



## The Identification of Organizational Success Strategies by Analytical Hierarchy Process (AHP), Case Study: Hotel industry

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### ABSTRACT

Tourism industry is one of the most important profitability source in various countries namely in the developing countries. One of the most important tourism infrastructures ensuring the comfort of the tourists is hotel industry. These two items are complementary and any challenge or inconsistency in one of them has a direct effect on another one. The current study aimed to investigate tourism and hotel industry and refer to the necessity of using a good strategy by hotels as one of the tourism elements in absorbing the tourist. The current study in terms of aim is applied and in terms of method is descriptive-survey and the case study is hotel. At first, by the aid of some of the experts identify the weaknesses and strengths to determine the successful strategy by AHP technique for increasing growth of the company. Although the logical use of SWOT is a good basis to control the effective strategies, in measurement and evaluation, it is not without any weakness and in SWOT analysis, the importance of the factors to determine the effect of each factor on strategy plans is not quantity. In other words, there is no suitable instrument to determine the relative importance of each of the factors. To eliminate the weaknesses of SWOT, a combined method of AHP is used in SWOT. The current recommendation is applying defensive strategy to achieve a considerable share in the industry.

**KEYWORDS:** Tourism; Hotel; SWOT matrix; AHP technique; Strategy

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### INTRODUCTION

Hotel industry dates back to more than 70 years ago in Iran. The increasing growth of tourism industry caused that most of the theorists call 20<sup>th</sup> century, tourism century. According to tourism authorities, at the end of 20<sup>th</sup> century and the beginning of 21<sup>th</sup> century, a revolution is occurred in tourism and it is effective in all over the world (Kazemi, 2006). The developing countries dependent upon the export of raw materials benefit more. Because tourism is one of the most profitable economical sections in the world (Raees Dana, 2007), but the weakness of educational, management, welfare, the lack of good government facilities, the difference between the demand and supply, the low number of foreign tourists and the lack of inclination of domestic tourists to be in costly hotels led into the ambiguity of the future of hotel industry (Varesi et al., 2011). In the current competitive world, no company or institution including manufacturing and services are not in the margin of security and rapid technology changes, more emphasis on the quality, the favorites of the customers, formulating various standards and economy globalization are the issues that led into the decision making of economical enterprises. The strategic management is mostly applied by most of the state and private enterprises to resist against the market competition and environmental changes. The complexity of decision making in business, made strategic management a necessity. The management of various internal multi-dimensional activities is only a part of the modern responsibilities of the managers. The external immediate space of the institution provides challenging issues. For effective reaction with all the factors affecting the company ability in profiting growth, the managers choose strategic planning. Many quantity technical and instruments are applied in strategic management. One of the instruments applied in the stage of formulating the strategy for external and internal strategic items is SWOT analysis. The analysis aimed to investigate the opportunities and threats of the environment and weaknesses and strengths of the enterprise. The evaluation is such that whether the enterprise can take the opportunities and avoids the external uncontrolled threats of the environment such as price fluctuation, political instability, social changes and rules changes, etc. SWOT summarizes the most important internal and external factors affecting the future of an organization. The more complex the planning and decision making processes by increasing the number of criteria with mutual dependency, the less the profitability of applying SWOT. In other words, we can say that this analysis has some weaknesses and limitations. In the current study, the combined method of applying Analytical Hierarchy Process (AHP) is used in

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SWOT analysis that was called A'WOT in the next studies. Many researchers applied this approach including Steward et al. (2006), Kajanus et al., (2004), Sheresta et al., (2004), Leskenin et al., (2006), Masuzra et al., (2006). According to the role of hotels in the tourism industry, the current study aimed to identify that the hotels by applying a good strategy should be active effectively in the developing industry and by providing a competitive atmosphere and absorbing foreign tourists increase the dynamics of the industry.

