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Modelling of the Strategic Recruitment Process by Axiomatic Design Principles

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Abstract

In the case of strong competitions, although they have advanced technology, modern plants, and perfect organizational structures, it will be impossible for the businesses if they can't select human resources appropriately and use them effectively. Today, as the importance of the human factor has been realized, businesses have been putting emphasize on some human resources activities such as education, career planning and job placement.

Human resources activities are in the process of development and staff selection and the process of job placement has gained more importance in other businesses as well as industrial businesses with the awareness of human factor. Although the process of recruitment and job placement is carried out differently in different size businesses, it is the same in principle. In this study, conceptual model of the process has been formed by making use of Axiomatic Design principles in order to provide guidance for the businesses to be able to carry out recruitment procedures effectively and the provided model has aimed to contribute the businesses which has newly used the current approaches on human resources to be able to carry out these activities systematically.

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1. Introduction

Human resources concept expresses the human source which is one of the fundamental sources required to be used by organizations for achieving the institutional targets. This concept, in addition to including the most senior manager up to the lowest level employees within the organization, it also includes the potentially utilizable work source that is out of the organization (Kaynak, 1998). Human resources management generally tends to cover the needs of the individuals employed within the organization and basing on the human to make him/her more effective, efficient and beneficial, and on the other hand covers all of the regulations implemented for his/her satisfaction and happiness. In the work environment, all of the processes regarding his/her employment, compliance training, arrangement of wages, legal ties with the organization, his/her efficiency, performance evaluation, meeting his/her individual and social needs, and ultimately until his/her leave from the employment, all such processes are realized within the applications of human resources.

The information age that we are living in contemporarily has increased the impact of the human qualifications on the quality of the products and services; and maximized the quality effect. Therefore, particularly the importance paid

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on the intellectual capital made the human the most important quality factor. In the organizations, along with the importance attached to the human resources, especially the effect of the increasing competition on the labor market made the selection and placement processes take a step forwards. Recruitment process has had one of the most crucial roles among the processes of human resources. This function establishes the base for many significant structures starting from budgets of the employees, up to finding the talents, organizational scheme and organizational culture.

The target of the recruitment process, in conducting the managerial and operational functions, is to maintain the sustainability of the organization by the courtesy of the methods and the applications it appertains, to provide a market share and they are the efforts to have a word to say in competition. Obtaining the resources and implementing the applications, as much as it may in the environmental and sector fields, may emerge in different modes in technological, cultural and social fields. Apparent emergence of the differences causes the organizations to become alike in form and this may express the “genuineness”. For example, if only one or a few of the organizations in the same sector have the total quality approach, such organizations may hold different positions regarding the other organizations (Yeloğlu, 2004).

The decision made with the recruitment function has an effect especially on the person recruited, the job, the group the new staff joined, the product and whole of the organization. This effect especially becomes more apparent if a new staff will be recruited for the administrative level. With the recruitment of the right person, this person’s attitudes and behaviors towards other staff, his job and organization generally become positive. On the other hand, inappropriate recruitment and selection cause to general disharmony, deformity and eventually high rate of staff circulation because of the job releases (Yelboğa, 2008).

1.1. The Recruitment Concepts

For the business, staff selection is the process of selecting the best one or ones among the individuals who meet the necessary requirements for a position or a described job. With the globalization of the world and increase on the competition, selecting the right staff plays an important role on the success of companies or businesses. If the person selected for a vacancy is expected to work for a long time for the business and contribute greatly to the business with his talents and experience, it can be stated that selecting staff is a strategic decision (Bali, 2013). Providing and selecting staff is the most important human resources management activities that affect the performance of organizations directly. The existing of qualified staff is the key of productivity and performance in organizations. In order to perform a job in a desired level, the staff needs to have some properties that are named as the requirements of the job. If the staff do not have these properties, it will be impossible to carry out the job and produce effective and qualified services and products. For this reason, organizations need to search and select sufficient amount and quality of staff (Can et al, 2009).

The research and selection of appropriate employees is a very important human resources activity for the existence and development of organization. However, when this process is examined in general, apart from various inventors and test applications and some special type of interview techniques for the decision process, the lack of supportive models can be highlighted. Because of this, the evaluation of wrong and right decisions in the process of Human Resources is more difficult compared to other procedures. For example, while the benefit of selecting one from two candidates can be measured, the cost of opportunity derived from not selecting the other candidate cannot be evaluated.

