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Letter from the Editor

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Dear Reader:

The Consortium Journal has received a tremendous amount of support during the past eleven years. The Historically and Predominantly Black Colleges and Universities, Hospitality Consortium (HPBCU-HM) developed the Journal to provide an avenue for educators and business professionals to present their findings and concerns in the areas of hospitality education and other hospitality related business issues. Because of the diversity of the hospitality industry, the publication is not limited to minority issues, even though they are welcomed. The journal was developed to be a platform for any hospitality-related issues in hopes that the publication of these issues will bring them forward to be discussed in the classroom as well as in private industry.

Because of the growth in travel, tourism, meetings, and special events, I would like to receive for review as many articles as possible pertaining to any of these areas. The next fall journal will focus specifically on these related types of issues. If you have completed work in other areas it can be reviewed for the spring publication if received by April 15. All articles for review for the fall issue should be received by October 15.

I would like to thank the University of Maryland Eastern Shore and you for your continued support and I hope you will continue to submit articles to the Consortium Journal for publishing consideration.

Sincerely,

Pender B. Noriega, DBA, CHE
Editor-in-Chief
EVALUATION OF THE SUPPLIER FOR HOTELS BY USING AHP METHODOLOGY

Aşkin ÖZDAĞÖGLU and Lütfi ATAY

An analytical way to reach the best decision is more preferable in many business platforms. When variables are quantitative and the number of criteria is not high, then one can use several analysis tools and make his/her decision and solve the problem. However, many times beside the measurable variables, there exist qualitative variables, or people are supposed to prefer the best among the many choices; thus, an analytical way to make a successful decision is needed. Analytical Hierarchy Process (AHP) is one of the best ways for deciding among the complex criteria structure in different levels. In this paper, in accordance with the AHP method, supplier evaluation criteria for 4 star hotels and 3 star hotels in Turkey have been determined and then importance levels for every criteria have been found with the calculation of the process. Quality is the most preferable main criterion with 45.6% for all hotels including 4 star hotels and 3 star hotels. According to global importance levels of the sub-criteria for general comparison, the most important criteria is service quality with 17.3% and the least important criteria is market share with 2.4%.

Keywords: Analytic hierarchy process, hotel supplier evaluation criteria

INTRODUCTION

In daily lives, people often have to make decisions. When the decision is made is as important as what is decided. Everyday life and history are full of lessons that can help organizations to recognize the critical moment. Organizations learn by trying and by example. Deciding too quickly can be hazardous; delaying too long can mean missed opportunities. In the end, it is crucial that decision makers make up their mind. What organizations need is a systematic and comprehensive approach to decision making. Decision making is fundamental to furthering our goal of survival and ensuring the quality of human life. Life is worth little if people are not free to make our own choices (Saaty, 2001).

In evaluating \( n \) competing alternatives \( A_1, \ldots, A_n \) under a given criterion, it is natural to use the framework of pairwise comparisons represented by an \( n \times n \) square matrix from which a set of preference values for the alternatives is derived. Many methods
for estimating the preference values from the pairwise comparison matrix have been proposed and their effectiveness comparatively evaluated. Some of the proposed estimating methods presume interval-scaled preference values. But most of the estimating methods proposed and studied are within the paradigm of the analytic hierarchy process that presumes ratio-scaled preference values. The main challenge is how to reconcile the inevitable inconsistency of the pairwise comparison matrix elicited from the decision makers in real-world applications. When the decision maker is unable to rank the alternatives holistically and directly with respect to a criterion, pairwise comparisons are often used as intermediate decision support (Choo & Wedley, 2004).

In this paper, utilising the AHP method, supplier evaluation criteria have been determined and then importance levels for every criteria have been found with the calculation of the process. The aim of this study is to present a systematic approach to supplier evaluation for hotel companies in tourism.

1. Theoretical Framework

In this part, the analytical procedures of the multiple and multi-level criteria of the AHP approach are presented.

