Measuring Customer Satisfaction in Public Transportation
An empirical study based in urban buses in the city of Larissa (Greece)-
"The MUSA methodology"

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Abstract
The present paper deals with satisfaction in urban transportation. In particular, it tries to identify the important factors which affect customers' satisfaction in the city of Larissa. In order to be defied, an empirical research was conducted inside the buses collected sample from 11 lines.
So, the paper aims to enlighten 3 issues:
- The degree of the customers' satisfaction from the provided services.
- The strong and the weak points of urban buses provider in the city of Larissa (Astiko KTEL Larissas).
- Improvement in urban buses in the city of Larissa based in its customers measurements.

The multi criterion model "MUSA methodology" were used in order for the satisfaction of customers to be measured and specifically the "MUSA for windows" software, provided results for each line separately as well as results based on the destination and the frequency of usage.
The results indicated that customers of urban buses in the city of Larissa present a medium satisfaction level but global customers' satisfaction, destination satisfaction and usage frequency satisfaction as well as the factors which affect satisfaction varies according the lines. Moreover, route safety, service of personnel, and service inside the bus constitute the strong points of the company.
However, all the above have a common characteristic and that is, the dimension "time" with sub criterion "route waiting time" and dimension "availability" with sub criterion "route frequency" which affect direct customer satisfaction as they are considered to be critical and need immediate improvement.

Keywords: Customer satisfaction, customer evaluation models, multi criteria analysis, MUSA methodology, public transportation, urban buses.

JEL Classification: M31, L91

Introduction

In previous years services started to be developed and as a result they nowadays comprise a significant vital factor in growth economies as a major element which ensures the rising and the development of the economies (Esteban *et al.*, 2002). One big example is the United States which can be considered as a service dominated economy especially in the early 90's as it was based in services which constituted the biggest percent in Gross National Product (Martin and Horne, 1992).These authors, also, showed in the same research that the economies globally were moving from products to services considering 2 basic strategic elements: Firstly, the new role of the customer, as a participant in the production, and secondly the development of a new service process. Recently Lytle and Timmerman (2006) showed that service orientation is the path which adds value to the customer and creates satisfaction. It, also, gives a competitive advantage and leads to development and profitability.

Esteban *et al.,* (2002) presented various activities of services that their consumption was growing and some of those were: financial, traveling, professional, health-care activities. The present dissertation will stay focused on the traveling activity as well as the purpose of the present dissertation is the measurement of customers' satisfaction in urban transportation in the city of Larissa. In this part it is necessary to define what public transportation is. According to Tran and Kleiner (2005, p.154) it is defined as

"Transportation by a conveyance that provides continuing general or special transportation to the public: excluding school buses, charter and sightseeing service".

Public transportation contains trolleys, busses, subways, rails and ferry boats. The authors, also, show that public transportation plays a significant role as it improves the quality of our day to day life by expedite traffic, saves money, creates new jobs and helps environmentally and that it is the main reason of getting down with the present dissertation.

In particularly, the research subject comprised the urban buses in the city of Larissa as every day almost 30,000 people transfer in a price ticket from 0,45 cent to 1,45 cent with a cover access to the city of Larissa, the suburbs around the city and the Industrial area. It, also, has in its possession 49 new buses which are considered ones of the most modern buses in Europe as they are environmentally friendly with a synchronous design. In order to provide better daily service to their customers' urban buses employ 125 people. The last attempt for better services is the installation of an ATS (Advanced Transportation System) of the AMCO Company. In particular, it is an APID display which provides information about the routes, the time and frequency of the routes, and some other information about traffic and updates for the passengers.

In order for the area of public transportation to be examined, it is important to wonder about:

- How satisfied the customers are?
- Which factors affect (dis)satisfaction from the provided services?

Bearing in mind the above questions, the objectives of the present paper are being apposed as following:

1 The estimation of the degree of the customers' satisfaction from the provided services.
2 Assessment of the strong and weak points of the provided services.

The paper is comprised from the following parts:

1 Literature review
2 Methodology design
3 Empirical Study\Results
4 Discussion and finally Conclusion

Literature Review

Customer (dis)satisfaction in Public Transportation

This part presents some theories from the literature which regards customer (dis)satisfaction in public transportation as one of the research subjects of the present dissertation comprise urban transportation and the degree of customer's satisfaction through the utilization of the urban buses in the city of Larissa.

