
Transatlantic Market Competition Between Hybrid Carrier and Long-Haul Low-Cost Carrier Business Models

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ABSTRACT: Long-haul low-cost carrier (LHLC) business models are generating considerable interest from the aviation practitioners and academics. Despite the high interest for the LHLC business model, only few have compared the LHLC business model to hybrid carrier business model and studied how airlines can compete with LHLCs. This paper analyses the differences of hybrid and long-haul low-cost carrier models and shows how Aer Lingus airlines has secured its dominant position in the Irish–US market. Product comparison with the help of in-depth interviews with key aviation practitioners as well as secondary data about the capacity and demand of the two carriers in question proves the differences between the two models. Porter five forces model provides an overview of the external competitive environment where the airlines in question operate. The research concluded that the hybrid and long-haul low-cost business model characteristics have many similarities, but also significant differences. It was also discovered that LHLC lack capacity and frequency as well as feeder traffic are very important elements for the transatlantic market. Robust route network including interline traffic and low operating cost, elements present in the hybrid airline business model, ensure profitability.

KEYWORDS: Long-haul low-cost; Hybrid airlines; Transatlantic flights; Airline competition; Airline business models.

INTRODUCTION

Over the years, airlines and their business models have evolved due to market forces. Deregulation in Europe since the mid-eighties resulted in the full-service network carriers (FSNCs) coming under increasing pressure from low cost carriers (LCCs) such as Ryanair and EasyJet (Barrett 2006). Efthymiou and Papatheodorou (2018) claim that the gradual polarisation of the airline industry between flag carriers and LCCs in the post liberalisation period pushed many carriers that have adopted the charter business model to collapse or merge with tour operators. In this phase of convergence, the business models gradually blurred as LCCs and FSNCs incorporated characteristics of the other in their business model (Efthymiou and Papatheodorou 2018). Finally, with new entrants into the long-haul market, such as Norwegian Airlines, carriers are under pressure to add LCC model elements into the long-haul transatlantic market.

Extensive research has been carried out on long-haul low-cost business model (Barret 2006; Francis *et al.* 2007; Moreira *et al.* 2011; Wit and Zuidberg 2012 De Poret *et al.* 2015; Soyk *et al.* 2017; Rodríguez and O’Connell 2018; Doganis 2019) and the associated differences. Hunt and Truong (2019) found that comfort, service, and convenience are the most important amenities to long-haul passengers. Their comparison focused LHLC and FSNC. However, additional research is required on the comparisons

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between the hybrid and low-cost business models and the benefits of developing a robust route network including interline traffic to ensure profitability. This research aims to highlight the difference of two airline business models, hybrid and long-haul low-cost carrier, looking at the product and strategies of Aer Lingus and Norwegian in the Irish–US market.

Aer Lingus, the once state owned Irish national flag carrier, has seen many changes over the years, moving from the security of state ownership to privatisation and to becoming part of the International Airlines Group (IAG) in September 2016. This saw the carrier evolve from a full service (legacy) airline to a low cost, cost aware, (hybrid) value carrier. O’Connell and Connolly (2017) examined the key strategies the company applied during this transition including its seasonality problem and its need to become unwavering in its capacity discipline while constantly examining its cost base and its operational efficiencies. Mueller identified the restructuring of the Dublin hub as key to the Aer Lingus strategy for success and ultimately led to the IAG buyout in 2015 (O’Connell and Connolly 2017). Mueller reported that transfer passengers from the UK and Europe accounted for almost one third of Aer Lingus long-haul traffic to North America (O’Connell and Connolly 2017). Airlines with more code share and alliance partners have greater profit margins than airlines with fewer partners (Zou and Chen 2017). Much of the Aer Lingus growth is due to its do “business with anyone ethos” through a series of code shares and partnerships. The Aer Lingus strategy of forming a series of strategic partnerships with airlines, such as JetBlue and United allowed the carrier to stretch beyond established gateways in the US, which in turn fed into their route network across the Atlantic and onward to Europe (O’Connell and Connolly 2017). The directional hub at Dublin, improved connectivity and cost restructuring lead to the new hybrid model and have been key to the growth of the airline.

Norwegian Air Shuttle followed a rapid expansion strategy. It started in 1993 as a regional airline serving domestic flights within Norway, began operating as a low-cost carrier with Boeing 737 aircraft in 2002, and launched its first long-haul flight in 2013. In 2014, Norwegian was granted an Irish Air Operator Certificate (AOC) for its subsidiary, Norwegian Air International Ltd (NAI). In 2015, Norwegian obtained a UK AOC for the Norwegian Air UK Ltd (NUK). In 2016, the US Department of Transportation (DOT) granted a foreign air carrier permit to NAI and in 2017 to NUK, despite opposition by airlines on both sides of the Atlantic. The airline apart from the multiple-AOC strategy, that granted new traffic rights, put emphasis on creating a group of companies (e.g. Norwegian Holidays AS, Norwegian Cargo, Bank Norwegian AS, Arctic Aviation Asset DAC). In 2018, Aer Lingus parent International Airlines Group (IAG) acquired a 4.61% ownership of Norwegian Air Shuttle ASA and in January 2019 announced the sale of their 3.93% stake (IAG claims that the 4.61% share has been diluted to 3.93% as a result of subsequent share offerings by Norwegian during the first half of 2018).

METHODOLOGY AND DATA

Research design involves the overall process of data collection, measurement and analysis (Gray 2013). For the purpose of this paper a case study of two very interesting air carriers, i.e. Aer Lingus and Norwegian Air International, representing two business models was used. A case study is the most appropriate research design in order to systematically examine the research question, which aim to explore a relatively novel phenomenon, and where there is no conclusive line of theory on the topic matter (Bromley 1990; Eisenhardt 1989). Therefore, qualitative and quantitative data were used to analyse the competitive environment Aer Lingus operates in and whether Norwegian Air International is actually a competitive threat.

In terms of data collection and measurement, data on the supply (i.e. seats offered) and the demand side (i.e. seats booked) were used. Data on the available seat kilometres (ASKs), airline schedules and booked seats were obtained through OAG and market intelligence data tapes (MIDT) databases. The main limitation of the MIDT database is that it provides data for seats booked via a global distribution system (GDS) and does not include flights booked directly via the airline website. Nevertheless, this database provides market booking information of user-defined markets along with the activity of all agency bookings in those markets (Corbet *et al.* 2019).

Interviews are frequently used in explanatory research (Efthymiou *et al.* 2019). For this study, semistructured interviews were used. Semistructured interviews can provide in-depth and comparable qualitative data Campbell *et al.* 2013). Some of the interviewees requested to remain anonymous and confidential; therefore, they were not included in this paper, but gave very thorough and insightful comments that were instrumental in the better understanding of the market structure and competition between the two business models. The remaining interviewees are the following:

- Conor McCarthy – Dublin Aerospace CEO and Stobart Chairman;
- Simon Fagan – Dublin Airport Authority Strategy Director;
- Stephen Kavanagh – Aer Lingus CEO.

Porter's five forces model was used to analyse the market competition in which Aer Lingus operates in. The model is based on the concept that there are five competitive forces that determine the competitive environment and intensity coupled with the attractiveness of a market. Porter's five forces analysis is particularly useful in identifying where the power lies in a business relationship, which in turn is critical in establishing organisations current strengths and possible future strategy based on competitive position (Porter 2008).

Porter (2008) suggests that customer power can also be reduced when a company expands its products and services making it harder for buyers to change to competitors citing product differentiation as key to winning market share. Moreover, when a company standardise products or services, it can switch suppliers easier and therefore, the supplier power is reduced.

