

Development and Implementation of Automated System of Human Resources Management in the Project-Oriented Companies

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Abstract: *Necessity of improve the efficiency of human resource management in project-oriented companies and the automation of human resources management is an urgent task in today's market. The paper analyzes the basic processes of human resource management and identifies reasons for the need to develop automated solutions of human resources management. A comprehensive approach and recommendations for implementing the automated system of human resource management in the project-oriented company has been proposed. The developed method of implementation is new to sphere of human resources management, as it has prospects for further scientific development and optimization of project-oriented companies' management from a practical point of view.*

Keywords: *computer system, human resources, automated system, implementation, project-oriented company, human resources management.*

1. INTRODUCTION

Human resources management can be considered as the process of hiring and employee development in order to increase the value of human capital in the organization.

In general human resource management includes the following processes: the analysis of labor market, planning of need in personnel, recruiting of needed employees, training of new employees, salaries management, benefits and incentives, assessment of the effectiveness, settlement of disputes and dialogue with all staff at all levels.

The reasons for necessity of development of effective systems of human resources management are:

- the impact of human resource management in tangible and intangible assets of the organization;
- providing leadership and enhancing competitiveness through the introduction of modern methods of human resources management;
- lack of formal management techniques;
- low efficiency of application of benchmarking as a result of lack of attention to adaptation methods and models under existing corporate standards.

Theoretical foundations of human resources management discussed in the works of Armstrong [1], Bazarov, Eremin [2], Belbin [3].

Mathematical models of the formation and operation of teams, representation of human resource management from the perspective of system analysis were considered in works of Novikov [4], Barkalov, Burkov, Glagoleva, Kolpachev [5].

Application of multi-level system of human resources management proposed by Polovynko [6], allows considering the system in terms of the projection of its components at the level: an abstract education, objective social and labor processes, the design of the subject.

The transition to process management of organization and growing interest in project-oriented management has actualized research for process component of human resource management and its impact on achieving the strategic objectives of the organization [7].

The objective of the research was to analyze the processes of human resource management in project-oriented companies and implementation of automated system of human resource management.

2. MATERIALS AND METHODS

The instability of the economic situation in Ukraine makes it necessary to transition organizations to the new management. Application of project management methodology allows increasing organizations competitiveness and ensuring the implementation of projects for a given time and financial constraints. Due to the efficiency of the project team, as well as skills of particular employees to work in organizational changes, which are limited in time and budget the role of project-oriented companies has increased in recent years.

In human resource management in the project-oriented organization it is advisable consider:

- the scope and specifics of the project;
- a temporary nature of functioning of the project team;
- heterogeneity of the project team;
- phases of the life cycle of functioning of team.

Other processes related to the use of PMBok standard are assumed to specify in the project organization [8]:

- planning of human resource management (identification process and documentation of the project roles, responsibilities, necessary skills and accountability attitudes, and creation of the plan ensuring staff);
- recruitment of project team (verifying the availability of human resources and involving the team needed to perform the project);
- development of the project team (the process of improving the competencies and interaction of team members and the general conditions of team work to improve project implementation);
- project team management (the process of tracking team members activities, providing feedback, problem solving and changes management in order to optimize project implementation).

Practical aspects of human resource management in project-oriented companies are referring to application of practices that ensure successful operation and sustainability of the organization:

- High Involvement System;
- High Commitment System;
- High Performed Work System.

Among the most common methods of recruitment are the following [9]:

- recruitment is selection method of common professions personnel;
- executive search is personnel selection of top and middle managerial level that involves the active search of potential candidates;
- headhunting is enticement particular specialist (expert) of high level, from one company to another;
- screening is a quick selection of candidates exclusively by formal grounds.

Analysis of the proposed methods showed that their complex application is the most effective.

Existing human resources management software not allows to consider the full range of tasks related to the human resources management. Application of multiple programs for accounting personnel and human resource management can lead to incompatibilities and disruption of a organizational computer system.

