

Evaluating and prioritizing the aspects of SWOT matrix using the statistical methods and the analytical hierarchy process (AHP) (case study: Iranian oil pipeline and telecommunication company, northwest region)

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Abstract: The process of strategic management is based on this fact that organizations inevitably need to keep an eye on their internal and external events so that they can adapt themselves with the environment changes in case of necessity. These days the SWOT approach is being used more than previous years, however this approach does not have the ability to comprehensively evaluate the circumstances of the strategic decisions and only is able to identifying the causes. As a matter of fact, in this research as well as paying attention to the logical and accepted processes of strategic management in prioritizing the aspects of SWOT matrix, the scientific and functional decision making approach of AHP has been used either. This research is a descriptive applied survey. The statistical population for this survey are the employees with the position group 16, 17 and higher, who are classified mostly as the managers of the surveyed company. All the population of the target group are 30 people and as a result the entire group has been studied rather than taking samples. Questioners have been used for collecting data. Besides, for properly prioritizing the aspects of the SWOT matrix with the AHP approach, interviews have been done either. The collected data were analyzed by SPSS19 and then by using the Freedman Test every items of Strengths, Weaknesses, Opportunities and Threats were prioritized and at the end, because of the effects of using the multi-criteria decision-making approaches in this kind of cases, the aspects of SWOT were again analyzed and prioritized by Expert Choice 11 software. Eventually, in terms of priorities 1 to 3 of weakness points, 100% compliance and for the other integrated points compliance and noncompliance features were determined based on two approaches that mentioned above.

Key words: Iran oil pipeline and telecommunication company (Northwest Region); Strategy; Freedman Test; SWOT; AHP

1. Introduction

Nowadays, the economic activities are done by small, medium and large organizations. All of these organizations are following the victory against their rivals and satisfying the needs of their customers in an unruly environment and highly competitive market. Strategic planning is a helpful tool for the success of the companies in the world competitive market if it is prepared and carried out rightfully and can stabilize their position. The effect of strategic planning in today's organizations is not secret, making use of the strategic planning by the managers can bring positive benefits for the organizations long term (Haghighi et al., 2009).

Strategic planning system creates a very effective communicating channel in the different levels of Organizational pyramid. Most of the organizations which have developed strategic planning, understood that this process plays an important role in their management understanding promotion like practical management education course. One of the beautiful aspects of modern management is the

necessary approach of organization to public participation and essential thinking to utilize human resources in achieving the goals (Shani, 2004).

The strategic planning goal is to explain and prepare the strategy. According to the type, diversity and the nature of the changes in the environment, a combination of traditional and strategic planning can be used (Ghafarian and Amarzadeh, 2004). Based on the researches published in strategy and leadership magazine in 2006, strategic planning has been voted 88% as the most applicable by the large organization managers (Bians, 2007). So strategic planning with a comprehensive view, studies and systematically analyzes all the parts and external and internal organization elements at the same time and in an organic and dynamic relationship with each other and by determining primary and secondary goals and adopting efficient strategies (in different fields), by basic designing and optimal solutions seeks to use available and potential opportunities and creating new prospects for the organizations and institutions (Samadi and Fagher, 2009). Therefore, good performance in a company is a result of right interaction between the business management and its internal and external environment. Description of

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internal strengths and weakness points also expressing the opportunities and external threats is accomplished by a known technique called SWOT (Toker et al., 2012).

Also Improvement, evaluation and monitoring the effectiveness of strategic planning is always considered as one of the key tasks of the organizations' managers. Based on studies conducted by Fortune magazine in 2007, more than 90% of the world's great companies fail to achieve their strategic goals. In Iran also several agencies have used the methods and strategic planning tool, but most have failed to properly prioritize the strategy and implement the prepared strategies and achieve competitive advantageous factors (Asian, Hemmati and Samandi Zadeh, 2009).

In the past years many concepts and techniques have been proposed to how organizations can develop effective and appropriate strategy. Some of these concepts and techniques are focused on the fitness of skills and resources of the organization with the opportunities and risks caused by the organization external environment and some of them are focused on the capabilities and resources as a competitive advantage (Lopez and Vivas, 2005). So today, the SWOT approach has been used more than the past.