2. AHP

The analytical hierarchy process (AHP) is a method for ranking decision alternatives and selecting the best one when the decision maker has multiple criteria (Taylor, 2004, 374). It answers the question, “Which one?” The decision maker will select the alternative that best meets his or her decision criteria. AHP is a process for developing a numerical score to rank each decision alternative based on how well each alternative meets the decision maker’s criteria (Russell & Taylor, 2003, 221).

In AHP, preferences between alternatives are determined by making pairwise comparisons. In a pairwise comparison the decision maker examines two alternatives by considering one criterion and indicates a preference. These comparisons are made using a preference scale, which assigns numerical values to different levels of preference (Taha, 2003, 522). The standard preference scale used for AHP is 1-9 scale which lies between “1=equal importance” to “9=extreme importance” (Saaty, 2001, 26).

Saaty’s fundamental scale of 1-9 is used to assess the intensity of preference between two elements. In the pairwise comparison matrix, the value 9 indicates that one factor is extremely more important than the other, and the value 1/9 indicates that one factor is extremely less important than the other, and the value 1 indicates equal importance (Sarkis & Talluri, 2004; Polecak & Ramaswadran,2004.). Also, if the importance of one factor with respect to a second is given, then the importance of the second factor with respect to the first is the reciprocal. This means \( a_{ij} = 9 \implies a_{ji} = 1/9 \) (Sarkis & Talluri, 2004, 323). Ratio scale and the use of verbal comparisons are used for weighting of quantifiable and non-quantifiable elements (Polecak & Ramaswadran, 2004, 369). Although comparison in AHP methodology is suggested (1-9) scale, (1-3) or (1-5) scale have given more consistent results according to Moisidis research (Moisidis,1999). Cause of this problem is difficult to distinguish the differences between the importance levels in (1-9) scale. In AHP, for an elaborate design the following process should be applied (Saaty, 2001, 59).
1. Identify the overall goal. What are you trying to accomplish? What is the main question?
2. Identify the subgoals of the overall goal. If relevant, identify time horizons that affect the decision.
3. Identify the criteria that must be satisfied to fulfill the subgoals of the overall goal.
4. Identify subcriteria under each criterion. Note that criteria or subcriteria may be specified in terms of ranges of values of parameters or in terms of verbal intensities such as high, medium, low.
5. Identify the actors involved.
6. Identify the actor goals.
7. Identify the actor policies.
8. Identify the options or outcomes.
9. For yes-no decisions take the most preferred outcome and compare benefits and costs of making the decision with those of not making it.
10. Do benefit/cost analysis using marginal values. Because we are dealing with dominance hierarchies, ask which alternative yields the greatest benefit; for costs, which alternative costs the most. Proceed similarly if a risks hierarchy is included.

The AHP enables the decision-makers to structure a complex problem in the form of a simple hierarchy and to evaluate a large number of quantitative and qualitative factors in a systematic manner under conflicting multiple criteria. The application of AHP to the complex problem usually involves four major steps (Cheng, Yang and Hwang, 1999, 424):

1. Break down the complex problem into a number of small constituent elements and then structure the elements in a hierarchical form.
2. Make a series of pairwise comparisons among the elements according to a ratio scale 1, 3, 5, 7 and 9.
3. Use the eigenvalue method to estimate the relative weights of the elements.
4. Aggregate these relative weights and synthesize them for the final measurement of given decision alternatives.

The AHP (Saaty, 1980, 1982, 1990) is a powerful and flexible multi-criteria decision-making tool for dealing with complex problems where both qualitative and quantitative aspects need to be considered. The AHP helps analysts to organize the critical aspects of a problem into a hierarchy rather like a family tree. By reducing complex decisions to a series of simple comparisons and rankings, then synthesizing the results, the AHP not only helps analysts to arrive at the best decision, but also provides a clear rationale for the choices that are made (Bevilaqua, D’Amore and Polonara, 2004, 255).

