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AN OVERVIEW OF THE QUALITY CONCEPT IN THE AIR TRANSPORTATION BUSINESS: A SYSTEMATIC LITERATURE REVIEW

Abstract: *The main purpose of this research is to provide a comprehensive overview of literature related to the quality phenomena in the air transportation business over the last decades, to assess if there is some relationship between variables related to the quality concept in this business and how they have been developed during this period.*

To obtain this goal, a systematic literature review (SRL) has been carried out, based on international academic literature of Scopus and ISI Web of Science databases simultaneously, identifying the corresponding main papers on the research question, as well as carrying out a network analysis resulting from this review.

The number of papers related to the quality concept have considerably increased during the last decades, showing, therefore, the dynamism, higher importance and interest that this topic has gained. Findings show, as well, a detailed overview of the most cited articles and productive journals on this research topic and the importance of co-occurrence between the established variables.

This study promotes the growing interest that the research topic is receiving, as well as it provides a broad understanding on the variables that frame the development of this concept in the air transportation business, giving, therefore, a general overview and helping researchers and practitioners.

Keywords: *quality, service quality, service experience, airline companies, air transport, systematic literature review*

1. Introduction

International air transport is a prodigiously growing industry that is an important driver for economic development. However, due to its volatile behavior to worldwide events, the industry had to face a variety of challenges, overcoming trends, both economic and

social, as well as technological advances (OECD, 1997).

Since the Airline Deregulation Act of 1978 in the United States (U.S.), and the open skies approach, concepts of competition in the airline transportation business have become an essential theme, and issues such as price management, innovation, efficiency and service options have started being necessary (Wensveen, 2011).

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Therefore, the airline industry has gone through major transformations and changes linked to the fact that governments worldwide commenced to modify their economies, implementing new policies (Werner and Stoner, 1999); due to deregulation, the airline industry was converted from being a closely regulated sector to a market-oriented sector, so that a competitive environment was created in the commercial aviation industry (Ben-Yosef, 2005; Dempsey and Goetz, 1992).

Another key factor for the increase of competition and the arisen need to provide quality to the customers is the introduction of the Low Cost Carriers (LCCs) in the last decade of the past century, which started to confront the hitherto dominance of Full Service Carriers (FSCs), generating more competition to the domestic and international air transportation market (Belobaba, 2011).

As a result of the mentioned aspects, there has been considerably more attention, both professionally and academically, given to the quality provided to the customers in the airline business. Consequently, this made it necessary for the airline companies to provide quality to their passengers and improve the service level for attracting demand (Mazzeo, 2003), being quality an essential factor that contributes to service differentiation and adds value to the positioning of a company in the market (Prayag, 2007; Nejati et al., 2009). Also it helps to strengthen the loyalty of customers, to reduce negative word of mouth, as well as it contributes consequently to increase the turnover of the company.

Therefore, quality is on the one hand a challenge that the companies have to face, but at the same time an opportunity of competitive advantage.

That's just why it is so important to study the quality concept and to see the evolution it has had during the last decades. This study has been conducted based on an initial literature review previously performed by the authors concerning the quality concept in

the airline industry. Through that, sixteen variables were established for being used in this study to frame the concept of quality.

The previous review was based on research primarily using the database Scopus, taking into account the years 1990 (just when the open skies policy came along) to 2014. Five keywords were used for carrying out this previous literature review: quality, service quality, air transportation, airlines and aviation, where the outcome was a total of 32 concepts being included in 11 published studies.

The main purpose of this study is to get a broader idea of the quality concept and, therefore, to examine, identify and collect the existing literature for showing the trend of the quality concept in the air transportation industry making use of two databases, *Scopus* and *ISI Web of Science* (WOS). In consequence, the number of authors that now have analyzed the relationship between the airline business and the approach of quality is much higher than the one used in the previous research.

To cover this goal, a systematic literature review (SLR) has been considered in order to determine items included by different authors within the framework of quality in previous studies, referring always to the passenger transport, and helping therefore to classify, evaluate and interpret existing and relevant research papers about the present topic.

Other additional objectives are as follows, always based on the quality subject targeted in this paper:

- See the evolution of papers published during the years 1978-2015 (note: the year 2015 in this paper is always referring to a review done up to the 31st of December 2015).
- Identify the most frequently cited papers.
- Identify the main journals in relation to the studied research field.

- See the evolution of the total number of variables identified and related with quality during the covered period from 1978-2015.
- Show the co-occurrence between the identified keywords through a network analysis of variables.

Therefore, the main contribution of this article is to reveal and outline the attention paid to the concept of quality in the airline business and its evolution during this period; the study promotes the importance of the quality phenomena in published academic articles during recent years.

The paper is structured as follows. The first part introduces and explains the field of interest, airline quality; the second section describes the methodology used for the research. Section 3 gives an overview on the existing international literature in this research field; section 4 displays the results and findings of the study; while the last section points out the conclusions drawn from this research.

This paper can encourage researchers and practitioners to focus more on the importance of quality in the airline sector, helping them in their day-to-day management and to carry out new approaches and impacts in the future.

2. Methodology

A systematic literature review (SLR) has been carried out using two relevant bibliographic databases, *ISI Web of Science* and *Scopus* (Downloads before 31st of December 2015), to identify core papers and items used in previous studies considering a specific period of time.

The purpose of the SLR was to identify the research need, evaluate and summarize “the findings of all relevant individual studies, thereby making the available evidence more accessible to decision-makers” (CRD, 2009).

Therefore, the SLR methodology is an essential feature of any academic project and helps to increase the researcher’s knowledge

about the topic (Webster and Watson, 2002). The advantages of the SRL are that it provides reliable information, it is replicable and reduces bias. The SRL was originally used in the area of health issues (CRD, 2009), however, it has already been used in regard to air transport (Ginieis, et al., 2012), demonstrating that SLR is a helpful tool for analyzing and interpreting information available to answer the research question. In relation to the two databases used, on the one hand, Web of Science (WOS) is recognized as the most important database offering a scientific citation indexing service maintained by Thomson Reuters (2015). On the other hand, Scopus permits a wide overview of global research, offering a large abstract and citation database of not only scientific journals but also books and conference proceedings (Elsevier, 2015).

The SLR covers the period from 1978, when legal deregulation of airlines started in the U.S., through 2015. This provides a wide ranging period for producing an overview on the evolution of the concept of quality in the airline industry during previous decades.

