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Artículos Científicos

Factores críticos de éxito en aerolíneas de bajo costo en Europa de 1999 a 2018

Critical Success Factors (CSF) on low cost airlines in Europe from 1999 to 2018

Fatores críticos de sucesso em companhias aéreas de baixo custo na Europa de 1999 a 2018

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Resumen

El objetivo principal de este artículo fue analizar los factores críticos de éxito en las aerolíneas de bajo costo europeas. Para ello, primero se realizó un análisis bibliométrico y luego uno estadístico en el cual se aplicaron dos tipos de pruebas (Pearson y técnica R) para verificar si existe una relación entre las variables seleccionadas. En concreto, se trabajó con una muestra de 60 aerolíneas: las más representativas durante el período 1999-2018. Los resultados del estudio muestran la relación entre el aumento en el uso de vuelos de bajo costo y el costo de viaje con características de confort mínimas aceptables.

Palabras clave: aerolíneas, bajo costo, factores críticos de éxito.

Abstract

The main objective of this article was to analyze a determining factor of success in organizations: the critical success factors in low cost airlines in Europe, in the first part a bibliometric analysis was carried out and in the second statistical one in which They applied two types of tests (Pearson and R technique) to verify if there is a relationship between the selected variables. We worked with a sample of sixty airlines: the most representative during the period from 1999 to 2018. The results of the study showed the relationship between the increase in the use of low cost flights and the cost of travel with minimum acceptable comfort characteristics.

Keywords: airlines, low cost, critical success factors.

Resumo

O principal objetivo deste artigo foi analisar os fatores críticos de sucesso nas companhias aéreas europeias de baixo custo. Para isso, foi realizada uma análise bibliométrica e, em seguida, uma estatística, na qual foram aplicados dois tipos de testes (técnica de Pearson e R) para verificar se há relação entre as variáveis selecionadas. Especificamente, trabalhamos com uma amostra de 60 companhias aéreas: as mais representativas durante o período 1999-2018. Os resultados do estudo mostram a relação entre o aumento no uso de voos de baixo custo e o custo da viagem com características mínimas de conforto aceitáveis.

Palavras-chave: companhias aéreas, baixo custo, fatores críticos de sucesso.

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Introduction

Despite criticism that has received the competitive advantage of Porter theory (Porter, 1991), the evidence shows that today some organizations continue to implement it as a strategic formula to achieve a place in international markets, as is the case with airlines Low cost, known as low cost or low fares airlines.

For this reason, the purpose of this work is to analyze how the critical factors of low-cost success (since 1999) have been used to generate positive impacts on European airlines, which was promoted thanks to the air liberalization produced with the Arrival of low cost companies. Likewise, the keys to success of this expansion are studied, as well as the evolution of the sensitivity of travelers to the price and the impacts that these companies have had for traditional airlines. With this it is tried to determine if the low cost is in fact one of the keys of the success in the acceptance of the travelers.

In this regard, it should be noted that in the late 1970s in the United States of America, economic deregulation of national airlines was carried out with the intention of promoting economic tickets (Winston, 1998). However, Southwest Airlines (regional airline) redefined its competitive strategy, which served not only to position itself as the first and original low-cost airline (low fares carrier or low cost carrier), but also to become the airline more profitable from the United States (European Low Fares Airline Association [ELFAA], 2004).

This was an incentive for other low-cost airlines to appear in the United States over the years, which also happened in the late 1980s and during the 1990s in different European countries (originally in the United Kingdom and Ireland), where companies with a community license could attend any international route within the European Union with a great freedom in terms of prices (ELFAA, 2004), a strategy that was later extended in Southeast Asia with the deregulatory movement (Kua y Baum, 2004).

These new changes were the sustenance to undertake diverse investigations, such as those developed by Calder (2002), Ito and Lee (2003), Quirós Tomás (2007, 2008, 2009) and Quirós Tomás and Vega (2011), who have deepened on Critical success factors, among which the following stand out: the great reduction in the price of tickets since the emergence of low-cost airlines, the correlative expansion in both the number of routes covered and flights and tickets available, the attraction of clients with lower purchasing power, the

analysis of the levels of income of international travelers to Spain in traditional and low-cost companies (Subdirectorate General of Knowledge and Tourism Studies, 2013).

On this growing commercial phenomenon, it is estimated that in 2005 alone in Europe there were 60 such flight companies known as low-cost companies (CBC), which started competitive strategies completely different from those used by traditional companies (Quirós and Vega, 2011), which are based on a proposal by Porter (1980): cost leadership.

Those 60 lines were in 15 countries across Europe and represented 25% of total employment, with a world average of growth of 4.6% (World Bank [BM], 2013). Low-cost companies around the world have played an important role in the extraordinary expansion of the sector in the last quarter of a century. For 2013, these transported 31% of total passengers in the world (International Civil Aviation Organization [ICAO], 2014).

De la Fuente and Muñoz (2003) argue that the origin of the competitive advantage lies in the activities of the value chain - a focus widely defended by Porter (1991) - as well as in the resources - idea formulated by Wernerfelt (1984, 1995) -. De la Fuente and Muñoz (2003) analyze these two approaches and based on this they formulate a general proposal that they consider should be validated in other investigations.

In this regard, however, it is worth commenting that CBCs have a relationship with the reported studies on competitive advantage and that the most cited article is that of Porter (2007) in terms of competitive advantage based on cost, a strategy that continues to be used by many organizations in 2018, which is why we should continue to research on this topic.

The competitive strategy, from the perspective of Porter (2000), is the action that leads to the development of a broad formula of how the company will compete and what its objectives and policies should be to achieve those objectives. Porter states that the competitive strategy is a combination of the goals (goals) for which the company is striving and the means (policies) with which it is seeking to reach them. Based on this approach, Porter proposes an axiom that suggests that companies can carry out three generic competitive strategies: differentiation, focus and cost leadership (this research focuses on the latter).

The cost leadership strategy is justified from four conditions: when consumers in certain industries are price sensitive, when there are few changes to achieve differences between products, when buyers are not interested in differences between one brand and another, or when there is a large number of buyers with considerable bargaining power.

