



Do dedicated low-cost passenger terminals create competitive advantages for airports?

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ABSTRACT

Traditionally designed for network carrier operations, airports are increasingly diversifying their services with new facilities being developed, specifically, to attract and accommodate low-cost carriers. In order to reflect the changing environment, some airports have built low-cost terminal facilities (or refurbished existing ones) for low-cost carriers. Applying a resource-based view, namely the VRIO framework (VRIO is an acronym for Value, Rarity, Imitability and Organisation), this paper analyses the potential of dedicated low-cost terminals in affecting the competitive positioning of airports. The research investigates for selected airports the potential benefits associated with the development of low cost passenger terminals and the factors which may help turning these benefits into a (sustainable) comparative advantage. It is argued that low-cost terminals offer a temporary competitive advantage which has so far not often been exploited.

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1. Introduction

As much as the airline industry has been transformed by liberalisation, which began in the US in 1978 with the Airline Deregulation Act, the airport business model too has undergone dramatic changes – some of them emanating from airlines. Prior to deregulation of aviation in Europe virtually all airports and airlines were owned by a local, regional or national government and run as public utilities. They were thus somewhat insulated from competition. Moreover, aircraft and passenger handling were the core competencies of airports and concerning revenue generation the emphasis was on the aeronautical business. However, with the deregulation of the intra-European travel markets, the final phase of which was completed in 1997, low-cost carriers (LCCs) took off and airports that previously serviced only network carriers (NCs) were now servicing LCCs as well (Barrett, 2004). The European LCC market has expanded in recent years and it seems likely that the trend will continue. These new airport clients have been reluctant to use existing facilities and have shown preferences for customised products that optimally fulfil their requirements.

Privatisation and commercialisation of airports combined with a slowly intensifying competition among airports have made airport management more profit orientated. As Graham (2010) acknowledges, airport owners and managers now need to develop strategies

to gain and sustain competitive advantages. In order to differentiate their positioning, some airports have developed dedicated low-cost terminals (LCTs), which is the removal of non-essential features to make the terminal more cost-effective and therefore consistent with the needs of low-cost carriers. The key objective of LCTs is to provide a minimalistic and efficient terminal facility at a reasonable price. This is achieved by cutting the non-core travel services to allow lower cost structures which in turn allow airports to charge LCCs low prices. The key question is whether this business strategy might create competitive advantage for airports pursuing it.

- Does the provision of low-cost terminals have any significant influence on airport profitability?
- What are the risks inherent in this strategy? Moreover, are dedicated low-cost terminals a successful solution model to the turbulent aviation environment?

The remainder of this paper is organised as follows. Following the **Introduction**, a short overview of the role and recent developments in airport terminals is presented in **Section 2**, and thereafter we describe the VRIO framework in **Section 3**. This is followed by an examination of the strengths and weaknesses of dedicated LCTs using the VRIO and Porter frameworks in **Section 4**. The paper offers three case studies in **Section 5** and discusses some managerial implications of dedicated LCTs for airports in **Section 6**.

2. Terminal developments

This section offers a short description of the role of the airport passenger terminal and shows how it has been affected by the

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emergence of LCCs. The airport passenger terminal constitutes one of the main elements of the infrastructure cost of an airport and can be defined as a building which facilitates connectivity between airside and landside access and where a complex interaction between airport operators, airline companies and passengers takes place.

The airport business has often been characterised by investments in expensive facilities which appear to be unsuitable for the needs and specific requirements of LCCs. Most modern airport terminals have been designed for maximum convenience and comfort, whereby high standards, expensive materials and sometimes architectural monuments are applied with the aim of delivering a prestigious image to represent the culture of the region or country. Such developments are associated with higher costs such as capital investment, operating and maintenance costs. Thus, some designs have little to do with the function the terminal is intended to achieve (Ashford & Wright, 1992). The incentives for over-investment may be attributed to the method used to regulate airports. In this sense, Niemeier (2009) argues that cost-based regulation is a major cause of the poor performance of airports, in that it results in incentives for gold-plating, high costs and high charges for airlines and passengers.

In today's airport business, two main terminal types can be distinguished, namely, traditional terminals and low-cost terminals. Whereas the traditional terminal can be defined as a terminal designed to process the flights and passengers associated with the operation of NCs with full service facilities, the low cost terminal can be thought of as an airport terminal that has been developed with low capital investment cost and with the aim of reducing costs and increasing efficiency.

