

## Formulating Human Resources Management Strategies With The Strategic Human Resources Management Approach And Using Swot (Strengths, Weaknesses, Opportunities And Threats) Techniques And Analysis Network Process (ANP)

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**Abstract:** The very purpose of the Strategic Human Resources Management is creating a perspective by which many fundamental issues related to the employees will be defined. This project has been carried out in Iran Merinoos Company and at first, by using strategy formulation techniques, the most important and (internal and external) elements were identified. By using Strengths, Weaknesses, Opportunities and Threats (SWOT) Matrix, the basic organizational strategies were developed. The SWOT Matrix is one of the most important tools for strategy formulation. For analyzing the SWOT qualitatively, and to consider the possible ties between the elements, we used Analysis Network Process. The possible ties between the SWOT elements have an influence on strategic element weights, sub-elements weights and the priorities of alternative strategies. By incorporating the SWOT analysis and Analysis Network Process, the present study focused on formulating and identifying the organizational priorities of human resources strategies. By using these techniques, we can formulate some efficient strategies and perform them on the human resources section of the organization. Finally, we will focus on the conclusion and suggestions.

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### 1. Introduction

In today's competitive era, all the organizations are affected by some challenges such as changing expectations and new demands of customers, improving quality, job accidents, boosting competition, and extensive economical, social, cultural, political and technological changes. Note that all these organizations must choose the strategies by which using them leads to survive (in competitive situations). Strategic Management with a comprehensive analysis of internal and external situations of the organization and by choosing competitive and effective strategies tries to make a significant proportion between the internal and external environments of the organization.

Certainly, one of the most important and strategic goals of our organizations is enhancing the employee's performance, creating a culture of health and improving the quality of service. The human resources unit can provide many services in this field and in the context of strategic management it plays an important role in increasing productivity plans, continuous Improvement and improving the quality of work life. There are many strategic management approaches. The SWOT analysis is very common

among them. The SWOT analysis is a supportive tool for decision making and it is often used for systematic analyzing the internal and external environments of the organization. The SWOT analysis summarizes the most important elements. These elements are known as the influential strategic elements on the future of the organization.

Although the SWOT analysis is a good basis for planning the effective strategies, it has many weaknesses. In the traditional form of SWOT analysis, the importance of elements for determining the effects of each element in a proposed strategy could not be quantitative. In other words, the SWOT analysis was not a suitable tool for determining the importance of each element. While the SWOT analysis determines the desired elements in an analysis, each element should be defined and summarized separately. The result of the SWOT analysis is mostly a partial list of internal and external quality. Therefore, the SWOT analysis is not a general analyzer of strategic decision making processes. So, in the present study, by incorporating the SWOT analysis and Analysis Network Process (ANP), we are going to reduce these shortcomings. Strategic decision making and formulating Human

Resources Management strategies as well as the strategies of functional areas need to be investigated through internal and external opportunities and threats, and they also need to be analyzed in different areas. In the present study, by analyzing the internal and external situations of the organization, creating a SWOT matrix, and using Analysis Network Process, we are going to choose the best appropriate strategy for the human resources system of the organization.

## 2. The Strategic Human Resources Management

The Strategic Human Resources Management is an approach for making decision about the goals and plans of the organization in the framework of politics, plans, and the employment relationships, recruitment, training, development and performance management. The researches show that strategic management in knowledge-based economy which knows human resources as the most important resources of achieving the competitive advantages. From 1980, the Strategic Human Resources Management is the important subject for the researches. The Strategic Human resources could achieve a prominent position because it could find a tool for creating competitive advantages and improving the management system.

The hypothesis of a close relationship between strategic management and the rooted-based organizational management theory has a contingency. This theory states that the Human Resource Management approach forms through the competitive strategy of organizations. The organizations that have been established a close coordination between Human Resource strategies organizational activities, usually perform better and this arrangement is more or less nonexistent. We can divide the Strategic Human Resource Management into two groups: A. in accordance with the supportive and vertical alignment with overall strategy of the company. B. in accordance with the horizontal alignment, the Human Resources management tasks were performed for achieving the functional adaptation to different aspects of this field. The vertical alignment is an approach in which we observe the different tasks of Human resource management as a non-environmental situation. The horizontal alignment is an approach in which the Human Resource Management strategies have a relationship with the related methods (Strategic Management Approach). The Strategic Human Resources Management is a process that is formed through the Human Resource Strategies. "Strategic Human Resources Management" and "Human Resources Strategies" are used usually alternatively but they are different from each other. The Strategic Human Resources Management is a philosophical-management approach in which it responsible for fulfilling the organization's goal. We can conclude from this process that, the optional

choice of the organization for its Human Resource Management strategy is developing the human resources itself. The Human Resource Strategies often focus on the organization's goals and.