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However, according to Lizzi (2004), Porter's competitive advantage is based on having the primacy in the position of the operating market, for which the cost is unquestionably a success factor. Even so, Porter (1980) mentions that cost leadership is based on four points: 1) achieving cost leadership means that a firm is established as the lowest cost producer in its industry; 2) a cost leader must achieve parity, or at least proximity, even when he relies on cost leadership to consolidate his competitive advantage; 3) If more than one company tries to achieve cost leadership at the same time, this is generally disastrous, and 4) the use of economies of scale.

In this context, of course, it may also happen that low-cost airlines that use hybrid strategies combine low cost and elements of differentiation (Kim, Nam and Stimpert, 2004). For Hernández (2000, cited by Quero, 2008), competitiveness is related to a continuous improvement that must be developed along a path that each company must travel, although in summary it can be said that its objective is focused on having the lower possible costs while focusing on certain routes, which are usually in constant growth. An example of this is the cost per seat and kilometer offered (AKO) in 2005 for intra-European routes, because while in low-cost companies there was a difference between 4 and 7 euro cents, in traditional companies that difference was between 9 and 12 euro cents (European Cockpit Association [ECA], 2006).

Similarly, in 2007 the operating costs of Ryanair and Easyjet - the two main low-cost companies in Europe - were 1.7 and 3.5 times lower than those of classic companies such as BA, Air France or Lufthansa, which makes clear a high competitiveness among these Companies It should be noted that the most representative low cost companies in Europe are Ryanair, Easyjet, Vueling, Air Berlin, Wizz Air and Transavia, which generate savings by using only one type of aircraft model: the Boeing 737 (standardization).

In this regard, it is important to indicate that in this investigation the characteristics of low-cost airlines are generally considered as a single variable, that is, the breakdown or analysis of each characteristic is not performed. Noting this, the most common CBC features are mentioned below (Barbot, 2004; ECA, 2006; ELFAA, 2004; Pender y Baum, 2000):

1. Elimination of classes, offering a single type of ticket.
2. Reduction to the minimum or collection of any type of services on board.
3. Short-haul flights without connections between flights, that is, point-to-point flights, without transfers.
4. Intensive use of airplanes by increasing the number of flight hours.

5. Flights to secondary airports to have lower costs for fees and to reduce the time between landing and takeoff.
6. Low salary costs and high staff productivity.
7. Use of a single airplane model.
8. Highly efficient configuration of aircraft, so that they can carry more passengers per flight.
9. Reduced costs in central services, administration and management in general.

On the other hand, and regarding the calculation of prices, in the work of Cruz (2011) a group of mathematical formulas are presented and used for this purpose. Likewise, De Rus and Nombela (2003) propose the calculation of the generalized price (PG) and the extended generalized price (PGA), monetary valuation of all expenses incurred by a user of transport services for traveling on a given route. The mathematical expression is the following: PG is the generalized price, Pi the price of the trip that the user must pay, vt is the monetary valuation of the time spent on that trip, t the time to travel, v the unit value of time and θ It represents other factors that are difficult to quantify, such as the comfort and safety of a trip, which will henceforth be zero. EX represents extra expenses that the user must make during a trip, such as those employed in food according to the time of the trip:

$$PG = Pi + vt + \theta \quad PGA = Pi + vt + \theta + EX$$

Finally, there are also cases in which the gain has been studied according to the number of seats offered by traditional and low-cost airlines. The results, however, reflect very little encouraging numbers, so a continuous improvement in operating expenses is required to ensure the success of the companies. Table 1 presents a McCartney distribution (June 15, 2012) published in the Wall Street Journal regarding the distribution of seats and the costs they cover from a hypothetical flight of 100 passengers.

Tabla 1. Distribución de asientos y costo que cubren

Número de asientos	Costo que cubre el asiento
29	Cubren el costo del combustible
20	Sueldos
16	Al avión
14	Impuestos
11	Mantenimiento
9	Se perdían en la cuenta de otros
1	Ganancia del vuelo

Fuente: Elaboración propia con datos de McCartney (2012).

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In 2013, the global airline network transported 3.1 billion passengers on 33 million scheduled flights, figures that according to various studies could be doubled by 2030, hence this activity plays a very important role in the world economy (Airbus, 2014; Eurocontrol, 2014; ICAO, 2014).

Method

The present research was quantitative, exploratory, descriptive and correlational, which served to make a contribution on how the scientific production of the subject of study is distributed. For the analysis of the information, bibliometry was used, a technique used for the quantitative analysis of scientific publications (López, cited by Camps and Chauhan, 2009). Regarding the bibliometric indicators, the parameters were search categories around the productivity of the authors or institutions, which can be measured according to the following criteria: number of published works, growth of any field of science, chronological variation of the number of papers disseminated and collaboration between scientists or institutions, as well as number of authors per work or collaborating research centers (Sancho, 1990). Specifically, the following specific research objectives were raised:

- Conduct a bibliometric review to support a descriptive and exploratory transectional research work on European low cost airlines during the period 1999-2018.
- Select one of the critical success factors of organizations to characterize it in a transectional documentary research work.
- Develop a statistical analysis to verify compliance with any of the hypotheses raised to provide new information to the community concerned.

However, as already mentioned, the success of low-cost airlines is based, among other factors, on the fact that their business model is based on the reduction of passenger fares (Binggeli and Pompeo, 2002). These costs can be divided into three categories (Belobaba, Odoni y Barnhart, 2009):

1. Flight operation costs (FOC3): These comprise about 54% of the total costs that flight operations include (system operating costs represent 26%, while operating costs in land accounts for approximately 20% of total expenses; the remaining 8% is due to other costs).
2. Maintenance

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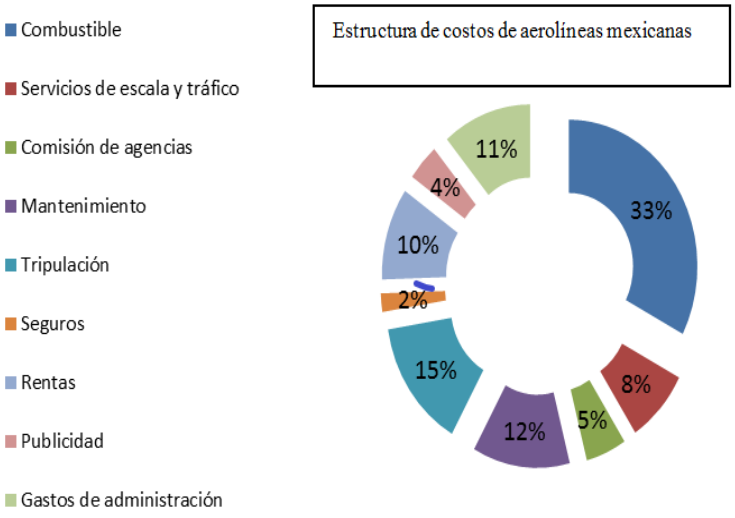
3. Depreciation and amortization caused mainly by fluctuations in fuel prices.

