

**3rd
International
Scientific
Conference**

**31 May - 2 June, 2018
Vrnjačka Banja, Serbia**

**20
18**

**TOURISM
IN FUNCTION OF DEVELOPMENT
OF THE REPUBLIC OF SERBIA**

Tourism in the Era of Digital Transformation



**THEMATIC
PROCEEDINGS**

I



**UNIVERSITY OF KRAGUJEVAC
FACULTY OF HOTEL MANAGEMENT
AND TOURISM IN VRNJAČKA BANJA**



MODELLING SERVICE QUALITY IN THE HOTEL INDUSTRY

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Abstract

Modern business circumstances, as a result of globalization, deregulation and technological development innovation, have forced companies to focus on improving their service levels and increasing customer satisfaction in order to remain competitive and achieve long-term survival. The first step towards improving services is to measure these services and assess the current level of service delivery. The aim of this paper is to introduce a model for those measures, as well as to explore the gap between customer expectations and perceptions with regard to the level of services that are offered. The perception is that the customer experiences the service provided, which is often vague and cannot be estimated with an exact numerical value. Therefore, the most suitable approaches for solving this problem are tools that provide fuzzy mathematics. In the paper, a fuzzy system is proposed for the evaluation of quality in hotel industry.

Key Words: *service quality, fuzzy mathematics, modelling, hotel industry*
JEL classification: *C02, L83, D11, O15*

Introduction

The increase of living standard and education level, as well as development of new information and communication technologies, lead to increase of customers' requirements. Modern man pays greater attention to the product/service quality. Such practice is present in all fields of life and work, and certainly in tourism, i.e. hospitality and other tourist services. Tourist organisations are aware of that, therefore they are trying to continually improve and enrich quality of their services in order

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to satisfy increasingly fastidious requirements of their guests. Creation of a business policy of tourist organisations should include active participation of employees and, if possible, service users, and not only their managerial structures. Such approach shall provide greater effects in work, in the interest of service users, organisation and its employees. In addition, this increases trust in the organisation and quality of its services, which is one of the most important assumptions for spreading the circle of potential users of its services. Organisational system functions as an open and a dynamic system by establishing certain relations with its environment and by responding to actual occurrences and requirements from the environment (Kulić, Milošević & Milutinović, 2017: 13).

Results of work and service quality of a tourist organisation are largely under influence of human resources management. System based on old, obsolete, rigid, strict, hierarchically set and unjust rules and principles is not and cannot be efficient and acceptable for employees. Without justice and work satisfaction there is no quality and productive work, which has a negative impact on quality of hospitality and other services in tourism. Managerial structures of an organisation must always be aware of that fact. Among other things, to take care of the treatment of employees and their legitimate requests at workplace, and in connection with work, and the extent to which their reasonable expectations from an organisation are realised and its managerial structures. Their personal, moral and professional integrity must be observed, which unfortunately, is not always the case. Such practice must be changed, in the interest of both an organisation and employees. Thus, that is in the interest of both users of hospitality and other services in tourism.

Quality means something that is good and valuable. Focus of the research was definition of the product quality, while the service quality was in the background and can be said neglected. Services present actions, performances and processes. Increase of the living standard, education and development of new communication technologies causes that service users pay greater attention to the service quality, and also, in the domain of tourist services. On the other hand, in order to improve the service quality, hotels require a precise understanding of needs and expectations of users of hospitality services and differences in users' expectations and perception of service quality. Employees have a big role in defining and predicting tourists' needs, but also in adapting tourist services and the process itself to the needs of tourists. This contributes to development of personalized and long-term relationships with service users, through

implementation of acquired experience and creation of satisfied and loyal users.

