3-2019

AN APPROACH TO DETERMINING CUSTOMER SATISFACTION IN TRADITIONAL SERBIAN RESTAURANTS

Florentin Smarandache
University of New Mexico, smarand@unm.edu

Dragisa Stanujkic

Darjan Karabasevic

Edmundas Kazimieras Zavadskas

Fausto Cavallaro

Recommended Citation

Stanujkic, D.; Karabasevic, D.; Zavadskas, E.K.; Florentin Smarandache, F.; Cavallaro, F. 2019. An approach to determining customer satisfaction in traditional Serbian restaurants, Entrepreneurship and Sustainability Issues 6(3): 1127-1138. http://doi.org/10.9770/jesi.2019.6.3(5)

ENTREPRENEURSHIP AND SUSTAINABILITY ISSUES
ISSN 2345-0282 (online) http://jssidoi.org/jesi/
2019 Volume 6 Number 3 (March)
http://doi.org/10.9770/jesi.2019.6.3(5)

Publisher
http://jssidoi.org/esc/home

AN APPROACH TO DETERMINING CUSTOMER SATISFACTION IN TRADITIONAL SERBIAN RESTAURANTS

Dragisa Stanujkic[1], Darjan Karabasevic[2], Edmundas Kazimieras Zavadskas[3], Florentin Smarandache[4], Fausto Cavallaro[5]

[1] *Technical Faculty in Bor, University of Belgrade, Vojske Jugoslavije 12, 19210, Bor, Serbia*

[2] *Faculty of Applied Management, Economics and Finance, University Business Academy in Novi Sad, Jevrejska 24, 11000, Belgrade, Serbia*

[3] *Institute of Sustainable Construction, Labor of Operational Research, Faculty of Civil Engineering, Vilnius Gediminas Technical University, Sauletekio. 11, Vilnius LT-210233, Lithuania*

[4] *Department of Mathematics, University of New Mexico, 705 Gurley Avenue, Gallup, NM 87301, USA*

[5] *Department of Economics, Università degli Studi del Molise, Via Francesco De Sanctis, 1, 86100, Campobasso, Italy*

E-mails:[1] *dstanujkic@tfbor.bg.ac.rs*; [2] *darjan.karabasevic@mef.edu.rs*; [3] *edmundas.zavadskas@vgtu.lt*; [4]*smarand@unm.edu*; [5] *cavallaro@unimol.it*

Received 15 October 2018; accepted 25 January 2019; published 30 March 2019

Abstract. The aim of this paper is to make a proposal for an easy–to–use approach to the evaluation of customer satisfaction in restaurants. In order to provide a reliable way to collect respondents' real attitudes, an approach based on the use of smaller number of evaluation criteria and interactive questionnaire created in a spreadsheet file is proposed in this paper, whereby an easy-to-understand and simple-to-use procedure is proposed for determining weights of criteria. In addition to the said, the proposed approach applies the simplified SERVQUAL-based approach, for which reason a simplified version of the Weighted Sum Method based on the decision maker's Preferred Levels of Performances is used for the final ranking of the alternatives. The usability of the proposed approach is considered in the case study intended for the evaluation of traditional restaurants in the city of Zajecar.

Keywords: hospitality, restaurant industry, customer satisfaction, PIPRECIA, WS PLP approach

Reference to this paper should be made as follows**:** Stanujkic, D.; Karabasevic, D.; Zavadskas, E.K.; Florentin Smarandache, F.; Cavallaro, F. 2019. An approach to determining customer satisfaction in traditional Serbian restaurants, *Entrepreneurship and Sustainability Issues* 6(3): 1127-1138. http://doi.org/10.9770/jesi.2019.6.3(5)

JEL Classifications: C44, D81

ISSN 2345-0282 (online) http://jssidoi.org/jesi/
2019 Volume 6 Number 3 (March)
http://doi.org/10.9770/jesi.2019.6.3(5)

1. Introduction

The Serbian word "kafana" originates from the Turkish word "kahvehane", which means "a place for drinking coffee". Such places have emerged in the Balkan region under the influence of the Ottoman Empire in the 16th century.

Under the influence of different cultures, kafana generated its specificity on the Balkan Peninsula, so that it also became a place where food was consumed and later a place where alcoholic drinks were served. Over time, kafanas have increasingly become and have found their place in the social and cultural life, as well as in business. Nowadays, kafanas continue to be a place where you meet your friends, a place for celebrations, talking about and discussing things and so on. Therefore, kafanas could be denoted as traditional Serbian restaurants. Compared with the other types of restaurants, kafanas have similarities to taverns and pubs, as places of a pleasant ambience.

Certain new trends in the restaurant and food industry, as well as the growing presence of various cuisines, have had an impact on traditional Serbian restaurants. Fortunately, in some parts of Serbia, traditional Serbian restaurants somehow still resist unfortunately unstoppable trends.