## REVIEW OF LITERATURE

The travelling was not common in the past as today and the industrial revolution created collective tourism as in the current form (Kazemi, 2006). Iran is one of the most civilized countries in the world and it had a long way in the tourism industry and it dates back to the Safavid era. Iran is one of the oldest and the most attractive countries with many natural resources and historical monuments absorbed many tourists at that time. The Iranian travel to Europe was increased in the Constitutionalism era (ibid).

Regarding the definition of the tourism industry, we should say that tourism is defined as an industry or a set of industrial sections as hotels, restaurants and transportation forming a group to present the services with their collaboration to the tourists. Tourism produces goods and services and is related to labor force, capital and value added; it is an industry. On the other hand, the services presented by this industry are including the non-tourist audiences or local residents. Tourism is a set of the related industries (Shariati et al., 2009).

Tourism has many economical effects including entrepreneurship and increasing job, income generating and increasing income, variety of economical sectors, using the constructed equipments and other investments, increasing latent export, preventing the foreign exchange exit, prosperity of trading in the country, improving the payment level and bringing exchange into the country (Efati, 1998).

The power of income generation of the tourism industry for production factors in Iran is in the second rank after the main metal industry. In terms of section, it has the greatest share of the income generated due to the development of the tourism industry is dedicated to hotels, restaurants, cloth, leather and agriculture industries. In terms of the share of the production factors of the income generated by the development of tourism (in the activities of hotel and restaurant) is 47%, capital profit and about 14% for human resources (Tajik and Parkhide, 2010).

Providing residence facilities of the hotel industry is including the facilities consisting of one of the dynamic parts of the tourism industry. Hotel and hotel industry are not only dependent upon the building and the hotel equipments, hotel different parts, etc. are important in the operation of the hotel industry. Thus, hotel management as one of the main infrastructures of the tourism industry namely in the tourism important countries should be taken into attention. This emphasis alone leads into considerable economical benefits; it provides good opportunities in terms of cultural interaction (Shariati et al., 2008).

Today, urban tourism is one of the important factors of economical, social and welfare development of urban dwellers and urban and tourism authorities attempted to develop it. The development requires the creation of special structural, political, cultural and social conditions. Only the old background of the city is the valuable historical and cultural monuments, cultural places and entertainment are not adequate for the success of each city in the development of urban tourism and it requires the suitable urban infrastructures and wise management in political, cultural and social fields, the like. In other words, the city requires conscious, consistent management with the world criteria and being aware of the mental mechanisms of the tourists and their requirements. The second condition to guarantee the success of the policy of development of the urban tourism is monitoring the city attractions and creating the facilities makes the access to the attractions easier. Healthy life style in the hotels, restaurants and public places and clean air are other conditions for the success of the cities in the development of urban tourism (Dinari, 2005). The tourism activity in the cities is wise. The urban scope includes a wide range of historical and cultural attractions, shopping centers and restaurants. Most of the urban attractions give services for the residential locations. But if they are applied by the tourists, can help to their support. In addition, urban regions can be considered as entrance and exit channel of the tourist in the country or region or a place to transfer to the neighboring regions. The hotels and other tourism facilities are the integrated section of the cities being applied by the businessmen and vacation passengers. The location of the hotels and other tourism facilities and the infrastructures are presented about tourism (Farajzadeasl, 2005). To be successful in tourism, the residential facilities should respond to the demands of the passengers. The residential facilities are of great importance in the achievement of tourism programs in each region. The hotels based on good physical facilities provide the services fulfilling the demands of the passengers with high quality. Indeed, if the quality of the services is reducing, the demand is also reduced and the tourism industry in the region is damaged (Alvani and Shahrokh Dehdashti, 1994).

