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Identification and prioritization of human resource strategies with employees' creativity approach in administrative organizations using SWOT–ANP

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Abstract

Human resources management (HRM) helps the organization to assess organizational and environmental changes related to its activities at minimum costs. Moreover, HRM ensures unity and coherence to personnel activities. Therefore, nowadays, the human resources strategies are considered to be the main components of organizations to get improvement. It is imperative to consider the strategies, in order to increase the effectiveness and efficiency of the management activities, and in order to develop the abilities of employees. In this regard, successful organizations are those organizations in which managers and employees, are always in a dynamic competition for innovation and creativity on the basis of their organization strategies, and also those organizations in with thinking among the forces have become a habit and a task. The present study tries to identify and prioritize the human resource strategies with an approach based on the creativity among the employees in administration of documents and properties registration departments. The analysis was conducted by the strengths, weaknesses, opportunities, and threats matrix. Then analytical network process multi-criteria decision making method is applied to prioritize the strategies. The strategy for the maintenance of human resources, based on the expanded creativity criterion, would be the first priority, along with its details.

Keywords Human resource strategies · Employees' creativity · Analytical network process · SWOT matrix

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1 Introduction

The human resources of an organization are the main component for achieving sustainable competitive advantage, and they are one of the main factors behind the success of organizations [1, 2]. For this reason, the effective management of human resources is one of the main challenges facing organizations. In the last few decades, on the basis of the strategic importance of human resources, senior executives in the organization have tried to adopt the appropriate strategies for managing these resources [3]. On the other hand, the successful organizations work to improve the efficiency of the business strategy and structure. In the meantime, they see their creativity as a blessing in the real world; in a formal sense, different actors on the stage of management must always be honest with each other, in the same way as in any other service, by providing the necessary inputs and data for the improvement of the quality of life. Moreover, it is quite necessary to protect the health of organizations in the best interests of the environment [4]. To this end, a multi-discipline innovation, featuring all levels of the organization, must be developed. Innovative creativity and business intelligence are the keys to the successes of organizations. Given the importance of human resources and the creativity of employees, the present study has formulated and ranked a broad strategy for obtaining this requirement.

2 Literature review

Based on different studies, low productivity is the main reason underdevelopment in various countries. Therefore, in many cases, especially in the field of economic growth, all economic activities of the interconnected market will have an impact on the future.

In 2013, Shaul and Tauber investigated the critical success factors in the process of strategic human resource planning in organizations. In this research, the most important articles of the recent decade have been investigated and have been introduced in the framework of multi-criteria network analysis. In the direction of the comprehensive enterprise resource planning (ERP) system, it was introduced as the most critical and most important factor [5]. Yang et al., in 2013, sought to improve the monetary strategies in the security sector. In this study, a mathematical model was presented to determine the level of effectiveness of the strategies used in organizations, and the results show that attention to the sense of security has a significant impact on human resource strategic planning [6]. In 2014, Driabell et al. conducted a study aimed at linking the business strategy, the strategic planning, and the implementation planning for the company. In this study, they looked at the relationship between the implementation of strategic planning and the planning of the flexibility of the integration of 448 companies in various industries. The results suggest that the strategic planning programs of the firm have the potential to have a positive impact on innovation. In addition, innovation

was fully understood through the implementation of a flexible programming environment for enterprise programming [7]. In 2015, Crumpton determined the human resources strategies for academic libraries, and in this regard, the SWOT strategy was used. One of the most important strategies in the present study is the development of accreditation standards, the fair allocation of resources, and periodic evaluations [8]. In 2016, Vardarlier et al. began to plan for strategic human resources in organizations and in crisis situations. They used the SWOT matrix as well as statistical analysis techniques. In this study, the potential impacts of ongoing conflict-of-war protests have been taken into consideration [9]. Using statistical techniques, Kasonde and Steele [10] conducted a study aimed at analyzing the strategies of human resources in a supply chain. This report is based on an examination of 40 respondents from 32 countries [10]. In 2016, Shakirin et al. focused on the strategic planning of organization in a study on the implementation of the SWOT–TOPSIS model in order to assess the strategy and resources in the road organization of urban development in Iran [11]. This study was carried out based on the SWOT analysis and the technique of analytical hierarchy process (AHP). The initial SWOT matrix was developed with respect to the background of the current investigation, the information obtained from the customs administration of Iran on strengths, weaknesses, opportunities and threats of an effective alignment of human resources strategies with the macro strategy of the organization. The results showed that human resources strategies are satisfactory, considering the importance of the expected results [12].

3 Research methodology

Research is a systematic review of reasoning and evidence for the discovery of new relationships. In other words, research is a systematic search that wants to find new relationships or information or to explain or modify existing knowledge. Types of research can be divided into fundamental, applied, and development. Since this research is of a practical nature, it will be redefined from other perspectives. When it comes to research using the results of the findings to solve problems in an organization, it is called “an applied research”. In fact, many organizations are focusing on applied research, and they are using researchers to investigate their own problems to find practical solutions to correct a difficult situation. In other words, the purpose of applied research is the development of applied knowledge in a particular context.

One of the most important stages of the research is the gathering stage, and the information needed to conduct the research can be collected in different ways [13]. There are various tools like observation, interviews, questionnaires, documents, etc. to obtain data. Each tool has some disadvantages and advantages that should be considered when using it so that the validity of the research will not be compromised and the strengths of the tool can be strengthened [14]. In this research, based on the need, two library and survey methods have been used to collect data as shown in Fig. 1.