The unreliability of all complex systems or processes is mainly caused by the numerous of different activities, presence of sub-systems and interactions between the subsystems and different external or internal impacts, which may be constant or occasional (Kerkez & Gajović, 2016). Defining and measuring of service quality is a complex task. Service quality denotes different things for different people in different situations and time (Gazzoli, Hancer & Kim, 2013). Service users compare their own expectations with perception of received service (Getty & Thompson, 1994). Model SERVQUAL provided a conceptual framework for a corresponding testing and measuring of quality in the service sector. Model proposed by Parasuraman et al. (1988) is based on client's evaluation of service quality, by focusing on the difference between their expectations and perceptions. Authors state five dimensions that can define service quality. These are reliability, security, tangibility, empathy and responsiveness.

Scales used by authors for measuring are different, but the most commonly used ones are the ordinal and the cardinal scale. However, many criticise use of these scales; primarily critiques refer to results - results based on these scales do not necessarily present user's preferences. Human ideas and interpretations are often vague and unspecific, so they cannot be expressed by a precise numerical value. Techniques based on fuzzy mathematics proved to be rather useful in cases of imprecise information in certain processes. On the other hand, the integral approach and connecting of several models and techniques in order to obtain more precise and real results of the concerned research is prominent. Having in mind specific features of hospitality services, which comprise of a set of tangible and intangible factors, as well as technical solutions and skills, the assessment of quality is based on objective and subjective standpoints of service users. This paper shows the option of implementation of an integrated approach, the model Gap, and fuzzy mathematic techniques into a single system for assessment of hospitality services.

Client's concept of the service quality

Client's concept of the service quality was originally proposed in the beginning of eighties. Gronroos (1984) proposed the client's concept of

the service quality as well as the model of perception of the service quality.

Service quality was interpreted as a subjective idea that depended on comparison of clients' expectations of the service quality (i.e. the expected service quality) with their perceptions of the actual service quality (perceived service quality). Factors referring to perception of customers and decisions regarding the service quality, as well as related implications were studied by Parasuraman et al. (1994) and they proposed the service quality gap model. Model included five dimensions: tangibles, reliability, responsiveness, security, and empathy.

A set of certain qualitative criteria can exist for each service. However, many authors (Ghobadian et al., 1994, Johnston & Michel, 2008, Grönroos, 2004) tried to define a set of criteria/parameters that would include all types of services. Most commonly considered criteria in literature were:

1. Tangibles – includes presence of tangible, physical elements through a service capacity, physical condition of buildings and environment, appearance of staff and state of equipment, communication materials. Includes the following criteria: modern equipment;

- visual aspect of ambient elements,
- appearance of employees,
- visual attractiveness,
- materials connected to the service.

2. Customization – refers to readiness and ability to adjust services in order to satisfy clients' needs.

3. Access – easy access and making a contact.

4. Communication – informing clients on services in the language they can understand, but also the ability to understand clients in a certain language.

5. Security (assurance) – this criterion has gained significance recently, and refers to freedom from danger, risk and doubt. It includes the following criteria:

- physical security,
- financial security, making tourists feel secure when performing transactions,
- trust, ability of employees to inspire confidence of tourists,
- courtesy of employees,
- employees have knowledge that enables them to answer tourists' questions.

6. Understanding/knowing the customer – refers to paying of individual attention to clients, i.e. an attempt to understand client's specific needs and requests. Important criterion is recognition of a regular client.

7. Reliability, ability to provide services, i.e. promised service in time, precisely and reliably. It includes the following criteria:

- provision of a promised service,
- reliability in solving clients' problems,
- provision of a corresponding service during the first visit and later on, provision of a service at a promised time, and
- insisting on the *error-free policy*.

8. Courtesy, pleasant treatment, respect and politeness by employees toward clients.

9. Competence – employees should possess required skills, knowledge and information for an efficient provision of services.

10. Credibility, the extent of trust and confidence in service. Name and reputation and personality traits of employees from the first line of services contribute to the credibility.

11. Responsiveness – ability to efficiently deal with clients' complaints, readiness to assist and provide a fast service. It includes the following criteria:

- informing the guests of time when the requested service will be provided,
- speed of service provision,
- readiness to assist the guest at any time, and
- readiness of employees to respond to guests' requests.

