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## TRENDS IN AIRLINE BUSINESS MODELS

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### Abstract

The strategies adopted by both legacy and low-cost airlines have met substantial transformations, adjusting some of the important features of their business models, reflected in a continuous process of mutual influence. Factors like the liberalization of air traffic, the rescission of government policies, abandonment of state aid, the privatization of some airlines, etc. have produced important changes in the companies' strategies. The converging evolution of business models of LCC and legacy airlines, the partnerships and alliances between companies represent the cornerstone for the authors' research. Thus, the paper emphasizes the main features and the impact of low-cost carriers on the market dynamics and on the development of regional airports or on route development for improved connectivity. Also, the changes in consumer behaviours and a social network analysis will be researched. A long term strategy for airlines, competitively sustainable planning, consisting on diversification and flexibility of tariffs and services will create a stable bridge between low-cost and traditional carriers, and will meet the requirements of a good airline-airport relationship, the demands for economic and tourism growth, which will implicitly led to the development of new jobs.

### Keywords

Legacy airlines, low-cost carrier, business models, airline strategies analysis, market share

### JEL Classification

C61, D40, E30, L11, L21, L22, L93, R40

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### Introduction

The paper presents a research concerning the development of air transport services and the changes that took place in the aeronautical industry due to the deployment of low-cost carriers. The specifics and strategies of different airlines will be analyzed, having as basis the evolution of air traffic and market share at national and European level, but also analyzes on customer satisfaction and the airlines impact on airport development.

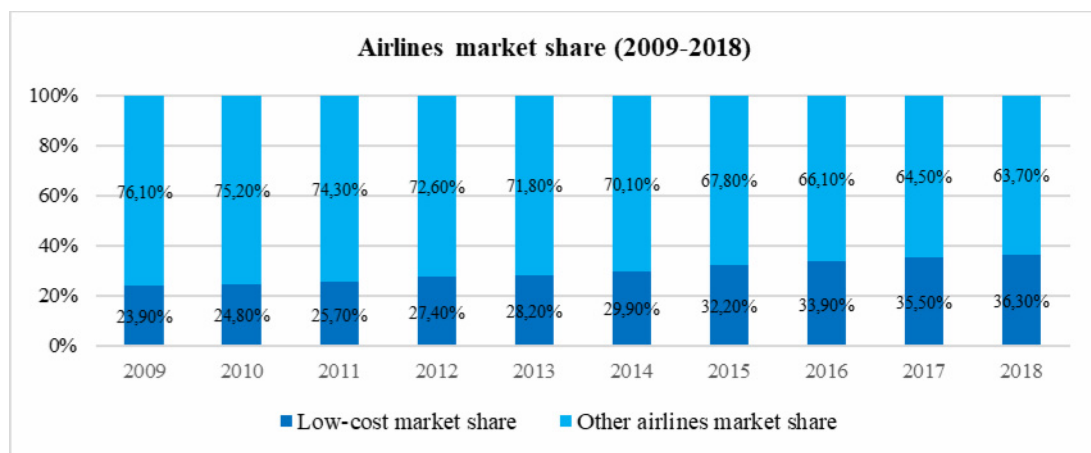
In addition, a comprehensive documentation regarding new trends in airline strategies defines the authors' research. In this concern, relevant studies were selected and a collection of data from international organizations in the aviation sector was performed. The study was also accomplished by discussions carried at Romanian airports and with airline representatives, which were aimed to help the authors identify the strengths and weaknesses of different airlines and emphasize the evolution of various airlines and the major trends in

LC, LCC or hybrid carrier (HC) development. The modalities to strengthen airlines management and their business models were also considered in the context of increasing air transport competition.

In order to better understand the state of development in each category of airline, the study begins with an overview of the current socio-economic situation, an analysis on the evolution of LCCs and legacy carriers based on passenger preferences, load factor and market share.

**Multi-criteria analysis of airlines’ strategies and business models**

After an aggressive market penetration of low-cost carriers in the 90’s Europe, nowadays traditional airlines are experiencing a severe crisis, withdrawing from certain routes and making cuts in staff. As a result, the low-cost market-share is in a continuous growth, gaining an average of 1.38% every year (fig. no.1).