Today, with the increase of the competitors in the industry, applying the strategic planning is raised as a necessity in the organizations. By this planning, the management can define the future orientations and make the

organization equipped against the future changes. The strategic planning helps the manager to have a clear image of the organization and goals and manage the organization activities under a unified strategy. One of the reasons of inclination to strategic planning is the changes of the current environment of the organizations (Alvani, 1989). SWOT analysis is the term that is used to identify the internal weaknesses and strengths and external opportunities and threats encountered by a system (Piers and Robinson, 2004). In other words, SWOT model is one of the strategic instruments in accordance with the weaknesses and strengths in the system with the external opportunities and threats. This model creates a systematic analysis to identify these factors and selecting the strategy to create the best consistency between them. According to this model, a good strategy maximizes the opportunities and strengths and minimizes the threats and weaknesses. To do this, the weaknesses and strengths and opportunities and threats are linked in four states and WT, ST, WO, SO of the strategy choices are selected among them (Hekmatnia, Musavi, 2006).

The strategic planning is not a bureaucratic duty and it is a decision making process about the logical trend of the organization activities and besides defining the opportunities and potential threats, the most economical future paths are define ( Shani, 2004).

There is more than hundreds of strategic planning. Each book or any strategic consulting center applies a special model. Most of the models have equal ideas including applying SWOT model, dividing by defined steps, classification of each of the steps with the various techniques and lists, special attention to setting concrete aims and developing the operational plans and budgets (mintzberg et al., 1998). SWOT analysis (weaknesses and strengths, opportunities and threats) is done effectively because the internal and external factors of the company are compared. The internal environment search is including the analysis of the structure, culture and resources of the company.

Opportunity/threat of SWOT model considers the external factors of the organization each with the deep influence on the final success of the company (King, 2004). SWOT analysis reminds the manager where are the strengths and weaknesses of the company (Johnston and bate, 2003).

In decision making in which the selection of a solution among the existing solutions or priority of the solutions are raised, "Multi-indices decision making ", MADM" methods are applied for some years. Analytical Hierarchy Process (AHP) is applied more than any other methods in management. AHP is one of the famous multi-criteria decision making techniques presented by an Iraqi person called Thomas L.Saaty in 1970s. AHP reflects the natural human being behavior. This technique investigates the complex issues based on their mutual effects and turns them to simple forms and solve them. AHP is applied when the decision making is faced with some competitor and decision making criteria. The criteria can be quantity and quality. This decision making method is based on paired comparisons. The decision maker starts by providing decision hierarchy tree. The decision hierarchy tree shows the comparing factors and competitor choices evaluated in the decision. Then a series of paired comparisons are performed. These comparisons show the weight of each of the factors along the competitor choices evaluated in the decision. Finally the AHP logic integrates the matrices of paired comparisons with each other to obtain the best decision (Qodsipour, 2002).

## METHOD

This study in terms of nature is descriptive-survey and in terms of aim is applied. The field method such as interview and library methods are applied for data collection. The study population of the study is including the hotel managers and staffs.

The data collection method

The data to support the study hypotheses are collected via the questionnaire. The current study applied the questionnaire based on AHP rules to determine the weight and factors importance of SWOT and sub factors. The term "Validity" refers to the aim the test wants to make it realistic (Ching et al., 2005). In other words, a validity test to investigate what is measure is a good test. As the questionnaire in the current study is designed based on the recognized factors in the study background and the comments of the experts, its validity is acceptable.

Another technical attribute of a questionnaire is its reliability dealing with the equality of the results obtained by a data collection instrument in simialr conditions. There are various methods to calculate the reliability (e.g. Cronbach's alpha). The coefficient is calculated via calculation methods by the computer. Thus, the closer  $\alpha$  to 1005, the higher the confidence coefficient. This study applied Cronbach's alpha to calculate the reliability of the questionnaire ( $\alpha=0.975$ ).

- The evaluation of the internal environment of the hotel

Based on the studies for the company, 5 strengths and 4 weaknesses are obtained. In this matrix, the internal strategic factors of each of the strengths and weaknesses are observed.

**Table 1: The matrix of internal strategic factors**

The internal strategic factors			
Strengths		Weaknesses	
S1	Advertisement	W1	Not applying the research and development
S2	Good behavior with the customer	W2	Low capacity of the hotel
S3	Facilities quality	W3	High costs of the services
S4	Good transportation	W4	The lack of using critics system
S5	Beautiful environment		

- The evaluation of the external environment of the hotel  
Based on the studies for the company, 5 opportunities and 4 threats are obtained. In this matrix, the opportunities and threats are shown.