12. Cost – price of the service. Price has a strong influence on the strategic positioning of providers. These are competitive criteria and often price and quality can be deemed as special characteristics. Price of the service has an economic and psychological meaning for a client and is a part of management of expectations and perceptions of clients. Connection between the service price and the client's satisfaction is reflected in fulfilment of economic and psychological significance of the price. Economic meaning for a client is reflected in the client's cost for a service in order to use such service, and if the price is acceptable taking into account the client's income. Psychological meaning of a service is reflected in the value that service has for a client. Client sees the price as the indicator of the service quality, i.e. it tells the client what he/she can expect from a service in terms of relation between quality and cost of a service. Client's sensitivity to the service price varies with clients.

13. Empathy – refers to provision of an individualized service through noticing and taking into account special requests from clients and observation of clients as individuals, including the approach, communication and understanding of users. It includes the following criteria:

- paying attention to tourists as individuals;
- paying personal attention;
- working hours of an organization in tourism;
- focus of employees on tourists' interests;
- understanding of specific needs of tourists/guests by employees.

Clients select certain products and services on the basis of a long-term satisfaction from such products or services. Client's satisfaction with a certain product or a service depends on the fact how such product or service has fulfilled the client's expectations. Quality of a product or a service and the client's satisfaction are two interconnected values. Significance of quality differs depending on the client, and the service quality is exclusively a subjective category. Connection between attributes of quality and clients' satisfaction is asymmetric and non-linear.

Specificities of the client's concept of service quality in the hotel industry

Factors that further complicate the task to define, deliver and measure the service quality include attributes such as imprecise standards, short distribution channels, and intense exchange of information between employees and customers and fluctuating demand, which are identified particularly in the hotel industry (Akbaba, 2006).

Growth of competitiveness implicates the need but also the capability to define the service quality in hotel industry, as well as identification of quality dimensions and its significance for clients. That means understanding the clients' perception, since the perceived quality is the main determinant that affects satisfaction of clients, therefore, it is necessary to study and identify criteria, according to which clients assess the service and attributes they deem the most important ones.

Nature of services makes measuring and maintaining of the quality difficult (Harris & Harrington, 2000) primarily due to the interaction between clients and providers. Therefore, an important quality indicator can be defined from the client's perspective, because they are created at

the same time with the process of production, delivery and use of the services, so that most researches are focused on the question: How is service quality assessed by clients and how can this quality be measured? (Edvardsson, 2005; Akbaba, 2006).

Literature recognises several models (scales) for measuring of service quality and clients' satisfaction, however, they are often too generalised and hard to implement in the hotel industry (Gržinić, 2007).

Properties of quality that are most commonly observed in the hotel industry are tangibility, reliability, responsiveness, empathy and security. A hotel service set like this, which presents a sum of effects of what is offered, used and received in the provider's facility, is subject to objective and subjective evaluations. Tangibility and reliability are possible to view in advance, unlike other properties that are manifested during provision of a service, i.e. after a service has been provided.

Service quality models

In their paper Parasuramm et al defined the model of five gaps in order to identify shortages in the quality. Initial point is the identification, i.e. the difference between expectations of service users - ES (expected service) and perceived service - PS (the actual service) provided at different stages of service delivery

Expectations of service users are standards to which a received service is contrasted, and are often defined in relation to what clients believe is going to happen. In the perfect system, expectations and perceptions should be at the same level. Expected service is in the function of oral communication, personal needs and previous experience, and often the element of the external communication is added.

SERVQUAL (service quality gap model) is a method based on 5 Gaps. Ever since its development, SERVQUAL is used in numerous services, including traffic, telecommunications, healthcare and medicine, enterprises, financial organisations, tourism, university education and other. Objective of the model is identification of gaps between users and actual service provided, as well as closing the gap and improving the customer service. If:

$ES < PS$ result is the service surprise

$ES \square PS$ satisfactory quality

$ES > PS$ quality is unacceptable.