The difference between the requirements of low cost carriers and those of NCs for terminal facilities (Echevarne, 2008; Mclay & Reynolds-Feighan, 2006) as well as the implications of the low cost-carriers' business model for airports (Barrett, 2004; Francis, Humphreys, & Ison, 2004) is well documented. LCCs usually avoid expenditures on services that are not strictly necessary for the provision of the core air transport product, such as the use of air bridges or escalators, the need for transfer and complex systems of the NCs. With regard to the implications for airports, Barrett (2004) argues that low cost and smaller secondary airports (i.e. those accommodating 0.5–5 million annual passengers) have been greatest beneficiaries of low-cost carriers' growth over the last two decades. LCCs triggered new demand and even shifted traffic away from congested airports to regional airports.

3. Theoretical framework

Looking back 20 years, the major source of competitive advantage stemmed from a firm's relative position in an industry (Porter, 1985). According to Porter, a firm can only be profitable by following one of two strategies: (1) cost leadership or (2) product differentiation.

“Competitive advantage fundamentally grows out of the value a firm is able to create for its buyers that exceeds the firm's cost of creating it. Value is what buyers are willing to pay, and superior value stems from offering lower prices than competitors for equivalent benefits or providing unique benefits that more than offset a higher price.” – Michael Porter, *Competitive Advantage*, 1985, p. 3

Following Porter's argument, a firm is said to have competitive advantage when it implements a strategy that creates value. Porter's emphasis on industry structure has been criticised for being too static and therefore not appropriate in today's more dynamic business environment. During the 1990s the emphasis in seeking the source of competitive advantage shifted toward internal factors attributing competitive advantage to the ownership of valuable resources. The possession of rare, unique and non-imitable resources is viewed by many as the source of competitive advantage at the firm level (Barney,

1991; Grant, 1991; Peteraf, 1993).² Resources and capabilities may include tangible assets, intangible assets and skills.

In this context, providing tailored infrastructure, such as dedicated LCTs seems to be a source of competitive advantage because the ability to develop and exploit dedicated terminals can be marketed as a differentiating and distinctive capability that provides customers with superior value. In fact, dedicated products respond to particular requirements and customers pay only for the products that satisfy their needs.

Barney (1991) offers a series of four tests for a valuable resource referred to as the Value, Rarity, Imitability and Organisation (VRIO) framework. The framework combines the internal and external perspectives on strategy. He points out that in order to lead to a sustainable competitive advantage, a resource or capability should meet the following criteria: (1) It must be valuable: that is, it enables its owners to increase revenue, decrease costs or exploit an opportunity. (2) It must be rare: that is, it is not widely possessed or controlled by other competitors. (3) It must be costly to imitate: do firms without a resource face a cost disadvantage in acquiring it or in offering a substitute in its place? (4) The firm must be organised to exploit its resources or capabilities.³ In other words, the firm must be able to support the exploitation of its valuable, rare, and costly-to-imitate resources.

The listed criteria can be brought together into a single framework to understand the return potential associated with exploiting any firm's resources or capabilities (this is done in Table 1). If a resource controlled by a firm is not valuable, it will not enable a firm to choose or implement strategies that exploit external opportunities or neutralise environmental threats. Organising to exploit this resource will increase a firm's cost or decrease its revenues. If a resource is valuable but not rare, its exploitation and implementation will generate competitive parity. If a resource is valuable and rare but not costly to imitate, exploiting this resource will create a temporary comparative advantage. If a resource or capability is valuable, rare and costly to imitate, exploiting it will generate a sustained competitive advantage.

4. Application to dedicated low cost carrier terminals

This section discusses the strengths and weaknesses of dedicated LCTs by applying the VRIO framework. The discussion is based on evidence from a literature review.

4.1. Internal – VRIO analysis

4.1.1. The question of value

The question of value creation depends on the strength of the different factors, namely by how much costs can be reduced by building an LCT instead of a traditional terminal, by how much the charges must be lowered to attract LCC and by how much non-aeronautical revenues are generated.⁴ The airport therefore enters the lower end of a demand curve by building an LCT served by an LCC. This part of the demand curve cannot be profitable if served by NCs

² A considerable amount of literature has been published on resource-based theory. Penrose (1959), Wernerfelt (1984, 1995), Collis and Montgomery (1995), and Kor and Mahoney (2000), for example, argues that a firm's performance is the function of its productive resources. Rumelt (1984) explains firm's performance in terms of isolating mechanisms. Selected empirical studies on the linkages between resources, strategy and performance include Zajac, Kraatz, and Bresser (2000), Kraatz and Zajac (2001), and Kor and Mahoney (2005).

