Customer satisfaction from private utility companies: an explanatory study

Eleni-Plousia Kosteroglou[1], Georgios Theriou[2] and Dimitrios Chatzoudes[3]

[1] *Eastern Macedonia and Thrace Institute of Technology, Agios Loukas, 654 04, Kavala, Greece, skosteroglou@gmail.com*
[2] *Eastern Macedonia and Thrace Institute of Technology, Agios Loukas, 654 04, Kavala, Greece, theriougeorgios@gmail.com*
[3] *Democritus University of Thrace, 12 Vasilissis Sofias Street, 67100, Xanthi, Greece, dchatzoudes@yahoo.gr*

Abstract

Purpose –The present study examines the factors that have an impact on "customer satisfaction" in the context of private utility companies. The main purpose of the study is accomplished through the development and the empirical testing of a conceptual framework (research model). The proposed framework includes six dimensions (research factors): (a) tangibles, (b) reliability, (c) responsiveness, (d) assurance, (e) empathy, and (f) customer satisfaction.

Design/methodology/approach – The present study adopted the SERVQUAL approach (model), only after analytically testing its suitability for use within the investigated area. In that direction, the focus group methodology was used. Finally, the proposed conceptual framework was tested on a random sample of gas consumers residing in the area of Thessaloniki, Greece. The final sample consisted of 437 adult consumers. The reliability and the validity of the questionnaire were thoroughly examined. Empirical data were analysed using the "Structural Equation Modelling" (SEM) technique. The present study is empirical, explanatory, deductive and, mainly, quantitative.

Findings – Empirical results indicate that "reliability" has the highest impact on "customer satisfaction", while "empathy" has no impact at all. More specifically, the impact of "reliability" on "customer satisfaction" is indirect, mediated through three other dimensions of the conceptual framework (namely, "tangibles", "responsiveness" and "empathy").

Research limitations/implications – A limitation stemming from the implemented methodology is the use of self-reported scales for the measurement of the six research factors. Moreover, the paper lacks a longitudinal approach. Finally, the empirical research (survey) is focused on one organisation and, therefore, offers relatively limited generalizability.

Originality/value – Very few studies have utilised the SERVQUAL approach in the context of an explanatory research. This approach offers a unique understanding of the relationship that exist between its five dimensions (factors) (tangibles, reliability, responsiveness, assurance, empathy). Such an approach has very rarely been attempted in the relevant literature.

1. Introduction

Customer satisfaction is considered a crucial factor for business survival and development (Blut *et al.*, 2015; Zhao *et al.*, 2012). Moreover, it has become one of the main elements for improving quality in the global competitive marketplace (Ryu *et al.*, 2012). Customer satisfaction can be seen either as a goal or a measurement tool. It affects customer retention and, therefore, profitability and competitiveness (Shi *et al.*, 2014).

The relevant literature argues that the delivery of high-quality services increases customer satisfaction and creates the key of maintaining competitive advantages in today's highly diverse environment (Blut *et al.*, 2015; Chang *et al.*, 2009; Cho *et al.*, 2013). Thus, organisations are interested in achieving the highest possible level of service provision, and, therefore, excel against their competition.

During the last decades, the service sector underwent continuous growth (Liang *et al.*, 2013; Mulder *et al.*, 2014). The global deregulation of services, in combination with the increasing need for customer satisfaction, have placed service quality at the centre of academic and business attention. Successful service organisations invest time and effort in delivering services of increased quality, services that fully meet customer expectations and help achieve business objectives (Agyapong, 2011). The main objective is to develop and maintain customer loyalty (commitment) and satisfaction, increase profitability, while keeping costs at a relatively low level (Orel and Kara, 2014; Bloemer *et al.*, 1999; Fullerton, 2014; Shi *et al.*, 2014).

Service quality is defined as a measure of how well the service level that is delivered by an organisation matches the overall expectations of its customers (Parasuraman *et al.*, 1985). Service quality means that the organisation is conforming to customer expectations on a consistent basis.

According to Orel and Kara (2014), previous research has extensively studied the impact of service quality on customer satisfaction, using established measurement scales, such as SERVQUAL. Despite that, very few of these studies have examined the concepts of service quality and customer satisfaction in the context of utility companies. Moreover, most of the empirical studies have adopted an explor-

atory approach, failing to examine cause-and-effect relationships. The present study was conducted in order to bridge these gaps in the relevant literature.

In that context, the main purpose of the present study is to empirically examine the antecedents of customer satisfaction in the utility service sector. An empirical survey was conducted in a sample of 437 customers of a private utility company. Empirical data were analysed using enhanced techniques (e.g. Structural Equation Modelling), revealing interesting relationships between the factors of the conceptual framework.

As mentioned above, the contribution of the study is twofold: (a) It examines service quality and customer satisfaction in the utility service sector (previously neglected in the international literature), (b) It adopts an explanatory approach, significantly enhancing the understanding of the phenomenon under investigation.

1.1. Customer satisfaction from utility companies

Utility companies, having a dominant role and contribution in the global economy, strive to provide services of "optimal quality standards" (Holt, 2005). Their objective is to satisfy their customers, by developing mutual relationships that will protect their corporate future. In that direction, they try to provide services that are proportional to customer expectations and develop positive feelings for these services (Shaw and Ivens, 2002). Research has indicated that for every customer that registers a complaint, nearly twenty-six others remain silent (Blut *et al.*, 2014; Griffin and Herres, 2002).