Strategic planning provides a tool with organizations to follow the preparation and performance of the strategy in the various aspects of the organization and to manage their strategic function. The strategic planning always by evaluation of environmental condition (opportunities and threats) and internal capabilities (strengths and weaknesses) and by considering organizational values, prepare the strategy not completely (Mintzberg and Lample, 2001). SWOT doesn't benefit from analyzing the possibility of comprehensive evaluation of status. This type of analysis only remains in the level of factors determination. SWOT is a qualitative analysis which can't determine the importance of factors analytically or evaluate the decision options according to the key factors (Movahedi et al., 2012). For this reason, to end the conflicts arising and different views and the experience of new success in Iranian Oil Pipeline and Telecommunication Company of Northwest Region, using AHP approach has been considered to formalize the establishment of strategic management and all the managers can play their roles and make appropriate decisions.

Analytical Hierarchy Process (AHP) is one of the most popular methods of multi-criteria decision making (MCDM). AHP structure performs the decision making and monitoring the decision process by defining goals, criteria and options, comparing the criteria and options dually and determining alternative priorities. Currently, the AHP structure is one of the most popular approaches used for MCDM to solve the real problems developed by Saaty in 1977 (Oreski, 2012). So the quantitative models and approaches play a key role in solving the problems. Successful use of quantitative methods

can lead to exact, reliable and economic solutions with a reasonable time. AHP is an answer to the human needs for investigation of qualitative issues which don't have a criterion for measurement and always appear with quantitative issues in our decision making. This method also, solves the complexes due to the effect of different factors on the problem by focusing step by step on the factors and then combining the results of these investigations. Indeed, AHP transforms a multi-dimensional problem to one-dimensional and makes complex and labyrinthine decision makings understandable and comparable (Ghodsi Pour, 2002). Not only this method compares the importance, prominence and the similarity of problems but also shows us the power of these factors (Saaty and Sodenkamp, 2008).

In this research, we want to answer these questions:

The main question: 1-How the reducing of threats, increasing the strengths, taking advantage of opportunities in Iranian Oil Pipeline and Telecommunication Company can be performed by using combinatorial SWOT-AHP approach?

The sub questions: 1-How can we assess and prioritize the dimensions of SWOT matrix by using SWOT-AHP approach?

2-Is using of AHP approach effective in prioritizing the obtained results?

2. Theoretical principles

Strategic management: the art and science of preparation, performance and evaluation of multiple task decisions that enables the organization to achieve its long term goals (Fred et al., 2007). Strategic management is a process which during it, the mission, prospect and the main and primary goals of the organization is prepared, the strategies and policies are regulated and projects and programs to accomplish the mission and achieving the goals is prepared and based on them, the sources are allocated (Ahanchi, 2010).

SWOT model: this model is a method for analyzing the strengths, weaknesses, opportunities and threats, and is a tool for analysis of external and internal environments which gives a systemic approach and is a supportive of making decision (Karaman et al., 2007).

Strength (S): is a situation if the company does or has it, the company has positive scores and remarkable ability (Fred et al., 2007).

Operational definition of strength: employees' job security, safety system and professional hygiene etc.

Weakness (W): is a situation if the company does or has it, the company has negative score and inability (Fred et al., 2007).

Operational definition of weakness: Increase of employees nearing retirement, High expectations of staff etc.

Opportunity (O): hidden potential which utilizing it will grow the company in the positive direction

and will have remarkable advantages for the company (Fred et al., 2007).

Operational definition of Opportunity: Increasing range of services, Neighbors identification and awareness of the nature of the path lines company etc.

Threat (T): unlike opportunity, is a situation which prevents movement, growth and promotion of the company (Fred et al., 2007).

Operational definition of threat: Violating the privacy of the path lines, rupture of the lines and the accidents due to the operation of other organs in the path lines etc.

