



Success factors of regional airports: The case of Oporto airport

Fatores de sucesso dos aeroportos regionais: o caso do aeroporto do Porto

Francisco Carballo-Cruz

NIPE and University of Minho, Largo do Paço s/n, 4704-553 Braga, Portugal,
fcarballo@eeg.uminho.pt

Vânia Costa

Polytechnic Institute of Cávado and Ave, School of Management, Campus do IPCA, 4750-810 Barcelos, Portugal, and Research Group in Economic Analysis (RGEA), University of Vigo, Spain, vcosta@ipca.pt

Abstract

Oporto Airport (OPO) is a success story among European regional airports. This success is expressed, among other ways, in the rapid expansion of routes and the strong growth in demand, as well as in the recognition of the airport's quality by its users. Over the past decade, the volume of traffic increased by almost 3.4 million passengers, from the 2.6 million recorded in 2002 to over 6 million in 2012. In this paper, we analyse some of the factors that influenced the success of Oporto Airport, namely the expansion of capacity and improvements to infrastructure, the increase in the number of routes and the increased demand in response to the new capacities of this airport-airlines set. Particular emphasis is given to the role of low cost carriers (LCC) in the growth of Oporto Airport and to strategies of attracting more traffic. Some of the main opportunities and challenges that this airport will face in the coming years are also discussed.

Keywords: Air transport, airports, low cost carriers (LCC), tourism.

Resumo

O aeroporto do Porto (OPO) é um caso de sucesso entre os aeroportos regionais europeus. Esse sucesso tem expressão, entre outras dimensões, na rápida expansão da oferta de rotas e no intenso crescimento da procura, assim como no reconhecimento da qualidade do aeroporto pelos seus utilizadores. Nos últimos dez anos, o volume de tráfego aumentou mais de 3,4 milhões de passageiros, passando dos 2,6 milhões registados em 2002 para mais de 6 milhões em 2012. Neste artigo analisam-se alguns dos fatores que influenciaram o sucesso do aeroporto do Porto, nomeadamente a ampliação de capacidade e a qualificação da infraestrutura, a expansão do número de rotas e a resposta da procura às novas capacidades e valências do conjunto aeroporto-companhias aéreas. Dá-se particular relevo ao papel das companhias aéreas low cost (LCC) no crescimento do aeroporto do Porto e às estratégias de captação de tráfego. São também discutidas algumas das principais oportunidades e desafios que o aeroporto enfrentará nos próximos anos.

Palavras-chave: Transporte aéreo, aeroportos, companhias aéreas de baixo custo (LCC), turismo.

1. Introduction

Over the last fifteen years air transport has radically changed in Europe. Since the completion of the liberalisation process in 1997, the growth of low cost carriers (LCC), resulting from their aggressive pricing policies, completely transformed supply and significantly boosted demand. Specifically, the intensification of price competition has stimulated tourist demand for medium-distance travel to enjoy short breaks or weekends in cities with tourist attractions. Reduced prices have also induced the higher travel demand of international students and migrant workers, who return home more frequently. Finally, low prices have also given rise to the deviation of business passengers to LCC, who have gained importance in LCC's total demand.

As the LCC sector developed, the airport industry experienced a profound metamorphosis (Graham, 2008). In general, airports begin to be managed as dynamic businesses that compete for airlines and passengers (Forsyth et al., 2010). Simultaneously, regional airports experienced very significant growth (Graham, 2013) and compete for passengers with airports of the main networks. Before the outbreak of LCC, regional airports were at best entry points of hub-and-spoke systems of traditional airline companies (full service carriers) or infrastructures for supporting tourism activities of high seasonality. Currently, regional airports along with secondary airports are the basis of the point-to-point business of LCC. Due to the intense growth of these companies, regional airports are the most dynamic part of the European airport system, with growth rates well above the main airports (ACI Europe, 2013).

According to ACI Europe (2012), between 2001 and 2010, air traffic in European regional airports increased by 60%, exceeding 500 million passengers in 2010. During this period, international traffic at airports with less than five million passengers grew by over 80%. In addition to this growth in

passengers, there has also been a change in the connectivity rationale of these airports, which are no longer transport infrastructures for feeding hubs. Regional airports are the nodes of a set of overlapped networks with direct connections between several regions of Europe, to some extent an alternative to the hub-and-spoke networks that dominate in some European countries.

Regional airports have a catalytic effect on economic development and hence are considered by regional and local authorities to be strategic assets for any region. These infrastructures are critical for attracting and retaining investment, for leveraging economic growth and for generating employment. Specifically, regional airports employ directly about 500,000 workers and indirectly almost double that (ACI Europe, 2012). In addition to these impacts, these airports improve the accessibility levels of the regions in which they are located, ensuring their connectivity to the rest of Europe and, therefore, to the rest of the world (Zuidberg & Veldhuis, 2012).

Oporto Airport, located 11 kilometres north of the city of Oporto, is the second airport in level of passenger traffic in Portugal, just after Lisbon (6,050,094 vs. 15,301,176). It is devoted to international regular traffic for business and tourism. Oporto Airport has the largest catchment area of Portuguese airports, as in an area of a 90-minute travel distance live around four million inhabitants. The hinterland of Oporto Airport covers the central region of Portugal and the region of Galicia in Spain. In this case, the low level of supply of Galician airports and proximity to the border located 95 km from the airport help improve the attractiveness of Oporto Airport. The dynamics of this airport are also associated with the importance of the industrial concentration of the northern region of Portugal (the largest in the country), the tradition of migratory workers in the area (to which they travel regularly to

visit friends and relatives) and the attractiveness of the city of Oporto and its surroundings as a tourist destination (particularly for city breaks).

In 2012, 23 airlines operated at Oporto Airport, which supported about 58,000 aircraft movements and carried over 6,050,000 passengers and 34,500 cargo tons (ANA, 2013a). The airport currently enjoys a very significant capacity to absorb demand. In its maximum capacity, the current supply conditions allow an increase in the number of passengers by 50% and a growth in the cargo volume of 100%, approximately. Oporto Airport represents about 20% of the total traffic in Portuguese airports and almost 18% of LCC traffic in the country (ANA, 2013a). Over the last twenty years, passenger volume almost quadrupled from just over 1.6 million passengers in 1992 to over 6 million in 2012.