According to Bowen (1986) and Surprenant and Solomon (1987), services, being intangible in nature, depend largely on human interaction and are, therefore, difficult to control. The importance of human interaction makes employee behaviour a significant determinant of customer satisfaction (Beatson *et al.*, 2008; Schneider and Bowen, 1985). This is why many service companies consider their employees as marketers. After all, employees are the ones who represent the organisation, its philosophy, ethics and level of service. Their actions can be performed poorly, harming the company, or satisfactorily, adding more value (Nguyen *et al.*, 2014; Gounaris and Boukis, 2013). Researchers have established a positive correlation between employee behaviour and customer satisfaction of a specific service (Schneider and Bowen, 1985). Specifically, front-line employees (FLEs) have a significant effect on customer feelings (Zeithaml *et al.*, 2006).

Moreover, service organisations use statistical tools in order to identify the level of customer satisfaction and make the necessary improvements (Zhao *et al.*, 2012). The systematic improvement of processes incudes "good return policies" and complaint departments, which allow customers to participate in the evaluation of service provision and, therefore, feel respected (Kaufman, 2015).

Although utility companies are quite versatile, the present study focuses on the gas industry. According to Michael Porter's (1985, 2008) "five forces model", the gas industry is characterised by limited new entry threat, substitutes and customer power. On the other hand, the competition is intense and the power of the suppliers is quite significant. In addition, gas companies have to comply with various government regulations that raise the overall cost. Another important factor is the continuous need for new technologies that can improve service performance. Social factors can also enhance customer satisfaction: every gas company, no matter how profit-oriented, strives to provide services that are socially responsible.

Service quality is influenced by all the above factors. More specifically, gas companies focus on rules and regulations, global economic and market-specific trends, as well as customer needs. The triangle "government, industry, society" highlights the roads to sustainability and economic success.

According to Lukoil (2013), gas consumption will continue to follow an upward trend, with an approximately 2,2% annual increase until 2025, in comparison to other conventional energy resources. Therefore, great opportunities arise for gas companies that are able to increase their customer satisfaction and their customer base.

2. Conceptual framework

The present study aims to develop and empirically test a conceptual framework that investigates the factors affecting customer satisfaction.

The development of the conceptual framework was based on two methodological steps: firstly, a review of the literature identified the factors that were used by previous studies as antecedents of customer satisfaction; secondly, a qualitative research (focus group methodology) was conducted in order to discuss these factors and provide a list of the most significant ones (Berg *et al.*, 2004).

In order to enhance the validity of the qualitative research, two separate sessions were held, each with different participants. Each focus group included seven citizens; consumers of natural gas.

The participants of each group were given (on paper) a list of the factors used in the relevant literature to predict customer satisfaction. Then, a detailed conversation was conducted, with one member of the research team acting as moderator. Each focus group took approximately one and a half hours.

After long discussions, each focus group unanimously chose the most important factors of the provided list. The two focus groups agreed, with minor exceptions, on the same factors. These factors fall into the five dimensions of the SERVQUAL instrument.

SERVQUAL is a globally recognized service measurement instrument, consisting of "intangible, heterogeneous and inseparable" characteristics that govern service industries (Parasuraman *et al.*, 1985, 1988).

The conceptual framework of the present study incorporates the five dimensions of the SERVQUAL instrument (tangibles, reliability, responsiveness, assurance, empathy) (independent factors), and (f) customer satisfaction (dependent factor). More specifically, it is hypothesised that the five independent factors have a statistically significant, positive impact, on customer satisfaction:

Hypothesis 1: Tangibles have a positive impact on customer satisfaction.

Hypothesis 2: Reliability has a positive impact on customer satisfaction.

Hypothesis 3: Responsiveness has a positive impact on customer satisfaction.

Hypothesis 4: Assurance has a positive impact on customer satisfaction.

*Hypothesis 5*: Empathy has a positive impact on customer satisfaction.

3. Research methodology
3.1. Population of the study

The proposed conceptual framework (research model) of the present study was formulated after the literature review analysis and the completion of the qualitative research (focus groups). Its empirical examination was conducted on a random sample of gas consumers residing in the area of Thessaloniki, Greece.

Currently, the only provider of natural gas in the city of Thessaloniki is 'EPA Thessalonikis' (or 'EPA') (epathessaloniki.gr). The company was founded in 2000. It is 51% publicly owned (Greek state) and 49% privately owned (Italian company 'Eni'). Eni manages the company. At this moment, it is a monopoly, but this is expected to change in the future.

Figure 1: The proposed conceptual framework
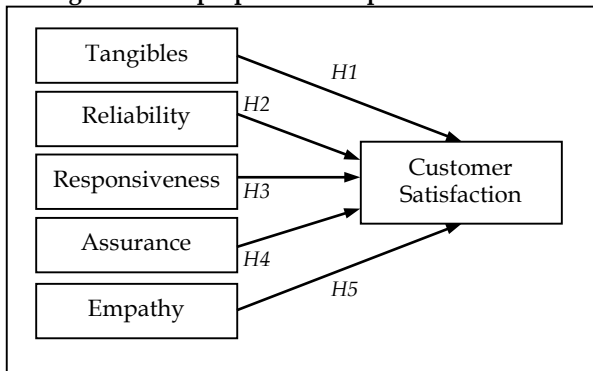
'EPA Thessalonikis' ('EPA') services twelve (12) out of the fourteen (14) municipalities of the city. Over 52,6% of the total population of Thessaloniki, use natural gas. According to official data from the board of directors (EPA Thessalonikis, 2016), the active customers of the company on 31-12-2015 were 181.025. These gas consumers constitute the target population of this study.

3.2. Measurement

A structured questionnaire was used in order to collect the appropriate primary data. The questionnaire included three different sections: (a) Demographic information (six items), (b) Measurement of service quality (SERVQUAL instrument): tangibles, reliability, responsiveness, assurance, empathy (twenty-two items), (c) Measurement of "customer satisfaction" (four items).

The five dimensions of the SERVQUAL instrument were adapted from Parasuraman *et al.* (1988), while the measurement of "customer satisfaction" was based on a synthesis of previous studies (Deng *et al.*, 2010; Ryu *et al.*, 2008; Kuo *et al.*, 2009).