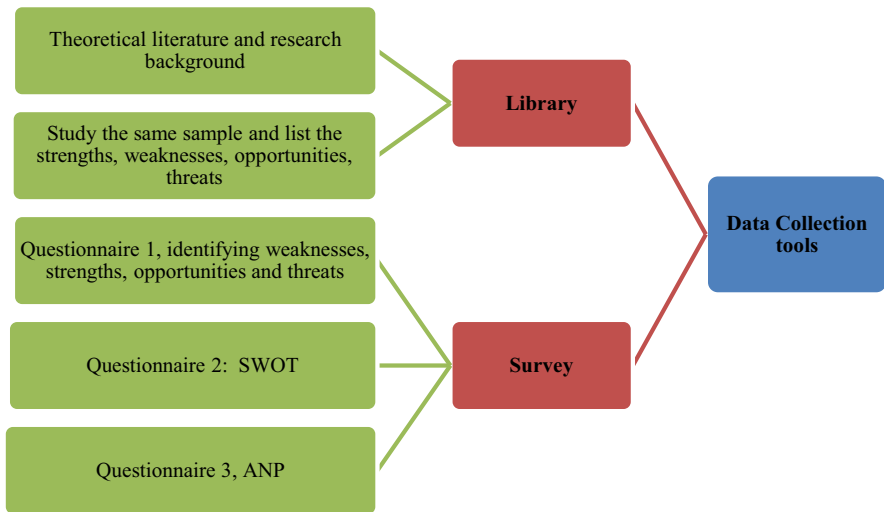


Fig. 1 Data and information collection tool

3.1 Conceptual models of the research

Human resources strategies intend to manage policies and promote human resources for achieving organizational goals. To this end, the organization needs a comprehensive, innovative and organized strategy for the utilization of its human resources, the provision of quality working life for the strategy. The proper and efficient use of the strategic resource by recognizing and applying the aspects of impact and influence. It is the internal and external environment that determines good strategies of achieving the mission and goals of the organization [15]. Based on the operational definition, the human resources strategy can be divided into four sub-sets as shown in Fig. 2.

Since the employees' creativity approach has been considered in this work, four popular dimensions for creativity in literature have been applied here including "expanded with details", "innovation", "flexibility", and "political" [16] as seen in Fig. 3 (readers are referred to [16] for more information). In this research, SWOT matrix has been used to formulate human resource strategies as the most common technique, which identifies effective factors and analyzes the strengths, weaknesses, opportunities and threats [15]. A good strategy will maximize strengths and opportunities to minimize threats and will turn weaknesses into strengths and will use opportunities to reduce internal weaknesses and external threats. There are several multi-criteria decision-making methods that have been used; among them, in the present research, strategy ranking operations have been performed by means of an ANP method on the basis of a questionnaire. The research network model of this study is shown in Fig. 3.

For the present study, the following steps will be taken into consideration as follows.