Portuguese airports, including Oporto Airport, are managed by one operator, ANA – Airports of Portugal. As a result of the budgetary difficulties of the Portuguese economy and in order to achieve the privatisation objectives included in the Programme of Economic and Financial Assistance, resulting from the bailout of the country in 2011, the government decided to privatise ANA. The airport operator was privatised in December 2012. The French infrastructure manager Vinci acquired ANA by €3,080 million and will manage Portuguese airports over a period of 50 years.

The objectives of this work are: i) to describe the case of Oporto Airport in various aspects because it can be considered a success within regional airports in Europe; ii) to analyse the factors that contributed to this success, both from the supply and the demand side, and iii) to discuss the challenges that the infrastructure will face in the near future to consolidate and strengthen its position in the airport market. The methodology used is case study. Oporto Airport is a very interesting case because it is a regional airport that combines different types of traffic, business (~45%), tourism (~30%) and visiting friends and relatives (VFR) (~20%), posing consequently great challenges in the definition and implementation of its strategy. In the context of this case study, we carried out a comprehensive collection of airport information, a detailed analysis of the gathered data, an assessment of the current situation using comparative elements and a projection of future scenarios, in order to anticipate the main challenges of Oporto Airport in the medium and long term.

The structure of the paper is as follows. Section Two summarises the supply factors that contributed to the good

performance of Oporto Airport in recent years including the infrastructure renewal and expansion in the number of routes, analysing in this case the role of LCC in increasing flight connections. Section Three explains the response of increased demand after the change in supply conditions and analyses the interaction between air transport and tourism at the regional level. Finally, Section Four presents and discusses some of the opportunities and challenges that Oporto Airport will face in the coming years.

2. Supply factors

2.1. Infrastructure renovation

Over recent years, there has been an ambitious expansion and modernisation of Oporto Airport, designed to increase its capacity and improve its operations. In 1999 the airport had a capacity of 14 movements per hour and about three million passengers per year. The main constraints of Oporto Airport in the late nineties were related to the capacity constraints of the check-in and baggage handling system, the shortage of parking places, the inadequacy of the operational lay-out of the areas of aircraft manoeuvre, handicapped accessibility and capacities of some sectors, and the small size of available spaces for the development and expansion of new functions.

In response to these weaknesses and the favourable trend in demand, the airport operator decided to expand Oporto Airport's supply. The enlargement and qualification of supply were enshrined in the 2000 Master Plan (ANA, 2000), in which was defined a medium and long term strategy, operationalised in three well-defined stages. The first one proposed to increase the installed capacity to 6 million passengers per year, the second to 11 million and the third to 15 million. Seven years later, in the 2007 Master Plan (ANA, 2007b), an increase in capacity to fifteen million passengers – which is the maximum volume of demand technically admissible in the airport's current location – remained the objective in terms of supply expansion.

Between 2000 and 2006, a large investment in the expansion and upgrading of Oporto Airport was carried out. This investment exceeded €400 million; 375 million were devoted to construction work and around 25 million to preparation work (see Table 1). This investment was financed with ANA's own resources (43%), loans from the European Investment Bank (41%), other loans (10%) and EU funding from the European Regional Development Fund – ERDF (6%).

Table 1 – Investment and financing of Oporto Airport expansion (€)

Investment	Sources of financing					%
	Total	ANA	European Investment Bank	European Regional Development Fund	Other bank loans	
Construction work	375,044,920	142,114,835	168,000,000	24,930,085	40,000,000	92.2%
Preparatory work	26,300,984	26,300,984				6.5%
Expropriations	5,591,893	5,591,893				1.3%
Total cost	406,937,797	174,007,712	168,000,000	24,930,085	40,000,000	100%

Source: Tribunal de Contas (2009).

After the expansion, the airport has a maximum annual capacity of 9 million passengers and 60 thousand cargo tons and of 20 aircraft movements per hour (ANA, 2012c). Enlarging and

qualifying the airport entailed a supply increase of its various facilities. Table 2 shows the level of supply of several valences of the airport before and after the expansion.

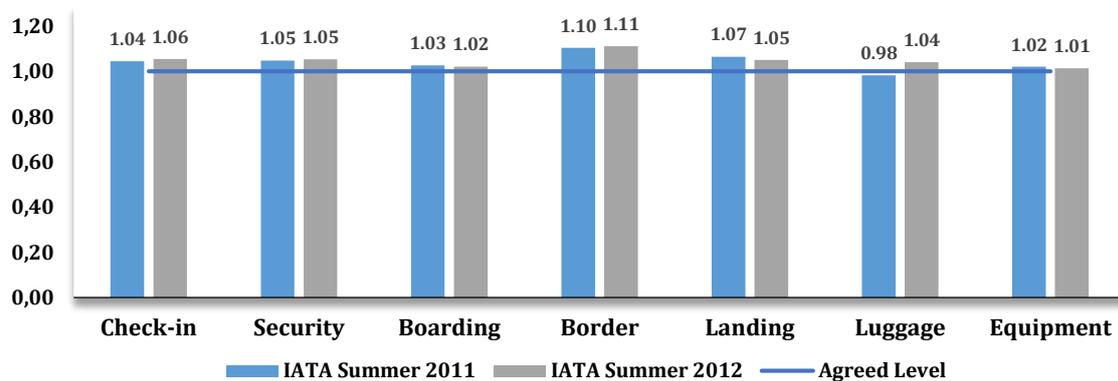
**Table 2 – Capacity increase at Oporto Airport**

2000	2007
Capacity (3 million passengers/year) - 25 check-in positions - 9 boarding gates - 9 conventional gates - 0 telescopic bridges - 15 aircraft parking positions - 1,000 parking spaces - 14 movements/hour - Average turn-around time: 60 minutes - 1,200 passengers/hour	Capacity (9 million passengers/year) - 60 check-in positions - 23 boarding gates - 14 conventional gates - 9 telescopic bridges - 35 aircraft parking positions - 2,500 parking spaces - 20 movements/hour - Average turn-around time: 30 minutes - 2,200 passengers/hour

Source: Adapted from ANA (2000) and ANA (2007b).

The expansion and general improvement of airport facilities resulted in a more efficient operation for companies and a greater level of comfort and general service for passengers. Based on the results of satisfaction surveys conducted in a large number of airports around the world by ACI-Airport Council International, Oporto Airport received several distinctions in the ASQ-Airport Service Quality awards. In 2006, Oporto Airport was considered the third best airport in Europe and the third in the world in the category of two to five million passengers. In the following year it was voted the best airport in Europe. In 2008, 2009, 2010 and 2011, it remained in the top three in Europe. It was considered the second best European airport in 2010 and the third best in the remaining three years.