³ The components of a firm's organisation include the formal reporting structure, management control systems, informal management controls and compensation policies.

⁴ It should also be noted that the airport gains also by reaping economies of density for example by a higher utilisation of the take-off and landing system. We have not analysed these rather complex effects which have not been extensively studied at all. See Tovar and Martin Cejas (2009) and Chow and Fung (2009).

Table 1

The VRIO framework.

Source: Adapted from Barney and Hesterly (2006, p. 95).

Is a resource or capability					
Valuable?	Rare?	Costly to imitate?	Organised properly?	Competitive implications	Firm performance
No	No	No	No	Competitive disadvantage	Below average
Yes	No	No	No	Competitive parity	Average
Yes	Yes	No	No	Temporary competitive advantage	Above average (at least for some amount of time)
Yes	Yes	Yes	Yes	Sustained competitive advantage	Persistently above average

together with a traditional terminal. This joint offer of airport and LCC creates more passenger demand depending on the elasticity of demand. However, increasing passenger numbers results only in value for the airport if it is not forced to charge below the cost of providing the LCT and if the airport is able to capture parts of the non-aeronautical spending of additional passengers. These factors are analysed in turn.

4.1.1.1. Impact of LCT on costs. The construction and operating costs of LCTs are expected to be lower than those of a traditional terminal due to the introduction of basic facilities. O'Connell (2007) argues that the reduction in operating costs with regard to the LCT concept will make up to 30 to 40% of traditional airport terminal costs. Kazda and Caves claim that some LCTs are being built for only quarter the price of a traditional terminal (Kazda & Caves, 2008).

4.1.1.2. Impact of LCT on aeronautical revenue. With regard to aeronautical charges, airports seek to attract LCCs through reduced airport charges and sometimes marketing assistance. It has been acknowledged that airports dealing with low cost carriers have experienced considerable drops in aviation revenues and passenger charges. A report by Jacobs Consultancy (2007) indicates that the overall charges for the use of LCTs vary between around 65% and 76% of the equivalent charges in main terminals. According to this report, users of low cost Pier H and Pier M facilities at Schiphol airport (Amsterdam) benefit from an airport-wide 20% discount on landing charges for aircraft which are not connected to an air bridge. Table 2 shows examples of passenger handling charges at selected airports for LCTs and traditional terminals. However, as far as charges are not priced below average cost, LCTs may be some value to airports.

Table 2

Price differentiation between main terminal and LCT for selected airports.

Source: Own illustration, data from aci-europe.org.

Airports	Charges (Euro)	
	LCT	Traditional terminal
Copenhagen Airport	Passenger charges are 35% lower at CPH GO.	
Lyon-Saint Exupery	Schengen passenger:	14.74
	Non-Schengen passenger:	15.93
	International passenger:	17.58
Amsterdam Airport Schiphol	Different rates (–20%) for disconnected handling (without air bridges) and connected handling (with air bridges) apply at the airport.	Schengen passenger: 17.91 Non-Schengen passenger: 19.88 International passenger: 112.64
	Marseille-Provence	The passenger charge at mp2 is 70% lower than at mp1 but the landing and parking fees are the same.

4.1.1.3. Impact on non-aeronautical revenue. If aeronautical revenue is charged below average cost, an LCT may only be of some value to airports if the latter can offset their lower aeronautical revenue by non-aeronautical business operation. If sufficient retail spending from passengers is not achieved, it would be possible that an airport can attract new services but lose money.

One of the key factors driving consumer spending and shopping behaviour at the airport is time. Dennis and Graham (2006) affirm that two factors may increase the time available for shopping. Firstly, low cost carrier passengers usually check-in early as LCCs operate on a first come first served boarding basis. Secondly, the airline (at least for easyJet operations, they argue) allow for minimum dwell time at the gates. Commercial activities likely to benefit from increased passenger volume are food and beverages, car-rental and car parking services.

