

Towards Achieving Web Customer Loyalty: An Innovative Research Model

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Abstract

The aim of this research is to highlight the significance of an integrated view for evaluating web service performance, thereby achieving e-customer loyalty. The study examined the effect of transaction cost performance analysis with analysis forecasting factors (time/schedule analysis and forecasting, cost analysis and forecasting, and quality cost analysis forecasting), as well as, their relationship among them with satisfaction analysis forecasting and finally the relationship with e-loyalty. Since the contributions of technology appear in all trends and aspects nowadays, this study developed a conceptual model. The model proposes that the transaction cost performance has influence on forecasting factors. Moreover, there is relationship between satisfaction analysis forecasting (SAF) factors and the final effects on e-loyalty

Keywords: Web Loyalty, E-Loyalty, Web Service Quality, Web Service Time, Web Service Cost

Introduction

With the turn of the century, e-business and commerce has grown rapidly with its inherently competitive characteristics promising multiple avenues for wealth creation (Amit and Zott, 2001). Now it can be considered that e-commerce has attained a certain level of maturity. With further advancements in information technology (IT), multitude of services that were hitherto offered in the physical marketplace has been shifted to online business. Though multiple offline functions have been substituted by online techniques, there exists many limitations which makes customers reluctant to use online channels (Cho and Park, 2002). However, with fierce competition raging in e-business, customer loyalty has become a key driver towards long-term profitability. Loyalty is mostly based on the characteristics of website (Arya and Srivastava, 2015). Loyalty can be considered to imply a higher level of satisfaction. However, satisfaction by itself need not necessarily result in loyalty. This has led to researchers, for instance Waddell (1995), Oliver (1999), to opine that loyalty and satisfaction have a form of asymmetric relationship between them. This relationship is all the more importance in online marketing, as customers have multitude of choices in e-marketplaces. Online

business is totally different from traditional service which dominated the market for many decades. Traditional business was totally based on interactive information flow between buyers and sellers. If e-businesses need to have the required service quality, the operational efficiency and profitability need to be enhanced. E-service is now attaining strategic importance and it has become critical for organizations to attract and retain customers. A high sense of loyalty derived from a higher level of service offered by the organizations have been identified as the main cause of bringing online customers back to the websites.

Highly loyal customers have been found to continue to stay so if it is possible to create a positive attitude towards the brand (Baldinger and Rubinson, 1996; Mallika and Sulphrey, 2018). It has also been found that it is indeed possible to convert a probable switching customer to a loyal buyer, in the event of there being a favorable attitude with respect to the brand (Gommans, et al., 2001). Loyal online customers, just like offline ones tend to spend more, refer more people and show more willingness to expand their purchasing into new categories. Thus, creating a loyal customer base is one of the most reliable success strategies for e-business. Now web loyalty is becoming a focusing factor and is a central theme for research in the academic community. E-loyalty has all the required ingredients to positively influence the long-term profitability; and it is vital for online service providers (Arya and Srivastava, 2015).

Multiple studies have attempted to construct models that identify various factors that have effects on e-service quality. They have also predicted the extent to which e-service quality could affect customer loyalty and the resultant organizational sustainability (Durmus, et al., 2013, Sulphrey and Alkahtani, 2017; Sulphrey, 2019). E-business has the immense potential to keep customers loyal, anticipate their future needs, respond to customer concerns and provide top-quality based customer service. A number of views that facilitate value creation strategies have been proposed. They include resource based view (Barney, 1997), market based view with service marketing approach (Zeithaml, Parasuraman, 1988), the Schumpeterian innovation viewpoint (Schumpeter, 1942), strategic network view (Gulati, et al., 2000), transaction cost theory (Hagel and Singer, 1999), value chain analysis (Porter, 1985), and e-performance management view (Striteska and Spickova, 2012 as cited in Ungerer and Schutte, 2015).