**Fig. no. 1 Airlines market share in Europe**

*Source: based on data from Anna Aero, 2018. LCC capacity in Europe set for half a billion seats in 2018*

However, we assist to the collapse and disappearance of some LCCs. For example, due to financial difficulties, Germany’s second largest airline (i.e. Air Berlin) went into insolvency in 2017 since Etihad Airways has quit to offer support (Hirschfeld, 2018). It is also the case of WOW Air’s bankruptcy, on account of rising fuel prices and unfavourable exchange rates (Slotnick, 2019).

The LCCs are relying on a low threshold for ticket prices, but strong auxiliary revenues. For this reason, they are able to stimulate demand growth. The strong competition between low-cost carriers is sustained by the strategy of lowering the unit costs.

In extra-season, for some destinations that are not interesting for the period, the cheapest flights in Romania are practiced by Ryanair, prices starting from 3/5 euros. Thus, national legacy/hybrid carriers (i.e. Tarom and Blue Air) are striving to reduce their unitary cost to offer lower rates. These companies are being forced to adopt low cost-inspired strategies especially in short-term operations, this resulting in the difficulty of differentiating between the two business models.

The following table evaluates airlines’ performance, considering criteria such as service quality, operational performance and claim processing (AirHelp, 2018). The analysis (table no. 1) shows that there is still a significant difference in the services offered by LCs and LCCs, but minor or no differences for the two types of business models regarding processing of passenger claims. On the other hand, it seems that low-cost carriers give greater importance to on-time performance than legacy airlines.

**Table no. 1 Performance analysis for LC and LCC**

Airline	Quality of service	On-time performance	Claim processing	Ranking position
Lufthansa (LH/DLH)	9.5	7.6	8.6	2
Turkish Airlines (TK/THY)	8.0	7.3	8.5	15
Air France (AF/AFR)	7.8	7.5	7,8	34
Tarom (RO/ROT)	6.3	7.8	7.9	49
Wizz Air (W6/WZZ)	6	8.8	9.1	13
Ryanair (FR/RYR)	6.3	8.6	3.3	67
Eurowings (EW/EWG)	6.0	8.0	9.1	31

Source: based on data from AirHelp, 2018. Performance analysis for LC and LCC, Global airline ranking

LCC strategy of lowering costs comes from minimizing ground services, outsourcing a large part of non-flight operations or reductions in turnaround time (Koç & Erkin, 2011). The strategies involve generally short turnaround times, typically from 20 to 40 minutes, with a top of 45 min at main airports (also the case of Henri Coandă airport-see table no.2). So, a 30 min average turn-around time and apx. 12hours/day aircraft usage, represent the targets of a performant airline business model (Wizz Air, 2018).

**Table no. 2 WizzAir turnaround time at Henri Coandă and Varna airports**

Airport	Airport characteristics	Wizz Air turnaround time
Henri Coandă (OTP/ LROP)	Busiest airport in Romania	45 min
Varna (VAR/LBWN)	3 <sup>rd</sup> largest airport in Bulgaria	25 min

Source: based on WizzAir data, 2018, Turn-around time at Henri Coandă and Varna airports, WizzAir internal data.

These times can also be improved by boarding strategies. Turnaround times are minimized to 25 min, this being possible due to the choice of middle range mono-isle aircrafts. Airlines can rely on the advantage given by single aisle cabin layouts for minimum passenger movement times (Fuchte et. al, 2011). It has been shown that transporting passengers from the boarding gate to the aircraft with busses in the detriment of air bridge embarkation, and the use of both front and rear aircraft entrances has maximum efficiency. This technique eliminates the need for strategies related to placing passengers in the aircraft, such as Wilma, Steffen, Kautzka-3, etc., used for time minimization.

An optimization of the turnaround time implies task assignment minimization, which consists in choosing the values  $x_{ij}$  that represent the proportion of time  $i$  consumed to achieve the task  $j$ , for  $i = 1, \dots, n$  and  $j = 1, \dots, m$  and the coefficients  $c_{ij}$  which represent the value attributed to the time  $i$  for the task  $j$ . The problem considers the following constraints:

$$\sum_{j=1}^m x_{ij} \leq 1, \quad \sum_{i=1}^n x_{ij} \leq 1, \quad x_{ij} \geq 0 \tag{1}$$

The optimization problem can be written as follows:

$$\min_{x \in \mathbb{R}^{nm}} f(x) (= \sum_{i=1}^n \sum_{j=1}^m c_{ij} x_{ij}) \tag{2}$$

