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“HER SAYIDA BİR DUAYEN”

“Akademik Turizm ve Yönetim Araştırmaları Dergisi’nin bu sayısı turizm literatürüne katkıları ve yetiştirdiği sayısız turizmci için Prof. Dr. Füsun İstanbullu Dinçer’e sonsuz teşekkürlerle atfedilmiştir”

PROF. DR. Füsun İSTANBULLU DİNÇER

1958 yılında İstanbul’da doğan Füsun İstanbullu Dinçer Saint Benoît Fransız Kız Lisesi’nden 1977 yılında mezun olmuştur. Lisans eğitimini 1981 yılında İstanbul Üniversite’sinde tamamladıktan sonra, İstanbul Üniversitesi İktisat Fakültesi Turizm Yüksek Lisans Programını 1985 yılında ve Turizm Doktora Programını 1988 yılında bitirmiştir. 1992 yılında Yardımcı Doçent olmuş, 1994 yılında Turizm İşletmeciliği dalında Doçent unvanını almıştır. Ocak 1987 – Nisan 1998 tarihleri arasında İstanbul Üniversitesi Sosyal Bilimler Meslek Yüksekokulu Turizm ve Otel İşletmeciliği Programında çalışmış ve adı geçen Yüksekokulda Müdür Yardımcılığı, Turizm ve Otel İşletmeciliği Program Başkanlığı, Yüksekokul Yönetim Kurulu üyeliği görevlerinde bulunmuştur.

1998 yılında İstanbul Üniversitesi İktisat Fakültesine geçtikten sonra, 14.12.2000 tarihinde profesörlük kadrosuna olarak atanmıştır. Fakülte Yönetim Kurulu’na önce doçent, daha sonra da profesör temsilcisi seçilmiştir. İstanbul Üniversitesi İktisat Fakültesi Turizm İşletmeciliği Bölümü ve Sosyal Bilimler Enstitüsü Turizm İşletmeciliği Yüksek Lisans ve Doktora Anabilim Dalı Başkanlığını yürütmekte olan Prof. Dr. Füsun İstanbullu Dinçer, ayrıca, İstanbul Üniversitesi Sosyal Bilimler Meslek Yüksekokulu Turizm ve Otel İşletmeciliği Program Başkanlığı görevini de sürdürmektedir.

Fransızca ve İngilizce bilmekte olan Prof. Dr. Füsun İstanbullu Dinçer’in turizm ile ilgili kitapları, yurtdışı ve yurt içinde sunulmuş bildirileri, makaleleri, hakemlik görevleri ile yayın ve bilim kurulu üyelikleri bulunmaktadır.

NİŞANTAŞI ÜNİVERSİTESİ
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İMTİYAZ SAHİBİ / GRANTEE
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BİLİM KURULU / SCIENTIFIC COMMITTEE

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Multi Criteria Decision Making Approach for Evaluating Tourism Destinations in Turkey

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Abstract

Tourism is the world's one of fastest growing industry and the largest service sector industry. It is also considered as one of the biggest industry in Turkish economy. Choosing a travel destination is a kind of multi-criteria decision making problem. Relative importance of factors across locations play a crucial role for ranking the destinations. There are several attributes in evaluating competitiveness, including natural resources, transportation, accommodation, blue flagged beaches, cultural resources, reputation, image, popularity, safety, security, health and hygiene, price, quality of cuisine, night life and variety of activities and recreation etc. This study comprised of 13 destination alternatives in four cities (Antalya, Aydın, İzmir, Muğla). These destination alternatives are Alanya, Bodrum, Çeşme, Datça, Didim, Fethiye, Kaş, Kemer, Kumluca, Kuşadası, Marmaris, Manavgat and Serik.

Analytic Hierarchy Process (AHP) and Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) are multi-criteria decision making (MCDM) methodologies. They have been used extensively for analyzing complex decision problems. These approaches can be used to help decision-makers for prioritizing alternatives and determining the optimal alternative. In analyzing the data, AHP and TOPSIS methodologies are used for the outranking of some of the well known tourism destinations in Turkey.

The "safety and security", "health and hygiene" and "price" are determined as the three most important criteria in the supplier selection process by AHP. Based on TOPSIS analysis the top three of the alternatives in descending order are Alanya, Marmaris and Bodrum. Proposed model results indicate that Alanya is the best alternative with RC value of 0.473.

Keywords: Multi Criteria Decision Making, Tourism Destination Competitiveness/Ranking, Analytical Hierarchy, Process, TOPSIS

1. Introduction

International tourist arrivals grew by 4% in 2012 to reach 1.035 billion, according to the latest UNWTO World Tourism Barometer (UNWTO, 2013). Although economies of many countries have struggled with challenges in global recession, tourism is still dynamic and developing sector (Croes, 2012). The tourism is considered as one of the biggest service industry in Turkish economy. Turkey has a long and attractive coastline, natural beauty, history and cultural diversity, archaeological sites, a suitable climate, improving touristic infrastructure and a tradition of hospitality. Also Turkey has potential to get considerable share of the world tourism market. Statistics from the World Tourism Organization (WTO-2011) shows that Turkey has welcomed 33.3 million international visitors in 2011, which increases over 6.3 million of international passengers (23.33%) comparing to the international visitors in 2010. Turkish tourism sector has been one of the most important drivers behind Turkey's economic development over recent decades. In 2009, combined with the travel sector, the industry generated TL 95.3 billion of economic activity (approximately 10.2% of Turkey's GDP) with an employment of approximately 1.7 million people (7.2% of total employment).