Beginning, Edvardsson (1998) showed in his research that customer (dis)satisfaction depends on the usage of the information that the business can dig out from its customers. One way is through complaints. He found that the driver plays a significant role on the (dis)satisfaction of the customer, and that because the driver, usually, does not know the customers' needs and expectations and in many cases it is something that leaves the driver indifferent. Also, he showed that the combination of information and the driver is the key success for customer satisfaction, as the driver is the main means of interaction with the customers. Moreover, he found a singularity. He noticed that the unhappy and dissatisfied customers continued to utilize public transportations and that was because of the nature of public transportation.

Moreover, friendliness of the personnel especially bus driver behaviour in relation to service frequency has an impact on customer satisfaction. Friendliness behaviour of the bus driver can satisfy customers by developing better communication and knowledge of its customers needs (Disney, 1998). As far as frequency is concerned, frequent services increase satisfaction and urban transportation patronage (Taylor *et al.,* 2008).

Additionally, Andreassen (1995) claimed that customer (dis)satisfaction in public transportation depends on three things: ticket price, price level and, finally, the layout of the platform or the station, especially for buses. Furthermore, he separates customers in two categories: one category are the ones who use public transportation very often and they are considered expertise users, to those who are not often users and they are not considered expertise. He found that (dis)satisfaction varies according to the above 3 factors (price, ticket price and layout) to 2 categories of customers. Expertise users consider those 3 factors very important in contrast to those who are not expertise in the use of public transportation. To

conclude, underlining that public transportation is an area with low utility (low customer satisfaction) due to low rate of accordance between customer needs and the provided services.

Moreover, reliability and convenience are these factors which are considered to be important in customer satisfaction. Specifically, reliable and convenience transportation means increase customer satisfaction (Cavana and Corbett, 2007).

Futhermore, reliability, travel time and comfort are considered to have a great impact on customer satisfaction in relation with the type of the trip. For instance, those who utilize buses for professional reasons consider time as the most important dimension and particularly in buses. An interesting result is that the price of the ticket is not considered being significant and does not affect customer satisfaction directly (Beira and Cabral, 2007).

Another thing, according to Anderson *et al.,* (2007) which affects customers' satisfaction is the operation failures of the services. An operation failure, such as a possible delay of a transportation means, creates bias to customers, resulting to unsatisfied customers. Also, he showed that, customers have the trend to blame the service provider for everything that happens, even if the service failure is affected by external or internal factors. On one hand, it showed that interaction has a major impact between customers and personnel and creates satisfaction and on the other hand operation failures reduce the interaction between customers and personnel, and that is because customers are becoming biased by the workforce of a public transportation company.

Focusing on factor "time" Bielen and Demoulin (2007) showed that customer satisfaction is being determined by dimension waiting time, in which 3 determinants are included; perceived waiting time, satisfaction which is related with information in occasion of delays and finally with satisfaction which is related with the waiting environment. As long as the above 3 determinants function well, customers will stay satisfied. Also, waiting time is considered to be crucial as it plays an intermediate role between satisfaction and loyalty link.

Moving into this direction Dziekan and Kottenhoff (2007) presented that at –stop, real-time information displays affect customer satisfaction by influencing several dimensions. Specifically, perceived waiting time is being reduced as customers with real time information overrate their waiting time by 9-13% compared to 24-30% without taking account of real time information. Furthermore, it has positive psychological effects and particularly, it decreases uncertainty and stress as customers know the actual department time, it increases the feeling of security of customers especially at night and it finally increases the easiness of use as customers want to economize efforts when they make a trip. Additionally, it increases willingness to pay and it creates an adjusting travel behavior as customers can utilize its waiting time constructively or can achieve more effective travelling. Moreover, real time information displays create mode choice, as a result of the augmentation of patronage leading finally to new customers.

In addition, bus route frequency has a major impact on customer's satisfaction. In particular, increasing route frequency in strategic

bus channels can lead to an increase in customer's satisfaction and bus patronage. Moreover, an improvement to the existence services in the bus or present new buses is a way for customer satisfaction to be achieved (Wall and McDonald, 2007). Furthermore, Tyrinopoulos and Antoniou (2008) showed that service frequency, vehicle cleanness and coverage of network are the most important dimensions for customer satisfaction followed by waiting conditions and tidiness, especially in buses.

