Integrated Assessment of Customers' Comments in Travelling Websites and Official Classification Systems, and Konya Hotels Application

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Abstract

In the study, it is tried to constitute a perspective with regards to integrate customers' comments and hotel classification systems. According to many researches done, assessments done for hotels according to the customers' comments are taken in consideration sufficiently in bookings. In addition, it can be frequently seen that a three-star hotel has had more customers' points than a five-star hotel in the rankings. However, five-star hotels should have more opportunities and standards than three-star hotels so that they can reach the classification which they have had officially. It is therefore important to add customers' points in travelling websites into official classification systems for a valid evaluation. Hence quality of hotel ranking can be made more refined by including customers' points in official hotel classification. With this purpose, a new ranking has been made by including official classification points in the ranking made according to customers evaluations related to hotels in Konya province on Booking.com travelling website. Multi-criteria decision-making methods have been used in this regard. Thus, booking.com has evaluated whether integrated ranking has differentiated by ranking of customers' points or not.

Keywords: E-WOM, Hotel Classification System, Analytic Hierarchy Process (AHP), Entropy Method.

Introduction

Hotel is the business that meets accommodation services, refreshments servicers and several needs of people for a given period and fee. Different classification methods have been developed for quality of hotels which take an important place in terms of either customers and or tourism potential of countries. The most commonly used method regarding hotel classification is starring system. By a scale starting from one star, it is evaluated that as number of stars increases, service quality levels of the hotels increases. While hotels with five stars are evaluated in the classification of best hotels, hotels with one star are included in the hotels that are the most economic and suitable for short-term use.

However, it is known that many tour operators classify the hotels in our country according to a system they created rather than official classification system from Ministry of Culture and Tourism. In agreements with the hotels, tour operator bases on the stars they have given. For example, we can see many examples in which Ministry has given five starts to a hotel but tour operators have given three stars to the same hotel. Accordingly, there are differences among the prices of many hotel businesses with five stars (Kozak, 2002).

Recently, there has been an interest related to integrate official period of hotel classification with online customers' comments. Researches show that common consensus, between suppliers and customers, is to integrate official period of hotel classification with customers' comments.

While traditional classification systems inform people on opportunities in the hotels, customers' comments are formed by evaluations on whether meets are met or not (UNWTO, 2014). In this regard, customers' opinions can be used as a mechanism which allows a quality control system on hotel opportunities into the traditional official classification system. With this purpose, consolidated customer comments should be integrated with official hotel classifications. Discussions related to explaining relationships between customers' comments and official hotel classifications emerge at the point of intelligibility and reliability of online customer behave. As such, according to a survey in which 2500 customer behaviors have been examined, %35 of the attendants in the survey use online comments primarily in order to have an idea about hotels, and as for %28 of the attendants in the survey, they refer to online comments in order to limit the hotel choices made previously. When behaviors of customers before the booking are analyzed, another point is that behavior related to search the suitable hotel intensifies in a few days before booking (Carroll, 2014).

Before booking for a hotel, customers visit nearly 14 different travelling websites by looking at least three different visitor opinions on each website and conduct nine researches on this travel on search engines. Customers use official hotel classifications (stars) usually in order to filter the options. As for customers' opinions, they use them in order to make the final selection among these filtered hotel groups (UNWTO, 2014, p.16). It is obvious that official hotel classifications and customers' comments play an important role in customers' prefers. It is not required that these two factors have to exclude each other in formation of a common quality sense to meet customers' needs. In certain countries, it is discussed an orientation towards approaches which evaluate official hotel classifications and customers' comments together. For example, *Comparative Performance Model* is evaluated in Sweden. Model consists of two factors. In here, points obtained from official hotel classification and certain websites evaluating customers' comments are presented separately by means of using European Hotel Star Union system. As such, in here, customer's comment point is showed, separately, next to the star without integrating with official hotel star classification. As well as these two periods run separately, and results take part equally in all marketing instruments (UNWTO, 2014).

In this study, it is started from the need for evaluating the official hotel classifications and customers' comments together. Both hotel classification systems and online visitors' comments can play an important role at the point of creating an accommodation service sense to meet customers' needs. It can be therefore possible to harmonize customers' expectations and satisfactions and it can create a significant positive effect on financial structure of the hotel. However, it is seen that hotel rankings in several travelling websites used by customers for hotel selections are formed by customers' comments and points. At this point, in this study, online customer comments and official star points used in hotel classification are evaluated together and ranking is made. In here, ranking is recommended with a integrated approach. Thus customers' comments will be included in quality sizes of hotel classification and ranking quality will be made more refined.