According to Al-Kasabeh, Dasgupta and Al-Faouri (2011) user satisfaction is an important predictor of online consumer behavior and the success of a web-based system. Web-customers and their behavioral patterns differ

drastically from traditional customers. Now business organizations need to go beyond web site performance to enhance customer satisfaction. The e-business model works beyond e-commerce models as it facilitates organizations to collaborate and integrate their data processing systems with other business partners to provide efficient and effective products and services. Thus e-business models go beyond the customer expectations, firm's business model and cost reduction (Aluri and Slevitch, 2011). In This research, the researchers will examine what

Aim of this research

The aim of this research paper is to examine the significance of an integrated view for evaluating web service performance, thereby achieving e-customer loyalty. By studying the effect of transaction cost performance analysis with analysis forecasting factors (time/schedule analysis and forecasting, cost analysis and forecasting, and quality cost analysis forecasting), as well as, their relationship among them with satisfaction analysis forecasting and finally the relationship with e-loyalty. The work has been undertaken primarily based on review of related literature. The present work has focused on the value creation potential of e-business integration based on the available theoretical perspectives, rather than adopting a single strategic management theory; as proposed by Amit and Zott (2001). This allow creation of a framework which is comprehensive in outlook and more realistic in nature.

Literature review

Web services

Web service is a software interface that describes a collection of operations that can be accessed over the network through standardized messaging. For effective performance and quality measures, web service should include both technical and business aspects and need to consider web services as business services delivered through multiple channels (Nathand Singh, 2010). Latest developments in the Internet and web technologies have changed the way organizations do business. Now-a-days, businesses are willing to put their core business processes on the internet as a collection of web services (Mathew, et al., 2015, Parvathi, et al., 2014). With the development of internet, distributed systems, high-performance, high reliability, high sensitivity, scalability and system transparency make the application of distributed systems much wider. In recent years, these applications include e-business applications, collaborative deal of work etc. Top companies such as Microsoft, IBM and SUN have launched supports for technologies related to web services (Zhai-wei, et al., 2010). Many studies have empirically

proved that the web site performance plays a central role in the enhancement of customer satisfaction (Bai, et al, 2008, Lin, 2007, Kim andNiehm, 2009, Mallika, et al., 2014; McKinney, et al., 2002). This is also a predecessor of e-loyalty.

E-Loyalty

E-loyalty is defined as perceived loyalty of customer towards websites and their intention to visit the same web site on their second purchase (Winnie, et al., 2014). According to this definition, e-loyalty is applicable to consumers who are likely to buy from the same web site, rather than switch to others. E-loyalty is considered to include components like e-word-of-mouth (EWOM), complaining behavior and future purchase intention. In e-business the seller, the computer systems, the end user, etc. forms the major components. System constituting users and computers are able to perform transactional tasks though application domains. The influences that systems

are able to effect are determined by the nature and configuration of the user and computer. The performance effectiveness of the system is measured in terms of accomplishment with respect to quality, timeliness and cost (Dowell and Long, 1988; Vasista and Kumar, 2016). This brings up the need for having a fair discussion about e-service quality. E-service quality is defined as “the extent to which a web site facilitates efficient and effective shopping, purchasing and delivery of products and services” (Al-kasabeh, et al., 2011).

The quality of e-services and e-relationship have been found to be antecedents of loyalty. SprengandMackoy (1996) proposed a model of service performance that helps in assessing service quality, and measure customer satisfaction. This model is such that it can be customized to forecast and measure web service quality cost (AlSudairi, 2005). The model is depicted as shown in figure 1.

