optimal management decisions. [3, p.84]

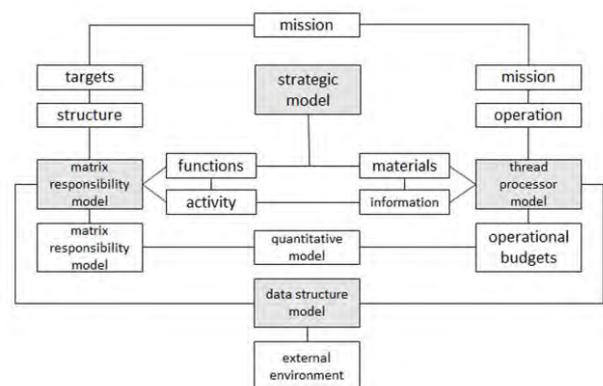


Fig. 1. Models –basis of management automatization

Firstly, personnel information is not different from the completeness that exists in other subject areas: finance, production, and logistics. There are serious gaps in the information on the professional activities of staff, on indicators of its change (in particular, on the dynamics of competencies, etc.). There are completely closed areas: private life, individual preferences, etc.

Secondly, personnel data are not accumulated in an acceptable form - neither in terms of accumulation periods, nor

in the presentation structure. In most companies, even with one or another software product, only current information is used more or less satisfactorily (but not excellently) among all the possible types of information such as historical, current and forecasted.

Thirdly, analytical data processing is poorly conducted and deeper intellectual processing is practically not used. As a result of this, the ideas about personnel activities are based on obvious facts or on simple linear dependencies obtained by a one-time recalculation of data. The identification of patterns of development and activities of personnel, which often are hidden from direct observation and traditional statistical methods, is not posed as an urgent management task [5].

II. METHODS AND MATERIALS

The information system of the support of human resources management is a part of the corporate information system and should be organically incorporated into a single business model of a company (Fig. 2). The same circumstance requires the provision of information unification, i.e., the integration of human resource management support system with ERP, CRM and other systems, with the corporate portal and other components of corporate information system. The main purpose of software solution is to precisely and timely provide managers with information on human resources of a company and to help in decision making by means of work with new type of information – knowledge.

Knowledge, in its turn, creates a platform for the choice of alternative successful decisions and the realization of targeted management influence.

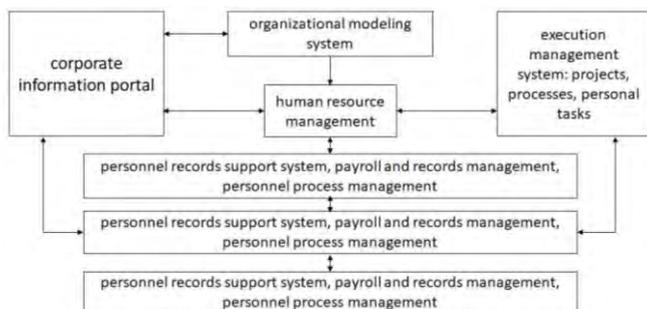


Fig.2. Human resources management in the context of informational systems

The introduction of software solution of the support of human resources management leads to the effect of “humanization” and “dehumanization”. These effects have the following results:

- humane automation effect gives the ability to get rid of routine activities and focus on the intellectually rich labor activities;
- inhumane effect reduces the functions of a human to robot operations (“dehumanizing of operations”), reduces the number of workers, and totally controls activities and behavior.

The development of the concept of human management and the increase of intellectual labor intensity require the introduction of new software subsystems such as:

- subsystems of control (tasks: automatic control of a situation in human resources management by deviations; multi-criteria control of performed work, the dynamics of competence, the history of workplaces);
- support subsystems (e-mail, handwritten texts, conference transcripts). In the future, the tools to support new types of information (video, voice, pictures) will be needed;
- support subsystems (schedules, transactions, administrative control);
- decision support subsystem

Integrated automation of a company inevitably creates a special cybernetic environment of personnel activities. Separate parts of this environment (in particular, an electronic office) lead to a revolution in the working conditions of personnel (work at home, flexible working hours, etc.). All these facts, in turn, require modification of the forms and methods of monitoring the execution of work. Consequently, it will be necessary to make significant changes in personnel policy and organizational culture, namely, to shift the emphasis towards greater communicative openness, democratic relations and delegating of organizational responsibility.