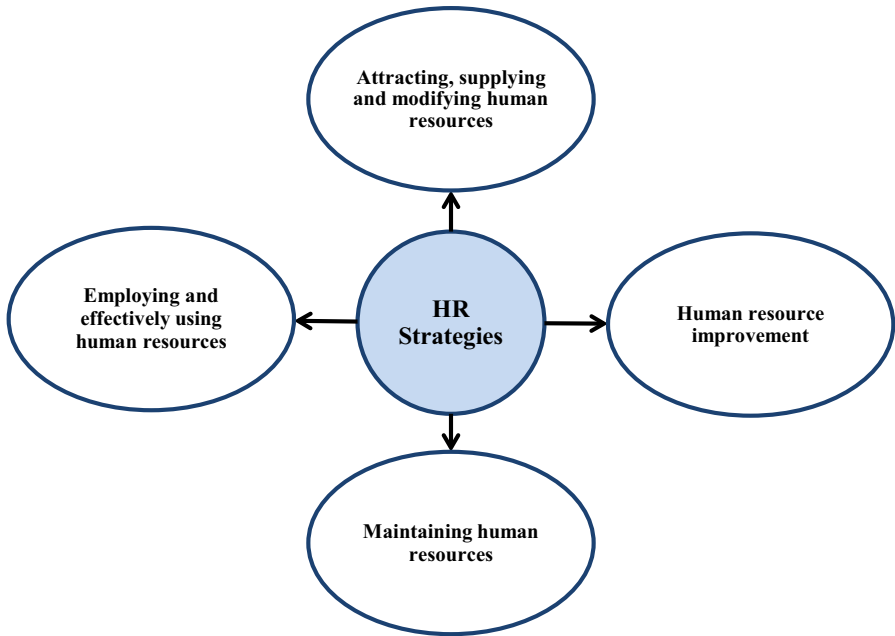


Fig. 2 Human resource strategies

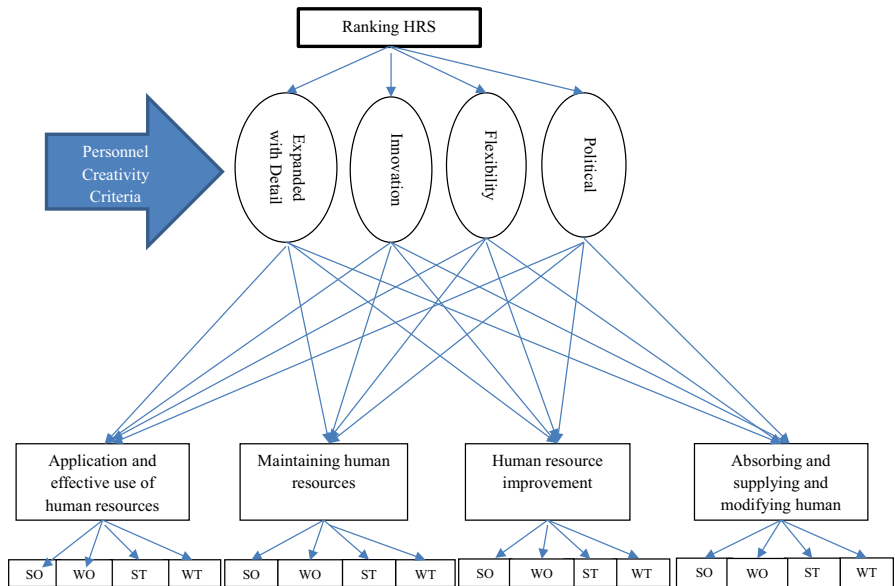


Fig. 3 Research model

- Step 1 Using library resources, identifying the categories for the precise definition, weaknesses, and opportunities for the study.
- Step 2 At this stage, the research experts will screen the indicators of strengths, weaknesses, opportunities, and threats.
- Step 3 Converting the results of the second phase into a SWOT questionnaire. At this stage, the distribution and collection of questionnaires will begin and end with the size of the statistical sample. The questionnaire includes the strengths, weaknesses, opportunities and threats that the weight of each of them will be continuously varied by 0-100% by the research experts and the impact of these points. The organization's requirements, based on the Likert spectrum, will be measured on the basis of 186 members of the statistical sample.
- Step 4 Using SWOT analysis, the strategies for the human resource management will be provided.
- Step 5 Transforming the strategies obtained from the previous stage into a semi-comparative ANP questionnaire. The questionnaire will be distributed among the research experts, and the information will be collected.
- Step 6 Using the ANP method, these data will be analyzed and ultimately ranked by HRM strategies.

The methodology of the work step by step is shown in Fig. 4 for more clarification of the work.

4 Numerical solution

Data analysis is a multi-stage process whereby data collected in different ways are summed up, categorized, and finally, processed to provide the basis for analyzing and communicating data in order to test hypotheses [17]. In this process, the data are both conceptually and empirically refined, and various statistical techniques play a significant role in deductions and generalizations. In this section, the objectives and research questions are analyzed by means of the data collected from the statistical sample of the study, which consists of eight experts and 186 respondents and three questionnaires. The methods of analysis in this study are the Delphi analytical method and the ANP–SWOT compilation method. Based on the Delphi method (in three stages) and interview with the research experts, the present study uses the opportunities/threats/strengths and weaknesses of the human resources strategies in the previous research. In the first stage, 244 opportunities/threats/strengths and weaknesses have been collected. Then, giving the number between 1 to 5 (Likert Test) according to experts' opinion and calculation of geometric average, those have average < 2.5, have been omitted and the remained ones have been considered in continue. Again in the third round, similar works have been done and finally 70 opportunities/threats/strengths and weaknesses have been remained. Based on the SWOT analysis method, moreover, the strengths, weaknesses, opportunities and threats, and then the Human Resource Strategies (HRS) will be presented in accordance with the ANP–SWOT compilation method.



Fig. 4 The methodology of the work

4.1 Identifying and determining the opportunities/threats/strengths and weaknesses

Delphi method is a forecasting process framework based on the results of multiple rounds of questionnaires sent to a panel of experts. In this sub-section, using the Delphi technique (readers are referred to [18] for more information) and interviewing the experts, the preliminary list of points of opportunity/threat, strength and weakness is scored, and geometric mean based on Eq. (1) is aggregated as shown in Table 1. Points that have scores above 3 (based on the opinions' expert) are used as potential/threat/strength and weakness points in the remainder of this article.

$$\bar{X} = \left(\prod_{i=1}^n x_i \right)^{\frac{1}{n}} \tag{1}$$

In the above formula, the geometric mean \bar{X} is defined as the n th root of the product of n numbers, i.e., for a set of numbers x_1, x_2, \dots, x_n which related to opportunities/threats, strengths and weaknesses. For instance, the geometric mean of the first

Table 1 The preliminary list of points of opportunity/threat, strength and weakness

Geometric mean	Class	List of opportunities/threats/strengths and weaknesses	
3.2664	O	The positive attitude of the community to working in the organization studied	S1
3.1302	O	The existence of a graduated force in the community and the possibility of employing it in the organization	S1
3.4135	O	The ability to attract and engage experienced managers and experts who are interested in activities of the organization	S1
3.3417	O	The presence of numerous young graduates outside the organization and the possibility of using talented forces	S1
3.105	O	Development of virtual spaces for attracting and employing people	S1
3.5621	O	High level of access to local and national labor force	S1
3.1766	O	Employee enthusiasm for employment in the company	S1
3.0644	T	The existence of laws and regulations in the state employment system	S1
3.5621	T	The attitude of the organization is to refine the choice of particular political tendencies	S1
3.5909	T	The difficulty in identifying people who are susceptible to the multiplicity of universities	S1
3.9044	T	Unplanned recruitment	S1
3.0196	S	History, and reputation of the Organization	S1
3.0644	S	The existence of a desirable capacity to employ human resources	S1
3.1302	S	Ability to attract graduates in different fields	S1
3.4363	O	The existence of reputable institutions and universities for the use of prominent professors for training courses	S2
3.0644	O	The existence of infrastructure for the use of cyberspace for training	S2
4.3142	O	Considering the strategic role of company management for the HR department	S2
3.3417	O	Support for managing unit programs	S2
3.0644	O	Welcoming the personnel and the trainability	S2
3.3417	T	Lack of comprehensive planning and internal discipline in the field of human work	S2
3.1511	T	Absence of proper and continuous polls on the dimensions of education	S2
3.1766	S	Existence of in-service training	S2
3.6628	S	The availability of appropriate financial resources for training	S2