2.1. Identification of Keywords and Sampling of Papers

For the identification of publications related to the research, 24 combinations of specific keywords (four primary keywords and six secondary keywords) have been used. These keywords have been chosen due to their relation to the air transportation industry and to the research question, as the objective is to see what has been said about quality in this business. The keywords are as follows:

- Service Quality **OR** Quality **OR** Service **OR** Service Experience **AND** Airline
- Service Quality **OR** Quality **OR** Service **OR** Service Experience **AND** Airline
- Transportation
- Service Quality **OR** Quality **OR** Service **OR** Service Experience **AND** Aviation

- Service Quality **OR** Quality **OR** Service **OR** Service Experience **AND** Airline Companies
- Service Quality **OR** Quality **OR** Service **OR** Service Experience **AND** Air Transport
- Service Quality **OR** Quality **OR** Service **OR** Service Experience **AND** Air Travel

In Table 1, the total search findings for each database are listed. The number of papers found in the WOS is 3,890, while in Scopus the number is 1,898, although it is important to mention that the total number of papers is not the sum of both, as several papers are presented in both of the databases.

Table 1. Total search results WOS and Scopus (Source: Created by the authors)

	WOS	SCOPUS
Service Quality AND Airline	309	113
Service Quality AND Air Transportation	28	43
Service Quality AND Aviation	46	30
Service Quality AND Airline Companies	51	2
Service Quality AND Air Transport	18	8
Service Quality AND Air Travel	23	0
Subtotal Service Quality	475	196
Quality AND Airline	415	163
Quality AND Air Transportation	35	66
Quality AND Aviation	120	144
Quality AND Airline Companies	64	2
Quality AND Air Transport	28	17
Quality AND Air Travel	28	3
Subtotal Quality	690	395
Service AND Airline	934	379
Service AND Air Transportation	102	175
Service AND Aviation	215	252
Service AND Airline Companies	164	4
Service AND Air Transport	161	49
Service AND Air Travel	74	25
Subtotal Service	1,650	884
Service Experience AND Airline	327	162
Service Experience AND Air Transportation	147	70
Service Experience AND Aviation	207	65
Service Experience AND Airline Companies	72	34
Service Experience AND Air Transport	228	54
Service Experience AND Air Travel	94	38
Subtotal Service Experience	1,075	423
TOTAL Articles	3,890	1,898

The sampling and selection process of papers has been carried out taking into account the following steps, as seen in Table 2. First, duplicates were removed in order to ensure unbiased results, secondly papers were removed focusing on the title of the article, seeing if it was relevant or not for the study and if it had any relation with the

research topic. For instance, papers talking about the quality of air in the airline industry were not included in the review; so, the articles that didn't meet the inclusion criteria were rejected straightaway. And, finally, abstracts and available papers were read to ensure that there is any relationship with the search field.

Table 2. Sample of publications WOS and SCOPUS (Source: Created by the authors)

Concept	WOS and SCOPUS	
	Eliminated	Number of considered papers for the literature review
Total search results		(3,890 + 1,898 : 5,788)
Removal of duplicates	(1,233)	4,555
Removal of “non-applicable” papers by each combination (title)	(4,206)	349
Removal of “non-applicable” papers (abstract)	(231)	118

The final set of relevant articles considered for the literature review and included in the analysis to work with were 118, assembling both of the databases, WOS and Scopus. In this research were included only articles that have been published in journals, therefore conference proceedings were rejected.

As already mentioned, a multitude of articles were repeated in both of the databases, so that doubled papers were counted as one in terms of the number of articles.

2.2. Codification of Variables related to Quality in the Air Transportation Business

According to the literature review carried out and a previous study of the authors (Kalemba et al., 2016), sixteen variables were created after doing an expert panel. Therefore, results were given previously in order to reduce the total number of keywords used in relation to the quality concept to a smaller set (Table 3).

Table 3. Definition of different variables related to quality based on a previous study (Source: Created by the authors)

1) Pre-flight service: Needs of passengers before the flight, such as ticketing, check-in service/process, reservation related service, accessibility and facilities dimensions.
2) In-flight service: Needs of passengers during the flight, such as food and beverage quality/service, in-flight entertainment service.
3) Post-flight service: Needs of passengers after the flight, such as baggage handling or mishandled baggage.
4) Courtesy and image of the company: General image of the airline company, as well as of airline employees, appearance of the flight crew and reliability of service.
5) Handling passenger: Handling of customer complaints, service failure, ground service, and airport service.

Table 3. Definition of different variables related to quality based on a previous study (Source: Created by the authors) (continued)

6)	Features aircraft: On board comfort, seat comfort, cleanliness, aircraft interior, aircraft size, variety and type of airplane.
7)	Flight schedule: Flight availability, flight frequency, flight cancellation, denied boarding.
8)	Punctuality: On-time performance, on-time arrival, travel time, turnaround time, delay.
9)	Safety: Perceived by the passengers, assurance.
10)	Pricing: Ticket price, price transparency.
11)	Service quality: Overall concept, including the service dimensions.
12)	Total quality management: Overall concept, seeing quality in general.
13)	Customer satisfaction: Satisfaction, behavioral intentions.
14)	Customer perception and expectation: Expectations, perceptions, needs, loyalty, personal comfort, service experience
15)	Airline Alliances: Arrangement between two or more airlines
16)	Others: Frequent Flyer Program, Web pages, and e-services.

These variables were needed for the literature review as well as for carrying out a network analysis between the different items related to the quality concept and therefore, to show its evolution during the years 1978-2015, as well as to identify the relationship between each of the items.

Following the SRL methodology, a tool for analyzing the structure and relation of papers in a specific field of study is to examine the correlation of keywords or, as in this case, established variables, through a network analysis.

The network analysis has a large and complex history and was used in different fields of study, especially in relation with health issues and social networks (e.g. Freeman, 2004; Luke and Harris, 2007). In the 1970s, it started to be included in fields of sociology, psychology, anthropology, mathematics and others (Luke and Harris, 2007).

The key aim of the network and visualization analysis is to see the interconnections between the sixteen created variables according to the literature review carried out in this SRL, as well as to illustrate the

importance of each established variable and to discover their tendencies during the evolution of time.

3. Literature review

First of all, it is important to define what is understood as quality in the air transportation industry. Talking about this concept in the airline business, it mostly refers to the service quality offered to the customers.