In the city of Zajecar, located in eastern Serbia, traditional restaurants are successfully resisting the actual trends and it is still possible for you to find good restaurants, such as: "Dva brata" ("The Two Brothers"), "Gradska Mehana" (The City Meyhane"), "Meda" ("The Bear"), "Roko" ("The Roko") and so forth.

The factors influencing the satisfaction of restaurants' customers have been considered in many previous studies. Based on these studies, an approach to the determining of the significance of the relevant factors that influence customer satisfaction is proposed.

The proposed approach also uses the concept of measuring the difference between expectations and perceptions, so it provides an easy identification of the criteria against which customer expectations are not met. Beside all of the above-said, the proposed model can also be used to determine the overall ratings of the considered alternatives, thus making a comparison with competitors.

Based on all of the above-mentioned reasons that have been taken into account, the remaining part of this paper is organized as follows: In Section 2, a review of the relevant research studies is given. After that, in Section 3 and Section 4, the PIPRECIA and the WS PLP methods are considered. In Section 5, an empirical illustration of the evaluation of Serbian traditional restaurants, based on the integrated use of the PIPRECIA and the WS PLP methods, is presented in detail. Finally, the conclusions are given at the end of the paper.

2. Literature Research

Measuring customer satisfaction could be very important in a competitive environment (e.g. Stepaniuk 2018; Raudeliūnienė et al. 2018). For the purpose of determining that, Parasuraman et al. (1988) proposed the Service Quality and Customer Satisfaction (SERVQUAL) model. On the basis of that model, many others more specialized models have been proposed later, such as: WebQual (Loiacono et al. 2002; Parasuraman et al. 2005), eTailQ Wolfinbarger and Gilly (2003), E-RecS-QUAL (Parasuraman et al. 2005), and eTransQual (Bauer et al. 2006).

The SERVQUAL model was used for determining the levels of customer satisfaction in many different areas. As one of these areas, tourism and hospitality can be mentioned. For example: Saleh and Ryan (1991) used

ISSN 2345-0282 (online) http://jssidoi.org/jesi/
2019 Volume 6 Number 3 (March)
http://doi.org/10.9770/jesi.2019.6.3(5)

SERVQUAL to determine the gap between clients' and the management's perceptions in the hotel industry, whereas Devi Juwaheer (2004) explore the tourists' perceptions about hotels in Mauritius by using an adapted SQRVQUAL approach. Further, on the basis of the SERVQUAL model, Tribe and Snaith (1998) proposed the HOLSAT model, adapted for determining tourists' satisfaction with their holidays.

Besides, a number of other approaches have also been used to determine customer satisfaction in tourism and hospitality industry, such as: Chaturvedi (2017), Lee and Severt (2017), Engeset and Elvekrok (2015), Albayrak and Caber (2015), Chan et al. (2015), Bernini and Cagnone (2014), Battour et al. (2014).

The SERVQUAL model has also been used in the restaurant industry for determining customer satisfaction. As some examples of these studies, the following can be mentioned: Liu at al (2017), Kurian and Muzumdar, (2017), Hanks et al (2017); Bufquin, et al. (2017), Saad Andaleeb and Conway (2006), Heung, et al. (2000), Lee and Hing (1995).

Some other studies have also been dedicated to the restaurant industry. For example: Adam et al. (2015) investigates tourist satisfaction with Ghanaian restaurants based on a factor analysis, and Jung and Yoon (2013) investigate the relationship between employees' satisfaction and customers' satisfaction in a family restaurant.

Dobrovolskienė et al. (2017) state that decision making is crucial to every aspect of business. Multiple-criteria decision-making (MCDM) is a scientific field that has undergone extremely rapid development over the last two decades. Multiple-criteria decision-making considers situations in which the decision-maker must choose one of the alternatives from a set of available alternatives and which are judged on the basis of a number of criteria. This is why MCDM contributes to easier decision-making and adoption of long-term and lasting solutions.

MCDM has also been successfully applied in the hospitality industry. Chou et al. (2008) and Tzeng (2008) used MCDM models for selecting the restaurant location. Yildiz and Yildiz (2015) proposed a model for evaluating customer satisfaction in restaurants, based on the use of the AHP and TOPSIS methods. In their studies: Duarte Alonso et al. (2013), Chi et al. (2013), Kim et al. (2007), Yuksel and Yuksel (2003) and Jack Kivela (1997) investigate the criteria that have an impact on customer preferences and satisfaction.

3. The PIPRECIA Method

The Step-wise Weight Assessment Ratio Analysis (SWARA) method was proposed by Kersuliene et al. (2010). The usability of the SWARA method has been proven in solving many MCDM problems, of which only several are mentioned: Zolfani et al. (2013), Zolfani and Saparauskas (2013), Stanujkic et al. (2017; 2015), Karabasevic et al. (2017), Mardani et al. (2017) and Juodagalviene et al. (2017).

