

# A Critical Review of Customer Satisfaction Measurement in Tourism Industry

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**Abstract:** *This paper reviews and discusses the topic of customer satisfaction and its measurement. Defines the concept of customer satisfaction and some models used to access customer satisfaction in service and in particular in tourism industry. The paper highlights some tendencies of customer satisfaction measurement and makes a critical analysis of scales of measurement and its influence in data analysis techniques. The paper also focuses a methodology that can overcome problems of data analysis and concludes with some topics for future research in this subject.*

**Keywords:** customer satisfaction, service quality, scales of measurement.

## 1. Introduction

Over the last two decades organizations of all types and sizes have increasingly come to understand the importance of customer satisfaction. It is widely understood, for example, that it is far less costly to keep existing customers than it is to win new ones. Customer satisfaction has therefore become the key operational goal for many organizations. They have invested heavily in improving performance in areas that make a strong contribution to customer satisfaction, such as quality and customer service. But what is the result of the effort and investment made by the organizations? How do such organizations know if they are succeeding in satisfying their customers? The truth of the matter is that many organizations don't. Indeed many companies and organizations still do not measure customer satisfaction at all, and many who claim to be measuring it do so in an inadequate way. It is a widely accepted adage in the quality world that "if you can't measure it, you can't manage it" (Hill, 1996).

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Knowledge of customer's perceptions and attitudes about an organization's business will greatly enhance its opportunity to make better business decisions. These organizations will know their customers' requirements or expectations and will be able to determine if they are meeting those requirements. To use customers' perceptions and attitudes to assess the quality of products and services, customer satisfaction instruments must accurately measure these perceptions and attitudes about the quality of the service. If the instruments are poorly developed and inaccurately represent customers' opinions, decisions based on this information can be detrimental to the success of the organization. So, it is essential that organizations have accurate information on customer's perceptions about the quality of the services and products to make better decisions and to better serve their customers. There are a lot of different methodologies used to measure customer satisfaction probably due to the concern that organizations have with that subject. In section 2 of the paper the concept of customer satisfaction will be defined and some theoretical methods usually used in customer satisfaction assessment will be referred. Section 3 of the paper presents some tendencies in the measurement of customer satisfaction and in section 4 of the paper some remarks about customer satisfaction measurement will be highlighted, especially the subject related to scales of measurement and its influence in the statistical data analysis techniques used. In section 5 it will be discussed a method used in much lesser frequency that overcomes the problems identified with scales of measurement. Section 6 presents some concluding remarks as well as future research about the topic of customer satisfaction measurement.

## **2. Customer Satisfaction**

### *The Concept*

The volume of customer satisfaction research has increased significantly since the early 1970s, and during this period customer satisfaction emerged as legitimate field of study. (Kivela *et al*, 1999). The pioneering studies of Cardozo (1964), Olshavsky and Miller (1972) and Anderson (1973) stand out in the original research work relating to customer satisfaction. Starting from these studies subsequent research work focus the concept of customer satisfaction.

According to Oliver (1981) satisfaction can be defined as *“a final psychological state resulting from the disconfirmed expectancy related to the initial consumer expectations”*.

According to Churchill *et al*, (1982) customer satisfaction can be defined as *“the conceptual response by the consumer to the purchase and use of a product which comes from the*

*comparison of the rewards and cost of purchase relative to expectations. Operatively, similar to an attitude because it can be measured as a total satisfaction from various attributes”.*

According to Tse and Wilton (1988) customer satisfaction can be defined as *“the consumer response to the evaluation of the perceived difference between expectations and the final result after consumption”.*

According to World Tourism Organization (WTO, 1985) a definition of customer satisfaction is *“a psychological concept that involves the feeling of well-being and pleasure that results from obtaining what one hopes or expects from an appealing product and/or service”.*

The above definitions of customer satisfaction describe the formation of satisfaction as a process. It is perceived as a final result of all activities carried out during the process of purchasing and consumption.