Gaps are defined as follows Parasuraman, Zeithaml & Berry, 1985; Grönroos, 2004):

Gap 1 or the knowledge gap - a difference between consumer expectations and management of perceptions of consumers' expectations. Not knowing what the consumers expect is the main reason why the provider does not offer services according to the consumers' needs. This gap is possible to reduce or close by researching the market in order to gather information on the needs, wishes and expectations of guests.

Gap 2 or the gap in standards – a difference between management perceptions of consumer expectations and service quality specifications. It refers to difficulties during conversion of the hotel guests' requests in the actual hotel offer. It is often deemed that the guests' requests are not reasonable and real.

Gap 3 or the delivery gap – a difference in delivery, a discrepancy between service quality specifications and the service actually delivered. It occurs in interaction between employees and guests, i.e. when the management understands consumers' requests but the service is not provided in accordance with those requests. Gap can be reduced by adequate human resources management.

Gap 4 or the communication gap – a discrepancy between service delivery and what is communicated about the service to consumers. Increase of this gap is under influence of a difference between the promised and delivered service.

Gap 5 (service quality) is in the function of the first four gaps.

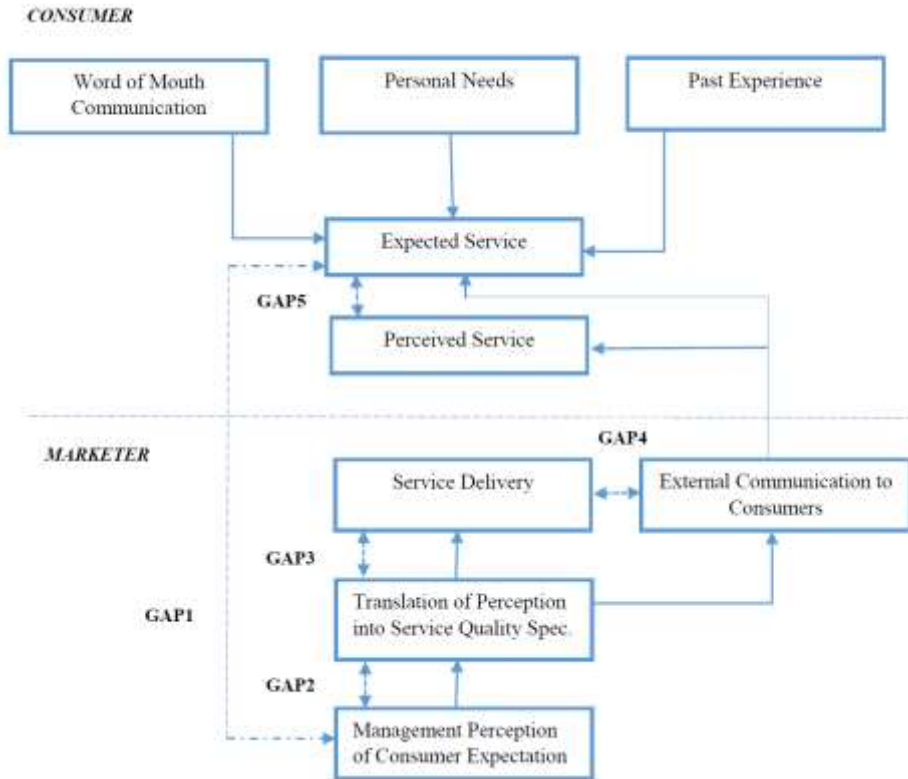
$$\text{Gap 5} = f(\text{Gap 1}, \text{Gap 2}, \text{Gap 3}, \text{Gap 4})$$

It presents a difference between consumers' expectations and perceptions and its value depends on the magnitude and direction of the gap between the expected service and the perceived service. Expected quality is what a guest believes he/she will get at the hotel, that the perceived quality presents what the guest believes he/she got.