There are several seaside destinations in Turkey. In this research some of the well-known destinations in Aegean and Mediterranean coasts were evaluated. These destinations are Alanya, Bodrum, Çeşme, Datça, Didim, Fethiye, Kaş, Kemer, Kumluca, Kuşadası, Marmaris, Manavgat and Serik.

This study proposes the Analytical Hierarchy Process (AHP) and TOPSIS approaches together for evaluating the competitiveness of Turkish tourism destinations. Criteria can be quantitative, such as number of museums, number of hotels, number of bays or qualitative measured variables, such as quality of cuisine, hygienic conditions, safety and security, etc. The result of evaluation may help strategy makers of tourism sector, local municipalities, management of tour agencies, local and international tourists/traveler, academicians in tourism faculties etc.

The aim of this study is to propose a multi-criteria decision-making approach to evaluate the tourism experts' preference order for evaluating tourism destinations by using AHP and rank the alternatives by using TOPSIS method. The table below shows some of the important factors of previous studies about tourism destinations.

Table 1. Results of Some Tourism Destination Competitiveness Studies

Yimsrisai, 2012	Eja, 2012	Noor, 2012
Attracting places	Safety and Security	Attraction
Service and food quality	Infrastructure	Environment
Shopping	Political Stability	Accommodation
		Transportation
		Restaurant

This paper is organized as follows. Section 2 introduced the concept of destination competitiveness Section 3, 4 and 5 discuss about the proposed methodologies. Section 6 elaborates illustrative application and result of the findings.

2.Destination Competitiveness

In tourism sector there are many players such as customers (tourists/travelers), hotel managers, local residents, municipalities, tour agencies, and restaurant/hotel personnel. Also there are many success criteria including subjective (qualitative) and objective (quantitative) factors (Crouch, 2007). It is hard to express subjective factors in numbers. These factors' importance levels are evaluated by expert judgments. This complex structure of tourism sector makes the tourism destination competitiveness problem harder.

For solving this problem, AHP is an effective multi criteria decision making tool. Identifying the weakness and strengthens of the Turkish famous tourism destinations by evaluating the competitive factors is a key issue for developing tourism industry in Turkey. Some destinations are more successful than others in attracting tourists and offering tourism activities. Tourism destinations have to update their competition strategies by considering and managing the regarding factors in these kind of academic studies. An evaluation and ranking system may help tourism marketer to select the influence factors and enhance the tourism promotion efficiency (Lai and Vinh, 2012).

Destination choice is one of the decision making problem which should carefully be investigated in order to choose the best alternative among popular alternatives (Ali et. al, 2012).

3.Analytic Hierarchy Process (AHP)

The AHP, developed in the 1970s by Thomas L. Saaty, is a multi-criteria decision making method that consists of following steps (Saaty, 1980; Pires et. al, 2011):

1. Define the problem, determine the type of knowledge sought and target
2. Structure the decision hierarchy from top to bottom considering the purpose of the decision.
3. Construct the pair-wise comparison matrix
4. Apply consistency test. When CR value is less than 0.20, consistency of the comparison is appropriate (Millet and Saaty, 2000; Lee, 2012). Some of the authors accept 0.10 for CR upper limit.
5. Calculate relative local and global weights of each main and sub-factors. For synthesis of priorities obtain the principal right eigenvector and largest eigenvalue.

AHP allows subjective and objective factors to be considered in a decision-making process. The approach can be used to help decision-makers for prioritizing alternatives and determining the optimal alternative using pair-wise comparison judgments (Liberatore and Nydick, 1997; Yoo and Choi, 2006). The scale used for the pair-wise comparisons is outlined in Table 2 (Saaty and Vargas, 2011).

Table 2. The Fundamental Scale Of Pair-Wise Comparison For AHP

Intensity of Importance	Definition	Explanation
1	Equal importance	Two activities have equal contribute to the objective
3	Moderate importance	Experience and judgment slightly favor one activity over another.
5	Strong importance	Experience and judgment strongly favor one activity over another
7	Very strong on demonstrated importance	An activity is favored very strongly over another
9	Extreme importance	The evidence favoring one activity over another is of the highest possible order of affirmation
2,4,6,8	For compromise between the above values	Sometimes one needs to interpolate a compromise judgment numerically

Matrix A= (a_{ij}) is said to be consistent if $a_{ij}.a_{jk}=a_{ik}$ and its principal eigenvalue (λ_{max}) is equal to n. The general eigenvalue formulation is:

$$Aw = \begin{bmatrix} 1 & \frac{w_1}{w_2} & \cdots & \frac{w_1}{w_n} \\ \frac{w_2}{w_1} & 1 & \cdots & \frac{w_2}{w_n} \\ \vdots & \vdots & \ddots & \vdots \\ \frac{w_n}{w_1} & \frac{w_n}{w_2} & \cdots & 1 \end{bmatrix} \begin{bmatrix} w_1 \\ w_2 \\ \vdots \\ w_n \end{bmatrix} = nw \quad (1)$$

$$a_{ij} = \frac{w_i}{w_j}, \qquad i, j=1,2,3,...n \quad (2)$$

$$Aw = \lambda_{\max} w \quad (3)$$

For measure consistency index (CI) adopt the value:

$$CI = \frac{(\lambda_{\max} - n)}{(n-1)} \quad (4)$$

The CR is obtained by comparing the CI with an average random consistency index (RI).

$$CR = \frac{CI}{RI} \quad (5)$$

Table 3. gives the average RI values:

Table 3.Average RI Values

n	1	2	3	4	5	6	7	8	9	10
Random Consistency Index (RI)	0	0	0.52	0.89	1.11	1.25	1.35	1.40	1.45	1,49

Briefly, maximized eigenvalue, CI and CR are found to obtain the weights of each criteria (Lee, 2012). Experts are asked to compare the criteria on a pair-wise basis to determine their relative importance. AHP was used in order to determine which tourism destination attributes are important and precedence order of all criteria, i.e., natural resources, transportation, accommodation, blue flagged beaches, cultural resources, reputation, image, popularity, safety, security, health and hygiene, price, quality of cuisine, night life and variety of activities and recreation of the tourism destinations in Turkey. Tourism experts are asked to compare the criteria on a pair-wise basis to determine their relative importance. There is no lower limit for the number of experts in AHP analysis. In some researches just one supra decision maker compares the criteria and evaluates alternatives (Aly and Vrana, 2008; Önder and Dağ, 2013). The first level of the hierarchy involved two major criteria: quantitative factors, qualitative factors and price. The quantitative criteria are decomposed into 5 sub-factors. Also quantitative factors are decomposed into 7 sub-factors.

4. Technique for Order Preference by Similarity to Ideal Solution (TOPSIS)

Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) was first presented by Yoon (1980) and Hwang and Yoon (1981), for solving multiple criteria decision making (MCDM) problems based upon the concept that the chosen alternative should have the shortest Euclidian distance from the positive ideal solution (PIS) and the farthest from the negative ideal solution (NIS). For instance, PIS maximizes the benefit and minimizes the cost, whereas the NIS maximizes the cost and minimizes the benefit. It assumes that each criterion require to be maximized or minimized. TOPSIS is a simple and useful technique for ranking a number of possible alternatives according to closeness to the ideal solution. Expanded developments of TOPSIS were done by Chen and Hwang in 1992, Lai, Liu and Hwang (1994). This MCDM technique is widely used in many fields, including financial performance evaluation, supplier selection, tourism destination evaluation, location selection, company evaluation, selecting the most suitable machine, ranking the carrier alternatives (Behzadian et. al, 2012). One of the advantages of TOPSIS is that pair-wise comparisons are avoided.
TOPSIS is conducted as follows (Tsaur, 2011):

Step 1.Establish a decision matrix for the ranking. TOPSIS uses all outcomes (x_{ij}) in a decision matrix to develop a compromise rank. The viable alternatives of the decision process are A_1, A_2, ..., A_n. The structure of the decision matrix denoted by $X=(x_{ij})_{n\times m}$ can be expressed as follows:

$$X=\begin{array}{c} \\ \\ \left[\begin{array}{cccccc} x_{11} & x_{12} & \cdots & x_{1j} & \cdots & x_{1m} \\ x_{21} & x_{22} & \cdots & x_{2j} & \cdots & x_{2m} \\ \vdots & \vdots & \cdots & \vdots & \cdots & \vdots \\ x_{i1} & x_{i2} & \cdots & x_{ij} & \cdots & x_{im} \\ \vdots & \vdots & \cdots & \vdots & \cdots & \\ x_{n1} & x_{n2} & \cdots & x_{nj} & \cdots & x_{nm} \end{array}\right] \end{array} \begin{array}{c} \overbrace{\qquad\qquad\qquad\qquad\qquad\qquad}^{m\quad Criteria} \\ \begin{array}{cccccc} C_1 & C_2 & \cdots & C_j & \cdots & C_m \end{array} \\ \left.\begin{array}{c} A_1 \\ A_2 \\ \vdots \\ A_i \\ \vdots \\ A_n \end{array}\right\} n\quad Alternatives \end{array} \tag{6}$$

x_{ij} is the outcome of i^{th} alternative with respect to j^{th} criteria. $W=(w_1,w_2,\ldots,w_j,\ldots,w_m)$ is the relative weight vector about the criteria, and w_j represents the weight of the j^{th} attribute and $\sum_{j=1}^{m} w_j = 1.$

Step 2.Normalize the decision matrix using the following equation:

$$r_{ij} = \frac{w_{ij}}{\sqrt{\sum_{k=1}^{n} w_{ij}^2}} \qquad i=1,2,3,\ldots,n \quad j=1,2,3,\ldots,m \tag{7}$$

Step 3.Weighted normalized decision matrix is calculated by multiplying the normalized decision matrix by its associated weights as:

$$v_{ij} = w_j r_{ij} \qquad i=1,2,3,\ldots,n \quad j=1,2,3,\ldots,m \tag{8}$$

Step 4.Identify the positive ideal solution (PIS) and negative ideal solution (NIS), respectively, as follows:

$$PIS = A^* = \left\{v_1^*, v_2^*, ..., v_m^*\right\} = \left\{\left(\max_i v_{ij} \mid j \in \Omega_b\right), \left(\min_i v_{ij} \mid j \in \Omega_c\right)\right\} \tag{9}$$

$$NIS = A^- = \left\{v_1^-, v_2^-, ..., v_m^-\right\} = \left\{\left(\min_i v_{ij} \mid j \in \Omega_b\right), \left(\max_i v_{ij} \mid j \in \Omega_c\right)\right\} \tag{10}$$

Ω_b is associated with benefit criteria, and Ω_c is associated with cost criteria.