It is believed that LCTs would attract LCCs which in turn would attract cost conscious passengers who would not want to spend as much in airport shops as passengers travelling on NCs. However, it has been demonstrated that many low cost passengers are not budget travellers and that given the opportunity, as well as adequate facilities, low cost carrier passengers are willing to spend money at airports (Dennis & Graham, 2006). Based on the study's findings by Spain's Institute of Tourism (Instituto de Estudios Turísticos, 2004), Echevarne (2008) indicates that, in contrary to what is usually perceived, the buying behaviour of LCC passengers at airports does not vary significantly from those flying on NCs. According to this study average income and medium-high income passengers on LCCs to Spain represented 65.3% and 20.5% of the total respectively. It was also found that there were more high income passengers on LCCs (5.2%) than on NCs (4.4%). In all, it could be said that the socio-economic profile of LCC passengers is very similar to those of NCs (Echevarne, 2008).

To sum up, the relationship between airport profitability and low cost operations has not been studied for LCTs specifically but for low cost airports in general. According to Dennis and Graham (2006) a high involvement with LCCs is associated with lower aeronautical revenue while the relationship between airport profitability and low cost operations on the other hand was found to be unclear.

4.1.2. The question of rarity

Low cost carrier terminals are usually designed to allow a below 30 minute turnaround time, which is exactly what LCCs want. In the airport industry, dedicated LCTs do not seem to be widespread. Only nine European airports have implemented segmentation of these services through the development of LCC facilities so far (see Section 6). Some would argue that there are many products on the market capable of providing the features of the LCT such as low cost airports. Against such a view is the argument that each airport has an individual characteristic.

4.1.3. The question of imitability

If a product differentiation strategy is costly to imitate, the firm can be expected to enjoy a competitive advantage. There are four sources of costly imitation: unique historical conditions, causal ambiguity, social complexity and patents. In particular, if the cost of offering an LCT is greater than the benefit, the would-be imitators would rationally choose not to attempt imitation. LCTs facilities are not subject to unique historical conditions, causal ambiguity, social complexity and patents and thus easy to imitate. They are likely to pose fewer problems for investment since they can be built in smaller stages and they pose less environmental problems.

4.1.4. The question of organisation

Having an appropriate organisation (formal and informal management controls, reporting structures) in place will enable the airports to realise the full competitive advantage potential of their resources or capabilities. In fact, it is essential to establish who the potential

customers are and how different groups of customers may view the facility offer. LCCs are not homogenous (easyJet and Ryanair or Air Berlin, for example) and tend to make use of airports facilities according to different primary motivations. The airport operator needs to implement a solid management structure able to reflect the varied needs of not only airlines, passengers, employees, businesses, but also governments and the community at large. It is expected that this will pose fewer problems to airport operators since they have always had this role in their management of terminals. The airport operator also needs to pay attention to having a balance between aeronautical and non-aeronautical activities. This implies that the airport managers have to be careful in the design of terminals, the choice of concessionaires and outlets placement. In this regard, a better understanding of the existing and future traffic profiles and growth, as well as an understanding of the way passengers move around, by focusing on the route taken by airport customers, is of paramount importance. As CAPA (2009, p. 263) indicates, “[...] the performance of the airports is not pre-determined by traffic levels or even the size of the terminal, although clearly this is very important.” Growth opportunity through LCCs needs to be weighed up against the risks of dependency.

4.2. External – Porter's environmental threat analysis

Results of the VRIO are used to identify key external threats that may challenge the success of LCTs. As discussed above, the Barney (1991) approach to value integrates both the internal and the external factors. Accordingly, a resource is valuable if it enables a firm to reduce costs or increase revenue and if it enables a firm to neutralise an external threat or exploit an opportunity. Assuming that an LCT is valuable; can it also help airports in neutralising the threats of the forces in the Five Forces Model?

4.2.1. Threat of new entrants

The development of an LCT by competing airports or the development of a low cost airport within the catchment can be difficult to launch due to capital cost (the cost of construction) involved. The availability of land for infrastructure development can act as a barrier for the development of a low cost airport. Obtaining the approval of local government or the civil aviation authority for infrastructure development can be a long term process hindering airport expansion.⁵ A high utilisation of the terminal is also needed to achieve lower unit costs⁶ and therefore to cover the overall cost of offering the product, which may mean that airport managers must negotiate with one or several low cost carriers to encourage them to operate services at the airport. Airports are local in nature and derive their value from location, which comes from large economic and population base, or other sources such as “warm water” destination (Gillen & Lall, 2004). Therefore the market structure of the airport intending to invest in an LCT may be of great importance when it comes to negotiating contracts with LCCs.