SERVQUAL model served as the basis for development of other models for measuring quality of tourist services such as SERVPERF (Cronin & Taylor, 1994), LODGSERV (Knutson et al., 1991), LQI (Getty & Getty, 2003), HISTOQUAL (Frochot & Hughes, 2000) and other. However, proposed scales are insufficient to seize the assessment of service quality in the tourism industry (Albacete-Sáez, 2007; Buttle, 1996; Frochot & Hughes, 2000; Mei et al., 1999; Nadiri & Hussain, 2005).

Figure 1 shows a service quality gap model.

Figure 1: *Gap model*



Source: Parasuraman A, Zeithaml V, Berry L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing*, Vol. 49, No.4, p. 44.

An increasingly present opinion in the scholarly literature is that quality of services is a multidimensional and a multi-criteria problem, and that individual models cannot provide the most accurate evaluation of quality of hotel services.

Development and implementation of the model

Fuzzy systems and fuzzy technology are a mathematical approach based on which certain imprecise information can be mathematically modelled. Nature of human behaviour is to reason based on evidence, which presents the basis for making corresponding decisions and achievement of objectives. However, uncertainties and vagueness are the most common

reasons for errors in evaluation of characteristics and values of certain occurrences, because clear and accurate information on the environment is not often available. The theory of fuzzy sets and fuzzy logic enables the use of subjective assessments expressed by vague terms, relations and statements to describe problems, the choice of alternatives for decision, formulation of vague descriptions using fuzzy variables, and the presentation of outputs using linguistic concepts and relations or in the form of clear quantitative recommendations. (Gajović, Kerkez & Kočović, 2017). Soft computing techniques are group of unique methodologies, often complement to each other, and provide flexible information processing capabilities to solve real-life problems (Kerkez et al., 2018). Fuzzy mathematics can provide a corresponding alternative to the exact mathematical modelling of various dynamic systems that are highly vague or too complex to be expressed in simple and clear mathematical formulae.

Preliminary

In the basic type of a fuzzy set, the membership function has values in interval $[0, 1]$. If X is an arbitrary, nonempty set, fuzzy set A with values in interval $[0, 1]$ defined on X characterised by function $\mu_A : X \rightarrow [0,1]$, i.e. the ordered pair (X, μ_A) is called a fuzzy set. Function μ_A is called the membership function of the fuzzy set A . Value $\mu_A(x)$ is interpreted as the degree of membership of an element x to the set A .

It is desirable to define operations with fuzzy sets so that there are more good features in crisp sets and their operations, which is valid for fuzzy sets. Fuzzy arithmetic is based on attributes that each fuzzy set, and thus a fuzzy number, can be completely and uniquely presented by using the α -cut of that set and that the α -cut of a fuzzy number is a closed interval of real numbers for all $\alpha \in [0,1]$.

If $*$ denotes any of the four standard arithmetic operations, analogue operations can be defined even with closed intervals, then $[a,b]*[d,e]=\{f*g \mid a \leq f \leq b, d \leq g \leq e\}$ except in division, which is not defined if $0 \in [d,e]$. Basic arithmetic operations with fuzzy numbers are defined by the α -cut. Most commonly used fuzzy numbers are triangular fuzzy numbers and some operation are shown on figure 2.

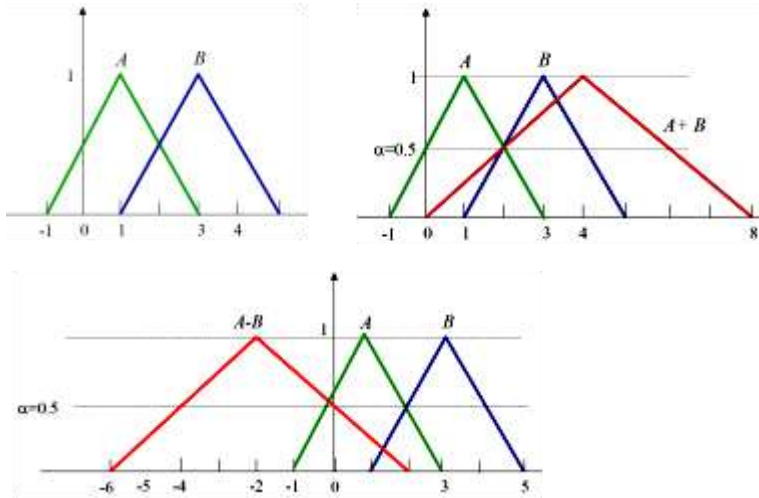
Often used and in many implementations deemed a default is the function of a distance between the point and the set.