**Table 2: The matrix of external strategic factors**

The external strategic factors			
Opportunities		Threats	
O1	Changing the culture and inclination to hotel	T1	Establishing a new hotel
O2	Giving information about the sightseeing.	T2	Low capacity of the hotel
O3	Improving the image of the country	T3	Being in traffic restriction zone
O4	Encouraging the tourism culture	T4	Low income and purchase power
O5	High bargaining power of the hotel		

- The consistency of the internal and external main factors (SWOT matrix)  
After the evaluation of the internal and external environment and finding the opportunities, threats, strengths and weaknesses, we should deal with the strategies of the factors. SWOT matrix show SO, ST, WO, WT strategies (Table 3).

**Table 3: SWOT matrix**

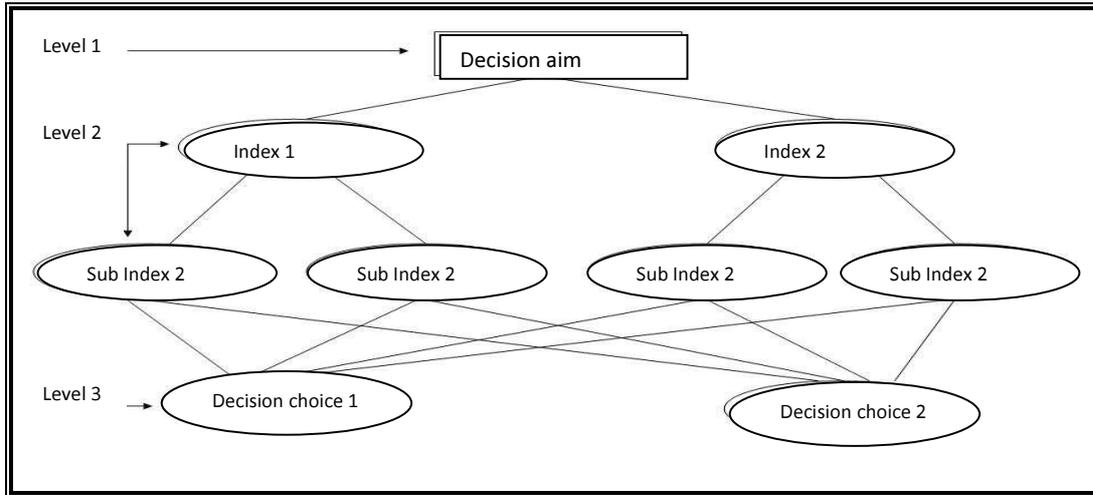
SWOT matrix	Strengths S1,S2,S3,S4,S5	Weaknesses W1,W2,W3,W4
Opportunities O1 O2 O3 O4 O5	Strategy SO  By increasing the hotel advertisement at global level, we can deal with foreign tourism	WO  Establishment of new branches to operate the high volume of demands
Threats T1 T2 T3 T4	ST strategy  By presenting unique services and increasing the loyalties of the customer cope with the presence of the new competitor. Applying good transportation organs to eliminate the traffic barriers.	WT Strategy  If the hotel can reduce the costs to reduce the price of the services, the increase of inflation and reduction of purchase power influence the hotel less.

**AHP model**

Applying this model requires four major steps as:

**a. Modeling**

The decision making aim is shown as a hierarchy of the decision elements related to each other. Decision elements are including “decision indices” and “decision choices”. AHP requires breaking a problem with some indices to a hierarchy of levels. The high level shows the main aim of decision making process. The second level shows the major indices “that is possible to divide into sub indices at the next level”. The final level presents the decision choices. The hierarchy of a problem is shown in the following figure (Mehregan, 2004, p. 170).