1. *Hotel Classification Systems*

Hotel businesses are businesses of commercial character that produce goods and service in order to meet especially accommodation and then refreshments needs and therefore other needs of individuals as a result of a moving events due to different causes and that offer those goods and services by appealing to psychological satisfaction feelings of the individuals (Şener, 2010, p.6). This term has been approved so as enterprises having certain properties in each country in order that "hotel" word can be taken under legal protection. These properties are (Yıldız, 2011, p.5);

- It should have the quality to meet customers' needs with equipment as well as management.
- It can meet not only accommodation need but also refreshment need.
- It should be an enterprise that makes short-term agreements with customers.
- It should tend to adapt material and aesthetics standards of hotel management industry and consider this as an obligatory.
- Any factor shouldn't change the property of accepting customers.
- There should be supplying instruments such like bath, washbasin and toilet, in the rooms for customers, which are installed according to health rules.
- Technical and serving personnel should be sufficient.

Abovementioned properties are the minimum requirements which a hotel business should have. As for today, luxury hotels can be businesses which can collect units such as cocktail, conference rooms, gyms, baths and saunas, travel agency, several stores under a roof and which meet all kind of needs of customers. Hotel classification systems are an instrument used commonly in accommodation sector in order to help both mediators (tour operators and travel agencies) and customers at the point of making an evaluation and decision about current services and standards in the facilities.

This instrument is very important in a sector especially in which products cannot be tested and seen (accommodation). Besides, official hotel classifications guide in evaluating and developing quality level offered by hotel managements. However, it is difficult and complex to create a common classification system for hotels. The reason is that different social-cultural, environmental and economic factors are effective in the countries where classifications systems are valid, and that services offered by accommodation businesses are different from each other in terms of room numbers, etc. properties. Accordingly, it is seen that different hotel ranking systems are created in different countries.

Hotel classification is hotel ranking by using star (or diamond). One star means that hotel has standard comfort and facility qualities. As for five stars, this means that hotel has luxury facility and service qualities. Purpose of the classification is to provide customer with foreknowledge on hotel's opportunities and qualities. It is thus expected to reduce difference between the expectations and perceptions of customers on service quality and facilities. It is seen that hotels use terms such as rating, evaluating, classification and starring in the ranking according to their standards and services. Classification systems is classified by 5 different approaches in which only objective criteria are evaluated and objective/subjective criteria are evaluated together. These 5 different approaches are explained in the following (UNWTO, 2015).

Traditional Classification System: these systems generally consist of obligatory objective criteria and sometimes optional criteria are included. Qualified inspectors control whether criteria can be met or not. Germany (Hotelstars Union) and India are among the countries which use traditional classification system.

Also in our country, Traditional Classification System is used. Classification and determination of qualifications for hotel establishments having tourism operation license have been regulated by means of regulations published by Ministry of Culture and Tourism. This kind of classification has been continued since 1950's. According to "Regulations for Tourism Investment and Establishments Qualifications" that entered into force in 1983 and in which certain changes were made in the later years, hotel enterprises are analyzed in five different groups as "one-star hotels", "two-star hotels", "three-star hotels", "four-star hotels" and "five-star hotels".

In our country, hotel classification is made by means of giving stars according to the points obtained at the result of investigations made in accordance with the prepared criteria (Table1). According *to **Declaration Related to Preparing and Implementing of Assessment Forms Related to Classification Studies*** that was published in the official gazette dated 07/08/2009 and numbered 27312 and entered into force, there are 202 properties in total under 25 main titles which increase or decrease the rating in the star classification of hotels. These qualifications are constituted by considering minimum qualifications required by facility classes certified by Ministry of Culture and Tourism, and quality of the materials used in the facility, security of life and property, enterprise and service quality, qualifications of personnel, educational level, service-improver factors, cleaning, maintenance and developments in international tourism sector.

Table 1: Hotels Star Classification and Required Minimum Points

CLASS	MINIMUM POINT
5-STAR HOTEL	560
4- STAR HOTEL	420
3- STAR HOTEL	285
2- STAR HOTEL	200
1- STAR HOTEL	150

Reference: (TurkeyMinistry of Culture and Tourism)

Classification System with ISO Certified Inspectors: this system consists of only obligatory criteria and in this regard, it is similar to traditional classification system. This system is applied in France. Inspections to check if criteria are fulfilled are conducted by accredited auditing bodies.

Classification System Involving Quality Assurance: systems involving quality assurance consist of two factors. These are determination of objective criteria and making quality measurements on certain of these criteria. In determining class of the hotels in this system, it is considered not only opportunities but also quality of the services offered. Controls related to classification of the hotel are conducted by consultants who are experts in product development in the hotel management sector. Scotland, Iceland and Australia are among the countries that implement quality assurance in hotel classifications.

Classification Systems Involving Customers' Comments: these systems give place to customers' comments in addition to the obligatory criteria in the classification. In these systems, hotels are inspected within all criteria. Customers' comments and obligatory criteria are included in the inspections. Norway is the first country that has included customers' comments in the system for total evaluation. However, Abu Dhabi has started a study which pays attention to customers' comments in hotel classification recently.

