Service Quality Management and Hotel Performance – Particularities from Romanian Hospitality Industry: A Complex Statistical Analysis

Flavia Dana OLTEAN[1], Manuela Rozalia GABOR[2*]

[1]"George Emil Palade" University of Medicine, Pharmacy, Sciences and Technology of Targu Mures, Faculty of Economics and Law, Department ED1 – Economic Sciences, Romania; E-mail: flavia.oltean@umfst.ro, flaviaoltean@yahoo.com
[2]"George Emil Palade" University of Medicine, Pharmacy, Sciences and Technology of Targu Mures, Faculty of Economics and Law, Department ED1 – Economic Sciences, Romania, E-mail: manuela.gabor@umfst.ro, rozalia_gabor@yahoo.com
[*]Corresponding author

Abstract

In recent decades, the hospitality industry has been considered the most important driver of tourism in the world; it has begun to play an active role in the development of domestic tourism. Analysis of a service sector such as tourism has been less intensive than in the other sectors. The continuous development of service quality management is currently a challenge for the hospitality industry and has implications for the entire tourism industry. The purpose of this paper is to enrich the existing literature by analyzing the impact of service quality management on Romanian hotel performance. Based on data from an exhaustive research in Mureș county, we used complex statistical methods: Cronbach's alpha, Chi square test, PCA, cluster analysis, ROC curve, and linear regression analysis to examine the extent to which and how the variables of service quality management influence hotel performance. The results partially confirm the international results and show significant importance for hotel managers who want to achieve customer satisfaction and successful economic results. All hotel classification categories were included. Also, only the managers were interviewed and usually managers ranked quality service dimensions higher than other participant groups. This research provides a substantial contribution to the hospitality management literature by explaining how service quality management influences hotel performance, and it emphasizes particularities of the Romanian hospitality industry. The approach used in this paper is new to the literature, given that it uses complex statistical methods to analyze the influence of service quality management on Romanian hotel performance.

Keywords: *quality management; service quality; hotel performance; Romanian hospitality industry; complex statistical analysis.*

1. Introduction

In recent decades, the hospitality industry has been considered the most important driver of tourism in the world (Haddioui & Jahidi, 2017); it has begun to play an active role in the development of domestic tourism in some countries (Bazazo et al., 2017) and has become an essential pillar of the tourism industry (Wang et al., 2012). The hospitality industry is one of the most important components of tourism and has experienced overwhelming development both internationally and nationally (Oltean and Gabor, 2017). In recent years, special attention has been paid to the hospitability industry, and within it, to specific hotel units (Vallen & Vallen, 2012; Neacșu et al., 2011; Fleșeriu, 2011; O' Fallon and Rutherfort, 2011; Walton, 2009). Hotel managers must be able to realize not only the influence of *internal factors* but also the influence of *contextual variables* as well (Zhong et al., 2016), i.e., the current state of the national and global economy.

Analysis of a service sector such as tourism has been less intensive than in manufacturing sectors (Claver-Cortés et al., 2007). The continuous development of *service quality management* (SQM) is currently a challenge for the hospitality industry and has implications for the entire tourism industry (Oltean & Gabor, 2017). The concern about quality started in 1980 (Johns, 1995), owing to the realization that the level of quality could improve performance (Claver-Cortés et al., 2006) in two ways (Garvin, 1998; Rust et al., 1995; Reed et al., 1996): *internal impact* (improvement of efficiency, cost cutting, etc.) and *external impact* (maximization of market share, increase number of customers, achieving customer satisfaction, image improvement, etc.) (Claver-Cortés et al., 2006: 351).

The *quality of hotel services* has a significant impact on overall efficiency (Arbelo-Perez et al., 2017), and *hotel efficiency* differs based on location, geographical region and types of services (Assaf and Tsionas, 2018). At the international level, it is demonstrated that *quality management* (QM) is related to competitive advantage (Molina-Azorin et al., 2015), but *hotels seeking to improve their performance cannot simply rely on quality* (Wang & Chen, 2012).The hotel enterprise's competitiveness must focus on improving *performance* through better *service quality* (Bazazo et al., 2012).

The Romanian hospitality industry, especially in Mureş County, shows some particularities in published research in the national and international literature (*performance of hotels represents a rather new concept in specialty national studies*) (Oltean et al., 2014):

- QM influences, to a certain extent, hotel performance (HP) (Oltean & Gabor, 2017); hotel units in Mureş County do not develop a quality management system (QMS) that helps

them achieve economic results and competitive advantage (Oltean & Gabor, 2017). In Romania, an empirical study found a reluctance toward implementing integrated management systems. Only 8% of hotels have a structured integrated management system certificate, and 18% have a QMS certificate, the most important being ISO 9001 (Cristea, 2009; Stanciu et al., 2014; Mazarel et al., 2016). In 2003, Romania initiated the national program to use the Qmark to increase hotel service quality (Butnaru, 2009), and in 2005, it established INQUALTOUR (a professional NGO in cooperation with the Ministry of Tourism) to support this initiative (Cristea, 2009). The main trend in Romanian tourism is the constant improvement of the quality of products and services by improving functioning and increasing the performance of services providers (Butnaru, 2009; Stanciu et al., 2014).

- There are average, weak correlations between service strategies and HP indicators (Oltean, 2013b) in Romania, with service quality (SQ) assurance being accomplished in two ways: according to different types of standards and according to the QMS (Cristea, 2009).There is also a weak correlation between type of hotel management and low-cost strategy (Bordean & Borza, 2014).
- There are positive, moderate correlations between *customer orientation* and *HP* indicators (Oltean, 2013c) for managers who consider orientation toward the customer a priority and thus manage to increase profit, sales and desired profitability.
- Regarding human resources, in Romanian hotels there exists a high power-distance culture (Contiu et al., 2012); reasons for employee loyalty are mainly intangible (Ineson & Berechet, 2011) and employee motivation cannot be considered an asset in regard to Romanian sustainable tourism (Contiu et al., 2012), even though employees play an important role as boundary-spanning workers in the value-creation phases (O'Cass et al., 2015) and are an important quality component (Cristea, 2009).
- Managerial perceptions regarding service diversification vary according to the hotel classification category (Oltean & Gabor, 2016; Cristea, 2009; Butnaru, 2009; Bordean & Borza, 2014) and not to the size and management type of the hotel (Bordean & Borza, 2014).
- Regarding the level of information technology (IT) used in the Romanian hospitality industry, a small number of hotels are focused on using IT&C and professional systems in carrying out their activity (Oltean, 2013a, Oltean et al., 2014), even if IT has generated real changes in the business of hotels (Oltean et al., 2014, Melian- Gonzalez et al., 2016) and has been the main factor that drives the increase in economic performance (Oltean, 2013a).

We briefly mention that, from statistical data results, the *average annual growth rate* in the hotel market in Romania for 2009–2013 was 6.77% (for Mureş County it was 20.09%) (Oltean & Gabor, 2016), and it was 9.1% for 2013–2016 (NIS, 2017) at the national level, with a real possibility of increasing in 2018 due to the national strategy of the voucher program. *Mureş County represents a significant component of the national tourism supply* through the existence of a wide range of trip options: medical, spa, dental, business, MICE, adventure, culture, and entertainment (Oltean et al., 2014).

Moreover, the hotel market in Romania is oriented toward efficiency and not toward innovation for short-term strategies (Oltean & Gabor, 2016). Romanian hotel managers do not have an *objective* perception of performance but a *perceptual* one for competitive performance and stakeholder satisfaction (Oltean & Gabor, 2016).

The *purpose* of this paper is to enrich the existing literature by analyzing the impact of QM on Romanian HP based on exhaustive research in Mureş County (42 hotels) using a complex statistical methods including because other methods, i.e., SERVQUAL, are insufficient to identify and measure all determinants of service quality in hospitality (Blešic et al., 2014).