The SWARA method has a certain similarity with the prominent AHP method. The first similarity is that both methods can be used to completely solve MCDM problems or to only determine the weight of the criteria; the second is that both methods are based on the use of pairwise comparisons.

However, the computational procedures of the SWARA and the AHP methods significantly differ from one another. Because of that, the SWARA method has some advantages, as well as some disadvantages, in comparison with the AHP method.

As the main disadvantage of the SWARA method, the fact that its computational procedure does not include a procedure for determining the consistency of pairwise comparisons made can be mentioned. Contrary to that, a significantly lower number of pairwise comparisons required for solving an MCDM problem and for determining criteria weights, too, can be mentioned as an advantage of the SWARA method.

ISSN 2345-0282 (online) http://jssidoi.org/jesi/
2019 Volume 6 Number 3 (March)
http://doi.org/10.9770/jesi.2019.6.3(5)

Its requirement that evaluation criteria should be sorted in descending order according to their expected significances, which can prove to be inadequate in some survey cases, can also be mentioned as the weakness of the SWARA method. Therefore, with the aim of extending the use of the SWARA method in the cases where a consensus on the expected significance of the criteria is not easy to reach, Stanujkic et al. (2017) proposed the use of the following equation for the purpose of determining the importance of criteria as follows:

$$s_j = \begin{cases} >1 & \text{when } C_j \succ C_{j-1} \\ 1 & \text{when } C_j = C_{j-1} \\ <1 & \text{when } C_j \prec C_{j-1} \end{cases}. \quad (1)$$

where: s_j denotes the comparative importance of the criterion j, and $C_j \Theta C_{j-1}$ denotes the significance of the criterion j in relation to the j-1 criterion.

In an extension of the SWARA method, proposed under the name of PIPRECIA, Stanujkic et al. (2017) also mention that a lack an integrated procedure for checking the consistency in the ordinary SWARA method can successfully be compensated for by using Kendall's Tau or Spearman's Rank Correlation Coefficient.

Because of all the foregoing, the PIPRECIA method has been chosen to be used in this approach.

3.1. The Computational Procedure of the PIPRECIA Method

The computational procedure of the PIPRECIA method can be shown as follows:

***Step* 1**. Choose the criteria on the basis of which an evaluation of alternatives will be carried out.

***Step* 2**. Set the value of the relative importance of the criteria by using Eq. (1), starting from the second criterion.

***Step* 3**. Calculate the coefficient k_j for the criterion j as follows:

$$k_j = 2 - s_j. \quad (2)$$

***Step* 4**. Calculate the recalculated weight q_j for the criterion j as follows:

$$q_j = \begin{cases} 1 & \text{if} \quad j = 1 \\ \dfrac{q_{j-1}}{k_j} & \text{when} \quad j > 1 \end{cases}. \quad (3)$$

***Step* 5**. Calculate the weights of the criteria as follows:

$$w_j = \frac{q_j}{\sum_{k=1}^{n} q_k}. \quad (4)$$

where w_j denotes the weight of the criterion j.

ISSN 2345-0282 (online) http://jssidoi.org/jesi/
2019 Volume 6 Number 3 (March)
http://doi.org/10.9770/jesi.2019.6.3(5)

4. The WS PLP Approach

Based on the Weighted Sum Method (Churchman and Ackoff, 1954, MacCrimon, 1968), Stanujkic and Zavadskas (2015) proposed the Weighted Sum Preferred Levels of Performances (WS PLP) approach.

The simplified computational procedure of the WS PLP approach for solving an MCDM problem that contains the *m* alternatives that are evaluated based on the *n* beneficial criteria (a higher value of the performance rating is desirable) can be shown as follows:

***Step* 1**. Evaluate the alternatives in relation to the selected criteria.

***Step* 2**. Set the preferred performance ratings for each criterion.

***Step* 3**. Calculate the normalized performance ratings of the alternatives as follows:

$$r_{ij} = \frac{x_{ij} - x_{0j}}{x_j^+ - x_j^-}, \tag{5}$$

where: x_{ij} and r_{ij} denote the performance rating and the normalized performance rating of the alternative *i* in relation to the criterion *j*, respectively; x_{0j} denotes the preferred performance rating of the criterion *j*; $x_j^+ = \max_i x_{ij}$, and $x_j^- = \min_i x_{ij}$.

***Step* 4**. Calculate the overall performance rating of the alternatives as follows:

$$S_i = \sum_{j=1}^{n} w_j \, r_{ij}, \tag{6}$$

where S_i denotes the overall performance rating of the alternative *i*, $S_i \in [-1, 1]$; w_j is the weight of the criterion *j*.

In the proposed approach, the alternatives whose S_i is greater than or equal to zero make a set of the most appropriate alternatives, out of which one should be selected.