The essence of the process is decomposition of a complex problem into a hierarchy with goal (objective) at the top of the hierarchy; criteria and sub-criteria at levels and sub-levels of the hierarchy, and decision alternatives at the bottom of the hierarchy. Elements at given hierarchy levels are compared in pairs to assess their relative preference with respect to each of the elements at the next higher level. The method computes and aggregates their eigenvectors until the composite final vector of weight coefficients for alternatives is obtained. The entries of final weight coefficients
vector reflect the relative importance (value) of each alternative with respect to the goal stated at the top of the hierarchy (Ponchak & Ramachandran, 2004, 369). A decision maker may use this vector according to his particular needs and interests. To elicit pair wise comparisons performed at a given level, a matrix $A$ is created in turn by putting the result of pair wise comparison of element $i$ with element $j$ into the position $a_{ij}$ as below.

\[
A = \begin{bmatrix}
C_1 & C_2 & C_3 & C_4 & C_5 & C_6 & \ldots & C_n \\
C_1 & 1 & a_{12} & a_{13} & a_{14} & a_{15} & \ldots & a_{1n} \\
C_2 & a_{21} & 1 & a_{23} & a_{24} & a_{25} & \ldots & a_{2n} \\
C_3 & a_{31} & a_{32} & 1 & a_{34} & a_{35} & \ldots & a_{3n} \\
C_4 & a_{41} & a_{42} & a_{43} & 1 & a_{45} & \ldots & a_{4n} \\
C_5 & a_{51} & a_{52} & a_{53} & a_{54} & 1 & \ldots & a_{5n} \\
C_6 & a_{61} & a_{62} & a_{63} & a_{64} & a_{65} & 1 & \ldots & a_{6n} \\
\vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \ddots & \vdots \\
C_n & a_{n1} & a_{n2} & a_{n3} & a_{n4} & a_{n5} & \ldots & 1 \\
\end{bmatrix}
\]

Where
- $n = $ criteria number to be evaluated
- $C_i = $ i criteria
- $A_{ij} = $ importance of i criteria according to jth Criteria

After obtaining the weight vector, it is then multiplied with the weight coefficient of the element at a higher level (that was used as criterion for pair wise comparisons). The procedure is repeated upward for each level, until the top of the hierarchy is reached. The overall weight coefficient, with respect to the goal for each decision alternative is then obtained. The alternative with the highest weight coefficient value should be taken as the best alternative (Ponchak & Ramachandran, 2004, 370).

I. Implementation (Supplier Evaluation Problem)

In order to evaluate the suppliers, the evaluation criteria and sub-criteria have been determined.

A. SUPPLIER EVALUATION FOR HOTELS IN TOURISM

Hotels need some products from suppliers to carry out their desired and satisfying service. A supplier is used to benefit their expertise and to gain a competitive advantage. Suppliers can create some competitive advantages over cost for hotels. Improving service quality and collaboration to obtain supply are important (Rodriguez & Robina, 2005). Varying factors such as the size of destination, number and scale of hotels in the destination, structure of suppliers determines the level of use of the supplier. (Turksoy & Turksoy, 2007). In this paper, 4 star and 5 star hotels have been used among accommodation units in Turkey. The 4 star and 5 star hotels are upscale hotels. There are 216 five star and 416 four star hotels licensed in Turkey. A self-completion questionnaire
was delivered to senior staff in charge of purchasing divisions at hotels by email, fax and in person. Out of 632 hotels, 110 completed questionnaires were obtained in the 6 months between April-September 2008.

