

This item is the archived peer-reviewed author-version of:

The long-haul low-cost airline business model : a disruptive innovation perspective

Reference:

Albers Sascha, Daft Jost, Stabenow Sebastian, Rundshagen Volker.- The long-haul low-cost airline business model : a disruptive innovation perspective
Journal of air transport management - ISSN 0969-6997 - 89(2020), 101878
Full text (Publisher's DOI): <https://doi.org/10.1016/J.JAIRTRAMAN.2020.101878>
To cite this reference: <https://hdl.handle.net/10067/1709070151162165141>

THE LONG-HAUL LOW-COST AIRLINE BUSINESS MODEL: A DISRUPTIVE INNOVATION PERSPECTIVE

Sascha Albers*

University of Antwerp, Faculty of Business and Economics
and Antwerp Management School
Prinsstraat 13, 2000 Antwerpen, Belgium
sascha.albers@uantwerpen.be

Jost Daft

Deutsche Lufthansa AG, 60546 Frankfurt/Main, Germany
jost.daft@dlh.de

Sebastian Stabenow

University of Antwerp, Faculty of Business and Economics
Prinsstraat 13, 2000 Antwerpen, Belgium
sebastian.stabenow@uantwerpen.be

Volker Rundshagen

University of Applied Sciences Stralsund
Zur Schwedenschanze 15, 18435 Stralsund, Germany
volker.rundshagen@hochschule-stralsund.de

* corresponding author.

Keywords: Low-cost carrier; airline strategy; business model, disruptive innovation

Acknowledgements: We thank Paul Chiabarretto and Benjamin Koch for valuable comments and suggestions on earlier versions of this paper.

**THE LONG-HAUL LOW-COST AIRLINE BUSINESS MODEL:
A DISRUPTIVE INNOVATION PERSPECTIVE**

Abstract: This paper analyzes the impact of the long-haul low-cost (LHLC) airline business model on the air transport industry from a disruptive innovation perspective. We argue that the LHLC business model is set to stay; it is bound to penetrate the mass market that has, to date, been occupied by incumbent network carriers. It will thus lead to significant strategic adaptations in the long-haul air travel market where incumbents are well advised to prepare their responses. We provide a set of strategic response options along the categories of avoiding, accepting and embracing the LHLC business model that can be used by incumbents to defend their competitive positioning in the long-haul air travel market. This paper provides guidelines for airline managers to (re)evaluate the strategies of their own organizations facing the emergence of a potentially disruptive innovation in their industry.

Keywords: Low-cost carrier; airline strategy; business model, disruptive innovation

Classification: Airline strategy; Management and operations; Airline competition

1. Introduction

The emergence and continual success of the low-cost business model and of low-cost carriers (LCCs) in short- to medium-haul air travel has transformed the airline industry. All continents have seen the rise of new champions – such as Southwest, Ryanair, GOL, flydubai, AirAsia, and Jetstar – that have gained considerable market share (CAPA Center for Aviation, 2019) and applied considerable (financial) pinpricks to incumbent carriers. In their attempts to profitably serve the short- to medium-haul markets, LCCs and network carriers (and the now marginalized charter carriers) have been experimenting with all elements of their value proposition to create, inter alia, ultra-low-cost, strict premium, or hybrid business models, which sometimes even operate within the same airline group as structurally separated brands (Corbo 2016; Fageda et al., 2015).

While once-disrupting new entrants have become incumbents themselves (Corbo, 2016) and business models in short- to medium-haul air travel have converged (Daft and Albers, 2015), another business model innovation, the long-haul low-cost (LHLC) business model, is gaining traction and threatening the industry. For about a decade, the viability of a LHLC business model has been discredited. Key differences in the nature of long-haul operations have suggested that the cost savings continental LCCs could achieve vis-à-vis their network carrier rivals would not materialize (De Poret et al., 2015; Francis et al., 2007). Several failed attempts (such as pioneer Laker Airways) and potential failures (including, most recently, rumors about the survival of Norwegian Air Shuttle) have underscored the seemingly fragile economic viability of LHLC operations (Morrell, 2008).

However, progress in aircraft technology, mounting experience with and a growing repertoire of ancillary revenue sources and cargo operations, combined with ongoing liberalization (De Poret et al., 2015) are starting to suggest a broader LHLC viability. Seemingly successful airlines that adopt the LHLC model, such as AirAsia X, Scoot or Jetstar; gains in

market share on transatlantic routes at the expense of the market's incumbents (Soyk et al., 2017); and theoretical advances in the conceptualization and understanding of LHLC operations and strategy (Daft and Albers, 2012; De Poret et al., 2015; Soyk et al., 2017; Whyte and Lohmann, 2015a) contribute to this understanding.

Given this renewed momentum around LHLC in the airline industry, there is a disturbing lack of studies on LHLC and the implications for incumbent airlines, but also the entire aviation ecosystem. In light of the existing number of studies on LHLC characteristics and economic viability, our understanding of the nature and potential implications of LHLC on the airline industry remains embryonic. From a theoretical point of view, "the LHLC strategy" is still a black box, as it lacks differentiation. From an empirical perspective, LHLC ventures across the globe have been recognized and described (Jiang, 2013, Soyk et al., 2017; Whyte and Lohmann, 2015a), but are still awaiting comprehensive strategic analysis and contextualization. Accordingly, founded analyses of potential repercussions of LHLC emergence on the broader industry, and particularly on network carriers with their currently pivotal strongholds in long-haul markets, are yet to be developed.