5. A Case Study

In order to determine the preferences of the passionate visitors of Serbian traditional restaurants, a supervised survey has been performed in the city of Zajecar, located in Serbia, near the Romanian and the Bulgarian borders.

In this study, the five previously mentioned restaurants have been evaluated on the basis of the six criteria adopted from Stanujkic et al. (2016):

- C_1 - the interior of the building and the friendly atmosphere,
- C_2 - the helpfulness and friendliness of the staff,
- C_3 - the variety of traditional food and drinks,
- C_4 - the quality and taste of the food and drinks, including the manner of serving,
- C_5 - the appropriate price for the quality of the services provided, and
- C_6 - other.

In the proposed approach the criterion “other” is used to enable personalization.

ISSN 2345-0282 (online) http://jssidoi.org/jesi/
2019 Volume 6 Number 3 (March)
http://doi.org/10.9770/jesi.2019.6.3(5)

The survey presented in this study was conducted by e-mail, or more precisely by using an interactive questionnaire created in a spreadsheet file. By using such an approach, the respondents can see the calculated weights of the criteria and can also modify his/her responses if he or she is not satisfied with the obtained results. In addition, by using such an approach, the obtained results can also be presented graphically, which can make easier to understand the procedure used for determining weights of criteria, and thus lead to obtaining more realistic views of the respondents.

The interactive questionnaire was sent to the selected respondents known as the "bohemians" and/or frequent visitors of traditional Serbian restaurants. Out of the approximately 80 sent questionnaires, the 42 of them were returned, out of which only 30 questionnaires were selected as those properly filled in.

The weights of the criteria calculated on the basis of the responses obtained from the two selected respondents are accounted for in Table 1 and Table 2.

Table 1. The weights of the criteria obtained from the first respondent

Criteria		s_j	w_j
C_1	The interior of the building and friendly atmosphere		0.13
C_2	The helpfulness and friendliness of the staff	1.10	0.15
C_3	The variety of traditional food and drinks	1.20	0.19
C_4	The quality and taste of the food and drinks, including the manner of serving	1.05	0.20
C_5	The appropriate price for the quality of the services provided	0.95	0.19
C_6	Other	0.70	0.14

Source: Own calculations

Table 2. The weights of the criteria obtained from the second respondent

Criteria		s_j	w_j
C_1	The interior of the building and friendly atmosphere		0.15
C_2	The helpfulness and friendliness of the staff	1.10	0.17
C_3	The variety of traditional food and drinks	0.90	0.16
C_4	The quality and taste of the food and drinks, including the manner of serving	1.15	0.18
C_5	The appropriate price for the quality of the services provided	0.95	0.17
C_6	Other	0.90	0.16

Source: Own calculations

Some significant descriptive statistical parameters related to the weights of the criteria obtained by the conducted survey are presented in Table 3.

Table 3. The descriptive statistics for the weights of the criteria

Criteria	Min	Max	Range	Mean	Standard Deviation	Variance	Screw	Kurtosis
C_1	0.01	0.17	0.17	0.12	0.05	0.002	-0.84	-0.12
C_2	0.05	0.19	0.15	0.15	0.05	0.002	-0.77	-0.81
C_3	0.03	0.19	0.15	0.14	0.05	0.003	-0.52	-1.13
C_4	0.17	0.37	0.19	**0.23**	0.06	0.003	0.91	-0.27
C_5	0.17	0.35	0.18	**0.22**	0.06	0.003	0.76	-0.65
C_6	0.11	0.23	0.12	0.16	0.03	0.001	0.41	-0.77

Source: Own calculations

ISSN 2345-0282 (online) http://jssidoi.org/jesi/
2019 Volume 6 Number 3 (March)
http://doi.org/10.9770/jesi.2019.6.3(5)

According to Table 3, the criteria C_4 and C_5 have significantly higher importance related to the other criteria, i.e. the quality and the taste of the food and the appropriate price are identified as the most significant criteria.

The obtained correlation coefficient between the responses obtained from the respondents and the mean ranges between 0.44 and 0.98.

Criterion C_6 - "other" also has a high weight, which can be interpreted as follows:

- in addition to the criteria C_1 - C_5 there are other criteria that affect satisfaction of restaurant customers, which can be applied in much more sophisticated models, and
- criterion C_6 can successfully substitute many less significant criteria and such enable forming an efficient MCDM models based on the use of a smaller number of criteria.

In addition to the conducted research, the respondents also evaluated the five preselected traditional restaurants by using the five-point Likert Scale. The results obtained from the two of the above-mentioned respondents are accounted for in Tables 4 and 5.