Furthermore, Thompson and Schofield (2007) related customer satisfaction with destination. In particular, ease of use of public transportation is the most significant factor which affects directly customers' satisfaction in relation to the destination. Finally, time and safety are not considered as being crucial for customer satisfaction in relation to the destination.

Recently, Gopal and Cline (2007) underline, on one hand the importance of CRM (Customer Relationship Management) in public transportation as they consider emotions to be the key factor for customers buying decisions and CRM is a tool which can help management to evaluate actions and behaviors about its customers, and also provide better services, if management faces as the core of CRM tool, the key element which increases satisfaction and that is, emotions. On the other hand, it is mentioned that transportation companies fail to face CRM as a tool for serving better their customers as they affront CRM as a means of gathering data and information about purchases and other activities which concern their customers and they do not try to explain the reason of these behaviors or feelings. The result of this action is unsatisfied customers.

The examination of the literature provide some interested results: Beginning, customer satisfaction is an ambiguous area with no conceptual framework, especially in public transportation. However, there are some critical points which can be considered important especially, in public transportation. In particular, behavior of personnel and specifically behavior of bus driver, frequency of services, reliability of services as well as time and particularly waiting time seemed to be the most crucial factors affecting customer satisfaction within other.

Methodology Design

In general, there are many models for measuring customer satisfaction and it is not possible for all of them to be presented in this paper, but suggestively they could be classified according to the following categories:

Quantitative approaches, such as descriptive statistics, multiple regression analysis, DEA, probit-logit analysis, etc.
Qualitative approaches, such as SERVQUAL and EFQM national quality awards, etc.

Customer behavioral analysis, such as the expectancy disconfirmation model and equity theory, etc and finally
Other methodological approaches like Fornell's and Kano's model (Grigoroudis and Siskos, 2002).

However, the above approaches and models present 3 basic disadvantages:

- They do not take into consideration the qualitative aspects when measuring customer satisfaction.
- They do not take into consideration the customer measurement as a procedure.
- Finally, they explain results descriptively without details (Grigoroudis and Siskos, 2002).

Considering customer satisfaction as a multidimensional problem, multi criteria decision making models are assumed as being the most applicable for customer satisfaction evaluation.

The MUSA (MUlticriteria Satisfaction Analysis) methodology

The MUSA methodology is an ordinal regression which belongs to the area of multicriteria analysis (Jacquet-Lagrèze and Siskos, 1982; Siskos, 1985; Siskos and Yannacopoulos, 1985 cited in Siskos end Grigoroudis, 2002). It is based on the hypothesis that overall customer satisfaction is included in a set of criteria/ sub criteria, expressing service features dimensions (Siskos end Grigoroudis, 2002). The basic intention of MUSA methodology is to integrate customer opinions into a multiple function based in the previous hypothesis and it takes place by concentrating the opinions of the customers about the overall satisfaction according to a set of sub criteria (Mihelis *et al.*, 2001). The model of overall customer satisfaction is presented in appendix 5, table 1. Moreover, it is well-known as a preference disaggregated model (Mihelis *et al.*, 2001) for the reasons which are mentioned above. It analyses customer satisfaction according to 8 basic elements.

- **Global satisfaction index**: It presents in a range from 0-100% the degree of overall customer satisfaction. Furthermore, it can be considered as an average index of ascription of a business.
- **Added value curve**: It presents in a range 0-100% the real value that customer gives in any level of satisfaction. Additionally, it shows how demanding the customers are.
- "**Fragile" customers**: It shows the percentage of the unsatisfied customers based on comparison with the added value curve, under a particular level. Also the % of unsatisfied customers can be calculated if a level in added value curve is considered to be crucial.
- **Criteria/sub criteria satisfaction indices**: It looks like Global satisfaction index, but in a range of 0-100% it presents the partial satisfaction of the customer regarding a particular criterion/sub criterion.
- **Weights of criteria/sub criteria**: They present the relative significance into a set of criteria / sub criteria (Mihelis *et al.*, 2001).
- **Demanding indices**: They present from a range -100% to +100% the demanding level according to the criteria\ sub criteria (Grigoroudis and Siskos, 2002).
- **Action Maps**: Furthermore, combining the Weight of criteria/ subcriteria with the satisfaction indices arise a map importance \ performance which is separated in 4 quadrants. Depending on the performance (average satisfaction indices) and the importance (weights) of criteria/subcriteria it is possible to define the actions for improvement or maintenance and the level of customer

satisfaction (Grigoroudis *et al.,* 1998). The quadrants are separated in 4 areas:

1 **Status quo (low performance /low performance)**: In this area no real effort from the side of the company is required.
2 **Leverage opportunity (high performance/high importance)**: The characteristics which belong to this area can be considered as the competitive advantage of the company.
3 **Transfer resources (high performance/low importance)**: In this area the resources are used inappropriately from the company and it would be better for them to be transferred somewhere else.
4 **Action opportunity (low performance/high importance)**: The criteria /subcriteria which are included in this area should be noticed more carefully (Michelis *et al.,* 2001). A matrix like this is presented in Appendix 5 table 2.