Conducting and planning the process of selecting and providing staff in a manner of objective, strategic and a person oriented is very important for both workers and organizations’ expectations and objectives (Gök, 2006). Selecting staff is the function of choosing the best ones for the requirements of the job. The aim of selecting staff is to find out employees who are appropriate for the requirements of the job and has the necessary properties. The harmony between the employee and the job is very important for the employee and organization. For the organization, recruitment is an expensive process, so the time and money spent on unsuccessful employee means that it is a financial loss. For the employee, if he is unsuccessful, he can feel himself dissatisfied because of low performance and he can seek for new job opportunities.

1.2. The Recruitment Process

Recruitment consists of finding appropriate candidates who have necessary qualifications. In order not to select the best ones among the mediocre ones, businesses need to make the efforts of finding employees effective and they should choose the best ones among the qualified candidates. To be able to do this, they need to find out where they can find the ideal labor force (Cavdar, 2010). How to do this is defined by the staff policy of organization. Organizations mostly have two ways of compensating staff recruitment. One of them is to make use of domestic resources and the other is to research external resources. If they prefer to use domestic resources, they use the ways of promoting or transfer. Before deciding on which way is appropriate, businesses need to be careful about two issues. Firstly, they need to decide on for which job they need an employee and what are the requirements of the job. This can be done by job analysis system. Secondly, after the job analysis is finished, they need to define the properties of the employee. If the process is not carried out like this, the result will be frustration for both the employee and organization. We can list the stages of recruitment process as below (Sarilar, 2006):

- The definition of the vacant position
- The determination of staff resources
- The announcement of vacant position
- The preparation of application forms
- The determination of tests that will be used in the process of recruitment
- The formation of candidate pools
- The formation of short list
- Interview invitation/ Pre-interview
- The process of interview
- The evaluation of references
- The process of evaluation
- The decision of recruitment / the selection of candidate
- The formation of job offer and its conditions
- The recruitment of the position

2. A Recruitment Model Based On Axiomatic Design

The aim of staff selection is to offer job for those who have the best qualities among a group of candidates by evaluating their personalities, education experiences, talents and their interests in order to find the best relationship between employees' talents and job requirements. All selection stages are carried out in order to make the best decision. All the stages in the staff selection process are based on the principal of predicting which staff will be successful. The process of selecting employees among a group of candidates regarding specific rules and methods is a very crucial issue that is to be given importance by the organizations.

In this study, a Recruitment methodology is going to be formed regarding the principles of Axiomatic Design. In this respect, a standard recruitment process is going to be examined and the process is going to be followed from the definition of the vacant position to the recruitment of the position and it is going to be modeled.

With this study it will be attempted to establish a recruitment methodology with Axiomatic Design principles. To this extent, a standard recruitment process will be examined and the processes will be followed up from start until the end; and shall be modeled step by step starting from the establishment of the position up to selection and the placement of the candidate.

2.1. Axiomatic Design

The purpose of the Axiomatic Design is to establish a scientific base for the performed works by giving the logical and theoretical consideration processes and tools about the case that is being examined (Birgün, 2006). Here, the design process is realized by the interactions of the questions "what are we willing to realize" and "how can we realize?" this design that we request. The most significant superiority of the Axiomatic Design comparing to other designs is that the Axiomatic Design degrades the design problems to simplicity and thereby rendering a simpler solution.