Table 4. The ratings obtained from the first respondent

Criteria / Alternatives	Expected	Meda	Dva brata	MS	Roko	Nasa kafana	S_i	Rank
C_1	3	4	5	3	4	4	0.61	2
C_2	4	5	5	3	3	3	0.85	1
C_3	4	4	5	3	3	4	-0.09	5
C_4	3	5	5	3	4	3	0.20	3
C_5	3	5	4	2	4	4	0.20	4
C_6	2	3	4	3	3	3	0.61	2

Source: Own calculations

Table 5. The ratings obtained from the second respondent

Criteria / Alternatives	Expected	Meda	Dva brata	MS	Roko	Nasa kafana	S_i	Rank
C_1	4	4	4	2	2	4	0.32	1
C_2	5	5	4	3	3	4	-0.02	2
C_3	3	4	4	3	3	4	-0.42	4
C_4	5	5	4	4	3	4	-0.51	5
C_5	4	4	4	4	4	3	-0.04	3
C_6	3	4	3	3	3	4	0.32	1

Source: Own calculations

Ranges between the maximum and minimum weights of criteria are also not negligible, as previously shown in Table 3. Therefore, the separate ranking list of considered alternatives has been formed for each respondent, in this approach, by using the WS PLP approach.

In this way, the attitudes of the respondents do not drown into the group attitudes, obtained on the basis of the average weight of and average ratings, and remain clear until the end of the evaluation, where the final ranking of the considered alternative was made based on dominance theory.

ISSN 2345-0282 (online) http://jssidoi.org/jesi/
2019 Volume 6 Number 3 (March)
http://doi.org/10.9770/jesi.2019.6.3(5)

The results achieved based on all properly filled questionnaires are shown in Table 6. The appearance of the considered alternative in the first position is given in Column I of Table 6. The appearance of the considered alternatives in the second and the third positions is given in Columns II and III of Table 6.

Table 6. The number of the appearances of the alternatives in different positions

	Number of appearances at positions		
Alternatives	I	II	III
A_1	15	7	3
A_2	12	6	6
A_3	1	1	9
A_4	4	10	7
A_5	0	4	5

Source: Own calculations

According to Column I of Table 5, based on the dominance theory, the best-placed alternative is the alternative labelled as A_1.

In this approach, only the appearances on the first position are used for the determination of the best alternative, or more precisely, the most popular traditional restaurant. The appearances in the second, the third, as well as the other positions, could be used for a further analysis.

The overall ratings, obtained by using WS PLP approach, can also be used for various analysis, especially when it is known that WS PLP approach $S_i < 0$ indicates an alternative where expected customers' satisfaction has not been reached yet.

Conclusions

The main objective of this paper is to determine the most significant criteria that have an influence on customers' satisfaction in traditional Serbian restaurants, as well as weights of these criteria, and propose an easy–to–use approach for the evaluation of customers' satisfaction in restaurants.

For that reason, the newly proposed PIPRECIA method, that is an extension of the SWARA method, is proposed for determining the weight of criteria in order to provide an effective and simple-to-use procedure for gathering the attitudes of the examined respondents that will be as realistic as possible.

The gaps between the expected and the achieved satisfaction obtained based on a set of criteria are used to determine the overall performance of any of the considered alternatives, which is done by applying the WS PLP approach. The final ranking of the alternatives is made by referring to dominance theory.

The approach proposed in this paper has significant similarities to the proven SERVQUAL model or models like that one. However, it is based on the use of a significantly smaller number of evaluation criteria, which could allow the forming of the simplest questionnaires that could be more appropriate when preferences and ratings are collected through conducting surveys with ordinary respondents, i.e. those unprepared in advice for surveying.

The usability of the proposed approach has been verified in the case study on the evaluation of traditional Serbian restaurants. The achieved results confirm the efficiency and usability of the proposed approach for solving similar, as well as numerous other, decision-making problems.

References

Adam, I.; Adongo, C. A.; Dayour, F. 2015. International tourists' satisfaction with Ghanaian upscale restaurant services and revisit intentions. *Journal of Quality Assurance in Hospitality & Tourism*, 16(2): 181-201. https://doi.org/10.1080/1528008X.2014.892423

Albayrak, T.; Caber, M. 2015. Prioritisation of the hotel attributes according to their influence on satisfaction: A comparison of two techniques. *Tourism Management*, 46: 43-50. https://doi.org/10.1016/j.tourman.2014.06.009

Battour, M.; Battor, M.; Bhatti, M. A. 2014. Islamic attributes of destination: Construct development and measurement validation, and their impact on tourist satisfaction. *International Journal of Tourism Research*, 16(6): 556-564. https://doi.org/10.1002/jtr.1947

Bauer, H. H.; Falk, T.; Hammerschmidt, M. 2006. eTransQual: A transaction process-based approach for capturing service quality in online shopping. *Journal of Business Research*, 59(7): 866-875. https://doi.org/10.1016/j.jbusres.2006.01.021

Bernini, C.: Cagnone, S. 2014. Analysing tourist satisfaction at a mature and multi-product destination. *Current Issues in Tourism*, 17(1): 1-20. https://doi.org/10.1080/13683500.2012.702737