This study provides a substantial contribution to the hospitality management literature because

- it uses hotels in *all types of classification* categories, not only 3-, 4-, and 5-star hotels (Makau et al., 2017a; Al-Sabi et al., 2017; Amin et al., 2017; Rauch et al., 2015; Tari et al. 2010; Claver-Cortés et al., 2007) or *"low-quality"* or *economical* hotels (Bernini & Guizzardi, 2015);
- it jointly analyzes SQM impacts on HP; and
- it tries to fill a gap in the empirical literature through an examination of the Romanian hotel industry.

2. Theoretical Background

2.1. Quality Management

In recent years, many scholars have researched the link between QM and firms, especially HP, taking into consideration many other influential factors, such as *supply chain management* and *supply chain quality* (Zhong et al., 2016).

The implementation of TQM in the hospitality industry started when American hotels implemented QAS and achieved excellence outcomes (Al-Sabi et al., 2017). The concept of "quality in services" appeared in the services field in the second half of the 19thcentury, much later than in other fields of business (Teodorescu, 2009: 413). The *service quality* (SQ) philosophy has gained in importance in recent years (Harrigton & Akehurs, 1996; Lo & Chai, 2012); more and more tourist firms are writing their own quality standards (Cristea, 2009: 452) with the following stages being representative (Oltean and Gabor, 2017):

a) evaluation (measurement) of tourist service quality (Callan & Bowman, 2000; Callan & Kyndt, 2001, Min et al, 2002) through its direct and indirect effects on consumer satisfaction and loyalty (Wilkins et al., 2007:840);
b) consumer satisfaction (Shi & Su, 2007; Brotherton & Wood, 2008:324; Naseem et al., 2011:52) is usually defined as representing the general evaluation of qualities (attributes) of a product or service (Bartikowski & Llosa, 2004) and, in the hospitality industry, depends on certain characteristics of the supplied tourist product (Pizam et al., 1978);
c) total quality management (TQM) is *the best way to obtain customer loyalty and perhaps the only way to develop and acquire a permanent income* (Kotler, 2006), especially, to become ISO-certified in order to have the quality of their services recognized globally (State & Istudor, 2009:423). In Romania, certification is similar to quality control, quality assurance, and total quality control (Teodorescu et al., 2009). At present, a *quality culture*, nationally (Stanciu & Hapenciuc, 2009) and internationally (Lo, 2002; Claver-Cortés et al., 2006), is a reference concept for the permanent increase in the quality of supplied services (Stanciu & Hapenciuc, 2009:486).

2.2. Hotel Performance

Empirically, the term *performance* relates to evaluation of indicators such as profit, costs and market share (Laitinen, 2002; Makau et al. 2017b) and should not be evaluated only through financial indicators (Sink & Tuttle, 1989). Hotels focus more on financial performances than on any other dimension (Haddioui and Jahidi, 2017). Nonfinancial indicators should also be taken into consideration –, i.e., customer satisfaction, employee satisfaction, etc. (Avci et al. 2011:148, Wang & Chen, 2012; Haddioui and Jahidi, 2017). *ISO certification* is associated with improvements in *financial performance* (Claver – Cortés et al., 2007).

Hotel managers have unique objectives and their own methods to measure performance according to which they evaluate the success of their work (Reichel & Haber, 2005:683) so that *HP* can be measured in different ways (Wang & Chen, 2012), including both *objectively* and *perceptually* (Reichel &

Haber, 2005). In the hospitality industry, performance is going to be influenced by other elements, such as variables around the destination (Claver – Cortés et al., 2007). The majority of hotels use traditional *profitability* measures for performance evaluation (Makau et al., 2017).

In the international literature, the evaluation of HP uses three dimensions according to Phillips (Reichel & Haber, 2005:683):

- *efficacy*: occupancy, average daily rate per room, etc.;
- *efficiency*: profit, investment profitability, etc., and
- *adaptability*: successful introduction of some new services/ products and income that is generated by introducing some new services.

Quality can influence *performance* within the hotel industry in two complementary ways (Claver – Cortés et al., 2007): *internally* (increasing efficiency) and *externally* (on customer satisfaction).

3. Research Methodology

The surveyed population consists of 42 hotel units located in Mureş County; the respondents to the questionnaire were the *hotel managers and owners* (Oltean, 2013b). In fact, based on data from the report *"List of tourist welcome structures with ranked accommodation functions"*, presented by the Romanian Ministry of Tourism, in the international literature there are other studies with fewer hotels (Bordean & Borza, 2014; Molina – Azorin et al., 2015; Al-Sabi et al, 2017; Amin et al., 2017, Liu et al., 2018). The time period of the data collection was September-December 2017. Even though this study is extensive, the distribution of hotels from this study is comparable to the national distribution (in fact, it is a *stratified sample* according to the classification category distribution at national level) and reflects the proportion of each hotel classification category in the general population at the national level, according to NIS Romania data shown in Table 1.

	5 stars	4 stars	3 stars	2 stars	1 star	Total
Romania – number (%) (population - N)	35 (2.3)	298 (19.2)	800 (51.6)	359 (23.1)	55 (3.5)	1551
Mures county – number (%) (sample - n)	1 (2.4)	11 (26.2)	22 (52.4)	7 (16.7)	1 (2.4)	42
Net use indices of the tourists' accommodation capacity in use (%)	40.7	36.3	28.5	30.4	21.2	30.5

Table 1. Distribution of classification category of hotels population and sample
Source: own research

Elements surveyed within the research are detailed in Table 4 for *size of implementing quality management in hotels.* In Table 2, we present the studied population (n=42) according to the main characteristics, grouped by both *classification* and *size* category of the hotels (average, standard deviations and p-value). It can be seen that, according to the *classification category* and the *size* of the hotels, there are significant differences (p-value < 0.05) with regard to *manager experience in the hotel (years)*, *manager experience in the tourism field (years)* and the *annual average income (lei million)*. Additionally, according to *hotel size*, there are differences with regard to *annual average expenses (lei million)*.

Our data has been processed by SPSS 17.0 (Statistical Packages for the Social Sciences). Based on the findings from the literature review, several hypotheses were formulated to accomplish the research goal (Table 3).

Variables	N=42	Hotel classification category					p-value for classification	Hotel size			p-value for hotel size
		1* (n=1)	2* (n = 7)	3* (n = 22)	4* (n = 11)	5* (n = 1)		Small (n=15)	Medium (n=23)	Overmedium (n=4)	
Number of accommodation places	89	42	155	58	107	159	.494	-			
Manager experience in the hotel (years)	4.0	3.0	10.0	2.5	3.5	3.0	*.044*	2.5	3.4	14.0	*.000*
Manager experience in tourism field (years)	5.4	3.0	11.4	4.0	3.4	3.0	*.048*	3.5	5.0	15.0	*.000*
The main travel motivation for the hotel customers	B	TZ	T	B	B	B	.384	B	B	T	.480
Annual average income (lei million)	5.9±2.5	2.0	7.4±2.0	3. ±1.5	9.5±2.7	8.0	*.064*	2.5±1.0	6.9±2.5	12.5±1.3	*.001*
Annual average expense (lei million)	4.85±2.3	2.0	5.4±1.4	2.6±1.3	8.4±2.6	14.0	.234	2.0±0.9	5.6±2.4	9.5±1.5	*.024*

Note: small hotels: <25 rooms, medium hotels: 26-99 rooms, over medium hotels: 100–299 hotels; B = business, T = treatment, TZ = transit.