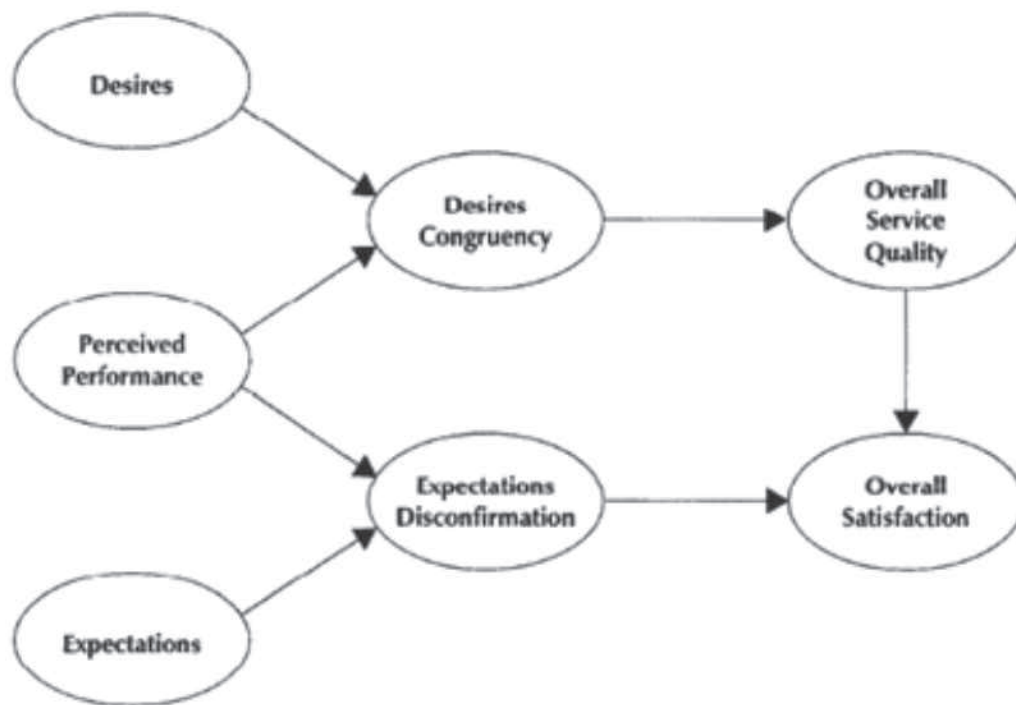


Fig. 1. Modified satisfaction and service quality model (SprengandMackoy, 1996)

Spreng and Mackoy (1996) proposed this model by structurally validated the Oliver's model (1993) of service quality, and the results confirmed that the service quality is antecedent to customer satisfaction. Further the modified model presented the link between the service performance and overall satisfaction. The relationship between the

satisfaction, frequency of use and loyalty has been subsequently validated by Drosos and Tsotsolas (2014). That efficiency and effectiveness can be achieved by factors like quality, cost, schedule, performance and supportability has been proposed by Al-Fawaeer (2014). In general, acceptability and functionality are considered as

the three characteristics that could lead to effectiveness (Dowell and Long, 1988). This qualitative subjective content also matches with the propositions of Vasistaand Kumar (2016), from the perspective of strategic cost management.

Gao and Lai (2015) proposes two dimensions of customer satisfaction – transaction specific satisfaction and overall satisfaction. The first one refers to satisfaction with individual service transactions. The overall satisfaction would be the outcome of a series of transactions occurring during the entire service process. Thus, the overall satisfaction is a unified form of integrated satisfaction. This integrated satisfaction has been found to play a significant mediating and moderating role between transaction-specific satisfaction and customer loyalty (Gao and Lai, 2015). Website loyalty also varies according to the motives (Gupta and Kabadayi, 2010).

The present study attempts to reflect this model, and draws heavily from the fact that transaction-specific satisfaction influences repurchase intentions through the mediator of overall satisfaction (Gao and Lai, 2015). There are yet another section of customer who are act as pivots in enhancing customer satisfaction – the internal customers. While internal customers and their satisfaction levels have received attention from management experts and researchers, internal customers are yet to receive the due attention. Internal customers are anyone in an organization who is supplied with products or services by others within the organization. In recent years, service organizations have begun to place emphasis on satisfying the needs of internal customers as well as external customers (Grimler, et al, 1994). With advancement in technology, many aspects of face-to-face interpersonal dynamics in service encounters between providers and customers have been replaced with technology-based web interfaces. Due to this any model that deals with customer satisfaction need to consider the variables that can influence customer satisfaction in technology mediate service encounters. An empirical examination by Lee and Joshi (2007) about customer satisfaction in technology mediated service encounters in the context of web-based shopping identified a number of factors that are of paramount importance. They include delivery performance, time saved, web site functional properties, internet familiarity and price saved. It is also found that e-satisfaction strongly impacts attitudinal loyalty (Wang et al., 2018).

A number of studies, for instance Park and Chapin (1992), Zheng et al., (2002) proposed that effective planning and estimation of conducting online business in terms of time and cost is of paramount importance for a customer service-based organization. This is true both from product

and service selling perspective. There is a definite need to establish an optimum time-cost equilibrium for any organization to be competitive (Park and Chapin, 1992; Zheng et al., 2002). Towards there need to be subjective selection from a potential solution pool (Soorentino, 2013).