Systems Based on Trust: This system is used in Slovakia and contains a group of criteria for the hotels there. There isn't any inspection considering whether hotels have the determined criteria or not. Evaluation for the convenience with the criteria is made by the hotels. In the countries such like Slovakia where systems based on trust are used, the self-evaluation phase is conducted by the hotel or hotel group along with internal auditors.

Benefits of hotel classification are (UNWTO, 2015);

1. It decreases concerns about the first customer experience. Hotel customers have opportunity to test the products before purchasing. Hotel classification informs us on how much of the expectations of customer before staying at hotel can be met, and helps the enterprise in establishing trust on customers as well.
2. It provides all mediators such as tour operators and travel agencies with a common scope on catalogue preparation, preparation of tour packs and price making, etc.
3. Classifications constitute a reference point for platforms of online customers' comments. In evaluations, comment websites will evaluate a 1-star hotel and a 5-star hotel in different ways on the expectations. This will be helpful to decrease the difference between expectations and perceptions of the customer.
4. Classes provide service as a marketing and introduction instrument. Hotels introduce the services they offer and qualifications they have in the relevant classification system by exhibiting their star classes.
5. Classification systems provide a scope in evaluating consistently the accommodation enterprises which have distributed on a quite different range from micro-scale enterprises to 5-star luxury hotels.

One of the most important problems related to classification is that there are too many classification systems across the world. Apart from that, another difficulty for hotels is to be able to keep criteria, which they should have, up-to-date in accordance with customers' expectations and behaviors. Besides, another problem is formed because of many travel agencies and online customers' comments for hotels which are independent of each other and difficulties to include these in classification system.

2. *Electronic Customers' Comments (E-WOM) and Hotel Enterprises*

Electronic Customers' Comments are explained as all of the unofficial communications carried out between consumers, via internet based technology, related to qualifications or use of a certain brand, enterprise, product or service (Jeong and Jang, 2011, p.357). In other words, Electronic Customers' Comments are all kind of positive or negative comments which are made on a product or an enterprise by the costumers and can be reached to many people via internet.

Electronic customers' comments have an important role in tourism sector. For Sarıışık and Özbay (2012) the reason is that experience is mostly consumed factor in tourism and the most objective information and comments on this can be obtained from the previous consumers who have had this experience. In addition, another reason is that positive or negative opinions can be obtained from those who made this consumption as this service-weighted industry is nonphysical. Tourism enterprises can be accessible by consumers because consumers have become more conscious by the advanced information technologies, information sharing is easy and comments can be analyzed and evaluated in a virtual environment.

In tourism field, many researches have been made in order to evaluate electronic customers' comments. For example, in a study in which online travel behaviors are evaluated, it has been observed online behaviors of nearly 400 customers during 60 days before the online booking with an important hotel brand. During 60 days, 13, 60 is the average number of different travelling websites visited by this group of customers. Each website has been visited by these customers average 2, 92 times.

Besides, this group of customers has made searches regarding average 8, 60 travels via search engines such like Google, Yahoo and Bing. %49 of the customers has visited ten and less different travelling websites. However, a considerable part of the customers has spent significant time for online searches while making decision on hotel booking. More than %20 of the customers has made researches on more than 30 different websites for the booking decision (Anderson, 2011). In the study conducted by Kwon et. al. (2011) along with 200 attendants, it has been suggested that there is a relationship between positive comments and purchasing intend of the customer in accommodation sector, and therefore hotel management should encourage the customers in order to create positive virtual consumer comments. These studies demonstrate the importance of e-comments in accommodation field. As importance of e-comments increases in terms of consumers, attention, evaluations and strategies of hotel enterprises change in this direction. Hotel enterprises can constitute an important information source in determining developments of the market and developing competitive strategies by considering other rival company comments in the sector as well as comments made about them (Zhang v.d., 2010).

3. *Analytic Hierarchy Process (AHP) Method in Multi-Criteria Decision Making*

AHP was developed by Saaty in 1970s in order to solve complex multi-criteria decision making problems. AHP is multi-criteria decision making technique that can pays attention to both objective and subjective evaluation criteria and that is commonly used (Özen and Orçanlı, 2015). In determining relative significance levels of criteria, a comparison is made by using 1-9 scale of Saaty (Table 1). And then, all criteria is evaluated together and precedence of decision alternatives are obtained (Önder and Önder, 2014, pp.21-22).

Table 2: Saaty AHP Paired Comparison Scale

Importance Values	Value Descriptions
1	Importance is equal for both factors
3	1st factor is **more important** than 2nd factor
5	1st factor is **strongly more important** than 2nd factor
7	1st factor is **highly more important** compared to 2nd factor
9	1st factor is **too highly more important** compared to 2nd factor
2,4,6,8	Are the intermediate values between the abovementioned degrees in the choice between two factors

Reference: (Saaty, 2008: 86)

In problem solving with AHP, at first purpose (problem) is determined, and then AHP solution processes are implemented from that purpose. Solution process with AHP run in this way (Timor, 2011, p.18; Önder and Önder, 2014, pp.23-24);

1st step: Decision making problem is identified and purpose is determined.