Therefore, quality is seen as an all-around concept being a composite of various variables which contribute significantly to an improvement in the passengers' perceptions during their lived service experience, as well as to their satisfaction and loyalty (An and Noh, 2009; Baker, 2013; Fageda et al., 2014).

That means, the higher the perception of quality is during the travel experience, the higher gets the satisfaction of the customer and at the same time also its airline loyalty (see Figure 1).

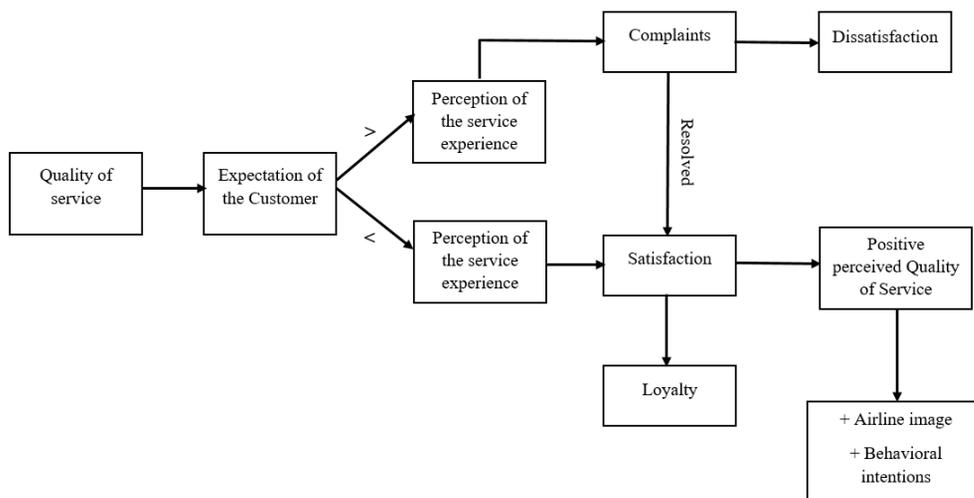


Figure 1. Conceptual model of quality in the airline business (Source: Created by the authors)

Figure 1 shows that in case that the perception of service experience of the customer is lower than the expectation he had, it leads to complaints and a resulting dissatisfaction. Dissatisfaction has been an important aspect related to the customer satisfaction (Fonseca et al., 2010). Otherwise, in case of resolving complaints or if the perceptions of the service experience is higher than the expectation the customer had, than he gets satisfied and this results in loyalty, being an important key indicator of competitive advantage (Akamavi et al., 2014), as well as it leads to a positive perceived quality of service that causes though a positive airline image and good behavioral intentions, etc.

3.1. LCCs vs. FSCs

Another important and necessary fact when analyzing the quality phenomena is to distinguish between the determinants of quality across the different airline groups for being able to evaluate the impact of quality measure on each of those groups. Thus, the differentiation between the expectations of customers of Full Cost Carriers (FSCs) and Low Cost Carriers (LCCs) is required, as the competitiveness of the airlines in the market

is steadily increasing. The LCC market segment has been grown significantly during the last years and can be found nowadays in every market (Vasigh, et al., 2016). LCCs had their origin in the U.S. with Pacific Southwest, just after the deregulation in 1978; in Europe the introduction of LCCs succeeded in 1995 with easy Jet and Ryanair (Francis et al., 2006).

Especially in Asia-Pacific, the LCCs market is representing a high percentage, being around a 25% (Pearson, 2016).

It is known, that LCC customers are prepared to sacrifice quality for cost benefits, but the LCCs stand out as well due to other characteristics, as lower labor costs per block hour, point-to-point services (Campa-Planas and Campa-Lewkowycz, 2009), lower ticket distribution costs, between others (Vasigh et al., 2016).

Obviously, when flying with a FSC it is not the same to travel in economy or business class. Therefore, the focus in this part has been put more on the two big business models as it is the low cost airline and the network carrier.

Both of them have their own peculiarities that can affect the quality of service provided to the passengers. For instance, in the LCC

market, the general service level in pre-flight, in-flight and post-flight services is much lower than in the FSC market. Moreover, seat density is much higher for LCCs than FSCs, as well as LCCs are following the point-to point system, while in the FSC market it is the hub-and spoke system, between other aspects (Acar and Karabulak, 2015).

But, nowadays the LCC companies are offering their own classifications and possibilities as priority boarding or seat reservation against payments. Concepts of

quality, that some years ago were unthinkable.

3.2. Literature review overview on quality in the airline business

This section is meant to point out an overview of the 16 established variables in relation to what has been said by the authors in the set of the 118 articles that have been included in this study (Table 4). Therefore, only the first author’s name is given, as well as the year of publication.

Table 4. Literature review: combination of variables, authors and year (Source: Created by the authors based on the WOS and SCOPUS database)

Name of variables	Authors (year)
1) Pre-flight service	Gilbert D. (2003); Leong C.C. (2007); 이용일 (2011); Han S. (2012); Etemad-Sajadi R. (2015)
2) In-flight service	Laws E. (2005); Leong C.C. (2007); An M. (2009); 김순희 (2009); Moufakkir O. (2010); Chen, Y.H. (2011); Han S. (2012); Han H. (2014); Pappachan J. (2014); Etemad-Sajadi R. (2015)
3) Post-flight service	Suzuki Y. (2004); Gardner E. (2004); Gursoy D. (2005); Rhoades D.L. (2008); Phillips (2013)
4) Courtesy and image of the company	Park J.-W. (2004); Park J.-W. (2006); Babbar S. (2008); Rhoades D.L. (2008); An M. (2009); Nejati M. (2009); Park J.-W. (2010); Elgin A. (2012); Han S. (2012); Yang K.-C. (2012); Choi H. (2013); Pappachan J. (2014); Hwang S.-Y. (2015)
5) Handling passenger	Suzuki Y. (2004); Chen F.-Y. (2005); Gursoy D. (2005); Rhoades D.L. (2005); Chiou W.B. (2007); Tiernan S. (2008); Forbes S. (2008); Metwally D. (2013); Wittman M.D. (2014); Chow C.K.W. (2015)
6) Features aircraft	Russon M.G. (1989); Ghobrial A. (1995); Ardakani S.S. (2015)
7) Flight schedule	Ghobrial A. (1995); Rietveld P. (2001); Wojahn O.W. (2002); Gardner E. (2004); Gursoy D. (2005); Rupp N.G. (2006); Rhoades D.L. (2008); Tiernan S. (2008); Sim K.L. (2010); Deshpande V. (2012); Ater I. (2015)
8) Punctuality	Ghobrial A. (1995); Wojahn O.W. (2002); Mazzeo M.J. (2003); Suzuki, Y. (2004); Gardner E. (2004); Gursoy D. (2005); Rhoades D.L. (2008); Tiernan S. (2008); Shipley M.F. (2009); Anderson S.W. (2009); Prince J. (2009); Sim K.L. (2010); Deshpande V. (2012); Phillips (2013); Ardakani S.S. (2015); Bubalo B. (2015); Chow C.K.W. (2015); Ater I. (2015); Fobres S.J. (2015)