**Fig. 1: Hierarchy of a decision problem**

**b. Preferred judgment (paired comparisons)**

The comparisons between the various decision choices based on each judgment and index about the importance of decision index by doing paired comparisons after the design of hierarchy of decision problem, the decision maker should measure the set of matrices as importance number or relative prefer of the indices to each other and each decision choice based on the indices to other choices. This is done via paired comparisons between the decision elements (paired comparison) and via dedicating the numerical scores showing the preference or the importance between two decision elements.

To do this, the comparisons of the choices with *i*th indices to the *j*th indices or choices are applied and the scoring method of the indices to each other is shown in the following Table.

**Table 1: The numerical scales of paired comparisons**

Numerical scale	Preference
9	Extremely preferred
7	Very strongly preferred
5	Strongly preferred
3	Moderately preferred
1	Equally preferred
2, 4, 6, 8	Preferences between the above distances

Saaty T., I. (1988).Multi criteria decision making: The analytical hierarchy process. Pittsburgh. PA University of Pittsburgh press.

**c. Relative weights calculations**

Determining the weight “decision elements” to each other via a set of numerical calculations. The next step in AHP is doing the required calculations to determine the priority of each of the decision elements by the information of paired comparisons matrices. The summary of the math operation is as following.

The sum of the number of each column of paired comparisons matrix is calculated, then each element of the column is divided by the sum of the number of the column. The new matrix is called “normalized comparison matrix”.

The mean of numbers of each row of normalized comparison matrix is calculated. The mean of relative weight presents the decision elements with matrix levels.

**d. Integrating the relative weights**

To rank the decision choices, the relative weight of each element should be multiplied by the weight of high elements to obtain the final weight. By doing it for each stage, the final weight value is obtained.

**The consistency of the judgments**

Almost all the calculations of AHP are done based on the initial judgment of the decision-making appeared in paired comparison matrix and any inconsistency or error in the comparison and determining the importance of the

choices and indices, the final result of the calculations is problematic. Inconsistency ratio is explained later and it is a tool to define consistency and it shows how we can rely on the priorities of the comparisons. For example, if choice A is preferred to B (preference value 5) and B is relatively preferred (preference value 3), then it should be expected that A is more preferred to C (preference value 7 or more) or if preference value A to B is 2 and B to C is 3, then A value to C is with preference value 4. Perhaps the comparison of two choices is simple but when the number of comparisons is increased, the consistencies of the comparisons are not possible easily and by applying consistency ratio, we should achieve this confidence. The experience has shown that if the inconsistency ratio is less than 0.10, the consistency of the comparisons is acceptable otherwise the comparisons should be reviews. The following steps are applied to compute the inconsistency ratio:

Step 1. The calculation of weighted sum vector: The paired comparison matrix is multiplied by the column vector “relative weight” to obtain a new vector called weighted sum vector (WSV).

Step 2- The calculation of consistency vector: The elements of weight sum vector is divided by relative weight vector. The result is called consistency index (CI).

Step 3- Obtaining  $\lambda_{max}$ , mean of consistency index elements show  $\lambda_{max}$ .

Step 4. The calculation of consistency index: It is defined as following:

$$CI = \frac{\lambda_{max} - n}{n - 1}$$

N is the number of existing choices in the problem

Step 5. The calculation of the consistency ratio: The consistency ratio is obtained of the division of consistency index on random index (RI).

$$CR = \frac{CI}{RI}$$

Consistency ratios 0.1 to less show the consistency in the comparisons (Mehregan, 2004, p. 170-173).

The random index is extracted of the following Table:

Random index (Mehregan, 2004, p. 173).