Table 2. Descriptive statistics of hotels included in the study
Source: own research

Hypothesis	Method to tested	Authors how use the same method
H1: There are no statistically significant differences according to the hotel performance indicators referring to variables of quality.	Chi square test	Claver – Cortés et al. 2007; Oltean 2013b
H2: There are no statistically significant differences according to the hotel size referring to variables of quality.		
H3: SQM can be used as a predictor of hotel performance	ROC Curve	Sever 2015, Amin et al. 2017
H4: Exist a limited number of factors how describe service quality management in Romanian hotels	PCA	Al-Sabi et al. 2017; Sánchez and Lopez 2015; Rauch et al. 2015; Oltean 2013a
H5: SQM practice in Romanian hotels will group the hotels according to their classification category and size	Cluster analysis	Claver – Cortés et al. 2007; Tari et al. 2010; Clemes et al. 2011; Oltean 2013a; Bernini and Guizzardi 2015
*H6: HP (*measure to *occupancy of accommodation) depend if the hotel has an QMS in place and operating or it concern for quality*	Regression linear analysis	Tari et al. 2010; Al-Sabi et al. 2017.

Table 3. Research hypotheses and methods used to test
Source: own research

Regarding the statistical methods, we chose to apply the *ROC curve* because it is a powerful diagnostic tool that provides the criteria for optimal categorization of elements in an IPA framework (Sever, 2015); PCA (Al-Sabi et al., 2017; Rauch et al., 2015; Oltean, 2013a) was used to determine the factor structure of variables in describing the size of implementing

quality management in hotels, and *regression analysis* (Al-Sabi et al., 2017; Rauch et al., 2015; Tari et al., 2010) was used to determine which factors of qualitative variables may serve as predictors of hotel performance.

To get the size of QM, hotels managers were asked to describe the importance of variables using a 5-point Likert scale (from 1–*not important* to 5–*very important*) to apply perceptual measures for these elements (Claver-Cortés et al., 2007; Bazazo et al., 2012; Bordean & Borza, 2014).

To measure HP in the study, respondents were asked to mention the efficiency of indicators, using a scale from *very low–below 20%* to *very high–over 80%*, and to indicate the value of income and expenses for the year 2016, using a scale from *below Lei 0.5 million* to *over Lei 15 million*.

4. Research Results

To test the research hypotheses, it is important to show the results of descriptive analysis for variables that form the QM size within the study (Table 4). The reliability of the scale was tested using Cronbach's alpha coefficient. For the Likert scale (Bordean & Borza, 2014), a value of 0.7 or higher is desirable for the instrument to be used.

	Mean	Std. Deviation	Cronbach's alpha
Tangible elements of supplied hotel services show quality (quality 1)	4.07	.778	
A quality management system is implemented within hotel (quality 2)	3.62	1.058	
Implementation of a QMS is in progress within hotel (quality 3)	2.31	1.473	
Product and service quality system is carried out continuously (quality 4)	4.33	.754	
We want to develop the quality of services and products in the future (quality 5)	4.69	.468	
Permanent maintenance of spaces, background and neighbourhood is carried out (quality 6)	4.24	.692	0.756
A constant encouraging as regards improvement of all services (quality 7)	4.40	.627	
Responsibilities and obligations of employees contribute to creation of QS (quality 8)	4.33	.612	
Verification of customer satisfaction level concerning quality of supplied services by means of questionnaires during accommodation in hotel unit (quality 9)	4.24	.983	
Development of own system for complaints and suggestions (quality 10)	3.88	.889	

Table 4. Descriptive statistics for qualitative items
Source: own research

To test *H1*and *H2*, we used a *Chi-square test*; Table A from the *Appendices* shows only the statistically significant results for p-value < 0.05.

Because all of the quality variables were statistically significant based on hotel classification category, we test the *H3 research hypothesis with ROC curve*, the SPSS results are presented in Table B (from Appendices) and figures 1a–d. The cut-off for the HP indicators was 3, which indicated the average value.

From the results presented in Table C (from *Appendices*), we conclude that

- the *occupancy of accommodation* is a performance indicator for hotels whose *QMS is in progress within the hotel* (figure 1a);
- the *market share* is a performance indicator either for the hotels where *QMS is in progress within the hotel* or for those that are *continually concerned about the quality level and ongoing customer satisfaction* (figure 1b);
- the *turnover from accommodations services* is a performance indicator both for hotels with *QMS in progress* and those where it is *carried out continuously* (figure 1c);
- the *size of the hotels* is important for hotels with *QMS in progress*, for *hotels with permanently preoccupation for quality assurance*, for the *hotels that already have implemented a QMS*, and for *hotels that / want to develop service and product quality in the future* (figure 1d).

For testing the research hypotheses H4 – H6 we used:

- PCA (H4) to reduce the 10 qualitative variables to allow the linear regression equation to achieve solution without substantial loss of information (Sánchez & López, 2015);
- *cluster analysis* (H5) to group all 42 hotels according to their classification and size based on the two factors resulting from PCA;
- *regression linear analysis* (H6) to reveal how each independent variable affects the dependent variables *occupancy rate of accommodation*.

We ran the PCA and obtained two new variables, which explained 67.873%, and from total variance explained of all nine qualitative variables (Table C from *Appendices*).

Additionally, the results of the KMO test (the value is equal to 0.652 and is more than 0.5) and Bartlett's test of sphericity (see the results in Table D from *Appendices*) indicate that all 9 qualitative variables are not correlated within all 42 hotels in the study.

From the results of Table E from *Appendices*, all nine variables were grouped in 2 new variables (PC) so we will name these new variables according to the variables they form:

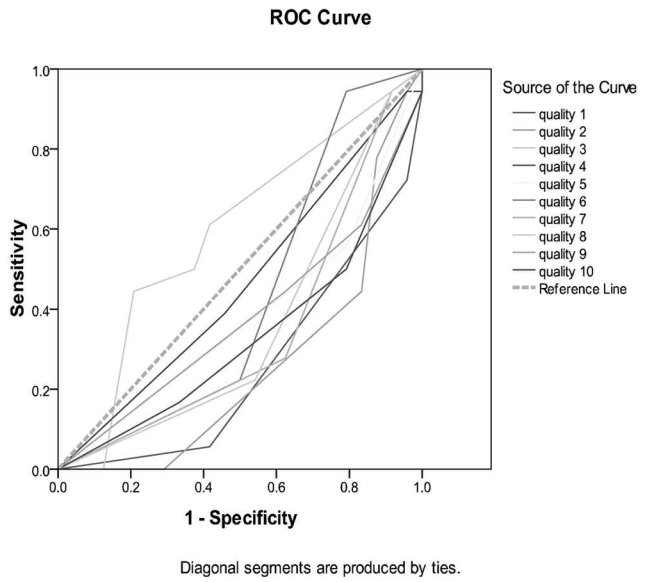
- PC 1 – *QMS in place and operating* explains 36.26% of the total variance explained by all variables;
- PC 2 – *The concern for quality* explains 31.613% of the total variance explained by all variables.

For the present research, it is important to group the 42 hotels based on the two PCs, taking into consideration both the hotel classification category and the hotel size we will apply the cluster analysis. To decide the number for each group, we first applied hierarchical cluster analysis and then k-means cluster analysis (Table F from *Appendices*).