Axiomatic Design (for more detail: Suh, 1990) has been, especially in the last twenty years, used in a variety of areas and continues its expansion to new areas. Axiomatic Design principles are used in many products, software, quality, production systems, and system designs, in the literature. Eventhough too many Axiomatic Design articles applied in such areas for example in the production/manufacturing systems design and management (Suh, 1995; Cochran and Reynal, 1996; Babic, 1999; Werneman et al, 2000; Cochran et al, 2000; Oropeza et al, 2001; Houshmand and Jamshidnezhad, 2002; Kulak et al, 2004; Birgün, 2006; Gülen and Birgün, 2007; Jansson et al, 2013; Kahraman et al, 2010; Turk, 2012; Slătineanu et al, 2013 ; etc.), in product and system development (Engelhardt, 2000), in engineering systems (Thielman and Ge, 2006) etc., there is a few articles in social areas. Yaşar et al (2005), Birgün and Kulaklı (2007), Ferreira et al, (2013) studied in knowledge management; Kanbur (2007), Kanbur and Birgün (2008) applied Axiomatic Design in the human resources area for new carrier transition counseling. El-Haik and Shaout (2013) introduced Software DFSS and Axiomatic Design methodology and presented through a case study on the employment of Axiomatic Design as a software conceptual development engine. As a result of the literature review, any paper in the field of recruitment area was not coincided with Axiomatic Design; in this paper, we introduce a model developed using Axiomatic Design principles as a way to achieve a systematic approach in improving the effectiveness of recruitment process. The model is shown in Table 1.

Table 1. Recruitment Model By Axiomatic Design

<i>FR₀: Increases the Efficiency of the Recruitment Process</i>	<i>DP₀: Standardized Recruitment Model</i>
<i>FR₁: Determine the Open Position</i>	<i>DP₁: Work Analysis, Job Study, Job Description, Norm Staff</i>
<i>FR_{1.1}: Interrogate the Open Position</i>	<i>DP_{1.1}: Norm Staff</i>
<i>FR_{1.2}: Define the Open Position</i>	<i>DP_{1.2}: Job Description</i>
<i>FR₂: Determine the Sources From Where the Candidates Will Be Supplied</i>	<i>DP₂: Evaluation of Candidates Pool, Evaluation of Personnel Structure</i>
<i>FR_{2.1}: Check Internal Sources</i>	<i>DP_{2.1}: Organization Chart, Career Planning, Promotion Opportunities and Rotation</i>
<i>FR_{2.2}: Analyze External Sources</i>	<i>DP_{2.2}: Current Resume Pool, Transfer Opportunities, Consulting Services, Market Analysis</i>
<i>FR₃: Do the Bulletin and Announcement Plan</i>	<i>DP₃: Bulletin and Announcement Process, Map of Competence</i>
<i>FR₄: Make the Bulletins and the Announcement on Appropriate Platforms</i>	<i>DP₄: New Paper, Social Media, Online Announcement Portals, Internal Announcements and Consultancy Firms</i>
<i>FR₅: Determine the Interview and Test Processes</i>	<i>DP₅: Appropriate Evaluation Methods Depending on the Requirements of the Position (Inventory, Interview, Competence Based Evaluation, Group Interview)</i>
<i>FR₆: Complete the Preliminary Evaluation Process</i>	<i>DP₆: Candidate Pool, Competence Map, Recruitment Process, Job Description</i>
<i>FR₇: Realize the Test and Inventory Sourced Evaluation.</i>	<i>DP₇: Appropriate Test and Inventory Techniques</i>
<i>FR₈: Establish a Candidate Short List</i>	<i>DP₈: Candidate Selection</i>
<i>FR₉: Evaluate the Short List</i>	<i>DP₉: Test, Inventory and Techniques, Interview Process</i>
<i>FR_{9.1}: Complete Technical Assessment</i>	<i>DP_{9.1}: Assessment Center, Competency Map</i>
<i>FR_{9.2}: Perform the Job Interview Process</i>	<i>DP_{9.2}: Individual Interview, Group Interview, Role Play, Case Study</i>
<i>FR_{9.3}: Check the Background</i>	<i>DP_{9.3}: Reference Check, Application Documents</i>
<i>FR₁₀: Final Decision</i>	<i>DP₁₀: Results of the Interview, Scores, Reference Control</i>
<i>FR_{10.1}: Select the Appropriate One of the Current Candidates</i>	<i>DP_{10.1}: Selection</i>
<i>FR_{10.1.1}: Create the Job Offer</i>	<i>DP_{10.1.1}: Wage Package</i>
<i>FR_{10.1.2}: Start the Orientation Process</i>	<i>DP_{10.1.2}: Orientation, Job Training</i>
<i>FR_{10.1.3}: Close the Position</i>	<i>DP_{10.1.3}: Feedback</i>
<i>FR_{10.2}: If Candidates Don't Provide Sufficient Criteria, Start the All Process Again.</i>	<i>DP_{10.2}: Recruitment Process, Source Planning, Interview, Evolution, Decision</i>

In the functional field the set of functional requirements (FR) is defined which are required to be resolved and are independent from each other. The designs will be established by the planning processes of the relations between the functional field that sets forth the question “what are we willing to do?” and the physical field that is asking “how can we achieve this?” and is established by the design parameters (DP). The design parameters, on the other side shall be

associated with the process changes within the field of the process. Here, the question “what” and the passage to the question “how” are defined as “Mapping” (Kanbur, 2008).