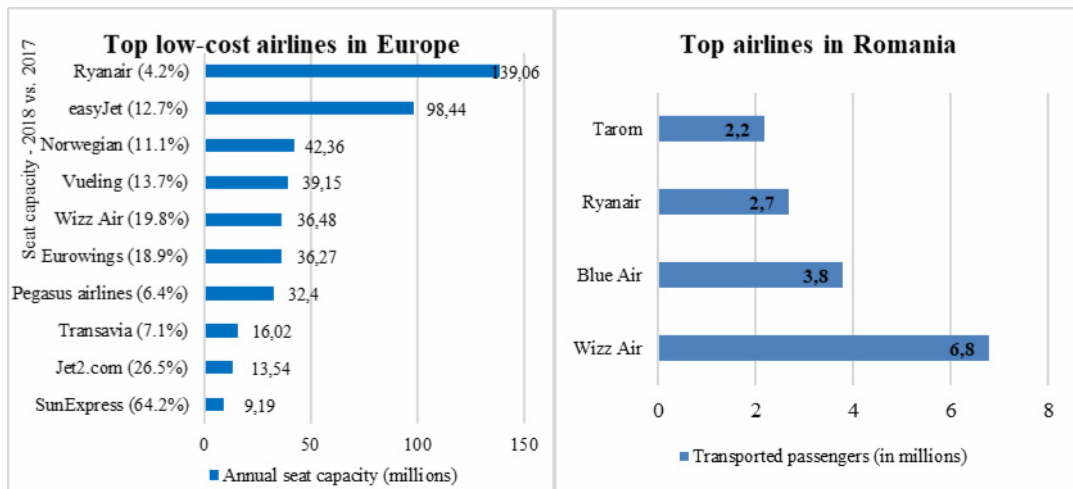
$$\begin{cases} \sum_{j=1}^m x_{ij} \leq 1, \forall j = 1, \dots, m \\ \sum_{i=1}^n x_{ij} \leq 1, \forall i = 1, \dots, n \\ x_{ij} \geq 0, \forall i, j \end{cases} \quad (3)$$

The optimal repartition of resources for turnaround minimization reflects in the increase of the daily use of aircrafts. (Doganis, 2001) shows that the growth in the number of daily flights was considered one of the main advantages of LCCs over traditional airlines.

The increasing competition between traditional and low-cost airlines leads not only to an augmentation in passenger traffic or lower tariffs, but has an impact on aircraft manufacturers. This has led to a very high demand on the range of middle market aircrafts, with a dominant command for B737 and A320. For example, deliveries have grown with 28% from 2013 to 2018 for Airbus commercial orders, (i.e. up to 800 deliveries in 2018, 626 orders just for A320) (Reid, 2019). Similar figures can be retrieved at Boeing, i.e. 508 aircrafts were delivered last year, this showing a rise in the shares of both manufacturers (Reid, 2019).

In very few cases, a low cost operator decided to replace the fleet with another type of aircraft; for example EasyJet signed in 2002 a contract for 120 Airbus 319 in an attempt to gradually eliminate Boeing 737 aircraft from its fleet (Moores, 2017). It seems that larger corridors (from Airbus 319 for example), keep the turnaround time to a minimum, due to optimized boarding time (Kolukisa, 2009).

For the development of a competition framework, the professional relationships between airlines imply tariffs harmonization, schedules coordination and revenue sharing agreements, which are based on analysis of fares and capacity data. Regarding the annual seat capacity of top airlines (see fig. 2), in 2018, Ryanair maintained its leading position in the European low-cost market, and the 3<sup>rd</sup> place in Romania regarding the number of passengers transported.



**Fig. no. 2 Top low-cost carriers in Europe/top airlines in Romania**

Source: Anna Aero, 2018. Top LCC in Europe /Imperator Travel, 2018. Romanian aviation market

With an average net post-tax profit of 7.58\$/pax and a load factor of 74%, the airlines in Europe have a unit labour cost of 0.123\$/ATK (IATA, 2018). The labour cost as a percentage of the airlines' revenues indicate the figures shown in table no. 3 (CAPA, 2012). In this concern, the data indicates an important difference between the approach of the two business models, that has been kept despite their converging evolution.