The present paper is the first to analyze the development of the LHLC business model and its strategic implications, which it does from a disruptive innovation perspective (Christensen, 1997). After a review of extant academic work on LHLC, it provides an overview of practical attempts to launch and operate LHLC operations worldwide. It then conceptualizes the LHLC business model as a disruptive innovation and assesses its disruptive potential in the long-haul air travel market. This makes it possible to discuss strategic response options by incumbents, as well as their potential adoption by network carriers.

2. Towards understanding the long-haul low-cost phenomenon

A review of the scholarly literature on long-haul low-cost airline operations, as well as an analysis of worldwide LHLC initiatives, provides the basis for this paper's understanding of the LHLC business model.

2.1 Scholarly contributions

A comprehensive search¹ in two major academic databases (Elsevier's ScienceDirect and EBSCO's Business Source Premier) identified 27 scholarly LHLC contributions. Thirteen of these articles mention the LHLC phenomenon, but do not address it directly (e.g. Hazledine, 2011; Linz, 2012; Bießlich et al., 2018). Fourteen articles focus on LHLC at the core of their explanatory or descriptive scholarly objectives. Apart from three articles investigating LHLC service quality (Jiang, 2013), route selection (Wilken et al., 2016), and determinants of customer choice between low-cost or full-service airlines on long-haul routes (Hunt et al., 2019), research has so far concentrated on one of two areas: the financial viability and the business model underlying LHLC operations (Table 1).

Table 1 about here

Financial viability. The extant research has been inherently concerned with the potential of airlines to (sustainably) operate long-haul flights at a relevant cost advantage compared to traditional long-haul flights; that is, the overall financial viability (Daft and Albers, 2012; De Poret et al., 2015) and ability to generate revenues comparable to network carriers (Soyk et al., 2018) and the cost advantage over network carriers (Francis et al., 2007; Moreira

¹ Period 2005–2019; search terms: (low*cost OR low*fare) AND (carrier OR airline) AND (long*haul) in title, abstract, keywords in the Business/Management/Accounting and Economics/Econometrics/Finance categories

et al. 2011; Whyte and Lohmann, 2015a). The above-mentioned studies suggest that LHLC operations are financially attractive under specific conditions, such as the focus on high-demand routes, modern (cost-efficient) aircraft, additional revenue sources beyond fares, fuel hedging, or careful ATC charge management. However, as Whyte and Lohman (2015a) pointed out, incumbent airlines' response as well as customer acceptance will be crucial for the financial viability of LHLC operations, which has not been considered by theoretical cost analyses so far.

Business model components. Considerable research attention has been devoted to the business model underlying LHLC operations (Morrell, 2008; Soyk et al., 2017; Wensveen and Leick, 2009; Douglas, 2010; Maertens, 2015). The LHLC business model constitutes a market-driven innovation: it minimizes complexity (that is, unbundling services) of traditional long-haul business models and infuses practices from the continental low-cost model (e.g., Wensveen and Leick, 2009; Maertens, 2015) while drawing mostly on the same technology as existing business models (for example, jet engines or distribution systems). Soyk et al. (2017) empirically identified (1) the *no-frills point-to-point* model (here LHLC business model) as a business model separate from (2) the traditional *legacy hub*, comprising hub-and-spoke (HS) networks integrating short-, medium- and long-haul operations and a focus on premium passengers and (3) *leisure*, comprising point-to-point (P2P) medium- and long-haul routes and a focus on leisure passengers in long-haul air travel. For the North Atlantic market, they defined the LHLC business model as “no frills [...] decentral point-to-point model [...] leveraging low-complexity coincidental feeder traffic at existing short-haul bases. These carriers target all passenger groups and have a strong focus on low complexity and low cost” (Soyk et al., 2017: 229).

We adopt this understanding and analyze the LHLC phenomenon as a business model innovation in the market for long-haul air travel.

2.2 Worldwide LHLC initiatives to date

In order to identify worldwide LHLC initiatives, we screened all carriers with an IATA code² since the foundation of the IATA in 1949 until 2019 and assessed whether their operations comprised (partial) characteristics of LHLC operations, as highlighted by Maertens (2015), Soyk et al. (2017), or Wensveen and Leick (2009). All carriers were considered, irrespective of whether they ceased operations again, are still active, or merely planned long-haul³ operations. This approach resulted in a list of 31 LHLC carriers, 16 of which are currently active (Table 2). We present our overview of worldwide LHLC initiatives in three sections: time and markets, structural characteristics, and business model core logic.

Table 2 about here

Time and markets. LHLC initiatives are anything but new. Icelandic Airlines (1960), Laker Airways (1977), and People Express (1983) operated low-cost flights on transatlantic routes several decades ago. The number of LHLC carriers has increased drastically since the 2000s, with AirAsia X being the oldest still-active LHLC carrier. LHLC initiatives are a worldwide phenomenon, spanning both mature (Europe, North America) as well as emerging (South America, for example) airline markets. LHLC carriers operate on high-demand trunk routes with high-yield (frequent) customers, such as northern transatlantic routes and “Kangaroo” routes to and from Australia (Soyk et al., 2017; Whyte and Lohmann, 2015a), as well as routes characterized by high growth and stable, year-round demand from price-sensitive

² We refer to *carriers* as operational units using a distinct IATA-Code hereafter. Consequently, Eurowings (EW) presents an individual carrier separate from Eurowings Europe (E2) or affiliated airlines within Lufthansa Group (Lufthansa (LH), Swiss (LX), Austrian (OS), etc..

³ Airlines operating flights with a minimum route distance of 5,000 kilometers.

(first-time) passengers (touristic, ethnological, religious travel), such as routes between the Middle East and South East Asia operated by AirAsia X and Cebu Pacific.