The final questionnaire included twenty-six (26) items for the measurement of the six research factors. As mentioned above, all these items were adopted from the international literature. The seven-point Likert scale was used (1= strongly disagree, 7= strongly agree). All questions were translated into Greek and then back again to English

by another person, in order to detect and, consequently, improve upon discrepancies. All questionnaire items, concerning the six research factors, are presented in Table 5.

3.3. Data collection

Data were collected using random sampling techniques. More specifically, cluster sampling, simple random sampling and systematic sampling techniques were used in order to achieve satisfactory representation from all areas of the city of Thessaloniki.

The study was conducted between June and August of 2015. Four hundred and forty-eight questionnaires were collected, while 437 valid questionnaires were finally used for the statistical analysis; 11 questionnaires were discarded from the final sample because of their extreme values.

Taking into consideration that the study population includes 181.025 gas consumers, the sample size (n=437) is considered adequate and representative (confidence level=95%, margin of error=5%).

Table 1: Demographic characteristics of the sample

Question		Frequency	%
Genre	Male	209	47,83%
	Female	228	52,17%
	Total	*437*	*100%*
Age	20 – 30	82	19,85%
	31 – 40	99	23,97%
	41 – 50	97	23,49%
	51 – 60	73	17,68%
	61 and more	62	15,01%
	Total	*413*	*100%*
Education	Elementary	28	6,45%
	High School	126	29,03%
	Technological	123	28,34%
	University	129	29,72%
	Post-graduate	28	6,45%
	Total	*434*	*100%*
Monthly family income	0-1.000 €	159	37,50%
	1.000-2.000 €	168	39,62%
	2.000-3.000 €	86	20,28%
	> 3.000 €	11	2,59%
	Total	*424*	*100%*
Area of residence	Western Thessaloniki	119	27,55%
	Centre Thessaloniki	168	38,89%
	Eastern Thessaloniki	145	33,56%
	Total	*432*	*100%*

Table 1 includes some basic information about the demographic characteristics of the sample. In general, it seems that the sample is representative of the population of the country and the population of the study.

3.4. Reliability and validity

The instrument (questionnaire) that was used in the present study was tested for both its content and construct validity. The control for the content validity was conducted prior to the commencement of the survey and included.

The control for the construct validity was conducted in two steps. Each of the six factors was evaluated (a) for its unidimensionality and reliability, (b) for the goodness of fit to the proposed research model.

The estimation of the unidimensionality of each of the six factors was conducted using Explanatory Factor Analysis with the method of Principal Component Analysis. Moreover, the statistical measure Cronbach Alpha was used (the statistical package SPSS was used in both cases) to estimate the reliability of the research factors.

All tests concluded that all the scales used are valid and reliable (no items were excluded from the analysis) (see Table 2 for the main results). For the appropriate statistical analysis, the following measures have been examined (Hair *et al.*, 1995; Fabrigar and Wegener, 2011):

▪ For determining the appropriateness of the factor analysis, the following measures were examined: (a) the 'Bartlett's test of Sphericity' (it should be statistically significant at the 0,05 level), (b) the statistical test of 'Kaiser-Mayer-Olkin' (KMO) (values over 0,8 are satisfactory, while values over 0,6 are acceptable).

Table 2: Construct validity and reliability

Construct / Factor	Items	Factor loadings	Cronbach Alpha	K.M.O.	Bartlett's Test Sig.	TVE	Eigenvalue
Tangibles	4	0,866; 0,922; 0,857; 0,857	0,898	0,833	0,00	76,762%	3,070
Reliability	5	0,859; 0,843; 0,865; 0,892; 0,800	0,904	0,845	0,00	72,617%	3,631
Responsiveness	4	0,848; 0,900; 0,903; 0,745	0,866	0,753	0,00	72,498%	2,900
Assurance	4	0,902; 0,904; 0,903; 0,767	0,889	0,805	0,00	75,908%	3,036
Empathy	5	0,872; 0,905; 0,861; 0,821; 0,734	0,889	0,859	0,00	70,692%	3,535
Customer satisfaction	4	0,851; 0,818; 0,816; 0,861	0,856	0,689	0,00	70,016%	2,801

Table 3: Estimation of the goodness of fit

Construct / Factor	Items	Factor loadings	Normed X^2	C.R.	V.E.	RMR	CFI / GFI
Tangibles	4	0,805; 0,926; 0,798; 0,794	1,339	0,900	69,319%	0,010	0.985; 0,999
Reliability	5	0,826; 0,843; 0,791; 0,918; 0,706	4,758	0,910	67,195%	0,043	0,980; 0,970
Responsiveness	4	0,762; 0,951; 0,842; 0,701	4,106	0,890	67,135%	0,049	0,994; 0,991
Assurance	4	0,911; 0,894; 0,834; 0,609	2,950	0,890	67,390%	0,021	0,997; 0,994
Empathy	5	0,843; 0,926; 0,818; 0,764; 0,623	3,687	0,898	64,181%	0,080	0,985; 0,977
Customer satisfaction	4	0,933; 0,688; 0,879; 0,747	3,555	0,888	66,862%	0,051	0,986; 0,984

▪ For determining the number of the extracted factors the criterion of 'eigenvalue' was used. Factors with 'eigenvalue' over one are selected.

▪ For testing the significance of the variables (items), their factor loadings were used. For a sample size of more than 150 observations a loading over 0,55 is considered to be significant.

▪ For testing the reliability (internal consistency) of the constructs (factors) the 'Cronbach's Alpha' measure was used. Values greater than 0,7 are considered valid.