Proposed Model of Web-customer Loyalty

This study has adopted a ‘Genetic Algorithm’ (GA) technique as a tool for planning and controlling the organizational activities. GAs is search and optimization tools that assists decision makers in identifying optimal or near-optimal solutions for problems with considerably large search space (i.e. for solutions to be derived from higher abstraction level search space). GAs employs a random but yet directed search for locating the global optimal solutions. The GA approach provides better solutions in terms of solving the business total cost of ownership problems. This is because the GA uses objective function rather than derivatives or another auxiliary knowledge. In addition, GA utilizes probabilistic transition rules as compared to other deterministic models. All these are capable of contributing to the robustness, and hence result in a more accurate TCO model over other heuristic or mathematical programming techniques (Park and Chapin, 1992; Zheng et al., 2002).

Further, as cited in Sorrentino (2013), the concept of the Pareto optimum is the commonly accepted tool for comparing two solutions in multi-objective optimization that have no unified criterion with respect to optima. Such solutions do necessitate improvement in any objective function without sacrificing at least one of the other objective functions. The region defined by Pareto optimal solutions is called the Pareto front. The objective of multi-objective optimization is to establish the entire front for the problem instead of a single best solution (Zheng et al., 2004). The proposed model also closely follows the Oliver model (1993). In the model the disconfirmation approach states that there is no difference between perceptions and expectations of performance. Applying this on web performance it is assumed that the performance is associated with parameters such as time, cost and quality. Further inputs towards this has been gathered from Sorrentino (2013), who highlighted the importance of a key performance indicator approach of making decisions related to time, cost and quality trade-off.

The success of online business success is based on the performance of a web application, which in turn is measured based on the how fast it responds to URL requests. However, a broader evaluation of performance should also include the effects of simultaneous requests, latency in responding to requests, salability of a solution to

handle growth in demand, and levels of operational degradation due to increases in transaction loads. Latency (late in web service processing time) as a measurable parameter to support a given number of users, a given number of simultaneous requests, or transactions to be

completed within given periods of time. It is further proposed that a transaction cost performance analysis is done by customers as the preliminary step towards web customer loyalty.