- **Improvement Maps**: Combine the average improvement with the demanding indices and they are separated in four quadrant representing different improvement priorities (Sandalidou *et al.*, 2002).

1 **First priority (high impact\low demanding)**: This quadrant comprises the criteria and sub criteria which need immediate improvement efforts.
2 **Second priority (high impact\high demanding)**: This quadrant constitutes the criteria and sub criteria which present high margins of improvement.
3 **Third priority (low impact\high demanding)**: The criteria and sub criteria which are located in this quadrant present high demand for further improvement therefore, extra effort is needed.

The MUSA methodology presents several advantages in relation to the other measurement instruments. Firstly, the degree of customer satisfaction is estimated according to multiple standards and it is not based only on one standard. Moreover, the use of multiple standards for the evaluation of a specific variable increases the credibility of the results. In addition, the linear equations allow the correlation among the variables of a model (Siskos and Grigoroudis, 2002). Furthermore, it respects the qualitative form of the preferences of customers without quantifying the qualitative variables but instead this is the main objective of the MUSA model (Grigoroudis *et al.*, 1997). Also, it provides important results about the strong and weak points of a company, evaluates the performance and indentifies the critical groups of customers extensively with diagrams and maps (Siskos *et al.,* 2001). Finally it avoids the inconsistency among the variables as it provides stability tests concerning the criteria\sub criteria (Grigoroudis and Siskos, 2002).
The MUSA method has been used and is applicable to several cases, suggestively see: (Ypsilandis *et al.*, 2007; Grigoroudis *et al.*, 2002) especially in public transportation as many researches has been conducted according the MUSA model, see (Siskos *et al.*, 2001; Siskos and Grigoroudis, 2002; Grigoroudis and Siskos, 2004; Grigoroudis *et al.*, 1999).

Sampling Procedure and Questionnaire Design

The research objectives of this paper are being presented in the part of the introduction but the criteria which affect the overall satisfaction were based in the literature review and they can be specified after an interaction between the analyst and the concerning

company (Mihelis *et al.*, 2001). More specifically, after an interaction with the administration of urban buses in Larissa it has been decided that the research will take place and will be analyzed according to the following criteria/sub criteria:

- **Services**: with sub criteria the price of ticket, the service of personnel (behavior of bus driver), information (APID display), service inside the bus (comfort, cleanliness, air condition), service outside the bus (layout of bus stops) and route safety.
- **Access**: with sub criteria the access in bus stops and access in tickets.
- **Availability**: with sub criteria coverage of network, connectivity of lines, route frequency, route working hours, bus stop frequency.
- **Time**: with sub criteria route precise, route waiting time and route duration.
- Finally, **Environment**: with sub criteria bus aesthetics and bus pollution.

After the determination of the criteria/sub criteria, the definition of size sample as well as the selection procedure and the construction of the questionnaire have followed.

In order this for this research to be executed, Astiko Ktel Larissas and its passengers were chosen to be the research subject for 2 reasons.

1 It comprises the only urban buses provider in the city of Larissa.
2 No previous research such as the present has been executed before in Astiko Ktel Larissas.

At this time, a short description of the existence situation in urban buses in the city of Larissa is considered as being crucial.

As it is mentioned above the only urban buses provider in the city of Larissa is Astiko Ktel Larissas and operates with a new form since 2003. A sort description is presented in the part of the introduction. As far as the choice of the sample is concerned, Astiko Ktel Larissas serves 11 lines, with 6 internal destinations and 5 external destinations. The author visited many times the Administration offices in order to allocate information about the time of routes in each line separately, the exact positions of the marks of urban buses as well as the days which are considered as being crowdie for urban buses in order for difficulties in the distribution of questionnaires to be avoided.