Furthermore, the goodness of fit of each the research factor was evaluated using Confirmatory Factor Analysis (CFA). All tests produced satisfactory results (see Table 3 above for the main results). More specifically, the following measures have been examined (Schumacker and Lomax, 2010; Smith and McMillan, 2001):

▪ X^2: It should be statistically insignificant (p>0,05).

▪ Normed X^2 (X^2/df): Values between 1 and 3 are desirable, while values between 1 and 5 are acceptable.

▪ Construct Reliability (CR): It should be higher than 0,7.

▪ Variance Extracted (V.E.): It should higher than 50%.

▪ RMSEA: It should be less than 0,1.

▪ RMR: It should be less than 0,05.

▪ CFI / GFI: They both should be higher than 0,9.

4. Empirical results

4.1. Mean scores

Table 4 presents the mean scores for every research factor, while Table 5 presents the mean scores for every item on the questionnaire.

Assurance and responsiveness are the two dimensions in which 'EPA' performs best (mean score in both dimensions is 5,4). On the other hand, the lowest mean score corresponds to empathy, indicating that 'EPA' should focus on

its future improvement. Moreover, the mean score for customer satisfaction is 5,36, which appears in line with the results obtained for the five dimensions of service quality.

In general, the following conclusions can be made:

▪ Empathy is the dimension with the lowest mean score (mean score = 5,07). Therefore, to a large extent, end users feel that the company operates in its own interest. On the other hand, assurance and responsiveness are the dimensions with the highest mean score (mean score = 5,40).

Table 4: Mean factor scores

Item	Mean	Std. Deviation
Tangibles	5,1838	5,1838
Reliability	5,3021	5,3021
Responsiveness	5,4006	2,5994
Assurance	5,4071	5,4071
Empathy	5,0709	2,9291
Customer satisfaction	5,3629	5,3629

Table 5: SERVQUAL mean scores / "Customer satisfaction" mean scores

		Item	Mean*	Std. Deviation
Tangibles	1	'EPA' uses modern equipment.	5,31	1,250
	2	The physical facilities of 'EPA' are visually appealing.	5,05	1,464
	3	Employees (managers and technicians) are well dressed.	5,35	1,379
	4	The appearance of the physical facilities is in line with the kind of services provided.	5,03	1,371
Reliability	5	When 'EPA' promises to do something by a certain time, it does so.	5,12	1,555
	6	When you have a problem, 'EPA' shows a sincere interest in solving it.	5,30	1,434
	7	'EPA' is an institution you can depend on.	5,61	1,265
	8	'EPA' provides its services at the time it promises to do so.	5,20	1,394
	9	'EPA' maintains error-free records.	5,27	1,397
Responsiveness	10	'EPA' always informs customers when services will be performed.	5,14	1,734
	11	Usually, 'EPA' provides prompt service to its customers.	5,54	1,427
	12	'EPA' employees are always willing to help customers.	5,69	1,421
	13	'EPA' employees are always willing to respond to customer requests.	5,24	1,570
Assurance	14	The behaviour of 'EPA' employees instils confidence in citizens.	5,52	1,240
	15	Citizens feel safe in their transaction with 'EPA' employees.	5,44	1,383
	16	'EPA' employees are consistently courteous with citizens.	5,73	1,352
	17	'EPA' employees appear to have the support of the administration in order to do their job.	4,94	1,455
Empathy	18	'EPA' provides customers with individual attention.	5,19	1,751
	19	'EPA' employees provide customers with individual attention.	5,42	1,566
	20	'EPA' employees know the individual needs of customers.	5,13	1,616
	21	'EPA' has customers' best interest at heart.	4,62	1,953
	22	'EPA' has operating hours convenient to all customers.	4,99	1,923
Customer satisfaction	1	The comments I make about 'EPA' when talking with other people are always positive.	5,27	1,771
	2	I intent to use the services of 'EPA' in the future.	5,61	1,755
	3	I encourage my friends and relatives to use the services of 'EPA'.	5,43	1,657
	4	Overall, I am very satisfied with the services provided by 'EPA'.	5,15	1,556

The seven-point Liker scale has been used: 1= totally disagree, 7=totally agree

- Moreover, despite the fact that customers are very satisfied with the company employees, they believe that employees do not have the support of the administration needed to do their job effectively.
- The items with the lowest scores should be strengthened by the management of the company. For example, customers believe that the operating hours are inconvenient. Moreover, physical facilities are not adequate and need improvement.
- Customer satisfaction seems within acceptable levels (mean score = 5,36). From another perspective, given that 'EPA' is a monopoly in the local market of natural

gas, there is always the threat that another competitor will enter the specific market. In that context, 'EPA' should not rest on its high level of customer satisfaction and defend its market position in the future.

4.2. Structural Equation Modelling

The examination of the proposed conceptual framework was conducted with the use of the Structural Equation Modelling technique. The estimation of the structural model was conducted with the Maximum Likelihood Estimation method. The Covariance Matrix was used as the table of entry and the extraction of the Standardized Completely Solution was requested (Hair *et al.*, 1995).

Table 6: Hypothesis testing / Initial results

H	Path			Estimate (r)	p	Result
H1	Tangibles	→	Customer satisfaction	0,322	***	Accepted
H2	Reliability	→	Customer satisfaction	-,081	0,334	Rejected
H3	Responsiveness	→	Customer satisfaction	0,254	***	Accepted
H4	Assurance	→	Customer satisfaction	0,155	0,057	Rejected
H5	Empathy	→	Customer satisfaction	0,485	***	Accepted

*** *p<0,01*

Table 7: Final results (modified model / significant paths only)

H	Path			Estimate (r)	p	Result
NP	Reliability	→	Tangibles	0,721	***	New path
NP	Reliability	→	Responsiveness	0,491	***	New path
NP	Responsiveness	→	Empathy	0,516	***	New path
NP	Tangibles	→	Empathy	0,337	***	New path
H1	Tangibles	→	Customer satisfaction	0,292	***	H1
H5	Empathy	→	Customer satisfaction	0,416	***	H5
H3	Responsiveness	→	Customer satisfaction	0,227	***	H3