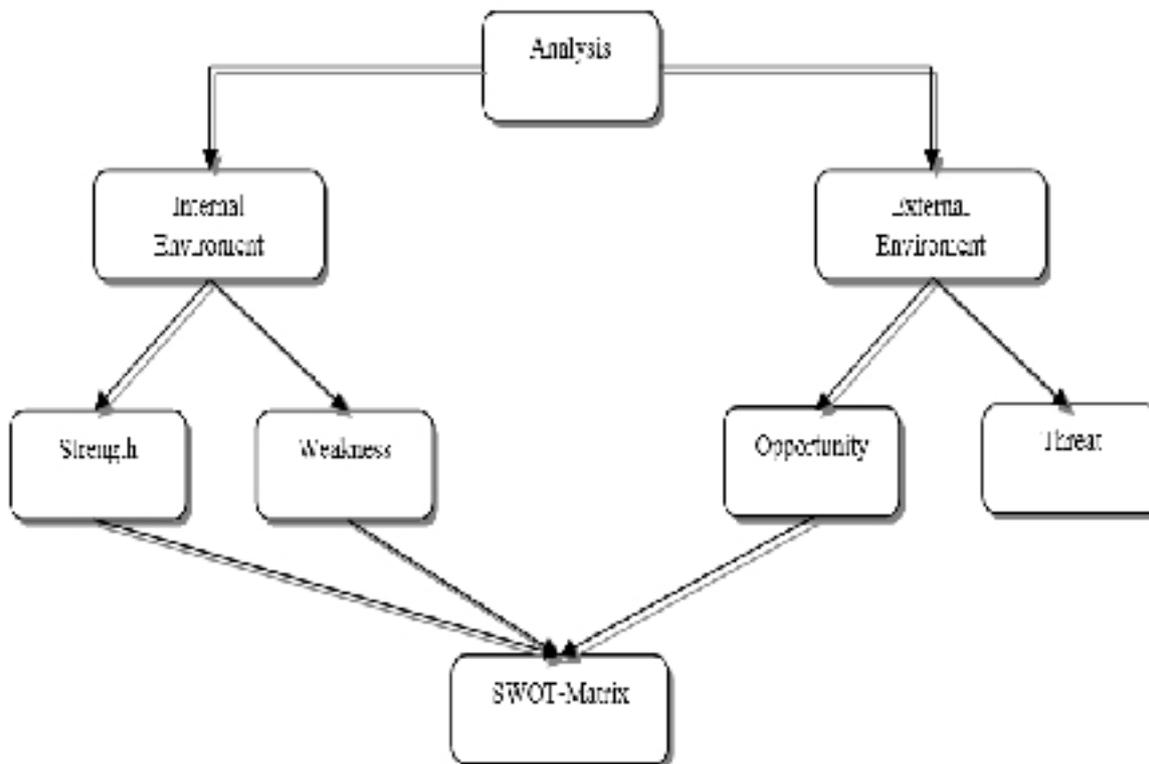


Fig. 1: SWOT model (Yang, 2009)

Table 1: Comparison of models for preparing strategy (Samadi, 2011)

Main elements	founders	Features/ model title
Noticing the strengths, weaknesses, opportunities and threats	Harvard School Business	Harvard Model
Beneficiaries' satisfaction	Freeman	Beneficiary Model
Market growth rate/ competitive position	Boston Consulting Group	Model BCG
Market share industry attractiveness	General Electric Company	Model GE
Noticing the strengths, weaknesses, opportunities and threats	Wilens and Hunger	SWOT Model
Competitive subject/ market growth	Christian Burg and Sunter	Main strategies model
Competitors, suppliers, alternative productions, buyers	Michael Porter	Porter competitive model

AHP: is a multi-criteria decision making method which can help to make decision generally by resolution of a difficult problem to a multi-surface structure of goal, criteria, alternative (Sharma, 2009).

This method can be used when decision making is facing with several competitor option and decision making criterion. The debated criteria can be quantitative and qualitative. This method is based on

paired comparisons. The determiner starts with providing decision hierarchy tree. The decision hierarchy tree shows the comparable factors and the competing options being assessed in the decision. Then a series of paired comparisons are done. Finally the AHP logic combines the matrices of paired comparisons with each other that the optimum decision is being taken. At first, the AHP represented for individual decisions in a turbulent

and fuzzy environment. Then in 1980s, how to use it in a group decision was debated. Using AHP in group decision making not only protects the benefits of group decision making but also their disadvantages (such as: speed, cost, one thought) resolves. In other words, AHP in a complex position, dissociates to parts smaller than the position. So these parts are placed in a hierarchy structure. This process offers a method to organize information and judgments and using them in decision making based on the ability, feelings and the logic of considered subject. The combines the judgments in a form of result to fit with the internal expectations (Abtahi and Torabian, 2010). AHP makes paired comparison to inference the relative importance of a parameter in each level of the hierarchy or evaluation of options in the

lowest level of hierarchy to obtain the best decision among the options. AHP method is an effective decision making particularly when there is mentality (Tuzmen and Sipahi, 2011).