Step 5.Determine the Euclidean distance (separation measures) of each alternatives from the ideal and negative-ideal solution as below respectively:

$$d_i^* = \sqrt{\sum_{j=1}^{m}\left(v_{ij} - v_j^*\right)^2}\,, \; i=1,2,3,\ldots,n \tag{11}$$

$$d_i^- = \sqrt{\sum_{j=1}^{m}\left(v_{ij} - v_j^-\right)^2}\,, \; i=1,2,3,\ldots,n \tag{12}$$

Step 6. Calculate the relative closeness of the i^{th} alternative to ideal solution using the following equation:

$$RC_i = \frac{d_i^-}{d_i^* + d_i^-} \qquad i=1,2,3,\ldots,n \qquad RC_i \in [0,1] \tag{13}$$

Step 7. By comparing RCi values, the ranking of alternatives are determined. The higher the closeness means the better the rank. Ranked the alternatives starting from the value that closest to 1 and in decreasing order. For more information about the theory and applications of TOPSIS, please refer to the researches of Benzadian et al., (2012).

5.Proposed Methodology

In analyzing the data, Analytical Hierarchy Process (AHP) and Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) methodologies are used for the outranking of supplier alternatives. Steps of proposed method are shown on Fig 1.

Figure 1. Steps of Proposed Method

6.Application

A four level AHP model, consisting of 31 attributes on the fourth level was proposed. By using analytic hierarchy process and TOPSIS, the preference of 13 given destinations corresponding to each criterion can be evaluated and given final ranking. This study comprised of 13 destination alternatives in four cities (Antalya, Aydın, İzmir, Muğla). These destination alternatives are Alanya, Bodrum, Çeşme, Datça, Didim, Fethiye, Kaş, Kemer, Kumluca, Kuşadası, Marmaris, Manavgat and Serik. They are shown on the Fig 2.

A detailed numerical example, illustrating the application of our approach to criteria evaluation is given. The questionnaire conducted between the dates 1 March 2013- 20 April 2013 is answered by 5 experts. Data were collected from the experts in their offices and via email. They are asked to compare the criteria at a given level on a pair-wise basis to identify their relative precedence. The back ground of experts outlined in Table 4.

Table 4. The Back Ground of Experts

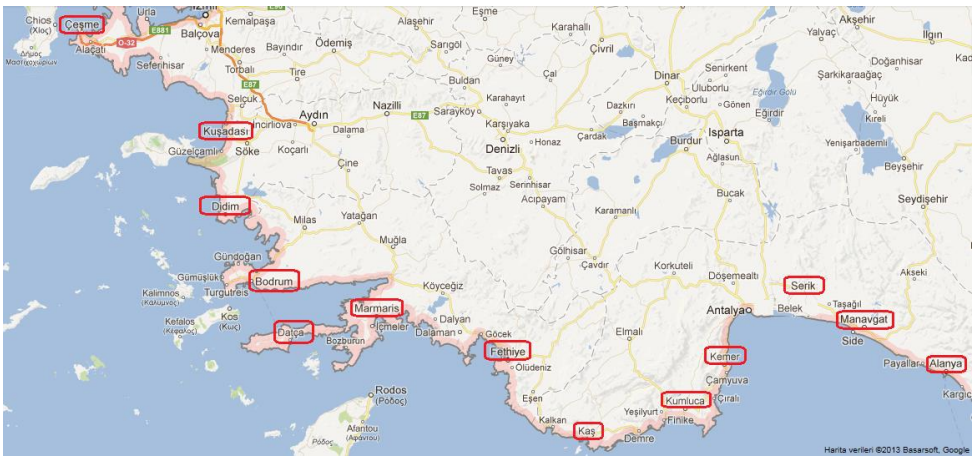
Expert ID	*Organization*	*Department/Sector*	*Title*	*Experience*
1	Faculty of Tourism	Public	Research Assistant	10
2	Faculty of Tourism	Tourism's Guide	Lecturer/Teaching	17
3	Tourist Guide	Private	Professional Guide	11
4	5 Star Hotel	Guest Relations	Department Manager	13
5	Faculty of Tourism	Tourism Administration	Lecturer/Teaching	12

AHP is an effective decision making method especially when subjectivity exists and it is very suitable to solve problems where the decision criteria can be organized in a hierarchical way into sub-criteria. The findings of previous studies about factors influencing experts' choice of destination were first identified by literature review. Experts expressed or defined a ranking for the attributes in terms of importance/weights. Each expert is asked to fill ''checked mark'' in the 9-point scale evaluation table. The AHP allows group decision making. One of the main advantages of the AHP method is the simple structure.

The convenient criteria of destination competitiveness in Turkey were determined by using decision team (professional guides, tourism marketers, academicians in tourism faculties etc.), judgments and literature review. Some criteria such as political instability, climate, exchange rate, telecommunication facilities, resident attitudes, macroeconomic indicators, handicrafts, customs, and language were not used, because the value of these factors are nearly same in regarding 13 destinations.

To apply proposed method a real world destination ranking problem was solved. In this destination selection problem there are 31 sub-criteria and 13 alternatives. The hierarchical structure to select the best destination is shown in Fig 3. These output of the AHP values are used as the input of TOPSIS method.

Figure 2. Map of South-West Part of Turkey (Source: https://maps.google.com/)



Past experience and the back-ground of the experts are utilized in the determination of the criteria and 31 important criteria to be used for destination selection are established. The main 2 criteria are as follows: "Quantitative Criteria" and "Qualitative Criteria and Price". As a result, these 2 main criteria were used in evaluation and decision hierarchy is established accordingly. Decision hierarchy structured with the determined alternative destination and criteria are provided in Fig. 3. There are four levels in the decision hierarchy structured for destination ranking problem. The overall goal of the decision process determined as ''determining the ranking of the well-known tourism destinations in Turkey" is in the first level of the hierarchy. The criteria are on the second and third level and alternative destinations are on the fourth level of the hierarchy. After forming the decision hierarchy for the problem, the weights of the criteria to be used in evaluation process are calculated by using AHP method. In this phase, the experts in the expert team are given the task of forming individual pairwise comparison matrix by using the Saaty's 1-9 scale.