#### *Theoretical models*

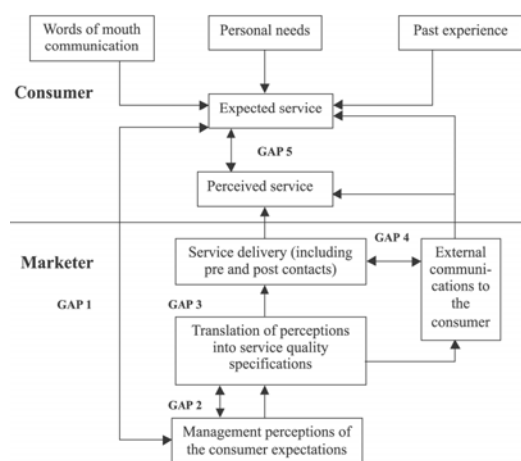
Social psychologists, marketing researchers and consumer behavior researchers have extensively studied the concepts of customer satisfaction. As result several theories related to customer have emerged and were introduced to the literature. The most widely noted and accepted of these theories are: expectancy disconfirmation, assimilation or cognitive dissonance, contrast, assimilation-contrast, equity, attribution, and comparison level.

While there are a variety of approaches to the explanation of customer satisfaction/dissatisfaction the most widely used is the model proposed by Oliver (1980) who expresses consumer satisfaction as a function of expectancy and disconfirmation, the expectancy disconfirmation model. According to the theory, customers purchase goods and services with pre-purchase expectations about anticipated performance. Once the product or service has been purchased and used outcomes are compared against expectations. When the outcome matches expectations, confirmation occurs. Disconfirmation occurs when there are differences between expectations and outcomes. Negative disconfirmation occurs when product/service performance is less than expected. Positive disconfirmation occurs when product or service performance is better than expected. Satisfaction is caused by confirmation or positive disconfirmation of consumer expectations, and dissatisfaction is caused by negative disconfirmation of consumer expectations.

#### *Customers' perceptions of service quality*

In service organizations the assessment of service quality is made during the actual delivery of a service, usually an encounter between the customer and a service contact person.

Parasuraman, *et al* (1985) proposed that service quality is a function of the differences between expectation and performance along the quality dimensions. These quality researchers developed a service quality model (fig. 1) based in gap analysis.



**Gap 1:** difference between consumers' expectation and management's perceptions of those expectations, i.e. not knowing what consumers expect.

**Gap 2:** difference between management's perceptions of consumer's expectations and service quality specifications, i.e. improper service-quality standards.

**Gap 3:** difference between service quality specifications and service actually delivered, i.e. the service performance gap.

**Gap 4:** difference between service delivery and the communications to consumers about service delivery, i.e. whether promises match delivery?

**Gap 5:** difference between consumer's expectation and perceived service.

Figure 1- Service quality model, adapted from Parasuraman *et al* (1985)

The difference between consumer's expectation and perceived service (Gap 5) depends on size and direction of the four gaps associated with the delivery of service quality on the marketer's side.

This exploratory research was refined with their subsequent scale named SERVQUAL for measuring customers' perceptions of service quality. (Parasuraman *et al*, 1988). At this point the original ten dimensions of service quality collapsed into five dimensions of service quality that must be present in the service delivery in order for it to result in customer satisfaction:

*Reliability* – the ability to perform the promised services dependably and accurately;

*Responsiveness* – the willingness to help customers and provide prompt service;

*Assurance* – the knowledge and courtesy of employees as well as their ability to convey trust and confidence;

*Empathy* – the provision of caring, individualized attention to customers;

*Tangibles* – the appearance of physical facilities, equipment, personnel and communication materials.

According to Oh (1999) the expectancy-disconfirmation model of customer satisfaction differs from SERVQUAL in some fundamental aspects. First the expectancy-disconfirmation model attempts to explain and theorize a consumption process, whereas SERVQUAL pretends to describe perceived service quality. Second the expectancy model measures

disconfirmation directly (i.e. subjectively), whereas SERVQUAL does it indirectly (i.e. objectively). Although the two models pursue different measurement methods, their conceptual thesis are virtually identical.

According to Parasuraman et al (1985) service quality (Q) should be measured arithmetically by subtracting customers perceptions scores (P) from customer expectation scores (E), by the formula  $Q=P-E$ . The gap that may exist between the customers' expected and perceived service is not only a measure of the quality of the service, but also a determinant of customer satisfaction/dissatisfaction.