In this paper, the recruitment process is standardized based on the principles of Axiomatic Design by simplifying the recruitment process along with fundamental steps. Accordingly,

What will be realized: FR_0 : Increases the efficiency_of the Recruitment Process
 How to realize: DP_0 : Standardized Recruitment Model

The first step of the Axiomatic Design is to determine the target which is the most important step in the design hierarchy. Here the purpose of the modelling should be specified precisely. While the functional requirements determine the target to be achieved through the design; the design parameters (DP) specifies how the functional requirements will be achieved.

According to Table 1, our target is FR_0 : To Increase the Efficiency of the Recruitment Process. The design parameter which we will be using to achieve this is DP_0 : Usage of Standardized Recruitment Model.

The most important concept within the Axiomatic Design is the existence of the design axioms. The suggestions which can not be proved but are accepted as correct are called axioms and these are in limited numbers. There are two types of design axioms. These are Independence and Information Axioms.

Axiom 1 (Independence Axiom):

The purpose is to maintain the independence of the functional requirements. In an acceptable design, one design parameters (DP), without affecting the other functional requirements (FR) may be arranged in order to cover the related functional requirement.

Axiom 2 (Information Axiom):

The purpose is to minimize the information content. The best design that provides the independence axiom from other alternative designs has the minimum content of information. Independence axiom defends that the independence of the FRs, which is defined as the minimum number of the independent functional requirements, must be maintained at all times. When there are two or more FRs, the design solution should provide each FR without effecting the other FRs. This means the selection of a correct set of design parameters that provides the FRs and is able to protect the independence of these (Özel, 2007).

The design parameters set of recruitment function is established to provide for achieving each one of the FRs, and the Independence Axiom is used.

FR₁: Determine the Open Position

DP₁: Work Analysis, Job Study, Job Description, Norm Staff

The first step in our model is the “determination of the open position”. In relation to the open position, the request may be submitted by the customers, unit managers, senior management within the company; and in addition human resources department may also take an action due to circulation, job quitting or growth. In order to start the recruitment process, when we target the first step that is the determination of the open position, we encounter more than one design parameters. In order to fulfill the function for the determination of the open position it is required to perform job analysis, job study, job description and norm staff or to control/reevalute if these studies are available.

FR_{1.1}: Interrogate the Open Position

DP_{1.1}: Norm Staff

After the determination of the open position, the requirements of this position must be examined. One of the most fundamental methods is the Norm Staff study. Norm Staff is the arrangement of the structure in a certain type that, within the organization, enables conductance of the duties that have similar qualifications within an organization. In Norm Staff arrangements it is required to write the listing of the tasks with similar qualifications as per the organic development order and if possible, by classifying them within (Kalkandelen, 1997). In the interrogation of the open position, benefitting from the norm staff, staff and organizational structure are reviewed and the requirements related to the position are evaluated regarding if the responsibilities there may be charged to other positions and if any, inflation of the staff is evaluated (Yılmaz, 2004).

FR_{1,2}: Define the Open Position

DP_{1,2}: Job Description

After the determination of the open position and the requirement, the open position should be redefined or the existing definition should be revised. The job description is the most fundamental result of the job analysis defining the works performed, how and why they are performed by the personnel assigned to such position. In other words, the job description is a fundamental document that includes the job description, fundamental mission of the work, scope of the tasks, conditions under which the work is performed, basic tools and equipments used for the job, the auditing functions covered by the work (Yelboğa, 2008). Definitions appertaining to the positions must be made through this document.