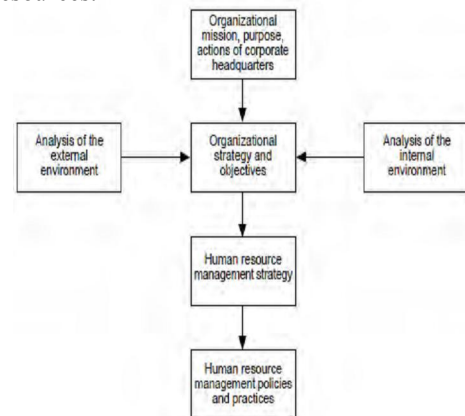
## 3. Maximum compatibility with the Strategic Management of Human Resources approach

This approach focuses on the importance of proportion of Human Resource strategies with the organization's situations such as cultural problems, performance processes and external environment. Human Resource strategies should consider the organization and people's demands. The very beginning of analyzing the organization is often done through environment (culture, structure, technology and processes), and analyzing would determine that what action should be considered. The elements should incorporate well and they have to apply in consistent with the known requirements.

## 3. Results

### Models of Strategic Human Resource Management

Figure 1 shows the accepted model of Human Resources.



**Figure 1:** the framework of the Strategic Human Resource Management

According to the Contingency Theory and also behavioral perspective, the Human Resources Strategies should incorporate with the competitive strategies of the organization. In this way, the performance of the organization or the effectiveness of Human Resources increases. In fact, the strategic concept is considering the close relationship of Human Resources strategies and organizational strategies because these issues would motivate the employees.

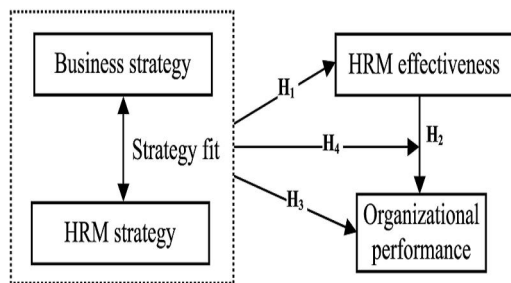
H1- The first hypothesis of this model says that the best proportion between competitive strategy and organizational strategy leads to the effectiveness of the Human Resources Strategy.

H2- The second hypothesis of this model says that the effectiveness of Human Resources has a

close relationship with the organizational performance. In fact, the strategic proportion concept says that organizations should manage their resources more effectively that this leads to lesser costs. This proportion also answers the environmental threats and opportunities.

H3- The third hypothesis says that, the best proportion between competitive strategies and Human Resources Strategies leads to organizational performance. Many theorists of the Contingency Theory believe that organizational performance and the effectiveness of the Human Resources increases rapidly and at the end Human Resources Strategies and competitive strategies overwhelm each other.

H4- The best proportion between competitive strategy and Human Resources Strategy leads to strengthening the relationship between organizational performance and the effectiveness of the Human Resources. We can see that clearly in Figure 2.



**Figure 2:** the proportion of organizational strategic and Human Resource Management Strategy

These are various categorizations for the Human Resources Strategy. For instance, David in “Strategic management” says that environmental elements are as follows;

1. Economical forces
2. Social, cultural, ecological and environmental forces
3. Political, governmental and legal forces
4. Technological forces
5. Competitive forces

In another categorization, environmental and internal elements are as follows:

❖ **Environmental elements**

- Macro elements
  - Economical
  - Political-legal
  - Cultural
  - Social and geographical
  - Technological
  - International
- Micro elements
  - Customers

- Competitors
- Producers
- Stakeholders (unions, forums, shareholders)

**Figure 3:** Categories of environmental elements (Seyed Javadin, 2005)

❖ **External elements**

- Management and leadership style
  - ◆ Organizational objectives and programs
  - ◆ Organizational Culture
  - ◆ Organizational Resources (financial, physical, Humanitarian, organizational)
  - ◆ Organizational dimensions (structural or content)
- Personal dimensions
  - ◆ Job skills, expertise and capabilities
  - ◆ Responsibility and effort
  - ◆ Attitudes and personal values
  - ◆ Motivation and Job Satisfaction

**Figure 4:** External elements

In this section we only investigated a model for familiarity with the content of the research. There are many other models which we are not going to discuss here.