B. METHODOLOGY

A questionnaire form has been prepared according to the criteria and their sub criteria relating to .... The total number of hotels that responded was 110 with 68 being 5 star and 42 being 4 star hotels. A 1-5 scale is used in this study for evaluation of the suppliers according to the criteria and their sub criteria. Because of the fact that the AHP 1-5 scale is a ratio scale, the pairwise comparison matrices have been constructed by using geometric mean. The geometric mean is used whenever we wish to find the “average” growth rate, or rate of change in a variable over time (Keller and Warrack, 2003, 99; Wigham, 1998; Levine, Kreibiel, Berenson, 2003, 107). The geometric mean of a set of \( N \) numbers is the \( N^{th} \) root of the product of the numbers (Bowman and Starr, 1994, 82). The geometric mean is appropriate procedures for ratio scales (Forman & Peniwati, 1998, 166; Aull-Hyde, Erdogan & Joshua, 2006, 291; Xu, 2000, 683; Hovanov, Kolari & Sokolov, 2008, 208; Melon, Beltran & Cruz, 2008, 756; Aguaron & Jimenez, 2003, 138; Lin, Lin, Chang & Tang, 2008, 673; Aguaron & Jimenez, 2000, 114; Escobar, Aguaron & Jimenez, 2004, 319; Escobar & Jimenez, 2000, 155; Keng & Wu, 2007, 1796).

Jharkharia & Shankar (2005) indicated about 22 criteria used to evaluate the suppliers. In the light of this study, three evaluation criteria and thirteen sub criteria have been determined with the help of academics in tourism and administrators of some selected hotels after the evaluation criteria indicated by Jharkharia & Shankar were eliminated.

![Image](https://via.placeholder.com/150)

**Figure 1: The Most Appropriate Supplier Evaluation Hierarchical Structure**

As seen in Figure 1, the main evaluation criteria to evaluate hotel suppliers are price, quality and collaboration. The sub criteria of the price criterion are payment possibilities, campaign chances, flexibility in involving and flexibility in collecting.

The sub criteria of the quality criterion are service quality, recognition level of the company, recognition level of the product and experience in alike products. The sub criteria of the collaboration criterion are harmony in the collaboration, confidence, delivery
performance, market share and ease of return.

C. AHP APPLICATION

Comparisons of the three main criteria and thirteen sub criteria according to their main criteria will be undertaken by using AHP methodology.

The pairwise comparison matrix according to the main criteria has been shown below:

Table 1: The Pairwise Comparison Matrix According To The Main Criteria

<table>
<thead>
<tr>
<th></th>
<th>Price</th>
<th>Quality</th>
<th>Collaboration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>1.000</td>
<td>0.736</td>
<td>1.390</td>
</tr>
<tr>
<td>Quality</td>
<td>1.360</td>
<td>1.000</td>
<td>2.126</td>
</tr>
<tr>
<td>Collaboration</td>
<td>0.751</td>
<td>0.470</td>
<td>1.000</td>
</tr>
</tbody>
</table>

As seen in Table 1, first of all, the comparison for the main criteria has been made.

Step 1. Sum the values in every column.

<table>
<thead>
<tr>
<th></th>
<th>Price</th>
<th>Quality</th>
<th>Collaboration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>1.000</td>
<td>0.736</td>
<td>1.331</td>
</tr>
<tr>
<td>Quality</td>
<td>1.360</td>
<td>1.000</td>
<td>2.126</td>
</tr>
<tr>
<td>Collaboration</td>
<td>0.751</td>
<td>0.470</td>
<td>1.000</td>
</tr>
<tr>
<td>Column total</td>
<td>3.111</td>
<td>2.207</td>
<td>4.456</td>
</tr>
</tbody>
</table>

Step 2. Divide every value to the column total.

<table>
<thead>
<tr>
<th></th>
<th>Price</th>
<th>Quality</th>
<th>Collaboration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>0.321</td>
<td>0.333</td>
<td>0.299</td>
</tr>
<tr>
<td>Quality</td>
<td>0.437</td>
<td>0.453</td>
<td>0.477</td>
</tr>
<tr>
<td>Collaboration</td>
<td>0.242</td>
<td>0.214</td>
<td>0.224</td>
</tr>
</tbody>
</table>

Note: Sum of all columns must be 1.

Step 3. Calculate the average.