2nd step: Decision criteria that are required to realize the purpose are determined.

3rd step: Possible decision alternatives are determined.

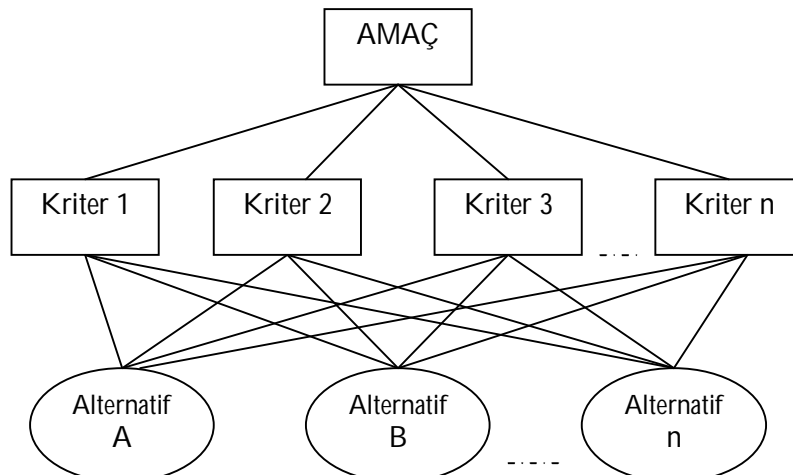4th step: Hierarchical structure of decision problem is constituted (Figure 1).

Figure 1: Hierarchical structure of AHP

1ˢᵗ step: Significance level of criteria is determined for each level of hierarchy by benefiting paired comparison of criteria, and the eigenvectors. In this phase, cross-criteria comparison matrix is a square matrix having *nsn* dimension. Matrix components on the diagonal of this matrix get 1 value. Comparison matrix is presented in the following:

$$A = \begin{bmatrix} a_{11} & a_{12} & ... & a_{1n} \\ a_{21} & a_{22} & ... & a_{2n} \\ . & & & . \\ . & & & . \\ . & & & . \\ a_{n1} & a_{n2} & ... & a_{nn} \end{bmatrix}$$

Comparison of the criteria is made as one-to-one and correlative according to significance levels they have each other. In one-to-one comparison of the criteria, AHP comparison scale in Table 1 is used. In order to determine weights of these criteria in the whole, in other words percentage significance distributions, column vectors composing the comparison matrix are benefited and **n unit and n-component** B column vector is created. This vector is presented in the following:

$$B_i = \begin{bmatrix} b_{11} \\ b_{21} \\ . \\ . \\ . \\ b_{n1} \end{bmatrix}$$

$$b_{ij} = \frac{a_{ij}}{\sum_{i=1}^{n} a_{ij}}$$

In calculating B column vectors, it is benefited from ⟶ formula.

When abovementioned steps are repeated in the other evaluation criteria, B column vectors will be equal to number of criteria. When *n* unit of B column vector are collected under a matrix format, below mentioned C matrix will be created:

$$C = \begin{bmatrix} c_{11} & c_{12} & ... & c_{1n} \\ c_{21} & c_{22} & ... & c_{2n} \\ . & & & . \\ . & & & . \\ . & & & . \\ c_{n1} & c_{n2} & ... & c_{nn} \end{bmatrix}$$

By benefiting from C matrix, it can be obtained percentage significance distributions presenting significance levels of the criteria compare to each other. For this, arithmetic mean of the line components composing C matrix is calculated as presented in (1) formula, and W column vector called "**Priority Vector**" is obtained. W vector is presented in the following.

$$w_i = \frac{\sum_{j=1}^{n} c_{ij}}{n} \quad (1)$$

$$W = \begin{bmatrix} w_1 \\ w_2 \\ . \\ . \\ . \\ w_n \end{bmatrix}$$

2ⁿᵈ step: Consistencies of comparison matrixes obtained from the previous step are investigated.

AHP, with the obtained Consistency Rate (CR), allows testing the priority vector and therefore consistency of one-to-one comparisons made between the criteria. AHP bases the root of CR calculation upon the comparison of criteria number and a coefficient called **Basic Value (λ).** In order to calculate λ, at first D column vector is obtained by matrix multiplication of A comparison matrix and W priority vector.

$$D = \begin{bmatrix} a_{11} & a_{12} & ... & a_{1n} \\ a_{21} & a_{22} & ... & a_{2n} \\ . & & & . \\ . & & & . \\ . & & & . \\ a_{n1} & a_{n2} & ... & a_{nn} \end{bmatrix} x \begin{bmatrix} w_1 \\ w_2 \\ . \\ . \\ . \\ w_n \end{bmatrix}$$

By division of reciprocal elements of this D column vector and W column vector, value related to each evaluation criterion (E) is obtained. As for arithmetic mean of these values (2), it gives the basic value **(λ)** related to the comparison. After calculating **λ, Consistency Indicator (CI)** can be calculated by benefiting from (3) formula. In the final phase, CI is divided in standard correction value that is called **Random Indicator** (RI) and presented in Table 3 and so (4) CR is obtained.

$$\lambda = \frac{\sum_{i=1}^{n} E_i}{n} \quad (2) \qquad\qquad CI = \frac{\lambda - n}{n-1} \quad (3) \qquad\qquad CR = \frac{CI}{RI} \quad (4)$$

If the calculated CR value is less than 0.10, it means that comparisons made by decision maker are consistent. In case of CR value is higher than 0.10, it illustrates a calculation error in the AHP or inconsistency of the comparisons from decision maker (Saaty and Özdemir, 2003).