Bufquin, D.; DiPietro, R.; Partlow, C. 2017. The influence of the DinEX service quality dimensions on casual-dining restaurant customers' satisfaction and behavioural intentions. *Journal of Foodservice Business Research*, 20(5): 542-556. https://doi.org/10.1080/15378020.2016.1222744

Chan, A.; Hsu, C. H.; Baum, T. 2015. The impact of tour service performance on tourist satisfaction and behavioral intentions: A study of Chinese tourists in Hong Kong. *Journal of Travel & Tourism Marketing*, 32(1-2): 18-33. https://doi.org/10.1080/10548408.2014.986010

Chaturvedi, R. K. 2017. Mapping service quality in hospitality industry: A case through SERVQUAL. *Asian J. Management*, 8(3): 361-369.

Chi, C. G. Q.; Chua, B. L.; Othman, M.; Karim, S. A. 2013. Investigating the structural relationships between food image, food satisfaction, culinary quality, and behavioral intentions: The case of Malaysia. *International Journal of Hospitality & Tourism Administration*, 14(2): 99-120. https://doi.org/10.1080/15256480.2013.782215

Chou, T. Y.; Hsu, C. L.; Chen, M. C. 2008. A fuzzy multi-criteria decision model for international tourist hotels location selection. *International journal of hospitality management*, 27(2): 293-301. https://doi.org/10.1016/j.ijhm.2007.07.029

Churchman, C. W.; Ackoff, R. L. 1954. An approximate measure of value. *Journal of the Operations Research Society of America*, 2(2): 172-187. https://doi.org/10.1287/opre.2.2.172

Devi Juwaheer, T. 2004. Exploring international tourists' perceptions of hotel operations by using a modified SERVQUAL approach–a case study of Mauritius. *Managing Service Quality: An International Journal*, 14(5): 350-364. https://doi.org/10.1108/09604520410557967

Duarte Alonso, A.; O'neill, M.; Liu, Y.; O'shea, M. 2013. Factors driving consumer restaurant choice: An exploratory study from the Southeastern United States. *Journal of Hospitality Marketing & Management*, 22(5): 547-567. https://doi.org/0.1080/19368623.2012.671562

Dobrovolskienė, N.; Tvaronavičienė, M.; Tamošiūnienė, R. 2017. Tackling projects on sustainability: a Lithuanian case study. *Entrepreneurship and sustainability issues*, 4(4): 477-488. https://doi.org/10.9770/jesi.2017.4.4(6)

Engeset, M. G.; Elvekrok, I. 2015. Authentic concepts: Effects on tourist satisfaction. *Journal of Travel Research*, 54(4): 456-466. https://doi.org/10.1177/0047287514522876

Hanks, L.; Line, N.; Kim, W. G. W. 2017. The impact of the social services cape, density, and restaurant type on perceptions of interpersonal service quality. *International Journal of Hospitality Management*, 61: 35-44. https://doi.org/10.1016/j.ijhm.2016.10.009

Hashemkhani Zolfani, S.; Saparauskas, J. 2013. New application of SWARA method in prioritizing sustainability assessment indicators of energy system. *Engineering Economics*, 24(5): 408-414. https://doi.org/10.5755/j01.ee.24.5.4526

Hashemkhani Zolfani, S.; Zavadskas, E. K.; Turskis, Z. (2013). Design of products with both International and Local perspectives based on Yin-Yang balance theory and SWARA method. *Economic research-Ekonomska istraživanja*, 26(2): 153-166. https://doi.org/10.1080/1331677X.2013.11517613

Heung, V. C.; Wong, M. Y.; Qu, H. 2000. Airport-restaurant service quality in Hong Kong: An application of SERVQUAL. *Cornell Hotel and Restaurant Administration Quarterly*, 41(3): 86-96. https://doi.org/10.1016/S0010-8804(00)80020-8

Jack Kivela, J. 1997. Restaurant marketing: selection and segmentation in Hong Kong. *International Journal of Contemporary Hospitality Management*, 9(3): 116-123. https://doi.org/10.1108/09596119710164650

Jung, H. S.; Yoon, H. H. 2013. Do employees' satisfied customers respond with an satisfactory relationship? The effects of employees' satisfaction on customers' satisfaction and loyalty in a family restaurant. *International Journal of Hospitality Management*, 34: 1-8. https://doi.org/10.1016/j.ijhm.2013.02.003

Juodagalvienė, B.; Turskis, Z.; Šaparauskas, J.; Endriukaitytė, A. 2017. Integrated multi-criteria evaluation of house's plan shape based on the EDAS and SWARA methods. *Engineering Structures and Technologies*, 9(3): 117-125. https://doi.org/10.3846/2029882X.2017.1347528