<table>
<thead>
<tr>
<th></th>
<th>Price</th>
<th>Quality</th>
<th>Collaboration</th>
<th>Importance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>0.321</td>
<td>0.333</td>
<td>0.299</td>
<td>0.318</td>
</tr>
<tr>
<td>Quality</td>
<td>0.437</td>
<td>0.453</td>
<td>0.477</td>
<td>0.456</td>
</tr>
<tr>
<td>Collaboration</td>
<td>0.242</td>
<td>0.214</td>
<td>0.224</td>
<td>0.228</td>
</tr>
</tbody>
</table>

Row averages are the importance levels for all criteria. According to these values, quality is the most preferable criterion according to all hotels including 4 star and 5 star. Relative priority values of these main criteria can be written as a vector below.

\[
\begin{bmatrix}
W_1 \\
W_2 \\
W_3
\end{bmatrix} =
\begin{bmatrix}
0.318 \\
0.456 \\
0.228
\end{bmatrix}
\]

D. Consistency Ratio

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The consistency index of a matrix of comparisons is given by \(CI=(\lambda_{max}-n)/(n-1)\). The consistency ratio (CR) is obtained by comparing the CI with the appropriate one of the following set of numbers in Table 2, each of which is an average random consistency index derived from a sample of randomly generated reciprocal matrices.

<table>
<thead>
<tr>
<th>N</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>RI</td>
<td>0.58</td>
<td>0.90</td>
<td>1.12</td>
<td>1.24</td>
<td>1.32</td>
<td>1.41</td>
</tr>
</tbody>
</table>

If it is not less than 0.10, study the problem and revise the judgments. In this case, CR of the pairwise comparison matrix for the main criteria is only 0.002489. Due to the fact that this value is less than 0.10, the evaluations of the participants are very reliable and consistent.

A pairwise comparison matrix procedure which was used for criteria should be made for the alternatives in the systematic approach. Pairwise comparison matrix for sub-criteria according to the price criterion which has been obtained 110 questionnaire form through the use of geometric mean has been shown in Table 3 with the importance levels.

<table>
<thead>
<tr>
<th></th>
<th>Payment possibilities</th>
<th>Campaign chances</th>
<th>Flexibility in invoicing</th>
<th>Flexibility in collecting</th>
<th>Importance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment possibilities</td>
<td>0.324</td>
<td>0.371</td>
<td>0.282</td>
<td>0.326</td>
<td>0.326</td>
</tr>
<tr>
<td>Campaign chances</td>
<td>0.219</td>
<td>0.251</td>
<td>0.312</td>
<td>0.224</td>
<td>0.253</td>
</tr>
<tr>
<td>Flexibility in invoicing</td>
<td>0.309</td>
<td>0.211</td>
<td>0.263</td>
<td>0.300</td>
<td>0.271</td>
</tr>
<tr>
<td>Flexibility in collecting</td>
<td>0.148</td>
<td>0.167</td>
<td>0.133</td>
<td>0.148</td>
<td>0.150</td>
</tr>
<tr>
<td>CR</td>
<td>0.011201</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As seen in Table 3, because of the fact that Consistency ratio (CR) = 0.011201 is less than 0.10, the pairwise comparison matrix is consistent. Hotels pay higher attention to payment possibilities among the sub-criteria of price. It is understood that details of payments are in main concerns of hotels. A pairwise comparison matrix for sub-criteria according to the quality criterion which has been obtained from the 110 responses through the use of the geometric mean has been shown in Table 4. Service quality (37.9) is the most important sub-criteria of quality which was the most important main criteria. Brand is the second important quality factor with ratio of 25.1.
As seen in Table 4, due to the fact that Consistency ratio (CR) = 0.018414 is less than 0.10, the pairwise comparison matrix is consistent. The pairwise comparison matrix for the sub-criteria of the collaboration criterion through the use of the geometric mean has been done and Table 5 shows the importance levels of the sub-criteria according to the collaboration criterion. Confidence is the most important sub-criteria of collaboration.