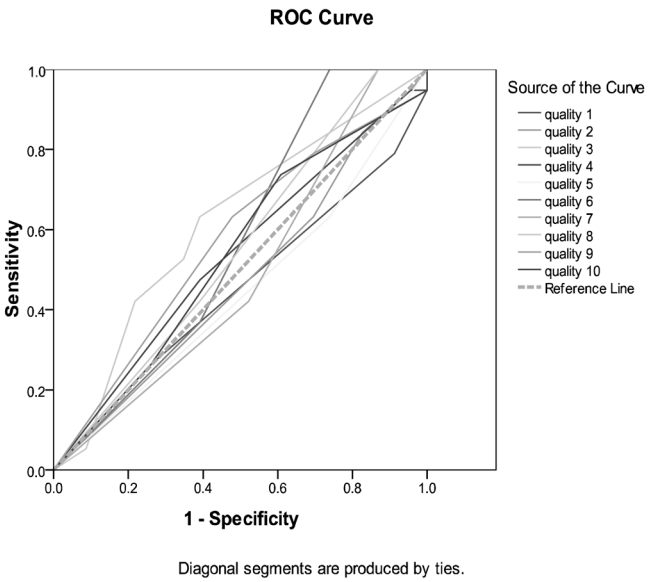
From Table F and in figures 2 - 3, we can conclude that 4 clusters result:

- *Cluster 1* grouping is only one hotel; a hotel classified with 1 star and, in fact, the only hotel of this category in the that means that this hotel neither has QMS implemented nor a concern to do so.
- *Cluster 2 is opposite of the cluster 1*; it grouping of 9 hotels (1 hotel classified as 2 stars and 8 classified as 3 stars).
- *Cluster 3* means that these hotels have implemented a proper quality system and grouping is 18 hotels: 6 *2-star hotels*, 6 *3-star* hotels, 5 *4-star hotels* and the single *5-star hotel* from the study.
- *Cluster 4* is a group of 14 hotels, only from 3-star and 4-star categories (8 *3-star hotels* and 6 *4-star hotels*). This cluster is the opposite of cluster 3 and these hotels want to implement, in the future, a proper quality system to increase the performance of the hotel.

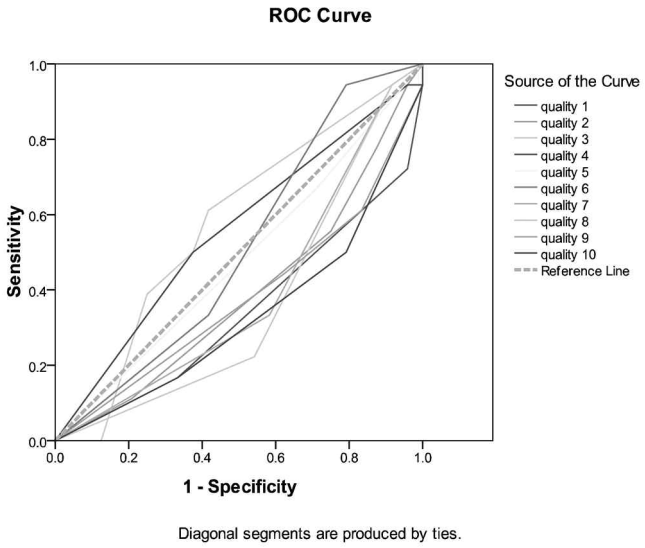
We applied *regression linear analysis* to identify a model of Mureș County hotel performance based on the new variables,



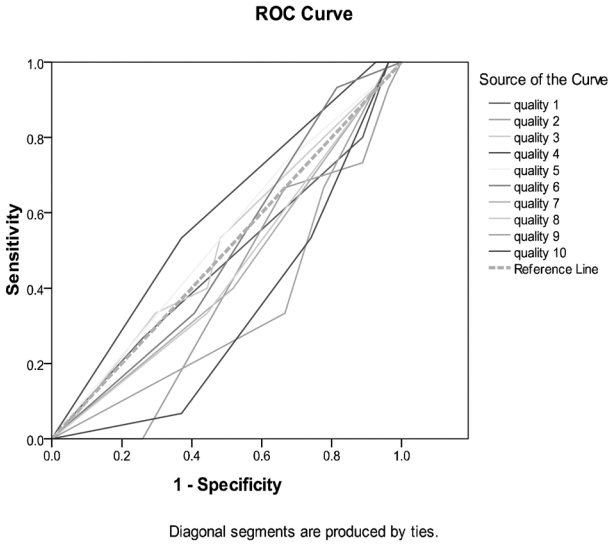
1a. For average occupancy of accommodation



1b. For average market share

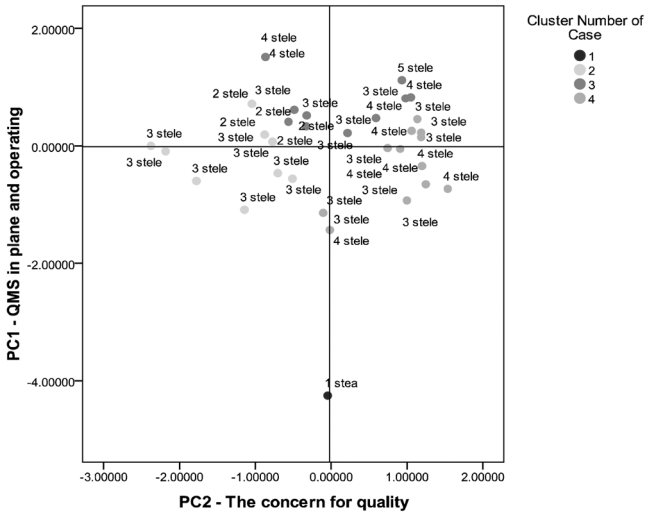


1c. For average turnover for accommodations services



1d. For average hotel size

Figure 1a-d. The ROC Curve charts
Source: own research



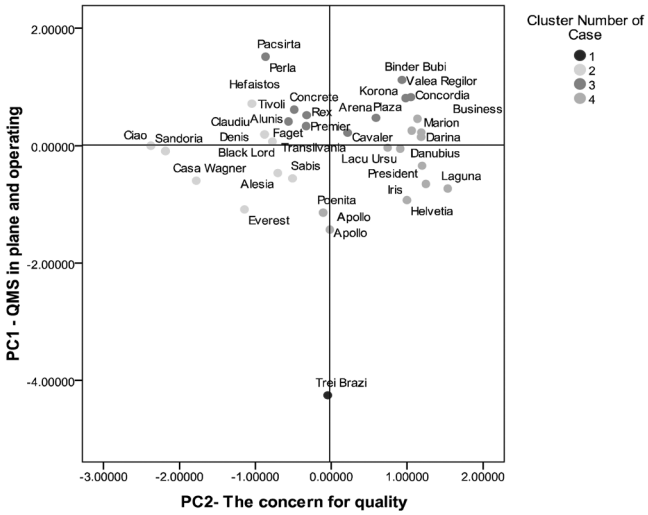


Figure 2 -3. Distribution of the hotels according to the classification (2) and on the PC (3)
Source: own research

respectively PC1 and PC2 with the *Enter* method and the option in *the case of missing data we used the LISWISE method* (Table G and Table H from Appendices).

The value of R^2 statistic shows a low goodness of fit (24.8%); the value 0.248 show us that 24.8% of total variance on the dependent variable *occupancy rate of accommodation* is explained by the independent variables, PC1 – *QMS in place and operating* and PC2 – *The concern for the quality*, with the regression analysis providing significant support (Figure A and Figure B from *Appendices*).

Table G from *Appendices* illustrates the regression coefficients calculated (including the standardized Beta coefficient), as well as the results of their significance tests.

It is therefore noted that both independent variables have a significant effect (at least at significance level of 95%) on *occupancy rate of accommodation*. Because these independent variables explain only a small percentage of total variance (24.8%), this result confirms that the performance of the hotels is related to other important variables, i.e., service diversification of hotels (Oltean & Gabor, 2016). The equation from this study is: *Occupancy rate of accommodation = 3.595 + 0.302 PC1 - QMS in place and operating + 0.233 PC2 – The concern for quality*

From the above model, we can conclude that those *hotels that have an implemented and functional QMS have an occupancy rate of accommodation* of 0.302 units higher than the occupancy rate of those that do not have one or are in progress. Also, we conclude that by increasing 1 unit (on the Likert scale, that is, increasing the degree of importance given by the respondent to this aspect), the concerns of hotels considering the quality offered to customers (both for accommodation and services, food and other services offered) increases, by 0.233 units on average, the occupancy rate of accommodation of these hotels above the average of this variable.