4.2.2. Threat of substitutes

Potential substitutes include: (1) traditional terminal within the catchment area where the LCC may obtain some discount for operating at off-peak times in the same airport or within the catchment area of the airport (roughly within a range of 90 km/area reachable within 1 h of car travel); (2) low cost airports within the catchment area of the airport and (3) high speed-rail services. In fact,

⁵ Local authorities tend to support investments aiming to attracting low cost carriers at small and regional airports on the promise that this would boost tourism and the local economy. Thus, regions on the other hand see an airport as a tool for their social and economic development.

⁶ Terminal infrastructures have large fixed cost component, therefore increasing throughput via existing infrastructure may generate cost economies, namely economies of density. Economies of density may also arise through expansion of terminal infrastructures while maintaining airside infrastructure constant.

there are a number of factors to consider when investigating the likelihood of an airline to substitute one airport for another such as specifying charges, the quality of service the airport provides (for example minimum turn-around times), the amount of marketing support and the commitment by the airport for future investment.

4.2.3. Threat of suppliers

Ground handling and other input markets are quite competitive and a low cost terminal does not need a lot of specialised investments.

4.2.4. Threat of buyers

Deregulation of air transport and the resulting increase in competition between airports have led to increasing bargaining power of the airlines. LCCs usually have a strong bargaining position because they can move their activities elsewhere, unless reductions in charges are granted by the airport (Francis et al., 2004). In addition, airlines attempt to create competition among airports by negotiating with more than one airport. Small airports relying on one airline may have less bargaining power than medium and large airports with different clients. LCC has more substitutes for serving a market. It can go to a neighbouring airport or to a secondary airport instead of going to the airport with the LCT. If there is only one LCC then this LCC has market power. The NC could withdraw traffic and could threaten the airport in ground handling and other markets.

4.2.5. The threat of rivalry

Rivalry Among airports for LCC services will either be intensive or low depending on the following factors: capacity (an indicator of slot constraints/spare terminals/runway capacity, possibility of extension); location (periphery or centred), accessibility and market structure (an indicator of population, tourism, etc.); overlapping catchments area in regions and major airports with concentration of short-hauls (Laplace et al., 2010). For instance, competition with neighbouring airports is very low if the competitors have low capacity and low market structure, as well as if the focus of neighbouring airports is on aviation revenue and service on throughput.

This analysis assumes that the demand curve is stable. However, due to low switching costs the demand for LCT services might shift. In fact, LCCs seem to be footloose in nature and have less commitment to their route networks than NCs (Humphreys, Ison, & Francis, 2006). According to Lawton and Solomko (2005), the European LCC sector is characterised by a high number of route entries and exists, and operators transferring (or threatening to transfer) their operations to other airports.

Table 3 summarises the application of the VRIO framework to LCTs. The analysis has shown that dedicated LCTs are likely to be valuable. The provision of basic facilities enables the airport to reduce operational costs, capital investment and airport charges. Furthermore, while the impacts of LCTs on non-aeronautical activities are not clear, the provision of appropriate facilities or the presence of good organisation (among other things) are identified as underlying the performance of non-aeronautical activities. LCTs are not widespread but easy to imitate, thus becoming a source of temporary competitive advantage. Investing in a dedicated LCT can enable an airport to

Table 3
Summary of VRIO application to low cost terminals.

Are tailored low-cost terminals					
Valuable?	Rare?	Costly to imitate?	Organised properly?	Competitive implications	Firm performance
Yes	Yes	No	Yes	Temporary competitive advantage	Above average (at least for some amount of time)

improve its competitive advantage and earn above average profits, at least as long as competing airports do not do the same.

5. Overview and case studies

This section provides an overview of the established LCC facilities in Europe and investigates for three regional airports the value associated with the provision of an LCT. To this end interviews were conducted with the respective airport managers. The interviews aimed at getting in-depth information about their experiences with the LCT and about factors relevant to gaining and sustaining competitive advantages.