Table 5: Determination Of The Importance Levels In Terms Of The Collaboration

<table>
<thead>
<tr>
<th>Harmony in the collaboration</th>
<th>Confidence</th>
<th>Delivery performance</th>
<th>Market share</th>
<th>Ease of return</th>
<th>Importance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harmony in the collaboration</td>
<td>0.168</td>
<td>0.163</td>
<td>0.158</td>
<td>0.182</td>
<td>0.175</td>
</tr>
<tr>
<td>Confidence</td>
<td>0.309</td>
<td>0.301</td>
<td>0.292</td>
<td>0.287</td>
<td>0.319</td>
</tr>
<tr>
<td>Delivery performance</td>
<td>0.225</td>
<td>0.220</td>
<td>0.214</td>
<td>0.231</td>
<td>0.189</td>
</tr>
<tr>
<td>Market share</td>
<td>0.099</td>
<td>0.114</td>
<td>0.100</td>
<td>0.108</td>
<td>0.113</td>
</tr>
<tr>
<td>Ease of return</td>
<td>0.199</td>
<td>0.202</td>
<td>0.235</td>
<td>0.192</td>
<td>0.203</td>
</tr>
<tr>
<td>CR</td>
<td>0.00198</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As seen in Table 5, due to the fact that Consistency ratio (CR) = 0.00198 is less than 0.10, the pairwise comparison matrix is consistent. The values which are seen in Table 6 are the importance levels of the sub-criteria in the Table 3, Table 4 and Table 5 respectively. The importance levels of the main criteria in Table 2 are multiplied by the importance levels of the sub-criteria in Table 6, the outcomes of multiplication is global importance levels of the sub-criteria and shown in the Table 7.
Table 6: Local Importance Levels of The Sub-Criteria

<table>
<thead>
<tr>
<th>Sub-criteria of Price</th>
<th>Local importance</th>
<th>Sub-criteria of Quality</th>
<th>Local importance</th>
<th>Sub-criteria of Collaboration</th>
<th>Local importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment possibilities</td>
<td>0.326</td>
<td>Service quality</td>
<td>0.379</td>
<td>Harmony in the collaboration</td>
<td>0.189</td>
</tr>
<tr>
<td>Campaign chances</td>
<td>0.253</td>
<td>Recognition level of the company</td>
<td>0.195</td>
<td>Confidence</td>
<td>0.300</td>
</tr>
<tr>
<td>Flexibility in invoicing</td>
<td>0.272</td>
<td>Recognition level of the product</td>
<td>0.251</td>
<td>Delivery performance</td>
<td>0.216</td>
</tr>
<tr>
<td>Flexibility in collecting</td>
<td>0.149</td>
<td>Experience in alike products</td>
<td>0.175</td>
<td>Market share</td>
<td>0.108</td>
</tr>
</tbody>
</table>

Range of sub-criteria in local importance and global importance are same. Service quality is the most important and market share is the least important sub-criteria.

Table 7: Global Importance Levels of The Sub-Criteria With Respect To The Main Criteria

<table>
<thead>
<tr>
<th>Sub-criteria of Price</th>
<th>Global importance</th>
<th>Sub-criteria of Quality</th>
<th>Global importance</th>
<th>Sub-criteria of Collaboration</th>
<th>Global importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment possibilities</td>
<td>0.104</td>
<td>Service quality</td>
<td>0.173</td>
<td>Harmony in the collaboration</td>
<td>0.036</td>
</tr>
<tr>
<td>Campaign chances</td>
<td>0.080</td>
<td>Recognition level of the company</td>
<td>0.089</td>
<td>Confidence</td>
<td>0.068</td>
</tr>
<tr>
<td>Flexibility in invoicing</td>
<td>0.086</td>
<td>Recognition level of the product</td>
<td>0.115</td>
<td>Delivery performance</td>
<td>0.049</td>
</tr>
<tr>
<td>Flexibility in collecting</td>
<td>0.047</td>
<td>Experience in alike products</td>
<td>0.080</td>
<td>Market share</td>
<td>0.024</td>
</tr>
</tbody>
</table>

As noted earlier, 42 of the 110 companies have a 4 star rating and 68 have a 5 star rating. Table 8 shows the importance levels of the main criteria for general comparison and Table 9 shows the local importance levels of the sub criteria for general comparison.