Since 2006, ANA has had agreements with its business partners (handling agents, airlines and the Foreigners and Borders Service) for quality commitments, which are formalised through Service Level Agreements (SLA). These agreements establish quality objectives for different service processes that are critical to airport operations – which are regularly monitored – and clarify the responsibilities of each business partner. Overall, results show higher evaluations than the level agreed for every SLA (see Figure 1). The assessment of airport passenger satisfaction has been measured through regular surveys. Results translate into a level of satisfaction – in the range 0-5 – of 4.08 in 2010, 4.07 in 2011 and 4.08 in 2012, revealing the highest degree of satisfaction among Portuguese airports in 2010 and 2011 and the second highest in 2012 (ANA, 2013b).

Figure 1 – Service level agreements (SLA)

Source: ANA (2013b).

2.2. Expansion of routes: The role of LCC

Another factor that explains traffic growth is the attraction of low cost airlines. Generally, LCC airports seek to enable these companies to reduce costs and exploit economies of density through the intensive use of aircraft (Pitt & Brown, 2001). According to Warnock-Smith and Potter (2005), the choice of airports by LCC is based, primarily, on the size of the catchment area, secondly, on the availability of slots and, thirdly, on reduced turnaround times and low congestion levels. The next factor in order of importance is reduced airport charges. Other factors identified as relevant, albeit less important, are positive prospects for business and tourist traffic, the awareness of airport management of the importance of keeping costs low and the existence of high levels of competition with other airports, good road access and sufficient spare capacity to accommodate demand growths.

In the case of Oporto Airport, the existence of some of these factors has allowed a quick development of LCC business. Firstly, the possibility of increasing its catchment area to the south, to the central region of the country, and to the north, to

the region of Galicia in Spain, as well as good prospects for passenger growth in specific demand segments such as tourism, business and VFR. Secondly, the availability of a renewed infrastructure with overcapacity, which allows airlines quick and flexible operations without having to deal with traditional supply constraints (slots availability, quick turnarounds and enough capacity to accommodate large demand growths). Thirdly, although LCC do not enjoy significant advantages in terms of airport charges, airport services offer competitive prices. Fourthly, there exists a relatively autonomous management focused on improving efficiency levels. Fifthly, there are good road accesses and sufficient parking spaces at reduced prices, as well as decent links to public transport networks, in particular to coach and metro services. And lastly, there was a relatively low level of competition with a relatively dominant air operator, before the entry of LCC.

Services supply at Oporto Airport increased significantly since the entry of LCC. According to Almeida (2011), the increase in routes and frequencies offered by LCCs resulted in major changes in air transport, inducing a change in demand

behaviour and a positive effect on the development of other activity sectors, such as tourism. Low cost airlines started operations in Oporto Airport in 2004, with the entry of Air Berlin, linking Oporto via Palma to several European destinations. In that year, Air Berlin carried just over 13,000 passengers, representing 0.5 % of the total airport traffic (Caballero, Losada & Marrana, 2006). In 2005, Ryanair started flying from Oporto, with connections to London-Stansted and Frankfurt-Hanh, transporting almost 250,000 passengers, representing 7.5% of the Oporto Airport demand. In 2006, Ryanair added three new destinations: Paris-Beauvais (daily flights), Dublin (daily flights) and Liverpool (three flights per week). The number of passengers carried that year reached approximately 525,000. This growth allowed Ryanair to reach second place in the ranking of airlines with operations at Oporto Airport, with a market share of 15.3%. In 2006, Hapag-Lloyd Express (HPX) began operating in Oporto, with connections to Cologne and Stuttgart (three flights per week in each case).

In 2007, there was a large increase in the number of low cost routes in Oporto Airport. EasyJet, Brussels Airlines, Transavia and Clickair joined the three companies already operating at the airport. EasyJet connected Oporto to Geneva and Basel, while Brussels Airlines, Transavia and Clickair connected Oporto with the airports of Brussels-BRU, Barcelona-El Prat and Paris-Orly, respectively. That year, Ryanair flew to 13 destinations, while HPX increased one destination over its previous year's supply (Hamburg).

From 2009 onwards, the LCC operating in Oporto Airport are Air Belin, Brussels Airlines, Easyjet, Ryanair and Transavia. The 23 destinations offered in 2007 by these companies doubled in 2012, reaching 46. The airline with the largest operation at Oporto Airport in 2012 was Ryanair, which offered 33 routes, well above EasyJet with six routes, and Transavia with four routes. The other two LCC only flew to one destination in each case. In 2007, the 54 routes of Oporto Airport offered 5,950,000 seats, 29% of which on low cost carriers. In 2012, from the 7,875,000 seats offered in the 81 routes of the airport, nearly 51% were supplied by LCC.

The opening of Ryanair's operational base in Oporto Airport was a big jump from the supply standpoint. This supply expansion resulted in a very strong demand growth of Ryanair

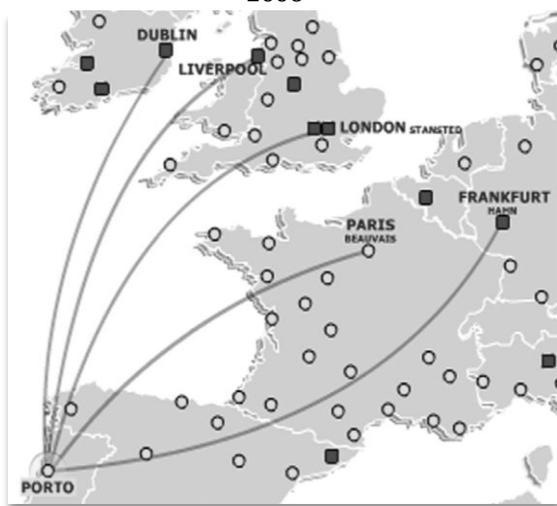
services. Ryanair's bet on Oporto Airport derives from the fulfilment of some of the requirements that the company considers fundamental to operating at a given airport. According to Barrett (2004), the criteria for Ryanair to consider an airport as low cost friendly are to have lower airport charges, an aircraft turnaround time of 25 minutes, simple terminals, services that allow for quick check-in, good commercial facilities (catering and shops), adequate connections by road and no executive class or business lounges.