**5. Analysis Network Process (ANP)**

In the preliminary investigations, Analytical Hierarchy Process was used as a multi-criteria decision making technique for solving the complex problems of decision making. Saati (1980) introduced Analysis Network Process for the first time and used that for solving many problems. The fundamental hypothesis of Analysis Network Process is the autonomy of higher levels in comparison with the lower levels and in accordance with the other elements of each level.

Many decision making issues are structures hierarchically due to the various mutual relationships between the elements. Saati proposed that AHP is used for the issues that have no relationships among them and ANP is used when the alternatives and indexes are interdependent. ANP is proposed by Saati as an extended mode of AHP. While the relationships in AHP are unidirectional hierarchy, the relationships between the indexes and decision making levels are mutual. Therefore, hierarchical structure with a linear downward relationship is not suitable for complex systems.

**5-1. ANP implementation process**

*First step:* Creating a Model and Developing an Issue: in modeling process, we determine the goal of decision making, decision making indexes and the possible options of the modeling.

*Second step:* Performing Paired (pair wise) Comparisons and Vector Calculation: In this process,

some paired comparisons are applied for determining the relative importance of the elements and indexes. In such comparisons, a relative criterion is used from one to nine (see Table 1). The score (1) shows the equal importance of two elements, though the score (9) shows the full dominance of element.

*Third step:* Performing the paired comparison for internal dependencies and feedbacks: in this step, internal weights of key elements and sub-elements in the modeling process will be calculated.

*Fourth step:* Creating Super matrix: Super matrix is used for analyzing the internal dependencies among the components of the system. Super matrix is a composite matrix that each sub-matrix includes a set of within-level relationships. Super matrix's components are made up out of the paired comparisons of internal dependence matrices and they are placed in them.

*Fifth step:* the best decision making: in this process, the total weights of each alternative are made up out of multiplying the achieved weights of the previous levels and final decision making will compete in this way.

**Table1.** Saati's spectrum

The level of importance	Definition
1	Equal Importance
3	A Little More Important
5	More Important
7	Much More Important
9	More Extremely Important
2, 4, 6, 8	Intermediate Values

Reference: Saati 1996

### 5-2. Modulation of ANP (Analysis Network Process) with the SWOT analysis

Although AHP technique can solve various shortcomings of the SWOT analysis, it cannot analyze the possible dependencies at all.

By analyzing the internal and external environments, we can understand the possible dependencies of each element. The organization that has various capabilities and features can make use of his opportunities for the best, otherwise the opportunities will be missed or takeover by rival.

There is a similar relationship between threats and strong points. The ability of overcome with threats depends on the strong points of the organization. A strong organization by using its strong points is able to eliminate or minimize the effects of environmental threats. The relationship between the strong and weak points is to be explained this way: The organizations with more strong points, have fewer weaknesses and therefore, they are facing less weaken conditions.

Among the strategic elements, other two combinations of variables with the possible internal

dependencies are threat-weakness and opportunity-weakness. The organizations having more weaknesses and being more prominent are more valuable against the threats of rival organizations. Therefore, when organizations want to clarify their strategies, they should consider their weak points and environmental threats. For an organization with multiple weaknesses, appropriate and optimal use of opportunities is more difficult. If capabilities and facilities of the organization are adequate, they can take advantage of their opportunities but if the organization lacks capabilities and facilities, it cannot use the external environmental opportunities effectively.

As mentioned above, the elements of the SWOT analysis are not only independent, but also dependent in many cases and relationships. By considering the traditional concept of the dependency of elements, the weights calculations became very different from previous mode. The possible variation of element's weights leads to changing the priority of alternative strategies. These changes in turn affect the selected strategies. Therefore, we should pay much attention to the element's analysis.

### 6. Research Methodology

In the present study, for determining the priority of proposed strategies, the SWOT analysis alongside with ANP was used. The case study of this research was a textile company. At first, by analyzing the internal and external environments of the organization, a group of specialists identified the controllable and uncontrollable sub-elements which they are affecting the organization's success. The selected sub-elements had strategic importance. By using the sub-elements of SWOT analysis and SWOT matrix, the alternative strategies were formed. Table5-1 shows that the organization has four strategies. In the present study, the purpose of using network analysis is determining the priority of proposed strategies and selecting the best safety strategy for the organization.