Table 1 (continued)

Geometric mean	Class	List of opportunities/threats/strengths and weaknesses
3.4087	S	Development of virtual training in the organization
3.4363	S	Line Access to Communication Networks
4.3142	S	Conducting periodic and regular training
4.4362	S	Existence of numerous and highly effective facilities for specialized organizational training
3.4818	S	Existence of numerous facilities and efficient implementation of specialized training of the organization
3.0644	W	Lack of specialized training at the time of recruitment
3.2187	W	Limited effectiveness in educational programs due to the lack of proper and complete need assessment
3.4363	W	Lack of proper supervision to the examination of the effectiveness of educational courses and lack of appropriate and practical content
3.797	W	Not extending training programs for all personnel
3.1928	O	There are numerous centers of welfare, recreational, health care centers and saloons and sports centers willing to cooperate with the organization.
3.2664	O	Financial facilities available to the organization
3.2237	O	Considering the strategic role of company management for the HR department
3.0644	O	Support for managing unit programs
3.0644	T	Increasing the level of education and, consequently, increasing employee expectations
3.1766	T	Lack of encouraging and supportive policies on the part of the government
3.1302	T	The failure of the HR unit to perform its duties
3.6925	S	Suitable financial resources in the organization to compensate for the good staff
4.4362	S	Use of information technology
3.2187	S	The high financial strength of the organization in providing welfare facilities
4.4721	S	Possibility to upgrade and advance on the job path
4.5617	W	The lack of a system to compensate for the proper services to maintain decent people
4.2295	W	The lack of coordination between the service compensation system and the diversity of the content of some businesses

Table 1 (continued)

Geometric mean	Class	List of opportunities/threats/strengths and weaknesses	
3.1098	W	Lack of program or rules for motivating and rewarding creative and innovative people	S3
3.8277	W	Not motivating staff welfare policy	S3
4.0473	W	Lack of proper planning in employee retention	S3
3.6925	W	Raising the level of human resource expectations by upgrading the qualification	S3
3.2664	O	Increasing the level of education in society and changing the attitude of society towards work and decent work standards	S4
3.1928	O	Electronics Technology	S4
3.3417	O	Promoting the strategic role of corporate governance for HR department	S4
3.51	O	Promoting the company culture by increasing the number of educated people	S4
4.3142	O	Support for managing unit programs	S4
3.3417	T	Resistance of traditional managers to the use of modern technology and equipment	S4
3.105	T	Lack of adequate and sufficient experience among graduates university	S4
3.0644	T	Crises related to ethical challenges and the denial of social responsibility	S4
3.5621	T	Inability to check the number and suitability of personnel required by the HR department unit	S4
3.1766	T	Failure to perform the performance evaluation program correctly and appropriately	S4
3.6628	T	The lack of teamwork and promotion and encouragement	S4
3.6628	S	Clear expression of expectations of individuals within the framework of organizational duties at the beginning of the evaluation period	S4
3.5909	S	Performance of evaluations at different levels	S4
4.3142	S	Enough staffing experience	S4
4.4362	S	Having the knowledgeable and quality experts	S4
4.7287	W	Constraints on planning and estimating human resources tailored to development plans	S4
4.5617	W	Lack of establishment of electronic employee assessment system	S4
4.2295	W	Lack of development skills in the organization	S4
3.936	W	Failure to implement the management systems	S4

Table 1 (continued)

Geometric mean	Class	List of opportunities/threats/strengths and weaknesses
4.0473	W	The lack of structural and strategic definition of HR unit
3.5621	W	Low number of manpower in terms of workload

O Opportunity, *T* threat, *S* strength, *W* weakness, *S1* human resource absorption, supply and delivery strategy, *S2* human resource improvement strategy, *S3*: human resource management strategy, *S4* use and effective use of human resources

row of Table 1 (S1 in class “O” with eight experts) with numbers(3, 3.1, 3.9, 2.8, 3.3, 2.5, 3.6, 4.296) is equal to $(3 * 3.1 * 3.9 * 2.8 * 2.5 * 3.6 * 4.296)^{\frac{1}{8}}$ or 3.2664.

4.2 SWOT Analytical Method

The SWOT analysis for the first nine months of the 1950s was developed by a two-year broadcaster and a full-time student for the year [19]. At that time, the analysis achieved an increasing success, and it was recognized as a useful management tool. However, the most successful outcome was that Jack Welch used at the General Electric in the 1980s to review GE strategies and increase the use of corporate governance [19].

4.2.1 Formation of internal factors evaluation (IFE) and external factors evaluation (EFE)

This section deals with the analysis and ranking of internal factors, strengths and weaknesses.

Tables 2, 3, 4 and 5, the significance and overall average of each sector, as well as the strengths and weaknesses of internal and external factors, illustrate the human resources strategy based on the overall weighted average. The internal and external factors evaluation matrix strategies for attracting, supplying and modifying HRS, Human Resource Improvement, HRM, and use and effective use of human resources are shown in Tables 2, 3, 4 and 5, respectively.

As you can see in these Tables, the total scoring of internal and external factors for attracting, supplying and modifying HRS, Human Resource Improvement, HRM, and use and effective use of human resources equal to 3.17 and 3.25, 3.44 and 3.41, 3.38 and 3.29, 3.33, respectively. It can be found that from Tables 2, 3, 4 and 5, the scoring of the internal and external factors is larger than 2.5, and it can be concluded that human resources in the context of this internal and external application system are in a relatively good position in relation to this strategy.