FR₂: Determine the Sources From Where the Candidates will be Supplied

DP₂: Evaluation of Candidates Pool, Evaluation of Personnel Structure

After defining our main functions related to the position and the job, it must be continued with the source determination. Yet, before planning the announcements that is one of our following steps, the pool of candidates should be determined and channels accessing to such pools should be evaluated. As also mentioned in FR2.1 and FR2.2 it will be correct to determine the candidates in two categories. Internal and external sources pools. Undoubtedly, both of the pools have their own advantages. It is a frequent application to fill the position through the inner sources such as promotion, rotation, assignment and career planning. We may list the most significant benefits as obtaining performance form the position without requiring orientation and adoption periods, establishing a personnel culture embracing high level of fidelity, increasing the motivation in the company. The most significant benefits of the candidates to be obtained from the external sources are the new know-how, information about the market at first hand new net works to be connected by the courtesy of the new participating personnel.

FR₃: Do the Bulletin and Announcement Plan

DP₃: Bulletin and Announcement Process, Map of Competence

After making a decision on the channels to apply for the sources and the candidate pools, our next step is making the Bulletin and Announcement Plan. Bulletin and Announcement Plan covers the process of determination of the policies related to bulletins and announcements and converting the job description into an announcement. Even though the internal sources are a priority for the work performers, these sources are not sufficient to fill in all of the emptied jobs. Particularly when the upper step positions are filled in by means of promotions it will be inevitable that some of the lower positions will be emptied (Mucuk, 2003). Candidates who may be supplied both from the internal and external sources and the efficiency of the announcements to be made in the pools bearing such candidates will directly have an impact on the quality of the candidate to be found and on the cost for finding the candidate.

In the same manner, the competences of the candidates who will be found through such announcements should have been determined correctly and the content in the announcement plan should have been determined accordingly.

FR₄: Make the Bulletins and the Announcement on Appropriate Platforms

DP₄: New Paper, Social Media, Online Announcement Portals, Internal Announcements and Consultancy Firms

The announcements may be made through various channels depending on the efficiency and the cost. Making announcements on the daily news papers and magazines is ahead of the methods for searching the employee. Even though it is a very expensive method for the organization, it is preferred as it facilitates a wide application and selection option (Ofloğlu, 2006).

Jobseekers apply to the online employment portals on the internet. Thereby, on the web pages of the online employment companies there are the CVs of individuals and they may obtain offers from the organizations in need. Likewise, organizations may publish their announcements on various social media nets and they may place much effective announcements comparing to the traditional methods. In this step, it must be determined in the performed announcement plan prepared at prior hand that on which platform the announcement will take place and for how long the announcement will be published. Generally, the profiles of the applicants determine the announcement media and the budget thereto.

FR₅: Determine the Interview and Test Processes

DP₅: Appropriate Evaluation Methods Depending on the Requirements of the Position (Inventory, Interview, Competence Based Evaluation, Group Interview)

While starting the evaluation process, the tools and the methods applicable during the evaluation process should be determined. In the application of these methods, the purpose is to find out if the required individual characteristics and the competence thereto are possessed by the candidate.

The first step is the election of the test and inventory. Here, there are some tests which may be implemented to the candidates to detect the predetermined characteristics and competences. While selecting the tests at this phase, these tests must be approved as effective and reliable in a manner revealing the qualifications of the candidate that suit to the requirements of the job. These tests may be examined under two groups such as knowledge measurement tests and psycho-technique tests (Çavdar and Çavdar, 2010). The second step is to realize the interview process with the candidate. This process may start with preliminary interview such as an interview on the phone, and may continue with detail interview types such as one to one interview, group interview and drama type interview (role play, case study).

The type and the test techniques to be used differ depending on the competences and the characteristics that are requested to be determined.

FR₆: Complete the Preliminary Evaluation Process

DP₆: Candidate Pool, Competence Map, Recruitment Process, Job Description

Together with the determination of the tests and the techniques to be applied, the candidates, who came to the pool with their own applications and those who came through references and networks, should be subjected to preliminary evaluation. This phase covers the elimination of the candidates that fit or do not fit to the determined criterion. The determined fundamental criterion are those which can be found only on the CV or in the descriptions of the candidate and which may easily be filtered. The most frequently used preliminary evaluation criterion are the education status,

age, sex, job experience, the residential area of the candidate (proximity to the work place), military service status, foreign language information criterion which may easily categorized.

FR₇: Realize the Test and Inventory Sourced Evaluation.