*** *p<0,01*

Figure 2: The initial structural model (not all paths are statistically significant)
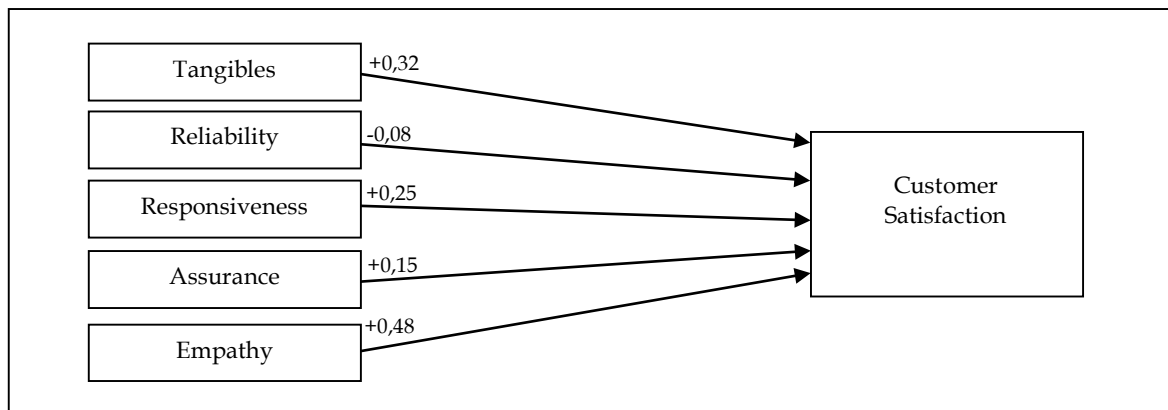
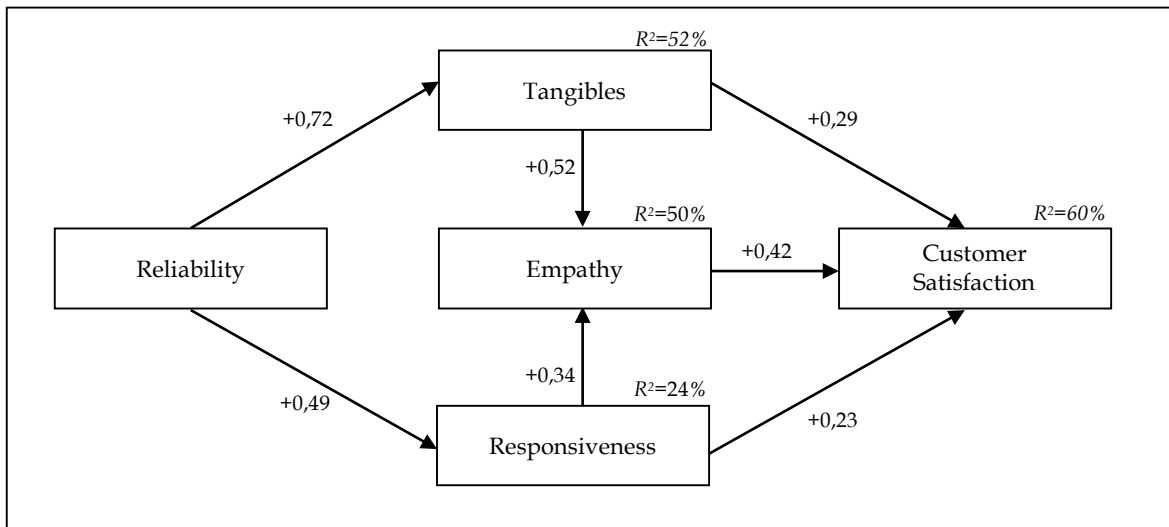**Figure 3: The modified structural model (all paths are statistically significant)**

Table 8: Direct, indirect and total effects between research factors

Direct effects				
	Reliability	Responsiveness	Tangibles	Empathy
Responsiveness	0,491	0,000	0,000	0,000
Tangibles	0,721	0,000	0,000	0,000
Empathy	0,000	0,516	0,337	0,000
Satisfaction	0,000	0,227	0,292	0,416
Indirect effects				
	Reliability	Responsiveness	Tangibles	Empathy
Responsiveness	0,000	0,000	0,000	0,000
Tangibles	0,000	0,000	0,000	0,000
Empathy	0,497	0,000	0,000	0,000
Satisfaction	0,529	0,215	0,140	0,000
Total effects				
	Reliability	Responsiveness	Tangibles	Empathy
Responsiveness	0,491	0,000	0,000	0,000
Tangibles	0,721	0,000	0,000	0,000
Empathy	0,497	0,516	0,337	0,000
Satisfaction	0,529	0,442	0,432	0,416

In more detail, the (modified) structural model fitted the data well, while the factors that were included can explain 60% of the variance of the dependent factor, i.e. satisfaction from the provided services.

It must be stressed that various new paths were added to the model, based on modification indexes function of AMOS. This resulted in a structural model with improved fit and explanatory power.

More analytically, to evaluate the fit of the overall (modified) model the X^2 value (X^2 = 3,981 with 3 degrees of freedom) and the p-value (p = 0,264) were estimated. These values indicate a very good fit of the data to the overall model. However, the sensitivity of X^2 to the sample size enforces control of other supplementary measures of evaluating the overall model, such as the "Normed-X^2" index (1,327), the RSMEA index (0,037) the CFI (0,998) and the GFI (0,993), that all indicate a very good fit.