In AHP method, the determiner should make a comparison for each pair of the involved criteria in decision making that this comparison in the first stage is descriptive and in the next stage is carried out in a form of quantity in a scale of 1 to 9 based on the below table and finally from this paired comparison the matrix is obtained. In the method of AHP, the weights or priorities for the involved criteria in decision making are extracted through the judgments which are performed in the form of oral, numerical or even graphical which are in the form of relative numbers (Naderi et al., 2011).

Table 2: Set of criteria relative to each other by expert opinions (Ghodsi Pour, 2002)

Numerical value	Preferences
9	Absolutely preferred or entirely above or entirely desirable
7	Preference or importance or strong desirability
5	Preference or importance or strong desirability
3	Little preference or little important or little desirable
1	Preference or importance or uniform desirability
2,4,6,8	The preferences among the above intervals

AHP-SWOT model

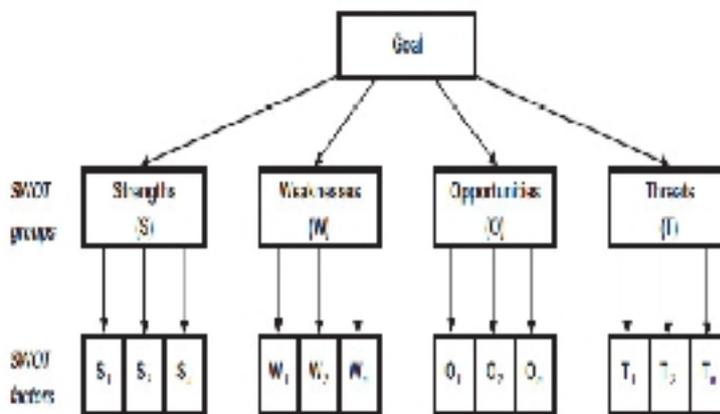


Fig. 2: The overview of AHP-SWOT model (Osuna and Aranda, 2007)

3. Research background

Due to the importance of investigation of SWOT dimensions and using the statistical tools and AHP

technique, a few of the researches conducted by the domestic and foreign researchers are mentioned.

Table 3: Domestic and foreign records

findings	year	researcher	Description	Domestic records
Prioritizing the company's strategies by APH	2009	Samadi and Fakher	Strategic planning and appropriate strategy selection by using AHP method (Ahvaz tubing company)	Domestic records

Using AHP to evaluate the effectiveness of organization strategy	2009	Asian and others	Evaluation of strategic planning in production companies by using AHP	
Evaluation and prioritizing and selection of the projects by AHP and TOPSIS techniques	2011	Kasraie	Offering a model to select the projects of Iranian Oil Pipeline and Telecommunication Company by AHP-TOPSIS method	
Using SWOT approach in strategic planning	2012	Nemati Zadeh	Preparation of strategic planning in National Iranian Oil Company Building Engineering based on the SWOT model	
Rating agencies operating parameters and acceptance of e-procurement technology using Freedman test and AHP	2013	Pour Kiani and others	Ranking effective factors on the adoption of e-procurement in the organization based on statistical method and AHP technique in the Islamic Republic of Iran Railway Company	
Introduced as a tool in the early stages of decision-making	1986	Johnson and others	Investigation of SWOT approach	Foreign records
Quantifying the SWOT approach and presenting a new hybrid method for evaluation using AHP	1998,2002	David Kurttila And others	Investigation of SWOT approach	
Prioritizing the strategies by AHP	2009	Wich Ramasinghe	Combinatorial SWOT-AHP approach to revive tourism marketing plan (The Case of Sri Lanka Tourism)	
Prioritizing the dimensions of SWOT approach	2012	Gorener	Combinatorial usage of SWOT-AHP in production factories	

4. Research method

It can never be claimed that the obtained recognitions are real because of unlimited knowledge about research and our awareness and methods are limited for discovering truth. If the assumption is that the goal of research activities is to discover the truth and the researchers are following this goal honestly, what they do and find, can be considered as trying to get close to the truth (Rafi Pour, 2009).

Achieving the goals of the research would not be possible unless the search to know or methodology is going in the right way "Descartes knows the methodology as a way to obtain the truth in the science must be wended" (Khaki, 2008).