Likewise, it should be remembered that classic airlines use different types of aircraft according to flights and destinations, while low-cost ones only use one type of aircraft. This reduces costs because it unifies the training criteria of flight attendants or hostesses, as well as pilots and technical and mechanical maintenance personnel. In addition, aircraft models that do not have reclining seats are used to reduce the purchase of spare parts, as well as adjustments to keep them in optimal condition. In fact, they do not have a slide compartment under the seat (which facilitates the cleaning of the plane and, consequently, reduces waiting times and penalties for delayed trips) and they do not have entertainment systems either. All this contributes to the low cost carriers' aircraft remaining longer in the air with a smaller number of employees (30 or 40 people, unlike the more than 100 employees of traditional airlines), which makes it more competitive to the company and allows you to get more profits.

To better illustrate this idea, the following is a cost structure of Mexican airlines (figure 1), which can be compared with European ones (figure 2):

Figura 1. Estructura de costes en aerolíneas tradicionales mexicanas



Fuente: Elaboración propia con base en los datos de Canseco, Zúñiga y Blanco (2015) y la Secretaría de Comunicación y Transporte (SCT) (2013).

Figura 2. Estructura de costes en aerolíneas de tipo tradicional en Europa

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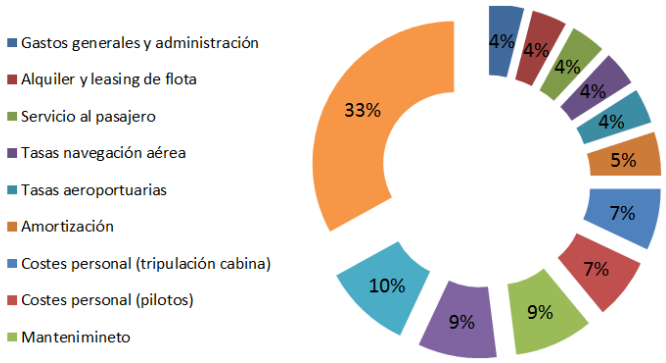
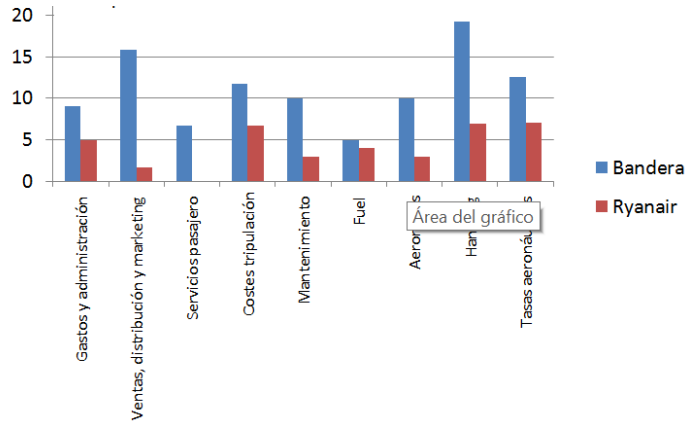


Fuente: Secretaría de Estado de Transportes (2008).

As can be seen, although in both cases the fuel represents 33% of the cost, the operating indicators change in terms of savings, as the CBC have more advantage than the flag companies (government or privatized).

Another example is presented in Figure 3, where Ryanair's cost structure is shown against a flag company in Europe:

Figura 3. Estructura de costes de Ryanair frente a una compañía de bandera en Europa



Fuente: Elaboración propia con datos de Candela-Garriga (2008).

On the other hand, Figure 4 shows the cost reduction of European low cost companies (values in%), which gives a clearer picture of the progress in this area, among which the lower density in seats stands out (16 %).

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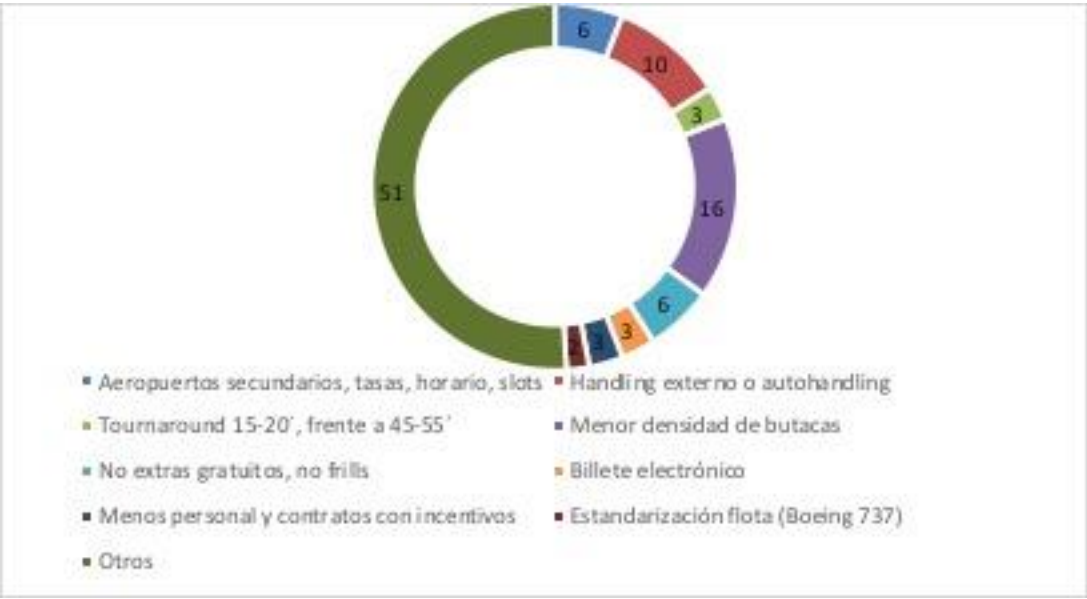
Figura 4. Reducción de costes de las compañías *low cost* en Europa (valores en %)



Fuente: Elaboración propia con datos de la The European Cockpit Association (Francesc, 2008).