The sample was stratified simple random as population was divided into groups (Kotler and Keller, 2006, p.110) and particularly, according to the line which they utilized and random samples were drawn in each line separately in order to be valid, reliable and applicable. The total sample was 660 people and the way they were collected is being described further down extensively.

The structure of the questionnaire was based in Grigoroudis *et al.*, (1997) as it is simple, short and reliable and provides convenience in the collection of the information. It was constructed according to a 5 point Likert scale in which the respondents couched the degree of his or her agreement/disagreement (Volery and Lord, 2000) beginning from 1=unsatisfied, 2=little satisfied, 3=satisfied, 4=very satisfied and

finally ending with 5=absolutely satisfied .Passengers were asked to assess their satisfaction level according to the described set of 5 criteria each of which were divided in 18 sub criteria. Table 1.1 depicts passenger overall satisfaction based in the set of criteria \ sub criteria.

After the collection of the questionnaires, the data were put into the "MUSA for Windows" software which in its turn provided the following results.

Table 1.1: Passenger Overall Satisfaction - Criteria\Sub criteria
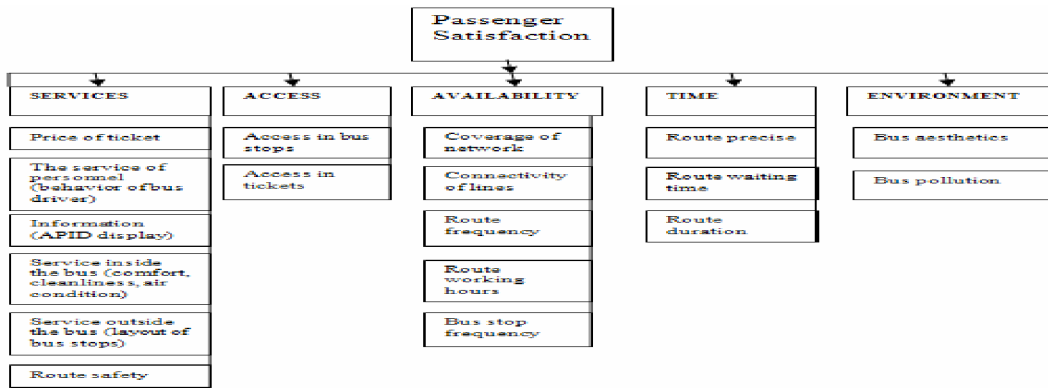
Empirical Study\Results

The table 2.1 indicates that the most satisfied customers are those who utilize line 1 (82.7 satisfaction) and at the same time the most unsatisfied are those who utilize line 5 Falani. This differentiation is based on the fact that a the customers of line 1 consider as the most important sub criterion "Route Safety" and at the same time is the one which present high performance. Contrarily, customers of line 5 Falani consider as the most important sub criterion "Service of personnel" which not presents low performance.

Table 2.1: Results of 11 Lines

Lines	Satisfaction%	Importance	High Performance	Low Performance	Immediate Improvement
1	**82.7**	Route safety	Route safety	Route Precise	Route Precise
2	77.6	Service of Personnel	Service of Personnel	Route Waiting Time	Route Waiting Time
3	82.3	Price of Ticket	Route Safety	Bus Pollution	Route Waiting Time
4	82.4	Bus Stop Frequency	Bus Stop Frequency	Route Frequency	Route Waiting Time
5 Terpsithea	29.4	Route Waiting Time	Bus aesthetics	Route Waiting Time	Route Waiting Time
5 Falani	**17.2**	Bus Pollution		Bus Pollution	Bus Pollution
6	24.1	Route Frequency	Bus aesthetics	Route Frequency	Route Frequency
7	68.2	Service	Service of	Route	Route

		of Personnel	Personnel	Duration	Duration
8	20.2	Route Precise		Route Precise	Route Precise
10	20.9	Ticket Price	Access in Bus Stop	Ticket Price	Ticket Price
11	22.2	Coverage of Network	Route safety	Route Frequency	Coverage of Network