Effective implementation of information systems requires special organizational support (the changing of organizational design of personnel activity, the development of new corporate rules, the organization of personnel training etc.) [1, p. 67].

In the automation of human resources management it is necessary to apply the immutable rule of modern automation: their main organizational culture is not “what”, but “why”. Managers should be concerned not about the characteristics a specific IT system, but about their functional and purposeful orientation. Managers must understand the meaning of automation and the logic of setting tasks given to IT specialists.

The logics of activities aimed at the choice of IT-systems:

- The analysis of changes in requirements (identification of hazards and growth points);
- The transformation of the company management system (new strategic, administrative and operational outlines of activities);

- The choice of IT-systems

The content of changed requirements:

- The requirements for interaction in the internal and external environment:
 - The enhancement of horizontal interaction;
 - The creation of internal markets;
- the requirements to business processes management:
 - re-engineering of business processes;
 - team management of business processes;
- the requirements to information:
 - Information transparency.

These requirements should be taken into account in the development of a technical specification for automation. For example, the enhancement of horizontal interaction increases the density of contacts within an organization. There is a danger of exceeding the threshold of permissible contact – the distraction of employees from the main activity, overwork, increase of conflict potential. It is necessary to provide technical solutions in order to ensure the transition of large amounts of various data without detriment to other spheres of personnel activity. This solution may be presented by HR-portal. It allows employees to receive information (including in the form of reports) about their income and personnel data directly from a system [4, p. 223].

The criteria for the choice of software solutions in the development of technical specifications for automation:

- Strategic prospects of a company (including a possible management concept, the scale of a company, its organizational design, etc.);
- Actual tasks of a company (in case of conflict with strategic objectives, a system is selected that is able to solve the “burning problems”, but with the opportunity to change in the direction necessary from the point of view of a corporate strategy);
 - Software functionality;
 - Total cost of ownership (cost of hardware, software, implementation, maintenance);
 - The possibility of making changes (increasing the number of 14 working places, functionality, etc.);
 - The level of maintenance system and hardware maintenance;
 - The speed and other costs of training employees - system users;
 - The ability to interact with common or specified software and with modules of corporate information system.

The market of information systems offers a wide range of software products for solving actual problems of personnel management and optimization of business processes in companies of different levels of organizational development and different business directions.

Software products that exist at national market can be divided into the following groups.

- **Personnel management modules** as a part of integrated information systems. Such modules can work as a part of a complex (for example, ERP-systems), and autonomously. In addition to the standard functions of personnel records and payroll, these systems support all elements of personnel management: recruitment, training, evaluation, motivation, project management and others.

In addition, these information systems provide an opportunity to form and control budgets for personnel activities, to carry out personnel planning, Internet support, feedback etc. Examples of such complex systems include SAP, Oracle, BAAN, Scala, Navision (Western), Galaxy, Parus, 1C, BOSS,

Best Pro (Russian). The number of installations of the Russian systems is counted in the hundreds and thousands, in the western - in units and dozens. In financial sense, the situation is the opposite: sales of Russian producers are measured, at the best case, in tens of millions of dollars, in western - in tens of billions.

- **Specialized personnel registration programs.** Most personnel management systems are intended only for the automation of personnel office work. There are many such programs, and all of them are very similar, which is explained by a clear regulation of the rules and forms of personnel records. Most of these systems do not operate autonomously, but in conjunction with the payroll system.

- Undisputed leaders at the Russian market are the programs of Moscow-based company “1C” (“1C: Human Resources Management”, “1C: Salary and Personnel”). They are adapted to the legislation of Russia, have good support from the company-developer (update, consulting, development of functionality). The HRB system from Robertson & Blums, a multifunctional western system, has also proven itself. It is also well adapted to the legislation of Russia. These software products have the tools to customize the system, taking into account the individual requirements of a customer within the framework already laid down in the configuration of the functionality (“1C” has a built-in object-oriented language, “HRB” - a special language of algorithms that allows adapting personnel procedures such as work, transfer, dismissal in accordance with the established business processes of a company).