For arbitrary two final sets $A = \{a_1, a_2, \dots, a_k\} \subseteq R^n$ and $B = \{b_1, b_2, \dots, b_m\} \subseteq R^n$ is with

$$d_E(A, B) = \sqrt{\frac{1}{m} \sum_{j=1}^m d_E^2(b_j, A)} \quad (1)$$

where $d_E(b_j, A)$ is the Euclidean distance between the point and the set.

Figure 2: Arithmetic operations with triangular fuzzy numbers



Aggregation operators combine several fuzzy sets in the described manner thus creating one set. All known means are aggregation operators. Axiomatic of aggregation operators in literature is not uniformly adopted, so various authors in their definitions state more or less conditions that a function should meet in order to be an aggregation operator.

A function $A: [0,1]^n \rightarrow [0,1]$ is called the aggregation operator on $[0,1]$ if it meets the conditions:

[Ag1] $A(0, \dots, 0) = 0 \wedge A(1, \dots, 1) = 1$, boundary condition.

[Ag2] $a_i \leq b_i \Rightarrow A(a_1, \dots, a_n) \leq A(b_1, \dots, b_n)$, function A is monotonically non-decreasing for all components.

In addition, the function A can have the following desirable properties.

[Ag3] Function A is continuous.

[Ag4] Function A is symmetric for all components, each tuple $(a_1, a_2, \dots, a_n) \in [0, 1]^n$, and for each permutation p of a set $\{1, \dots, n\}$ is valid

$$A(a_1, a_2, \dots, a_n) = A(a_{p_1}, a_{p_2}, \dots, a_{p_n})$$

[Ag5] Function A is idempotent, i.e. for each $n \geq 2$ and for each tuple $(a_1, a_2, \dots, a_n) \in [0, 1]^n$ is valid $A(a_1, a_2, \dots, a_n) = a$.

Implementation of the model

For the purpose of this work authors used data from literature (Akbaba, 2006). Linguistic variables from the questionnaire (very low, low, moderate, high, and very high) correspond respectively to values from 1 to 5. Based on results of the SERQUAL model from the stated paper, the fuzzy aggregation operator was used to aggregate the evaluation of each attribute of the questionnaire using equation

$$A = (a_1, b_1, c_1) = (A_1 \oplus A_2 \oplus \dots \oplus A_n) \otimes (1/n) \quad (2)$$

and after transformation

$$A = \left\{ \frac{\sum_{i=1}^n a_1^{(i)}, \sum_{i=1}^n b_1^{(i)}, \sum_{i=1}^n c_1^{(i)}}{n} \right\} \quad (3)$$

Linguistic variable with a value 5 (very high) is assigned with A^+ , and variable with a value 1 (very low) is assigned with A^- in order to calculate the rating of the alternatives according to equations:

$$A^+ = \left\{ \left(\max V_{ij} \mid j \in J \right), \left(\min V_{ij} \mid j \in J^* \right), i = 1, 2, \dots, m \right\} \quad (4)$$

$$A^- = \left\{ \left(\min V_{ij} \mid j \in J \right), \left(\max V_{ij} \mid j \in J^* \right), i = 1, 2, \dots, m \right\}$$

After determination of values A^+ and A^- for all criteria, by using the formula (1) and Chen (2000) the Euclidean distance in a fuzzy environment can be calculated according to the formula

$$d^+(M_{ij}, A_j^+) = \sqrt{\frac{1}{3} \left[(a_1^+ - a_1)^2 + (a_2^+ - a_2)^2 + (a_3^+ - a_3)^2 \right]} \quad (5)$$

$$d^-(M_{ij}, A_j^-) = \sqrt{\frac{1}{3} \left[(a_1^- - a_1)^2 + (a_2^- - a_2)^2 + (a_3^- - a_3)^2 \right]}$$

During the process of quantitative analysis, linguistic variables are converted into triangular fuzzy numbers, as shown in Table 2, after which fuzzy gaps are calculated.