An operational base consists of an airport where an airline locates aircrafts, crew and support operational services (Graham & Shaw, 2008). The choice of airports for this function is mostly based, especially in the case of LCC, on logistics and on the possibility of maximising the use of aircrafts, as well as on the existence of incentives and other types of benefits associated with operating at the airport (Alderighi, Cento, Nijkamp & Rietveld, 2007). Despite the potential advantages of this management option, the installation of an operational base implies generally significant investment (Coombs, 2011), particularly because it involves the allocation of exclusive aircrafts to meet the expected supply levels.

Ryanair's base at Oporto, which began operating in September 2009, was the first one in Portugal and the thirty-third in Europe. Ryanair currently has operating bases outside Europe, namely in Morocco. The Oporto base entailed an investment of €146 million and the allocation of three aircrafts. In the first full year after opening (2010), the number of passengers increased by over 40% in relation to the previous one (2009). The number of passengers carried by Ryanair almost doubled from 2009 to 2011 (1,193,705 vs. 2,268,713). Three years after opening, the base had five aircrafts, flying to 33 international destinations, with the exception of Faro.

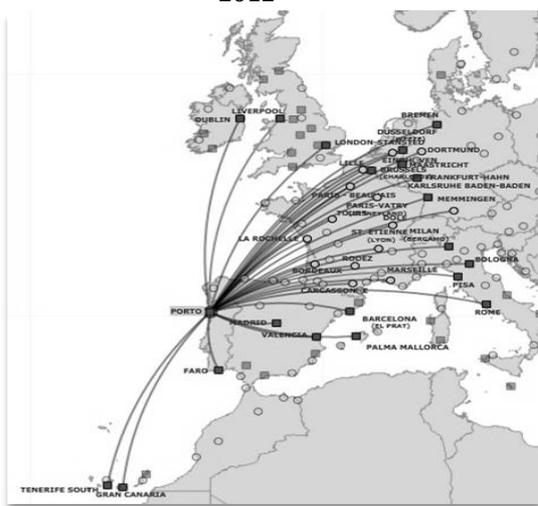
Ryanair's increase in supply since its entry into Oporto Airport has been very significant. In 2006, when it flew to only five destinations (Figure 2), the number of seats offered was 625,000 (12.1% of the seats offered in the airport). In 2012, when it operated 33 direct connections (Figure 3), the seats offered exceeded 2,770,000 (35.2% of the seats offered in the airport).

Figure 2 –Ryanair routes at Oporto Airport 2006



Source: Caballero *et al.* (2006).

Figure 3 –Ryanair routes at Oporto Airport 2012



Source: www.ryanair.com/pt.

Agreements with airlines have driven the expansion and consolidation of flights supply in Oporto Airport. These agreements are a factor of the utmost importance to attracting

airlines, especially LCC, since they prefer airport operators (and hence airports) that show flexibility and willingness to negotiate on costs. These agreements between the airport



operator and the airlines may have different modalities (Graham & Dennis, 2007). It may be only a discount on airport charges or may involve the sharing of risks, based on the number of passenger arrivals (Graham, 2013). They may also imply the coverage of new services' marketing costs or, in general, the costs of launching new routes (Starkie, 2012). In addition to the direct subsidies granted by airport operators, in some countries such as Spain, agreements may also include subsidies from public authorities (Castillo-Manzano, López-Valpuesta & González-Laxe, 2011).

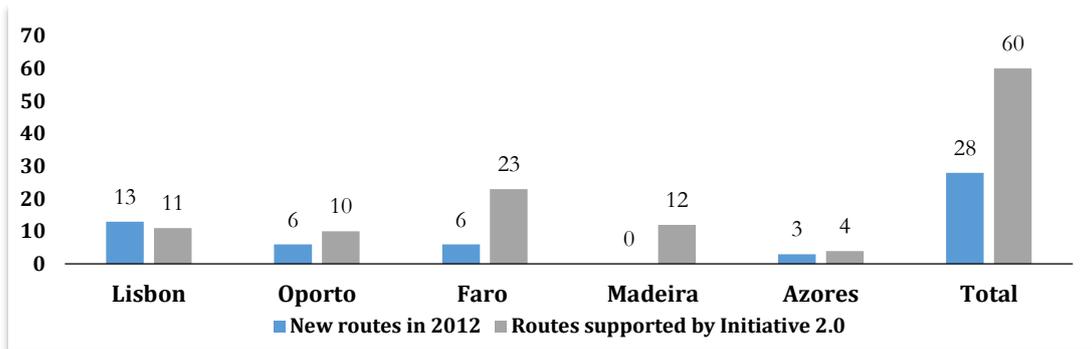
In Portugal these agreements are part of a programme to promote routes launched in late 2007, called Initiative.pt - *Developing Tourism and Aviation*. This programme covers all Portuguese airports, as the airport operator manages all the airfields of the country. Initiative.pt combines support based on the number of passenger arrivals with promotional grants, and it is funded by the airport operator and public and parapublic entities.

During the first four years in place, Initiative.pt supported 43 routes, with an investment of over €13 million. The funding of this programme is ensured by ANA (40%), Turismo de Portugal (30%) and several regional agencies of tourism promotion (20%) (ANA, 2013b). The programme is intended primarily for the creation of new routes and the increase of frequencies in routes considered under-served. The support for airlines adopts, in many cases, a model of co-investment with a variable component based on passenger arrivals and a fixed marketing

component which is specifically designed to promote the supported route. Data provided by Turismo de Portugal via the press reveal that in the first four years in place, the programme supported 23 routes of LCC (Ryanair [18] and EasyJet [5]), 10 of traditional airlines (TAP [3] and SATA [7]) and 10 of hybrid, charter or regional airlines (Jet2 [4], Tui Fly [2], Sky Europe [1], Aer Lingus [1], Aigle Azur [1] and Thomson Fly [1]). Twenty-three routes were supported in Faro, ten in Madeira, five in Lisbon, four in Ponta Delgada and one in Porto Santo. The 43 supported routes benefit from a funding of €13.3 million and handled 1,630,000 passengers, representing an average support per passenger of €8.15 (ANA, 2013b).

In March 2012, the second phase of Initiative.pt, called Initiative.pt 2.0, was launched. This stage involves an investment of €15 million and the financing of one million and a half passengers during the three years of the programme. According to ANA (2013b), Initiative.pt 2.0 will provide financial and logistic support to 60 routes and will fund the opening of 45 new routes, the extension of three routes during the winter period and a frequency increase in other two. In 2012, under this programme, 28 new routes were created - six of these in Oporto Airport - and 60 received financial and logistic support, 10 of these at Oporto Airport (see Figure 4).