5. Conclusions

Hotels in Mureș County have not developed a QMS that helps them get economic results and a competitive advantage. While foreign studies show strong relationships between the QM size and HP, our research shows weak relationships.

Concerning the research results, we observe that QM in Romanian hotels influences to a certain extent hotel performance. Our results partly confirm for Romanian hotels the results at the international level, that the *star rating is the primary source of efficiency bias, while size has a minor impact* (Bernini & Guizzardi, 2015), and it is not a key factor (*size*) for certification (Tari & Pereira-Moliner, 2012; Pereira-Moliner & Tari, 2015). However, the *number of stars* and *size of hotel* could influence the relationship between QM and operational and financial performance of the hotels (Tari et al., 2014). The relation between *quality certification* and size is important only in hotel chains; chains with certified hotels achieve better performance (Pereira-Moliner &Tari, 2015). *Quality certification* leads to positive benefits for many hotels (Tari et al., 2014), and the *implementation of quality systems* provide internal and external benefits for hotels (Tari &Pereira – Moliner, 2012); the TQM commitment increases when the size and stars increase (Claver – Cortés et al., 2007).

Regarding the *positive effect of QM on HP*, our results partly confirm some international results (Arbelo-Perez et al, 2017; Benavides-Velasco et al., 2014; Wang & Chen, 2012; Tari et al., 2010; Wang &Chen, 2010); they also *confirm* other results from international studies, i.e., from Jordania, where Bazazo et al. (2017) show that *TQM has not had a significant impact on hotel performance*, or from the UK, where Harrington and Akehurs (1996) show that *firms that have adopted quality policies do not exhibit exceptional performance in financial and competitive terms*. Even though a large number of hotels have clustered around PC2 (*The concern for quality*), the results of this study confirm the results of Tari et al. (2010), namely, *the commitment to quality and environmental practices influences HP*. In conclusion, our study confirms international results, particularly that the QMS (close to environmental management) may influence firm performance partly (Claver – Cortés et al., 2007).

Quality certification has positive effects on *some performance variables* (Pereira-Moliner &Tari, 2015), with QM level being one factor among others that explain better performance levels in hotels (Tari et al., 2017), and it helps companies to improve efficiency and performance (Pertusa-Ortega et al., 2013). Regarding the *research hypothesis H5*, our results confirm the international results (Pertusa-Ortega et al., 2013).The Romanian hotels were grouped in four different clusters.

In conclusion, in Romania, SQ remains a critical variable that influences a guest's decision to return or recommend a hotel to others (Rauch et al, 2015), increases return likelihood and encourages generation of positive recommendations (Guchait et al., 2012:12), even if the guest does not decide to stay in one particular hotel because of its commitment to TQM (Claver – Cortés et al., 2007).

The empirical literature that presents the relation between QM and performance uses different variables that express quality and report mixed results (Tari et al., 2010, p. 501). There are also many variables that influence hotel performance, i.e., *non environmental innovation practice* with a positive impact on performance (Tugores & Garcia, 2015); *other environmental factors* (Tari et al., 2010), such as seasonality (Bernini and Guizzardi, 2015); external factors (Wang & Chen, 2011); CSR (Benavides-Velasco et al., 2014); market orientation (Wang & Chen, 2012); *e-marketing* (Bazazo et al, 2017); and the ability to generate a sustainable competitive advantages for Romanian hotels or to establish a competitive advantage (Guchait et al., 2012:12). QM or TQM in Romania can enhance the development of CSR (Benavides-Velasco et al., 2014) as well as improve the HP.

For stakeholders of the Romanian hospitality industry, these results show *the possibility of designing management strategies to improve* the quality of hotel service (Blešic et al., 2014), to *increase the value of their services* to achieve sustainable competitive advantages (Arbelo-Perez et al., 2017) and to show that the *role of quality is crucial in order to improve performance indicators* (Deming, 1982; Juran, 1988). In the competitive market environment, *quality is considered the basic consuming condition* (Wang & Chen, 2012), but the Romanian hotels may have different choices regarding the TQM: *high TQM adopters* or *low TQM adopters* (Haddioui & Jahidi, 2017).

Additionally, the presence in the Romanian hotel of IT&C and high-tech equipment (Oltean et al., 2014) does not absolutely guarantee service quality and regular income (Kryukova & Sokolova, 2014); other researchers show global paths through with IT&C can impact hotel performance (Melian-Gonzales & Bulchand-Giduma, 2016).

The limits of this study consist of the following:

- all hotel classification categories were included in the study, although those under the 3-star category are rarely implemented TQM (Rauch et al., 2015);
- only the managers were interviewed (not other categories of employees),and usually managersranked quality service dimensions higher than other participant groups (Oubrel & Brown, 2009);
- no database providing time seriesabout the variables measured in this study was available (Claver – Cortés et al., 2007) for the Romanian hotel industry;

This study only approached the relationship between *SQM* and *HP*, but for further research, we would like to expand the analysis for a sample of hotels across the country including in the study either:

- new variables: *employee satisfaction* (Amin et al., 2017), *revenue management system* (Ortega, 2016), etc., or

- new methods for analysis: *Rust and Oliver's three-dimensional model* (Rauch et al., 2015), *SEM* (Bazazo et al, 2017), and *stochastic frontier methodology* (Assaf &Tsionas, 2018; Arbelo-Perez et al., 2017).

Based on these results, we can conclude that in Romania, *organizations attempting to ignore environmental factors, placing themselves at a competitive disadvantage* (Wang & Chen, 2012), do not have the ability to make the environmental forecasts (Milliken, 1987), and hotels thus satisfy customer needs not only through continuous improvement but also through process management in preventing problems from recurring (Wang & Chen, 2012). Additionally, the results of our study confirm that in *developing countries*, *the biggest issue is the implementing of TQM* (Alsughayir, 2016), including human resources management barriers (Contiu et al., 2012), managerial barriers, and the importance for the Romanian *managers to understand the need for finding different ways to implement SQM effectively and that it helps to increase the HP* (Al-Sabi et al., 2017).

The Romanian hotel managers must think about strategies on a long-term basis, not short-term, because *long-term survival for a hotel in an increasingly competitive environment depends on its capacity to satisfy customer demands efficiently and effectively* (Bazazo et al., 2012). Additionally, at the Romanian macroeconomic level, stakeholders must consider t*he hotel industry as an important source of foreign exchange* (Bazazo et al., 2012).

Acknowledgments

Supported by the grant No. 292/3 of the "George Emil Palade" University of Medicine, Pharmacy, Sciences and Technology of Targu Mures.

References

[1] Al-Sabi, S., Al-Ababneh, M., Habiballah, M., & Masadeh, M. (2017). The Impact of Total Quality Management Implementation on Employees Service Recovery Performance in Five-Star Hotels in Jordan. *European Journal of Business and Management*, 9(11), 135-151.

[2] Alsughayir, A. (2016). Regulatory Role of TQM between the Marketing Orientation, Entrepreneurial Orientation and the Organizational Performance and Competitiveness. *American Journal of Industrial and Business Management*, 6, 655-664. http://dx.doi.org/10.4236/ajibm.2016.65061.

[3] Amin, M., Aldakhil, A. M., Wu, C., Rezaei, S., & Cobanoglu, C. (2017). The structural relationship between TQM, employee satisfaction and hotel performance. *International Journal of Contemporary Hospitality Management*, 29(4), 1256-1278. https://doi.org/10.1108/IJCHM-11-2015-0659.