Additional tests of the significance of the measurement model, such as Factor Loadings, Construct Reliability and Variance Extracted were also estimated. Results indicate

that all loadings are significant at the p<0,05 level. Additionally, Construct Reliability and Variance Extracted measures for all constructs are satisfactory.

Table 6 illustrates the results of the initial analysis, while Table 7 the final results (modified structural model).

The initial results offer support to 3 research hypotheses, whilst the other 2 hypotheses are not verified by the empirical data. The analysis of the results enables interesting observations.

In order to enhance the understanding of the empirical results, we have attempted their schematic representation in Figure 2 and 3. Figure 2 represents the initial model, while Figure 3 represents all the statistically significant relationships among the research factors (modified model).

Table 8 is quite important, since it provides all effects between research factors. For example, reliability does not have a direct effect on customer satisfaction, but its indirect effect is quite significant (r=0,529).

In general, the following observations can be made:

- Although the modified research model (Figure 3) includes only the direct relationships, Table 8 presents the total effects (direct and indirect) between all research factors.
- In that context, reliability has an indirect effect on customer satisfaction, through the dimensions of tangibles, responsiveness and empathy. The empirical analysis concluded that reliability is the dimension with the highest impact on customer satisfaction (r=0,53) (see Table 8). This result is also supported by Zeithaml *et al.* (2006). It seems that service organisations should really focus on the enhancement of that factor. More specifically, they should act as they promise, be dependable and show sincere interest in solving customer problems.
- On the other hand, customer satisfaction is directly affected by tangibles, responsiveness and empathy, while empathy is also directly affected by the first two dimensions.
- Empathy is a crucial factor in customer satisfaction: it has a direct effect on the latter (r=0,42), but most importantly it mediates the relationship of all other factors of the research model. More specifically, the indirect effect of tangibles and responsiveness on customer satisfaction is mediated through empathy. Additionally, empathy mediates the effect of reliability on customer satisfaction. There are two alternative paths for that relationship: (a) reliability → tangibles → empathy → customer satisfaction), and (b) reliability → responsiveness → empathy → customer satisfaction. Therefore, service organisations need to focus on providing customers with individual attention and fully cover their needs.
- Tangibles seem to directly affect customer satisfaction (r=0,29). This result indicates that people can develop positive or negative feelings towards an organisation, only by focusing on the tangible aspects of their interaction (e.g. facilities, technologies, employee appearance). Responsiveness also seems to have a direct effect on customer satisfaction (r=0,23). Therefore, the interaction with customers (e.g. prompt service, willingness to help) is also extremely significant for their overall satisfaction.
- Assurance was not found to have any effect on any of the other factors of the research model. Therefore, it is not included in the modified research model (Figure 3). Its seems that service organisations need to focus on all other dimensions, avoiding making investments in the level of customer assurance.

5. Conclusion

An interesting observation concerns the interaction of the company under examination with its end users. The participants of the survey, although satisfied to a high extent, believe that 'EPA' performs mostly for its own interest, rather than in their interest. From one perspective, this conclusion might not be surprising; after all, 'EPA' is a large gas company with an objective to make profits, whilst it is also a monopoly in the Thessaloniki market. Although, from another point of view, customer feelings may have a negative impact on the company once the market opens and competition emerges.

Maybe, end gas users believe that 'EPA' shows little interest towards its customer base because gas prices are not as low as expected. As highlighted in conversations with the participants of the empirical research, there is a difference in gas prices between Athens and Thessaloniki. 'EPAs' customers believe that they are being charged more than the residents of the Greek capital, thus expressing disappointment and confusion. This finding should be taken into consideration and careful evaluation by the company. Thessaloniki, being the second largest economic, political and industrial centre of Greece, constitutes a large market: displeasing customers in terms of their payment obligations could prove to be very threatening, especially if the Thessaloniki gas market opens up (Papadopoulos *et al.*, 2008).

Regarding the sample of the survey, its satisfactory representation of the population can be supported in the light of the demographic characteristics. The breakdown between the different age groups, different levels of education and levels of monthly income shows that the sample fully represents the overall population of Thessaloniki. Finally, survey respondents reside in the centre of Thessaloniki, as well as in the east and west of the city. Therefore, representation from all city regions is ensured.

The analysis of the mean score for the five SERVQUAL dimensions and the factor measuring customer satisfaction, leads to the following conclusions:

- The services offered by 'EPA' are quite satisfactory, since the average for all responses is greater than five (in a 7-point Likert scale) for all five dimensions of service quality.
- More specifically, the best performance is found in the dimension of responsiveness (mean=5,4). Apparently, customers of 'EPA' consider that employees are always willing to help.
- In contrast, the weakest performance corresponds to the dimension of empathy (mean=5,07), indicating that although employees are helpful, customers feel that the organisation does not have their best interests at heart. Regarding 'EPAs' customer satisfaction, it is at a satisfactory level (mean=5,4).

The evaluation of the proposed conceptual framework (research model) reveals the following:

- Firstly, the conceptual framework that was created and tested using empirical data was found to be valid and

reliable (EFA and CFA). Furthermore, the factors that affect, both directly and indirectly, customer satisfaction can explain its variance by $R^2 = 60\%$. This underlines the high explanatory power of the proposed model.

▪ The factor (dimension) with the highest impact on customer satisfaction is reliability. More specifically, reliability has an indirect effect on customer satisfaction, through all the other statistically significant factors of the conceptual framework. This means that reliability is the cornerstone for increasing customer satisfaction.

▪ In addition, the dimension of empathy is of considerable importance, since it affects customer satisfaction both directly and indirectly. In other words, empathy is a very important mediator.

▪ Furthermore, the equipment (tangibles) and responsiveness have both a direct and indirect effect on customer satisfaction.

▪ Finally, the assurance factor has been removed from the final research model as statistical analysis has shown that it has no significant effect on customer satisfaction.