Table 4 provides the list of European airports which have developed a LCT. It presents some key features of the LCT such as the date of opening, type and cost of the LCT, its gross area as well as passenger capacity and the number of LCCs servicing it. For the sake of completeness, information concerning the number of airports in the catchment area, the form of airport's ownership and the airport's regulation mechanism are also mentioned. Most of the airports in the list are state owned (with few exceptions, Copenhagen and Budapest). This information is essential to understand the rationale behind the LCT. For example, the need for the development of a LCT in Bremen was enforced by the local government, whose primary objective was to promote and expand tourism in the region. Thus, the public sector interest in airports differs from the private interest in a number of important ways. The public sector typically views airports as public utilities and potential drivers of regional economic growth, while the private sector views airports as a commercial enterprise that should be performed according to the principle of profit maximisation (among other factors).

5.1. Bordeaux-Mérignac Airport – Bordeaux illico

5.1.1. Situation

Bordeaux airport is a small regional airport located in the town of Mérignac about ten kilometres west of the city and is handling approximately 3.5 million passengers annually. The airport features two traditional terminals – Terminal A and Terminal B and one dedicated low cost terminal. The airport is managed by the Bordeaux Chamber of Commerce and Industry. The objective of the airport is regional economic development.

Responding to strong rail competition, Bordeaux airport opened in May 2010 a new low cost terminal offering simplified services. It should be noted that Bordeaux airport competes with Bergerac Airport. The terminal was developed to compensate in advance for the loss of traffic (up to 800,000 passengers) due to the planned TGV south-west high speed railway line (2 h) between Paris and Bordeaux in 2017. It is designed to handle 4 aircraft and 600 passengers simultaneously. The departure area allows 0.72 m² per person, compared to 2–2.5 m² at conventional terminals. Commercial offering takes 20% (i.e. 800 m²) of the overall floor space. Whereas a total of nine low cost carriers operate from Bordeaux airport, the LCT is currently used by easyJet and Ryanair.

5.1.2. VRIO analysis

The LCT enabled Bordeaux to increase its market share of the LCC and overall passenger volume as well as to increase commercial revenues. It also contributed to profit, is financially viable and is an innovative use of terminal facilities. Thanks to the introduction of the terminal, both airlines increased their flights with two and three new routes respectively.⁷ It is estimated that about 500,000 travellers (15%

⁷ According to the management of Bordeaux airport, bringing costs down contributed to the development of renewed activity with EasyJet, which otherwise might have reached a kind of maturity; “billi” motivated Ryanair's and other LCC interest for Bordeaux.

Table 4
Examples of dedicated LCTs in Europe.
Source: Centre for Asia Pacific Aviation, 2009 and German Airport Performance Database 2009.

Airports	Date of opening	LCTs types	No. of airports in catchment ^a area with annual passenger > 100,000 (2007)	Regulation form (2007)	% Private ownership (2010)	Total number of passengers (Mio) (2009)	Passenger capacity (Mio) LCT	LCT gross area (m ²)	LCT cost (Mio)	Number of LCCs (2008)
Tampere-Pirkkala Airport (Finland)	2003	Renovated former cargo terminal 2	3	No regulation	0	0.63	Na	Na	Na	1
Warsaw Frederick Chopin Airport	2004	Converted ^b supermarket	Na	No regulation	0	8.3	Na	3414	Na	6
Budapest Airport Zit.	2005	Terminal 1 refurbishment	1	Price-cap	75	8.09	2	7990	35	6 (Sep-2009)
Amsterdam Airport Schiphol	2005	Pier (H) off existing terminal	3	Price-cap	0	43.5	8	6150	32	9
Marseille Provence Airport	2006	Old cargo facility refurbishment	3	No regulation	0	7.2	3.5 p.a.	7532	16.4	5
Bremen Airport	2007	Old warehouse facility refurbishment	2	Cost-based	0	2.4	Na	3200	10.4	1
Lyon Saint-Exupéry Airport	2008	Old cargo facility refurbishment	1	No regulation	0	7.7	1.8 p.a. (by 2010)	Na	Na	Na
Copenhagen Airport	2010	New pier	2	Price-cap	60.8%	19.7	6 p.a.	6700	26.8	Na
Bordeaux-Mérignac Airport	2010	New dedicated terminal	0	No regulation	0	3.3	1.5	4000	5.5	2 (2010)

^a Catchment area is defined as 100 km around the airport.