Geometric means of experts' choice values are found to obtain the pairwise comparison matrix on which there is a consensus (Table5). The results obtained from the computations based on the pairwise comparison matrix provided in Table 5, are presented in Table 6. Graphics generated from tables are shown on Fig.4 and Fig.5.

Figure 3. Hierarchical Structure for Supplier Selection

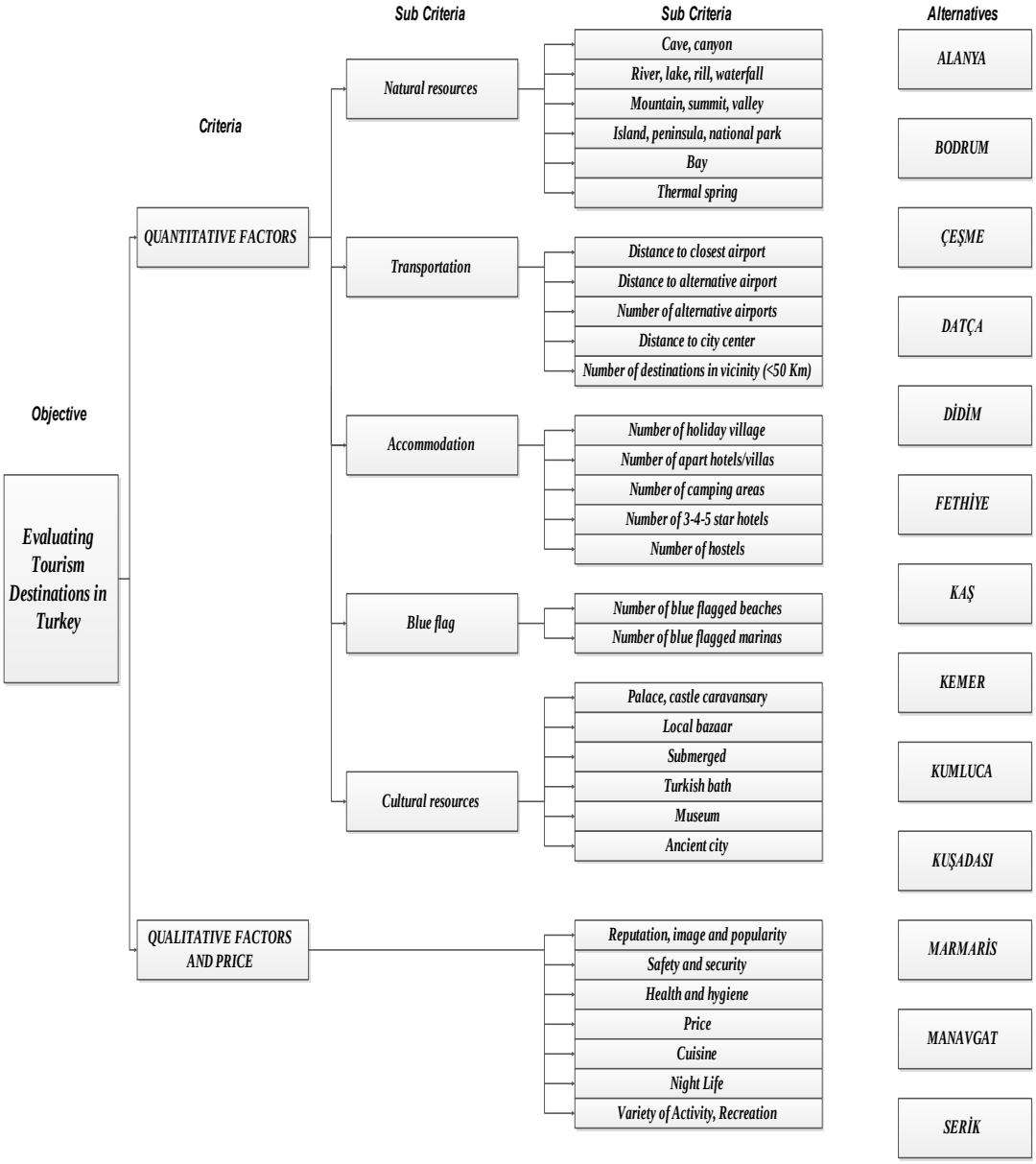


Table 5. Resulting Weights, Λ_{max}, Ci, Ri And Cr Values Of Criteria And Sub-Criteria Obtained With AHP