In addition, Porter argues that commercial aviation is one of the toughest markets with the lowest profit margins and strongest forces with established rivals competing vigorously on price and customers. Porter argues the importance of analysing the five competitive forces as it allows companies to gain an overall competitive picture on what is driving profitability in an industry. In addition, by identifying game changing trends early allows for quick exploitation and potentially change the forces in the company's favour (Porter 2008).

AER LINGUS BUSINESS MODEL VS NORWEGIAN BUSINESS MODEL

Airline business models are widely researched by scholars. The most widely established categorisations are the FSNC and the LCC (Jean and Lohmann 2016). Efthymiou and Papatheodorou (2018) suggest that LCCs adopted FSNCs practices giving rise to the so-called hybrid LCC business model. A hybrid LCC may be member of an alliance and operate codeshare agreements (e.g. Air Berlin being part of Oneworld and JetBlue code-sharing with Aer Lingus) or use a mix of short and long-haul aircraft types (e.g. Aer Lingus). Klophaus *et al.* (2012) suggest that many European LCCs are adopting a hybrid business model with dominating FSNC or LCC characteristics. In their research, they evaluated the carriers based on various criteria, mainly fleet composition, airport and route choice, code sharing, frequent flyer program, carrier's service/product and pricing policy. The comparison of the two business models is inspired by those criteria.

Aer Lingus as a hybrid carrier offers flights on its transatlantic network that resemble the services of FSNCs (Jean and Lohmann 2016). Aer Lingus is relying on Dublin airport as a directional or hourglass hub for improved connectivity. Directional hub is an airport in which aircraft from spokes in one region connect traffic via the hub to other spokes which are located in an opposite direction (Dennis 1994).

Previous researches (O'Connell and Bueno 2018; Logothetis and Miyoshi 2018) examined the critical importance of hub development and ease of connectivity in airline growth and sustainability. Papatheodorou *et al.* (2019) discussed the airline-airport-destination dependence and found that they are interconnected via a complex relationship. O'Connell and Bueno (2018) researched the three major gulf carriers (Emirates, Etihad and Qatar) and the affect their hub and spoke model of hoovering up traffic with long-range high-seat capacity aircraft is having on European hubs. The research identifies the two key parameters in analysing hub performance as geographical location and schedule coordination. The research found that Etihad and Qatar however, had twice the level of intercontinental connectivity than that of their European counterparts.

Chen (2017) studied the competitive response by an established carrier to the entrance of an LCC into its hub. Chen (2017) advised that initially incumbent carrier China Eastern were not concerned due to regulatory protections around capacity control but did see a reduction in airfares by 4%. The findings highlight the importance of policymaking and government control to a particular market. Policy changes can alter the competitive market and force airlines to compete directly on certain routes increasing the importance of cost control and product differentiation. This work has reviewed two representative airline models, Aer Lingus and Norwegian, and their key differences in terms of a) product offering, b) aircraft fleet and technology, c) route / network strategy, d) capacity and demand (including revenue) and e) financial performance.

PRODUCT OFFERING

Historically network carriers included options such as seat allocation, priority boarding, checked baggage and meals in the price of the flight ticket. However, LCCs have exploited these “extras” as a way of generating additional revenue and offering a reduced fare based on product selection which allows the passenger to pick and choose the products that are of most value to the individual. Wit and Zuidberg (2012) argued that unbundling in turn reduced the LCCs operational handling costs by reducing the required number of check-in and baggage handling staff. Aer Lingus reacted to the Norwegian threat but also offering unbundled fares when it launched the “*saver fare*” in 2017, which saw the value carrier offer, reduced fares on point- to-point bases on routes between Dublin and the US The saver fare on introduction was a reduced fare where passengers paid extra for a checked bag, blankets, wi-fi and headphones for in-flight entertainment designed to compete directly with the Norwegian fare offering on selected routes.

Wensveen and Leick (2009) believed that it will be difficult to eliminate “frills” altogether as services such as meals, in-flight entertainment and seat pitch escalate in value as the length of the flight increases, which in turn adds cost to the base line. The research suggests that the product becomes more blurred as the business models evolve and change in an extremely competitive environment. For example, Norwegian offers business and economy plus class to capture a portion of the available business traffic (Klophaus *et al.* 2012).

Comparisons between the Aer Lingus and Norwegian product offerings in March 2018 are listed in Table 1, with Norwegian offering a modern hi-tech inflight experience including the ability to order meals, movies, headphones and bar service from the comfort of the passenger’s seat. All announcements on board are automated, which offers a clinical atmosphere compared to the personal engagement afforded by the Aer Lingus crew. The lack of wi-fi on Norwegian long-haul services gives Aer Lingus a competitive advantage with business travellers.

Table 1. Aer Lingus and Norwegian product comparison.

Attribute	Aer Lingus		Norwegian
Aircraft type	A330	B757	B737
Seat pitch (economy)	31-32 inches		31-32 inches
Seat pitch (Business)	Lie flat		Premium 43-46 inches
Meal service (economy)	Free		Paid
Bar service	Alcohol buy on-board/soft drinks complimentary/crew deliver seat side bar service		No complimentary drinks/all purchased through seat back console (no cash taken)
Announcements	Flight and cabin crew		Flight crew and pre-recorded
Hand baggage	Free 10 kg		Free 10 kg
Checked baggage (economy)	Free/paid unbundled saver fare		Free/paid unbundled low fare
Seat assignment	Complementary/free (unbundled fare)		Paid/included with flex and premium fare
Airports	Predominately primary		Predominately secondary
IFE	Free		Paid
IFE headsets	Free		Paid
Wi-Fi	Paid economy/free Business		Not available
USCBP	All precleared		3x Dublin/Shannon departing services only
FFP	Yes/Aer Club/Avios		Yes/Norwegian reward
Lounge	Yes/all transatlantic gateways		Yes/Premium fare only (13 airports)

Moreover, Passengers' having to pay for their own headsets is not an issue with Norwegian as the modern prudent traveller generally uses their own personal better-quality headsets. The United States Customs and Border Protection (USCBP) preclearance facilities act as a major deciding factor for travellers to use Dublin hub airport. If Norwegian decided to operate the 787-Dreamliner out of Dublin with a precleared product offering, it would then become a significant threat to the current Aer Lingus product offering.

The excellent service delivery is used as competitive advantage for Aer Lingus. In 2016, Aer Lingus launched their voice of the guest (VOG) feedback forum to monitor customer service delivery at every touch point in the passenger journey. According to VOG data, 86% of guests are very or extremely likely to fly with Aer Lingus again. If they claimed to experience a significant issue, their likelihood to fly with Aer Lingus again drops by 42 to 44%. In addition, the net promoter score (NPS – likelihood to recommend) score for this period ranges from +64 (guests with no issue) to –25 (guests with a significant issue).

AIRCRAFT FLEET AND TECHNOLOGY

With the introduction of new generation fuel-efficient long-range 4000NM aircraft such as the Airbus 321LR, both Norwegian and Aer Lingus can explore secondary city pairs with smaller capacity aircraft better suited for less congested airports (Aviation Analytics 2018). Wit and Zuidberg (2012) concluded that the LCC market was limited, owing particularly to route density issues and the fact that average frequencies have decreased, and average route distances increased since 2001. This in turn has led to some LCCs shifting and adapting their business models to include changing from secondary to primary airports, facilitating transfers and engaging in codeshare agreements. Therefore, those airlines need to have a mixed fleet to cater for all market types. This is reflected in the Aer Lingus fleet mix, where the airline uses the Airbus A330-200's to access the longer-range North American west coast region and the older A330-300's lists Chicago as its furthest operational destination, which is in line with the IAG strategy. A successful aircraft, crew, maintenance and insurance (ACMI) with ASL airlines has seen ASL operate a fleet of four 757-200's, to the North American east coast cities of New York, Boston, Toronto, Washington and Philadelphia. Aer Lingus will phase out the ACMI agreement with ASL airlines and replace with in-house operated A321LR's commencing 2019 according to Aer Lingus chief executive Kavanagh (Renehan 2018a).