The phenomenon of low cost has produced a fundamental effect: it has attracted new travelers, who so far could not access that means of transport. Indeed, passenger demand is currently estimated at 59%, of which 71% did not travel previously because they did so, for example, by car (15%), by train (6%) or by other means (8%) (Skeels, 2005a, 2005b, 2005c).

Now, to indicate the hypothesis, the ritual of statistical significance used is presented (table 2):

Tabla 2. Ritual de la significancia estadística

1	Plantear hipótesis. Ho: No existe correlación entre el éxito y el costo por vuelo **H1: Existe correlación entre el éxito y el costo por vuelo**
2	Establecer un nivel de significancia. Nivel de significancia alfa α = 5 % = 0.05
3	Selección del estadístico de prueba **Correlación de Pearson** **Correlación de Spearman** (aplicable a diferencia de rangos) **Técnica R** **Análisis de la Varianza Anova** (se descarta por ser aplicable a una variable dependiente y por ser usadas en muestras que tienen la misma media) **Alfa de crombach** (no se considera porque no se utilizó un instrumento para la recolección ni para validarlo)
4	Sea α = 0.05. Spearman r = 0.9449 rango de relación + 0.91 a + 1.00 Correlación positiva perfecta Pearson = 0.9449R = 0.8929
5	Toma de decisión: Es un determinante **H1: Existe correlación entre el éxito y el costo por vuelo**

Fuente: Elaboración propia.

Regarding data and operations, it should be noted that the non-parametric statistical term refers to statistical methods that do not require the specification of an assumption about the distribution from which the sample data comes from to make inferences about the population (Cáceres, 2006). That is, they do not require the assumption of normality of the population from which the sample was extracted.

Likewise, for the analysis of data in non-parametric statistical form the following assumptions are made: the sample available for the analysis of the variables X and Y are measured in at least one ordinal scale (Anderson, Sweeney and Williams, 1999) ; Thus, there is an α = 0.05, n = 6 pairs of data from low-cost companies in the first test and in the second test n = 11 pairs of data from traditional companies, X = years studied and Y = increase in flights, to be able to check their correlation.

The first Spearman test (table 3) was performed analogously and the Pearson test in Excel software; in the first case it was found that there is a perfect positive correlation, while in the second test (performed in Excel) its average positive correlation was determined, as shown below:

Spearman's formula:

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As:

r = correlation coefficient

n = number of ordered pairs

x = independent variable

y = dependent variable

Tabla 3. Datos para la prueba de Spearman

año (x)	Incremento (y)	X^2	Y^2	X* Y
1999	13000	3996001	169000000	25987000
2000	17000	4000000	289000000	34000000
2001	24000	4004001	576000000	48024000
2002	39000	4008004	1521000000	78078000
2003	47000	4012009	2209000000	94141000
2004	80000	4016016	6400000000	160320000
12009	220000	24036031	11164000000	440550000

Fuente: Elaboración propia.

$$r = \frac{n\sum_{i=1}^{n} x_i y_{i-} \sum_{i=1}^{n} x_i * \sum_{i=1}^{n} y_{i\,=}}{\sqrt{(n\sum_{i=1}^{n} x_i^2 - (\sum_{i=1}^{n} x_i)2)(n\sum_{i=1}^{n} y_i^2 - (\sum_{i=1}^{n} y_i)2)}} \frac{6 * 440550000 - (1209 * 220000) =}{\sqrt{(6 * 24036031 - (12009)2)\,(6 * 11164000000 - (220000)2)}} 0.944951858$$

r = 0.9449 rango de relación + 0.91 a + 1.00 Correlación positiva perfecta

The interpretation of the values has been expressed by various authors on scales, one of which (the most used) is presented in Table 4:

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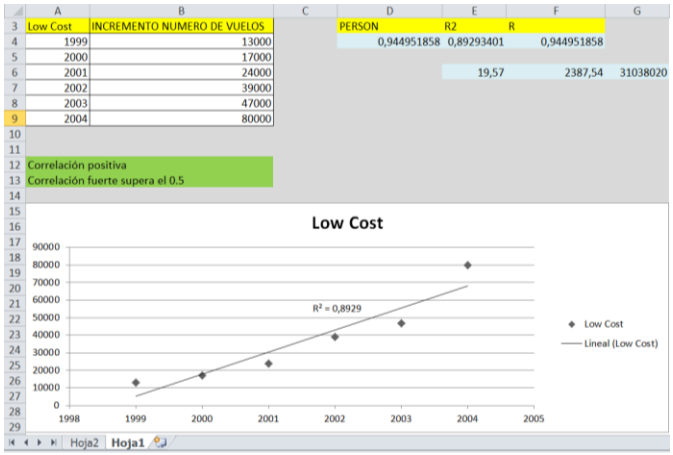
Tabla 4. Grado de relación según coeficiente de correlación

Rango relación
-0.91 a -1.00 Correlación negativa perfecta
-0.76 a -0.90 Correlación negativa muy fuerte
-0.51 a -0.75 Correlación negativa considerable
-0.11 a -0.50 Correlación negativa media
-0.01 a -0.10 Correlación negativa débil
0.00 No existe correlación
+0.01 a +0.10 Correlación positiva débil
+0.11 a +0.50 Correlación positiva media
+0.51 a +0.75 Correlación positiva considerable
+0.76 a +0.90 Correlación positiva muy fuerte
+0.91 a +1.00 Correlación positiva perfecta

Fuente: Elaboración propia con datos de Hernández, Fernández y Baptista (1998)

Below are figures 5 and 6 of the Pearson and R analyzes with the available data of the low cost and traditional airlines for two periods (Figure 5 shows the low cost companies from 1999 to 2004 and in figure 6 the same companies but in the period from 2005 to 2015, as well as the results of their statistical test).