The table 2.2 indicates the overall satisfaction of the users from all lines. As it seems the customers present a medium satisfaction level (57.6%) because there is a difference between the most important criterion\sub criterion and the critical one with its performance. Although Criterion "Services" with sub criterion "Route safety" comprise the most important sub criterion with high performance (Table 2.3, 2.3.1), "Route waiting time" presents low performance and appears to be critical for the customers for increasing their total satisfaction, as the second most important criterion "time" (Table 2.3) present the lowest performance and especially sub criterion "Route waiting time" (Table 2.4) and needs immediate improvement (Table 2.5). Also it seems that "Service of the personnel" as well as "Service inside the bus" comprises the strong point of the company as they present high performance (Table 2.3.1).
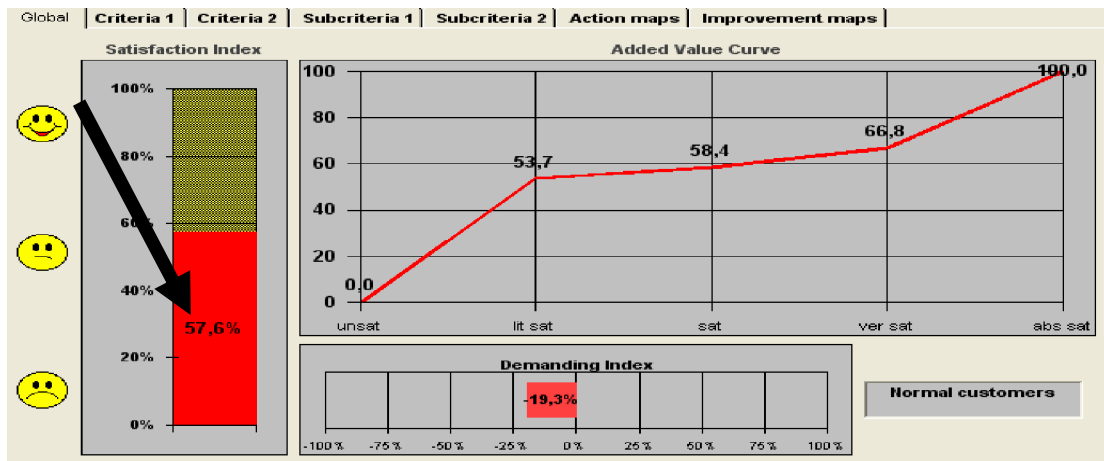
Table 2.2: Total Satisfaction

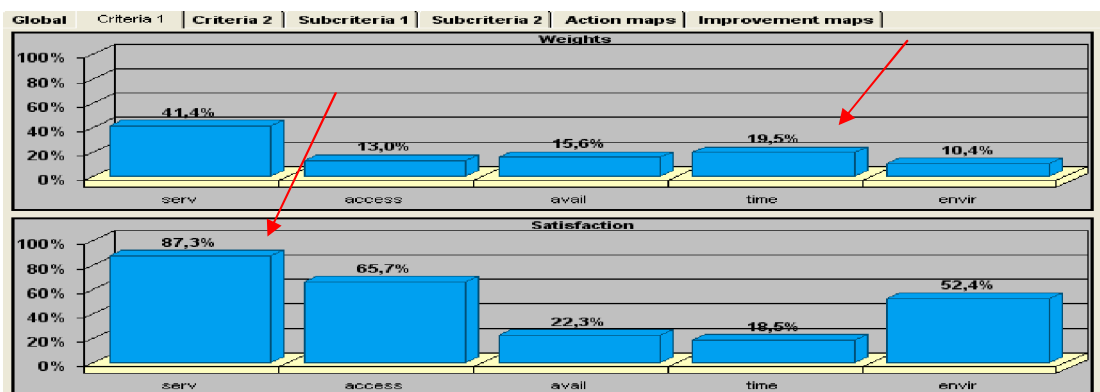**Table 2.3: Criteria\Sub Criteria Weights**

Table 2.3.1: Criterion "Services" Sub criteria Weights and Satisfaction
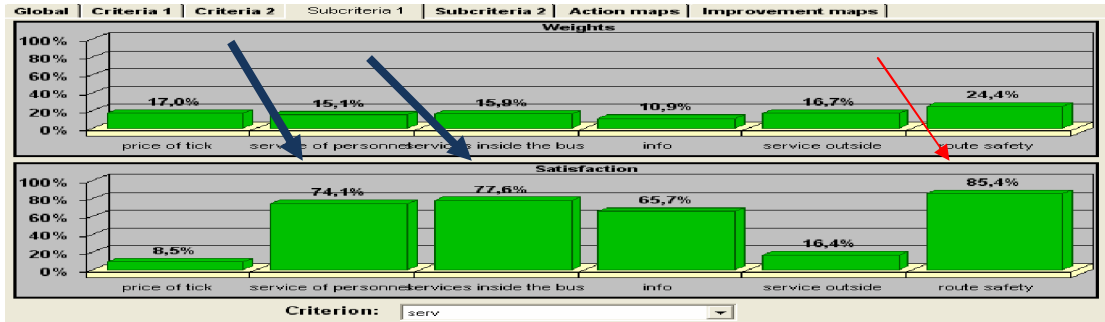