Since its introduction in 1988, SERVQUAL has been used in hundreds of studies including numerous studies in the hospitality and tourism industries. Bojanic *et al* (1994) have applied a modified version of the SERVQUAL model in restaurants, and Johns *et al* (1996) in industrial food service restaurants. SERVQUAL was also used by Knutson et al (1991) to create a lodging specific instrument called LODGSERV designed to measure consumer expectations for service quality in the hotel experience. Getty and Thompson (1994) developed a model, which they called LODGQUAL and introduced it in lodging industry surveys. Another type of instruments developed to the tourism industry is HOLSAT developed by Tribe et al (1998) to evaluate tourist satisfaction with destinations. HOLSAT utilizes and modifies previous work in the area to develop a research instrument which approaches satisfaction attitudes using expectations/performance analysis. Khan *et al* (2003) also developed a survey instrument to apply to the ecotourists named ECOSERV. HISTOQUAL was developed by Frochot *et al* (2000) and it consists in an assessment instrument which evaluates service quality provided in historic houses.

Having present the survey instruments developed it appears that most tourism researchers agree in measuring customer satisfaction based on multiattribute scales that reflect the multifunctional nature of the tourism services.

### **3. Tendencies in measurement of customer satisfaction**

A widened survey of customer satisfaction measurement and management practices is described in (Mentzler *et al*, 1995). The survey is based in a questionnaire mailed to executives in 185 American and European companies, with a response rate of 67%. The results are largely from managers/directors in larger corporations that market a wide range of products/services to other companies and also final consumers.

A majority of the companies surveyed use staff employees to establish customer satisfaction measurement programs, followed by external professional consultants, and customers. The most common method to choose questions for customer satisfaction measurement is focus groups, followed by consultant and management input, employee suggestions, and pretest surveys. The predominant methodologies used to obtain customer satisfaction information are telephone and mail surveys. According to Mentzler *et al*, (1995) the most popular types of analyses are cross tabulations, qualitative assessments, descriptive statistics (e.g., means, standard deviations, percentages), and regression analysis.

About the type of customer satisfaction methodology/theory employed and although the SERVQUAL (gap) model of service quality measurement, is used by some of the responding firms (25%) almost half said they did not use any theoretical base to measure customer satisfaction (45%).

A recent study developed by Oh *et al* (2004) review recent significant developments in hospitality and tourism marketing research. The review includes summaries of research topics, industry applications and methods of study design and also data analysis. Concerning to data analysis, and according to Oh *et al* (2004), researchers most frequently use descriptive data analysis methods including, for example, content analysis, correlation, t-test, frequency and cross-tabulation, and importance-performance analysis. Multivariate techniques such as factor, cluster, and discriminant analysis showed high usage rates, especially coupled with the methods of the analysis of variance in the market segmentation studies. Causal modeling using regression, logit, and structural equation analyses shared strong popularity, when compared to techniques such as time series, conjoint analysis, and artificial neural networks. Used in much lesser frequency were special analysis methods like data envelopment analysis (DEA) and a multicriteria analysis method named analytical hierarchical process (AHP). Another type of methods also belonging to multicriteria analysis consist in some variants of the utility additive (UTA) multicriteria method which have also been used in measuring customer satisfaction. One example is the MUSA method consisting in a preference disaggregation methodology which follows the principles of ordinal regression analysis under constraints using linear programming techniques (Jacquet-Lagrèze *et al*, 1982, Siskos *et al*, 1998, Grigoroudis *et al*, 2002). Some applications of MUSA in satisfaction evaluation problems refer mostly to customers or employees of business organizations. Siskos *et al*, (1998), Mihelis *et al* (2001), and Grigoroudis *et al* (2004) present several real world applications of this type.

The conclusions about data analysis methods used in marketing research in hospitality and tourism are not very different from the results of Mentzler *et al* (1995) leading to the conclusion that the methods based in descriptive data analysis are still the most widely used nowadays. Many companies and organizations do not use theoretical models to measure customers' satisfaction and the observation to make about tourism industry leads to the conclusion that the models used are normally based in SERVQUAL or modifications from the SERVQUAL instrument.

#### 4. Some remarks in Customer Satisfaction Measurement

##### *Scales of measurement*

The main difference between customer satisfaction measurement, based in expectancy disconfirmation theory, and SERVQUAL followed by the quality researchers, is that in expectancy-disconfirmation theory the customer's make a subjective comparison between expectation and performance and usually use a disconfirmation scale, while in quality research, employing the format of SERVQUAL, the researcher makes the objective comparison between expectations and performance, using the two scales, an expectation scale and a performance scale (fig. 2).