An airline IT operational platform is key to its operational efficiency and while Norwegian is operating the modern, Altea system Aer Lingus still uses the native Astral departure control system (DCS). Modern systems such as Altea greatly reduce the training times for new staff. For example, a new start up airport for Aer Lingus would require twenty days system training whereas with Norwegian this is reduced to one day. Another consideration is the ease of use of the modern Altea system, which cuts down on passenger processing times which in turn reduces handling costs (Renehan 2018b).

Moreover, the pressurisation technology on the Boeing 787-Dreamliner is a product competitive advantage Norwegian holds over the Aer Lingus Airbus aircraft. The modern mood lighting in the 787 cabin allows for a more relaxed ambience. Technological advances in on-board sales enabled Norwegian to exploit their on-board entertainment system, allowing passengers to order meals and products directly from their seat, which leads to a better travel experience and allows for a more efficient use of cabin crews time (Renehan 2018b).

ROUTE/NETWORK STRATEGY

Norwegian focuses on secondary cities in the US, whereas Aer Lingus has a two-tiered network planning approach of primary and secondary city pairs. Served airports are an important parameter for passengers and airlines. For example, Bradley airport (BDL), which is centrally located between New York, Boston and Providence Rhode Island, has many advantages over the primary airports from a passenger experience perspective including convenient cheap parking, less congested security queues and an overall better travel experience. Interestingly Norwegian air has ceased operations out of BDL recently due to poor passenger numbers on the Edinburgh–Bradley route. Historically with short-haul markets, the majority of LCCs make use of secondary airports, which are located further from metropolitan areas but offer lower user fees, reduced traffic congestion and better on-time performance (Francis *et al.* 2007).

Rapid turnaround for long-haul flights is more challenging as the larger aircraft used invariably take more time for refuelling, loading and undergoing scheduled maintenance. Moreover, regulatory constraints in US airports including mandatory, Transport Security Administration (TSA) secure clean procedures add to the scheduled ground times of aircraft. The introduction of the A321LR, improves the above situation at secondary airports but the challenge remains for both hybrid and LCC airlines to minimise schedule ground time and maximise flight times to ensure maximum crew and aircraft integration and utilisation.

Long-haul low-cost carriers will also experience difficulties in undercutting the economy fares of network carriers that have a low cost per available seat-kilometre (CASK) on long-haul flights and have been able to achieve average load factors exceeding 80% in their long-haul operations, offering little room for improvement for any potential low-cost entrant (Francis *et al.* 2007).

Morrell (2008) argued that a network configuration built around low frequency, point-to-point services would not be viable in the long-haul market as there are very few long-haul routes capable of supporting point-to-point flights. In addition, LCCs may eventually be forced to succumb to provision of connecting services and associated additional costs as traditionally a higher number of passengers connect at one or both ends of a long-haul flight (Morrell 2008). Given the complexity of intercontinental travel, passengers on interline services have the added protection and peace of mind while transferring through long-haul hub airports and added regulatory protections under US DOT rules regarding flight delays and cancellations.

CAPACITY AND DEMAND GROWTH

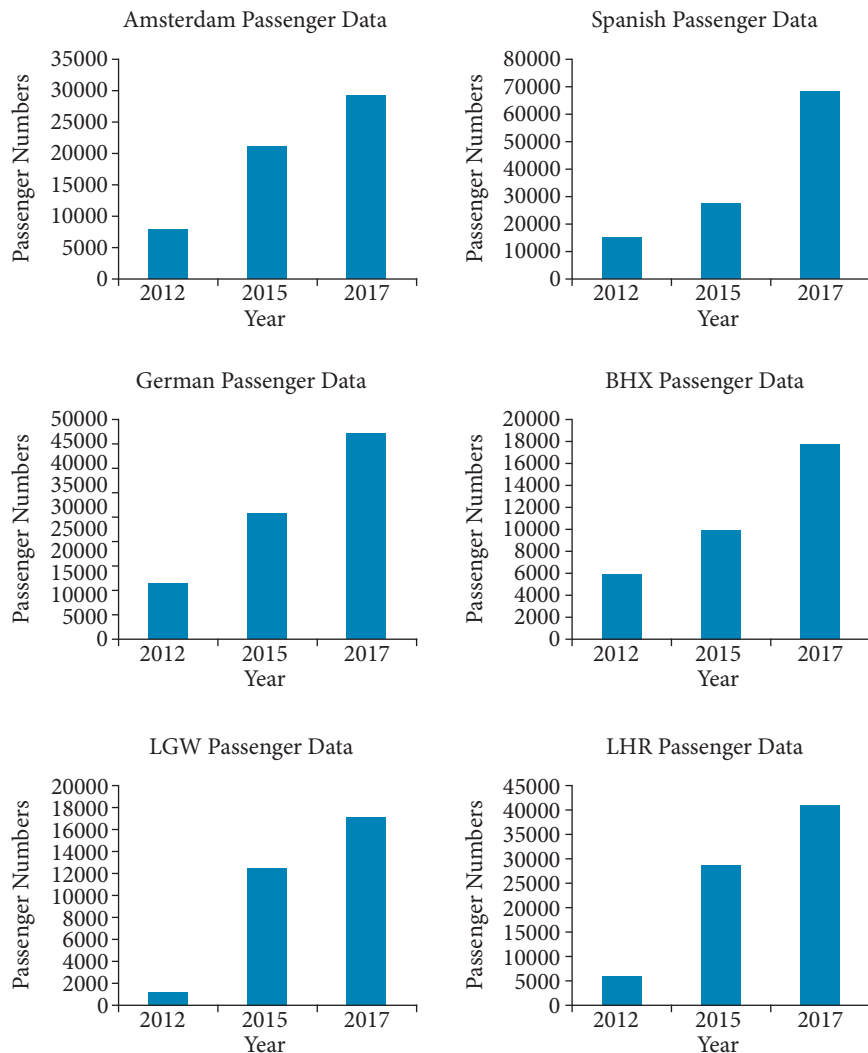
Analysis of the OAG data reveals Aer Lingus has strong competitive advantage over Norwegian with available seat kilometres (ASKs) far outweighing the Norwegian seat capacity offering. In peak summer 2018, Aer Lingus boasts 28,700 available seat capacity per week in contrast to Norwegian offering just over 5,000 available seat capacity per week out of Ireland direct to the US.

The data also highlight that Aer Lingus holds a significant competitive advantage over Norwegian under available flight frequency. Aer Lingus offers 108 weekly Ireland-US direct flights while Norwegian offers 29 services. According to Kavanagh (Renehan 2018a), Aer Lingus will continue to increase capacity on US routes until double daily services are achieved.

Sabre MIDT data detail the growth in Aer Lingus interline traffic from 2012 to 2017 per region across Europe with impressive growth recorded across Holland, Germany, Spain and the UK (Fig. 1). Aer Lingus Glasgow passenger numbers dropped in 2015 as Aer Lingus handed over the route to Stobart and ceased main-line operations. The purchase of new aircraft from 2015 to 2017 allowed Stobart to increase their capacity, which resulted in overall Aer Lingus passenger growth connecting through the Dublin hub. Strong growth was recorded particularly in the London region from 2002-2017 with London Heathrow as a particularly strong route growing from just over 5,000 passengers in 2002 to over 40,000 in 2017.