Figura 5. Prueba de Pearson realizada a compañías de bajo costo (1999-2004)



Fuente: Elaboración propia con datos de ELFAA (2005)

As can be seen, the correlation is positive and with a perfect result in the case of low-cost companies, while in the results of traditional companies the positive correlation is medium. This means that the success of the companies can be found in other variables or

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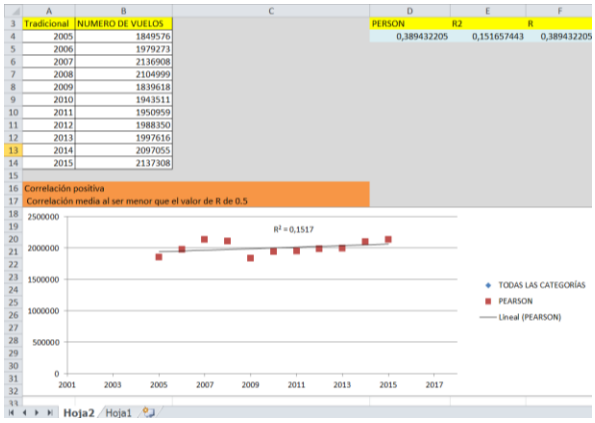
factors that have a stronger correlation, so it was not necessary to do the Spearman test analogously.

Figura 6. Prueba de Pearson realizada a compañías de bajo costo (2005-2015)



Fuente: Elaboración propia con datos de ELFAA (2016).

It can be concluded that decision making is an H1 determinant, that is, there is a correlation between success and cost per flight, although another study is required to prove the case of traditional companies.

Discussion and results

According to Delgado López-Cózar, Ruiz and Jiménez (2006), scientific journals are a channel that allows professionals and researchers from different disciplines to make their findings known, exchange experiences or learn about new advances and discoveries.

In this sense, it is worth remembering that one of the objectives of this study was to make a review in the Scopus databases on the scientific production published in a generic way around Critical success factors versus that published on Critical success factors on low cost airlines in Europe from 1999 to 2018, although for the latter criterion the term Critical success factors on low cost airlines was used to prevent the results from being void.

Likewise, for the collection of the information, the analysis of bibliometric indicators was prepared, which were classified into seven categories according to documents 1) generated by year, 2) by year and by source, 3) by author, 4) by institutional affiliation , 5) by country, 6) by type of document and 7) by area of knowledge.

Figure 7 belongs to the results of Critical success factors, while Figure 8 corresponds to the results of the search Critical success factors on low cost airlines. In this regard, it is

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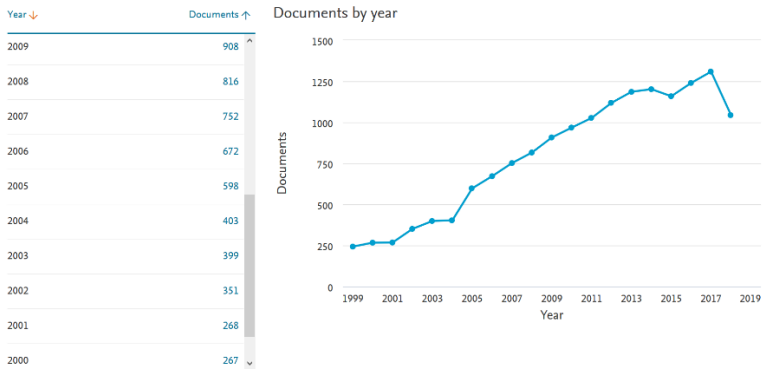
worth mentioning that in some cases different areas of knowledge appear to those of the central theme of this work, but they were also taken into account to have a comparison parameter.

Category 1: Documents generated per year

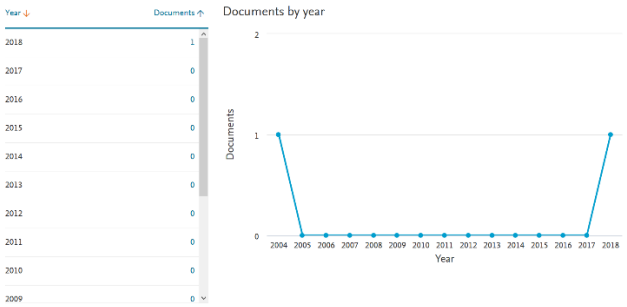
The results for the Critical success factors search were 15,931 documents (in 2017 there was the highest production with 1309 documents), while for Critical success factors on low cost airlines only 2 documents were found: one published in 2004 — titled Regional Airports : case study of sustainability, survival or success by the International Engineering Management Conference (IEEE) - and another disclosed in 2018 - whose source is Quality Engineering, dedicated to improving the flow of luggage with Lean Six Sigma tools in an airline American —.

Figura 7. Resultados de la búsqueda *Critical success factors*



Fuente: Elaboración propia con datos de Scopus (2018).

Figura 8. Resultados de la búsqueda *Critical success factors on low cost airlines*

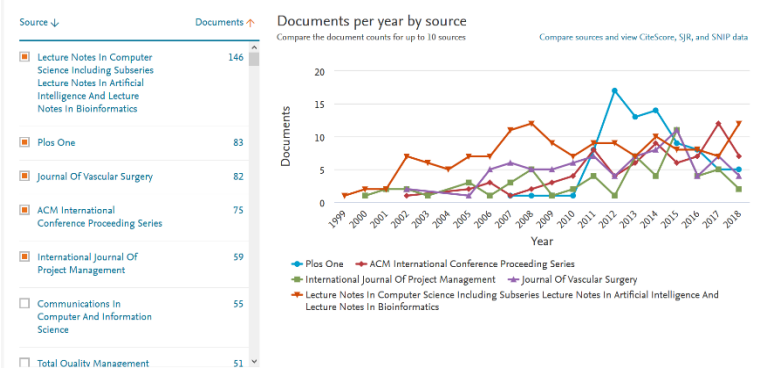


Fuente: Elaboración propia con datos de Scopus (2018).

Category 2: Documents generated by year and by source

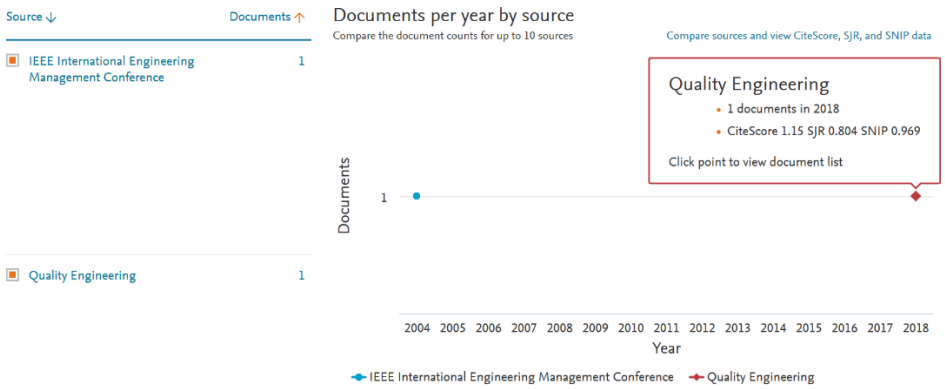
Figure 9 shows that in 2012 there was the highest production with 12 documents, while in figure 10, other documents generated by source are observed, these two articles being Scimago Journal Ranking (SJR) of 0.104 and 0.804, respectively. This is an indicator that shows the visibility of the journals contained in Scopus, as well as a Source Normalized Impact per Paper (SNIP), which measures the impact of an appointment. In this sense, the characteristics of the subject matter had values of 0.007 and 0.969, respectively, which is very interesting, although it also shows that there are few results in terms of the subject of main interest.