▪ In general, the present empirical research proves that tangibles, responsiveness, reliability and empathy, influence customer satisfaction, both in a direct and indirect way. 'EPAs' actions should begin with increasing towards recruiting, training and evaluating employees. Specifically, employees can use the empirical results in order to:

▪ Recognise which personal characteristics have a positive influence on customer satisfaction and work towards their enhancement;

▪ Better understand customer needs and offer services accordingly.

Managers can use the empirical results in order to:
▪ Adopt customer oriented techniques;
▪ Discover ways to develop a friendlier environment, both for the customers and their employees;
▪ Use objective criteria to evaluate their staff.

The statistical analysis indicated that reliability is the most important of the five dimensions regarding customer satisfaction. Therefore, 'EPA' must focus on strengthening this factor. Specifically, it should:
▪ Provide information promptly and willingly, on all issues concerning scheduled or temporary services;
▪ Advertise its services, by emphasizing its strong points (e.g. employee willingness to provide help);
▪ Adapt its gas prices.

Regarding the weaknesses of 'EPA', the statistical analysis has underlined the factor with the lowest score. "Empathy", the ability to understand the needs of others, is a crucial element for utility companies, since it creates positive customer feelings. The present study pinpoints possible solutions for that issue:
▪ Better communication between staff and management can enable the former to provide excellent service to customers, who feel that their needs are not yet fully taken into consideration;
▪ Training on customer psychology, as well as consultation and continuous service evaluation, must also be considered. The company should offer more skills to

its credibility, by performing in a reliable manner and showing more empathy towards its customers.

5.1. Managerial implications

The empirical research was conducted on a representative sample of customers of a natural gas company operating in the city of Thessaloniki, Greece. The relevant statistical analysis has led to several results and conclusions, described above. Examining the relationships between the dimensions of service quality (SERVQUAL) and customer satisfaction, several suggestions can be made. Some indicate potential threats for the sustainability of the company, while others offer reassurance for its future success. Nevertheless, continuous improvement is always necessary, since the nature of competition (present or future) demands constant adaptation to customer needs.

Although personal improvement and individual performance is a matter of employee professionalism, consciousness and spirit, the present study provides some useful information to 'EPAs' personnel. Firstly, employees could use this study in order to define their role in the business, determine their individual behaviour and evaluate their personal performance. In addition, the company management can use the provided empirical results as a guide

front-line employees and carefully measure customer satisfaction on a regular basis.

Besides obtaining expertise on customer satisfaction, managers must constantly set a good example, motivate employees and encourage them with relevant seminars. Greek citizens generally view large utility companies with great insecurity. Profit-oriented managerial behaviour, bureaucracy, delays and inadequate communication between employees and customers, have lead customers to develop bias towards service organisations. Organisations should provide organised services, focus on human-centred performance and develop sincere interest towards their customers. After all, it has been proven that customer satisfaction is the cornerstone for a successful organisation. A strong position in the market and loyal bonds between company and customers are influenced more by behaviours, rather than lower prices (Dimitriades, 2006). Although 'EPA' is currently a solo player in Thessaloniki's gas market, the near future may demand a competitive position. Therefore, the results and the proposals of the present study can be considered as a guide for managerial implementation.

5.2. Limitations and future research

The main limitations of the study are listed below:
▪ The empirical survey was focused on one sector and, therefore, the generalizability of the results to other sectors of the economy is limited.
▪ The use of self-reported scales for the measurement of the six research factors is an inherent limitation of the employed methodology. Moreover, the paper lacks a longitudinal approach.
▪ Data collection failed to include the suburbs of the city of Thessaloniki, since 'EPA' does not operate branches in these areas. To avoid unequal distribution, the study focused on collecting information from the western, eastern and centre of Thessaloniki.

- The study has evaluated service quality by measuring customer perceptions. Customer expectations were not included in this study, due to the nature of the services

provided by the company ('EPA'), as it would be practically impossible to measure and compare both perceptions and expectations.

References

Agyapong, G.K., 2011, 'The effect of service quality on customer satisfaction in the utility industry: a case of Vodafone (Ghana)', *International Journal of Business and management*, 6, 5, pp. 203-210.

Beatson, A., Lings, I., and Gudergan, S., 2008, 'Employee behaviour and relationship quality: impact on customers', *The Service Industries Journal*, 28, 2, pp. 211-223.

Berg, B.L., Lune, H. and Lune, H., 2004, *Qualitative research methods for the social sciences*, Pearson, USA.

Bloemer, J., De Ruyter, K.O. and Wetzels, M., 1999, 'Linking perceived service quality and service loyalty: a multidimensional perspective', *European Journal of Marketing*, 33, 11/12, pp. 1082-1106.

Blut, M., Beatty, S.E., Evanschitzky, H. and Brock, C., 2014, 'The impact of service characteristics on the switching costs–customer loyalty link', *Journal of Retailing*, 90, 2, pp. 275-290.

Blut, M., Frennea, C.M., Mittal, V. and Mothersbaugh, D.L., 2015, 'How procedural, financial and relational switching costs affect customer satisfaction, repurchase intentions, and repurchase behavior', *International Journal of Research in Marketing*, 32, 2, pp. 226-229.

Bowen, D.E., 1986, 'Managing customers as human resources in service organizations', *Human Resource Management*, 25, 3, pp. 371-383.

Chang, H.H., Wang, Y.H. and Yang, W.Y., 2009, 'The impact of e-service quality, customer satisfaction and loyalty on e-marketing: Moderating effect of perceived value', *Total Quality Management*, 20, 4, pp. 423-443.

Cho, I., Kim, J.K., Park, H. and Cho, N.H., 2013, 'The relationship between organisational culture and service quality through organizational learning framework', *Total Quality Management and Business Excellence*, 24, 7-8, pp. 753-768.