The statistical communities of this research were 15 people who were qualified and expert in internal and external environments analysis. Because the statistical community of this research was very few, the statistical samples of this research were selected only for 15 people. The final ranking in each matrix is geometric mean ratings of individual experts.

The steps that are used in this research are according to Yuksel and Dagdoyrn (2007). Super matrix is usually used for calculating the final weights of the alternatives in ANP model. A matrix of hierarchical SWOT has four levels:



$$W = \begin{matrix} G \\ F \\ SF \\ A \end{matrix} \begin{bmatrix} 0 & 0 & 0 & 0 \\ W_{21} & 0 & 0 & 0 \\ 0 & W_{32} & 0 & 0 \\ 0 & 0 & W_{43} & I \end{bmatrix}$$

In this matrix, W21 is a vector in which shows the impact of goal the criterions. W32 is matrix in which shows the impact criterions onto each sub-element, W43 is a matrix in which shows the impact criterion of each alternatives and finally I is the identity matrix. Figure 5 shows the hierarchical mode of the SWOT model and figure 6 shows the network mode of the SWOT model.

In figure 6, sub-criterions and alternatives are respectively key elements, sub-elements and strategies.

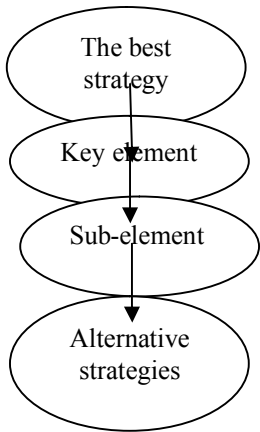


Figure 5- The hierarchical mode of the SWOT model

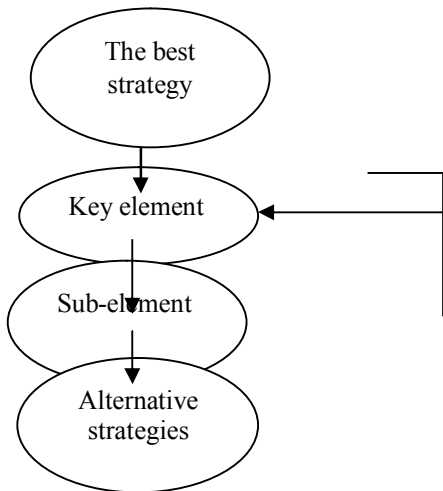


Figure 6- The network mode of the SWOT model

As we can see, in figure 6, there is an internal relationship between the key elements of SWOT analysis. According to the figure 6, the general mode of the super matrix is as follows:

$$W = \begin{matrix} G \\ F \\ SF \\ A \end{matrix} \begin{bmatrix} 0 & 0 & 0 & 0 \\ W_1 & W_2 & 0 & 0 \\ 0 & W_3 & 0 & 0 \\ 0 & 0 & W_4 & I \end{bmatrix}$$

In this super matrix, W1 is a vector in which shows the impact of goal (choosing the best strategy) on the key elements of SWOT analysis, W2 is a matrix in which shows the internal dependencies of key elements of SWOT analysis, W3 is matrix in which shows the impact of key elements of SWOT analysis on the sub-elements of SWOT analysis and W4 is a matrix in which shows the impact of key elements of SWOT analysis on the alternatives.

But in addition to using super matrix for calculating the final weights, we can use matrix operations. The details of the process can also be shown in matrix method. Since in this research, the number of internal relationships is low and we can only see the internal relationships among the SWOT elements, it is better to use the matrix method.

In order to determine the final weights of this research's alternatives, the proposed algorithms of Yuksel and Dagdoyrn (2007) were used. This algorithm is a based on the matrix method and it shows the details of the calculation clearly.

The desired algorithm steps are as follows:

First step: at first the issue will be organized according to the ANP model. This model has four levels. The first level is related to choosing the best strategy and the second level is related to the key elements of the SWOT analysis. The sub-elements of SWOT analysis are in the third level. This level includes eight sub-elements for strong points of the key elements, nine sub-elements for the weak point of the key elements, nine sub-elements for the key elements of opportunities and eight sub-elements for the key elements of threats. The final level shows the strategies of this research. The desired model is shown in figure 7.

Second step: Proposing that there are mutual dependencies among the key elements of SWOT analysis, paired comparison of key elements by using Saati's scale was performed. Paired comparison matrices by using Export Choice software were analyzed and weight vector was achieved.