Table 4. Literature review: combination of variables, authors and year (Source: Created by the authors based on the WOS and SCOPUS database) (continued)

Name of variables	Authors (year)
9) Safety	Brong J. (2002); Gilbert D. (2003); Rhoades D.L. (2005); Chiou W.B. (2007); Jou R.-C. (2008); Nejati M. (2009); Martin J.C. (2010); Ardakani S.S. (2015)
10) Pricing	Trapani J. (1982); Schwieterman J. (1995); Leong C.C. (2007); Espino R. (2008); Jou R.-C. (2008); Martin J.C. (2008); Park J.-W. (2010); Phillips (2013); Wittman M.D. (2014); Soelasih Y. (2015)
11) Service quality	Anderson J. (1981); Trapani J. (1982); Abrahams M. (1983); Ostrowski, P.L. (1994); Truitt L. (1994); Ghobrial A. (1995); Schwieterman J. (1995); Lee M. (1996); Chen, K.J. (1997); Frost F.A. (2001); Suzuki Y. (2001); Chang Y.-H. (2002); Tsaur S.-H. (2002); Wojahn O.W. (2002); Gilbert D. (2003); Kozak N. (2003); Rhoades D.L. (2005); Le Bel J.L. (2005); Hill R. (2006); Park J.-W. (2006); Abdlla G. (2007); Liou J.J.H. (2007); Pakdil F. (2007); Prayag G. (2007); Gemmel P. (2007); Babbar S. (2008); Chen C.-F. (2008); Chou C. (2008); Jou R.-C. (2008); Rhoades D.L. (2008); Tiernan S. (2008); Brueckner J. (2008); Nejati M. (2009); Saha G.C. (2009); Prince J. (2009); Saha G.C. (2009); Martin J.C. (2010); Park J.-W. (2010); Sim K.L. (2010); Kim Y.K. (2011); Lau T.-C. (2011); Tsai W.-H. (2011); Kuo M.S. (2011); Chiou Y.-C. (2012); Curry N. (2012); Yang K.-C. (2012); Ahmed H.S. (2013); Llach J. (2013); Namukasa J. (2013); Wu H.-C. (2013); Chen P.T. (2013); Choi H. (2013); Fageda X. (2014); Han H. (2014); Wittman M.D. (2014); Bae E.-S. (2014); Kuo C.W. (2014); Strombeck S. (2014); Ali F. (2015); Hwang S.-Y. (2015); Choi K. (2015); Merkert R. (2015)
12) Total quality management	Gourdin KN. (1991); Brong J. (2002); Rhoades D.L. (2005); Ahmed A.M. (2006); Cheng J.-H. (2008); Salmador M.P. (2008); Parast M.M. (2010); Llach J. (2013);
13) Customer satisfaction	Kozak N. (2003); Park J.-W. (2004); Laws E. (2005); Hill R. (2006); Park J.-W. (2006); Babbar S. (2008); Chen C.-F. (2008); An M. (2009); Saha G.C. (2009); Anderson S.W. (2009); Saha (2009); 김순희 (2009); Park J.-W. (2010); Ahn T.-H. (2011); Kim Y.K. (2011); Lau T.-C. (2011); Curry N. (2012); Yang K.-C. (2012); Namukasa J. (2013); Choi H. (2013); Han H. (2014); Ali F. (2015); Chow C.K.W. (2015); Elias, N.F. (2015); Etemad-Sajadi, R. (2015); Merkert R. (2015)
14) Customer perception and expectation	Kloppenburger Timothy J. (1992); Lee M. (1996); Chen, K.J. (1997); Gustafsson, A. (1999); Frost F.A. (2001); Rietveld P. (2001); Gilbert D. (2003); Park J.-W. (2004); Chen F.-Y. (2005); Le Bel J.L. (2005); Laws E. (2005); Park J.-W. (2006); Abdlla G. (2007); Pakdil F. (2007); Prayag G. (2007); Chen C.-F. (2008); Cheng J.-H. (2008); Tiernan S. (2008); Forbes S. (2008); Moufakkir O. (2010); Ahn T.-H. (2011); Kim Y.K. (2011); Tsai W.-H. (2011); Lambert A. (2011); Curry N. (2012); Ahmed H.S. (2013); Llach J. (2013); Metwally D. (2013); Namukasa J. (2013); Chen P.T. (2013); Laming, C. (2014); Strombeck S. (2014); Chow C.K.W. (2015); Etemad-Sajadi, R. (2015); Choi K. (2015); Merkert R. (2015)

Table 4. Literature review: combination of variables, authors and year (Source: Created by the authors based on the WOS and SCOPUS database) (continued)

Name of variables	Authors (year)
15) Airline Alliances	Tiernan S. (2008); Tsantoulis M. (2008)
16) Others	오지경 (2007); Xie Z.C. (2008); 홍외성 (2009); Park J.-W. (2010); 박종기 (2010); Dominic P.D.D. (2011); Elgin A. (2012); Llach J. (2013); Elkhani N. (2014); Elias, N.F. (2015); Araujo L. (2015); Ater I. (2015);

Obviously, some articles took into account more than one variable in its study, so that authors are appearing repeatedly in some cases.

4. Descriptive results

4.1. Evolution of published papers

Figure 2 shows the evolution of papers that met the requirements of this study, as well as the total accumulative. The relevant set

considers the period from 1981-2015, as for the previous years 1978-1980 no papers were found.

Therefore, Figure 2 displays the evolution of the 118 identified papers during the ranged period (1978-2015). It shows that 63.6% of the total papers were published in the last eight years (2008-2015), a result which determines the dynamism of this field of study in recent years and the importance that the concept quality is assuming during the mentioned span of time.