^b The terminal was closed in April 2009.

of Bordeaux's total traffic) will pass through the terminal in 2010 and that the terminal will handle 1.5 million passengers by 2015. Total traffic growth is expected to rise to about six per cent this year.⁸ With regard to costs, operating costs have been reduced by approximately 30% and turnaround flights by less than 25 min. Tariffs reflect low cost carriers' needs. All boarding and disembarking is on foot, meaning fewer processes and greater costs savings. Thanks to the dedicated LCT the airport could attract new and retain old LCCs (improved customer loyalty). Bordeaux reported that the LCT provided competitive advantage in the LCC market over rivals. However, this advantage is difficult to be sustained given the low entry barrier for providing an LCT. With regard to organisation the management of Bordeaux airport acknowledged the importance of passengers' education as a low cost terminal brings lower quality services to passengers. In conclusion, the VRIO analysis shows that Bordeaux illico is a potential source of short-term product uniqueness and temporary competitive advantage.

5.2. Bremen Airport – low cost terminal ownership by an airline

5.2.1. Situation

Bremen airport is located downtown with just 11 min by tram from Bremen's business district. The airport is completely owned by the city of Bremen and run as corporatized entity, whose business objective is regional economic development. The airport handles 2.5 million passengers annually with direct flights to 50 destinations. Catchment area of Bremen airport overlaps with those of Hannover and Hamburg. Bremen's Ryanair passengers mainly come from Lower Saxony (44.31%) and Bremen (27.74%). Hamburg ranks at fourth place with 6.30% behind North Rhine Westphalia 8.38%. Only four per cent of Bremen's Ryanair passengers accrue from Schleswig Holstein (Pro-airport luebeck e.V., 2010). Bremen is Ryanair's second base in Germany, with currently four aircraft stationed in Bremen and a total of 18 routes from Bremen. The airport's catchment area is approximately 13 million inhabitants within a 2-hour driving range. According to Müller-Rostin et al. (2010) Bremen airport possesses modest market power.

5.2.2. VRIO analysis

The conversion of a former maintenance workshop into a low cost terminal was initiated to attract LCCs in Bremen with the aim of strengthening the economic development of the region, especially through job creation (the airport currently employs 450 people) and tourism development. Ryanair invested ten million Euros in the purchase of the terminal after being selected as the successful bidder in European tender. All airlines are charged the same landing and parking fees. As a result of Ryanair's establishment at Bremen, passenger growth has been dramatic. It peaked at 55.6% for the first seven months between April and November 2007. The overall expansion was 30% for 2008 or in terms of passengers it grew from 1.7 to 2.2 million.⁹

According to Bremen airport management the low cost base covers the cost for the airport and more important delivers additional benefits for the region. The low cost terminal has so far enabled Bremen to attract more passengers to Bremen, for the benefit of tourism, business and employment in the city and in the entire region on the one hand and to improve its competitive advantage for LCC market over its rivals Hannover and Hamburg on the other hand. To sum up, due to its first-in-the market entry and joint ownership with Ryanair, the LCT is not only valuable but also rare. However, due to the imitability of this key resource, it constitutes a potential source of temporary competitive advantage

5.3. Copenhagen Airport – LCC pier GO

5.3.1. Situation

Copenhagen Airport counted 19.7 million passengers in 2009 making it the busiest airport among all Nordic countries. The airport is owned and operated by Copenhagen Airports A/S, a listed company. Copenhagen Airport is located on Amager Island, less than ten kilometres southeast of the city centre. There are three main terminals operating at Copenhagen Airport and since October 2010 a dedicated terminal for low-cost carriers. The low cost terminal is an extension of existing facilities. The building has six aircraft stands and covers an area of 6700 m² and an initial capacity of six million passengers annually and the potential to double that if the need arises. The construction cost was estimated at around DKK200 million (€26.8 million). Airline charges are about 50% lower than fees at the existing facilities and all airlines meeting the user requirements, such as a maximum turnaround time of 30 min, can use the low-cost pier.¹⁰

5.3.2. VRIO analysis

The development of the LCT was a response to an opportunity in the market. The objective was to provide a facility that will help the airport to attract more passengers to Copenhagen, for the benefit of tourism, business and employment in the city and in the entire region. It should be noted that Copenhagen Airport plays a key role in the development of Denmark within trade, industry and tourism. The airport's strategy is to position itself as a key northern European hub serving both Denmark as a destination and also connecting it to the world.