**Table 2:** SWOT matrix of Iran Merinoos Company

<b>Strong points</b>		
<ol style="list-style-type: none"> <li>1. An independent unit personnel with proper structural organization;</li> <li>2. Educational facilities and suitable place for staff training;</li> <li>3. Considerable financial strength and capabilities of the organization to reward and remuneration;</li> <li>4. Representative group of workers for contacting with the organization management;</li> <li>5. Proper installation of manufacturing equipment and machinery, according to the staff;</li> <li>6. Using information and communication technologies in various fields of work;</li> <li>7. Low error rate, and the Individual occupational accidents in the organization;</li> <li>8. Appropriate and acceptable cooperation with the active organizations in the exchange of professional and trained staff;</li> </ol>		
<b>Weak points</b>		
<ol style="list-style-type: none"> <li>1. Lack of a strategic and long-term perspective to the recruitment and hiring;</li> <li>2. Absence of a domestic legal system (about the laws and regulations of employment);</li> <li>3. Ignorant organizational managers toward the personal and life of the people;</li> <li>4. Lack of appropriate mechanisms and efficient criteria for selection of required people;</li> <li>5. Lack of specialists and experts in various fields of employment;</li> <li>6. Lack of using new educational programs;</li> <li>7. Having amortized and worn out machinery manufacturing, the aging workforce and lack of using young people;</li> <li>8. Low safety culture of the organization coordinated with the production lines</li> <li>9. Intense dissatisfaction of employees from their job and having many uniform jobs;</li> </ol>		
<b>Opportunities</b>	<b>(SO)</b>	<b>(WO)</b>
<ol style="list-style-type: none"> <li>1. Strong support from foreign organizations;</li> <li>2. Low rate of tariffs of goods and capital equipment;</li> <li>3. Access to skilled and educated labor in outside the organization;</li> <li>4. Special facilities for recruiting young people and new equipment;</li> <li>5. increasing the level of education in society and changing community attitudes towards work and decent work standards;</li> <li>6. Many potential markets for entry and customer products;</li> <li>7. Sharp reduction in interest rates;</li> <li>8. Access to the experiences of competitors and neighbors;</li> <li>9. Trends in information technology and the increased number of internet users;</li> </ol>	<ul style="list-style-type: none"> <li>- Using the organization's ability for financial support and payment and wages;</li> <li>- The organizational investment for attracting skilled and educated people outside of the organization;</li> <li>- The organizational investment for preparing advanced equipment and machinery;</li> <li>- Using information and communication technology for attracting professional recruit;</li> </ul>	<ul style="list-style-type: none"> <li>- Working with the employment agencies and finding skilled labors;</li> <li>- Developing educational programs for managers getting familiar with resource management issues;</li> </ul>
<b>Threats</b>	<b>(ST)</b>	<b>(WT)</b>
<p>The high unemployment and inflation rate;</p> <p>The low rate of foreign investment in national and international sanctions against Iran;</p> <p>The economic downturn and uncertainty in country;</p> <p>Having some overseas and cheap price products;</p> <p>The crises related to ethical challenges and denial of social responsibility in organizations;</p> <p>The crisis of labor strikes and spreading this issue to the community;</p> <p>The inability to meet social and cultural changes;</p> <p>Lack of encouraging and supporting policy toward the government;</p>	<ul style="list-style-type: none"> <li>- Developing training programs for the managers and employees in order to getting familiar with the ethical challenges of the organizations;</li> <li>- Developing management plans for crisis and preparedness against crises and labor strikes.</li> <li>- Cooperation and requesting help from the organizations.</li> </ul>	<ul style="list-style-type: none"> <li>- Developing educational plans and informing for the development of corporate and coordination culture;</li> <li>- Developing employment laws and recruitment regulations within the organization;</li> <li>- Improving the work environment in order to reduce employees dissatisfaction;</li> <li>- Applying a systematic and comprehensive program in order to reduce employees dissatisfaction;</li> </ul>