**Table no. 3 Airlines employee costs**

Airline	Lufthansa	Turkish	Air France	Wizz Air	Ryanair
Employee cost (EUR cent/ATK)	17.6	7.56	17.67	2.59	3.62

Source: based on data from CAPA, 2012. European airline labor productivity, CAPA rankings

The figures show a substantial reduction in labor costs, up to 6 to 7 times lower in the case of LCCs, which gives an economic advantage over their main competitors. More so, this mirrors a disparity due to the labor force capture area, since the salary standards in Eastern Europe are lower than those from the Western European countries.

A strategical objective of LCC is to maintain a higher load factor, which represents an important contribution to lowering prices and to the payment of employees. Related to the average LF in Europe (which is 74%), the LCC’s LF reflects the continuous struggle to attract higher numbers of passengers. An increased by 1.3ppts in Wizz Air’s load factor in 2018, places the airline on the third position (with 91.3% LF), but under its main competitors Ryanair and easyJet's, with LFs of 95%, respectively 93.3% for the same year (CAPA, 2018).

In this concurential context, unlike the LCC case, an essential policy of big airlines for improving RPK and LF, is to create groups (like Air France/KLM Group, Lufthansa Group, SAS Group, etc.).

One of the differentiating elements that has been preserved for the two categories of carriers is given by the use of the hub-and-spoke vs. point-to-point route system. The last system, characteristic to low-cost operators implies single fleet type requirements and no network constraints for asset utilization (Cook & Goodwin, 2008). Also, in this case we can find some exceptions. Already, LCCs are attacking the Hub&Spoke concept through some agreements with smart carriers. For example, Ryanair flights to Madrid from different destinations are continued by Air Europa to South America; having as basis an agreement between the two airlines, founded on the concept of feeder company.

Therefore, LCCs and LCs have become convergent to a new business model: hybrid. Some airlines are totally hybrid, while others have only a fare offer service class assimilated to this model; Lufthansa Group being a good example (table no.4).

**Table no. 4 Relationship between service classes and fare offers**

Airline	Lufthansa/Austrian/Swiss	Brussels Airlines	Eurowings
Service class/ Fare offer	Business Flex Business Saver Economy Flex Economy Classic Economy Light	- Bizz&Class Flex&Fast Light&Relax Check&Go	- - BEST fare SMART fare BASIC fare

Source: based on data from Lufthansa Group, 2018. IAS site visit May 2018, The Leading Airline Group.

One good example of hybrid carrier is Blue Air, the second airline in terms of passengers transported (3.8 millions in 2018 and a market share of 21% in Romania), whose smart flying concept presumes services specific to traditional carriers at prices specific to LCCs. As expected, the Romanian market was taken over by low-cost companies (fig no. 2), but in this context Blue Air’s personalized serviced placed him on a well-deserved second position in the passengers choice. Targeting high competitiveness, this model takes over elements from both business models analyzed above. The major competitiveness is on short and middle distance routes.

### **Analysis of the impact of low-cost carriers on the development of regional airports**

The increase in the number of low-cost carriers is due both to the benefits offered to airports and to passengers. Smaller airports are destined to serve regional traffic, but in most cases they have an excess of capacity that LCCs can take advantage of. This situation puts airports in the position to negotiate more with low-cost operators on contract terms, being willing to demand airport taxes lower than wished.

More so, the bankrupt of some airlines (like Malev from Hungary or Carpatair from Romania), has begun to represent a good omen for other companies, which had the opportunity to take over most of their routes. Wizz Air was one of the complainants of the state aid measure when Hungaria was trying to renationalize Malev (Roşca, 2010). In the case of Carpatair, the airline considered that Traian Vuia Timișoara Airport has favored Wizz Air, even applying discriminatory commercial policies, paying four times lower taxes; the argument being that WizzAir flew by larger aircrafts and thus carried more passengers (Mureşan, 2013). The evolution of aircraft movements began to fluctuate strongly at Timișoara Airport when Carpatair showed signs of weakness in 2011, but passenger traffic values have exceeded expectations when Wizz assumed Carpatair's routes (figures showing an 25.6% increase in pax. numbers in 2015 compared to the previous year). The LCC began to take over categories of passengers who were usually loyal to legacy airlines like Tarom.