Structural characteristics. Two types of new entrants have tapped into the market for long-haul air travel using the LHLC business model. The first type of new entrants comprises newly founded airlines which specifically target long-haul routes using the LHLC business model to attract existing demand or establish new price-conscious demand at the lower end of the market (“indigenous pioneer”), such as Laker Airways or Oasis Airlines. The second type are “market reachers”; that is, continental LCCs that add long-haul routes or establish new AOCs⁴ to expand into new geographic markets, such as WestJet or AirAsia X. These LCCs leverage their existing low-cost expertise and offer connection possibilities for passengers; this means direct access to their entire network of short- to long-haul operations.

In addition, major market incumbents have established “cost crusher” LHLC initiatives, such as Level (IAG), Rouge (Air Canada) or Eurowings (Lufthansa), in the form of (new) subsidiaries that especially help the network carriers overcome their own structural barriers and operate routes with intense price-based competition.

LHLC core logic. Several studies have investigated the core logic of the LHLC business model (Daft and Albers, 2013; Jean and Lohmann, 2016; Mason and Morrison, 2008; Soyk et al., 2017). Based on our analysis of LHLC initiatives, we can flesh out the LHLC core logic along four dimensions that most prevalently separate the LHLC from the legacy hub and leisure business models: service inclusion, passenger focus, network centrality, and connectivity.

The sale of no-frills fares that allow passengers to purchase services on top of the base fare is a key distinction between the LHLC and other business models in long-haul air travel (Soyk et al., 2017). Only Air Belgium provides a larger set of basic services (namely, a meal,

⁴ Air Operator Certificate (AOC)

one checked bag and in-flight entertainment are included in the basic fare; one piece of carry-on luggage appears as universally included service beyond pure transportation).

Furthermore, we predominantly find dual-cabin-class configurations among LHLC initiatives. This implies targeting more diverse passenger types than pure leisure passengers. A considerable number of airlines, such as Eurowings (Hofmann, 2017), have introduced lie-flat business class configurations that shift the LHLC model even further towards the business or premium passenger focus known from network carriers. Using mixed-class configurations, LHLC carriers are able to enhance their fare differentiability (Wensveen and Leick, 2009), revenue generation (Douglas, 2010), and break-even load factors (De Poret et al., 2015).

Some analyses suggest a decentralized, point-to-point (P2P)-oriented network design with coincidental feeder traffic as a defining element of LHLC initiatives (see Soyk et al., 2017). While this is certainly the dominant design, it does not universally apply to all LHLC initiatives. Instead, few LCC-backed market reachers, such as Azul and WestJet, use a hub-and-spoke design and integrate LHLC operations closely with short-/medium-haul networks. Furthermore, several network carriers, such as British Airways and Air France-KLM, use their entire network of short- to long-haul flights to systematically feed flights operated under the legacy hub, as well as the LHLC business model.

Lastly, we find considerable differences in passenger connectivity offered: OAG schedule data shows that except for some trunk routes (e.g. LON-NYC) and peak times (e.g. April to September in Europe) LHLCs operate very infrequent with less than five flights per week and seasonal breaks. In contrast, legacy carriers operate much denser and stable schedules for most of the established connections with a minimum of six flights per week all-year round. Also, the (worldwide) LHLC initiatives that we reviewed vary from no transfers to extensive transfer in other airlines' networks. This differs from the medium-level connectivity found for transatlantic LHLC initiatives (Soyk et al., 2017). On the one hand, Jin Air, Cebu Pacific, and

French Bee operate strict point-to-point networks without selling connecting flights or providing checked-through baggage options at all. On the other hand, LHLC subsidiaries of airline groups have a more or less tight integration with other flight networks. Norwegian Long Haul's flight operations and administrative tasks appear tightly integrated with the entire Norwegian Group and Jetstar offers extensive passenger connectivity even beyond its own and Qantas' group network by using alliances, codeshares and joint ventures. Going further, some LHLCs deploy alliances and codeshare partnerships with other short-haul low-cost carriers to feed their transatlantic routes (for example, easyJet cooperating with Norwegian).

In summary, we find that the LHLC business model, in contrast to traditional models, is rooted in basic quality, and less complex flight offerings and operations, but that a number of LHLC initiatives, partially driven by their structural backgrounds, are developing the model towards other, more premium-oriented customer segments. If successful, this will constitute a serious alternative to traditional long-haul legacy hub or leisure business models, significantly challenging market incumbents.

3. A disruptive innovation lens on the LHLC business model

The concept of disruptive innovation has gained scholarly prominence (e.g., Adner, 2002; Christensen and Raynor, 2003; Christensen, 2002; Guttentag, 2015) and has been widely emphasized as a valuable lens with which to analyze early-stage innovations that have not yet affected the fundamental viability of incumbents in an industry. It has been used in particular to predict the effect of these innovations on incumbents (Christensen, 2006; Raynor, 2011) as well as to outline incumbent response options (Christensen, 2018; Charitou and Markides, 2003).

We leverage the explanatory potential of this framework and conceptualize the LHLC business model as a disruptive innovation (Christensen, 1997). This enables us to analyze how

it will affect the airline industry; that is, how it is likely to evolve vis-à-vis other business models.

3.1 The LHLC business model as disruptive innovation

In general, a disruptive innovation enables new entrants to enter lower-end market segments that (1) have been overserved by incumbents, (2) value new entrants' offerings despite having lower performance than incumbents, and (3) provide few commercial incentives to incumbents to develop competing offerings (Christensen, 1997; Christensen et al., 2018). All of these characteristics apply to the LHLC airline business model, as we will explain in more detail below.