Table 3: Random Index (RI) Values

N	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
RI	0	0	0,58	0,90	1,12	1,24	1,32	1,41	1,45	1,49	1,51	1,48	1,56	1,57	1,59

Reference: (Saaty and Özdemir, 2003: 241)

3rd step: Significance levels related to alternative and criteria (weights) are determined. Alternative having the highest weight is the best alternative, and criterion having the highest weight is determined as the most important criterion.

4. Entropy Weighting Method

Entropy is a method which is used in order to determine weights of criteria in multi-criteria decision problems. When data of decision matrix is known in order to calculate objective weights, Entropy method is used. When we see studies in which Entropy is used with AHP in the literature; Chuansheng et. al. (2012) used these two methods together in Smart Grid Based Security Assessment. Wenwen and Fengping (2011) made a study in which AHP and Entropy Weighting Method are used together in Investment and Financing Decisions. In entropy method, determination of weights follows the following phases (Hwang and Yoon, 1981); In the first phase, at first decision matrix elements (x_{ij}) are turned into "project outcomes" (p_{ij}) which are produced by alternatives according to a j qualification and which are considered as they reflect the average real information. In order to determine objective weights with entropy measurement, each criterion of decision matrix is normalized.

In Second Phase of Entropy Method, entropy value e_j, that is the amount of the decision information that is involved by the matrix formed by (p_{ij}) values and that is obtained by each criterion, is calculated. Consequently, in normalized decision matrix, amount of information obtained from each criterion can be measured by e_j entropy value. In here, 1n represents natural algorithm and k=1 /1n m represents a constant that is calculated from (number of alternative) and guarantees $0 < e_j \leq 1$. In final phase, relative significance of the criterion is calculated (with objective and-if any-subjective weight components). Deviation degree of internal mean information included by each criterion is calculated d_j ($d_j = 1 - e_j$). And then objective weights **W_j** for each decision criterion are calculated.

5. Method

In the study, problem is configured by using Entropy based AHP method. Purpose (problem) is to see if ranking changes when hotel classification that is made according to customers' comments scoring in Booking.com website and official hotel classification (giving stars) are evaluated as being integrated.

In the study, on 22nd June of 2015 an evaluation was made for Booking.com website ranking related to hotels in Konya province according to customers' comments. As there are three, four and five-star hotels in this ranking as official star classification, hotels that are in three-star class and in the top ten in the ranking are used as *alternatives* in this study. Hotel ranking criteria used for scorings on the Booking.com website and customers' comment points are used as are in the study.

In the study, *Alternatives* are given precedence by using AHP method according to the criteria whose weights are certain. In the study, it is exercised on the assumption that *Stars and Satisfaction* criteria group are equal in weights (%50 - %50).

In the analyze part of the study, the following ranking is followed:

1. Formation of the hierarchical model by determining purpose, criteria and alternatives related to decision problems in a clear manner.
2. Determination of ranking and scoring for the hotels, in Konya province, those are determined as alternatives and are in the Top 10 according to customers' comments on Booking.com website.
3. Calculation of significance levels (weights) of criteria by means of paired comparison of criteria for each level of the hierarchy.
4. Ranking the alternatives.

Analyze section of the study is detailed in the following according to this ranking.

5.1. Formation of Hierarchical Model by Determining the Purpose, Criteria and Alternatives

Purpose of the study is to "*ranking hotels in Konya province again*" within the scope of points given by customers and official hotel classifications (star). Two main criteria groups are chosen related to ranking the hotels in Konya province again; star and customer satisfaction criteria. In star criteria group, 3 criteria are used as three, four and five star class. As for customer satisfaction criteria, hotel customers' comments criteria, in the Booking.com website that is an international platform related to tourism and travel, are chosen. In this regard, there are 7 criteria in customer satisfaction criteria group as *Cleaning, Comfort, Location, Opportunities, Personnel, Price/Benefit Balance and Free WIFI*.