4.3 Creating a SWOT matrix

In this sub-section, using the results obtained above, the SWOT matrix and its strategies have been formulated. The SWOT matrix uses the strengths, weaknesses, opportunities, and threats to provide strategic solutions that meet the following requirements:

- Using the maximum strengths of exploitation from opportunities.
- By using strengths, you can eliminate or reduce the impact of threats.
- Take advantage of opportunities to turn the weaknesses into strength or to weaken the weaknesses.
- By reducing the weaknesses, the impact of the threats has been reduced or eliminated.

Table 2 The internal and external factors evaluation matrix strategy for attracting, supplying and modifying human resources

Description of external/internal factors and their symbols		Average Importance		Weighted mean			
		Total (%)	Each section (%)	Total	Each section		
Opportunity	SIO1	The positive attitude of society to work in the organization under study	3.33	8	12	0.25	0.41
	SIO2	The presence of graduate force in the community and the possibility of using such a force in the organization	3.11	9	15	0.28	0.46
	SIO3	The ability to attract and engage experienced managers and experts who are interested in activities in the organization	3.00	9	15	0.28	0.46
	SIO4	The presence of numerous young graduates outside the organization and the possibility of using talented forces	3.27	8	13	0.25	0.41
Threat	SIO5	Development of virtual spaces for attracting and employing people	3.28	9	14	0.28	0.46
	SIO6	High level of access to local and national labor force	3.49	11	17	0.37	0.61
	SIO7	Employee enthusiasm for employment in the company	3.20	8	13	0.26	0.43
	SIT1	The existence of laws and regulations in the state employment system	3.17	9	23	0.28	0.73
	SIT2	Attitude in the organization with the approach of choosing specific political tendencies	3.28	10	27	0.34	0.89
	SIT3	The difficulty in identifying people who are susceptible to the number of universities	3.38	9	24	0.31	0.80
	SIT4	Unplanned recruitment	3.19	10	27	0.33	0.85
Strength	Total external factors		35.70	100	200	3.25	–
	SIS1	Credit, dating and good reputation of the organization	3.12	39	39	1.22	1.22
	SIS2	The existence of a desirable capacity to employ human resources	3.31	29	29	0.95	0.95
	SIS3	Location of graduates in different disciplines	3.12	32	32	1.01	1.01
Weakness	0		0.00	0	100	0.00	0.00
	Total internal factors		9.55	100	200	3.17	–

Table 3 The internal and external factors assessment matrix for human resource improvement

Description of external/internal factors and their symbol	Average		Importance		Weighted mean	
	Total (%)	Each section (%)	Total (%)	Each section (%)	Total	Each section
Opportunity						
S2O1	The existence of reputable institutions and universities for the use of prominent professors for training courses	3.38	10	15	0.33	0.51
S2O2	The existence of infrastructure to use cyberspace for training	3.35	13	20	0.42	0.66
S2O3	Promoting the strategic role of corporate governance for the HR department	3.39	15	23	0.50	0.77
S2O4	Management support of unit programs	3.57	9	15	0.33	.52
S2O5	Staff welcome and training	3.41	18	28	0.61	0.95
Threat						
S2T1	Lack of comprehensive planning and internal discipline in the field of human resources	3.52	18	50	0.63	1.75
S2T2	Absence of proper and continuous polls on the dimensions of education	3.48	18	50	0.63	1.75
Strength						
S2S1	Existence of in-service training	24.11	100	200	3.44	–
S2S2	The availability of appropriate financial resources for training	3.67	10	15	0.38	0.57
S2S3	Development of virtual training in the organization	3.60	10	15	0.36	0.53
S2S4	Access to the network of communication networks	3.51	9	14	0.32	0.48
S2S5	Conducting periodic and regular training	3.21	11	17	0.35	0.53
S2S6	The existence of multiple facilities and the effectiveness of the organization's specialized training	3.19	11	17	0.37	0.55
S2S7	Ability and development of employees through training programs	3.36	7	11	0.25	0.38
Weakness						
S2W1	Lack of specialized training at recruitment	3.47	7	11	0.26	0.38
S2W2	Limited effectiveness in training programs due to the lack of proper and complete measurement	3.55	10	29	0.34	1.02
S2W3	Lack of proper supervision to examine the effectiveness of training courses and lack of proper and practical content	3.36	8	25	0.28	0.82
S2W4	Not extending training programs for all personnel	3.47	8	23	0.26	0.78

Table 3 (continued)

Description of external/internal factors and their symbol	Average Importance		Weighted mean		
	Total (%)	Each section (%)	Total	Each section	
Total internal factors	37.57	100	200	3.41	–

Table 4 The internal and external factors assessment matrix. strategies for human resource management