Christensen (1997) observed that disruptive innovations tap into *overserved market segments* where incumbents, in an effort to address and please higher-margin customer segments over time, provide a product that 'overshoots' the performance needs of mid- to low-end tiers. In these situations, a door opens for new offerings that have lower cost (and consequently lower price) or perform better in other product/service dimensions that appeal to lower-end customer segments (e.g. Schmidt and Druehl, 2008). With reference to the legacy hub business model in long-haul air travel, we can consider some of the service features as 'over-service', as mid- to low-tier passengers apparently do not value them (enough). Examples include a dense flight schedule with more than five daily frequencies per route, wide selection of entertainment such as newspapers and dedicated on-board TV/audio channels, or airport lounges (only accessible for service classes these tiers cannot normally afford anyway). In their study of passenger choice, Hunt and Truong (2019) found that LHLC carriers tap into the desire of certain passengers to save on frills and to purchase services, if needed, a la carte.

The performance of disruptive innovation products is *initially inferior* to those of incumbent products. Although they remain below the quality or feature level of incumbents'

offerings, “they offer a novel mix of attributes that appeals to fringe customer groups, notably those near the bottom of the market” (Christensen et al., 2018: 1048). The initial “inferiority” of no-frills offerings at rock-bottom prices is a defining characteristic of all low-cost business models in the airline sector. The analysis of services included in fares, passenger focus, route network and passenger connectivity at worldwide LHLC initiatives outlines how LHLC-based offerings are, in one or several aspects, inferior to offerings rooted in the legacy hub business model that are valued by customers for the high service and extensive flight schedule (Hunt and Truong, 2019).

Finally, incumbents tend to be *constrained by established profit models* to engage in the development of lower-margin offerings that target smaller markets or may even be inferior products “that their existing customers cannot use” (Christensen et al., 2018: 1048). For network carriers, reducing fares and differentiating low-price fares to cater to lower-margin customer segments appears unattractive. They have a sustainable disadvantage at staff, airport, or distribution costs (Soyk et al., 2017) that limit the ability to conduct profitable operations at low fares and require premium fares to cross-subsidize economy fares (Francis et al., 2007). Further, network carriers require certain volumes of premium passengers in order to profitably operate their premium infrastructure, such as airport lounges, and feeder or connecting flights at first-tier airports to achieve break-even load factors.

3.2 Is LHLC disrupting long-haul air travel?

The LHLC business model exhibits major characteristics of a disruptive innovation, but does it also disrupt the airline industry? The disruptive innovation literature has suggested a typical disruption process (Christensen, 1997, 2018; Schmidt and Druehl, 2008) that centers around the performance gap between the traditional and new offering (Figure 1). For the long-haul air travel market, this process can be formulated as follows:

1. As a result of low-end competition, legacy hub and leisure business models will focus more on higher-value market segments over time, resulting in incremental performance improvements of associated offerings.
2. Industry disruption occurs once the performance of formerly inferior travel offerings (rooted in the LHLC business model) exceeds the performance of formerly superior travel offerings (that is, those rooted in traditional legacy hub and leisure business models).
3. Whether and when industry disruption occurs depends on the speed at which the performance of LHLC-based offerings increases.

Figure 1 about here

To date, carriers adopting the LHLC business model have focused more on building-up robust low-end operations than on improvements of their offering and attractiveness to other tiers; consequently, the performance of their offers has stagnated rather than progressed towards upper market tiers. Macro- and microeconomic events have caused various LHLC carrier shakeouts, which have so far precluded the establishment of routine and profitable operations as a basis for offering service and product improvements. Crucial parameters, however, are changing that allow an increase in the performance of LHLC-based offerings, suggesting a development along trajectory option 2 in Figure 1:

First, recent technological and regulatory advancements appear to have improved LHLC initiatives' baseline considerably. Advancements such as new narrow body (such as A321neo LR) and wide-body (for example, B787) aircraft models give airlines greater flexibility to design new flight mission patterns, and new retailing-oriented online reservation systems and ancillary services as well as spreading market liberalization enhance the economics for LHLC

offerings (De Poret et al., 2015; Wensveen and Leick, 2009). Indeed, recent Airbus sales data indicates considerable orders for long-haul A321XLR aircraft by carriers with low-cost business models: 50 orders by Indigo Partners (the holding company for Wizz Air, Frontier Airlines and JetSmart), 30 orders by AirAsia X, 20 orders each by Air Arabia and VietJet, 13 orders by JetBlue and 10 orders each by Flynas and SKY (Airbus, 2020). As a consequence, LHLCs will be capable of shifting attention towards improving performance and could thus move upmarket in the future.

Second, a number of airline initiatives hint at ambitions to enhance the performance of the LHLC offering and take the business model upmarket. Compared to LHLC initiatives prior to the 2000s, premium compartments and passenger connectivity beyond pure point-to-point services have become the de facto standard among today's LHLC initiatives (Table 2). More recently, WestJet introduced business-class lounges as part of their long-haul business class strategy, while AirAsia X equipped its long-haul fleet with on-board WiFi. JetBlue, which will start long-haul operations on transatlantic routes in 2021, even identifies premium passengers as key customer segment and plans to equip planes on these routes with its premium MINT product (Heffernan, 2019). These efforts by individual carriers mirror developments in short-to medium-haul markets, where some (such as Spirit Airlines) remained clearly price-focused, while others introduced additional features and services (serving main airports, offering loyalty programs) to target business passengers (Alamdari and Fagan, 2017; Fageda et al., 2015). On a cautionary note, the quality and efficiency leap that LHLC carriers can benefit from is fundamentally driven by the purchase of new, state-of-the-art long-haul aircraft. As it is difficult to retrofit aircrafts over their lifetime, further performance improvements are expected to take place at lower pace once LHLC operations are up and running and market entries ebb off.