As alternatives, the top 10 hotels in Konya province, which have had the highest customer points on Booking.com website, are determined. Therefore, there are 10 alternatives on decision problem. In the light of this information, Hierarchical Model of the Decision Problem has been created. The model related to the problem is associated by top-down arrows (Figure 2).
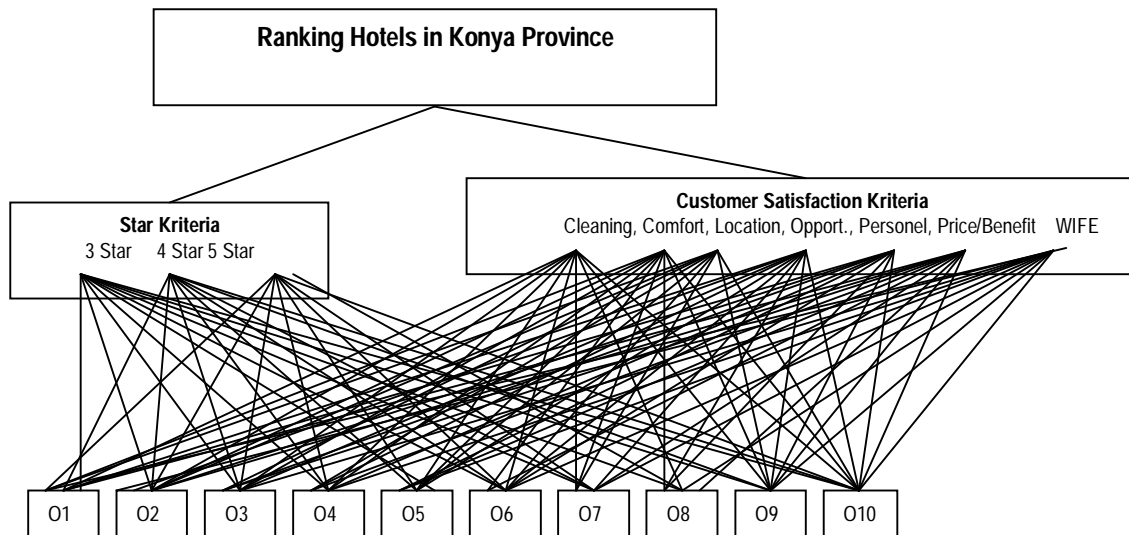

Figure 2: Hierarchical Model of the Decision Problem

6.2. Ranking and Scorings of Hotels in the Top Ten, Determined as Alternatives on Booking.com, according to the Customers' Comments

In Booking.com assessment, facilities having more than 30 assessments have had assessments for more than 14 months. By benefiting these assessments, Table 4 illustrates names of hotels in the top ten in Konya province, numbers of the stars, point average given by people those who booked and accommodated in the facility. Data is obtained from Booking.com website on 22nd June of 2015.

Table 4: Number of Hotel Stars in Konya Province and Ranking by Customers' Comments Points

Item	Hotels	Star Number	Cleaning	Comfort	Location	Opportunities	Personnel	Price /Benefit	WIFI
1	Demosan City Hotel	3	9,4	8,9	8	8,9	9,1	8,9	9,1
2	Gherdan Hotel	3	9	8,9	8,2	8,6	8,4	8,7	7,8
3	Rumi Hotel	3	8,5	8,3	9,1	8	8,6	8,2	8,2
4	Dedeman Konya	5	9	8,9	8,2	8,6	8,4	8	8,4
5	Dündar Hotel	4	8,6	8,5	8,5	8	8,2	8,2	8,5
6	Hilton Garden Inn Konya	4	8,6	8,6	8,1	7,8	8,2	7,8	7,9
7	Bera Konya Hotel	4	8,5	8,4	8	7,9	8,2	7,9	6,9
8	Selcuk Hotel Sems-i Tebrizi	4	8,3	8,3	8,7	7,8	7,9	7,7	7,7
9	Pasapark Hotel	3	8,1	8,3	7,5	7,9	7,3	7,9	7,1
10	Rixos Konya	5	8,1	8,3	7,2	7,9	7,9	7,6	8,2

5.2. Calculation of Significance Levels (Weights) of Criteria

In the study, 1-9 rating scale of Saaty has been used in the paired comparisons made in order to determine weights of criteria. Scaling made in these comparisons (Table 5) and values of the criteria related to alternatives in accordance with this scaling (Table 6) are presented in the following.

Table .5: Significance Levels of the Criteria according to Saaty's 1-9 Scale

Star Number	Significance Level (S.L.)	Point given to Criteria by Customer	Significance Level (S.L.)
1	1	1	1
2	3	2	1
3	5	3	3
4	7	4	3
5	9	5	5
		6	5
		7	7
		8	7
		9	9
		10	9

Table. 6: Equivalent to Significance Levels of Criteria according to Alternatives