Table 1: *Fuzzy perception and expectation*

Factors	Fuzzy perception	Fuzzy expectation	Fuzzy Gap
Tangibles	(3.79,4.51,4.94)	(3.99,4.49,4.52)	(-0.73,0.02,0.95)
Security	(3.84,4.56,4.95)	(3.84,4.52,4.95)	(-1.11,0.04,1.11)
Reliability	(3.65,4.41,4.88)	(3.76,4.53,4.92)	(-1.30,-0.12,1.12)
Empathy	(3.33,4.21,4.47)	(3.55,4.31,4.68)	(-1.35,-0.10,0.92)
Access	(3.73,4.44,4.86)	(3.73,4.48,4.96)	(-1.24,-0.04,1.13)

The difference between perceptions and expectations (SQ) represents service quality (Table 2). When SQ is negative, there is a service quality gap. Conversely, when SQ is positive, customer's expectations are greater than their perceptions.

Table 2: Result of the system-service quality

Factors	Perception	Expectation	Service quality
Tangibles	4.50	4.49	0.01
Security	4.56	4.52	0.04
Access	4.43	4.48	-0.05
Reliability	4.39	4.50	-0.11
Empathy	4.19	4.34	-0.15

The greatest expectations are connected with security (4.52). Security presents a very important dimension of the service quality by contributing to creation of an adequate image of the hotel in the guests' minds. Professional behaviour in critical situations and the positive attitude when dealing with guests' complaints boost the relation of trust and security. Security is perceived as a dimension with which the respondents are most satisfied (4.56).

The lowest satisfaction with the received service was recorded in the sector of empathy (4.19). With tangibles, the smallest difference was between the expected and perceived, while with empathy this difference is the greatest. It should be stressed that all expectations of guests are high.

Conclusion

This research identified five service quality attributes that represent the evaluative criteria customers use to assess service quality of the business hotels named as tangibles, security, reliability, access and empathy. The results indicated that the most important factor in predicting business travellers' overall service quality evaluation was security, and tangibles have emerged as the best predictor of overall service quality. Also, the results showed that in most cases the expectation was above perception (negative gaps).

Proposed model can assist providers to pay greater attention to areas with bigger differences between expectations and perception of quality of provided services, thus improving their services and adjusting already established procedures. Particularly important for service companies is to monitor the quality in meeting the needs and expectations of its customers, which creates a competitive advantage.

References

1. Akbaba, A. (2006). Measuring service quality in the hotel industry: A study in a business hotel in Turkey. *Hospitality Management*, Vol.25, 170–192.
2. Albacete-Sáez, C. A., Fuentes-Fuentes, M. M., Lloréns-Montes, F. J. (2007). Service quality measurement in rural accommodation. *Annals of Tourism Research*, Vol. 34, No.1, 45–65.
3. Buttle, F. (1996). SERVQUAL: Review, critique, research agenda. *European Journal of Marketing*, Vol. 30, No. 1, 8–35.
4. Chen, C.-T. (2000). Extensions of the TOPSIS for group decision-making under fuzzy environment. *Fuzzy Sets Syst.* Vol. 114, 1–9.
5. Cronin, J. J., Taylor, S. A. (1994). SERVPERF versus SERVQUAL: Reconciling performance-based and perceptions-minus-expectations measurement of service quality. *Journal of Marketing*, Vol. 58, No.1, 125–131.
6. Edvardsson, B. (2005). Service quality: beyond cognitive assessment. *Managing Service Quality*, Vol. 15, No.2, 127-131.

