

## **A CONCEPTION FOR SELECTION OF HUMAN RESOURCE OF THE ORGANIZATION**

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### **Abstract**

The determination of human resource as “the most valuable” factor of production is in connected with the competitive power of the organizations. In this sense, the competitive power could be achieved by systematic and purposive selection, use, supporting and development of the human potential. The organizations’ contest for the attracting and the detention of qualified and talented employees requires unavoidably a new, more modern and more pragmatic development of the human resource management science. Efforts of the authors of current paper are also along these lines. The paper is devoted to the management process of human resource recruitment and selection in the organization. A different conception for this process, based on the competent approach, is propounded by authors of the paper. The paper is worked out in two sections. The problem of the paper is defined in the first section. The main characteristics of the authors’ conception about the management process of human resource recruitment and selection are brought in the first section. Methods for the management process of human resource recruitment and selection, based on the competent approach and pair-wise comparison method, is presented in the first section of the paper as well. An accent is put on the specificity of the model proposed. According to the authors, first of all this specificity finds expression in the use of a non-traditional approach (competent approach) and a non-traditional method for the candidates’ competences evaluation (pair-wise comparison method). Mathematical instruments of the conception proposed are submitted in the second section of the paper. The authors’ suggestion for the instruments, by which conception is worked out, consists of investigation method by questionnaires, pair-wise comparison method, calculus by theory of confidential intervals and Hungarian method for solving the assignment minimization problem. General characteristic of instruments use in the final two stages of the human resource recruitment and selection process is done.

**Key words:** management, recruitment and selection of human resource, competent approach, pair-wise comparison method.

### **1. MANAGEMENT PROCEDURE OF RECRUITMENT AND SELECTION OF HUMAN RESOURCE**

In the last few years the science for human resource management marks great development. The determination of human resource as “the most valuable” for organizations is connected with the factor “competitive power”. It is achieved by the systematic and purposive use of the human potential, the supporting and the development of the same. The contest of the organizations for the attracting and detention of qualified and talented employees, bearers of new and unique ideas of the labor market, is undoubted. Under limited supply of professionals the management strategy and the politics of the organizations to hold them back is the current accent of the human resource management.

It is examined in the paper one of the problems of the system for human resource management - recruitment and selection. The research that the authors made in the last few years shows lagging behind from the good practices and science achievements by realization of the process of the recruitment and selection of human resource. There exist a number of problems

of the management process concerning the professionalism of the participants, the methods of the recruitment and selection, and the adequacy of the used instruments. In addition, that management function is examined as an entrance of the system for human resource management. From the quality of the entrance - qualified, responsible and motivated employees - it is determined the exit of the system - engaged and satisfied employees, committed with the organizational aims, demonstrating high levels of fulfillment of the duties.

The authors of the current paper perceive the method of the management process of the recruitment and selection as **a succession of stages, combined in a cycle**. Through the succession it is guaranteed to a certain stage the quality of the process and it is optimized the politics on the management of the human resource in the organization.

The use of the **competent approach** is suggested at this process. It is defined as a new paradigm in human resource management. The approach includes three main elements: context the stress is on the politics and the purposes of the process recruitment and selection of employees in the organization. This problem is in conformity with the whole work of every organization, and it is not a casual and single act. By the action the stress is on the stages of recruitment, selection, the evaluation with corresponding methods, but not also on these for appointing and adaptation of the newly appointment employees. The decision that is taken after the ending of the process is examined from direction of the organization (the result) and the decisions of the candidates are not bared in mind.

The **limiting conditions** by the elaboration of the methods of recruitment and selection are connected with:

1. The management process of recruitment and selection is not a casual act, but a part of the politics of human resource management.
2. The process of recruitment and selection ends with a proposal from the group of experts for appointment of candidates.