Figura 9. Documentos generados, por año y fuente, en torno al criterio *Critical success factors*



Fuente: Elaboración propia con datos de Scopus (2018).

Figura 10. Otros documentos generados por fuente, en torno al criterio *Critical success factors*



Fuente: Elaboración propia con datos de Scopus (2018).

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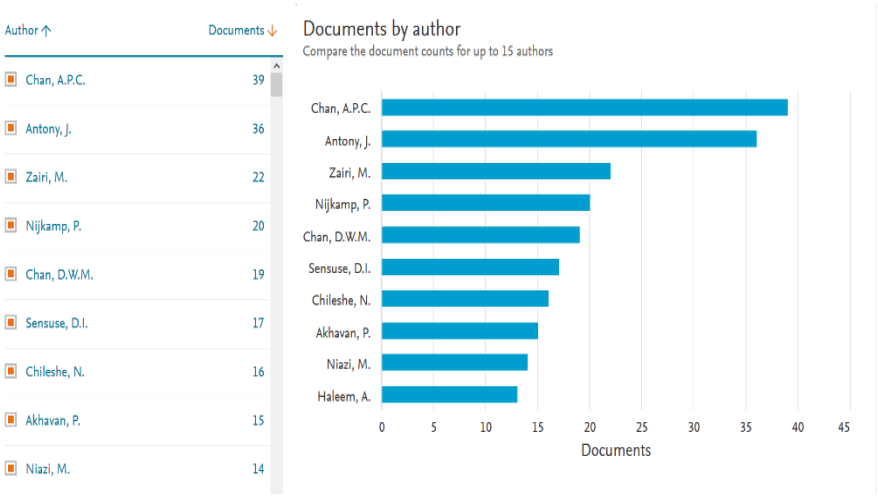
Category 3: Documents generated by author

Figure 11 shows that Chan has 39 documents, of which Factors affecting the success of a construction project - in the Journal of Construction Engineering and Managementel - is the most reviewed with 284 citations.

Similarly, Haleem has 13 documents, of which the most referenced with 84 citations is Analysis of critical success factors of world-class manufacturing practices: An application of interpretive structural modeling and interpretive ranking process, whose source is Production Planning and Control.

On the other hand, in figure 12 we can see the authors who have only one document. In the case of Al-Ashi, his article Improving baggage flow in the baggage handling system at a UAE-based airline using lean Six Sigma tools had not been referenced until November 15, 2018.

Figura 11. Documentos por autores más citados para el criterio *Critical success factors*



Fuente: Elaboración propia con datos de Scopus (2018).

Figura 12. Documentos por autores menos citados para el criterio *Critical success factors*

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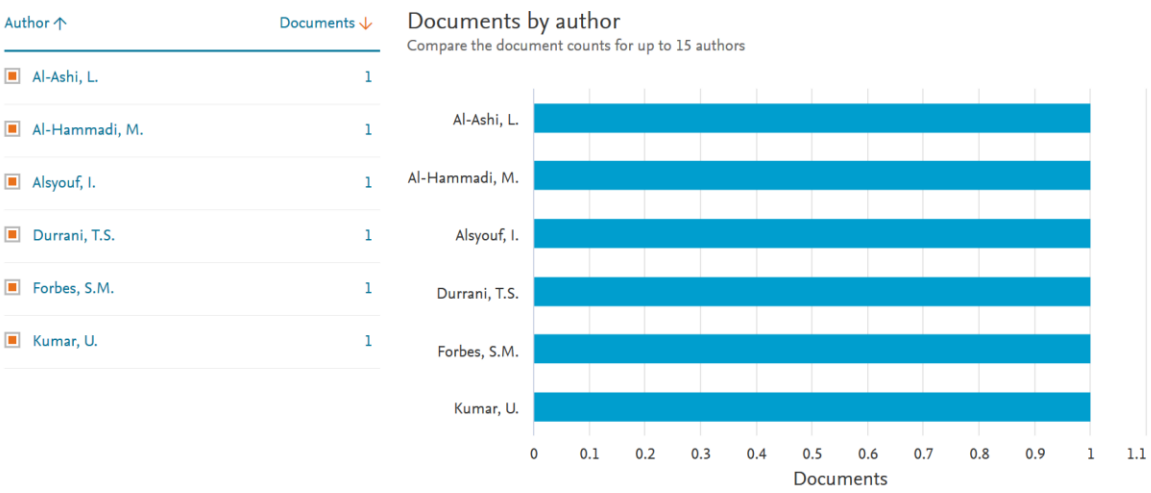

Fuente: Elaboración propia con datos de Scopus (2018).

Category 4: Documents generated by institutional affiliation

Regarding the institutional affiliations, in figure 13 it can be seen that the Hong Kong Polytechnic University has 138 documents, of which the most referenced has 318 citations (entitled Global selection of suppliers: a diffuse AHP approach). In contrast, Figure 14 shows that institutions such as Lulea Tekniska Universitet, University of Strathclyde and University of Sharjah have only one document.