Deng, Z., Lu, Y., Wei, K.K. and Zhang, J., 2010, 'Understanding customer satisfaction and loyalty: An empirical study of mobile instant messages in China', *International Journal of Information Management*, 30, 4, pp. 289-300.

Dimitriades, Z.S., 2006, 'Customer satisfaction, loyalty and commitment in service organizations: Some evidence from Greece', *Management Research News*, 29, 12, pp. 782-800.

EPA Thessalonikis, 2016, 'Report of the Board of Directors, 2015', https://goo.gl/Er9qAJ.

Fabrigar, L.R. and Wegener, D.T., 2011, *Exploratory Factor Analysis*, Oxford University Press, USA.

Fullerton, G., 2014, 'The moderating effect of normative commitment on the service quality-customer retention relationship', *European Journal of Marketing*, 48, 3/4, pp. 657-673.

Gounaris, S. and Boukis, 2013, "The role of employee job satisfaction in strengthening customer repurchase intentions', *Journal of Services Marketing*, 27, 4, pp. 322-333.

Griffin, J. and Herres, R.T., 2002, *Customer loyalty: how to earn it, how to keep it*, Jossey-Bass, San Francisco CA.

Hair, F., Anderson, R., Tatham, R. and Black, W. 1995, *Multivariate Data Analysis with Readings*, Prentice-Hall, London.

Holt, L., 2005, 'Utility service quality-telecommunications, electricity, water', *Utilities Policy*, 13, 3, pp. 189-200.

Kaufman, R., 2015, 'Why Your Customer Service Training Won't Lead to Happy Customers', *The Journal for Quality and Participation*, 37, 4, pp. 33-49.

Kuo, Y.F., Wu, C.M. and Deng, W.J., 2009, 'The relationships among service quality, perceived value, customer satisfaction, and post-purchase intention in mobile value-added services', *Computers in human behavior*, 25, 4, pp. 887-896.

Liang, D., Ma, Z. and Qi, L., 2013, 'Service quality and customer switching behavior in China's mobile phone service sector', *Journal of Business Research*, 66, 8, pp. 1161-1167.

Lukoil, 2013, 'Global Trends in Oil & Gas Markets to 2025', http://www.lukoil.com/materials/doc/documents/Global_trends_to_2025.pdf.

Mulder, P., De Groot, H.L. and Pfeiffer, B., 2014, 'Dynamics and determinants of energy intensity in the service sector: A cross-country analysis, 1980–2005', *Ecological Economics*, 100, pp. 1-15.

Nguyen, H., Groth, M., Walsh, G. and Hennig-Thurau, T., 2014, 'The impact of service scripts on customer citizenship behavior and the moderating role of employee customer orientation', *Psychology & Marketing*, 31, 12, pp. 1096-1109.

Orel, F.D. and Kara, A., 2014, 'Supermarket self-checkout service quality, customer satisfaction, and loyalty: Empirical evidence from an emerging market', *Journal of Retailing and Consumer Services*, 21, 2, pp. 118-129.

Papadopoulos, A.M., Oxizidis, S. and Papandritsas, G., 2008, 'Energy, economic and environmental performance of heating systems in Greek buildings', *Energy and Buildings*, 40, 3, pp. 224-230.

Parasuraman A., Zeithaml, V.A. and Berry, L.L., 1985, 'A Conceptual Model of Service Quality and Its Implications for Future Research', *The Journal of Marketing*, 49, pp. 41-50.

Parasuraman, A., Zeithaml, V.A. and Berry, L.L., 1988, 'Servqual', *Journal of Retailing*, 64, 1, pp. 12-40.

Porter, M.E., 1985, *Competitive advantage: creating and sustaining superior performance*, Free Press, New York.

Porter, M.E., 2008, 'The five competitive forces that shape strategy', *Harvard Business Review*, 86, 1, pp. 78-83.

Ryu, K., Han, H. and Kim, T.H., 2008, 'The relationships among overall quick-casual restaurant image, perceived value, customer satisfaction, and behavioral intentions', *International Journal of Hospitality Management*, 27, 3, pp. 459-469.

Ryu, K., Lee, H.R. and Gon Kim, W., 2012, 'The influence of the quality of the physical environment, food, and service on restaurant image, customer perceived value, customer satisfaction, and behavioral intentions', *International Journal of Contemporary Hospitality Management*, 24, 2, pp. 200-223.

Schneider, B. and Bowen, D.E., 1985, 'Employee and customer perceptions of service in banks: Replication and extension', *Journal of applied Psychology*, 70, 3, pp. 423-433.

Schumacker, R.E. and Lomax, R.G., 2010, *A Beginner's Guide to Structural Equation Modeling*, Routledge Academic, New York.

Shaw, C. and Ivens, J., 2002, *Building great customer experiences*, Palgrave Macmillan, New York.

Shi, Y., Prentice, C. and He, W., 2014, 'Linking service quality, customer satisfaction and loyalty in casinos, does membership matter?', *International Journal of Hospitality Management*, 40, pp. 81-91.

Smith, T.D. and McMillan, B.F., 2001, 'A primer of model fit indices in structural equation model', *Annual Meeting of the Southwest Educational Research Association*, New Orleans, LA.

Surprenant, C.F. and Solomon, M.R., 1987, 'Predictability and personalization in the service encounter', *The Journal of Marketing*, 51, 2, pp. 86-96.

Zeithaml, V.A., Bitner, M.J. and Gremler, D.D., 2006, *Services marketing: Integrating customer focus across the firm*, Wiley, New York.

Zhao, L., Lu, Y., Zhang, L. and Chau, P.Y., 2012, 'Assessing the effects of service quality and justice on customer satisfaction and the continuance intention of mobile value-added services: an empirical test of a multidimensional model', *Decision Support Systems*, 52, 3, pp. 645-656.