According to the views of the authors of the current paper the methods of recruitment and selection of human resource includes the following **stages and procedures**:

- Stage 1 “Determination of the strategy for the recruitment and selection of the human resource of the organization”;
- Stage 2 “Starting and realization of the campaign for recruitment of candidates for the vacant positions in the organization”;
- Stage 3 “Preliminary selection of the candidates for the vacant positions of the organizations”;
- Stage 4 “Selection of candidates, passed through the preliminary selection, for the vacant positions of the organization”;
- Stage 5 “Evaluation by the expert group of the result from the interview taken with the candidates for the vacant positions in the organization”;
- Stage 6 “Generation of a proposal for the appointment some candidates for the vacant positions in the organization by the expert group”.

**The first stage** of the methods consists in determination of the strategy of the recruitment and selection as a part of the organizational strategy. The procedures enlisted in the stage are related to: the analysis of the necessities of new employees (now and in a future period), determination of the expert group of the recruitment and selection and determination of the profiles of the requirements of the vacant positions

According to the authors, **the second stage** starts with the campaign for recruitment of the candidates for the vacant positions, pass through the activity on determination of the sources for recruitment of the candidates for the vacant positions and ends with the realization of the campaign.

*The third stage* is appropriate to unify the following procedures: studying of the documents from the expert group and identification of the profile of the candidates for the vacant positions.

During *the fourth stage* are realized the activities for the selection of criteria for selection on the hand side of the expert group and the determination of the methods for selection of the candidates.

According to the author's view during *the fifth stage* the expert group evaluates the results from the taken interview with the candidates for the vacant positions by applying the method of pairs-wise comparison. This method of the recruitment and selection of human resource is rarely used. However, the authors are sure that through it, it is the possible to differentiate candidates regarding their competence and the successful evaluation of the same.

During the first stage fulfils the first element of the competent approach - the context, during the second, third, fourth and fifth stage 2, 3, 4 and 5 is based the second element - the action.

During *the sixth stage* the expert group generates a proposal to the highest manager of an organization for the appointment of the candidates, who passed through the evaluation for the vacant positions. With the proposal made to the organization the final element of the competent approach used by human resource management is determined - the result.

## 2. MATHEMATICAL ASPECTS OF THE EVALUATION OF CANDIDATES FOR THE VACANT POSITIONS

The authors' conception of the human resource recruitment and selection inevitably takes in preparation of the management decision about candidates, who will be assigned to the vacant positions in the organization. Preparation of this decision finds expression above all things in two procedures: procedure of evaluating candidates for the vacant positions and procedure of generating a proposal to the highest manager about the appointment of "most appropriate" candidates to the relevant positions in the organization. In essence preparation of the appointment decision covers both fifth and sixth stages of the conception from the second part of this paper.

It is suitable for practical purposes that the current conception to be formalized into an algorithm for the evaluation of candidates for the vacant positions. The authors' view about **instruments** that should be used in the algorithm comprises the following tools:

- investigation method by questionnaires;
- pair-wise comparison method;
- calculus by confidential intervals; and
- Hungarian method for solving the assignment minimization problem.

In the context of both the competent approach, launched in the paper, and the specificity of the authors' conception, the pair-wise comparison method is suggested as a **key instrument** of the conception.

Function of the *investigation method by questionnaires* in the conception is to process results from the interview taken with candidates for the vacant positions. The investigation method is applied with regard to the members of expert group for recruitment and selection in combination with the pair-wise comparison method. In its current use the investigation method by questionnaires converts into quantitative evaluations feelings of the expert group's members about candidates. These feelings are particularly about performance of each candidate in the interview that has been carried out in order to fill the vacancies. Formalization (quantitative description) of the evaluations of the expert group's members is realized separately for any particular competency by consecutive selections of a preferred candidate from each pair of candidates.

**Pair-wise comparison method** (see ДЭВИД, 1978) presents an opening for description of the preferences of expert group (as a whole) for recruitment and selection for the different candidates. Preferences of the group are expressed by candidates classifying separately for each competency and then by candidates evaluation into the mathematical interval  $[0,1]$ . In practice, the following activities are carried out by the pair-wise comparison method:

- selection of a preferred candidate from each pair of candidates by the expert group's members which selection is made separately for any particular competency;
- generating separately for each competency evaluations for preference of the expert group as a whole for any particular candidate;
- ranging the evaluations of each competency by degree of preference for the candidates;
- normalization of these evaluations into the mathematical interval  $[0,1]$ ;
- evaluating the relative distances (intervals) between the expert group's preferences (evaluations) for the candidates for each competency.