Notwithstanding the above noted, the airports can have additional conditions associated with airport taxes, offering discounts reported to the number of movements/passengers. For example, in the case of Traian Vuia Cluj airport, lightening charges can be supplemented with 20% for aircraft tonnage higher than 30 tones, or supplemented as follows for aircrafts under 2-30 tones (AIP, 2015).

$$L = \{\alpha \cdot \text{Charge} + [r \cdot (30 - \text{MTOW})]\} \cdot \text{MTOW} \quad (4)$$

Where:

$\alpha$  -120%

Charge – 2,55 EURO/tonne/landing/take off

30 – average MTOW constant

$r$  – degressive rate of the tonnage, calculated as follows:

$$r = 1/\sqrt{\text{MTOW}} \quad (5)$$

For small aircrafts with a low MTOW (for example ATR 42 300-16,900 kg/ATR 42 400-18,200 kg, ATR 42-500/600-8,600 kg), the parking charges are also reduced (AIP, 2015).

$$Pk = \{\text{Charge} \cdot h + [r \cdot (30 - \text{MTOW})]\} \cdot \text{MTOW} \quad (6)$$

Charge – 0,2 EURO/tonne/hour

$h$  –parking hours

The influence of the low-cost model on the Romanian market and the development of regional airports were shown initially by the arrival of Wizz Air in mid 2006, which produced an increase of 2.008.465 passengers by 2007. So, not only low-cost carriers have an impact on the market dynamics and on the development of regional airports, but this situation also reflects in a congestion reduction on main airports.

The integration of LCC into the domestic air transport market assumed an important economic growth especially for regional airports. A good airline-airport relationship complies with the demands for economic/tourism growth, which will implicitly led to air traffic growth at these airports, increasing revenues to the local budget, and development of new jobs.

Also, we assist to a change in the geography of routes because LCC have developed new regional routes, providing a connection with big hubs. For example Romanian cities like Iași, Cluj, Timișoara, etc. have become connected by international destinations due to the low-cost contribution.

The increase in the number of low-cost airlines and their operating frequency especially for tourism purposes creates in the long run a potential for regional airports growth, this

representing a pole of development of living standards at local/regional level (Manasia & Taropa, 2015). Also, this is mirrored in increased investments attracted to the country and region, higher contributions of the airports to the local budget, higher levels of foreign trade, higher potential of transport corporations and increase in the number of employees in the transport/tourism sectors. For example, in Timișoara 10284 jobs were created by 2016 following the development of Traian Vuia International Airport (The World Bank, 2016). In addition, the airport has an intake of approximately 7.05% according to the contribution to the GDP of the region deriving from direct, indirect and induced impact; and a contribution to the total local budget of 98,603,419.23 lei.

In this regard, Airport Council International provides a platform that determines the impact of the activity of an airport on the economic environment, calculating the number of jobs created as direct, indirect, induced and catalytic impact, as a set of macro-influences of the airport's activity (see table no. 5).

**Table no. 5 Impact of the activity of Traian Vuia International Airport on the economic environment (2016)**

Input data	No. of passengers	Freight (tones)	Passengers in transit	Low-cost passengers
	900000	2500	0%	59%
Output data	Direct impact	Indirect impact	Induced impact	Catalytic impact
	1054 jobs	976 jobs	851 jobs	7403 jobs

Source: ACI Europe, 2016. *Economic impact calculator*

As it was previously shown, the arrival of low-cost carriers on small airports presumes a change in the air transport dynamics, growing rates of passengers, increases in flight frequencies and route development. But more important, the development of regional airports as a result of LCCs deployment and implication represents a catalyst for economic growth, providing rapid access on the labour market. Therefore, airports and airlines should work together to bring added value regarding joint development operations (Bobon, 2017).

### Conclusions

The purpose of this analysis was to show the position and future prospects of LCs and LCCs. The qualitative theoretical framework of airline performance research has been complemented by economic, social and strategically quantitative analyzes.

After emphasizing on a description of the airlines' business models and a comparison of their main features, the impact of airline strategies on consumer behavior, on the development of secondary or regional airports, tourism and new jobs was researched.

Thus, the authors performed a multi-criteria analysis and assessed the range of strategic options available to airlines in order to address the challenges for the future development of air transport.

The authors' research prospects regard airline performance analysis, studies on LCCs practices which are common on certain regions and analyzes on economic, legal, political and socio-cultural aspects that influence airlines' development.

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