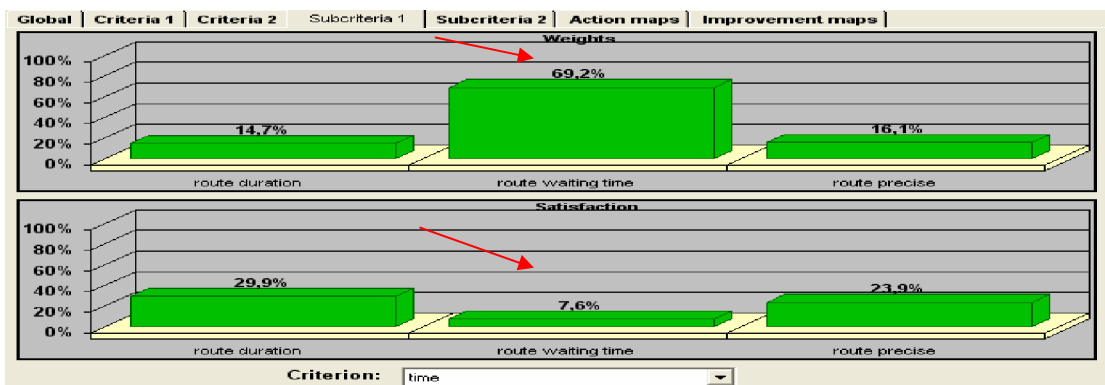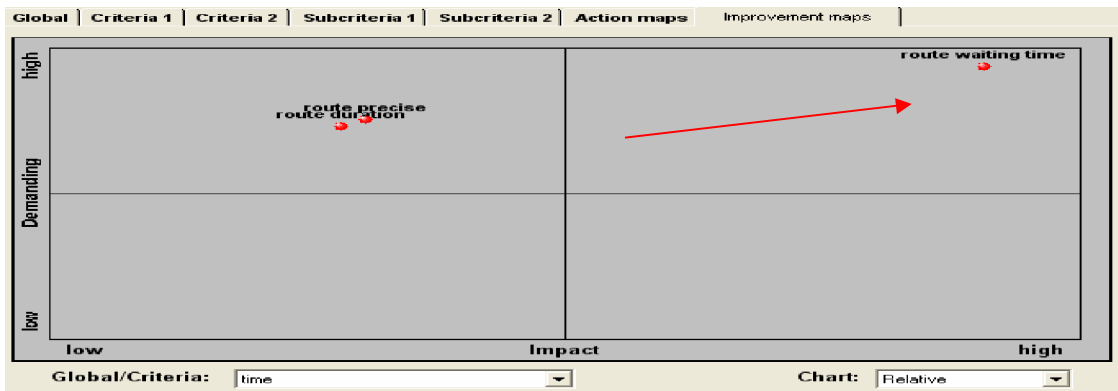**Table 2.4: Criterion "Time " Sub criteria Weights and Satisfaction**

Table 2.5: Criterion "Time", Sub Criteria Improvement Map

Segmentation Satisfaction Analysis

The purpose of segmentation satisfaction analysis is to reveal specific groups of users with differences or similarities in relation to users' total satisfaction. The segment of users is based firstly in regions that lines are serving, and secondly according to the frequency of usage. Tables 2.6, 2.7 depict the results.

Although the diversification between the overall satisfaction among the categories they present common critical points which need immediate improvement and those are "Route waiting time" and "Route frequency".