Relative distances between preferences for the candidates are computed by **confidential intervals calculus** (see Kaufmann y Aluja, 1987, p. 21-43). In essence, applied to the present context in combination with the theory of confidential intervals, the pair-wise comparison method creates evaluations of the expert group about the candidates' profiles.

As an evaluation tool for the candidates' suitability profiles, authors of the paper suggest **Hungarian assignment method** (see Стойков, 2005, p. 39-43). The method is applied in its variant of the minimization assignment problem. The reason for this choice of variant has its roots in the fact that the suitability profile of a given candidate is based on the total variance (concerning all competencies) of the advisable values in a requirements' profile from the normalized evaluations of the expert group for this candidate (candidate's profile). In this sense the appointment proposal of the expert group is founded on the basic idea of the minimization assignment problem that the apt appointments minimize the opportunity costs (forgone returns or missed advantages) from withholding to realize the other appointment alternatives (Ламбовска, 2006, p. 128). So it would be summarized that current application of the Hungarian method is aimed at minimizing values of the candidates' suitability profiles.

Methodical frame of the current conception of candidates for the vacant positions evaluation is formed in the methodological context of the second part of this paper. In order to avoid redundant mathematical complications, authors of the paper count in the methodical frame the following **limiting conditions**:

1. The organization forms only one expert group for recruitment and selection of the human resource.
2. Members of the expert group for recruitment and selection are completely sure of their preferences. The limitation calls for description of the experts' evaluations by definite (usual, crisp) numbers.
3. Circular triads in the preferences of the expert group for recruitment and selection are missing. The limiting condition is established as a requirement for application of the pair-wise comparison method (see ДЭВИД, 1978, p. 48). The limitation finds expression in answering the following requirements:
  - a) Preferences of the expert group's members are not conflicting.
  - b) Conflicting combinations between the preferences of the expert group's members are gone.

**The application of instruments of the current conception** is associated by authors with the elaboration of an **algorithm** for evaluation of candidates for the vacant positions of the organization. According to the authors' idea the algorithm has to be realized in **three stages**:

- stage 0 "Preparation for the evaluation of candidates for the vacant positions in the organization";

- stage 5 “Evaluation by the expert group of the results from the interview taken with candidates for the vacant positions in the organization” and
- stage 6 “Generation of a proposal for the appointment some candidates for the vacant positions in the organization by the expert group”.

First stage of the algorithm (*stage 0*) is of preparatory character. Most of sub-procedures (activities) of the preparatory stage are elements of the methods, described in the second part of the paper. According to the authors’ view it would be appropriate stage 0 of the algorithm to be composed of *four procedures*: procedure of determination of vacant positions in the organization (procedure’s activities: identification of the vacant positions; definition of the requirements profiles for the vacant positions); procedure of determination of an expert group for recruitment and selection of human resource (procedure’s activities: number definition of the expert group’s members; structure and staff determination of the expert group); procedure of formulation of questions for the interview with candidates for the vacant positions and procedure of working out questionnaires for the candidates evaluation.

Stages 5 and 6 of the algorithm correspond to the homonymous stages of the methods from the second part of the paper. The authors’ view about *stage 5* is that it would cover *two procedures*: procedure of interview conducting with candidates for the vacant positions and procedure of processing results from the interview with candidates. Products of the stage 5 are the candidates’ profiles. Profiles find expression in the normalized relative evaluations of the expert group as a whole for the candidates separately for any particular competency.

According to the authors’ idea *stage 6* would comprise *seven procedures*. Candidates’ suitability profiles should be defined in the first procedure of the stage. The other six procedures should be elaborated in conformity with principles and rules for solving of the minimization assignment problem. Product of the stage 6 is the expert group’s proposal to the highest manager for the appointment some candidates to the vacant positions in the organization.

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