Description of external/internal factors and their symbol	Average Importance		Weighted mean		
	Total (%)	Each section (%)	Total	Each section	
Opportunity					
S3O1	There are numerous centers of welfare, recreation, health care and saloons and sports centers willing to cooperate with the organization.	14	31	0.48	1.04
S3O2	Financial facilities available to the organization	11	23	0.34	0.75
S3O3	Promoting the strategic role of corporate governance for the HR department	9	20	0.29	0.63
S3O4	Management support of unit programs	12	26	0.39	0.86
Threat					
S3T1	Increasing education and consequently increasing employee expectations	19	35	0.66	1.21
S3T2	Lack of encouraging and supportive policies by the government	19	35	0.66	1.22
S3T3	The failure of the HR unit to perform its duties	16	30	0.56	1.03
	Total external factors	100	200	3.38	–
Strength					
S3S1	Suitable financial resources in the organization to compensate for the services of the organization	9	23	0.31	0.79
S3S2	Use of information technology	10	25	0.34	0.87
S3S3	The financial strength of the organization in providing welfare facilities	10	25	0.32	0.81
S3S4	Possibility to upgrade and advance on the job path	10	26	0.33	0.85
Weakness					
S3W1	The lack of a system to compensate for the proper services to maintain decent people	10	17	0.31	0.51
S3W2	The lack of matching between the service compensation system and the diversity of the content of some businesses	9	15	0.30	0.49
S3W3	Lack of program or rules for motivating and rewarding creative and innovative people	10	16	0.32	0.53
S3W4	Not motivating staff welfare policy	10	16	0.36	0.60
S3W5	Lack of proper planning in employee retention	11	18	0.35	0.58
S3W6	Raise the level of human resource expectations by upgrading the qualification	11	18	0.35	0.57
	Total internal factors	100	200	3.29	–

Table 5 The internal and external factors assessment matrix. Strategies for use and effective use of human resources

Description of external/internal factors and their symbol	Average Importance		Weighted mean	
	Total (%)	Each section (%)	Total	Each section
Opportunity	3.11	27	0.35	0.83
S4O1	Increasing the level of education in society and changing the attitude of society towards work and decent work standards			
S4O2	3.19	24	0.32	0.77
S4O3	3.31	21	0.29	0.69
S4O4	3.16	14	0.19	0.45
S4O5	3.24	14	0.19	0.45
Threat	3.58	13	0.27	0.46
S4T1	Resistance of traditional managers to the use of modern technology and equipment			
S4T2	3.41	18	0.36	0.61
S4T3	3.40	18	0.36	0.62
S4T4	3.37	17	0.33	0.56
S4T4	Inability to check the number and suitability of personnel required by the HR department unit			
S4T5	3.34	17	0.33	0.57
S4T6	3.48	17	0.35	0.61
S4S1	36.59	200	3.33	-
S4S1	3.44	25	0.34	0.86
S4S1	Clear expression of expectations of individuals within the framework of organizational duties at the beginning of the evaluation period			
S4S2	3.37	26	0.35	0.89
S4S3	3.21	25	0.32	0.81
S4S4	3.25	23	0.30	0.76
S4W1	3.37	18	0.36	0.60
S4W1	Constraints on planning and estimating human resources tailored to development plans			
S4W2	3.22	18	0.35	0.57
S4W3	3.41	17	0.36	0.59
S4W4	3.38	19	0.39	0.64
S4W4	Failure to implement the management systems			

Table 5 (continued)

Description of external/internal factors and their symbol	Average Importance		Weighted mean	
	Total (%)	Each section (%)	Total	Each section
S4W5 The lack of structural and strategic definition of HR unit	3.24	10	0.31	0.52
S4W6 Low number of manpower in terms of workload	3.38	7	0.25	0.41
Total internal factors	33.26	100	3.33	–

In general, the SWOT matrix seeks to obtain SO, WT, ST, and WO strategies to meet the above requirements. Table 2, 3, 4 and 5 shows the overview of the SWOT matrix. In these Tables, SO, WT, ST, and WO strategies are defined as follows.

SO strategies Strategies to maximize the use of environmental opportunities by utilizing the strengths of the system. In implementing these strategies, the system strives to maximize and exploit foreign opportunities by using strengths.

WO strategies Strategies to take advantage of the potential benefits of environmental system opportunities. In order to offset internal weaknesses, the strategy's goals are to exploit opportunities for weaknesses.

ST strategies Strategies for using strengths to prevent the occurrence of system threats. Generally speaking, in implementing these strategies, systems try to use their internal strengths to prevent the negative effects of external threats in the way ahead. Take away or eliminate threats.

WT strategies These strategies seek to minimize the damage caused by threats and weaknesses, the goal of these strategies is to reduce internal weaknesses and avoid external threats. The presence of this situation for a system is a very bad situation for the system.

From Tables 2, 3, 4 and 5, considering the internal and external factors, the results are shown in Fig. 5. As seen all 4 strategies have been settled in SO area. So, in this research SO-strategies must be applied after this.