Figure 4 - New routes and routes with support from Initiative.pt 2.0 in 2012



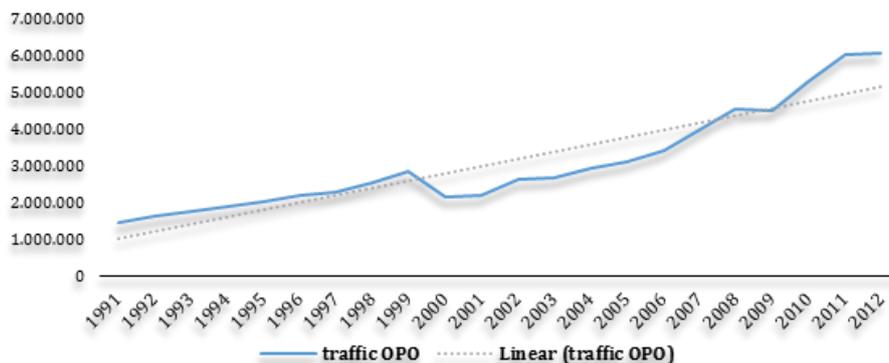
Source: ANA (2013b).

3. Demand response

From the demand point of view, four different periods in Oporto Airport may be identified: the first one from 1990 to 1999, the second one from 2000 to 2003, the third one from 2004 to 2009 and the fourth from 2010 to 2012 (see Figure 5). The first period is characterised by steady growth, which accelerated in 1998 and 1999. The decline and stagnation of traffic mark the second period. The third period is characterised by the return

to growth, particularly in 2007 and 2008. In contrast, in 2009, there was a traffic stagnation, in line with what happened in all European markets, coinciding with the most depressed period of the economic and financial crisis, which began in 2008. From 2010 onwards, air traffic went back to a positive trend, with average growth rates of 7.5% per year. In 2012 there was a record number of airport users, slightly surpassing six million passengers.

Figure 5 - Traffic evolution at Oporto Airport

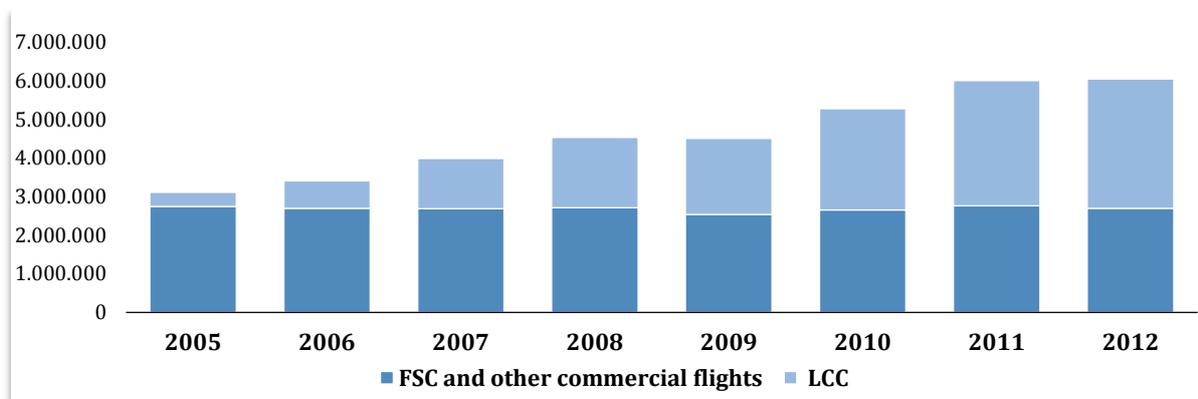


Source: Adapted from ANA (2012a), ANA (2012d) and INAC (2010).

From the completion of the airport expansion in 2006, LCC growth accelerated considerably, reaching 1,250,000 passengers in 2007 (700,000 in 2006), almost 2,000,000 in 2009 and over 3,350,000 in 2012. The main impact of the entrance of LCC, in terms of traffic composition, was the stagnation of Full Service Carriers (FSC) passenger volumes – 2.5 million passengers per year since 2006. LCC traffic

increased as long as the *status quo* in FSC traffic allowed the first to progressively increase its market share at the airport, rising from 9.5% in 2006 to 31% in 2007 and to 43.5% in 2009 (see Figure 6). In 2011, LCC traffic exceeded, for the first time, half of Oporto Airport's traffic and in 2012 reached a market share slightly higher than 55%.

Figure 6 – Traffic evolution at Oporto Airport by type of operator



Source: Adapted from ANA (2006); ANA (2007a); ANA (2008); ANA (2009); ANA (2010); ANA (2011a); and ANA (2012a).

The academic literature on air transport concludes that the most important factor in choosing airlines is the price of the ticket, particularly in the case of LCC. According to the results of a comparative study conducted by O'Connell and Williams (2005), 80% of low cost passengers choose an airline based on price. Other studies conclude that, although the price is the most important factor, there are other factors influencing the choice, such as proximity to the airport (Martínez-García & Royo-Vela, 2010). Ryan and Birks (2005) also point out two important factors in users' choice: the availability and cost of hotel facilities and the availability and affordability of parking spaces. In the case of Oporto Airport, the absence of competing

airports within a very broad geographical area and the existence of good road accessibility and (cheap) parking availability may be, jointly with LCC low prices, important factors for explaining the intense traffic growth of recent years. The main markets of Oporto Airport are France, Spain, Portugal, Germany, the UK, Switzerland, Italy, Belgium and Luxembourg. In 2012, the fifteen destinations with larger demand accounted for 65.7% of total airport traffic (see Table 3). Besides the strong concentration of demand in a limited number of destinations, Oporto Airport has an important market concentration by operators.