Third, as a limiting factor, the specifics of the legacy hub business model make it inherently difficult for low-cost offerings to move upmarket at a faster rate than offerings from

traditional business models. On the one hand, customary requirements to transport premium passengers long-haul, such as major airport access and connectivity alliances, are of limited capacity, exhausted, and difficult to replicate. On the other hand, offering such or similar improvements will require substantial investments in areas such as irregular operations handling, airport facilities (e.g. lounges) or frequent flyer programs.

In summary, an improved baseline of operations and a considerable upmarket focus point at a steady rise of the LHLC business model in the long-haul air travel market. Looking at the market share development over the last years, this trend is already visible: On long-haul routes from Europe to North America, for example, LHLC carriers' share of seat capacity offered increased by a factor of seven from 2015 to 2019, providing 3% of total capacity or approximately 14 million seats in 2019 (Figure 2). The substantial market share gains suggest that the LHLC business model has become more mature and that competition with other business models for a growing share of the lower market end will intensify. The LHLC business model will, thus, pose a constant and growing challenge to incumbent airlines. Market share developments also indicate, however, that the rise of the LHLC business model does not (yet) follow a steep, disruptive path. In the following, therefore, we change the analytical lens from the business model to the firm-level to discuss strategic implications on incumbent airlines.

Figure 2 about here

4. Market players' response strategies

Incumbent airlines need to ponder their options proactively; for many of them, the long-haul air travel market is an essential income generator where higher portions of premium passengers generate sufficient yields compared to short-haul operations (see for example Górecka and

Horák, 2014). Airlines such as TAP, SAS or Alitalia strongly rely on their long-haul business; and even in the strong domestic US market, over 90% of the airlines' operating profits are not generated within the short-haul business but by long-haul flights (Binggeli and Weber, 2013). Even if an innovation fails to reveal itself as disruptive in the short-term, and thereby does not directly induce incumbents to react, it may have detrimental effects in the long term (Schmidt and Druehl, 2008). Potentially misguided interpretations of the competitive implications from rivals' actions can result in competitive blind spots or biases in competitor categorization (Zajac and Bazerman, 1991) and subsequent inertia and extended periods of underperformance (Albers and Heuermann, 2013). The analogy to continental LCC entrants shows how incumbents, despite superior market offerings, quickly found themselves competing with LCCs for the same customers in city-pair or even airport-pair markets (Atallah et al., 2018). It is very likely that new LHLC entrants will continue taking market share on established core routes and not confine their offerings to routes that would be unattractive for incumbents.

Prior work on disruptive innovation (Charitou and Markides, 2003; Christensen et al., 2018; King and Baatartogtokh, 2015) has suggested a multitude of potential response strategies. Building upon this work, we propose five response strategies – grouped into three categories – for the arguably largest, most prominent and most severely affected group of incumbent market players: the network carriers. In the remaining part of this chapter, we outline and discuss how network carriers can avoid, accept or embrace the LHLC business model in their operations, with a particular emphasis on two aspects:

First, we highlight each strategy's accessibility for network carriers in consideration of their distinct resources, capabilities, and market positions (Table 3). This spans a strategy's long-term effectiveness, that is the extent to which a strategy presents an apt response for a firm to safeguard current revenue levels and live up to its own aspirations towards size and power in an industry. It also spans a firm's mobility barriers, that is forces of inertia (costs, time, and

risks) limiting the firm to swiftly change its strategic orientation (McGee and Thomas, 1986; Mascarenhas and Aaker, 1989).

Table 3 about here

Second, we discuss to what extent each strategy is already visible in the long-haul air travel market as of today (Table 4). While a comprehensive assessment of firm strategy requires a multi-dimensional framework (see e.g. efforts to measure airline business models by Daft and Albers (2013) or Jean and Lohmann (2016)), key operational metrics may already reflect network carriers' response strategies. For each strategy, one key operational metric is identified and assessed for the North Atlantic long-haul air travel market based on Official Airline Guide (OAG) schedule data.

Table 4 about here

Avoid strategies. A common misconception of disruptive innovation is that a disruptive innovation will inescapably replace other offerings and serve the entire market. Instead, market-driven, low-end innovations are usually only relevant to a fraction of the market (Charitou and Markides, 2003). In light of network carriers' structural constraints to fully compete in the long-haul low-cost market segment, avoiding direct cost-based competition with disruptors and shifting focus on other market segments is a fundamental option in the spectrum of competitive strategies (Porter, 1980).

First, incumbents can capitalize on their strengths and core competencies of serving high-margin, premium clienteles across a more or less global network and *extend the current*

performance trajectory (Christensen, 2018; King and Baatartogtokh, 2015). Current strategies and grown service cultures catering to the higher-tier market segments are most difficult to imitate by LHLC entrants and network carriers may build upon these capabilities to extend the time until offerings rooted in an LHLC business model reach a comparable performance. Examples include investing in new seat configurations to upgrade the on-board experience and service (for example, special seats, WiFi outfitting) and flight operations (such as flight frequency and connectivity) to capitalize on premium customers' willingness to pay more for a superior product. Finnair and United, for example, have increased the share of premium seats offered on transatlantic routes from 10.8% and 15.4% in 2012 to 24.1% and 43.4% in 2019, respectively (Table 4). However, the long-term effectiveness of such a strategy may be questioned as network carriers leave the lower end of the long-haul market behind and as it may be increasingly matched by new entrants' attempts to move upmarket, too. While LHLC carriers' relative premium capacity had remained rather constant between 2012 and 2018, it increased considerably in 2019.