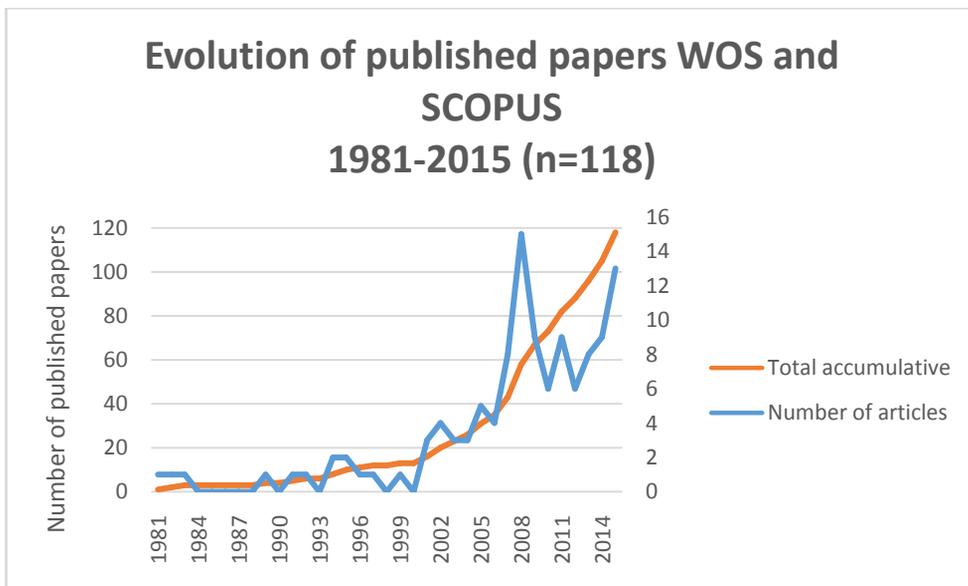


Figure 2. Evolution of published papers by year and accumulative 1981-2015 (Source: Created by the authors)

Especially after challenges to the industry, such as the attacks of 9/11 in 2001, as well as the mentioned introduction of LCCs in Europe in 1995, changes occurred in both demand and supply for air travel and the phenomena quality got essential in this business. Consequently, researchers started to explore this field of study in a much higher frequency during the last years.

4.2. Most frequently cited papers in WOS and SCOPUS

The following Table 5 shows the ranking of the most cited papers in both databases used. The most cited article is published by Tsauro et al. (2002), with a total of 591 citations (the paper was available in both of the databases, WOS and Scopus, so the sum of the citations has been taken), while the second ranked paper is written by Chang and Yeh (2002), which obtained 232 citations (same criteria).

Table 5. Ranking of the most cited papers (Source: Created by the authors)

	AUTHORS	TITLE	YEAR OF PUBLICATION	TOTAL CITATIONS
1	Tsauro S.-H., Chang T.-Y., Yeh C.-H.	The evaluation of airline service quality by fuzzy MCDM	2002	591
2	Chang Y.-H., Yeh C.-H.	A survey analysis of service quality for domestic airlines	2002	232
3	Gilbert D., Wong R.K.C.	Passenger expectations and airline services: a Hong Kong based study	2003	148
4	Chen C.-F.	Investigating structural relationships between service quality, perceived value, satisfaction, and behavioral intentions for air passengers: Evidence from Taiwan	2008	134
5	Mazzeo M.-J.	Competition and service quality in the US airline industry	2003	102
6	Gursoy D., Chen M.-H., Kim H.-J.	The US airlines relative positioning based on attributes of service quality	2005	80
7	Park J.-W., Robertson R., Wu C.-L.,	The effect of airline service quality on passengers' behavioral intentions: A Korean case study	2004	76
8	Chen F.-Y., Chang Y.-H.,	Examining airline service quality from a process perspective	2005	63
9	Liou J.J.H., Tzeng G.-H.,	A non-additive model for evaluating airline service quality	2007	52
10	Pakdil F., Aydin O.,	Expectations and perceptions in airline services: An analysis using weighted SERVQUAL scores	2007	50

As seen, a set of authors demonstrated the importance of the quality concept and its strait connection with the airline industry. In relation to the first five most frequently cited

papers, basically they are taking into account the following ideas:

- In the paper with the title “The evaluation of airline service quality

by fuzzy MCDM” by Tsaur et al. (2002), being the most cited article (591 citations), a fuzzy set theory was conducted to be able to measure different attributes that compose the term of service quality, relating them with the 5 service dimensions included in the SERVQUAL model, as tangibility, reliability, responsiveness, assurance and empathy.

- In the same manner, Chang and Yeh (2002) evaluated the service quality concept of domestic airlines through a fuzzy multicriteria analysis and customer surveys.
- Gilbert and Wong (2003) analyzed in their paper expectations that air passengers can have in terms of being decision maker or non-decision maker in regard with aspects as customization, responsiveness, employees, reliability, assurance, flight related issues and facilities; trying therefore to identify the aspects that

matter most to the airline passengers.

- Chen C.-F. (2008) wants to identify in his paper the relationship that exists between the aspects service quality, perceived value, satisfaction and the behavioral intentions that passengers can have.
- Meanwhile Mazzeo (2003) takes into consideration the variable of “punctuality”, talking about on-time performance and delays and its mutual connection.

4.3. Most productive and cited journals

The 118 papers which are included in both databases for this study appear in a total of 68 different journals. Table 6 shows the 6 most productive journals with 4 or more articles included in this study, the total citations and its correspondent indexing in WOS or SCOPUS database. The criteria of taking into account journals with 4 articles or more has been established by the authors for reducing the table size.

Table 6. Most productive journals and citations during the research in WOS and Scopus

RANKING	JOURNAL NAME	Number of articles in this study	Number of citations	5-years impact factor	WOS	SCOPUS
1	Tourism Management	6	852	3.762	0	0
2	Journal of Air Transport Management	11	274	1.328	0	0
3	Transportation Research Part A - Policy and Practice	5	237	3.563	0	0
4	Managing Service Quality	9	106	1.477		0
5	International Journal of Quality and Reliability Management	4	70	NA		0
6	Total Quality Management and Business Excellence	4	22	1.482	0	0

The first 6 journals in the ranking already represent 33% (39 of 118 papers) of the total set of papers included in this study, which means that the research topic is gathered together and focused in a concentrated group of journals. The three most productive journals in terms of citations are Journal of Tourism Management (n=852), the Journal of Air Transport Management (n=274) and the Journal Transportation Research Part A – Policy and Practice (n=237). In terms of the number of articles included in this study, it is the Journal of Air Transport Management that stands out with almost 10% of the total of published articles included in this research (n=11).