Criteria	Geometric Mean **Weights (w)**	λ_{max} CI and RI	CR
Quantitative Factors	**0.332**	-	-
Qualitative Factors & Price	**0.668**	-	
Natural resources	**0.226**		
Transportation	**0.208**	λ_{max}=5.17	
Accommodation	**0.201**	CI=0.042	***CR=0.038***
Blue flag	**0.054**	RI=1.12	
Cultural resources	**0.312**		
Reputation & image	**0.104**		
Safety & security	**0.250**		
Health & hygiene	**0.238**	λ_{max}=7.52	
Price	**0.203**	CI=0.085	***CR=0.065***
Cuisine	**0.092**	RI=1.32	
Night life	**0.046**		
Variety of activity, recreation	**0.067**		
Cave, canyon	**0.072**		
River, lake, rill, waterfall	**0.165**	λ_{max}=6.28	
Mountain, summit, valley	**0.063**	CI=0.057	***CR=0.046***
Island, peninsula, national park	**0.252**	RI=1.24	
Bay	**0.314**		
Thermal spring	**0.134**		
Distance to closest airport	**0.335**		
Distance to alternative airport	**0.127**	λ_{max}=5.41	
Number of alternative airports	**0.092**	CI=0.102	***CR=0.091***
Distance to city center	**0.287**	RI=1.12	
Number of destinations in vicinity (<50 km)	**0.159**		
Number of holiday village	**0.342**		
Number of apart hotels/villas	**0.177**	λ_{max}=5.11	
Number of camping areas	**0.072**	CI=0.0.27	***CR=0.024***
Number of 3-4-5 star hotels	**0.296**	RI=1.12	
Number of hostels	**0.113**		
Number of blue flagged beaches	**0.745**	-	-
Number of blue flagged marinas	**0.255**	-	
Palace, castle caravansary	**0.144**		
Local bazaar	**0.172**	λ_{max}=6.14	
Submerged	**0.043**	CI=0.0.28	***CR=0.022***
Turkish bath	**0.056**	RI=1.24	
Museum	**0.260**		
Antic city	**0.325**		

Table 6. Local And Global Weights of Criteria

CRITERIA	LOCAL WEIGHTS	SUB CRITERIA	LOCAL WEIGHTS	SUB CRITERIA	LOCAL WEIGHTS	GLOBAL WEIGHTS
QUANTITATIVE FACTORS	*0.332*	*Natural resources*	*0.23*	*Cave, canyon*	0.072	***0.0054***
				River, lake, rill, waterfall	0.165	***0.0123***
				Mountain, summit, valley	0.063	***0.0047***
				Island, peninsula, national park	0.252	***0.0189***
				Bay	0.314	***0.0235***
				Thermal spring	0.134	***0.0100***
		Transportation	*0.21*	*Distance to closest airport*	0.335	***0.0231***
				Distance to alternative airport	0.127	***0.0087***
				Number of alternative airports	0.092	***0.0063***
				Distance to city center	0.287	***0.0198***
				Number of destinations in vicinity (Less than 50 km)	0.159	***0.0110***
		Accommodation	*0.2*	*Number of holiday village*	0.342	***0.0228***
				Number of apart hotels/villas	0.177	***0.0118***
				Number of camping areas	0.072	***0.0048***
				Number of 3-4-5 star hotels	0.296	***0.0197***
				Number of hostels	0.113	***0.0076***
		Blue flag	*0.05*	*Number of blue flagged beaches*	0.75	***0.0133***
				Number of blue flagged marinas	0.25	***0.0044***
		Cultural resources	*0.31*	*Palace, castle caravansary*	0.144	***0.0148***
				Local bazaar	0.172	***0.0177***
				Submerged	0.043	***0.0045***
				Turkish bath	0.056	***0.0058***
				Museum	0.26	***0.0269***
				Antic City	0.325	***0.0336***
QUALITATIVE FACTORS AND PRICE	*0.668*	*Reputation, image and popularity*			0.104	***0.0694***
		Safety and security			0.25	***0.1674***
		Health and hygiene			0.238	***0.1588***
		Price			0.203	***0.1355***
		Cuisine			0.092	***0.0614***
		Night life			0.046	***0.0310***
		Variety of activity, recreation			0.067	***0.0448***