Star number	S.L.	Cleaning	S.L.	Comfort	S.L.	Location	S.L.	Opportunities	S.L.	Personnel	S.L.	Price/benefit	S.L.	WIFI	S.L.
3	5	9,4	9	8,9	9	8	7	8,9	9	9,1	9	8,9	9	9,1	9
3	5	9	9	8,9	9	8,2	7	8,6	9	8,4	7	8,7	9	7,8	7
3	5	8,5	9	8,3	7	9,1	9	8	7	8,6	9	8,2	7	8,2	7
5	9	9	9	8,9	9	8,2	7	8,6	9	8,4	7	8	7	8,4	7
4	7	8,6	9	8,5	9	8,5	9	8	7	8,2	7	8,2	7	8,5	9
4	7	8,6	9	8,6	9	8,1	7	7,8	7	8,2	7	7,8	7	7,9	7
4	7	8,5	9	8,4	7	8	7	7,9	7	8,2	7	7,9	7	6,9	7
4	7	8,3	7	8,3	7	8,7	9	7,8	7	7,9	7	7,7	7	7,7	7
3	5	8,1	7	8,3	7	7,5	7	7,9	7	7,3	7	7,9	7	7,1	7
5	9	8,1	7	8,3	7	7,2	7	7,9	7	7,9	7	7,6	7	8,2	7

S.L.= Significance Level

Afterwards, as for criteria for official classification (1,2,3,4,5, star), their weights have been calculated by means of Super Decision program according to AHP method by using Saaty's 1-9 values (Figure 3).

Consistency <0,10

Figure 3: Star Criteria Weighting Related to the Hotels

As for customer scorings related to the hotels on Booking.com website, they have been weighted by using Entropy method by ranking with Saaty's 1-9 scale according to values which alternatives have had. Excel has been used for this process (Table 7).

Table 7: Weighting the Satisfaction Criteria by Entropy Method

	HOTELS \ CRITERIA	Cleaning	Comfort	Location	Opportunities	Personnel	Price/benefit	WIFI
DECISION MATRIX	Demosan City Hotel	9	9	7	9	9	9	9
	Gherdan Hotel	9	9	7	9	7	9	7
	Rumi Hotel	9	7	9	7	9	7	7
	Dedeman Konya	9	9	7	9	7	7	7
	Dündar Hotel	9	9	9	7	7	7	9
	Hilton Garden Inn Konya	9	9	7	7	7	7	7
	Bera Konya Hotel	9	7	7	7	7	7	7
	Selcuk Hotel Sems-i Tebrizi	7	7	9	7	7	7	7
	Pasapark Hotel	7	7	7	7	7	7	7
	Rixos Konya	7	7	7	7	7	7	7
	Total	**84**	**80**	**76**	**76**	**74**	**74**	**74**
		Cleaning	Comfort	Location	Opportunities	Personnel	Price/benefit	WIFI
P MATRIX	Demosan City Hotel	0,10714286	0,1125	0,09210526	0,11842105	0,12162162	0,12162162	0,12162162
	Gherdan Hotel	0,10714286	0,1125	0,09210526	0,11842105	0,09459459	0,12162162	0,09459459
	Rumi Hotel	0,10714286	0,0875	0,11842105	0,09210526	0,12162162	0,09459459	0,09459459
	Dedeman Konya	0,10714286	0,1125	0,09210526	0,11842105	0,09459459	0,09459459	0,09459459
	Dündar Hotel	0,10714286	0,1125	0,11842105	0,09210526	0,09459459	0,09459459	0,12162162
	Hilton Garden Inn Konya	0,10714286	0,1125	0,09210526	0,09210526	0,09459459	0,09459459	0,09459459
	Bera Konya Hotel	0,10714286	0,0875	0,09210526	0,09210526	0,09459459	0,09459459	0,09459459
	Selcuk Hotel Sems-i Tebrizi	0,08333333	0,0875	0,11842105	0,09210526	0,09459459	0,09459459	0,09459459
	Pasapark Hotel	0,08333333	0,0875	0,09210526	0,09210526	0,09459459	0,09459459	0,09459459
	Rixos Konya	0,08333333	0,0875	0,09210526	0,09210526	0,09459459	0,09459459	0,09459459
	Total	0,10714286	0,1125	0,09210526	0,11842105	0,12162162	0,12162162	0,12162162

K=	0,434294						
e_j=		0,9973229	0,996598	0,996941	0,996941	0,997585	0,997585	0,997585
$d_j=1-e_j$		0,0026771	0,003402	0,003059	0,003059	0,002415	0,002415	0,002415
W_j=		**0,14**	**0,17**	**0,16**	**0,16**	**0,12**	**0,12**	**0,12**

At the result of solutions made by Super Decision program according to AHP method, Local Priorities (weights), General Priorities (weights) and Consistency values are as showed on Table 8.

Table 8: Local and General Priorities obtained at the result of Solutions

Criterion Group	GROUP PRIORITIES	Criteria	Consistency Rates	In-group Weights of Factors	General Weights of Factors
Stars	0,50	3 star	0,037[*]	0,637	0,318
		4 star		0,258	0,129
		5 star		0,105	0,052
Satisfaction	0,50	Cleaning	0,000[*]	0,141	0,071
		Comfort		0,172	0,086
		Location		0,162	0,081
		Opportunities		0,162	0,081
		Personnel		0,121	0,061
		Price /Benefit		0,121	0,061
		Wifi		0,121	0,061

[*]**Consistency<0,10**

When it is assumed that two main groups have 50-50% priorities in Table 8, local and general priorities of the relevant criteria will be seen.