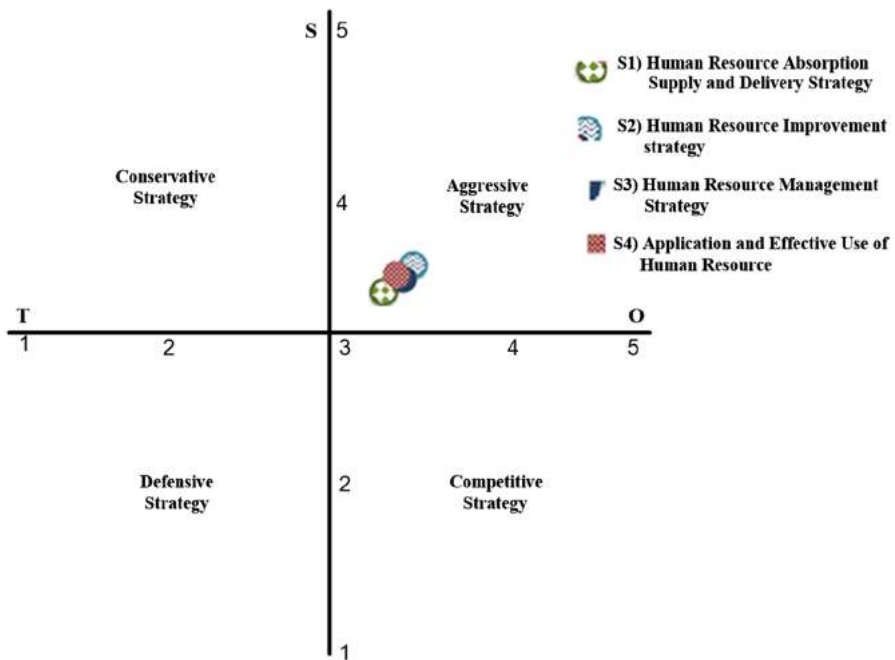


Fig. 5 Strategies for human resources

4.4 Determine the strategic strategy by ANP–SWOT

In this sub-section, using the results obtained from the previous steps, the type of selected strategy for the study subject based on the creativity approach will be prioritized. According to the SWOT matrix and strategies, the selected strategy should be used. The ANP method was used for this purpose. According to the experts' opinions on the points of opportunity/threat/strength and weakness were compared by means of the paired comparisons. Strategies have been chosen to ultimately be the top strategy. Strategies' weight in ANP method are shown in Table 6. For more clarification, the related information in Table 6 are divided into three Tables including Tables 7, 8, and 9.

The results of the ANP method show that the priority of creativity criteria, the priority of implementing the four strategies of human resource, and the priority of implementing the strategies guideline of the four human resources strategies in the organization under study, which are presented in Table 7, 8, and 9, respectively.

As seen in Table 9, the integration of the strategies leads to guidelines for organizations on the basis of proposed method through the expert knowledge.

The findings in aforementioned Tables are as follows.

- The most important strengths, weaknesses, opportunities and threats in relation to the strategies for attracting and supplying human resources are mentioned below:
 - *Opportunity* High level of access to local and national labor force.
 - *Threat* The attitude of the organization is to choose the specific political orientations.
 - *Strength* Credibility, age and good reputation of the organization.
 - *Weakness*: Not found.
- The most important strengths, weaknesses, opportunities and threats in relation to the strategies for the improvement of human resources are mentioned below.
 - *Opportunity* Welcoming and training the personnel.
 - *Threats* Absence of proper and continuous polls on the dimensions of education.
 - *Strength* The presence of practical training during work.
 - *Weakness* Lack of specialized training at recruitment.
- The most important strengths, weaknesses, opportunities and threats in relation to the strategies for the maintenance of human resources are as follows.
 - *Opportunity* Having a lot of welfare centers, recreation centers, health centers and salons and sports centers willing to work with the organization.
 - *Threat* Lack of encouraging and supportive policies by the government.
 - *Strength* The capacity to use information technology.
 - *Weakness* Not motivating staff welfare policy.
- The most important strengths, weaknesses, opportunities and threats associated with the effective use of human resources are as follows.

Table 6 Strategies' weight in ANP method

Criterion/HR strategies/strategies	Weight (%)	Grade
C1 Innovation	32	2
C2 Expanded with details	43	1
C3 Flexibility	12	4
C4 Political	14	3
S1 Absorption, supply and adjustment	6	4
S2 Upgrade	9	3
S3 Maintenance	70	1
S4 Effective use	15	2
S1S01 Required force rating of units	6	5
S1S02 Creating an electronic system for informing and recruiting native and expert human resources	0	11
S2S01 Needs assessment of the training program according to the need of all units and personnel	0	11
S2S02 Identify class-centric and virtualized courses and experienced professors	1	10
S2S03 Codify of a long-term and short-term strategic training plan	2	8
S2S04 Codify of assessment and feedback management program from training courses	5	6
S3S01 Codify of a long-term and short-term strategic plan for welfare, sports and cultural affairs	0	11
S3S02 Continuous identification of facilities and facilities available for contracting and periodic diversification	9	3
S3S03 Continuous assessment of existing facilities and personnel satisfaction feedback	19	2
S3S04 Establishment of up-to-date electronic systems for information, registration and use of welfare facilities	42	1
S4S01 Establishment of a system for documenting experiences and personnel management knowledge	0	11
S4S02 Establishment and implementation of a quality management system, performance evaluation and meritocracy management	2	9
S4S03 Establishment of electronic quality management systems, performance appraisal and staffing competence	4	7
S4S04 Establishment of quality management systems and performance measurement systems	9	4

C1 First employs' creative criterion (innovation), C2 second employs' creative criterion (expansion with details), C3 third employs' creative criterion (flexibility), C4 fourth employs' creative criterion (political)

Table 7 ANP results about the priority of creativity criteria

Criterion of creativity	Weight (%)	Grade
Innovation	32	2
Flexibility	12	4
Expansion with details	43	1
Political	14	3

Table 8 ANP results about the priority of implementing the four strategies of human resources

Strategy	Criterion of creativity	Weight (%)	Grade
S1	Absorbing, adjusted	6	4
S2	Upgrade	9	3
S3	maintenance	70	1
S4	Use effect	15	2

- *Opportunity* Increasing the level of education in society and changing the attitude of society towards work and decent work standards.
 - *Threats* Crises related to ethical challenges and disapproval of social responsibility.
 - *Strength* Clear expression of expectations of individuals within the framework of organizational duties at the beginning of the evaluation period.
 - *Weakness* Failure to implement management systems.

Human resources strategy shows that the organization is well placed in terms of internal and external systems.