In 2002, Aer Lingus carried over one million passengers directly from Dublin and Shannon airports to the US split at approximately 50/50 capacity between the two airports totalling US\$ 300,000 revenue. In 2017, Dublin has the majority capacity share with 966,000 passengers amounting to 381,400 total revenue with Shannon accounting for 140,000 passengers with total revenue at US\$ 48,100.00 (calculations based in MIDT data). Dublin continues to be the preferred choice for travellers with 77% of traffic using the Dublin hub compared to 22% using Shannon and 1% using Cork airport. Norwegian being a relatively new entrant is only offering services to New York, Stewart airport and Providence Rhode Island from Dublin and Shannon airports.

Norwegian carried only 1626 passengers in 2016 split 50/50 between Dublin and Shannon totalling revenues of US\$ 259,000. In 2017, that number rose significantly to carry 136,100 passengers with revenue totalling US\$ 47.3 million. This growth was due to additional capacity added to both Dublin and Shannon with new services launched to Providence and Stewart international (Renehan 2018b).



Source: MIDT data.

Figure 1. Aer Lingus interline passenger growth.

A relatively small number of researchers have investigated the long-haul LCCs revenue aspects. De Poret *et al.* (2015), Daft and Alberts (2012), Francis *et al.* (2007) Soyk *et al.* (2018) have identified that revenue models vary substantially for LHLC and FSNCs.

Analysis of OAG data confirmed that Aer Lingus witnessed strong interline revenue growth from 2002 to 2017, predominately because of connecting European and UK to US interline traffic growth. This growth is attributed to USCBP as well as the IAG connection as confirmed by all the interviewees. The average fares are comparable with Norwegian returning an average fare paid per passenger of US\$ 347 to Aer Lingus average fare paid of US\$ 369 in 2017 (MIDT data, 2018).

Average European interline fare paid including business class passengers dropped from US\$ 1,129 per interline passenger in 2002 to US\$ 772 per interline passenger in 2017, which highlights the importance of connecting traffic to drive the fare price (Fig. 2). Aer Lingus UK routes saw major growth from 56,000 passengers carried in 2002 at an average fare paid of US\$ 1107 per passenger with total revenue of US\$ 22.1 million, in 2002 to 178,600 passengers carried in 2017 in partnership with Stobart Air with an average fare of US\$ 625 totalling interline revenue for the UK of US\$ 79.1 million in 2017 (MIDT data, 2018).

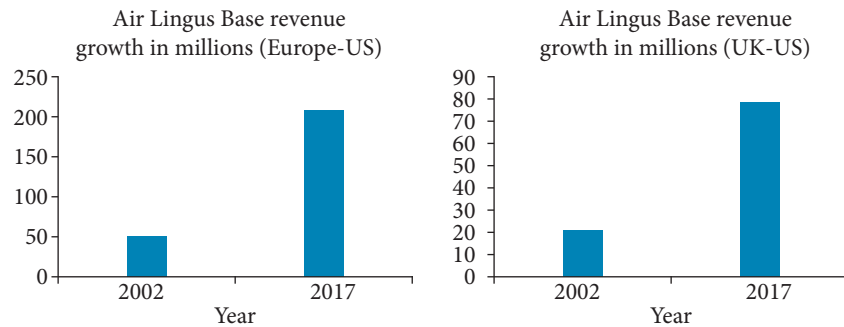


Figure 2. Aer Lingus base revenue growth.

Source: MIDT data.

While airlines have enjoyed the golden era of aviation over the last 6-10 years with low fuel prices, new entrants into already congested markets coupled with poor airline margins has seen the need for airlines to exploit new ancillary revenue streams. According to International Air Transportation Association (IATA 2019) the overall costs are expected to grow by 7.4%, outpacing a 6.5% rise in revenues. Consequently, net margins will squeeze to 3.2% (from 3.7% in 2018) and profit per passenger will decline to \$6.12. This, underlines the urgency for exploring additional revenue streams (O'Connell, 2020). Both airlines were found to put emphasis in ancillary revenue, that according to O'Connell and Warnock-Smith (2013) contribute to maximization revenue potential and can be seen as value-added proposition by passengers (Warnock-Smith *et al.* 2017).

FINANCIAL PERFORMANCE

Norwegian's rapid growth and the purchase of 200 aircraft may have left the carrier overstretched. Norwegian's share price fell 40% in 2017 and saw the airline axe 10 UK routes in October 2017 and discontinue services to Bradley International (BDL) in February 2018. The research highlights seasonality as a problem for Norwegian with only 38% of its sectors flown year-round and singles out its home base as underperforming with flights from Norway returning a profit of € 2 per seat where Denmark and Sweden both returned losses of € 2 and € 9 per seat respectively. The magnitude of the losses on unprofitable routes were particularly notable with the loss per seat at € 43 compared to € 12 for Easy Jet on unprofitable sectors. Moreover, Norwegians profit per seat was € 12 lower than its LCC competitors on its short-haul routes attributed to its higher cost base in the UK (Fig. 3).

Norwegian's long-haul network also struggled in 2017 with only Cork and Shannon returning profit for the year. Norwegian's CEO Bjorn Kjos commented that Dublin was one of its strongest bases and was profitable four of the six months of operation. Norwegian invested US\$ 350 million in setting up its Irish subsidiary and it continues to recruit both pilots and cabin crew to serve its growing network. Norwegian Asian long-haul routes average losses exceeded \$ 114 per seat on all sectors. Norwegian returned a loss of € 30 million in 2017 and CEO Bjorn Kjos said "*We are not at all happy with our 2017 results; however, the year was also characterised by global expansion driven by new routes, high load factors and continued fleet renewal*" (Aerotime 2018).

Furthermore, Norwegian is struggling to absorb its aircraft order. In April 2018, Norwegian announced that they would suspend services from Cork for the winter months and NAI also announced a share sale raising € 137 million which Davy stockbrokers described the equity issuance as breathing space to allow Norwegian continue its expansion. In January 2019, Norwegian announced that they will reduce their presence in Dublin airport from 6 aircraft to 1 from Summer 2019.

On the other hand, Aer Lingus is adapting its product offering to compete directly with Norwegian on the transatlantic market. Air Lingus revenues increased on 2017 by 5% in total, driven by growth on the transatlantic network. The profit after taxation for the year amounted to € 235.8 million. Passenger revenue increased by 8.7% compared to 2016 and reached €2.05 billion, whereas cargo revenue was € 54.6 million (Aer Lingus 2018).

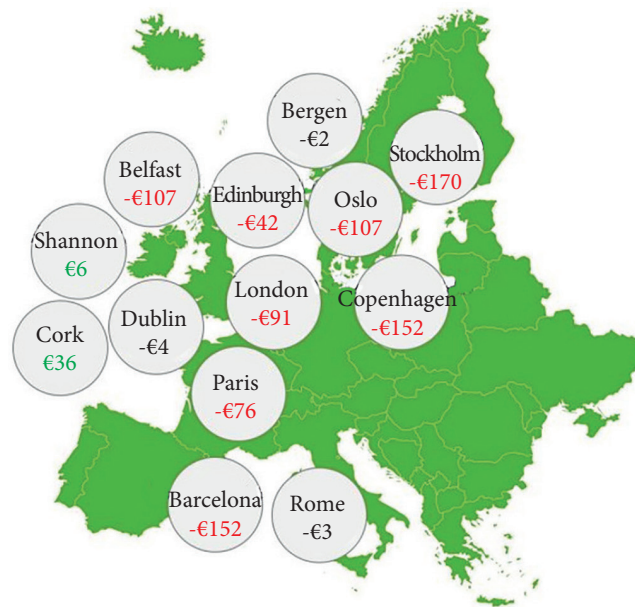


Figure 3. Norwegian average profit per seat by origin airport 2017.