Karabasevic, D.; Stanujkic, D.; Urosevic, S.; Popovic, G.; Maksimovic, M. 2017. An approach to criteria weights determination by integrating the Delphi and the adapted SWARA methods. *Management: Journal of Sustainable Business and Management Solutions in Emerging Economies*, 22(3): 15-25. https://doi.org/10.7595/management.fon.2017.0024

Keršuliene, V.; Zavadskas, E. K.; Turskis, Z. 2010. Selection of rational dispute resolution method by applying new step-wise weight assessment ratio analysis (SWARA). *Journal of Business Economics and Management*, 11(2): 243-258. https://doi.org/10.3846/jbem.2010.12

Kim, M. J.; Jung, H. S.; Yoon, H. H. 2007. A study on the relationships between food-related lifestyle of undergraduates and the restaurant selection attribute. *Journal of the Korean Society of Food Culture*: 22(2), 210-217.

Kurian, G.; Muzumdar, P. M. 2017. Restaurant Formality and Customer Service Dimensions in the Restaurant Industry: An Empirical Study. *Atlantic Marketing Journal*, 6(1): 74-92.

Lee, J. E.; Severt, D. 2017. The role of hospitality service quality in third places for the elderly: An exploratory study. *Cornell Hospitality Quarterly*, 58(2): 214-221. https://doi.org/10.1177/1938965516686110

Lee, Y. L.; Hing, N. 1995. Measuring quality in restaurant operations: an application of the SERVQUAL instrument. *International Journal of Hospitality Management*, 14(3-4): 293-310. https://doi.org/10.1016/0278-4319(95)00037-2

Liu, F. M.; Gan, M. L.; Ho, S. C.; Hu, Y. J. 2017. The part of reliability in the SERVQUAL scale: An invariance analysis for chain restaurants in Taiwan. *International Journal of Organizational Innovation*, 9(4): 222-230.

Loiacono, E. T.; Watson, R. T.; Goodhue, D. L. 2002. WebQual: A measure of website quality. *Marketing theory and applications*, 13(3): 432-438.

MacCrimmon, K. R. 1968. *Decision Marking Among Multiple-Attribute Alternatives: A Survey and Consolidated Approach*. RAND memorandum, RM-4823-ARPA.

Mardani, A.; Nilashi, M.; Zakuan, N.; Loganathan, N.; Soheilirad, S.; Saman, M. Z. M.; Ibrahim, O. 2017. A systematic review and meta-Analysis of SWARA and WASPAS methods: Theory and applications with recent fuzzy developments. *Applied Soft Computing*, 57: 265-292. https://doi.org/10.1016/j.asoc.2017.03.045

Parasuraman, A.; Zeithaml, V. A.; Berry, L. L. 1988. Servqual: A multiple-item scale for measuring consumer perc. *Journal of retailing*, 64(1): 12-40.

Parasuraman, A.; Zeithaml, V. A.; Malhotra, A. 2005. ES-QUAL: A multiple-item scale for assessing electronic service quality. *Journal of service research*, 7(3): 213-233. https://doi.org/10.1177/1094670504271156

Raudeliūnienė, J.; Davidavičienė, V.; Tvaronavičienė, V.; Jonuška, L. 2018. Evaluation of advertising campaigns on social media networks, *Sustainability*, 10(4) https://doi.org/10.3390/su10040973

Saad Andaleeb, S.; Conway, C. 2006. Customer satisfaction in the restaurant industry: an examination of the transaction-specific model. *Journal of services marketing*, 20(1): 3-11. https://doi.org/10.1108/08876040610646536

Saleh, F.; Ryan, C. 1991. Analysing service quality in the hospitality industry using the SERVQUAL model. *Service Industries Journal*, 11(3): 324-345. https://doi.org/10.1080/02642069100000049

Stanujkic, D.; Zavadskas, E. K. 2015. A modified weighted sum method based on the decision-maker's preferred levels of performances. *Studies in Informatics and Control*, 24(4): 461-470.

Stanujkic, D.; Karabasevic, D.; Zavadskas, E. K. 2015. A framework for the selection of a packaging design based on the SWARA method. *Inzinerine Ekonomika-Engineering Economics*, 26(2): 181-187. https://doi.org/10.5755/j01.ee.26.2.8820

Stanujkic, D.; Zavadskas, E. K.; Karabasevic, D.; Smarandache, F. 2016. Multiple criteria evaluation model based on the single valued neutrosophic set. *Neutrosophic Sets and Systems*, 14(1): 3-6.

Stanujkic, D.; Zavadskas, E. K.; Karabasevic, D.; Smarandache, F.; Turskis, Z. 2017. The use of the pivot pairwise relative criteria importance assessment method for determining the weights of criteria. *Romanian Journal for Economic Forecasting*, 20(4): 116-133.