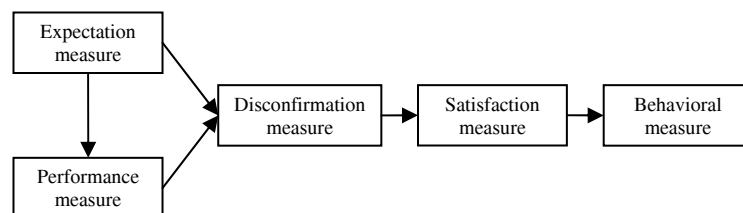


Figure 2 – Relation between different kinds of measures in customer satisfaction.

A variety of psychometric properties have been proposed to measure expectations, which in turn requires corresponding diversity in scales and measurement wording. As a measure of expectation, Halsted (1989) used a 4-point scale ranging from “definitely would not expect” to “definitely would expect”. Another example is Bearden and Teel (1983) who used a 7-point bipolar scale ranging from “likely” to “unlikely” to measure perceived expectations. In general quality researchers advocate the use a 7-point unipolar Likert scale ranging from “strongly agree” to “strongly disagree”.

In the measurement of performance researchers usually measured whether performance occurred as expected. Swan and Trawick (1981) used a 7-point scale ranging from 1-“poor” to 7-“excellent”. SERVQUAL researchers measure perceived performance with a 7-point “strongly agree” to “strongly disagree” scale. Getty and Thompson (1994) used a 7-point “inferior-superior” scale to develop an alternative performance based scale for the lodging services.

To measure disconfirmation two types of measures are found in practice: objective and subjective. Oliver (1981) suggested that the most meaningful approach to measure subjective disconfirmation from the respondent’s standpoint is a “better-than-expected” and “worse than expected” scale with “just as expected” in the middle. Objective disconfirmation, used in SERVQUAL, is calculated, not measured, by subtracting expectations from the perceived performance.

The satisfaction measure has been measured on a single “overall scale” with 7, 5, 3 and even 2 points worded “satisfied” or “not satisfied”. Oliver (1981) argued that the later scale cannot accurately gauge satisfaction levels because it does not provide for degrees of satisfaction. Churchill *et al* (1982) implemented a graphical scale with happy and sad faces.

The behavioral intention measure such as complaint, word-of-mouth communication, the intention to return or the intention to buy again, vary depending on the variable being measured. For example word-of-mouth communication can be measured with a 4 point scale ranging from “definitely will not recommend” to “definitely will recommend”. Halstead (1989) measured repurchase intention on a 4-point scale ranging from “definitely will not buy again” to “definitely will buy again”.

### *Data analysis*

When the researcher wants to measure non-factual topics as, opinions, attitudes, beliefs, and so on, he faces the problem of how to assign values to ordered categories. Researchers of social science very often use statistical techniques that assume interval measurements. Although statisticians have been developing improved nominal and ordinal statistical methods the large array of interval-level statistics offers the most flexible statistical tools for research. The satisfaction scale, for example, among other non factual scales can be considered an example of an ordinal or a ranking scale. The important point to note is that an ordinal or ranking scale tells nothing about the intervals between points.

It is very important to realize that the statistical treatment of linear interval scales is quite different from the treatment of nominal or ordinal measures. The properties of the linear scale



permit to treat the scores as integers which may be added, subtracted, divided, multiplied, and so on. This implies that they can be analyzed by means of statistical techniques applicable to interval-type scales. These techniques are quite powerful; they include the familiar average or mean, the variance, the standard deviation, analysis of variance, many types of correlation coefficients and most multivariate methods (Oppenheim, 1998).

To measure customer satisfaction the methods based in descriptive data analysis are still the most widely used today. Researchers usually make the assumption that the non-factual measures are linear dimensions. Considering for example, the satisfaction measure as a linear dimension, from completely dissatisfied to completely satisfied in a straight line, researchers usually make the assumption that the levels of satisfaction are not merely ranked but have interval properties. In measurement terms this is wrong and the statistical approaches usually used are not applicable.