[4] Arbelo-Pérez, M., Arbelo, A., & Pérez-Gomez, P. (2017). Impact of quality on estimations of hotel efficiency. *Tourism Management*, 61, 200-208. DOI: 10.1016/j.tourman.2017.02.011

[5] Assaf, A. G., & Tsionas, M., (2018). Measuring hotel performance: Toward more rigorous evidence in both scope and methods. *Tourism Management*, 69, 69-87, https://doi.org/10.1016/j.tourman.2018.05.008.

[6] Avci, U., Madanoglu, M., & Okumus F. (2011). Strategic orientation and performance of tourism firms: Evidence from a developing country. *Tourism Management*, 32(1), 147-157. https://doi.org/10.1016/j.tourman.2010.01.017

[7] Bartikowski, B., & Liosa, S. (2004). Customer satisfaction measurement: comparing four methods of attribute categorizations. *The Service Industries Journal*, 24(4), 67-82.

[8] Bazazo, I., Alansari, I. S. Z., Alquraan, H., & Masa'deh, R. (2017), "The Influence of Total Quality Management, Market Orientation and E-Marketing on Hotel Performance", *International Journal of Business Administration*, 8(4), 79-99. https://doi.org/10.5430/ijba.v8n4p79.

[9] Benavides-Velasco, C.A., Quintana-García, C., & Marchante-Lara, M. (2014). Total quality management, corporate social responsibility and performance in the hotel industry. *International Journal of Hospitality Management*, 41, 77-87. https://doi.org/10.1016/j.ijhm.2014.05.003.

[10] Bernini, C., & Guizzardi, A. (2015). Improving performance measurement and benchmarking in the accommodation sector. *International Journal of Contemporary Hospitality Management*, 27(5), 980-1002. https://doi.org/10.1108/IJCHM-12-2013-0549.

[11] Blešić, I., Popov-Raljić, J., Uravić, L., Pantelić, M., & Armenski, T. (2014), "An importance-performance analysis of service quality in spa hotels", *Economic Research-Ekonomska Istrazivanja*, 27(1), 483-495. https://doi.org/10.1080/1331677X.2014.967537.

[12] Bordean, O.N., & Borza, A. (2014). Strategic management practice within the Romanian hotel industry. *Amfiteatru Economic*, 16(8), 1238-1252.

[13] Brotherton, B., & Wood, R.C. (2008). *The SAGE Handbook of Hospitality Management*. SAGE Publication, London.

[14] Butnaru, G. I. (2009). The quality of services in tourism and the Romanian accommodation system. *Analele ştiinţifice ale Universităţii Al. I. Cuza din Iaşi. Ştiinţe Economice*, 56, 252-269.

[15] Callan, R. J., & Bauman, L. (2000). Selecting a hotel and determining salient quality attributes: A preliminary study of mature British travellers. *International Journal of Tourism Research*, 2(2), 97-118. DOI: 10.1002/(SICI)1522-1970(200003/04)2:23.3.CO;2-T.

[16] Callan, R. J., & Kyndt, G. (2001). Business travellers' perception of service quality: A prefatory study of two European city centre hotels. *International Journal of Tourism Research*, 3(4), 313-323. DOI: 10.1002/jtr.333.

[17] Claver-Cortés, E., Tarı´, J.J., &Pereira-Moliner, J. (2006). Does quality impact on hotel performance? *International Journal of Contemporary Hospitality Management*, 18(4), 350-358. https://doi.org/10.1108/09596110610665357.

[18] Claver-Cortés, E., Molina-Azorín, J.F., Pereira-Moliner, J., & Tari, J.J. (2007). Quality management, environmental management and firm performance in the Spanish hotel industry. In: *Proceedings of ESADE*, Alicante, 1-15. http://hdl.handle.net/10045/27961.

[19] Clemes, M. D., Gan, C., & Ren, M. (2011). Synthesizing the Effects of Service Quality, Value, and Customer Satisfaction on Behavioral Intentions in the Motel Industry. An Empirical Analysis. *Journal of Hospitality & Tourism Research*, 35(4), 530-568. https://doi.org/10.1177/1096348010382239.

[20] Conţiu, L.C., Gabor, M.R., Oltean, F.D. (2012). Employees' motivation from a cultural perspective – a key element of the hospitality industry competitiveness. *Procedia Economics and Finance*, 3, 981-986.

[21] Cristea, A.A. (2009). The reassessment of the service quality system within the Romanian hotel industry – a premise for increasing the competition of the tourist offer. *Amfiteatru Economic*, 9(26), 451-461.

[22] Deming, W.E.(1982). Quality, Productivity and competitive Position. MIT Center for Advanced Engineering, Cambridge.

[23] Fleşeriu, A., (2011). *Management Hotelier* (*Hotel management*). Risoprint, Cluj-Napoca.

[24] Garvin, J. (1998). Managing with Total Quality Management-Theory and Practice. *International Journal of Manpower*, 19(5), 358-360. https://doi.org/10.1108/ijm.1998.19.5.358.1.

[25] Guchait, P., Kim, M.G., & Namasivayam, K. (2012). Error management at different organizational levels-frontline, manager, and company. *International Journal of Hospitality Management*, 31(1), 12-22. https://doi.org/10.1016/j.ijhm.2011.04.007.

[26] Haddioui, I., & Jahidi, R. (2016). Total quality management and hotel performance, review of empirical investigations. *International Journal of Economics & Strategic Management of Business Process*, 8(1), 97-102.

[27] Harrington, D., & Akehurs, G. (1996). Service quality and business performance in the UK hotel industry. *International Journal of Hospitality Management*, 15(3), 1-7.

[28] Ineson E. M., & Berechet, G. (2011). Employee loyalty in hotels: Romanian experience. *Journal of human resources in hospitality & tourism*, 10(2), 129-149. 10.1080/15332845.2011.536694.

[29] Juran, J.M. (1988). *On Planning for Quality*. Collier Macmillan, London:

[30] Kotler, P. (2006). *Managementul Marketingului* (*Marketing management*). (4th ed.). Theora, Bucharest.

[31] Kryukova, E.M., & Sokolova, A.P. (2014). Assessment of efficiency of the hotel management by a Russian company. *World Applied Sciences Journal*, 30(30), 51-54. DOI: 10.5829/idosi.wasj.2014.30.mett.25.

[32] Laitinen, E. (2002). A dynamic performance measurement system: evidence from small Finnish technology companies. *Scandinavian Journal of Management*, 18(1), 65-99. https://doi.org/10.1016/S0956-5221(00)00021-X.

[33] Liu, H., Tsai, H., & Wu, J. (2018). Regional hotel performance and benchmarking in the Pearl River Delta: An input and output efficiency analysis. *International Journal of Contemporary Hospitality Management*, 30(2), 855-873. https://doi.org/10.1108/IJCHM-05-2016-0270.