According to the expressed SWOT and the stages we have:

	S	W	O	T
S	1	1/2	1/3	2
W	2	1	2	3
O	3	1/2	1	3
T	1/2	1/3	1/3	1

After normalization

Weight of each strategy	T	O	W	S	
0.171	0.222	0.091	0.215	0.154	S
0.403	0.333	0.545	0.428	0.308	W
0.320	0.333	0.273	0.214	0.461	O
0.106	0.112	0.091	0.143	0.077	T
1	1	1	1	1	Total

$$\begin{pmatrix} 1 & \frac{1}{2} & \frac{1}{3} & 2 \\ 2 & 1 & 2 & 3 \\ 3 & \frac{1}{2} & 1 & 3 \\ \frac{1}{2} & \frac{1}{3} & \frac{1}{3} & 1 \end{pmatrix} \begin{pmatrix} 0.171 \\ 0.403 \\ 0.320 \\ 0.106 \end{pmatrix} = \begin{pmatrix} 0.691 \\ 1.703 \\ 1.352 \\ 0.432 \end{pmatrix} \quad \begin{pmatrix} 0.171 \\ 0.403 \\ 0.320 \\ 0.106 \end{pmatrix} = \begin{pmatrix} 4.04 \\ 4.22 \\ 4.22 \\ 4.07 \end{pmatrix}$$

$$0.047_{\max} = 4.14 \quad CI = \frac{4.14 - 4}{4 - 1} = \lambda$$

As 0.05 is smaller than 0.1, the paired comparison matrix is consistent.

Now the total weight is calculated building Ws matrix:

SWOT factors	Main weight factors	SWOT factors sub	Sub factor weight	Total weight
Strengths	0.171	S1	0.048	0.008
		S2	0.085	0.014
		S3	0.483	0.082
		S4	0.248	0.042
		S5	0.136	0.023
Weaknesses	0.403	W1	0.498	0.201
		W2	0.077	0.031
		W3	0.290	0.117
		W4	0.135	0.054
Opportunities	0.320	O1	0.186	0.059
		O2	0.109	0.035
		O3	0.344	0.110
		O4	0.284	0.091
		O5	0.077	0.025
Threats	0.106	T1	0.131	0.014
		T2	0.352	0.037
		T3	0.088	0.009
		T4	0.429	0.045

Paired comparisons are made for each of SWOT sub factors and S1 is an example here.

S1	so	wo	st	wt
So	1	3	4	3
Wo	1/3	1	3	4
St	1/4	1/3	1	1/2
wt	1/3	1/4	2	1

After normalization



Each strategy weight	WT	ST	WO	SO	S1
0.483	0.353	0.4	0.655	0.523	SO
0.290	0.470	0.3	0.218	0.173	WO
0.091	0.059	0.1	0.073	0.131	ST
0.136	0.118	0.2	0.054	0.173	WT
1	1	1	1	1	Total

Similarly by doing other paired comparisons and the calculation of the weight of all the strategies, matrix 4×18 is obtained and it is called w. Finally, of multiplication of matrix w by w<sub>s</sub>, the total weight of each of the strategies is obtained:

$$\begin{pmatrix} 0.343 \\ 0.199 \\ 0.165 \\ 0.365 \end{pmatrix} \begin{pmatrix} SO \\ WO \\ ST \\ WT \end{pmatrix} = w \times w_s =$$

## RESULTS

Applying the existing tourism attractions and resources is important in the development of tourism. The effective and efficient use of tourism resources requires a comprehensive view of this item. The tourism aims require the management and planning as the resources are limited and the requests are unlimited. If there is no effective planning in applying tourism attractions and resources, the application of the benefits is reduced and in some case they are wasted. It is necessary to have a deep recognition based on the reality about the attractions, indices and criteria of their ranking to determine the development priority and guarantee the optimization of development measurements in this regard. Residential places including hotels are of great importance in tourism industry. The hotels should use good strategies with their conditions to establish the position of hotel in tourism.

In the current paper, after the identification of evaluation indices of tourism attractions and criteria and sub criteria of their scale are done by AHP, SWOT in four stages as 1- Hierarchy construction, 2- Paired comparisons, 3- Relative weight calculation, 4- Final weight of the choices. These indices are ranked and evaluated based on the determined criteria and sub criteria in the previous stage. Based on the final weight of each of the strategies, it is recommended to apply costs reduction strategy to decrease the services price and in the next stages apply the solutions of increasing advertisement at global level, establishment of new branches and presenting unique services to increase the customer loyalty and coping with the new competitors.

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