Second, based on calculating the value of winning in an industry – that is, assessing whether a market continues to be attractive or whether withdrawal may be a better decision upon the emergence of a disruptive innovation (King and Baatartogtokh, 2015) – incumbents can *reposition themselves into a niche or into higher tiers of the market* (Charitou and Markides, 2003). Network carriers may, for example, stop trying to compete with LHLC carriers on city-pair routes overwhelmingly dominated by price-sensitive passengers, e.g. pure holiday destinations, and instead focus on those with a better balance of leisure and business passengers. In contrast to the rise of low-cost travel in short- to medium-haul markets, network carriers' maneuvering space for such a strategy in long-haul routes is considerably greater given that passengers assign greater value to service and comfort in long-haul travel (Hunt and Truong, 2019).

Some network carriers have at least partially started to put more focus on less contested long-distance routes, thereby avoiding (LHLC) competition in shorter distance long-haul routes. While a niche strategy may come in different facets, shifting emphasis towards longer distance city-pair routes is one potential option for network carriers. American Airlines and SAS, for example, have expanded the share of seat capacity on long distance (>7,000km) from total long-haul EU-NA routes from 37.5% to 47.3% and from 50.0% to 62.3%, respectively (Table 4). At the same time, relative seat capacity on such longer distance routes has increased, but at considerably lower rates, at LHLC carriers and remained rather constant at other network carriers.

The value of winning will be very different across routes and network carriers need to assess whether these niches are sufficiently large markets, offer promising growth opportunities and provide considerable protection against new entrants compared to mainstream routes and broad market penetration. In the end, repositioning does not resolve the threat posed by LHLC carriers – that is, a (gradual) increase in market share, size, and political prowess – and thus constitutes a high-risk strategy. It is likely associated with a shrinking trajectory in the medium- to long-term and contradicts with network carriers' self-conceptions as industry leaders in long-haul air travel or societal expectations towards many of the former flag carriers.

Accept strategies. Beyond avoidance, incumbent airlines may accept the relevance of long-haul low-cost air travel for their future success and start to incorporate the LHLC business model into their own organizational structures. Strategies facilitating experimentation with the LHLC business model comprise establishing autonomous organizational units or cooperating with LHLC entrants.

First, a classic response to disruptive innovation is for firms to *establish autonomous organizational units* that pursue the innovation (Christensen, 2018; Markides 2003). Such affiliates open opportunities to effectively compete and participate both in the growing low-

cost and premium long-haul travel markets with two separated business models (Graham and Vowles, 2006; Whyte and Lohmann, 2015b).

Establishing an autonomous organizational unit comes, however, with considerable challenges. An autonomous organizational unit creates tension between keeping structural or cognitive distance to the traditional business and reducing dual strategies or cost inefficiencies, and thus may prevent a proper understanding and internalization of a low-cost attitude (Albers and Heuermann, 2013; Christensen et al., 2002). In network carriers' response to continental LCCs, low-cost "airline-within-airline" (AWA) subsidiaries (such as Ted by United Airlines or Go-Fly by British Airways) have failed due to ambiguous value propositions, late market entrance, proximity and similarity of full-service and low-cost operations, or subsidiaries' cost-disadvantages to low-cost peers (Pearson and Merkert, 2014). In the LHLC context, Air France-KLM's decision to closely integrate Joon with its legacy hub operations resulted into an unclear value proposition of the low-cost brand and internal (worker union) tensions and, ultimately, the termination of Joon after 13 months (Reals, 2019).

Yet, autonomous organizational units allow network carriers to participate in the growing long-haul air travel market at predictable risks and resource commitments and have thus been a popular response strategy. Several network carriers have already established LHLC subsidiaries (Table 2). On EU-NA routes, these cost crusher carriers supply a considerable share of the total LHLC seat capacity (Figure 2). More specifically, seat capacity developments emphasize how seriously network carriers such as Lufthansa or network carriers' holdings companies such as IAG pursue this strategy, with Eurowings or Level having increased seat capacities from 402,000 and 19,000 seats in 2012 to 593,000 and 374,000 seats in 2019, respectively (Table 4).

Second, incumbents may seek to stand shoulder to shoulder with competitors they are unable to beat and *cooperate with or acquire LHLC partners* (Christensen, 2018; Marx, 2014).

Cooperation, for example through interline or codeshare agreements, or even acquisitions may provide network carriers with fast access to necessary expertise and resources, enable experimentation with new approaches at reasonable risks, drive punctuated cost improvements on notoriously unprofitable routes or spur quick competitive response in attractive markets. LHLC carriers with rapidly expanded seat capacities and weak financial positions may be particularly attractive targets for cooperation or acquisitions. Differences in operational logics, IT systems or customer expectations between both business models require, however, a careful integration.

Already today, network carriers' cooperation with LHLC carriers can be observed in existing codeshares on EU-NA routes. As particularly eminent example, Emirates in 2019 marketed around 420,000 seats operated by Westjet and operated 659,000 seats marketed by JetBlue (Table 4). Outside the transatlantic market, individual network carriers have started a cooperation between their autonomous LHLC subsidiaries and external LHLCs. Singapore Airlines' subsidiary Scoot, for example, cooperates with a number of (long-haul) low-cost carriers, including Cebu Pacific and easyJet.

Embrace strategy. Lastly, incumbents may take up and embrace the LHLC business model innovation as an opportunity to create a new market-winning *hybrid business model* (Christensen et al., 2018). Hybrid business models may establish a superior value proposition to customers by recombining promising components from the traditional and the new business model. Commonly denoted as intermediate solution with limited long-term economic viability (Corbo, 2016; Furr and Snow, 2013), a hybrid model combining aspects of a low-cost and a differentiation strategy for example underlies Southwest's success (Moir and Lohmann, 2018).