The same problem of scales exists when researchers use methodologies based in SERVQUAL or in expectancy-disconfirmation theory. In this kind of theoretical models researchers use statistical approaches like factorial analysis or structural equation modeling. The problem is still the same because the scales have to be metric. Researchers frequently take liberties with the requirements and assumptions on which these statistical techniques are based in the hope that the techniques will prove sufficiently robust to withstand a certain amount of abuse.

#### *Attribute Importance*

Despite wide acceptance of the expectancy-disconfirmation paradigm as the theoretical construct that best explains satisfaction, many researchers also acknowledge the potential contribution of attribute importance (Barsky, 1979). The impact of attribute importance on customer decision making has been recognized by Heeler *et al* (1979), Mackenzie (1986), and Qu (1997) among others.

Without considering attribute importance, one has no indication of the relative importance that respondents attach to particular aspects of a service performance. There are two approaches usually used for determining the importance that customers attach to the attributes of the product or service, the stated importance and the derived importance. In the stated importance approach the customers explicitly state their perceived importance of attributes and so the attributes are measured both in performance and in importance. Derived importance approach makes usually use of statistical modeling and uses multiple regression to derive the relative importance of predictor variables in explaining the criterion variable. In

practical consideration the questionnaires using stated-importance measure are longer, more repetitive and tedious as the attributes are generally measured twice in the importance and perception section. The derived importance approach makes use of multiple regression in deriving the importance of the predictor variables, the questionnaire is shorter than in stated approach leading to faster response time and better response rate (Chu, 2002).

#### *Relation between Attribute performance and satisfaction*

One assumption universally adopted by customer satisfaction researchers is that satisfaction/dissatisfaction, as a consequence of disconfirmation, is a linear relationship, i.e. the size and direction of disagreement between expectations and perceived performance or performance evaluation. However closer investigations of several customer satisfaction theories suggest an argument against these linearity assumption. An increasing body of literature has been revealing the existence of a non-linear and asymmetric response of satisfaction to attribute level of performance (Kano *et al* 1984; Caddote *et al* 1988, Matzler *et al*, 1996). This literature has shown that while some attributes are relatively important in determining satisfaction, others are not critical to consumer satisfaction but are related to dissatisfaction when performance on them is unsatisfactory. Research suggests that attributes fall into three categories, each showing a different impact on customer satisfaction, the expected basic attributes, one-dimensional performance attributes and the exciting attributes. Operationally these three categories show different relationship patterns between attribute performance and overall satisfaction. Whereas one-dimensional performance attributes are linked to overall satisfaction through a linear and symmetric relationship as traditionally assumed, basic and exciting attributes imply a non-linear and asymmetric response of satisfaction to attribute level performance. In the literature a number of methods have been proposed to identify the different categories of attributes. They include the critical incident technique (CIT), the analysis of complaints and compliments, the special questionnaire developed by Kano *et al* (1984) and the two dimensional importance grid (Vavra, 1997).

### **5. MUSA (Multicriteria Satisfaction Analysis)**

#### *The MUSA method*

The MUSA model is a method developed by Siskos, *et al* (1998), is based in the principles of multicriteria analysis, and belongs to a broader category of preference disaggregation models. The model of customer's satisfaction measurement attempts to examine and analyse the

multicriteria behavior of a set of customers, provided the multicriteria preferences of them are known. The main objective of the model is to aggregate the opinions of the customers into a function, by assuming that the global customer satisfaction of the customer depends on a set of criteria or attributes that is expressed by the features of a product or a service. According to the model, each customer expresses his judgment about the product or service, i.e. his global satisfaction and his satisfaction concerning each criterion or attribute. Given the preferences of the customers the method accesses the global and partial satisfaction functions respectively. The model follows the principles of ordinal regression analysis under constraints using linear programming techniques for its solution (Jacquet-Lagrange *et al*, 1982). The problem of stability is viewed as a post optimality analysis problem in linear programming, where several solutions are obtained and the final solution is obtained by the average of solutions obtained. The results of the model include the weights of the criteria and also the global and partial satisfaction functions.