5 Conclusion

Today, human resources strategy is considered to be the main component of the organization's performance improvement. It is necessary to increase the effectiveness and efficiency of human resource management to achieve a satisfactory level of maturity in this field. Successful organizations are those whose managers and employees are always in a dynamic competition, seeking innovation creativity. This study presents the SWOT–ANP method to extract the most important strengths, weaknesses, opportunities and threats for four human resource strategies, separately. The results of the research has been shown that the strategies of the four human resources strategies in the organization should be based on aggressive strategies (SO-strategies), i.e., maximizing the use of environmental opportunities by employing the strengths of the system, using these strengths in the system's implementation of the system. It tries to maximize the use and enjoyment of foreign opportunities. According to the results of this research, the mentioned guidelines are recommended for the development of human resources strategies of the organization.

Table 9 ANP results about the priority of implementing the integrated strategies of human resources

Strategy	Weight (%)	Grade
S1SO1	6	5
S1SO2	0	11
S2SO1	0	11
S2SO2	1	10
S2SO3	2	8
S2SO4	5	6
S3SO1	0	11
S3SO2	9	3
S3SO3	19	2
S3SO4	42	1
S4SO1	0	11
S4SO2	2	9
S4SO3	4	7
S4SO4	9	4

For future research, it is suggested that a unit can be considered to follow up and monitor the strategic planning of the organization. Also, the training courses can be considered to increase and enhance the creativity of the organization's human resources. Moreover, the mentioned strategic planning can be developed for defining the quality policy, mission, vision, and enforcement actions.

References

1. Chowhan, J., Pries, F., Mann, S.: Persistent innovation and the role of human resource management practices, work organization, and strategy. *J. Manag. Organ.* **23**(3), 456–471 (2017)
2. Lawler III, E.E., Boudreau, J.W.: *Human Resource Excellence: An Assessment of Strategies and Trends*. Stanford University Press, Palo Alto (2018)
3. Sokolov, D., Zavyalova, E.: Human resource management and knowledge management strategies: looking for a fit. Working papers 16079, Graduate School of Management, St. Petersburg State University (2019). <https://ideas.repec.org/p/sps/wpaper/16079.html>
4. Macke, J., Genari, D.: Systematic literature review on sustainable human resource management. *J. Clean. Prod.* **208**, 806–815 (2019)
5. Shaul, L., Tauber, D.: Critical success factors in enterprise resource planning systems: review of the last decade. *ACM Comput. Surv.* **45**(4), 55 (2013)
6. Yang, R., Kiekintveld, C., Ordóñez, F., Tambe, M., John, R.: Improving resource allocation strategies against human adversaries in security games: an extended study. *Artif. Intell.* **195**, 440–469 (2013)
7. Dibrell, C., Craig, J.B., Neubaum, D.O.: Linking the formal strategic planning process, planning flexibility, and innovativeness to firm performance. *J. Bus. Res.* **67**(9), 2000–2007 (2014)
8. Crumpton, M.A.: *Strategic Human Resource Planning for Academic Libraries: Information, Technology and Organization*. Chandos Publishing, Sawston (2015)
9. Vardarlier, P.: Strategic approach to human resources management during crisis. *Procedia-Soc. Behav. Sci.* **235**, 463–472 (2016)
10. Kasonde, M., Steele, P.: The people factor: an analysis of the human resources landscape for immunization supply chain management. *Vaccine* **35**(17), 2134–2140 (2017)
11. Shakerian, H., Dehnavi, H.D., Ghanad, S.B.: The implementation of the hybrid model SWOT–TOPSIS by fuzzy approach to evaluate and rank the human resources and business strategies in organizations (case study: road and urban development organization in Yazd). *Procedia-Soc. Behav. Sci.* **230**, 307–316 (2016)
12. Rezaeian, M.R., Salajegheh, S., Sayadi, S., Tavakoli, H. M., Pourkiani, M.: Developing human resource strategies using swot analysis. Case study of Iran customs administration. *Dilemas Contemporáneos: Educación, Política y Valore* **6**(3), 1–12 (2019)
13. Salanova, M., Agut, S., Peiró, J.M.: Linking organizational resources and work engagement to employee performance and customer loyalty: the mediation of service climate. *J. Appl. Psychol.* **90**(6), 1217 (2005)
14. Aktar, A., Khan, and D.A.: The role of perceived organizational support in the relationship of organizational commitment and employee engagement: a conceptual model. *Indep. Bus. Rev.* **9**(1&2), 51–74 (2016)
15. Oyewunmi, O.A., Osibanjo, A.O., Falola, H.O., Olujobi, J.O.: Optimization by integration: a corporate governance and human resource management dimension. *Int. Rev. Manag. Market.* **7**(1), 265–272 (2017)
16. Li, Z., Tate, D., Lane, C., Adams, C.: A framework for automatic TRIZ level of invention estimation of patents using natural language processing, knowledge-transfer and patent citation metrics. *Comput. Aided Des.* **44**(10), 987–1010 (2012)
17. Toosi, S.R., Samani, J.: Prioritizing watersheds using a novel hybrid decision model based on fuzzy DEMATEL, fuzzy ANP and fuzzy VIKOR. *Water Resour. Manag.* **31**(9), 2853–2867 (2017)

18. Sourani, A., Sohail, M.: The Delphi method: review and use in construction management research. *Int. J. Constr. Educ. Res.* **11**(1), 54–76 (2015)
19. Ghazinoory, S., Abdi, M., Azadegan-Mehr, M.: SWOT methodology: a state-of-the-art review for the past, a framework for the future. *J. Bus. Econ. Manag.* **12**(1), 24–48 (2011)

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