Source: Aviation Analytics 2018.

Aer Lingus returned an increase in operating margin in 2017 to 14.5%, which was largely due to the North American growth strategy, which allowed the airline to grow without dramatically changing its staffing levels. Moreover, the Aer Lingus CFO was keen to point out that 2018 would again see additional growth with new US routes to Philadelphia and Seattle but that 2018 would not be without its challenges with rising fuel costs and the US dollar strengthening against the Euro making the Euro fares less attractive. In addition, the CFO cites as key to the Aer Lingus growth and sustainability, the continued focus on the value carrier model and its fundamentals of cost control, excellence in product and service delivery. This coupled with consistent process delivery will see Aer Lingus continue to grow in 2018 (Renehan 2018a). The research indicates that Aer Lingus is acutely aware of the Norwegian threat and is in a strong position to reach accordingly both from a financial and strategic perspective.

PORTER'S FIVE FORCES ANALYSIS FOR AER LINGUS

In order to analyse the forces that shape competition within the airline industry, this paper uses Porter's five forces model (Fig. 4). The framework breaks down the industry dynamics into five key factors; the threat of new entrants and substitute products or services, bargaining power of buyers and suppliers, and the rivalry amongst existing competitors (Porter 2008).

THE THREAT OF ENTRY OF NEW COMPETITORS – MODERATE THREAT

Porter (2008) stated that new entrants have the potential to disrupt existing industry dynamics by adding capacity and capturing market share from existing firms. This in turn adds pressure to already congested markets such as the North American-European market where carriers are forced to examine their unit cost base and operating margins and continuously gain competitive advantage through product and service differentiation. In addition, the threat of new entrants effectively places a limit on potential industry profitability and strengthens internal rivalry, especially in industries where entry barriers are low.

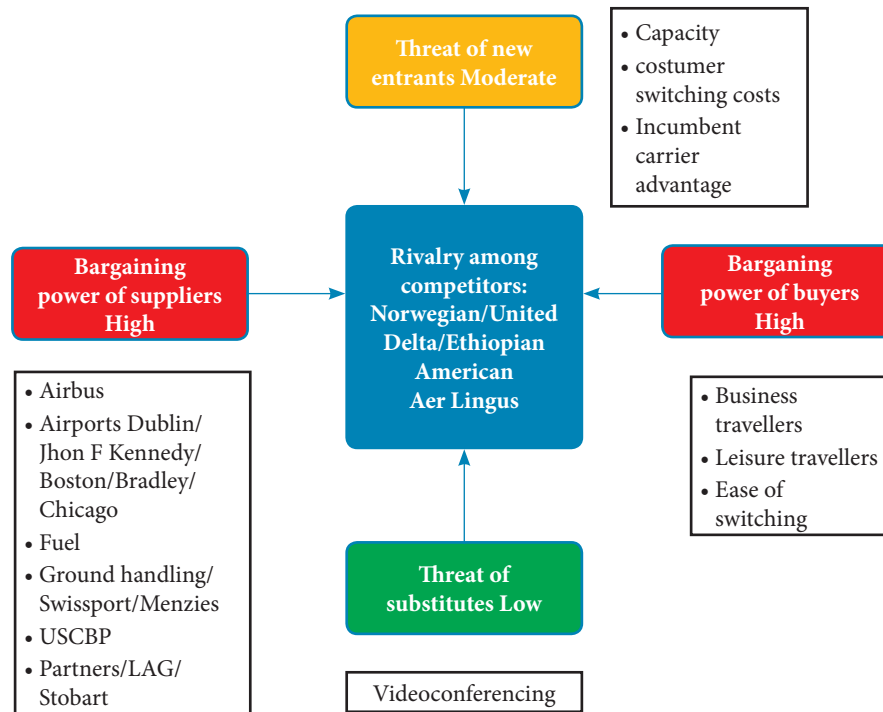


Figure 4. Porter's five forces for Aer Lingus (Transatlantic market from Dublin airport).

In this specific case, the threat of entry of new competitors is moderate as the North American market remains lucrative, with Aer Lingus returning its highest ever operating profit in 2017 of US\$ 269 million due to North American expansion. Transatlantic passenger numbers increased by 20% to almost 3.5 million in 2017 and Dublin airport continues to focus on positioning itself as an attractive hub proposition for European-North American connecting traffic (daa 2018). However, Kavanagh (Renehan 2018a) suggests that infrastructure constraints at Dublin airport will restrict future growth rates and argues that immediate solutions to an already near capacity USCBP facility are required. In addition, McCarthy (Renehan 2018c) concurred that while daa begins construction of the new runway at Dublin, capacity has already outgrown demand in relation to aircraft stand parking and terminal infrastructure. With Norwegian now doubling capacity to their New York destination Stewart international airport additional pressure is added to the USCBP facilities at Dublin. Fagan (Renehan 2018d) claims that with current constraints on USCBP resources, airlines may be forced to clear some of their scheduled US flights that negate the attractive USCBP preclearance product for new entrants. Barriers to entry include government policy, which can be overcome, as Norwegian's approval to operate from Cork to the US proved.

Aer Lingus has a strong brand and loyalty base out of Dublin. Nevertheless, strong competition from Norwegian, Delta, Ethiopian and United offering wide customer choice including business fares and unbundled products creates a tough competitive environment, which may deter new entrants. Aer Lingus already has a mature route network connecting Europe to the US through Dublin. This may deter future LHLs entering the Dublin-US market. As Morrell (2008) argued, a network configuration built around low frequency, point-to-point services would not be viable in the long-haul market, which may deter smaller operators such as WOW airlines entering the market and offering direct services to the US.

Kavanagh (Renehan 2018a) credited the IAG buyout with allowing Aer Lingus to grow the North American Network as group synergies allowed for Aer Lingus to acquire five new A330s, which gave Aer Lingus an opportunity to add additional capacity including adding new routes to Washington, Los Angeles, Miami, Newark, Bradley, Connecticut, Toronto and San Francisco. The first mover's advantage in establishing the aforementioned routes may deter new entrants to compete on those routes. In addition, high capital investment costs coupled with reduced profit margins due to increased competition makes it challenging for new entrants to the Dublin - US route network. Finally, Kavanagh states that if Dublin airport can proactively invest in infrastructure in line with the national aviation policy there is an opportunity for future growth for both the carrier and the airport.

BARGAINING POWER OF BUYERS – HIGH THREAT

In a low-cost market, consumers will choose best value for money. The bargaining power of consumers is deemed high as online booking tools such as Kayak and Sky-Scanner allow the price comparison before final decision. The Aer Lingus mission statement to be the best value for money carrier on the North Atlantic is critical according to Kavanagh (Renehan 2018a). He regards high value and low cost combined with exceptional service delivery as the essential core pillars in maintaining competitive advantage.

The bargaining power of buyers depends on price sensitivity and passenger category. Older travellers are inclined to have higher disposable income and service expectations compared to younger, leisure travellers who are more likely to view price as the critical deciding factor (Efthymiou and Papatheodorou 2015). In some cases, route frequency and capacity reduce the bargaining power of the buyer. Partnerships between airlines make it easier for the buyer to interline their journey from origin to destination giving the buyer additional comfort during disruptions combined with dynamic packaging. This according to O'Connell and Warnock-Smith (2013) allows the buyer to become their own travel agent when planning their journey, affording control to the buyer. The bargaining power of the buyer forced Aer Lingus to react to the Norwegian product introducing unbundled fares in 2017 to compete directly with Norwegian's product of lower saver fares with no frills, requiring passengers to pay for items such as blanket and headphones.