Table 8: Importance Levels of The Main Criteria For General Comparison

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Importance level for all hotels</th>
<th>Importance level for 4 star hotels</th>
<th>Importance level for 5 star hotels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>0.318</td>
<td>0.314</td>
<td>0.320</td>
</tr>
<tr>
<td>Quality</td>
<td>0.456</td>
<td>0.448</td>
<td>0.461</td>
</tr>
<tr>
<td>Collaboration</td>
<td>0.226</td>
<td>0.238</td>
<td>0.219</td>
</tr>
</tbody>
</table>
Table 9. Global Importance Levels of The Sub Criteria for General Comparison

<table>
<thead>
<tr>
<th>Sub-criteria</th>
<th>Importance level for all hotels</th>
<th>Importance level for 4 star hotels</th>
<th>Importance level for 5 star hotels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment possibilities</td>
<td>0.104</td>
<td>0.101</td>
<td>0.105</td>
</tr>
<tr>
<td>Campaign chances</td>
<td>0.080</td>
<td>0.074</td>
<td>0.084</td>
</tr>
<tr>
<td>Flexibility in invoicing</td>
<td>0.086</td>
<td>0.092</td>
<td>0.083</td>
</tr>
<tr>
<td>Flexibility in collecting</td>
<td>0.047</td>
<td>0.047</td>
<td>0.048</td>
</tr>
<tr>
<td>Service quality</td>
<td>0.173</td>
<td>0.194</td>
<td>0.159</td>
</tr>
<tr>
<td>Recognition level of the company</td>
<td>0.089</td>
<td>0.074</td>
<td>0.099</td>
</tr>
<tr>
<td>Recognition level of the product</td>
<td>0.115</td>
<td>0.104</td>
<td>0.121</td>
</tr>
<tr>
<td>Experience in alike products</td>
<td>0.080</td>
<td>0.076</td>
<td>0.082</td>
</tr>
<tr>
<td>Harmony in the collaboration</td>
<td>0.038</td>
<td>0.050</td>
<td>0.032</td>
</tr>
<tr>
<td>Confidence</td>
<td>0.088</td>
<td>0.071</td>
<td>0.088</td>
</tr>
<tr>
<td>Delivery performance</td>
<td>0.049</td>
<td>0.049</td>
<td>0.049</td>
</tr>
<tr>
<td>Market share</td>
<td>0.024</td>
<td>0.024</td>
<td>0.025</td>
</tr>
<tr>
<td>Ease of return</td>
<td>0.047</td>
<td>0.045</td>
<td>0.048</td>
</tr>
</tbody>
</table>

E. RESULT OF THE STUDY

AHP is an effective problem solving methodology. The decision problem may contain social, economic, technical and politic factors. Supplier evaluation criteria have been determined and then the importance levels for every criteria have been calculated for the hotels.

Different factors influence the supplier evaluation procedure (Shang & others, 2008; Türksoy&Türksoy,2007; Rodríguez and Robaina, 2005; Hemmington & King, 2000) and reduction of cost is determined as the main factor for hotels to use outsourcing (Rodríguez and Robaina, 2005). In this study cost of the product is not the main factor for hotels to choose a supplier for outsourcing. Table 8 and Table 9 showed that quality is the most important criterion, price is the second and collaboration is the least important criterion for both of them. The reason for this difference could be the categories of hotels used in this survey. A similar result for sub-criterion was also obtained. Service quality is the most important sub-criterion, recognition level of the product is the second and payment possibilities is the third important sub-criterion for both of the 4 star and 5 star hotels. Market share is the least important criterion. It is apparent that if the hotels in these categories focus on quality as a main criteria to evaluate suppliers, the sustainability of hotels will be easier to maintain.

This study is the first to apply AHP to analyse the importance level of Supplier evaluation criteria for hotels. It is necessary to expand the scope of this study to other categories of hotels and to undertake international studies.

REFERENCES

European Journal Of Operational Research. 147. P.137–145