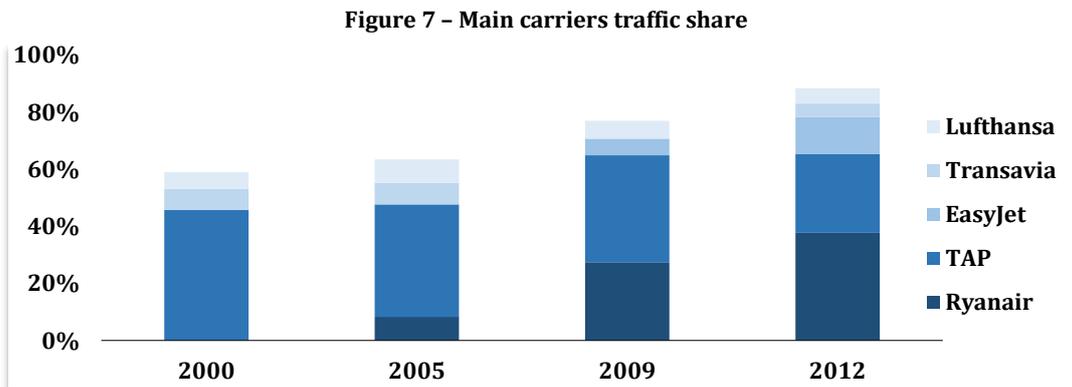
Table 3 – Oporto Airport top destinations

Destination	Passengers	%	Airlines
Paris-Orly	585,336	9.8%	Aigle-Azur, TAP Portugal, Transavia
Geneva	405,201	6.8%	EasyJet, Swiss, TAP Portugal
Madrid	398,083	6.6%	Air Nostrum LAM, Ryanair, TAP Portugal
Lisbon	393,292	6.6%	TAP Portugal
Frankfurt	325,455	5.5%	Lufthansa
Barcelona	286,457	4.8%	Ryanair, TAP Portugal
Paris-Beauvais	246,194	4.1%	Ryanair
Funchal	226,920	3.8%	TAP Portugal, Transavia
London-Gatwick	223,309	3.7%	EasyJet, TAP Portugal
London-Stansted	212,470	3.6%	Ryanair
Paris-Charles de Gaulle	143,502	2.4%	EasyJet, TAP Portugal
Faro	133,568	2.2%	Ryanair
Frankfurt-Hahn	126,619	2.1%	Ryanair
Brussels-Charleroi	113,029	1.9%	Ryanair

Source: Adapted from ANA (2012d).

In 2012 the most important companies, according to the number of carried passengers, were Ryanair, EasyJet and TAP Portugal (see Figure 7). By 2010, TAP Portugal was the main carrier at the airport. From that year onwards, Ryanair led the ranking of carried passengers. In 2011, Ryanair transported 1,678,872 passengers, surpassing TAP Portugal just by 41,334

passengers. In 2012, the distance between both companies widened extraordinarily, surpassing 2.1 million passengers. In 2012, Ryanair had 37.8% of the airport market share and 68.2% of the LCC market share (ANA, 2012d). In that year, TAP saw its Oporto Airport market share drop for the fifth consecutive year, from nearly 40% in 2008 to just 27.6%.



Source: Adapted from INAC (2010) and ANA (2012d).

The growing presence of low cost carriers in Oporto Airport has changed the profile of its users. The comparison of passenger characteristics in 2004 and 2012 reveals significant differences. During this period, the presence of women increased (30.9% in 2004 to 48.5% in 2012) and the same happened with people under 30 (26.1% in 2004 to 44.2% in 2012). Furthermore, the weight of passengers with higher education degrees decreased (44.1% in 2004 to 33.0% in 2012) (ANA, 2011b; ANA, 2012b). Regarding reasons for travelling, the changes are also very significant. There was a significant loss of business passengers, whereas a considerable increase in tourist and VFR traffic was felt. There was also a strong growth of users residing abroad, namely tourists and Portuguese immigrants (58.4% in 2004 and 89.9% in 2012).

The attractiveness of any tourist destination depends on its natural resources, local culture and man-made infrastructure (Bieger & Wittmer, 2006). Within the latter, transport infrastructures, especially regional airports, are very important, as they are a gateway for tourism (Robertson, 1995). The availability of low cost routes at airports of this type is critical to the enhancement of tourism, given that, according to Donzelli (2010), LCC not only attract traffic from FSC but also generate new demand. According to Skeels (2005), 59% of LCC passengers are new consumers who would not travel if this alternative were not available, and only 37% are switchers (changed from FSC to LCC). The increased supply of LCC in

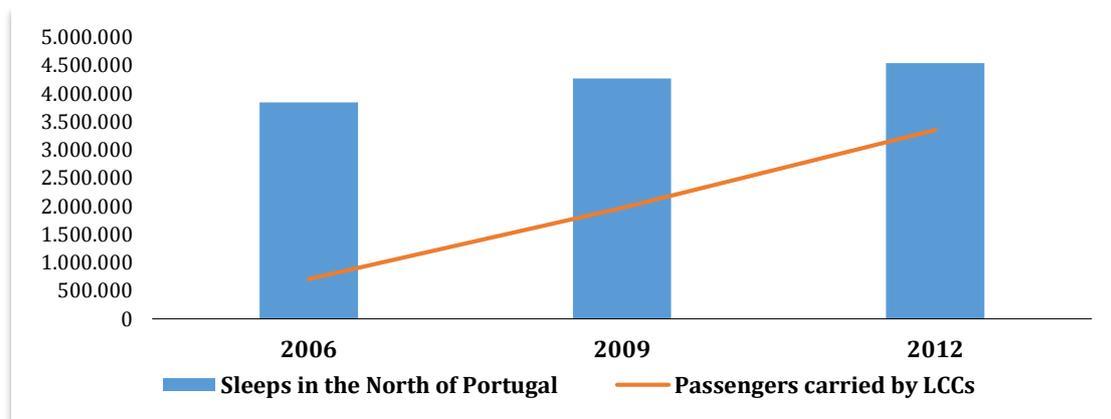
Oporto Airport has boosted tourism growth in the city and the northern region as a whole. Leisure passengers of Oporto Airport fly mostly on LCC, specifically 65% in 2012.

Despite the changed conditions of supply, the main tourist markets in the North remain the same as one decade ago. In 2012 France (32%), Spain (26%), the UK (10%), Germany (8%), Switzerland (8%), Italy (7%) and the Netherlands (4%) were the main origin countries of tourists in the region (INE, 2013a). In 2012 the number of overnight stays of tourists from the main markets represented approximately 44% of all overnight stays in the region (INE, 2013b).

That same year, 41% of tourists slept only in Oporto, 39% in the North, mainly in the cities of Braga, Guimarães and Viana do Castelo, and 20% in Oporto and other northern cities of Portugal (IPDT, 2012a, 2012B, 2012c and 2012d). According to the same source, in 2012 tourists spent about €626 during their stay, which corresponds to an average daily expense of €84.2.