Tables 2.6-2.7: Segmentation Satisfaction Analysis

DESTINATION	Satisfaction%	Importance	High Performance	Low Performance	Immediate Improvement
Users of Internal Lines	73,3	<u>Services</u> Route safety	Route safety	Price of tick	Rout Wait Time-Rout Frequency
Users of External Lines	27,8	<u>Time</u> Route precise	-	Rout Wait Time	Rout Wait Time-Route Frequency

FREQUENCY OF USAGE					
GENDER	Satisfaction%	Importance	High Performance	Low Performance	Immediate Improvement
Males	73,8	<u>Access</u> Access in Bus stop	Access in Bus stop	Access in ticket	Rout Wait Time-Rout Frequency
Females	49.8	<u>Services</u> Service outside the bus	Route safety	Price of tick	Rout Wait Time-Route Frequency
USAGE PER WEEK					
1-5	56,9	<u>Services</u> Price of ticket	Route safety	Price of tick	Rout Wait Time
6-10	68,2	<u>Services</u> Route safety	Route safety	Price of tick	Rout Wait Time
REASONS OF USAGE					
Work	55,6	<u>Services</u> Route safety	Route safety	Route safety	Rout Wait Time
No other transportation means	30,5	<u>Availability</u> Route Frequency	Bus stop Frequency	Route Frequency	Rout Wait Time

Discussion

The results of the Satisfaction Analysis per line and Segmentation Satisfaction Analysis revealed that users evaluate urban transportation others with a high satisfaction rate and others with a low satisfaction rate in proportion with the destination that lines are serving and also the frequency of usage, either concerning gender or concerning the reason of usage. However, the results converge to the fact that the company evaluates the situation (criteria and sub criteria) differently in relation to its customers until today, as it seems that it has focused its efforts on criteria which are considered to be less important.

Furthermore, the above results constitute the customers' point of view and therefore they cannot reveal the total situation of the company. To do so, further research should be conducted (building a satisfaction barometer seems to be the appropriate move in order other periods to be assessed). However, the results can not eliminate users' significance as they comprise the fundamental customers of urban transportation.

Conclusion

To summarize, the present paper tried to reveal the important factors which affect customer satisfaction in urban transportation in the city of Larissa. The MUSA methodology was used as a tool in order for these factors to be identified and some interesting results came into surface.

According to the findings, satisfaction in customers varies in proportion to the line that they utilize as well as to the factors which affect total satisfaction. More precisely, the results indicated that customers present a medium level of satisfaction and dimension "services" as far as the total sample of customers is concerned with the sub criteria "route safety", "service of personnel", "service inside the bus" comprise the strong points of the company. The dimensions "time" with the sub criterion "route waiting time" and "availability" with the sub criterion "route frequency" constitute the critical points of the company. Furthermore, customer segmentation revealed that customer satisfaction is affected from the destination and the frequency of usage (which varies according gender, usage per week and reasons of usage) as the global satisfaction presents big differences.

In particular, users who utilize internal lines are more satisfied in relation to users who utilize external lines, who are very disappointed. Satisfaction according to destinations which concerns users of internal lines are positively related with dimension "services" and specifically with "route safety" and satisfaction according to destinations which concern users of external lines is negatively related with dimension "time" and "availability" and particularly with "route precise" and "route frequency".

Moreover, males present high satisfaction in relation to females even if they do not constitute the premium and the most frequent customers of urban buses in the city of Larissa. The reason is that satisfaction of males is positively related with dimension "access" and particularly with "access in bus stop" and the satisfaction of females is negatively related with dimension "time" and "availability" and specifically with "route waiting time" and "route frequency". Furthermore, the most frequent users (6-10 times per week) present very high satisfaction because their satisfaction is positively related with dimension "services" and especially with "route safety" in relation to those which present low usage utility (1-5 times per week) as they present a medium level of satisfaction because their satisfaction is negatively related with dimension "time" and particularly with "route waiting time". Additionally, those who utilize urban buses for professional reasons present a medium satisfaction because their satisfaction is negatively affected by dimension "time" and specifically by "route waiting time" in contrast to those who utilize urban buses because they do not have other transportation means as they present very low satisfaction and the

reason is the dimension "availability and especially "route frequency" which has a negative impact on their global satisfaction.

To conclude, the analysis reveals that customers satisfaction either as a total result or as a segment result identified critical points which affect customers' satisfaction and that are the dimensions "time" and "availability" and particularly "route waiting time" and "route frequency" as they comprise the weak points of the present situation and need immediate improvement.

Last but not least "The MUSA Methodology" can comprise the strategic tool for customer evaluation in marketing science as it can identify critical factors which affect satisfaction either direct or either indirect, it can provide specific information about the satisfaction of the customers' presenting the satisfaction as a definite number and finally it can target groups by executed a segmentation satisfaction analysis through which crucial factors which affect group satisfaction can be recognized.

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