Analyzing the relation between the total citations by papers for each journal and the corresponding 5-years impact factor, results of this study achieve unanimity at least in the first placed journal in regard to the total citations. The Journal of Tourism Management shows a total of 852 citations and at the same time it has the highest 5-years impact factor with 3.762.

The high number of citations is related to the fact that the most cited article in this study

(Tsaour et al., 2002) is published through this journal.

The journal of Air Transport Management for instance, which in this study has been ranked first in relation to its productiveness in terms of articles (n=11), and the second placed journal in regard to its number of citations, shows that although having 11 articles included for this study, the number of citations for each article is very low and, therefore, its 5-years impact factor is only 1.328.

4.4. Evolution of established variables

In this part of the results, the evolution of the number of the 16 established variables has been analyzed, first for the databases, and afterwards for each of the established variables, grouping together different periods of time.

Figure 3 shows the evolution of the total variables used during the period 1978-2015, although this analysis starts in 1981, as no articles were published related to this research topic prior to these years.

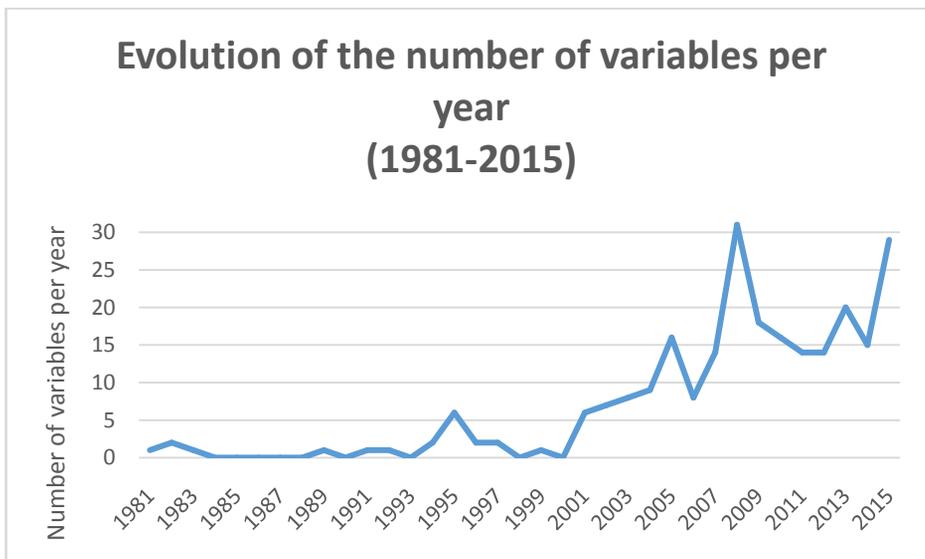


Figure 3. Evolution of the number of variables per database 1981-2015 (Source: Created by the authors)

The graphic displays the first increment in 1995 (n=6), growing the number of variables from 2001 on with a positive tendency, although showing fluctuations during the whole period. It reaches its highest point of

number of variables in 2008 (n=31).

Table 7 presents an evolution of variables for 4 different periods, starting the analysis in 1978.

Table 7. Evolution of variables per periods of time (Source: Created by the authors)

	1978-1987	1988-1997	1998-2007	2008-2015	TOTAL
Service quality	3	6	17	37	63
Customer perception and expectation	0	3	11	22	36
Customer satisfaction	0	0	5	22	27
Punctuality	0	1	6	13	20
Courtesy and image of the company	0	0	2	11	13
Others	0	0	1	11	12
Flight schedule	0	1	5	5	11
In-flight service	0	0	3	8	11
Handling passenger	0	0	5	5	10
Pricing	1	1	1	7	10
Total quality management	0	1	4	4	9
Safety	0	0	4	4	8
Post-flight service	0	0	3	2	5
Pre-flight service	0	0	2	3	5
Features aircraft	0	2	0	1	3
Airline Alliances	0	0	0	2	2
TOTAL	4	15	69	157	245

The variable with the highest weight of importance related to what has been said about quality in the airline business is “service quality”. The total number of times it was mentioned in the chosen papers for this study was 63.

The period where most variables have been used, showing a parallel evolution to the number of published articles, has been the period of 2008-2015 with 157 mentions.

The periods 1978-1987 and 1988-1997 show only a low number of variables used during

these years, being the total number of mentions 4 and 15, respectively for the mentioned periods. During the period 1998-2007, the academic published articles started putting more focus on this concept, although it is, as mentioned, especially the period 2008-2015 which stands out with a total of 157 variables used in 75 papers that are included in this study during this period.

4.5. Co-occurrence and Network Analysis of Variables through Keywords and Titles

For the unit of both databases, WOS and Scopus, a graphic has been created, making use of the sixteen previously established variables; this graphic analyzes the relationships between the keywords which have been identified by the authors of each paper, seeing therefore in both cases the

interaction and association between the variables.

The graphic has been represented through the program NodeXL (NodeXL, 2013), using the Fruchterman and Reingold (1991) algorithm graph layout; the matrix has been created based on the size of the edges, which represents the importance and frequency of relation and co-occurrence between one and a second variable, while the volume of vertexes represents the relevance of each variable itself based on the literature reviewed for this research.

As Figure 4 shows, the most important identified links between the variables exist between “service quality”, “customer satisfaction”, and “customer perception and expectation”.