#### *Advantages of the method*

One of the main advantages of the method is that it fully considers the qualitative form of customers' judgments and preferences. The required information is collected via a simple questionnaire through which the customers make the evaluation of the provided service, i.e. they are asked to express their judgments, namely their global satisfaction and their satisfaction regarding a set of discrete criteria. So in this methodology the researchers do not make the assumption that satisfaction is a linear dimension, instead they consider the qualitative preferences of the customers and so an ordinal satisfaction scale will be used for all the criteria as well as for the global evaluation.

Another advantage of the method is that it derives the importance of the attributes and so the researcher has the indication of the relative importance that respondents attach to particular aspects of a service performance.

#### *Critical Analysis*

The model follows the principles of ordinal regression analysis under constraints and uses least absolute deviations regression. The least absolute deviations regression does not have an analytical solving method; therefore, an iterative approach is required. For a given data set, the method of least absolute deviations may produce multiple solutions and that can be a problem for the interpretation.

The method of least absolute deviations produces instable solutions. The unstable property of the method of least absolute deviations means that, for any small horizontal adjustment of a data point, the regression line may jump a large amount. The method has continuous solutions, however by moving a data point a small amount one could "*jump past*" a configuration which has multiple solutions that span a region. After passing this region of solutions, the least absolute deviations line has a slope differing greatly from the previous line.

The least absolute deviations is considered to be a robust method in that it is resistant to outliers in the data. This may be helpful in studies where outliers may be safely and effectively ignored, but if it is important to pay attention to any and all outliers, it is necessary to consider other kind of techniques.

## **6. Conclusion and future research**

To be successful a customer satisfaction measurement programme must come from the firm and be incorporated into the firm's corporate culture. The companies must focus on the needs and wants of specific target groups and then work hard to maximize satisfaction with the product or service being offered. Instead of waiting for customer complaints a consumer oriented corporate culture seeks continuous feedback from its customers through repeated customer satisfaction measurement. The problem is that the application of customer satisfaction measurement often does not accomplish the objectives of the researcher or company. Indeed many companies and organizations still do not measure customer satisfaction at all, and many who claim to be measuring it do so in an inadequate way. The conclusions about data analysis methods used in marketing research in hospitality and tourism lead to the conclusion that the methods based in descriptive data analysis are still the most widely used nowadays. Most part of the firms still doesn't use any theoretical model to measure customer satisfaction. The models based in SERVQUAL or variants of the model are the most widely used in tourism and hospitality studies. Nevertheless, SERVQUAL has been criticized by several researchers. Cronin and Taylor (1994) for example have argued the mere fact that asking a respondent to mark his or her perceptions of performance already lead to compare mentally perceptions and expectations, and so the estimation of perceptions might already include a perceptions minus expectation mental process. These authors suggest that just performance is a measure that best explains quality. Another major criticism of SERVQUAL, and also about the expectancy-disconfirmation model developed by the

marketing researchers is that information about importance is not gathered and integrated in the methodology. The relative importance of each of the dimensions that contribute to the overall customer satisfaction is rarely addressed in such kind of studies.

Another problem consists in the scales of measurement used in customer satisfaction measurement. The scales used to measure attitudes are ordinal in nature, and an ordinal or ranking scale tells nothing about the intervals between its points. The problem is that the statistical techniques which make use of ordinal data are not as powerful as the ones available for scaled or metric data. This may explain why the researchers frequently bend the rules.

The MUSA model as the advantage of overcome the problem of the scales because the researchers do not make the assumption that satisfaction is a linear dimension, instead they consider the qualitative preferences of the customers and so an ordinal satisfaction scale will be used for all the criteria as well as for the global evaluation. The method follows the principles of ordinal regression analysis under constraints using linear programming techniques and for the resolution uses least absolute deviation. The problems concerning the resolution were highlighted, especially problems concerning to the multiplicity of solutions and the problem of unstable solutions.

Future research regarding customer satisfaction analysis will focus in the evaluation of MUSA method considering that to be an important subject. For the implementation of such evaluation procedure it will be worth to run several test cases and several different scenarios.

It will be useful to develop different methodologies to overcome the fragilities of the method. The objective is to develop a method that can surpass the problem of the multiplicity of solutions and also the problem concerning the instability of the solutions.

Finally, it will be interesting to compare the results obtained by different approaches for measuring customer satisfaction. The objective is to provide an instrument that can help the organizations to succeed in satisfying their customers.

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