Figura 13. Filiaciones institucionales con más documentos publicados para el criterio *Critical success factors*

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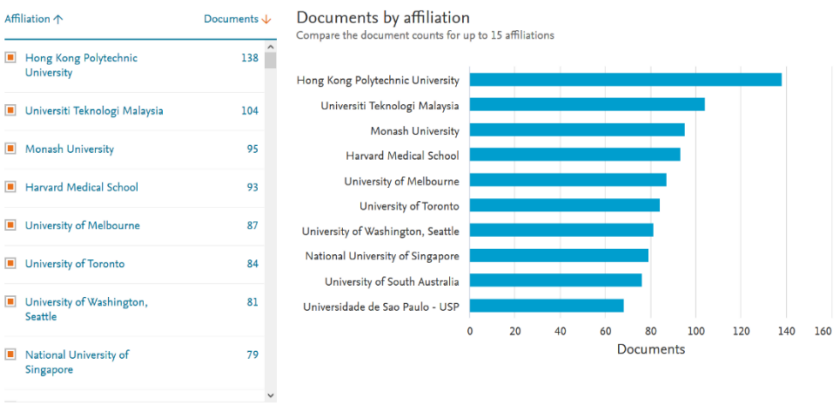
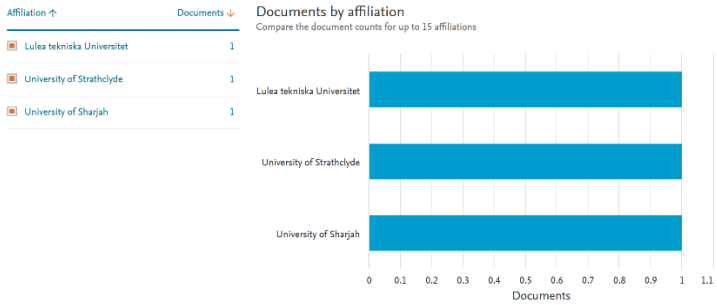


Fuente: Elaboración propia con datos de Scopus (2018).

Figura 14. Filiaciones institucionales con menos documentos publicados para el criterio *Critical success factors*



Fuente: Elaboración propia con datos de Scopus (2018).

Category 5: Documents generated by country

The United States is the country with the most documents (4957) on the subject of critical success factors, while on the subject of our interest only one text was found in the United Kingdom and another one that still does not determine to which country it belongs.

Figura 15. Países con mayor número de documentos generados bajo el criterio *Critical success factors*

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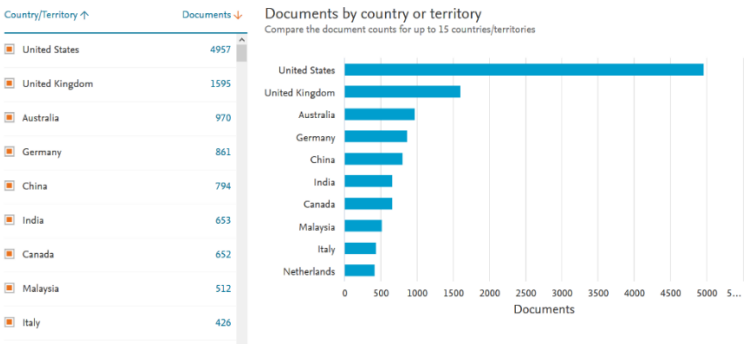
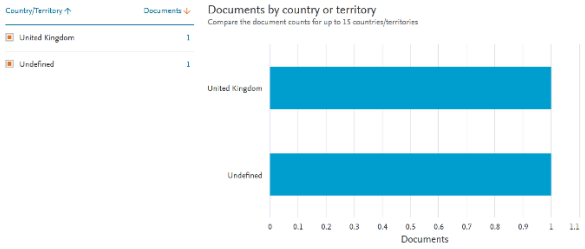


Fuente: Elaboración propia con datos de Scopus (2018).

Figura 16. Países con menor número de documentos generados para el criterio *Critical success factors*



Fuente: Elaboración propia con datos de Scopus (2018).

Category 6: Documents generated by type of document

Unquestionably, scientific production predominates in the form of research articles (57.5%) and memoirs in congresses (24.2%), which is observed in both Figure 17 and 18. In the latter, the source of the memory in Congress It was IEEE International Engineering Management Conference and the one in the magazine article was Quality Engineering.

Figura 17. Documentos generados por tipo de documento para el criterio *Critical success factors*

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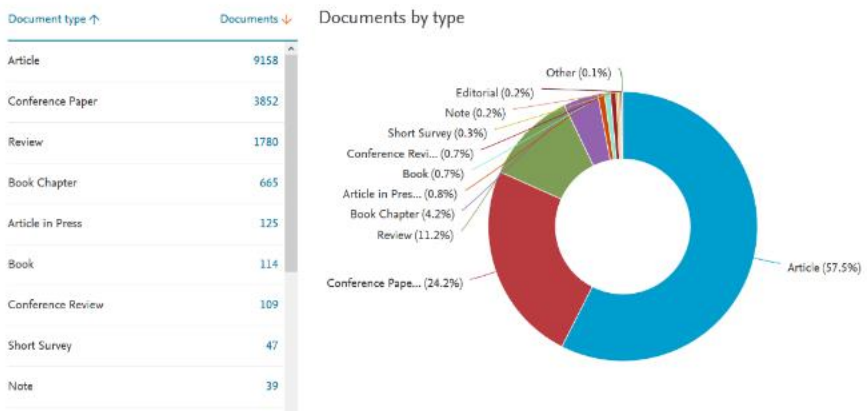
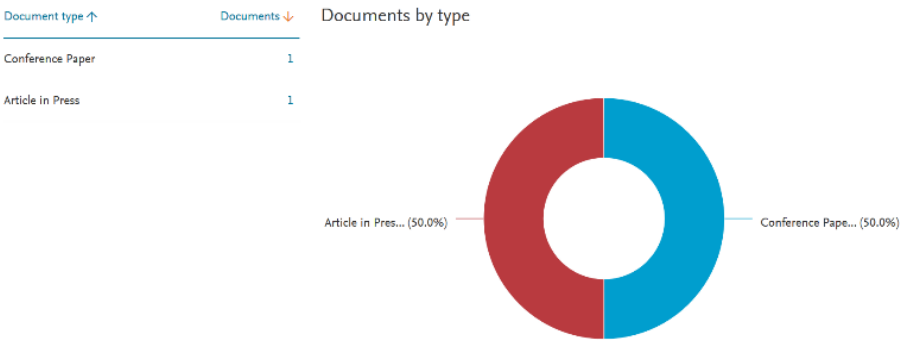


Fuente: Elaboración propia con datos de Scopus (2018).