The determination of the direction of causality between growth in LCC supply and tourism growth is a complex subject. It is a feedback process that ultimately benefits all stakeholders. In this case, passengers carried by LCC via Oporto Airport and foreign tourists from northern Portugal follow a parallel trend that confirms the existence of some kind of interaction between both phenomena (see Figure 8).

Figure 8 – Overnight stays of foreigners in the North and LCC passengers at Oporto Airport



Source: Adapted from ANA (2007a), ANA (2010), ANA (2012d), INE (2007), INE (2010) and INE (2013b).

4. Opportunities and challenges

Despite the rapid growth of recent years, Oporto Airport still has room to grow. The city of Oporto and the North of Portugal are consolidating as a multiproduct tourist destination which

will boost airport demand in the coming years. The demand for city breaks has been growing consistently. Between 2007 and 2011, the number of overnight stays in the Oporto region increased by 16.5%, exceeding 2,750,000. Hotel capacity accompanied the increase in demand and in the same period

the number of beds increased by 15.5%. The cultural heritage of Oporto and the surrounding region, as well as the progressive improvement of its tourist infrastructure, are the major assets of the destination. This growing tourist attractiveness, in 2013, resulted in Oporto and the Douro Valley being considered the Best European Destination by the Lonely Planet. Also within the tourism sector, cruise tourism is a segment which has proved very dynamic in recent years. Over the past five years, Oporto has witnessed a growing number of small-scale cruises and cruisers in the Leixões port. Between 2007 and 2012, the number of passengers on these small-scale cruises practically multiplied by five, exceeding 75,000. The completion of the passenger station in the cruise terminal scheduled for late 2013 will further boost this tourist segment. In this context, it is extremely important that Oporto will likely become a point of boarding and/or departing for cruises. If that happens, cruises would ensure additional traffic to Oporto Airport.

Another source of growth for Oporto Airport is traffic with origin or destination in Galicia. The lack of coordination of the three Galician airports has limited the growth of their flight supply and prevented the consolidation of low cost routes. Additionally, the radial model of route management of some airlines with Madrid-Barajas as a hub airport severely punishes Galician passengers in their trips to European destinations. These drawbacks, together with the crisis in Spain, have resulted in an 18% decrease in the combined traffic of the three Galician airports since 2007, which lost in cumulative terms more than 850,000 passengers, 575,000 of which at Vigo airport. In the same period, Oporto Airport increased its traffic by over 52%, gaining cumulatively over 2,000,000 passengers. It is worth noting in this regard that, in 2007, the combined traffic of the three Galician airports exceeded by almost 750,000 passengers the traffic in Oporto (4,722,935 vs. 3,988,388), while, in 2012, it was lower by nearly 2,200,000 passengers (3,868,787 vs. 6,050,094). The attractiveness of Oporto Airport for Galician passengers is growing. According to airport management, in 2012 over 700,000 Galician passengers used Oporto Airport, representing 12% of total traffic. The outlook for growth in this market segment is very positive, considering the good road access and the increasing provision of public transport, linking several Galician cities and Oporto Airport directly.

Besides opportunities for traffic growth and business development, Oporto Airport faces important challenges. The recent privatisation of the Portuguese airport manager poses significant challenges both at political and regulatory levels. The airports' system went from a public monopoly to a private monopoly, now owned by Vinci, a French infrastructure operator. The underlying management model hampers the implementation of individual commercial policies and promotes cross subsidisation between airports so as to meet public service obligations or support individual growth strategies within the system. This way, certain airports may be favoured over others, depending on the requirements of the airlines with greater bargaining power or on operators' short-term performance. Political actors in the North should follow the developments of ANA's operation and management model and airport regulation model, particularly as far as the determination of airport fees is concerned.

The management of the high dependence on LCC, namely on Ryanair, in the supply and demand of this airport, deserves particular attention by the airport operator. Ryanair supplies over 35% of airport seats and carries nearly 40% of airport passengers. These large market shares ascribe Ryanair strong market power and, therefore, great bargaining capacity to obtain favourable agreements with the airport manager. This poses significant risks in the future, especially since Ryanair has shown in the past that the closure of its activity in certain

airports is not problematic and that the cessation of operations due to lack of "favourable" conditions is part of its business model. One way to mitigate this problem, at least partially, may involve the establishment of competitive conditions for attracting new airlines, including other LCC, by the airport manager. This will increase the supply of routes and destinations and promote higher levels of competition in the airport.

Acknowledgement

The first author acknowledges the financial support of FEDER funds through the Operational Programme for Competitiveness Factors – COMPETE and National Funds through FCT – Foundation for Science and Technology within the Project PTDC/SEN-TRA/108522/2008.

References

- ACI Europe (2012). *How regional airports link people, places and products*. Brussels: Airports Council International.
- ACI Europe (2013). *Supportive & fully aligned EU policy required for regional airports*. Brussels: Airports Council International.
- Alderighi, M., Cento, A., Nijkamp, P., & Rietveld, P. (2007). Assessment of new hub-and-spoke and point-to-point airline network configurations. *Transport Reviews*, 27(5), 529-549.
- Almeida, C. R. (2011). The new challenges of tourism airports: The case of Faro airport. *Tourism & Management Studies*, 7, 109-120.
- ANA (2000). *Plano Diretor Aeroporto Francisco Sá Carneiro 2000*. Lisboa: ANA Aeroportos de Portugal.
- ANA (2006). *Relatório de Gestão e Contas 2005*. Lisboa: ANA Aeroportos de Portugal.
- ANA (2007a). *Relatório Anual de Estatística de Tráfego 2006*. Lisboa: ANA Aeroportos de Portugal.
- ANA (2007b). *Plano Diretor Aeroporto Francisco Sá Carneiro 2007*. Lisboa: ANA Aeroportos de Portugal.
- ANA (2008). *Relatório Anual de Estatística de Tráfego 2007*. Lisboa: ANA Aeroportos de Portugal.
- ANA (2009). *Relatório Anual de Estatística de Tráfego 2008*. Lisboa: ANA Aeroportos de Portugal.
- ANA (2010). *Relatório Anual de Estatística de Tráfego 2009*. Lisboa: ANA Aeroportos de Portugal.
- ANA (2011a). *Relatório Anual de Estatística de Tráfego 2010*. Lisboa: ANA Aeroportos de Portugal.
- ANA (2011b). *Perfil do Passageiro de 2011*. Lisboa: ANA Aeroportos de Portugal.
- ANA (2012a). *Relatório Anual de Estatística de Tráfego 2011*. Lisboa: ANA Aeroportos de Portugal.
- ANA (2012b). *Caracterização do Perfil do Passageiro e Consumidor – Verão IATA 2012*. Lisboa: ANA Aeroportos de Portugal.
- ANA (2012c). *Infraestrutura – Aeroporto Francisco Sá Carneiro*. Lisboa: ANA Aeroportos de Portugal.
- ANA (2012d). *Relatório de Tráfego, Dezembro de 2012 – AerOporto do Oporto*. Lisboa: ANA Aeroportos de Portugal.
- ANA (2013a). *Relatório de Gestão e Contas 2012*. Lisboa: ANA Aeroportos de Portugal.
- ANA (2013b). *Relatório de Sustentabilidade 2012*. Lisboa: ANA Aeroportos de Portugal.
- Barrett, S. (2004). The sustainability of the Ryanair model. *International Journal of Transport Management*, 2(2), 89-98.
- Bieger, T. & Wittmer, A. (2006). Air transport and tourism: Perspectives and challenges for destinations, airlines and governments. *Journal of Air Transport Management*, 12, 40-46.