Stanujkic, D.; Zavadskas, E. K.; Karabasevic, D.; Turskis, Z.; Keršulienė, V. 2017. New group decision-making ARCAS approach based on the integration of the SWARA and the ARAS methods adapted for negotiations. *Journal of Business Economics and Management*, 18(4): 599-618. https://doi.org/10.3846/16111699.2017.1327455

Stepaniuk, K. 2018. Visualization of expressing culinary experience in social network, memetic approach, *Entrepreneurship and Sustainability Issues*, 5(3): 693-702. https://doi.org/10.9770/jesi.2018.5.3(21)

Tribe, J.; Snaith, T. 1998. From SERVQUAL to HOLSAT: holiday satisfaction in Varadero, Cuba. *Tourism management*, 19(1): 25-34. https://doi.org/10.1016/S0261-5177(97)00094-0

Tzeng, G. H.; Teng, M. H.; Chen, J. J.; Opricovic, S. 2002. Multicriteria selection for a restaurant location in Taipei. *International journal of hospitality management*, 21(2): 171-187. https://doi.org/10.1016/S0278-4319(02)00005-1

Wolfinbarger, M.; Gilly, M. C. 2003. eTailQ: dimensionalizing, measuring and predicting etail quality. *Journal of retailing*, 79(3): 183-198. https://doi.org/10.1016/S0022-4359(03)00034-4

Yildiz, S.; Yildiz, E. 2015. Service quality evaluation of restaurants using the AHP and TOPSIS method. *Journal of Social and Administrative Sciences*, 2(2): 53-61.

Yüksel, A.; Yüksel, F. 2003. Measurement of tourist satisfaction with restaurant services: A segment-based approach. *Journal of vacation marketing*, 9(1): 52-68. https://doi.org/10.1177/135676670200900104

ENTREPRENEURSHIP AND SUSTAINABILITY ISSUES
ISSN 2345-0282 (online) http://jssidoi.org/jesi/
2019 Volume 6 Number 3 (March)
http://doi.org/10.9770/jesi.2019.6.3(5)

Authors

Dragisa STANUJKIC, Ph.D., is an Associate Professor of Information Technology and Decision Sciences at the Technical Faculty in Bor, University of Belgrade. He obtained his M.Sc. degree in Information Science and his Ph.D. degree in Organizational Sciences at the Faculty of Organizational Sciences, University of Belgrade. His current research is focused on decision-making theory, expert systems and intelligent decision support systems.
ORCID ID: https://orcid.org/0000-0002-6846-3074

Darjan KARABASEVIC, Ph.D., is a Vice-Dean for Research and Development and an Assistant Professor of Management and Informatics at the Faculty of Applied Management, Economics and Finance, University Business Academy in Novi Sad. He obtained his Ph.D. degree in Management and Business at the Faculty of Management in Zajecar, John Naisbitt University Belgrade. His current research is focused on informatics, management and decision-making theory.
ORCID ID: https://orcid.org/0000-0001-5308-2503

Edmundas Kazimieras ZAVADSKAS, Prof., E.K. Zavadskas, PhD, DSc, h.c. multi. professor at the Department of Construction Management and Real Estate, chief research fellow at the Laboratory of Operational Research, Research Institute of Sustainable Construction, Vilnius Gediminas Technical University, Lithuania. PhD in building structures (1973). Dr Sc. (1987) in Building Technology and Management. A member of Lithuanian and several foreign Academies of Sciences, member of European Academy of Sciences and Arts. Doctore Honoris Causa from Poznan, Saint Petersburg and Kiev universities. The honorary international chair professor in the National Taipei University of Technology. A member of international organizations; a member of steering and programme committees at many international conferences; a member of the editorial boards of several research journals; the author and co-author of more than 400 papers and a number of monographs in Lithuanian, English, German and Russian. Editor-in-chief of journals Technological and Economic Development of Economy and Journal of Civil Engineering and Management. Research interests: building technology and management, decision-making theory, automation in design and decision support systems.
ORCID ID: https://orcid.org/0000-0002-3201-949X

Florentin SMARANDACHE, Ph.D., is a Professor of mathematics at the University of New Mexico, USA. He has published many papers and books on neutrosophic set and logic and their applications and has presented to many international conferences. He got his MSc in Mathematics and Computer Science from the University of Craiova, Romania, PhD from the State University of Kishinev, and Post-Doctoral in Applied Mathematics from Okayama University of Sciences, Japan.
ORCID ID: https://orcid.org/0000-0002-5560-5926

Fausto CAVALLARO, Ph.D. holds an M.Sc in Environmental Management and a PhD in Technology and Economics of Processes for Safeguarding the Environment. He is associate professor of "Energy and Environmental Resources" and "Environmental Management Systems" at the University of Molise (Italy). His main fields of research are the following: renewable energy sources; technology assessment; modelling decision support system and fuzzy multicriteria analysis for renewable and conventional energy systems; life cycle assessment (LCA) and environmental management systems (EMS).
ORCID ID: https://orcid.org/0000-0003-4533-1025