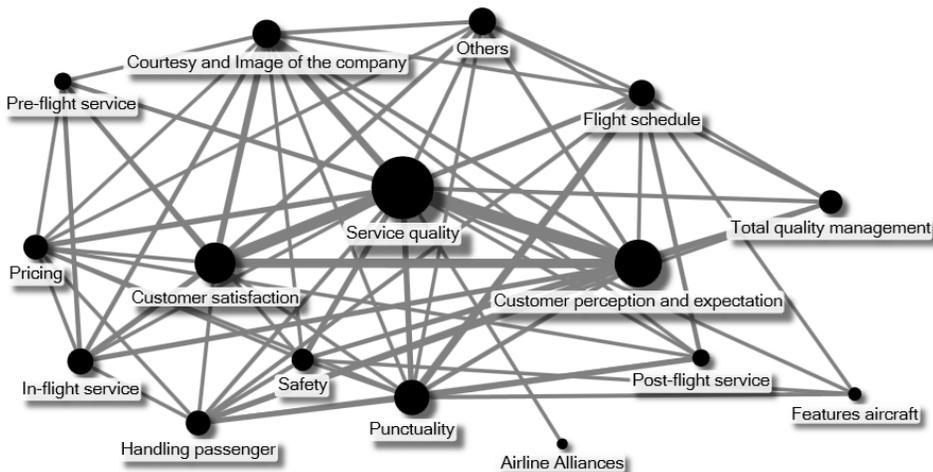


Figure 4. Network analysis of variables (Source: Created by the authors)

The vertexes with the highest relevance are the variables “service quality” (n=63), “customer perception and expectation” (n=36) and “customer satisfaction” (n=27).

5. Discussion and conclusions

Although the general interest on quality in this business is steadily growing, it is necessary to emphasize that there does not

exist any specific literature review on what has been said about the quality concept in the airline industry during the previous decades.

Therefore, existing literature about this subject has been revised, covering the period 1978-2015. This paper identified and analyzed papers related to this research topic through a systematic literature review in order to define and frame this concept and to

see a general overview on the evolution that quality has taken in this business.

Furthermore, the aim of this research was to give firstly an overview on the quality concept and what has been said about quality in previous studies. And, secondly, also to determine the weight of correlation between each of the established quality variables in this study and to figure out the strength of each, through a network variable analysis, which helps significantly to understand in a better and easier way the relationship and co-occurrence between the variables included in the framework of quality in regard to the air transportation industry.

Papers have been classified and sorted out through the academic community's two most recognized databases, WOS and Scopus, using a total sample of 118 papers.

One of the first conclusions drawn from this study is that the topic has received a growing interest during recent years maintaining positive tendencies.

With no doubt, the aviation industry has undergone a fundamental structural change in recent decades, a fact which is associated with the progressive globalization, the liberalization and deregulation progress in the international aviation market, the introduction of LCCs, as well as the changing demands and expectations of the customers (Ali et al., 2015); as a result, a lot of new airline companies were created, and competition and quality became essential concepts both for the customers and companies.

Resulting from this study it can be seen that the number of published articles in this research field has developed in a constant way. The most cited article has been published by Tsaur et al. (2002) and Chang and Yeh (2002), with 591 and 232 citations, respectively.

A multitude of journals distributed articles related to the research topic, but only a few really focused on it.

The most productive journal in this study,

measured in number of citations, has been the Journal of Tourism Management (n=852), while the journal with the highest number of articles included in this study has been the Journal of Air Transport Management (n=11).

Regarding the analysis of the evolution of each of the established variables in this study, the most mentioned item has been "service quality", with a total of 63 mentions during the period 1978-2015.

Through a network variable analysis, it has been possible to analyze the co-occurrence between the variables created for this study. The strongest ties exist between "service quality", "customer satisfaction" and "customer perception and expectation".

Finally, given these results, and seeing what has been said about quality, another conclusion is that "service quality" is the element that most contributes to the satisfaction, loyalty and therefore to a positive perceived service quality for the customers, that helps them to get a positive image of the airline company as well as positive behavioral intentions. Service quality was the variable with the highest frequency used as it is the concept that is adopted normally when talking about quality in the airline business.

Further research following the findings of this study could firstly carry out a research about the influential aspects of quality for each of the business models, LCC and FSC market, as there does not exist any relevant literature about the several quality concepts that really show the differences in terms of quality between both of the models.

Especially due to the high importance that the low-cost market has received during the last years, this would be a necessary and needed research.

Secondly, further research could address and analyse if the companies that are focused on quality, under the different ways of defining and measuring it, are employing their resources and strategies correctly in order to achieve their financial performance goals.

References:

- Acar, A. Z., & Karabulak, S. (2015). *Competition between Full Service Network Carriers and Low Cost Carriers in Turkish Airline Market*. Paper presented at the 11th International Strategic Management Conference 2015.
- Akamavi, R. K., Mohamed, E., Pellmann, K., & Xu, Y. (2014). Key determinants of passenger loyalty in the low-cost airline business. *Tourism Management*, 46, 528-545. <http://dx.doi.org/10.1016/j.tourman.2014.07.010>
- Ali, F., Dey, B. L., & Filieri, R. (2015). An assessment of service quality and resulting customer satisfaction in Pakistan International Airlines. *International Journal of Quality and Reliability Management*, 32(5), 486-502. <http://dx.doi.org/10.1108/IJQRM-07-2013-0110>
- An, M., & Noh, Y. (2009). Airline customer satisfaction and loyalty: impact of in-flight service quality. *Journal of Service Business*, 3(3), 293-307. doi: 10.1007/s11628-009-0068-4
- Baker, D. (2013). Service quality and customer satisfaction in the Airline Industry: A comparison between legacy Airlines and low cost Airlines. *American Journal of Tourism Research*, 2(1), 67-77.
- Belobaba, P. (2011). In search of sustained profitability 30 years after deregulation. In J.F. O'Connell & G. Williams (Eds.). *Air Transport in the 21st century-Key strategic developments*. Ashgate.
- Ben-Yosef, E. (2005). *The Evolution of the US Airline Industry. Theory, Strategy and Policy*. Springer Science & Business Media
- Campa-Planas, F., & Campa-Lewkowycz, R. (2009). Estructuras de oferta en transporte aéreo: modelos punto a punto y de red. *Harvard Deusto Business Review*, 179, 42-50.
- Chang, Y. H., & Yeh, C.-H. (2002). A survey analysis of service quality for domestic airlines. *European Journal of Operational Research*, 139(1), 166-177. [http://dx.doi.org/10.1016/S0377-2217\(01\)00148-5](http://dx.doi.org/10.1016/S0377-2217(01)00148-5)
- Chen, C. F. (2008). Investigating structural relationships between service quality, perceived value, satisfaction, and behavioral intentions for air passengers: Evidence from Taiwan. *Transportation Research Part A – Policy and Practice*, 42(4), 709-717. <http://dx.doi.org/10.1016/j.tra.2008.01.007>
- Chen, F. Y., & Chang, Y. H. (2005). Examining airline service quality from a process perspective. *Journal of Air Transport Management*, 11(2), 79-87. <http://dx.doi.org/10.1016/j.jairtraman.2004.09.002>
- CRD. Centre for Reviews and Dissemination. (2009). *Systematic Reviews: CRD's guidance for undertaking reviews in health care*. CRD, University of York.
- Dempsey, P., & Goetz, A. (1992). *Airline deregulation and laissez-faire mythology*. Quorum Books.
- Elsevier (2015). www.elsevier.com, (accessed 20 February 2016).
- Fageda, X., Jimenez, J. L., & Suarez-Aleman, A. (2014). Assessing airlines: Quality as a competitive variable. *International Journal of Transportation Economics*, 41(3), 425-440.
- Fonseca, F., Pinto, S., & Brito, C. (2010). Service quality and customer satisfaction in public transports. *International Journal for Quality Research*, 4(2), 125-130.
- Francis, G., Humphreys, I., Ison, S., & Aicken, M. (2006). Where next for low cost airlines? A spatial and temporal comparative study. *Journal of Transport Geography*, 14, 83-94. <http://dx.doi.org/10.1016/j.jtrangeo.2005.05.005>