This study is applicable from the view of goal and is descriptive surveying from the view of collecting data. This research is applicable because its finding are used to evaluate and prioritize the dimensions of SWOT and due to not interfering in the existing parameters and they are identified based on the current position is descriptive and also because in this study the population parameters are investigated and a sample is selected which is a representative of the population, it is surveying, so it can be also placed among the research field.

In a surveying research, the researchers use the questionnaire and interview to discover the attitudes, thoughts, understanding and the

preferences of individuals. Surveying has specified goals and a completely defined issue. The data are collected about nature, position and the relation between the events and current position. Surveying is an orientation to the study, let alone to be a series of methods and applied techniques. Field method is more like an umbrella that covers the activities of every way possible to achieve the desired knowledge and the analysis processes of information. (Khaki, 2008).

Population and the statistical sample: the population of this research include: Heads of equity, technical and operational, operational assistant, assistant technical and Management Company in the Iranian Oil Pipeline and Telecommunication of Northwestern Region. Because the discussions such as strategic planning are management issues and is always debated in the middle and top of the organizational pyramid. The considered population includes a total of 16 position and more based on a total of 30 people. So due to the matter that if there are some issues which prevent to select the possible sample, the sample can be presented in another way and we can follow a part of a group which is a representative of all the population. So the findings will be limited to this part and the results will be generalized to all of the population (Miller and Nayebi, 2006).

So because of the small number of the population members, the current research is non-possible, selective and considering the total number. Based on

the sample volume estimation rules, the statistical examination in judgment sampling (intentional) (Muler et al., 2008) and non-possible all descriptive and the sample volume will be equal to the determined sample by the researcher which is 30 in this survey.

Measuring tool: the tools for collecting data are: the questionnaire and interview.

The questionnaire include 48 question, in a Likert scale range with five options from completely quite the opposite to strongly agree and contains two classes of questions:

First, descriptive questions, include: sex, age, education, field of study, the history of working and job group.

Second, the questions related to the dimensions of SWOT matrix, include: 12 questions for opportunities, 12 questions for threats, 12 questions for weaknesses and 12 questions for strengths.

The questions selected for each dimension of the matrix is based on the importance of them in the studied company and is designed based on the experts in the company and the professors of Islamic Azad University, Science & Research Branch of Zanjan. In this research the validity method or reliability have been used. Because when there is not a possibility of empirical validity or it is difficult to obtain validity form empirical or pragmatic way, the conceptual validity is used and indeed from the obtained criteria behind it, tries to show it has measured the conceptual validity (Khaki 2008).

The researcher based on the view of experts and professors, has ensured from the reliability of his measurement tool in the section of research parameters. To determine the rate of stability, the cronbach's alpha coefficient and SPSS19 software have been used.

Table 4: The results of cronbach's alpha test

Cronbach's alpha	The number of questions
0.747	48

Cronbach's alpha solidarity coefficient is a number between 0 and 1. A questionnaire is stable if the amount of cronbach's alpha is bigger than 0.7 and if this number is close to 1, the questionnaire has more stability.

The collecting and analyzing method: in this survey, the library and field studies have been used to collect the data. To collect the data related to theoretical basics and history the library method and

Table 7: The comparison between the results of Freedman test and AHP approach about the overall dimensions of SWOT

The rank obtained from AHP with inconsistency rate of 0.07	The rank from Freedman test	Matrix dimensions
4	3	S
2	4	W
3	1	O
1	2	T

Based on the view of experts, the threats are more important for the organization while according to the participant who answered the questionnaire, the opportunities has the first place according to the average.

to distribute the tool, the field method have been used. The data analysis has been done by SPSS 19 and EXPERT CHOICE 11 software, the questions first have been evaluated and prioritized by Freedman test and then using interview, table and fig 2, the questions again have been examined and the results have been extracted from EXPERT CHOICE 11 software and finally the comparative analogy has been performed.

5. Results

To prioritize the parameters and answering the main question and the subsidiary questions which are discussed in the introduction, the Freedman statistical test has been used. The test is used to examine the equality of some of the parameters related to individuals (Momeni, 2008). The results obtained from the test by evaluation and prioritizing of AHP approach to investigate the effect of using AHP in prioritizing the opportunities, strengths, weaknesses and threats, have been compared.