The bargaining power of the buyer can also be influenced by airlines through special offers, group discounts and frequent flyer programs (FFP). Warnock-Smith *et al.* (2017) argue that airlines can optimize marketing opportunities through FFP by pushing attractive offers towards consumers on their web-based applications, which also encourages repeat purchase. The ability of buyers to backward integrate is low with the exception of corporate travel agents, where consolidation in the travel trade has allowed for strengthening of buying power.

THREAT OF SUBSTITUTES – LOW THREAT

Due to the geographical location, the threat of substitutes is low as there is no viable substitute to transatlantic air travel in the near future. Porter (2008) states that videoconferencing can be a substitute for all forms of travel, including air travel. Denstadli (2004) states the main reasons for adopting this form of communication include time savings, reduction in travel costs and increased efficiency of decision making.

BARGAINING POWER OF SUPPLIERS – HIGH THREAT

In industries characterised by the presence of powerful suppliers, those suppliers are able to charge exorbitant prices and limit the profit margins available to firms at other points along the supply chain (Porter 2008). The power of suppliers is examined according to the following key supplier categories: aircraft manufacturer, airports, fuel, airline partners/alliances and ground handling.

Aircraft manufacturers

The highly concentrated nature of the aircraft manufacturing industry, dominated by Airbus and Boeing when combined with the irreplaceable nature of the role that they perform in the supply chain, has created a dependency and provides both companies with significant source of power (Crook and Combs 2007).

Aer Lingus has a long-standing relationship with Airbus over the last 15 years and has ordered an additional twelve new A321LR aircraft. The bargaining power of Airbus is moderately high as airlines are depending on the new generation aircraft to lower their operating costs. The entire Aer Lingus fleet is Airbus equipment and while this in itself brings opportunities, the cost of switching would bring significant cost, as in particular engineering training is specifically geared towards Airbus aircraft. In addition, the cost of training operating crew on a new type aircraft is substantial and a barrier to switching (Renehan 2018d). In addition, long lead-in times for aircraft orders, with airlines forced to commit to contractual agreements far in advance of aircraft delivery, increases the power of the supplier and ultimately creates a barrier to switching due to cost.

Airports as suppliers

Depending on specific airport location and capacity, the bargaining power of airports is generally high. Dublin Airport has experienced exponential growth over the past number of years (Murphy and Efthymiou 2017). McCarthy (Renehan 2018c) suggests that Dublin airport, while being Aer Lingus's home base, does not treat Aer Lingus differently. In addition, McCarthy (Renehan 2018c) claims that Dublin airport is unique in this regard and encourages a level playing field for all carriers, which increases the airports bargaining powers to the detriment of Aer Lingus. Moreover, secondary airports, like Bradley international in Connecticut, have reduced bargaining powers due to their somewhat remote location and their strategy for attracting new carriers. Aer Lingus initially signed up to a deal where the airline would pay no operating fees for the first two years. This demonstrates a reduction in bargaining power of the supplier in that case. In contrast, airports with high yield routes and limited (or not available at all) slots, such as New York, John F. Kennedy, Chicago O'Hare, Los Angeles and San Francisco/California, which are popular destinations for both tourism and business, retain very high levels of supplier bargaining power. Polk and Bilotkach (2013) support that legacy airlines, which are dependent on hub airports, are "captive customers" and the magnitude of switching costs is linked directly to the airline's footprint at a particular airport. Moreover, supplier power is high as Aer Lingus relies heavily on USCBP preclearance at Dublin airport as a product offering to entice European traffic through Dublin.

Limitations on resources at USCBP and political changes affect directly the service standards at Dublin airport. Fagan (Renehan 2018d) argued that the daa needed to explore new ways of maximising space at the Dublin USCBP facility including potentially a remote USCBP satellite facility, as aircraft parking stands are at a premium around the current facility, resulting in congestion.

Fuel suppliers

The bargaining power of fuel companies is deemed high as airline profit is directly related to fuel costs. Fuel represents a high portion of airlines operating cost particularly on long-haul services and airlines engage in complex fuel hedging strategies to prepare for price increases. Morrell (2008) suggests that airlines particularly on long-haul networks use fuel hedging to try and mitigate some of the supplier power risk.

Willie Walsh, CEO of IAF, cites the rise in fuel costs as a threat to IAG's profitability (Reuters 2018); however, continuous fuel hedging programme affords protection against fuel price volatility, as fuel coupled with foreign currency exchange rates represents the two largest financial risks to IAG, with the group spending US\$ 918 million on fuel and oil costs in 2017 (IAG 2018). For Aer Lingus some benefits were realised through IAG group procurement on fuel prices; however, the bargaining power of fuel suppliers remains high due to limited options and the fact that fuel prices are largely determined by global markets.

Airline Partnerships/Alliances as service suppliers

Airline partnership supplier power is understood to be moderate, as for any partnership to work both parties must see benefits to the relationship. The formation of strategic alliances has been a competitive response employed by legacy carriers with the objective of cutting costs, network expansion and to gain market access (Goetz and Shapiro 2012). McCarthy (Renehan 2018c) discussed the Stobart–Aer Lingus relationship and offered that there are further opportunities to develop the relationship through targeting specific routes, where medium size Embraer aircraft could replace current ATRs, allowing for additional capacity. Under IAG ownership, Aer Lingus has benefited from procurement synergies including Aircraft acquisitions, fuel and ground handling services.

Norwegian is at a significant competitive disadvantage on their long-haul network as they are not part of an Alliance. Porter (2008) argued that strategic alliances are a poor substitute to innovation within the airline industry and allowed airlines to depict that they operate larger networks than they actually do. Pearce and Doernhoefer (2011) suggest that consumers demand network scope and depth. Aer Lingus while not being part of the Oneworld alliance, has many interline partnerships with various carrier, like Stobart Air, JetBlue, United, British Airways and most recently Alaskan Air. Those partnerships enable Aer

Lingus to capture connecting traffic similar to a global alliance airline member and access the British Airways business lounges and Avios FFP points.

One of the key strategic benefits of alliances stems from its ability to help airlines overcome the regulatory restraints, such as cabotage and cross-border merger prohibitions that are still prevalent in much of international aviation (Pearce and Doernhoefer 2011). United Airlines, as a US based carrier, has a significant competitive advantage over Aer Lingus owing to their large domestic route network and feeder traffic onto their US transatlantic services coupled with their Star Alliance membership. However, Kavanagh (Renehan 2018a) argued that Aer Lingus would not see the economic benefits of joining the Oneworld alliance, preferring the already proven strategy of the aforementioned partnership agreements including United Airlines, which allows Aer Lingus access to multiple carriers' route networks and levels the playing field.

Ground handling suppliers

Supplier power of ground handling agents is high in certain markets, for example in North America, there is a degree of backward integration where companies such as Menzies have acquired fuel into-plane services companies such as the Aircraft Service International Group (ASIG). Moreover, larger handling companies, like Swissport increase the supplier power significantly, as competition in the market is reduced significantly. Ground handling markets in Europe, where there is a more consistent workforce with union representation and more companies, is deemed as having moderate supplier power.

RIVALRY AMONGST EXISTING COMPETITORS

Porter (2008) stated that, in industries with high internal rivalry, it limits the overall profitability of all firms in that industry. The extent of the effect depends upon the intensity of the competition and the basis upon which they are competing. Moreover, the commoditised nature of a product increases the likelihood of companies engaging in price wars to the detriment of all competing companies (Porter 2008).