- Freeman, L.C. (2004). *The Development of Social Network Analysis. A Study in the Sociology of Science*. Vancouver, BC Canada: Empirical Press.
- Fruchterman, T., & Reingold, E. (1991). Graph Drawing by Force-directed Placement. *Software-practice and experience*, 21, 1129-1164.
- Gilbert, D., & Wong, R. K. C. (2003). Passenger expectations and airline services: A Hong Kong based study. *Tourism Management*, 24(5), 519-532. [http://dx.doi.org/10.1016/S0261-5177\(03\)00002-5](http://dx.doi.org/10.1016/S0261-5177(03)00002-5)
- Ginieis, M., Sánchez-Rebull, M.-V., & Campa-Planas, F. (2012). The academic journal literature on air transport: Analysis using systematic literature review methodology. *Journal of Air Transport Management*, 19, 31-35. <http://dx.doi.org/10.1016/j.jairtraman.2011.12.005>
- Gursoy, D., Chen, M. H., & Kim, H. J. (2005). The US airlines relative positioning based on attributes of service quality. *Tourism Management*, 26(1), 57-67. <http://dx.doi.org/10.1016/j.tourman.2003.08.019>
- Kalemba, N., Campa-Planas, F., Hernández-Lara, A.-B. & Sánchez-Rebull, M.-V. (2016). *US Airlines Performance and Its Connection with Service Quality*. 18th International Conference on Air Transport Management 2016, London.
- Liou, J. J. H., & Tzeng, G.H. (2007). A non-additive model for evaluating airline service quality. *Journal of Air Transport Management*, 13(3), 131-138. <http://dx.doi.org/10.1016/j.jairtraman.2006.12.002>
- Luke, D. A., & Harris, J. K. (2007). Network Analysis in Public Health: History, Methods, and Applications. *Annual Review of Public Health*, 28, 69-93. doi: 10.1146/annurev.publhealth.28.021406.144132
- Mazzeo, M. J. (2003). Competition and Service Quality in the U.S. Airline Industry. *Review of Industrial Organization*, 22, 275-296. doi:10.1023/A:1025565122721
- Nejati, M., Nejati, M., & Shafaei, A. (2009). Ranking airlines' service quality factors using a fuzzy approach: study of the Iranian society. *International Journal of Quality and Reliability Management*, 26(3), 247-260. <http://dx.doi.org/10.1108/02656710910936726>
- NodeXL (2013), www.nodexl.codeplex.com, (accessed 04 August 2016).
- OECD (1997), *The future of international air transport policy: Responding to global change*. Report.
- Pakdil, F., & Ayding, O. (2007). Expectations and perceptions in airline services: An analysis using weighted SERVQUAL scores. *Journal of Air Transport Management*, 13(4), 229-237. <http://dx.doi.org/10.1016/j.jairtraman.2007.04.001>
- Park, J. W., Robertson, R., & Wu, C. L. (2004). The effect of airline service quality on passengers' behavioral intentions: A Korean case study. *Journal of Air Transport Management*, 10(6), 435-439. <http://dx.doi.org/10.1016/j.jairtraman.2004.06.001>
- Pearson, J. (2016). *Relative performance: a product and organizational architecture analysis of Asian low-cost subsidiaries*. Paper presented at the 20th ATRS World Conference 2016, Rhodes.
- Prayag, G. (2007). Assessing international tourists' perceptions of service quality at Air Mauritius. *International Journal of Quality and Reliability Management*, 24(5), 492-514. <http://dx.doi.org/10.1108/02656710710748367>
- Scopus (2015). www.scopus.com, (accessed 4 August 2016).

- Suzuki, Y., Tyworth, J. E., & Novack, R. A. (2001). Airline market share and customer service quality: a reference-dependent model. *Transportation Research Part A – Policy and Practice*, 35(9), 773-788. [http://dx.doi.org/10.1016/S0965-8564\(00\)00016-1](http://dx.doi.org/10.1016/S0965-8564(00)00016-1)
- Thomson Reuters (2015). www.thomsonreuters.com, (accessed 11 April, 2016).
- Tsaur, S.-H., Chang, T.-Y., & Yen, C.-H. (2002). The evaluation of airline service quality by fuzzy MCDM. *Tourism Management*, 23(2), 107-115. [http://dx.doi.org/10.1016/S0261-5177\(01\)00050-4](http://dx.doi.org/10.1016/S0261-5177(01)00050-4)
- Vasigh, B., Fleming, K., & Tacker, T. (2016). *Introduction to Air Transport Economics – From Theory to Applications*, Second Edition. Routledge.
- Web of Science (2015). www.webofknowledge.com, (accessed 5 August 2016).
- Webster, J., & Watson, R. (2002). Analyzing the past to prepare for the future: Writing a literature review. *MIS Quarterly*, 26(2), 13-23.
- Wensveen, J. G. (2011). *Air Transportation: A Management Perspective*, 7th edition. Ashgate Publishing Company
- Werner, F. M., & Stoner, J. F. A. (1999). Bringing Quality into Airline Financial Management. In G. Butler & M. Keller (Eds.), *Handbook of Airline Finance*. New York: McGraw-Hill.

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