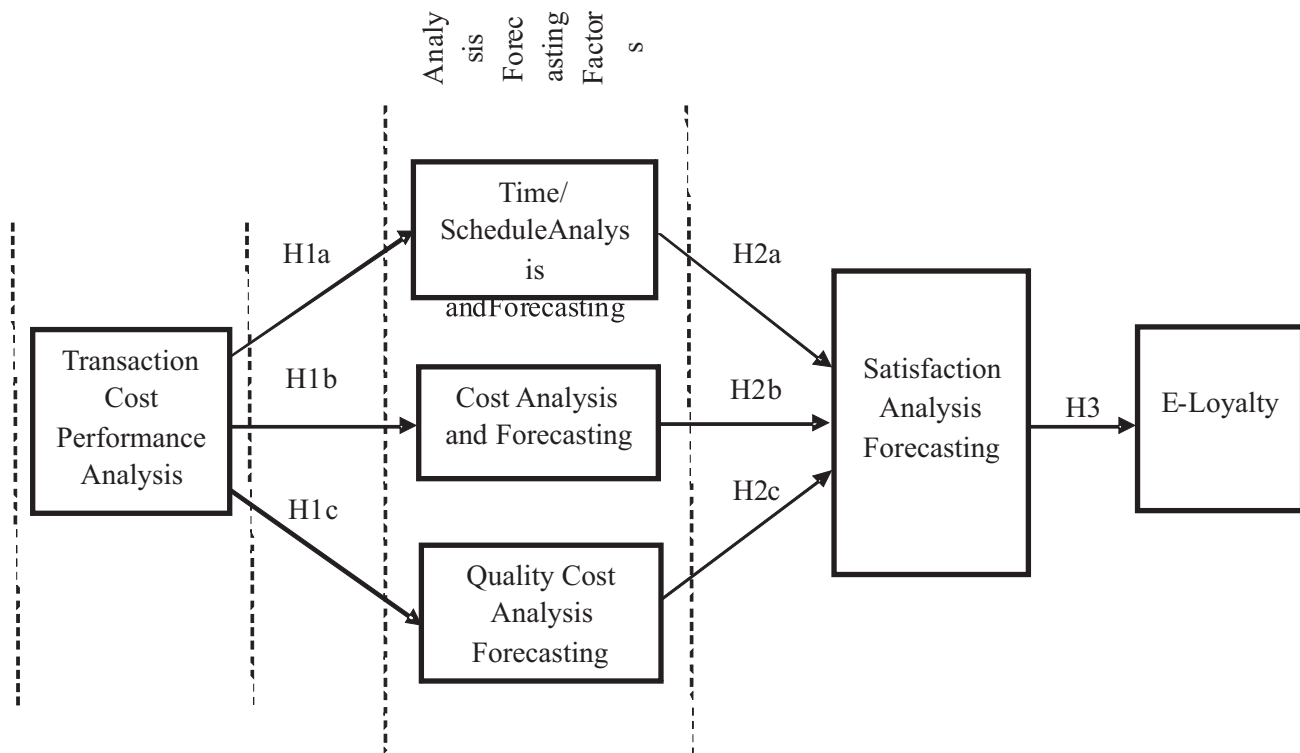


Fig. 2. Proposed Theoretical Framework for Online Business Success

The success of online business success is based on the performance of a web application, which in turn is measured based on the how fast it responds to URL requests. However, a broader evaluation of performance should also include the effects of simultaneous requests, latency in responding to requests, scalability of a solution to handle growth in demand, and levels of operational degradation due to increases in transaction loads. Latency (late in web service processing time) as a measurable parameter to support a given number of users, a given number of simultaneous requests, or transactions to be completed within given periods of time. It is further proposed that a transaction cost performance analysis is done by customers as the preliminary step towards web customer loyalty.

It is considered that customer do not consider just the optimization problem of time and cost alone, but also the quality and their trade-off. Any business organization considers a trade-off between these three parameters. It is

thus proposed that the performance analysis of transaction costs is directly related to three aspects – time, cost and quality. Any customer would consider these three aspects before being satisfied with any service and this forms the basis for any though pattern that could lead to satisfaction and the resultant loyalty. Based on these it is hypothesized that transaction cost performance analysis (TCPA) is positively related to TSAF, CAF, and QSAF. Therefore, the researchers propose the following hypothesis:

H1a: There a strong positive relationship between transaction cost performance analysis (TCPA) toward time/schedule analysis and forecasting (TSAF).

H1b: There a strong positive relationship between transaction cost performance analysis (TCPA) toward cost analysis and forecasting (CAF).

H1c: There a strong positive relationship between transaction cost performance analysis (TCPA) toward quality cost analysis forecasting (QCAF).

It is now pertinent to discuss these three aspects, which are briefly discussed:

Web Services Time processing (Time based Service quality issue)

Response time is an important factor to online business success. Many studies have identified the efficacy of response time. For instance, ZiloraandKetha (2008) observed that the response time (in milli-seconds) for client languages and return type combinations on Sun Server is better on Java among Java, C# and PHP. The response time (in milli-seconds) for return data type and message size combinations for the Java client would be increasing with number contacts as well as the response is significantly high for 1-d arrays as compared to 2-d arrays. Better response time is observed when processing on Sun Server as compared to Microsoft IIS Server. Therefore, it is possible to have a profound impact on performance using tools that are routinely and dependably available now. While XML hardware acceleration and SOAP compression schemes can improve the overall response, ZiloraandKetha (2008) found that appropriate selection of client software, server software and data structures can have a substantial impact on the web services performance. Depending on the previous literature in terms of time/schedule analysis and forecasting. Thus, the researchers hypothesize the following:

H2a: There a strong positive relationship between time/schedule analysis and forecasting(TSAF) toward satisfaction analysis forecasting (SAF).

Web Service Quality processing (Web services quality issues)

With widespread proliferation of web services, quality of service (QoS) will become a significant factor in distinguishing the success of service providers (Udo, et al., 2008). The influence of perceived online QoS has been a matter of extensive empirical examination (Huang, et al., 2019; Zavareh, et al., 2012).QoS determines the service usability and utility, both of which influence the popularity of the service. Delivering QoS on the Internet is a critical and significant challenge because of its dynamic and unpredictable nature. Unresolved QoS issues cause critical transactional applications to suffer from unacceptable levels of performance degradation (Mani and Nagarajan, 2002). Electronic QoS is now an important factor that determine the success of e-commerce applications (Huang et al., 2019).Web services technology offers a novel computing model in which infrastructures and application system are presented by service providers and made attainable to service consumers via web services such that the total welfares of both the service providers and the

service consumers are optimized to the QoS requirements of service requests. The quality of web service is calculated based on the functionality of the web service. The customer constraint is the leading aspect for confirming the functionalities (Shaet al., 2016). Based on the literature in terms of cost performance analysis (TCPA), the following hypothesis is formulated:

H2b: There a strong positive relationship between cost analysis and forecasting (CAF) toward satisfaction analysis forecasting (SAF).