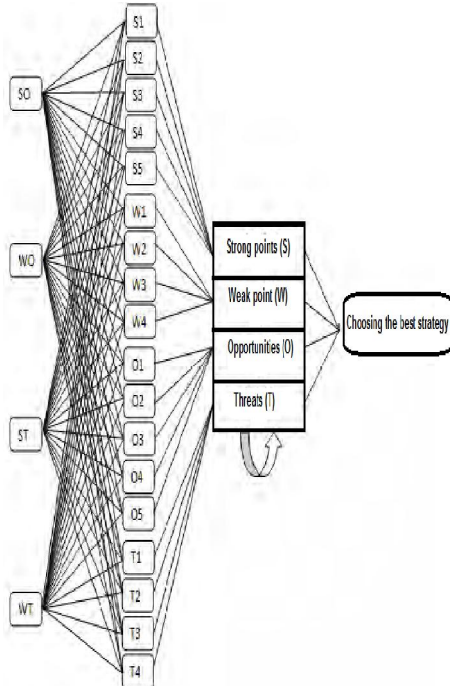


Figure7. The ANP model for the SWOT analysis (the research model)

**Table 3.** Paired comparison matrix of key elements and the relative weights of each element

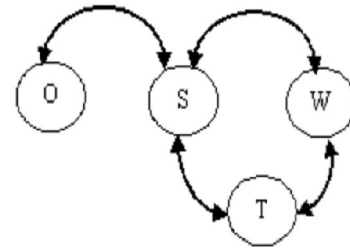
Relative weights	T	O	W	S	Key elements
0/443	3/18	2/31	2/42	1	S
0/278	3/14	2/16	1	0/41	W
0/186	2/84	1	0/46	0/43	O
0/093	1	0/35	0/32	0/31	T

CR= 0/06

In paired comparison we have pay attention to the matrix compatibility. Matrix  $A = [a_{ij}]$  is compatible, if and only if  $a_{ik} \times a_{kj} = a_{ij}$ . If the compatibility in paired comparison matrices is 1, it is still acceptable.

Third step: in this level, the mutual compatibility among the key factors is determined through analyzing the impact of each element on the other element. The mutual compatibility among the key elements is shown in figure 8. Each number in Table 3 is achieved through the Saati's spectrum and by this question: "to what extent are the relative importances of weak points with the opportunities for controlling the weak points?"

Since we know that the opportunities can only be achieved through weak points, not only a one paired comparison matrix for the opportunities would be formed. The mutual relationships between the key elements are shown in Figure 8. This model is from the proposed model of Yuksel and Dagdoyrn (2007).



**Figure 8.** The mutual dependencies of key elements of SWOT analysis

**Table 4.** Relative weights

Relative weights	W	O	W	Weak points
0/78	0/32	0/12	1	W
0/693	3/24	1	8/33	O
0/229	1	0/31	3/13	T

CR= 0/00

**Table 5.** The paired comparison matrix of key elements and relative weights of each element (weak points)

Relative weights	T	S	Weak points
0/887	7/83	1	S
0/113	1	0/13	T

CR= 0/00

**Table 6.** The paired comparison matrix of key elements and relative weights of each element (threats)

Relative weights	T	S	Threats
0/887	7/14	1	S
0/123	1	0/14	W

CR=0/00

Fourth step: in this step, the mutual weights of the key elements' dependencies, by the product (multiplying) of the dependency matrix of key elements (the obtained relative weights of level 3), in the relative weights of key elements (Table 3) were achieved after the normalization. The mutual weights of key elements' dependencies will be calculated through this:

$$\begin{pmatrix} 1.00 & 0.887 & 1.00 & 0.877 \\ 0.078 & 1.00 & 0.00 & 0.123 \\ 0.693 & 0.00 & 1.00 & 0.00 \\ 0.229 & 0.113 & 0.00 & 1.00 \end{pmatrix} \times \begin{pmatrix} 0.443 \\ 0.278 \\ 1.116 \\ 1.113 \end{pmatrix} = \begin{pmatrix} 0.478 \\ 0.162 \\ 1.194 \\ 1.113 \end{pmatrix}$$

As you can see, there is an obvious difference between the weight of elements and the weight of mutual dependencies of the elements.

Fifth step: in this level, the relative weights of sub-elements of SWOT analysis is obtained through using paired comparison matrix and the final results are shown in Table 7. For an example, paired comparison matrix for the strong points of sub-elements is shown in Table 8.