A hybrid business model may take two forms. On the one hand, it may constitute an integration of selected LHLC and legacy hub business model components. Upon rise of continental LCCs, network carriers commonly integrated fleet homogenization (Merkert and

Hensher, 2011) or fare un- and re-bundling (Hazledine, 2011) into their legacy hub model. On the other hand, it may constitute different value propositions simultaneously provided to different market segments (Christensen, 2018). Network carriers may combine low-cost and premium travel in the same plane and thereby cater to different passenger types.

Hybrid business models need to be designed carefully. Considerable mobility barriers exist for incumbents to give up traditional business model components (McGee and Thomas, 1986), particularly relevant for network carriers with their complex structures including various hierarchy layers, cultures, historically accumulated pension provisions, and conflict-laden relationships with pilot unions (e.g. Gittell et al., 2004). Parts of that complexity are driven by premium passengers' demand for high service levels or all-inclusive fares and business model simplifications must not weaken network carriers' favorable, premium legacy brand perception. In particular, digitalization offers new opportunities for simplified and cost-efficient operations appealing to different customer segments and reducing the risk of brand dilution towards premium customers. As just one example, "white label" distribution may enable brand-unspecific sale of remaining capacity to price-sensitive customer.

Assessing whether and to what extent network carriers are establishing hybrid long-haul business models is difficult and requires a multi-dimensional analysis. Nevertheless, recent developments in the configuration of airline value chain activities (see Daft and Albers, 2015) provide a first indication that network carriers are (at least partially) giving up on fundamental promises of their traditional business model; namely the design of the cabin product, the ticket distribution and the bundling concept:

While the seat layouts in the premium cabins get more and more sophisticated to give passengers more privacy, the space per seat in the lowest compartments is further decreasing (Winter, 2019). Well-established network carriers such as Cathay Pacific, British Airways and Emirates are shrinking the seat width in (selected) B777 aircraft by introducing 10-abreast

configurations instead of the original 9-abreast configuration. In the same vein, almost all network carriers that have introduced the next generation long-haul aircrafts A350 and B787 (among them Qatar Airways, Singapore Airlines, and LAN Chile, with only the exception Japan Airlines) have opted for the dense 9-abreast economy class configuration over the more spacious 8-abreast version.

In ticket distribution network carriers strongly depended on traditional processes based on indirect sales via the global distribution systems. While the new LCCs are almost solely using inexpensive direct sales via their own sales channels, the network carriers only started to invest more into this new form of digitalized commerce in the last ten years (Poulaki and Katsoni 2020). Today, network carriers around the world (among them prominent advocates of a new industry distribution standard, such as American Airlines, Lufthansa, and ANA) have moved closer to the LCC-like distribution by increasing the volume of their own sales channel to a more sustainable 50-50 ratio.

Also, the essential offering logic of the established network carriers has been extended towards the LCC core concept of de-bundling each and every offer component beyond the pure transportation. Today, almost all network carriers operating on transatlantic routes, amongst them Air Canada, Alitalia, Finnair, United Airlines etc., have established de-bundled no-bag basic economy fares (Table 4). Additional customer services such as premium meals, amenity kits and access to the previously exclusive frequent-traveler lounges are becoming important revenue sources for network carriers (with players such United Airlines, Delta and Air France-KLM being among the top 10 by ancillary revenue (e.g. Sorensen 2019)).

In summary, network carriers' market dominance in long-haul air travel and their resource pools enable a range of applicable response options. The discussion above can aid network carriers to ponder their options and calibrate or (re)establish strong competitive

positions towards their newcomers as well as LHLC carriers in their competitor analysis process.

5. Conclusion

The aim of this study was to shed further light on the LHLC phenomenon and assess its status, future development, and strategic implications for incumbent airlines. We used a review of scholarly contributions and worldwide LHLC initiatives to take stock of our understanding of the business model in the literature, as well as its consideration and implementation in practice airline operations and strategy. To assess its potential future development and impact on the airline industry, we conceptualized the LHLC business model as a disruptive innovation, identified recent (technological) advancements as indications for its future performance trajectory vis-à-vis traditional long-haul air travel business models, and mapped out strategic response options for network carriers and other market players.

The analysis suggests that the performance trajectory of the LHLC business model points towards the mass market of long-haul air travel, so far occupied by network carriers, and that network carriers are well advised to prepare their responses. We have provided a set of options, with the most promising and at the same time also most challenging strategy centered around truly embracing the LHLC business model innovation by creating a market-winning, hybrid business model (see Table 3). This also points towards a likely convergence of business models in long-haul air travel, resulting in airline groups competing head-on for the mass market. However, there is scant evidence that either model will capture dominance of the overall market and thereby disrupt long-haul air travel. Such developments would mirror continental airline markets, where a general rapprochement (convergence) of business models (Albers and Daft, 2015) and a shift towards direct market- and airport-based competition have been observed (Atallah et al., 2018; Dobruszkes et al., 2013; Klein et al., 2015).