6.4 Ranking the Alternatives

In ranking the alternatives according to AHP method; in order to prioritize the alternatives of criteria in the stars category, in the comparisons, it is paid attention to minimum points which hotels should have in star classification according to the *Declaration related to Preparing and Implementing of Assessment Forms related to Classification Studies* that was published in the official gazette dated 07/08/2009 and numbered 27312 and entered into force. In this context, it has been entered 560 points for 5-star hotels, 420 points for 4-star hotels, 285 points for 3-star hotels into relevant areas of Super Decision software.

In the comparisons in order to prioritize alternatives of criteria in the customer satisfaction category, customers' points on the Booking.com website have been taken into account. In this context, values in the Table 4 have been entered into relevant areas of Super Decision software.

Thus, Table 9 illustrates the ranking that is constituted at the result of evaluating Customer Satisfaction and Stars main groups together by the ranking made in terms of only Customer Satisfaction (points given to criteria) on Booking.com.

Table 9: Integrated Ranking according to Online Customers' Points

Ranking	Booking.com Ranking	Star Number	Ranking obtained by the Study	Star Number	Ranking Weights
1	*Demosan City Hotel*	3	*Dedeman Konya*	5	*0,1226*
2	*Gherdan Hotel*	3	*Rixos Konya*	5	*0,1188*
3	*Rumi Hotel*	3	*Dündar Hotel*	4	*0,1039*
4	*Dedeman Konya*	5	*Hilton Garden Inn Konya*	4	*0,1027*
5	*Dündar Hotel*	4	*Selcuk Hotel Sems-i Tebrizi*	4	*0,1023*
6	*Hilton Garden Inn Konya*	4	*Bera Konya Hotel*	4	*0,1017*
7	*Bera Konya Hotel*	4	*Demosan City Hotel*	3	*0,090*
8	*Selcuk Hotel Sems-i Tebrizi*	4	*Gherdan Hotel*	3	*0,0899*
9	*Pasapark Hotel*	3	*Rumi Hotel*	3	*0,0872*
10	*Rixos Konya*	5	*Pasapark Hotel*	3	*0,0831*

As seen in the Table 9, there is difference between the integrated ranking in which Booking.com ranking and star and satisfaction criteria are evaluated together.

6. Result

Customers' comments reflect that if after-sale satisfaction and expectations have been met or not. As for hotel star classification systems, it has a control list composing 202 sub-criteria groups under 25 main titles related to comfort and qualifications of the hotel (it has been formed by Turkish Republic, Ministry of Culture and Tourism). In this control list, hotels having the required qualifications are included in the relevant star class according to points they have had. As it is seen from Konya province hotels ranking on Booking.com considered in the study, we can see that a 3-satr hotel has had better points compared to a 5-star hotel. However, 5-star hotel has more equipped and luxury qualifications compared to 3-star hotels.

Customers' comments can be used as a mechanism which allows a quality control system on hotel opportunities into the traditional official classification system. However, it is considered that online travel websites rankings, which ignore hotel classes (3 star, 5 star, etc.) formed by hotel classification evaluations from the Ministry, do not reflect exactly the expected and perceived service, and opportunities of enterprises together.

In this context, in the study, it has been analyzed whether the ranking on Booking.com related to three, four and five-star hotels in Konya province changes or not by means of integration in which official hotel classification systems and weights for customers' points are accepted equal (with an objective perspective). In consequence, it has been seen that the ranking changes. As such, as you see in Table 9, while the top three has been shared by 3-star hotels in the Booking.com ranking formed by customers' comments, a 5-star hotel has been at the tenth rank. As for this study in which Star and Customers' Comments are evaluated together, again as you see in Table 9, there is a ranking where official classification (star number) is in the foreground. However, we see hotels whose place is different in customer satisfaction ranking on Booking.com and ranking revealed in the study as well as they are in the same official classification (same star number). For example, it is seen that while Bera Konya Hotel is at the 3rd rank among the 4-star hotels on Booking.com ranking, it is at the 4th rank among 4-star hotels in the ranking revealed in the study.

Consequently, it is useful to integrate hotel customers' comments with star systems. This integration is not in place of comments. However, with this integration approach, weights of official hotel classification systems can take part in hotel evaluating and ranking. It is obvious that hotel classification systems and customers' comments play an important role in customer choices. It is not necessary that these two factors are mutually exclusive in creating a common satisfaction sense to meet customers' expectations. For hotel enterprises that have been ranked officially and that make development studies in direction of customers' comments, it might create a significant positive effect to take two factors into consideration together. With this purpose, we need to studies which integrate customers' comments into the official classification systems as we tried in this study. It is aimed to generate a discussion, develop a method and contribute to literature on the subject of this study.

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