Figura 18. Documentos generados por tipo de documento (otras fuentes) para el criterio *Critical success factors*



Fuente: Elaboración propia con datos de Scopus (2018) Nota: la fuente de la memoria en congreso fue IEEE International Engineering Management Conference y la del artículo en revista fue Quality Engineering

Category 7: Documents generated by area of knowledge

The bibliometric review carried out concludes with figures 19 and 20, where it can be seen that, in general, it is being written in greater percentages on issues of critical success factors in business management (with 13.6%). Also, of the 10 areas of knowledge in which the total documents found can be located, it can be indicated that in the area of business management and accounting (Busines, Management and Accounting) is the largest number of works (3560 documents) and the medicine area (with 3488 documents).

On the other hand, in figure 20 only two areas of knowledge are observed: engineering (66.7% of the documents - that is, 2 - whose central themes are airlines) and decision making (a document - representing 33.3% -, which also focuses on the issue of airlines). This

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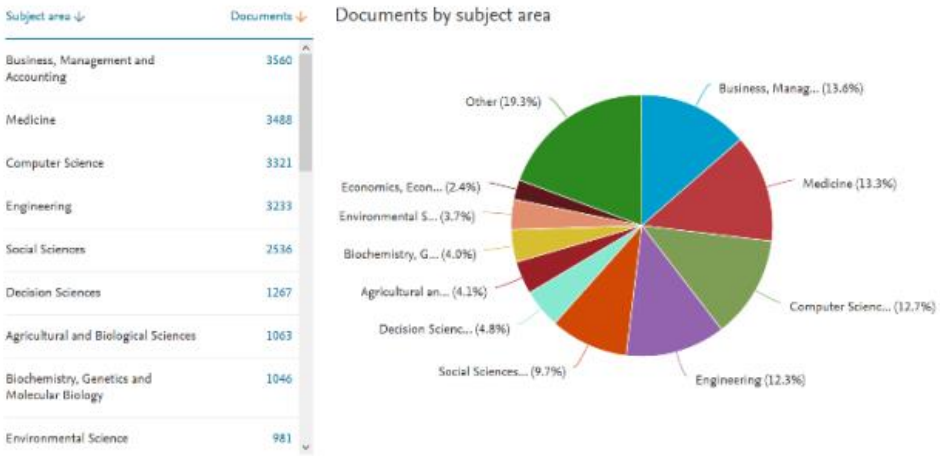
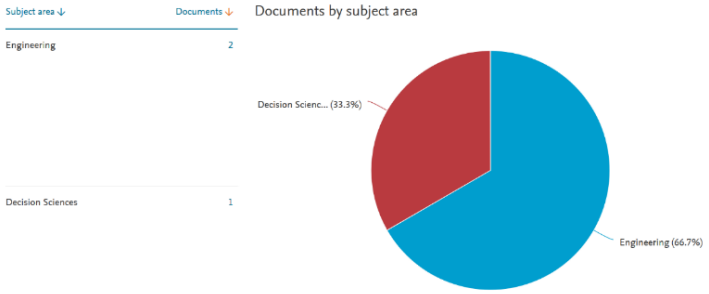
demonstrates that there are few specialized articles on the subject of interest in the database consulted (Scopus), since most are in other less prestigious bases, which creates a qualitative gap regarding the issue of critical success factors on low cost airlines.

Figura 19. Documentos generados por área del conocimiento para el criterio *Critical success factors*



Fuente: Elaboración propia con datos de Scopus (2018).

Figura 20. Documentos generados en áreas de ingeniería y toma de decisiones para el criterio *Critical success factors*

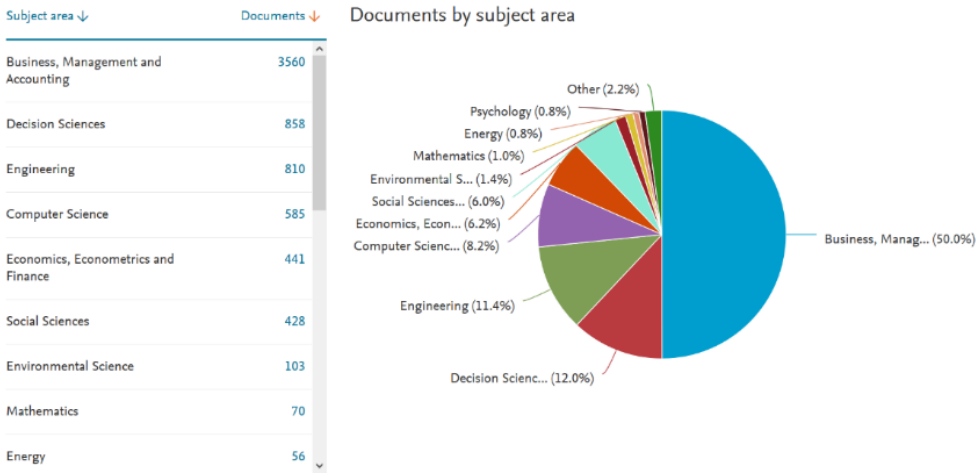


ISSN: 2007 - 9907

Fuente: Elaboración propia con datos de Scopus (2018).

As indicated in Figure 19, in the business area there are a total of 3560 documents, which are distributed in this way: 50% in business management and the rest in areas related to social sciences and humanities (figure 21).

Figura 21. Documentos generados, en ciencias sociales y otras áreas, para el criterio *Critical success factors*



Fuente: Elaboración propia con datos de Scopus (2018).

With the results obtained, it was proven that there is a very important relationship between cost leadership and the success of low-cost airlines.

Conclusions

The low-cost airlines have benefited the passengers, since they made air transport a possibility for most people, although sacrificing some comfort related to food, the choice of seat, among others. Even so, low-cost companies in Europe are having great success based on their competitiveness and leadership, tools that have helped them achieve economic development.

On the other hand, and according to what has been analyzed in this research, it can be concluded that competitiveness is an essential element for large and small air organizations that seek to maintain and improve a certain position in the socio-economic environment in which they operate. In this regard, it is worth noting that the standardization applied with the use of a single airplane model is giving them an advantage.

Likewise, organizations must identify the critical success factors, because that way they will be able to manage the fulfillment of their planned objectives, which also provides the opportunity to continue with other investigations by implementing a simulation model of the airport network in Europe or from other countries where low cost airlines also operate. This will contribute to the fact that new areas of opportunity continue to appear in the future to increase the competitiveness of low-cost companies.

Another aspect to examine is the behavior of the destinations with the highest number of operations of this type of companies in Europe, the United States of America, Mexico or any other nation, as well as the search for potential routes to increase the number of flights.

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