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Currently there is no single universally accepted system on which the solution of HR processes automation is classified [10]. Most developers offer software to automate certain functions of HR. However, some solutions allow automating the all range of HR processes, but most programs are specific in relation to a particular function. At the same time, one HR function can have several automation solutions based on the methodology of human resources management, which is based on software. The classification of automation according to HR processes structure is given below.

Next HR-processes are automates:

- basic functions of HR;
- analysis and reports;
- social interaction;
- knowledge management;
- talent management.

Thus, there is a need to develop an automated system that will increase the efficiency of human resource management in projects by reducing the subjective factor and the ability to improvement of business processes.

3. RESULTS AND DISCUSSION

It is proposed to develop an automated system for HR-manager that will increase the efficiency of information support. HRIS (Human Resources Information System) is a software solution for automating many tasks, which are traditionally performed manually by experts in human resources management, freeing up staff time for more important and profitable tasks while minimizing errors and improving business processes [11].

Automation of HR management is the process of developing and implementing of automated software system for human resources management. It refers to systems and processes that are located in information technologies and HR activities. These solutions allow building data processed by service personnel and automate key functions of HR-manager into a single information space.

The proposed automated system is a program for the personal computer of HR-manager, where he will make changes of their staff every day. The functions of the software are presented in Table 1.

Table1. Functions of human resources management systems

Function	Description
Staff accounting	Keeping a complete history for each of the candidates, jobs, interviews, telephone contacts, changing the status of a candidate, checks, recommendations and other
Training and staff development	Evaluation of employee educational activities attendance, their interest in the development and performance of mastering the material covered
Motivation of staff	Evaluation and ranking of tangible and intangible factors of employees motivation
Social development	Data on personal leisure preferences, interests, hobbies (taken into account in the preparation of employee motivation plan)
Loyalty	Purpose and record of employee distinguished bonuses, benefits and other incentives.

The automated system envisages the possibility monthly reporting by indexes of personnel, in which are the advantages and disadvantages of a particular employee in various fields of work.

The advantages of the proposed software are:

- universal tool for work with reports, CVs and reviews with the ability to export data;
- universal document processing and characteristics of employees with their ranking for specific criteria;
- constructor of additional printed forms and reports;
- ability to connect additional handlers of table parts created documents;
- separation means to access data on levels of users.

Distinctive features of the proposed software product from existing in the market are following:

- detection and forecasting of staff needed to fill certain vacancies;
- management accounting;
- automated staffing problem solving, selection, questionnaire, interview and analysis of assessment;
- competency, training, certification of employees management;
- motivation of personnel management, identifying both material and intangible impacts;
- employment planning staff;
- assembly of personalized loyalty of employees.

A computer model of implementation of the automated system of human resource management in specialized notation software AllFusion in IDEF 0 has built.

The use of agile methodologies in the project management implementation of the automated system will take into account the changing requirements of the organization. Computer model of implementation of project in the software product MSPProject has been developed.

During the design and implementation of automated system it is necessary to comply with the requirements and take into account the following characteristics:

- speed (to reduce the cost of time of users performing automated operations, memory consumption, memory consumption of the hard drive);
- compliance (strict conformity approved by terms of reference of the individual except cases where changes lead to improved performance of the automated system versus planned);
- structuring the presentation of data (information in the database should be structured so as to make optimal use of computing resources required for its use);
- ergonomics (interface should be intuitive to users who do not have specialized training).

It is necessary to prepare background information supporting documentation to automated passport system, if it is required by terms of reference. Background information should include the following:

- description of the automated system;
- software manual;
- history of software changes from version to version;
- answers to frequently asked questions and concerns.

Executors are required to test the automated system for errors and vulnerabilities, and are responsible for compliance with the relevant terms of reference.

The testing was conducted during each revision of automated system. The results of each testing procedures reflected in the protocol of test.

Keeping documentation of the project is before completion of the use of software in the enterprise.

4. CONCLUSIONS

Conducted analysis of existing human resources software allowed to select outstanding tasks in automation of human resource management in project-oriented organizations. The system and guidelines for its implementation in the company has been developed.

In the future we are going to bring software to the commercial market, where project-oriented company will buy the product and thus increase its effectiveness.

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