Figure 4. Resulting Weights of Criteria And Sub-Criteria Obtained With AHP

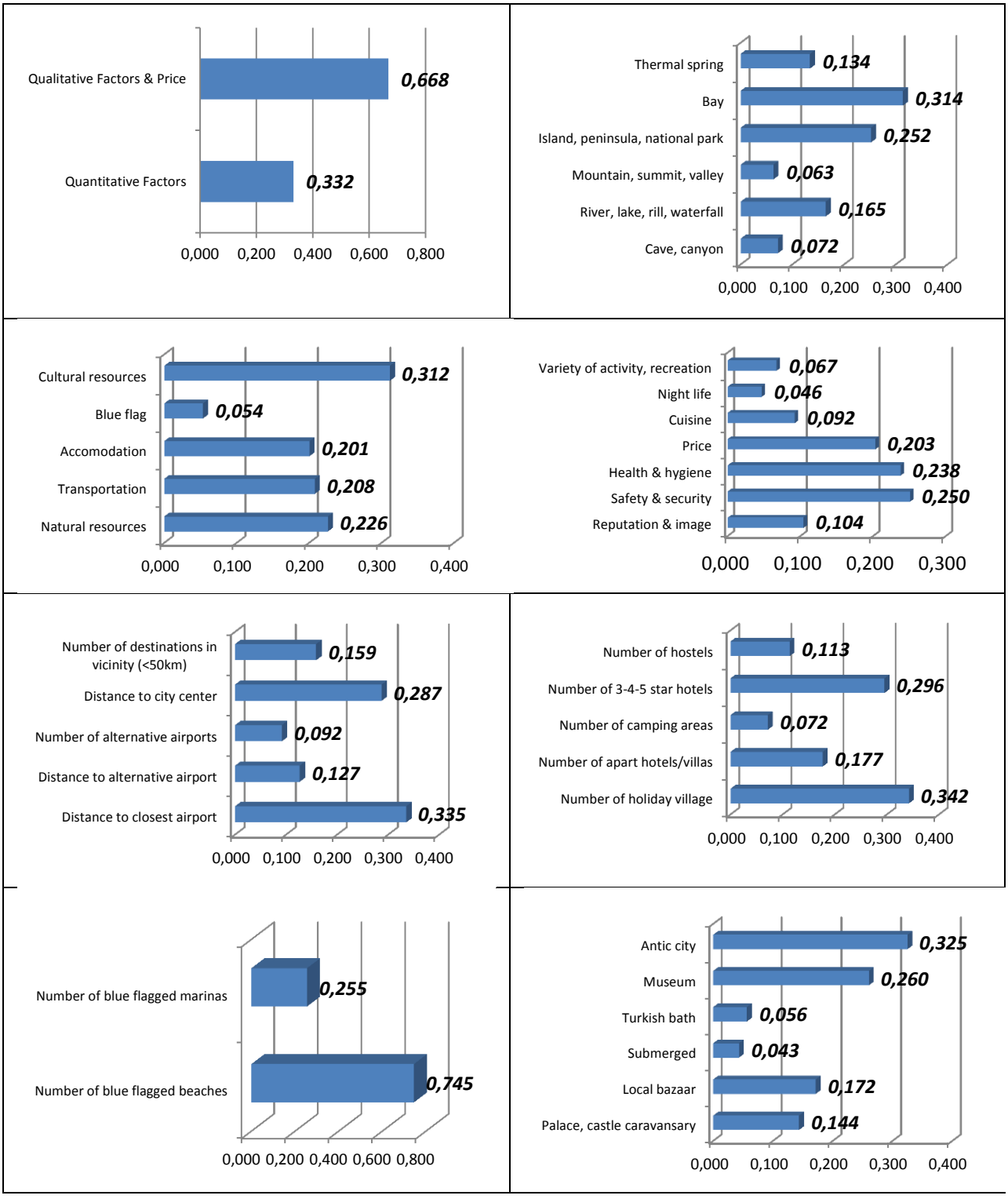
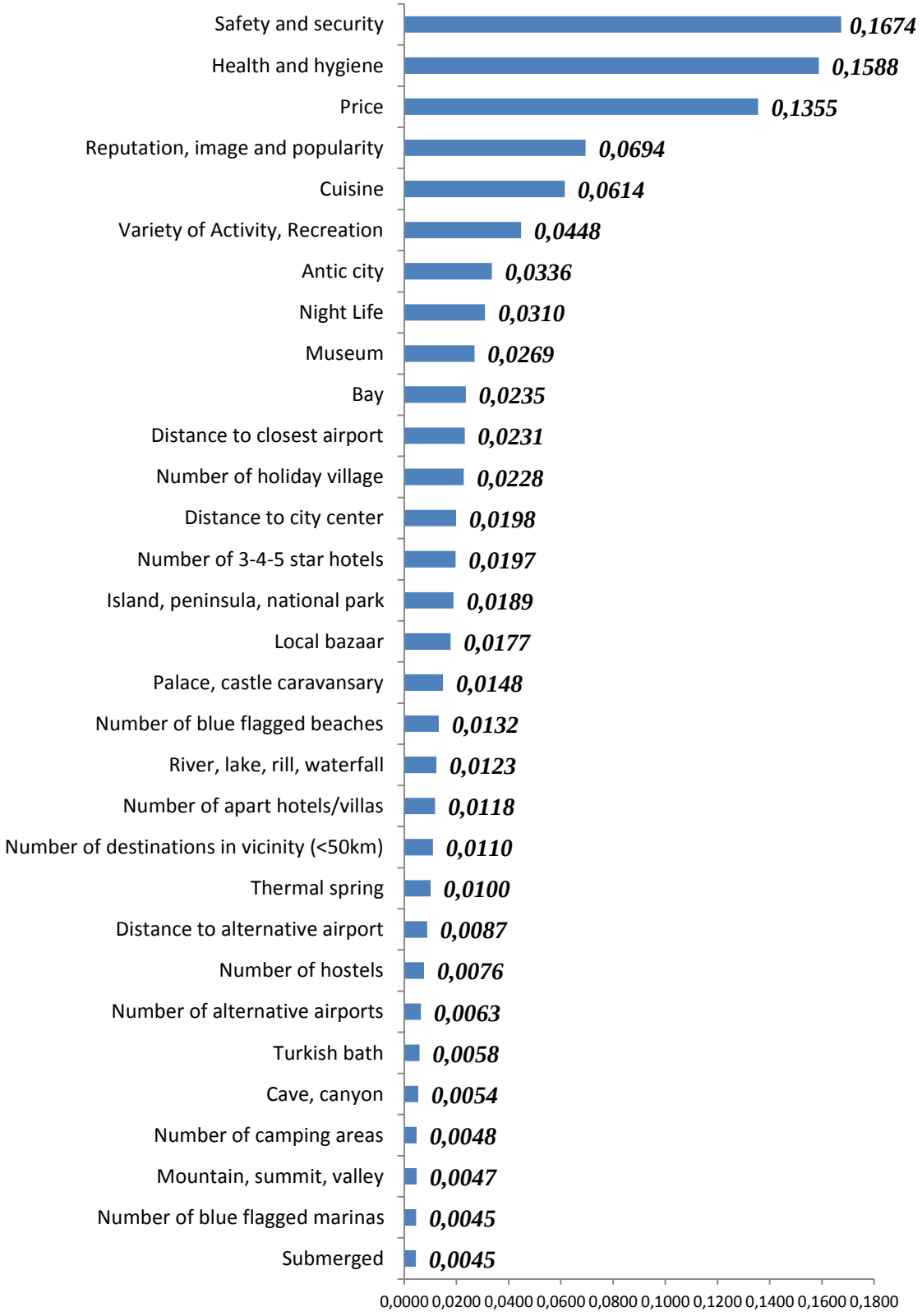


Figure 5. Global Weights Of All Sub-Criteria Obtained With AHP



The "safety and security", "health and hygiene" and "price" are determined as the three most important criteria in the supplier selection process by AHP. Consistency ratios of the pairwise comparison matrixes are calculated less than 0.1. So the weights are shown to be consistent and they are used in the ranking process as inputs of TOPSIS.