[34] Lo, Q-Q., Chai, & K-H. (2012). Quantitative analysis of quality management literature published in total quality management and

business excellence (1996-2010). *Total quality management and business excellence*, 23(6), 629-651. https://doi.org/10.1080/14783363.2012.669553.
[35] Lo., T. Y. (2002). Quality culture: a product of motivation within organization. *Managerial Auditing Journal*, 17(5), 272-276. https://doi.org/10.1108/02686900210429704.
[36] Makau, S., Lagat, C., & Bonuke, R. (2017a). "The role of information quality on the performance of hotel industry in Kenya. *European Scientific Journal*, 13(20), 169-184, doi: 10.19044/esj.2017.v13n20p169.
[37] Makau, S., Lagat, C., & Bonuke, R. (2017b). Information quality, information systems support capability and performance of hotels in Nairobi, Kenya. *European Scientific Journal*, 13(23), 275-301, doi: 10.19044/esj.2017.v13n23p275.
[38] Mazarel, A., Canja, C., M., Cismaru,L., Lupu, M.I., & Padureanu, V. (2016). The impact of the requirements of ISO 9001: certification systems by 2015 on the quality management in the hospitality industry from Romania. In: *SGEM 2016 Conference Proceedings*, 757-764. DOI: 10.5593/SGEMSOCIAL2016/B24/S07.099
[39] Melián - González, M., & Bulchand - Gidumal, J. (2016). A model that connects information technology and hotel performance. *Tourism Management*, 53, 30-37. https://doi.org/10.1016/j.tourman.2015.09.005.
[40] Milliken, F. (1987). Three types of perceived uncertainty about the environment: state, effect, and response uncertainly. *Academy of Management Review*, 12, 133-143.
[41] Min, H., Min, H., & Emam, A. (2002). A data mining approach to developing the profiles of hotel customers. *International Journal of Contemporary Hospitality Management*, 14, 274-285. 10.1108/09596110210436814.
[42] Molina-Azorín, J.F., Tarí, J. J., Pereira-Moliner, J., López-Gamero, M. D., & Pertusa-Ortega, E., M. (2015). The effects of quality and environmental management on competitive advantage: A mixed methods study in the hotel industry. T*ourism Management*, 50, 41-54. https://doi.org/10.1016/j.tourman.2015.01.008.
[43] Naseem, A., Ejas, S., & Malik, K.P. (2011). Improvement of Hotel Service Quality: An Empirical Research in Pakistan. *International Journal of Multidisciplinary Sciences and Engineering*, 2(5), 52-56.
[44] National Institute of Statistic (2017). *Romanian tourism statistical abstract*. INS, Bucharest.
[45] Neacșu, N., Baron, P., Snak, O., & Neacșu, M. (2011). *Geografia și Economia Turismului* (*Geography and economy of tourism*). Pro Universitaria, Bucharest.
[46] O'Cass, A., & Sok, P. (2015). An exploratory study into managing value creation in tourism service firms: Understanding value creation phases at the intersection of the tourism service firm and their customers. *Tourism Management*, 51, 186–200. https://doi.org/10.1016/j.tourman.2015.05.024.
[47] O' Fallon, M.J., & Rutherfort, D.G. (2011). *Hotel Management and Operation*. (5th ed.). John Wiley & Sons, Hoboken.
[48] Oltean, F.D. (2013a). An empirical research regarding information technology in hospitality industry: a case study from Mures county. *Journal of knowledge management, economics and information technology*, 3(6), 1-15.
[49] Oltean, F.D. (2013b). Services strategy and hotel performance: evidence from Mures county. *Acta Universitates Danubius*. *Oeconomica*, 9(6), 69-81.
[50] Oltean, F.D. (2013c). An exploratory research regarding customer orientation and performance in hospitality industry. *Annals of the Constantin Brancusi University of Tirgu Jiu. Economy Series*, 4, 77-84.
[51] Oltean, F.D., Gabor, M.R., & Conțiu, L.C. (2014). Relation between information technology and performance: an empirical study concerning the hotel industry in Mures county. *Procedia Economics and Finance*, 15, 1535-1542. https://doi.org/10.1016/S2212-5671(14)00622-4.
[52] Oltean, F.D., & Gabor, M.R. (2016). Service diversification – a qualitative and quantitative analysis in Mures county. *Inzinerine Ekonomika – Engineering Economics*, 27 (5), 618-628. DOI: 10.5755/j01.ee.27.5.14153.
[53] Oltean, F.D., & Gabor, M.R. (2017). Quality management and firm performance in the hotel industry: evidence from Mures county. *North Economic Review*, 1(1), 95-103.
[54] Pereira-Moliner, J., & Tarí, J. J. (2015). Quality Certification, Performance and Size in Hotel Chains. *Tourism Economics*, 21(2), 307 – 324. https://doi.org/10.5367/te.2013.0352.
[55] Pertusa-Ortega, E. M., Tarí, J.J., Pereira-Moliner, J., & Gamero, D. L. (2013). Quality certification, firm performance and organizational structure in Spanish hotel industry. *Intangible Capital*, 9(1), DOI: 10.3926/ic.400.
[57] Rauch, D.A., Collins, M.D., Nale, R.D., & Barr, P.B. (2015). Measuring service quality in mid-scale hotels. *International Journal of Contemporary Hospitality Management*, 27(1), 87-106. https://doi.org/10.1108/IJCHM-06-2013-0254.
[58] Reed, R., Lemak, D.J., & Montgomery, J.C. (1996). Beyond process: TQM content and firm performance. *Academy of Management Review*, 21(1), 172–202.
[59] Rust, R.T., Keiningham, T.L., Clemens, S., & Zahorik, A.J. (1999). Return on quality at Chase Manhattan Bank. *Interfaces*, 29(2), 62-72.
[60] Pizam, A., Neuman, Y., & Reichel, A. (1978). Dimension of tourist satisfaction with a destination area. *Annals of Tourism Research*, 5(3), 314-322.
[61] Reichel, A., & Haber, S. (2005). A three-sector comparison of the business performance of small tourism enterprises: an exploratory study. *Tourism Management*, 26(5), 681-690. https://doi.org/10.1016/j.tourman.2004.03.017.
[62] Sánchez, A., & Lopéz, D. (2015). Tourism destination competitiveness: The Spanish Mediterranean case. *Tourism Economics*, 21(6), 1235-1254.
[63] Sever, I., (2015). Importance-performance analysis: A valid management tool? *Tourism Management*, 48, 43-53. DOI: 10.5367/te.2014.0405.
[64] Shi, J-H., & Su, Q. (2007)."Evaluation of Hotel Service Quality Based on Customer Satisfaction. In: *International Conference on Service Systems and Service Management* 1-5. Chengdu: IEEE. 10.1109/ICSSSM.2007.4280099.
[65] Sink, D.S., & Tuttle, T.C. (1989). *Planning and Measurement in Your Organization of the Future*. Norcros: IE Press.
[66] Stanciu, P., & Hapenciuc, V. (2009). Reliability and flexibility in the quality management of tourism products. *Amfiteatru Economic*, 9(26), 482-494.
[67] Stanciu, P., Hapenciuc, V., Morosan, A.A., & Arionesei, G. (2014). The consistency and the quality of tourism services in guesthouses from Vama and Pojorita area. *Journal of tourism – studies and research in tourism*, 18, 83-89.
[68] State, O., & Istudor, N. (2009). The survey of the service quality. Application to a hotel using the SERVQUAL model. *Amfiteatru Economic*, 9(26), 416-429.
[69] Tari, J.J., Claver-Cortés, E., Pereira-Moliner, J., & Molina-Azorin, J.F. (2010). Levels of quality and environmental management in the hotel industry: Their joint influence on firm performance. *International Journal of Hospitality Management*, 29(3), 500-510. https://doi.org/10.1016/j.ijhm.2009.10.029.
[70] Tarí, J.J., Pereira-Moliner, J., Pertusa-Ortega, E. M., & Molina-Azorin, J. F. (2017). Does quality management improve performance or vice versa? Evidence from the hotel industry. *Service Business*, 11(1), 22-43. https://doi.org/10.1007/s11628-015-0298-6.
[71] Tarí, J.J., Molina-Azorin, J. F., Pereira-Moliner, J., & Pertusa-Ortega, E. M. (2014). Quality Management and Performance in the Hotel Industry: A Literature Review. In: Peris-Ortiz M., & Álvarez-García J. (Eds), *Action-Based Quality Management*, 1-12. Cham: Springer. https://doi.org/10.1007/978-3-319-06453-6_1.
[72] Tarí, J.J., & Pereira-Moliner, J. (2012). Quality and performance. An analysis of the Q certificate in hotel chains. *Universia Business Review*, 34(34), 52-67.
[73] Teodorescu, N., Stancioiu, A.I., & Mitu, A. (2009)."Considerations regarding quality management in services as a instrument for increasing customers' satisfactions in tourism product. *Amfiteatru Economic*, 11(26), 412-418.
[74] Tugores, M., & García, D. (2015)."The impact of innovation on firms' performance: An analysis of the hotel sector in Majorca. *Tourism Economics*, 21(1), 121-140. DOI: 10.5367/te.2014.0440.
[75] Vallen, G.K., & Vallen, J.J. (2012). *Check-in, Check-out: managing Hotel Operations*. (9th ed.), New Jersey: Prentice Hall.
[76] Walton, J. K. (2009). Prospects in tourism history: evolution, state or play and future developments. *Tourism Management*, 30(6), 783-793. https://doi.org/10.1016/j.tourman.2009.05.010.
[77] Wang, C-H., Chen, K-Y., & Chen, S-C. (2012). Total quality management, market orientation and hotel performance: The moderating effects of external environmental factors. *International Journal of Hospitality Management*, 31(1), 119-129. https://doi.org/10.1016/j.ijhm.2011.03.013.
[78] Wang, C-H., & Chen, S-C. (2011). The Effect of the link Total Quality Management and Market orientation On Hotel performance. In: *Proceedings of 2010 International Conference on Business and Economics Research*, 272-276. Kuala Lampur: IACSIT Press.
[79] Wilkins, H., Merrilees, B., & Herington, C. (2007). Towards an understanding of total service quality in hotels. *International Journal of Hospitality Management*, 26(4), 840-853. https://doi.org/10.1016/j.ijhm.2006.07.006.
[80] Zhong, J., Ma, Y., Tu, Y., & Li, X. (2016). Supply chain quality management: an empirical study. *International Journal of Contemporary Hospitality Management*, 28(11), 2446-2472. https://doi.org/10.1108/IJCHM-03-2015-0110.