According to the management of Copenhagen Airport the airport achieved good results due to traffic generated by the LCC. EasyJet has grown from daily departures in Copenhagen Airport to more than ten times daily departures, which is due to the inauguration of the LCC pier GO. The LCC pier is part of the airport's existing strategy, which focus on keeping and developing its position as Scandinavia's Hub and to be the preferred LCC airport in this part of Europe. Other benefits realised from the development of LCC pier GO are increase in customer loyalty, increase in revenue by aeronautical activity, reduction in operating costs and strong return on capital. According to the definition of valuable resources, it can be concluded that LCC pier GO is a valuable resource and if properly exploited can be a potential source of temporary competitive advantage.

6. Conclusions

In this paper, attempts have been made to assess the dedicated low cost terminals' potential for achieving competitive advantage for airports. Moves towards deregulation and in particular the emergence of the low cost carrier sector are having major implications for airports business strategies. As discussed, the traditional full service airport model is inconsistent with the business model of LCCs. In order to ensure future airport growth, some airports have integrated differential levels of quality in their strategies by developing the concept of dedicated LCTs. In terms of business strategy, dedicated LCTs contain elements of both cost leadership strategy and product differentiation. The analysis of LCTs using the VRIO framework has shown that LCT is valuable resulting from possible cost savings and additional traffic and revenue from commercial activities.

Given the individual characteristic of each airport and in order to precisely appreciate the effect of a dedicated LCT on airport profitability, a thorough analysis using two case studies was undertaken. The analysis of Bordeaux, Bremen and Copenhagen airports has demonstrated that the development of an LCT can help an airport improve its competitive

⁸ www.bordeaux.aeroport.fr.

⁹ www.airport-bremen.de.

¹⁰ www.cph.dk.

advantage for at least some time which might be quite long given the rarity of LCTs. LCTs have a positive effect in the development of the airports and local economies. Revenue generation, but also tourism and regional development seem to be the key driver of low cost terminal development. The main conclusion emerging is that the impact of LCTs on airport revenue is very much dependent of the ability of the airport managers to monitor the performance of retail. Monitoring the performance of the retail outlets seems to be the key to success.

LCTs represent an opportunity to airports, but can also represent a dilemma. Investing in a dedicated tailored LCT can be a risky venture, because of the volatile character of LCCs and the lack of flexibility associated with LCTs. The risk may be mitigated if airlines are actively involved in airport activities and in particular, in terminal facilities investment. The potential benefits of airlines involvement (joint venture construction, vertical integration, etc.) include the following: risk and cost sharing and increased reliability. Even though active involvement does not completely mitigate the risks faced by an airport when investing in an LCT, these risks are shared between airports and airlines and should therefore help lower the costs of capital involved in financing the project. Closer relationship between airlines and airports, however, usually means losing diversity and flexibility for at least one partner. In this respect the case of Bremen airport served by a single LCC is very instructive. By actively involving the LCC in the construction of LCT through joint venture or vertical integration the airports may protect themselves from the threat of opportunistic behaviour of airlines. This will give a feeling of partnership in the future, and will increase stability or reduce the prospect of a sudden withdrawal.

Perhaps LCTs enable airports to take advantage of the environment created by LCCs. However, airport managers must carefully evaluate the agreements' terms and the associated costs and benefits of investing in low cost facilities. A long term viability of each LCC and its impact on incumbent operators need careful evaluation. It is also of paramount importance to carefully plan with airline partners to ensure that cannibalisation¹¹ of other partner airlines does not occur. Problems may also arise if traffic growth reaches a certain level exceeding capacity. Careful evaluation of future prospects or construction of extendable LCTs may help mitigate such problems. It is also important to note that passenger's perception of LCTs may impact on the success of the concept. This involves understanding of what drives passengers' benefits (e.g. how a LCT serves passenger needs better than potential substitutes).

A number of limitations might need to be considered in evaluating the findings of this paper. More case studies, a comparison between investing in LCT in main airports versus regional airport or in private airports versus publicly owned airports may provide more insights into the impact of LCTs on airport profitability. Another line of research worth pursuing further is to study the phenomenon using quantitative methods.

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¹¹ Cannibalisation is what happens if one part of a company grows by taking sales from another.