Table 7. The total weights of key elements of SWOT analysis

The relative weights of key elements	Sub-elements of SWOT analysis	The relative weights of sub-elements	The total weights of sub-elements
	Independent unit clerk with a suitable organizational structure	0/100	0/0478
	Educational facilities and suitable place for staff training	0/190	0/0908
	Capabilities of the organization in remarkable financial ability to pay bonuses	0/255	0/1219
	Representative group of workers for contacting the organization's manager	0/099	0/0473
Weak point 0/478	The proper alignment of manufacturing equipment and machinery to fit the organization's employees	0/109	0/0524
	The use of information and communication technologies in various fields of work	0/110	0/0526
	Low individual errors and professional events in the organization	0/085	0/0406
	Appropriate and acceptable cooperation with the active organizations in the exchange of professional and trained staff	0/051	0/0244
	Lack of a strategic and long-term perspective to the recruitment and hiring;	0/147	0/0238
	Absence of a domestic legal system (about the laws and regulations of employment);	0/124	0/0201
	Ignorant organizational managers toward the personal and life of the people	0/056	0/0091
	Lack of appropriate mechanisms and efficient criteria for selection of required people	0/068	0/0110
Weak points 0/162	Lack of specialists and experts in various fields of employment	0/156	0/0253
	Lack of using new educational programs	0/064	0/0104
	Having amortized and worn out machinery manufacturing, the aging workforce and lack of using young people;	0/066	0/0107
	Low safety culture of the organization coordinated with the line supervisors	0/185	0/0299
	Intense dissatisfaction of employees from their job and having many uniform jobs	0/133	0/0216
	Strong support from foreign organizations	0/173	0/0427
	Low rate of tariffs of goods and capital equipment	0/083	0/0205
	Access to skilled and educated labor in outside the organization	0/148	0/0365
	Special facilities for recruiting young people and new equipment	0/149	0/0368
Weak points 0/247	The rising levels of education and change in society's attitude towards the work and decent working standards	0/123	0/0305
	Potential markets for entry and sales	0/048	0/0119
	Sharp reduction in interest rates	0/097	0/0239
	Access to the experiences of competitors and neighbors	0/090	0/0222
	Trends in information technology and the increased number of internet users	0/090	0/0222
	The high unemployment and inflation rate;	0/136	0/0155
	The low rate of foreign investment in national and international sanctions against Iran;	0/110	0/0125
	The economic downturn and uncertainty in country	0/099	0/0112
Threats 0/113	Providing special facilities in the areas of professional safety and health programs from the competing organizations	0/106	0/0119
	The crises related to ethical challenges and denial of social responsibility in organizations	0/070	0/0079
	Having some overseas and cheap price products	0/194	0/0219
	The inability to meet social and cultural changes;	0/086	0/0097
	Lack of encouraging and supporting policy toward the government	0/199	0/0225

Table 8. Paired comparison matrix for the strong points of sub-elements

Strong points	S1	S2	S3	S4	S5	S6	S7	S8	Relative weights
S1	1/00	0/49	0/35	1/00	0/50	1/06	1/96	2/04	0/100
S2	2/03	1/00	0/48	2/18	2/11	2/26	2/34	2/98	1/190
S3	2/86	2/08	1/00	2/23	3/08	2/02	1/93	2/21	0/255
S4	1/00	0/46	0/45	1/00	1/00	1/03	1/00	2/11	0/099
S5	2/00	0/47	0/32	1/00	1/00	1/00	1/24	2/00	0/109
S6	0/94	0/44	0/49	0/97	1/00	1/00	2/00	2/14	0/110
S7	0/51	0/43	0/52	1/00	0/81	0/50	1/00	2/04	0/085
S8	0/49	0/34	0/24	0/47	0/50	0/47	0/49	1/00	0/051

CR= 0/02



Sixth step: in this level, the total weights of the sub-elements ( $W_G$ ) are obtained from multiplying the weights of key elements into the relative weights of sub-elements (Table7). The vectors of sub-element weights are shown in Table 7.

Seventh step: in this level, the priority of alternative strategy is calculated through the paired comparison matrix and the sub-elements of SWOT

analysis. Due to various paired comparison matrices, for an example we chose 4 paired comparison matrices and the final results were obtained through Expert Choice software.

In table 9, we presented the paired comparison matrix for scoring the options (according to strong points). This matrix was taken as an example.

**Table 9.** Paired comparison matrix for scoring the options (for each strong point)

An independent unit with an appropriate structure in the organization	SO	SO	ST	WT	Relative weights
SO	1/00	3/14	2/21	4	0/482
WO	0/32	1/00	0/45	1/98	0/156
ST	0/45	2/22	1/00	2/12	0/257
WT	0/25	0/51	0/47	1/00	0/105

CR= 0/02

The final matrix (W) shows the weight vectors (relative weights) of the paired comparison analysis (Table 34). Here we just wanted to present an

example of paired comparison but the final matrix and the relative weights are shown in matrix 34. The results are taken from the EC software.