APPENDIX

Table A. **The results for the Chi-square test**

No.	Hypothesis	Person Chi-square	df	Asymp. Sig. (2-sided)	Theoretical value of chi-square	Conclusion
A. There are no statistically significant differences according to the ***hotel classification category***, referring to:						
1	Tangible elements of supplied hotel services show quality	55.13[a]	12	.000	32.91	H_0 rejected
2	A quality management system is implemented within hotel	40.92[a]	16	.001	39.29	H_0 rejected
3	Implementation of a QMS is in progress within hotel	26.21[a]	16	.051	26.30	H_0 accepted
4	Product and service quality system is carried out continuously	51.45[a]	12	.000	32.91	H_0 rejected
5	Permanent maintenance of spaces, background and neighborhood is carried out	17.92[a]	8	.022	18.17	H_0 accepted
6	A constant encouraging as regards improvement of all services	20.58[a]	8	.008	20.09	H_0 rejected
7	Verification of customer satisfaction level concerning quality of supplied services by means of questionnaires during accommodation in hotel unit	52.30[a]	12	.000	32.91	H_0 rejected
8	Development of own system for complaints and suggestions	60.70[a]	12	.000	32.91	H_0 rejected
B. There are no statistically significant differences according to the ***occupancy of accommodations***, referring to:						
1	Tangible elements of supplied hotel services show quality	19.09[a]	9	.024	19.68	H_0 accepted
2	Implementation of a QMS is in progress within hotel	22.98[a]	12	.028	24.05	H_0 accepted
3	Product and service quality system is carried out continuously	25.05[a]	9	.003	27.88	H_0 accepted
4	Permanent maintenance of spaces, background and neighborhood is carried out	12.82[a]	6	.046	12.59	H_0 rejected
5	A constant encouraging as regards improvement of all services	12.82[a]	6	.046	12.59	H_0 rejected
C. There are no statistically significant differences according to the ***turnover for accommodation services,*** referring to:						
1	Product and service quality system is carried out continuously	23.83[a]	9	.005	27.88	H_0 accepted
2	A constant encouraging as regards improvement of all services	13.19[a]	6	.040	12.59	H_0 rejected
D. There are no statistically significant differences according to the ***turnover for other services,*** referring to:						
1	Implementation of a QMS is in progress within hotel	44.94[a]	12	.000	32.91	H_0 rejected
2	Product and service quality system is carried out continuously	44.94[a]	12	.000	32.91	H_0 rejected
E. There are no statistically significant differences according to the ***income,*** referring to:						
1	Product and service quality system is carried out continuously	53.05[a]	21	.000	46.8	H_0 rejected
2	Permanent maintenance of spaces, background and neighborhood is carried out	30.49[a]	14	.007	29.14	H_0 rejected
F. There are no statistically significant differences according to the ***market share,*** referring to:						
1	Permanent maintenance of spaces, background and neighborhood is carried out	17.70[a]	8	.024	18.17	H_0 accepted
G. There are no statistically significant differences according to the ***expenditure,*** referring to:						
1	Product and service quality system is carried out continuously	46.07[a]	21	.001	46.8	H_0 accepted

Table B. **Results for ROC Curve**

Test Result Variables(s)	Area under the Curve for 95% confidence interval			
	Occupancy of accommodation	*Market share*	*Turnover from accommodations services*	*The size of the hotel*
Quality 1	.257	.453	.340	.474
Quality 2	.258	.475	.388	.389
Quality 3	**.590**	**.617**	**.573**	**.516**
Quality 4	.462	**.535**	**.554**	**.599**
Quality 5	.382	.446	.479	**.533**
Quality 6	.428	**.571**	**.512**	**.505**
Quality 7	.346	.487	.391	.447
Quality 8	.360	**.553**	.360	.451
Quality 9	.378	**.570**	.378	.358
Quality 10	.331	**.538**	.331	.331

Table C. **Total Variance Explained**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.520	50.226	50.226	4.520	50.226	50.226	3.263	**36.260**	36.260
2	1.588	17.647	67.873	1.588	17.647	67.873	2.845	**31.613**	**67.873**
3	.906	10.070	77.943						
.....	.....	.....	.....						
9	.081	.900	100.000						

Extraction Method: Principal Component Analysis

Table D. **KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.652
Bartlett's Test of Sphericity	Approx. Chi-Square	254.387
	df	36
	Sig.	.000

Table E. **Rotated Component Matrix[a]**

		Component	
		1	2
QMS in place and operating	Quality 1	.836	
	Quality 10	.835	
	Quality 2	.833	
	Quality 9	.802	
	Quality 4	.580	
The concern for quality	Quality 6		.925
	Quality 7		.873
	Quality 8		.829
	Quality 5		.479

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization
a. Rotation converged in 3 iterations

Table F. **The results of cluster analysis – final cluster centers and ANOVA**

	Cluster				Cluster		Error			
	1	2	3	4	Mean Square	df	Mean Square	df	F	Sig.
QMS in place and operating	-4.25299	-.20230	.70316	-.47022	10.151	3	.278	38	36.567	.000
The concern for quality	-.04588	-1.26604	-.03435	.86133	8.278	3	.425	38	19.461	.000

Table G. **Model Summary[b]**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.498[a]	**.248**	.209	.682

[a]Predictors: (Constant), PC2 – The concern for quality, PC1 – QMS in place and operating
[b] Dependent Variable: occupancy rate of accommodation

Table H. **ANOVA[b]**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.983	2	2.991	6.433	**.004**[a]
	Residual	18.136	39	.465		
	Total	24.119	41			

[a]Predictors: (Constant), PC2 – The concern for quality, PC1 – QMS in place and operating
[b] Dependent Variable: occupancy rate of accommodation

Table G. **Coefficients[a]**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	3.595	.105		34.167	**.000**	3.382	3.808
	PC1–*QMS in place and operating*	.302	.107	.394	2.840	**.007**	.087	.518
	PC2–*The concern for the quality*	.233	.107	.304	2.191	**.034**	.018	.449

[a]Dependent Variable: occupancy rate of accommodation