Finally, TOPSIS method is applied to rank the tourism destinations in Turkey. The priority weights of alternative destinations with respect to criteria, calculated by AHP and shown in Figure 5, can be used in TOPSIS. A part of the input data of the TOPSIS, can be seen from Table 7.

Table 7. A Part of Input Values of The TOPSIS Analysis (Arithmetic Mean of Expert Evaluations)

Weight	***0.069***	***0.167***	***0.159***	***0.061***	***0.031***	***0.045***	***0.136***
Factors / Alternatives	Reputation, image and popularity	Safety and security	Health and hygiene	Cuisine	Night life	Variety of activity, recreation	Price
Alanya	8.8	6	6	7.8	8.4	7.8	5.2
Bodrum	9.2	7.2	7.2	8.4	9.4	8.6	8.6
Çeşme	8.2	8.4	8	8.2	8.6	8.2	8.6
Datça	5.8	8.8	8.6	7.8	6.8	7.2	6.8
Didim	6.2	7.6	7.2	7.8	6.6	7	6.4
Fethiye	8.2	8.6	8.2	8.2	8.4	9.4	6.8
Kaş	6	8.6	8	8.4	6.6	7.6	5.4
Kemer	8.8	7.4	8	8.2	9.8	7.8	7.2
Kumluca	5.4	8.4	7.8	8	5.6	6.6	4.6
Kuşadası	8	7.6	8	8.4	8.6	7.8	7.6
Marmaris	8.4	7.6	7.8	8.6	9.4	7.8	7
Manavgat	8.6	7.4	8	8.2	8.6	8.2	7.8
Serik	8.8	8	8.4	8.6	8.4	8.4	8.6

By using TOPSIS method, the ranking of alternative destinations are calculated. Table 8 shows the evaluation results and final ranking of alternative destinations.

Table 8. TOPSIS Results

Alternatives	d_i^*	d_i^-	RC_i
Alanya	0.041	0.037	***0.473***
Bodrum	0.044	0.033	***0.427***
Çeşme	0.047	0.028	***0.378***
Datça	0.049	0.027	***0.357***
Didim	0.048	0.020	***0.292***
Fethiye	0.042	0.031	***0.426***
Kaş	0.042	0.030	***0.421***
Kemer	0.047	0.024	***0.342***
Kumluca	0.044	0.032	***0.422***
Kuşadası	0.044	0.029	***0.392***
Marmaris	0.041	0.032	***0.437***
Manavgat	0.045	0.024	***0.351***
Serik	0.048	0.027	***0.361***

Based on RC_j values, the top three of the alternatives in descending order are Alanya, Marmaris and Bodrum. Proposed model results indicate that Alanya is the best alternative with RC value of 0.473.

Table 9. Weighted And Unweighted Rankings

Rank	Weighted RC_i	Weighted Ranking	Unweighted RC_i	Unweighted Ranking
1	***0.473***	Alanya	***0.421***	Alanya
2	***0.437***	Marmaris	***0.388***	Marmaris
3	***0.427***	Bodrum	***0.365***	Kuşadası
4	***0.426***	Fethiye	***0.362***	Bodrum
5	***0.422***	Kumluca	***0.361***	Çeşme
6	***0.421***	Kaş	***0.352***	Kemer
7	***0.392***	Kuşadası	***0.352***	Kaş
8	***0.378***	Çeşme	***0.352***	Fethiye
9	***0.361***	Serik	***0.299***	Manavgat
10	***0.357***	Datça	***0.291***	Kumluca
11	***0.351***	Manavgat	***0.253***	Serik
12	***0.342***	Kemer	***0.230***	Didim
13	***0.292***	Didim	***0.203***	Datça

Conclusion

Destination competitiveness ranking is a strategic information for all the players in the tourism sector. Several alternatives must be considered and evaluated in terms of many different conflicting criteria in a destination ranking problem, leading to a large set of quantitative and qualitative criteria. This paper presents a multi-criteria decision making for evaluation of tourism destinations by implementing AHP-TOPSIS method. Due to this, decision making for selection of suitable destination is of special importance. Acquired results from numerical example determine that this model could be used for decision making optimization in destination selection. Managing the links between the tourism destinations and tourism experts successfully in tourism sector necessitates their active collaboration. As a result, tourism marketers, municipalities, etc. Due to strategic importance of destination evaluation and selection process, extensive research is being done to cope with this MCDM problem. The integrated AHP and TOPSIS approach is proposed as an efficient and effective methodology to be used by decision makers on tourism sector in terms of its ability to deal with both qualitative and quantitative performance measures. The proposed methodology can also be applied to any other selection problem involving multiple and conflicting criteria.

The result of evaluation may help strategy makers of tourism sector, local municipalities, management of tour agencies, local and international tourists/traveler, academicians in tourism faculties etc. Future research regarding ranking of tourism destinations in Turkey may attempt to seek all the touristic destinations in Turkey with the help of more experts. Also different multi criteria techniques such as VIKOR or MOORA can be used for comparing the results.

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