0.581	0.199	0.050	0.165	0.011	0.028	0.179	0.111	0.165	0.050	0.199	0.050	0.028	0.199	0.111	0.199	0.050	...	...
0.106	0.338	0.134	0.111	0.132	0.119	0.119	0.119	0.338	0.106	0.134	0.111	0.132	0.119	0.119	0.119	0.119	...	...
0.101	0.118	0.101	0.081	0.050	0.106	0.081	0.081	0.118	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	...	...
0.100	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.118	...	...
...	...	0.080	0.081	0.081	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	...	...
...	...	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	...	...
...	...	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	...	...
...	...	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	0.101	...	...

The eighth step: finally, the final weights of the alternative strategies are calculated as follows:

$$\begin{bmatrix} 0.314 \\ 0.210 \\ 0.246 \\ 0.230 \end{bmatrix} W_A = \begin{bmatrix} SO \\ WO \\ ST \\ WT \end{bmatrix} = W \times W_G =$$

In this relationship,  $W_A$  is the final weights of the alternative strategies,  $W$  the level of priority of the alternative strategies according to each sub-element of SWOT analysis and  $W_G$  the total weights of sub-elements. According to the obtained weights, the SO's strategies have the maximum weight and they are selected as the best strategies.

**7. Conclusions and Recommendations**

Organizations to survive in today's turbulent and rapid environment need to have a coherent long-term plan. The organization's view towards the

departments and units of the organization should be long-term and strategic. One of the functional parts of the organization is employment unit. This unit is supposed to be the beating heart, that with the right perspective in this section, the organizations may be found to achieve the desired goals. In this research, some strategic rules were presented for Human Resources unit. At first, the internal and external environment analysis, weak and strong points, opportunities and threats and at long last the SWOT matrix was presented. After applying the SWOT matrix, four strategies (SO, WO, ST and WT) were presented.

After the SWOT analysis, the most important internal and external elements of the organization were summarized. These elements are known as influential strategic elements for the organization's future. In the present research, despite many other researches, proposing the dependencies among the strategic elements has the upmost importance. For analyzing the dependencies of the elements, ANP model was used. By analyzing the internal and external environments, the possible dependencies of each element can be identified.

By considering the SWOT analysis, the ANP model and alternative strategies were replaced. This model has four levels, the first level (selecting the best strategy), the second level (the key elements of SWOT analysis), the third level (the sub-elements of SWOT analysis) and finally the fourth level (the alternative strategy). Proposing that there are some dependencies among the strategies can have an influence on selecting the strategy and determining the priority of strategies, as well.

Due to restricted resources, after the audition of safety strategies, the priority of proposed strategies should be applied. The defined strategies in SWOT matrix were analyzed through ANP technique and finally the SO strategies were chosen as the best strategies. Therefore, the organization should consider this strategy more than before.

These strategies are as follows:

- Using the organization's ability for financial support and payment and wages;
- The organizational investment for attracting skilled and educated people outside of the organization;
- The organizational investment for preparing advanced equipment and machinery;
- Providing special facilities (communication and information technology) for informing people from the organization's safety programs and developing these programs in the areas of professional safety and health procedures.

The suggestions of this research are divided into two sections. These two sections are as follows: Practical Suggestions and Research Suggestions. In this part, only Research Suggestions are presented.

For improving the Human Resources performance, the organization should implement the SO's strategies. For implementing these strategies, some actions should be considered. The practical suggestions of this research are as follows:

A. The organization can take advantage of its capabilities and features for attracting the financial resources (outside of the organization), and invest for the modernization of machinery and equipment and training the professional people.

B. The organization should invest for recruiting and hiring the qualified and experienced people. This strategy has many advantages such as developing a culture of collaboration, reducing the occupational accidents, improving the performance and process reliability, and reducing the costs of the organization.

C. Using information and communication technology in the Human Resources unit leads to the development and comprehensive utilization of management program and continuous improvement of the least cost. By using this strategy, people can be well informed about the organization's activities and

it can give a good picture of the organization in comparison to other competitors.

Other studies can also assume dependencies among the sub-elements and if there are uncertainties in the case of paired comparison matrices, fuzzy numbers can also be used.

Incorporating the SWOT analysis and ANP (analysis network process) can also be fined in other areas like marketing, finance, and production, etcetera.

Other techniques like DEMATEL and Fuzzy Analytical Network Process (FANP) can be carried out in further researches.

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