H₀: the priorities of SWOT are equal

H₁: at least in one of the factors is different in priority

Table 5: Prioritizing the overall dimensions of SWOT

The dimension of the matrix	Rank based on the average
Opportunities	3.67
Threats	2.90
Strengths	1.88
Weaknesses	1.55

Table 6: Output and the Freedman test results of overall dimensions of SWOT

The number of questionnaire	30
Chi-Square	54.269
Degree of freedom	3
Significant level	0.000

The result of this test shows that the opportunities dimension with a coefficient of 3.67 in the first place, second is the threats with a coefficient of 2.90, third is the strengths with a coefficient of 1.88 and the last place is for weaknesses with a coefficient of 1.55. The result of this test is significant by Chi-Square= 54.269 and in the level of 99 percent insurance meaning in the level of 1 percent mistake.

Tables 8,9,10 and 11 have compared the Freedman test and AHP results about opportunities, threats, strength and weakness.

Table 8: The opportunities prioritizing based on Freedman test and AHP approach

The rank obtained from AHP with inconsistency rate of 0.09	Rank obtained from Freedman test	Opportunities
7	6	1- No opponent in the transition section
9	9	2- Action freedom in the operation section of the region
8	8	3- Promotion of contractors
10	11	4- Clients' satisfaction in the transition section
11	12	5- Clients' satisfaction in telecommunication section
4	7	6- Creating new facilities such as: portable lines and internet services (IP telephone)
1	1	7- Making advanced equipment such as: turbines control system and electro motors
6	2	8- Increasing services to new cities
12	10	9- Existence of organizations such as: exhibition, science and technology park, university of basic sciences near the company
5	5	10- Making suitable investment for operation and telecommunication from the superior organizations
3	4	11- Increasing notice to discussions such as: crisis management, HSE, quality management systems
2	3	12- Neighbors identification and awareness of path lines from the company's nature

The results obtained from both of the approaches show that the number 7 opportunity in in the best

place and is the most important for the studied company.

Table 9: The threats prioritizing based on Freedman test and AHP approach

The rank obtained from AHP with inconsistency rate of 0.08	Rank obtained from Freedman test	Threats
3	1	1- Rupture of the lines and accidents from other organs in the pathway of transit lines
8	8	2- Limitation to hire new staff
9	12	3- Complaints of some of the clients in remote telecommunication sector
5	2	4- Problem to supply spare parts
11	10	5- Alternating the ability attitude with degree view
6	5	6- Allocating the near grounds from the natural resources office to others
2	4	7- Transit lines path crossing next to the cities, villages etc.
4	6	8- Lack of adequate knowledge of the population from the company
1	3	9- Violating the privacy in the transit pipe line by the next individuals
10	11	10- Existence of Competitor in telecommunication sector
12	9	11- Hiring human force by the domestic oil companies form the neighbor countries with oil and gas resources
7	7	12- Lack of suitable and competent contractors in telecommunications and transport sectors

The obtained results from both of the approaches show that there is significant difference between the priorities, meaning from the view of experts, the threat number 9 is in the first place, but from the view of responders to the questions, the threat number 1 is in the first place and is important for the studied company.

The obtained results from both of the approaches show that there is significant difference in the priorities. From the view of the experts, the strength number 7 is in the first place, but from the responders' attitude, the strength number 11 is in the first place and is important for the studied company.

The results obtained from both approaches show that the weakness number 7 is in the first place and is important for the studied company.

Table 10: The strengths prioritizing based on Freedman test and AHP approach

The rank obtained from AHP with inconsistency rate of 0.09	Rank obtained from Freedman test	Strengths
9	9	1- Human resources committed and diligent
12	11	2- High level of education in the company
6	8	3- Suitable facilities and equipment in the operational and telecommunication sector
10	10	4- Educated and experienced human force
8	7	5- Existence of safety system and professional hygiene
11	12	6- Management Commitment
1	3	7- Job security of staff
2	4	8- Suitable systems such as: health care, bonus payment, welfare for better staff motivation
7	6	9- Applying the LAN and WAN network to monitor all of the site and promotion of automation level
5	2	10- Creating switches and digital radiomax in the stations and transit centers and subsidiary facilities
3	1	11- Using PLC control equipment and electro motor
4	5	12- Diversity of equipment in telecommunication and transit sectors

Table 11: The weaknesses prioritizing based on the Freedman test and AHP approach