DP₇: Appropriate Test and Inventory Techniques

In the personnel/employee selection process, among the main phases that are embraced there is the preliminary interview, application form, interview, tests, references, CV, health and physical control and the final interview made with the related manager (Selamoglu, 2001).

FR₈: Establish a Candidate Short List

DP₈: Candidate Selection

Short List is the general name of the list in which there are the candidates who successfully passed the preliminary evaluation and the following fundamental tests and inventory processes. The determination phases of the subject list starts with the commencement interview. Following that, the temporary list is made with the information on the CVs of the candidates and the scores of the subsequent tests. Some of the tests applied during this process are called intelligence tests, attention tests, competence tests, creativity tests, knowledge tests, memory tests, perception tests, interest tests, objective personality tests. Together with this, the most common application that is job interview establishes the inevitable aspect of the personnel selection process (Benli and Şahin, 2004).

Within all of these specified processes efforts are paid to obtain wide information about the candidates in the application pool. Conclusively, in the light of all these information, the data at hand are evaluated objectively and it is decided which candidate of the candidates may be the “most appropriate personnel” for the job. The list in which the most appropriate candidates are determined and collected is now called the short list detected for the position.

FR₉: Evaluate the Short List

DP₉: Test, Inventory and Techniques, Interview Process

The short list selection, generally as the result of the fundamental tests and interviews detects “*to what extent the candidate is appropriate for the determined job*”. The scores in here are completely made as per the measurement of the determined competences. The evaluation after the performed selection is generally about “to what extent the candidate is appropriate for the job”

The new evaluation factors here are the performance to be obtained from the candidate in the particular work environment, if the facilities provided by the position will be convenient for the candidate and the opinion of the managers with who s/he will be working with. This step is called by reference check. This important step, practicing with controlling of other important documents like certificates, courses or other records that authenticate candidate’s experience and knowledge. These factors are possible by means of the one on one interviews to be realized with the managers that are technically in the operation and through the control of the references of the candidate.

FR₁₀: Final Decision

DP₁₀: Results of the Interview, Scores, Reference Control

Decision process is realized by exhaustive evaluation of all of the previous processes. In this process, the human resources unit and the decision makers of the position lay on the table the previous evaluation phases, tests and inventory scores together with the reference and interview results. Positive and negative comments about all candidates are analyzed and it is aimed to reach the candidate most appropriate for the position.

At the decision phase, two different results are encountered. The first result is the determination of the appropriate candidate among the possible candidates and closing the position by giving an employment offer to this candidate. In order to realize this phase, an appropriate candidate is determined as per the results of the evaluations made until here starting from the previous phases. The orientation process is started after the acceptance of the employment offer by this candidate. The second result is not having an appropriate candidate or the refusal of the employment offer by the

candidates who are deemed appropriate for the job. In this case the process should be restarted, sources and applications should be extended or revised.

3. Conclusion

Recruitment which is one of the Human resources Processes is realized in different manners in different organizations as per the requirements and the sources of the organization. Particularly due to the requirements of strategic management criterion, efficient use of the sources is one of the most significant issues of our contemporary time. Especially in the strategic human resources management, it is required to make use of all of the integrated processes, and existing and potential source pools in the most efficient manner. Recruitment issue, on the other hand, is a process which should be handled seriously both from the point of supplying the right candidate with the right budget and for supplying the most appropriate personnel from the pool for the particular job.

Organizations are generally not sufficiently aware of the significance of this issue. Therefore, in many organizations the management of this process through incorrect application can still not be avoided even though a human resources expert is employed in majority of the organizations. Both the application by non-expert personnel and the efforts to integrate the generally accepted methods applied in the market without regarding the position or the organization profiles may give rise to many problems.

If we handle this issue from another aspect, one of the consequences of the incorrect implementation of the recruitment process is the inefficiency created by the recruitment of the wrong personnel and the opportunity cost (which is one of the most important non-measurable costs in organizations) caused by not selecting the correct candidate.

One of the significant methods to avoid such problems, as used in production processes, is to standardize the process. In this paper, axiomatic design principles have been beneficial to suggest a model for standardizing this process.

This suggested model is prepared by combining the most frequently applied and intersecting interim processes in organization and by determining the beneficial sources for each phase. It is targeted that this model prepared here establishes a manual for the organizations and human resources departments and to increase the efficiency of the recruitment process.

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