- Caballero, A., Losada, A. & Marrana, J. (2006). *O Sistema Aeroportuário do Eixo Atlântico*. Vigo: Biblioteca dos Estudos Estratégicos, Eixo Atlântico.
- Castillo-Manzano, J., López-Valpuesta, L. & González-Laxe, F. (2011). The effects of the LCC boom on the urban tourism fabric: The viewpoint of tourism managers. *Tourism Management*, 32(5), 1085-1095.
- Coombs, T. (2011). Challenging times for airport investors: Trends in airport traffic. *Journal of Air Transport Management*, 5(4), 306-310.
- Donzelli, M. (2010). The effect of low-cost air transportation on the local economy: Evidence from Southern Italy. *Journal of Air Transport Management*, 16, 121-126.
- Forsyth, P., Gillen, D., Müller, J. & Niemeier, H.-Martin. (2010). *Airport Competition: The European Experience*. Surrey, UK: Ashgate Publishing, Ltd.
- Graham, A. (2008). *Managing Airports: An International Perspective* (3^d Ed.). Oxford: Elsevier Butterworth-Heinemann.
- Graham, A. (2013). Understanding the low cost carrier and airport relationship: A critical analysis of the salient issues. *Tourism Management*, 36, 66-76.
- Graham, A. & Dennis, N. (2007). Airport traffic and financial performance: a UK and Ireland case study. *Journal of Transport Geography*, 15(3), 161-171.
- Graham, B. & Shaw, J. (2008). Low-cost airlines in Europe: reconciling liberalization and sustainability. *Geoforum*, 39(3), 1439-1451.
- INAC (2010). *Evolução do Transporte Aéreo no AerOporto Francisco Sá Carneiro (1990-2009)*. Lisboa: Instituto Nacional de Aviação Civil.
- INE (2007). *Anuário Estatístico da Região Norte 2006*. Lisboa: Instituto Nacional de Estatística.
- INE (2010). *Anuário Estatístico da Região Norte 2009*. Lisboa: Instituto Nacional de Estatística.
- INE (2013a). *Estatísticas do Turismo 2012*. Lisboa: Instituto Nacional de Estatística.
- INE (2013b). *Dormidas por País de Residência e Meses – TOP 10*. Lisboa: Instituto Nacional de Estatística.
- IPDT (2012a). *Perfil dos Turistas do Oporto e Norte Portugal 1^o trimestre de 2012*. Oporto: Instituto de Planeamento e Desenvolvimento do Turismo.
- IPDT (2012b). *Perfil dos Turistas do Oporto e Norte Portugal 2^o trimestre de 2012*. Oporto: Instituto de Planeamento e Desenvolvimento do Turismo.
- IPDT (2012c). *Perfil dos Turistas do Oporto e Norte Portugal 3^o trimestre de 2012*. Oporto: Instituto de Planeamento e Desenvolvimento do Turismo.
- IPDT (2012d). *Perfil dos Turistas do Oporto e Norte Portugal 4^o trimestre de 2012*. Oporto: Instituto de Planeamento e Desenvolvimento do Turismo.
- O'Connell, J., & Williams, G. (2005). Passengers' perceptions of low cost airlines and full service carriers: A case study involving Ryanair, Aer Lingus, Air Asia and Malaysia Airlines. *Journal of Air Transport Management*, 11(4), 259-272.
- Martínez-García, E. & Royo-Vela, M. (2010). Segmentation of low-cost flights users at secondary airports. *Journal of Air Transport Management*, 16(4), 234-237.
- Pitt, M. & Brown, A. (2001). Developing a strategic direction for airports to enable the provision of services to both network and low-fare carriers. *Facilities*, 19(1/2), 52-60.
- Robertson, J. A. W. (1995). Airports and economic regeneration. *Journal of Air Transport Management*, 2, 81-88.
- Ryan, C. & Birks, S. (2005). Passengers and low cost flights: evidence from the Trans-Tasman routes. *Journal of Travel and Tourism Marketing*, 19(1), 15-27.
- Ryanair (2013). Figura de rotas. Retrieved October, 12, 2013, from <http://www.ryanair.com/pt/destinos-a-baixo-preco>
- Starkie, D. (2012). European airports and airlines: evolving relationships and the regulatory implications. *Journal of Air Transport Management*, 21, 40-49.
- Skeels, J. (2005). *Is airport growth a necessity or a luxury? Overall view of market growth*. Report Presented to ACI Annual Congress 2005, Munich.
- Tribunal de Contas (2009). *Auditoria temática às derrapagens em obras públicas: Ampliação do AerOporto Francisco Sá Carneiro*. Relatório de Auditoria nº 06/2009 AUDIT Processo 07/07, Lisboa.
- Warnock-Smith, D. & Potter, A. (2005). An exploratory study into airport choice factors for European low-cost airlines. *Journal of Air Transport Management*, 11(6), 388-392.
- Zuidberg, J. & Veldhuis, J. (2012). *The role of regional airports in a future transportation system*. SEO-report nr. 2012-05. Retrieved September, 14, 2013, from <http://www.seo.nl/en/page/article/the-role-of-regional-airports-in-a-future-transportation-system/>.

Article history:

Submitted: 12 June 2013

Accepted: 30 November 2013