- Local specialized solutions. A number of programs have been developed in order to automate individual personnel management processes (recruitment – “Resumex” and “Recruiter”; developer — Personnel Technologies Center; various types of testing — Maintest3, produced by Human Technologies, CAPTain Online, developed by CNT Consult). Such systems do not claim to be complex solutions, but may be applicable for the solution of a limited number of tasks. The main problem in the support of such solutions is the absolute dependence of the enterprise user on system developer.

- **Distributed highly specialized information systems.** Typically, the developers and owners of such systems are large government and administration organizations with an extensive structure, which legally require subordinate structures to use a single software product. A typical example of such a program is “Kartka”, the Unified State Personnel System. In most cases, such products have strictly defined functionality and cannot be used in other organizations.

III. RESULTS

A software complex is an integrated, software-methodological solution that is ready to work, makes it possible to automate human resource management processes of a company in the following areas (and through the relevant subsystems of a complex).

Operational management:

- Staffing and organizational structure of an enterprise;

- Personnel accounting;
- Personnel records;
- Maintaining staffing archives and waybills;
- Calculation of wages;
- Personnel office work and document circulation.

Administration (human resource management):

- Management of selection, development, evaluation, stimulation (control, planning, analysis);

- Competence management.

Strategic management:

- Business analysis;
- Optimization;
- Forecasting [3].

The main purpose of creating a software complex is to increase the efficiency of human resource management system. To achieve the main goal, it is necessary to solve the problems in technical, technological, methodological, organizational and other areas.

In technical:

- Ensuring the protection of confidential information from unauthorized access;
- Creation of electronic archives with the required depth of storage;
- Unification of interaction with other information systems and external information environment;
- Unification of technology based on common technical solutions and standard software;
- Automation of the process of entering and processing information;
- Provision of completeness and reliability of operational information about the state of human resource management.

In technological:

- Reduction of paper workflow;
- Reduction of manual labor;
- Simplification of the document passing technology;
- Creation of reports;
- Decision support;
- Management of qualification training system.

In productive and economic:

- reduction of labor costs for production operations related to personnel accounting and preparation of documents;
- Increase of productivity and labor efficiency, reducing the cost of preparing and delivering documents;

-Improvement of working conditions of workers involved in document circulation;

- Elimination of duplication of information in various departments and related errors;
- Reduction of paper workflow and time spent on the formation of reporting information;
- Increase of skill level of employees;
- Creation of a single bank of personal data of employees.

Ultimately, the software complex allows achieving the following results:

- To significantly reduce management costs by creating a single personnel database obtained at different parts of accounting and analysis;
- To reduce labor costs for routine work and provide instant information retrieval;
- To increase labor productivity;
- To increase the profitability of personnel activities;
- To increase the value of the intellectual assets of a company.

IV. CONCLUSION

Nowadays, there is a wide range of products designed to meet the diverse needs of both small companies and giant companies.

These software products fully cover all the aspects of enterprises, from logistics, marketing, production, marketing, to accounting and personnel management.

In order to solve certain problems experienced by the organization during the transition to a new management information system or putting into operation, a technique for solution has already been developed that makes it relatively easy to implement IT implementation.

Analyzing the capabilities of software products, it is necessary to pay special attention not so much to their external attributes, as to their functional part. It is precisely this part that is intended for the solution of current tasks. The software market is very mobile. The improved versions of a complex of the same type are constantly appearing, as well as complexes with fundamentally new features [2].

The convenience of the user interface should be taken into account - all the modes of operation should be presented on the screen in an intuitive way, and if necessary, it should be possible to access support system, organized according to the principle of context-sensitive help.

There is no use in finding some unique complex that would solve all the necessary tasks and at the same time have all the other advantages (low price, flexibility of input and output forms, customization of processing algorithms for changes in subject area, proper documentation, ease of development and operation etc.). Firstly, all the requirements for a complex should be divided into priority and secondary ones.

If a software complex satisfies the first group of requirements, then it is better to get acquainted with it in more detail - otherwise it does not make sense to pay much attention to it and it is advisable to search for another, more suitable one. Secondly, it is possible to use the principle that it is necessary to acquire ready-made complexes only for fairly typical, relatively stable methods of problem solution. Moreover it is not advisable to expect quick results from the functioning of purchased software product, since some time will be spent on installation, testing, personnel training, mastering, initial formation of a database and a number of other technical and operational issues.

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