Web Services Cost processing (Cost based Service quality issue)

The growth of e-commerce has brought in strong growth of computer applications which are priced based on algorithms (Chen et al., 2016). Evidences show that customers expect that the price of web service would be significantly lower than normal elementary services (Günther, et al, 2007). As such investments in innovative technologies to improve quality of service effects in given prime importance by organizations. There are multiple challenges that organizations need to face towards this direction. Many experts have introduced certain costing model that scientifically evaluates various services taking into consideration various techniques (2018).

While service providers seek expectedness in revenues, consumers and users of the web services look for flexibility in costing by not being charged for services that are not used and services that are not used and service features that are not delivered. QoS thus becomes a crucial element of pricing in web services. The cost of the web service is intended only for the accessible quality. The goal is to pay the service only for the functionality achieved (Sha, et al., 2016). According to Günther, et al. (2007) if a viable business model is envisaged to provide the required web service quality, then certain amount of non-standard pricing mechanisms needs to be adopted. Depending on the previous literature in terms of quality cost analysis forecasting (QCAF). Thus, the researchers hypothesize the following:

H2c: There a strong positive relationship between quality cost analysis forecasting (QCAF) toward satisfaction analysis forecasting (SAF).

Relationship between satisfaction, frequency of use and loyalty

E-satisfaction has been identified to be the antecedent of e-loyalty (Chiou, 2004; Cyr, et al. 2008). Multiple studies have empirically analyzed the relationship between e-satisfaction and e-loyalty (Dharmestive Nugroho, 2013; Drosos and Tsotsolas, 2014; Ltifi and Gharbi, 2012).

Positive relationships between e-satisfaction and e-loyalty were found by Christodoulides and Michaelidou (2010) and Dharmestive Nugroho (2013). The relationship between the satisfaction, frequency of use and loyalty based were assessed by Drosos and Tsotsolas (2014) and Ltifi and Gharbi (2012). The study by Drosos and Tsotsolas (2014) using correlation analysis examined the willingness to continue the use of online services, customers-word-of-mouth and willingness to continue the use of online services in case of price rise. The relationship of e-satisfaction on e-loyalty was also assessed by Ltifi and Gharbi (2012). They found that emotional state during e-commerce has a significant and positive relationship with e-satisfaction. Another study by Büyükdağ and Kitapci (2017) found the level of the internet experience to be having a moderating effect on web-satisfaction and e-loyalty. Though adequate empirical evidences exist to show the relationship between the variables (Drosos and Tsotsolas, 2014; Ltifi and Gharbi, 2012), the results are inconclusive. The present study proposes a model to link the variables of web-satisfaction and loyalty. Based on these literatures, it can be seen that the relationship is growing steadily once the satisfaction rises up that will affect e-loyalty to be increased as well. The following hypothesis is thus framed:

H3: There a strong positive relationship between satisfaction analysis forecasting (SAF) toward E-loyalty.

Conclusion and implications

This conceptual piece of work attempted to develop and propose a model for e-loyalty. This is of high relevance to the current scenario as customers have multitude of choices on the web, and the customer loyalty gets naturally divided and eventually dissipate. This conceptual paper the aspects of time, quality and price in the framework. These are the factors that customers value most while doing e-commerce. The model also sheds light on the satisfaction level of the customers. Developing on the framework further would help the practitioners and researchers of consumer behavior to arrive at strategies to maintain the e-loyalty of customers. However, as a matter of caution, it needs to be considered that the present framework has been constructed based on review of related literature. The framework needs to be tested further by practitioners and social scientists for application and practical utilization. It is earnestly expected that the present work will act as a trigger for further works in this area which is futuristic and fecund.

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