The rank obtained from AHP with inconsistency rate of 0.08	Rank obtained from Freedman test	Weaknesses
12	9	1- Inefficiency of internal automation systems
9	6	2- Some parts of the system are analog
10	5	3- Problem in the initial designs and lack of appropriate attraction of new technologies
7	8	4- The mismatch between region extent and the number of staff employed
6	11	5- High expectations of staff
2	2	6- Over aging of equipment in telecommunication and transit sectors
1	1	7- Increase of employees nearing retirement
8	10	8- Existence of inappropriate systems to educate, managing knowledge etc.
11	12	9- Inappropriate definition of prospect, mission and organizational values
5	7	10- Inappropriate delegation of tasks and dependency of many affairs to Tehran staff
4	4	11- Not suitable for the recruitment and hiring of manpower
3	3	12- Low productivity due to being governmental, lifetime employment

6. Discussion

In the present study, the evaluation and prioritizing of SWOT matrix dimensions of Iranian Oil Pipeline and Telecommunication Company of Northwest Region by Freedman statistical test and

AHP was performed. So a questionnaire with 48 questions was distributed among the members of the statistical sample who were the managers and bosses of equity, technical and operational units and the results were extracted by Freedman test. Also to use the AHP approach and investigation of the effect of this approach on decision making and prioritizing

the dimensions of SWOT matrix, the members of the statistical sample were interviewed.

All the results from tables 7,8,9,10 and 11 indicate the extent of value determination of criteria and the experts' attitude towards each of the questions in AHP approach, so the responder to prefer an option to other, faces with a more numerical values (from 1 to 9) compared to likert scale (from 1 to 5). The results from using AHP approach corresponds more to the facts about the company.

Based on the information in table 7 using AHP approach, the threat, weakness, opportunity and strength dedicated the priorities number one to four to themselves, respectively but based on the Freedman test, the opportunity, threat, strength and weakness were ranked form number 1 to 4. Table 12 suggests the comparative analogy of SWOT matrix dimensions and the total results of tables 8,9,10 and 11 about the 1 to 3 priorities of each point of SWOT matrix.

Table 12: The comparison of prioritizing of two approaches (AHP and Freedman test) about priorities 1 to 3

Result	Priority based on AHP	Priority based on Freedman test	Matrix dimensions
Non concurrence	S ₇	S ₁₁	S
Non concurrence	S ₈	S ₁₀	
Non concurrence	S ₁₁	S ₇	
Match	W ₇	W ₇	W
Match	W ₆	W ₆	
Match	W ₁₂	W ₁₂	
Match	O ₇	O ₇	O
Non concurrence	O ₁₂	O ₈	
Non concurrence	O ₁₁	O ₁₂	
Non concurrence	T ₉	T ₁	T
Non concurrence	T ₇	T ₄	
Non concurrence	T ₁	T ₉	

According to the results and extraction of final prioritizing of SWOT matrix different dimensions to move forward, the following proposals are presented for the priorities obtained in 1 to 3 in each section:

6.1. In threats sector

1-1- Deep and more communication with the individuals next to the pipelines through information and cultural sectors of the company.

1-2- Appropriate control mechanisms designed to prevent unauthorized operation of other organs near the pipeline route.

1-3- Using the potential of neighboring of the pipelines to provide security and protection.

6.2. In weaknesses sector

2-1- Preparation of justified quantitative-economic appropriate designs with specifying the cost/benefit of design performance, to present in higher levels to use the human force.

2-2- using efficient tools such as: knowledge management to transfer knowledge and experience of experienced people before retirement and creating periodical mechanisms.

2-3- using the appropriate potential of conventional and contracting forces.

6.3. In opportunities sector

3-1- Strengthen cooperation with the knowledge based companies and science and technology parks.

3-2- Signing of MOU with the organization of patents on inventions related to oil, gas, and petrochemical.

3-3- RIPI empowerment in the areas of knowledge and manpower.

6.4. In strengths sector

4-1- further strengthen of incentive/ welfare/ healthcare issues.

4-2- Performing research projects proportionate to the incentive/ welfare/ healthcare issues and finding the reasons of problems and preparing solutions to improve.

4-3- forgetting the administration term concept and move to the term of human capitals.

Also using the optimization search from other subsidiaries of oil companies and header companies in all the sectors is proposed.

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