At Dublin, Aer Lingus competes directly with Norwegian, American, Delta and United for market share. According to Kavanagh (Renehan 2018a), much of the Aer Lingus success on the North Atlantic market can be attributed directly to its costs control coupled with the ability to increase capacity to existing airports along with opening the aforementioned additional routes, while maintaining the core staff numbers at Dublin.

According to Fagan (Renehan 2018d), Aer Lingus has a strong competitive advantage as the incumbent carrier with a well-established route network controlling the majority of capacity out of Dublin. In addition, American carriers such as United, Delta and American continue daily operations to selected US airports. Fagan argues that US carriers offer little threat to the Aer Lingus well-established network. Joining the IAG group has strengthened the Aer Lingus position in the US market.

CONCLUSION

While a number of papers have researched the long-haul low-cost business model and its sustainability by comparing it to the full-service network carriers model, other papers have focused on passenger preferences. The comparison of LHLC to hybrid airlines is still limited as well as the competitive advantages of the later. This paper has provided clarity regarding the business model characteristics differences and has demonstrated that developing a robust route network including interline traffic ensures profitability.

The interviewees suggest that Norwegian product offering, in particular the service delivery of the low-cost on-board service (in-seat ordering technology) is far ahead of Aer Lingus, but it is not sufficient to act as competitive advantage. Norwegian falls down in their product offering, as it does not offer a full business class service with negative effect on revenue. In addition, the lack of wi-fi on long-haul Norwegian flights affords Aer Lingus an additional competitive edge particularly for passengers travelling for work related journeys as it allows for continuous connectivity for the duration of the flight.

Total interline traffic revenue for Aer Lingus in 2017 hit US\$ 286.1 million. Expert interviewees, Kavanagh, McCarthy and Fagan concurred that this growth was impossible without harnessing both interline traffic through key airline partnerships combined with a strategy to directly exploit and market the precleared hub Dublin airport as a service benefit to UK and European travellers. Norwegian's failure to interline passengers through Dublin leaves it exposed as it continues to struggle to build capacity and frequency out of Dublin airport.

Congestion at Dublin airport is a major barrier to continued expansion to North America. The Porter's five forces analysis found that in some respects this congestion at Dublin airport may discourage new entrants as aircraft parking stands and congestion in the USCBP precleared facility is already at breaking point. In addition, Aer Lingus has demonstrated it can react to the Norwegian competitive threat by introducing unbundled saver fares that attracts the price conscious traveller while also allowing for the full four-star business offering on all transatlantic routes.

This research and, in particular, the application of Porter's five forces model, identified geographical location and the USCBP precleared hub airport at Dublin as a significant competitive advantage for transatlantic flights.

The authors of this work also found that hybrid cost efficient business model allows carriers to compete effectively with LHLC. Aer Lingus used capacity management and key partnerships to exploit traffic flow potentials to maximise revenues. Norwegian's primary obstacle is their lack of capacity and frequency out of Dublin and in turn, the lack of feeder traffic. Long-haul low-cost model must adapt their business models to include feeder traffic through interline partnership agreements to become successful in the long term.

The paper has two main limitations. The first limitation is a result of the fact that data on cost per available seat-kilometre (CASK) could not be revealed for both carriers due to confidentiality agreements. The second limitation of this study lies in carriers analysed as a wider range of case studies may have strengthen the results and conclusion. Further data collection and case studies comparisons are required to determine exactly the competition for the transatlantic market for the various business models. The next decade is likely to witness a considerable rise in the blurring of the business models and the use of narrow body aircraft in serving the transatlantic market. It would be very interesting to compare the Aer Lingus Dublin hub versus the Norwegian London Gatwick hub. Another area would be to include the complex external environment of the aviation industry and its vulnerability to external shocks (e.g. economic crisis). Boeing 737 max impact on Norwegian and other airlines would also be a very interesting area for practitioners. This work could be the springboard for the comparison of the competition of the FSNC, LCC and hybrid airlines considering at the same time the airline-within-airline model.

Nevertheless, the results of this work allowed to conclude that the network structure combined with low fares is the competitive advantage for the dominating the transatlantic market. The transatlantic market needs to be researched separately as the long travel distance and consequently the flight duration affects the travel and ticket purchase behaviour, which is different when compared to short or long haul where a combination of transport modes can be used.

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REFERENCES

- [IAG] International Airlines Group (2018) IAG Annual report and accounts. [accessed 10 Jun. 2018]. <http://www.iairgroup.com/phoenix.zhtml?c=240949&p=irol-reportsannual>
- [IATA] International Air Transport Association (2019). Slowing Demand and Rising Costs Squeeze Airline Profits. [accessed April 15 2020]. <https://www.iata.org/en/pressroom/pr/2019-06-02-01/>
- Aer Lingus (2018) Aer Lingus Annual Report 2017. [accessed April 15 2020]. <https://www.iairgroup.com/en/investors-and-shareholders/results-and-reports>
- Aviation Analytics (2018) Is Norwegian overstretched? [accessed Feb 28 2018]. https://www.aerotime.aero/en/aviation-finance/finance/20763-is-norwegian-overstretched?utm_source=newsletter&utm_medium=email&utm_campaign=alitalis_up_for_sale_but_who_s_bidding_aerotime&utm_term=2018-01-24
- Barrett SD (2006) Commercialising a national airline — the Aer Lingus case study. *J Air Transp Manag.* 12(4):159-167. <https://doi.org/10.1016/j.jairtraman.2005.11.001>
- Bromley PD (1990) Academic contributions to psychological counselling. 1. A philosophy of science for the study of individual cases. *Couns Psychol Q.* 3(3):299-307. <https://doi.org/10.1080/09515079008254261>
- Campbell JL, Quincy C, Osseman J, Pedersen OK (2013) Coding In-depth Semistructured Interviews: Problems of Unitization and Intercoder Reliability and Agreement. *Sociol Methods Res.* 42(3):294-320. <https://doi.org/10.1177/0049124113500475>
- Chen R (2017) Competitive responses of an established airline to the entry of a low-cost carrier into its hub airports. *J Air Transp Manag.* 64(B):113-120. <https://doi.org/10.1016/j.jairtraman.2016.07.015>
- Corbet S, O'Connell JF, Efthymiou M, Guiomard C, Lucey B (2019) The impact of terrorism on European tourism. *Ann Tour Res.* 75:1-17. <https://doi.org/10.1016/j.annals.2018.12.012>
- Crook TR, Combs JG (2007) Sources and consequences of bargaining power in supply chains. *J Oper Manage.* 25(2):546-555. <https://doi.org/10.1016/j.jom.2006.05.008>
- daa (2018) Dublin airport sets new passenger record. [accessed May 20 2018]. <https://www.daa.ie/dublin-airport-sets-new-passenger-record/>
- Daft J, Albers S (2012) A profitability analysis of low-cost long-haul flight operations. *J Air Transp Manag.* 19:49-54. <https://doi.org/10.1016/j.jairtraman.2012.01.010>
- De Poret M, O'Connell JF, Warnock-Smith D (2015) The economic viability of long-haul low cost operations: Evidence from the transatlantic market. *J Air Transp Manag.* 42:272-281. <https://doi.org/10.1016/j.jairtraman.2014.11.007>
- Dennis N (1994) Scheduling strategies for airline hub operations. *J Air Transp Manag.* 1(3):131-144. [https://doi.org/10.1016/0969-6997\(94\)90034-5](https://doi.org/10.1016/0969-6997(94)90034-5)
- Denstadli JM (2004) Impacts of videoconferencing on business travel: the Norwegian experience. *J Air Transp Manag.* 10(6):371-376. <https://doi.org/10.1016/j.jairtraman.2004.06.003>
- Doganis R (2019) *Flying off course: airline economics and marketing*. 5th ed. Abingdon: Routledge.
- Efthymiou M, Papatheodorou A (2015) Intermodal passenger transport and destination competitiveness in Greece. *Anatolia.* 26(3):459-471. <https://doi.org/10.1080/13032917.2015.1012171>
- Efthymiou M, Papatheodorou A (2018). *Evolving Business Models*. In Graham A, Harper N (Eds.). *The Routledge Companion to Air Transport Management*. London: Routledge. <https://doi.org/10.4324/9781315630540-9>
- Efthymiou M, Njoya E, Lam LP, Papatheodorou A, Randall D (2019) The Impact of Delays on Customers' Satisfaction: An Empirical Analysis of the British Airways On-Time Performance at Heathrow Airport. *J Aerosp Technol Manag.* 11:1-13. <https://doi.org/10.5028/jatm.v11.977>
- Eisenhardt KM (1989) Building Theories from Case Study Research. *Acad Manag Rev.* 14(4):532-550. <https://doi.org/10.5465/amr.1989.4308385>
- Francis G, Dennis N, Ison S, Humphreys I (2007) The transferability of the low-cost model to long-haul airline operations. *Tourism Management.* 28(2):391-398. <https://doi.org/10.1016/j.tourman.2006.04.014>
- Goetz CF, Shapiro AH (2012) Strategic alliance as a response to the threat of entry: Evidence from airline codesharing. *Int J Ind Organ.* 30(6):735-747. <https://doi.org/10.1016/j.ijindorg.2012.08.003>
- Gray DE (2013) *Doing research in the real world*. 3rd ed. Thousand Oaks: Sage.