7. Frochot, I., Hughes, H. (2000). HISTOQUAL: The development of a historic houses assessment scale. *Tourism Management*, Vol. 21, No. 2, 157–167.
8. Gajovic, V., Kerkez, M., Kočović J. (2017). Modeling and simulation of logistic processes: risk assessment with a fuzzy logic technique, *Simulation: Transactions of the Society for Modeling and Simulation International*, SAGE Publishing, 1 - 12, 10.1177/0037549717738351.
9. Gazzoli, G., Hancer, K., Kim BC. (2013). Explaining why employee-customer orientation influences customers' perceptions of the service encounter. *Journal of Service Management*, Vol. 24, No. 4, 382-400.
10. Getty, J. M., Thompson, K. N. (1994). A procedure for scaling perceptions of lodging quality. *Hospitality Research Journal*, Vol. 18, No. 2, 75–96.
11. Getty, JM., Getty, RL. (2003). Lodging quality index (LQI): assessing customers' perceptions of quality delivery. *International Journal of Contemporary Hospitality Management*, Vol. 15, No. 2, 94-104.
12. Ghobadian, A., Speller, S., Jones, M. (1994). Service quality: concepts and models. *International Journal of Quality & Reliability Management*, Vol. 11, No. 90, 43-66.
13. Grönroos, C. (1984). A service quality model and its marketing implications. *European Journal of Marketing*, Vol. 18, No. 4, 36–44.
14. Grönroos, C. (2004). The relationship marketing process: communication, interaction, dialogue, value. *Journal of Business & Industrial Marketing*, Vol. 19, No. 2, 99-113.
15. Gržinić, J. (2007). Concepts of service quality measurement in hotel industry. *Economic Thought and Practice*, Vol. 16, No. 1, 81-98.
16. Harris, M., Harrington, H. J. (2000). Service quality in the knowledge age: huge opportunities for the twenty first century. *Measuring Business Excellence*, Vol. 4, No. 4, 31 – 36.
17. Johnston, R., Michel, S. (2008). Three outcomes of service recovery: Customer recovery, process recovery and employee recovery.

International Journal of Operations & Production Management, Vol. 28, No. 1, 79-99.

18. Kerkez, M., Ralević, N., Milutinović, O., Vojinović, Ž., Mladenović-Vojinović, B. (2018). Integrated Fuzzy System and Multi-Expression Programming Techniques for Supplier Selection. *Technical Gazette*, Vol. 26, No. 1 (in print).

19. Kerkez, M, Gajović, V. (2016). Underwriting risk assessment in marine cargo insurance, Risk management in the financial services sector, University of Belgrade, Faculty of Economics Publishing Centre, 381-399.

20. Knutson, B. J., Stevens, P., Wullaert, C., Patton, M., & Yokoyama, F. (1991). LODGSERV: A service quality index for the lodging industry. *Hospitality. Research Journal*, Vol. 14, No.2, 277–284.

21. Kulić, Ž., Milošević, G., Milutinović, O. (2017). Upravljanje materijalnim resursima, New Look Entertainment, Beograd.

22. Mei, A. W. O., Dean, A. M., White, C. J. (1999). Analyzing service quality in the hospitality industry. *Managing Service Quality*, Vol. 9, No.2, 136–143.

23. Nadiri, H., & Hussain, K. (2005). Perceptions of service quality in North Cyprus hotels. *International Journal of Contemporary Hospitality Management*, Vol. 17, No.6, 469–480

24. Parasuraman, A, Zeithaml, V, Berry, LL. (1988). SERVQUAL. A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, Vol. 64, No. 1, 12-40.

25. Parasuraman, A. Zeithaml, V., Berry L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing*, Vol. 49, No. 4, 41-50.

26. Parasuraman, A., Zeithaml, V., Berry, LL. (1994). Alternative scales for measuring service quality: a comparative assessment based on psychometric and diagnostic criteria. *Journal of Retailing*, Vol. 70, No. 3, 201-30.