- Hunt JN, Truong D (2019) Low-fare flights across the Atlantic: Impact of low-cost, long-haul trans-Atlantic flights on passenger choice of Carrier. *J Air Transp Manag.* 75:170-180. <https://doi.org/10.1016/j.jairtraman.2018.12.005>
- Jean DA, Lohmann G (2016) Revisiting the airline business model spectrum: The influence of post global financial crisis and airline mergers in the US (2011 – 2013). *Res Transp Bus Manag.* 21:76-83. <https://doi.org/10.1016/j.rtbm.2016.06.002>
- Klophaus R, Conrady R, Fichert F (2012) Low cost carriers going hybrid: Evidence from Europe. *J Air Transp Manag.* 23:54-58. <https://doi.org/10.1016/j.jairtraman.2012.01.015>
- Logothetis M, Miyoshi C (2018) Network performance and competitive impact of the single hub – A case study on Turkish Airlines and Emirates. *J Air Transp Manag.* 69:215-223. <https://doi.org/10.1016/j.jairtraman.2016.10.003>
- Moreira ME, O'Connell JF, Williams G (2011) The Viability of Long-Haul, Low Cost Business Models. *JATS.* 2(1):69-91.
- Morrell P (2008) Can long-haul low-cost airlines be successful? *Res Transp Econ.* 24(1):61-67. <https://doi.org/10.1016/j.retrec.2009.01.003>
- Murphy G, Efthymiou M (2017) Aviation safety regulation in the multi-stakeholder environment of an airport. *JATS.* 8(2):1-26.
- O'Connell JF, Bueno OE (2018) A study into the hub performance Emirates, Etihad Airways and Qatar Airways and their competitive position against the major European hubbing airlines. *J Air Transp Manag.* 69:257-268. <https://doi.org/10.1016/j.jairtraman.2016.11.006>
- O'Connell JF, Connolly D (2017) The strategic evolution of Aer Lingus from a full-service airline to a low-cost carrier and finally positioning itself into a value hybrid airline. *Tourism Economics.* 23(6):1296-1320. <https://doi.org/10.1177/1354816616683492>
- O'Connell, J. F., Avellana, R. M., Warnock-Smith, D., & Efthymiou, M. (2020). Evaluating drivers of profitability for airlines in Latin America: A case study of Copa Airlines. *J Air Transp Manag.* 84: 101727. <https://doi.org/10.1016/j.jairtraman.2019.101727>
- O'Connell JF, Warnock-Smith D (2013) An investigation into traveler preferences and acceptance levels of airline ancillary revenues. *J Air Transp Manag.* 33:12-21. <https://doi.org/10.1016/j.jairtraman.2013.06.006>
- Papatheodorou A, Vlasi E, Gaki D, Papadopoulou-Kelidou L, Efthymiou M, Pappas D, Paraschi P (2019) The airline – airport – destination authority relationship: the case of Greece. In: Kozak N, Kozak M (Eds). *Tourist Destination Management: Instruments, Products, and Case Studies.* Switzerland: Springer. https://doi.org/10.1007/978-3-030-16981-7_3
- Pearce B, Doernhoefer G (2011) The economic benefits generated by alliances and joint ventures. *IATA Economics Briefing.*
- Polk A, Bilotkach V (2013) The assessment of market power of hub airports. *Transp Policy.* 29:29-37. https://doi.org/10.1007/978-3-030-16981-7_3
- Porter ME (2008) The five competitive forces that shape strategy. *Harv Bus Rev.* 86(1):78-93.
- Renehan, D. (interviewer) (10 April 2018a). Personal interview with Stephen Kavanagh. Aer Lingus Value carrier model. 9
- Renehan, D. (interviewer) (2 March 2018b). Personal interview with Keith Fogarty. Norwegian Long-haul expansion. 12
- Renehan, D. (interviewer) (25 April 2018c). Personal interview with Conor McCarthy. Long-haul low-cost. 21
- Renehan, D. (interviewer) (15 March 2018d). Personal interview with Simon Fagan. Dublin Hub development. 21
- Reuters (2018) BA owner IAG withstands fuel price pressures to beat profit forecasts. [accessed Jan 23 2019]. <https://uk.reuters.com/article/uk-iag-results/ba-owner-iag-withstands-fuel-price-pressures-to-beat-profit-forecasts-idUKKCN1NOOLU>
- Rodríguez AM, O'Connell JF (2018) Can low-cost long-haul carriers replace Charter airlines in the long-haul market? A European perspective. *Tourism Economics.* 24(1):64-78. <https://doi.org/10.1177/1354816617724017>
- Soyk C, Ringbeck J, Spinler S (2017) Long-haul low-cost airlines: Characteristics of the business model and sustainability of its cost advantages. *Transport Res A-Pol.* 106:215-234. <https://doi.org/10.1016/j.tra.2017.09.023>
- Soyk C, Ringbeck J, Spinler S (2018) Revenue characteristics of long-haul low-cost carriers (LCCs) and differences to full-service network carriers (FSNCs). *Transport Res E-Log.* 112:47-65. <https://doi.org/10.1016/j.tre.2018.02.002>
- Warnock-Smith D, O'Connell JF, Maleki M (2017) An analysis of ongoing trends in airline ancillary revenues. *J Air Transp Manag.* 64(A):42-54. <https://doi.org/10.1016/j.jairtraman.2017.06.023>
- Wensveen JG, Leick R (2009) The long-haul low-cost carrier: A unique business model. *J Air Transp Manag.* 15(3):127-133. <https://doi.org/10.1016/j.jairtraman.2008.11.012>
- Wit J, Zuidberg J (2012) The growth limits of the low cost carrier model. *J Air Transp Manag.* 21:17-23. <https://doi.org/10.1016/j.jairtraman.2011.12.013>
- Zou L, Chen X (2017) The effect of code-sharing alliances on airline profitability. *J Air Transp Manag.* 58:50-57. <https://doi.org/10.1016/j.jairtraman.2016.09.006>