While this study has focused on the LHLC business model and implications for incumbents in long-haul air travel, the rise of LHLC carriers may also have farther-reaching implications. First, it may introduce fundamental change to global airline networks. To date, network carriers' internationalization strategies through alliances, codeshares, and joint ventures have led to industry virtualization (Castiglioni et al., 2018) and globe-spanning, premium-focused transportation networks. While LCCs commonly use more direct market entry strategies (Albers et al., 2010; Ramón-Rodríguez et al., 2011), through market-reaching subsidiaries, for example, more recent cooperation between LCCs and other LHLC or leisure carriers, such as the Value Alliance in Asia or between Ryanair and Air Europa, points at the potential rise of international low-cost transportation networks as antagonists to premium networks. These developments and implications for network carriers and their partners merit further investigation. Second, we may experience how, prospectively, the rise of the LHLC business model may induce airlines, governments or others to reshape meaning and values of the industry (Christensen, 2018; Charitou and Markides, 2003). The LHLC business model draws on price as a central passenger choice criterion (Hunt and Truong, 2019), while customer experience innovations or governmental regulations may introduce new factors, e.g. flight experience or sustainability, determining customer satisfaction and choice in long-haul air travel and thereby "disrupt the disruption" (Charitou and Markides, 2003: 60).

This research will enhance airline managers' understanding of the future evolution of the LHLC business model and help in the assessment of strategic response options. Network carriers, leisure carriers, and new entrants need to carefully decide whether and how to avoid, accept, or embrace the LHLC logic. Given the intensifying competition in long-haul air travel, a fierce market reshuffling is underway.

Table 1: Previous studies on the LHLC phenomenon.

Author(s)	Year	Study focus	Approach	Key findings
Francis et al.	2007	Cost differential	Comparison of Virgin Atlantic average route costs with assumed low-cost carrier costs	Cost advantage demonstrated for low-cost carriers in very large markets
Morrell	2008	Business model	Comparison of LCCs cost advantage over full-service carriers and transferability to long-haul operations; discussion of LHLC characteristics	Considerable doubt on the establishment of LHLC business model
Wensveen and Leick	2009	Business model	Comparison of low-cost, legacy, and charter with a long-haul low-cost model; depiction of three (niche) business models	Product and even more price specialist as potential templates for long-haul low-cost model
Douglas	2010	Business model	Assessment of full-service carriers that establish LHLC subsidiaries	Long-haul low-cost business model may be viable
Moreira et al.	2011	Cost differential	Cost simulation between long-haul low-cost and legacy carrier under specific aircraft type (Boing 767-300)	Cost advantage for LHLC of maximum 10% under varying operational assumptions
Daft and Albers	2012	Financial viability	Route profitability analysis considering different revenue sources and costs	LHLC can be profitable under specific business model set-ups
Jiang	2013	Service quality	Survey of Jetstar and AirAsia X passengers	Assurance, airfare and reliability as most important factor when choosing long-haul low-cost carriers
De Poret et al	2015	Financial viability	Revenue-cost simulation for transatlantic low-cost operations (MAN-EWR; LGW-LAX)	Financial viability subject to secondary revenue sources, fuel hedging, aircraft weight managing, crew and airport charges and use of B787-8 aircraft
Maertens	2015	Business model	Analysis of EW long-haul low-cost operations and comparison with LCC principles	EW long-haul low-cost in-between traditional leisure carriers and LCC principles
Whyte and Lohmann	2015a	Cost differential	Cost model for hypothetical low-cost operations and comparison with full-service airlines (FSA) on Melbourne-London route	Long-haul low-cost airlines could achieve a cost advantage, while expected FSA competition, customer acceptance, etc. may cast doubt on viability
Wilken et al.	2016	Demand structure on long-haul routes	Analysis of O&D, O&D transfer and feeder demand on international routes per segment	“Hubbing” and small long-range aircrafts further extend the range of long-haul routes offering sufficient demand for low-cost operations
Soyk et al.	2017	Business model & cost differential	Analysis of carrier differences along business model framework and cost analysis on transatlantic market	Identification of three business model clusters and sustainable cost advantage for long-haul low-cost (no frills, P2P) carriers
Soyk et al.	2018	Revenue characteristics	Benchmark of revenue characteristics between full-service and long-haul airlines	LHLC carriers have no revenue disadvantage compared to full-service airlines on North Atlantic routes
Hunt et al.	2019	Passenger business model preferences	Survey of passengers on variables affecting choice of and switching between a long-haul or a full-service carrier	Passengers’ satisfaction with fares and comfort (LHLC) or service and flight schedule (full-service carrier) drive choice and willingness-to-switch.

Table 2: Overview of LHLC initiatives worldwide.

Carrier							Org. set-up		Service		Network	
#	Name	Code	Status	LHLC start	Country	Regional focus ¹	Initiation ²	Affiliated group	Service inclusion ³	Passenger focus ⁴	Concentration ⁵	Connectivity
Indigenous pioneer												
1	Laker Airways	GK	Ceased	1977	UK	Atlantic (N)	New AOC	-	None	-	P2P	No transfer
2	FlyGlobespan	Y2	Ceased	2002	UK	Atlantic (N)	New AOC	-	n/a	Prem. Eco; Bus	P2P	No transfer
3	Zoom Airlines	Z4	Ceased	2002	Canada	Atlantic (N)	New AOC	-	n/a	Prem. Eco	P2P	No transfer
4	Civair	-	Cancelled ⁶	2004	South Africa	n/a	New AOC	-	n/a	n/a	n/a	n/a
5	Oasis Airlines	O8	Ceased	2006	Hong Kong	Eurasia	New AOC	-	n/a	Bus	P2P	No transfer
6	Feel Air	-	Cancelled	2011	Norway	Atlantic (S); Eurasia	New AOC	-	n/a	n/a	n/a	n/a
7	French Bee	BF	Active	2016	France	Atlantic (M)	New AOC	-	None	Prem. Eco	P2P	No transfer
8	Primera Air	PF	Ceased	2018	Denmark	Atlantic (N)	New AOC	-	None	Prem. Eco	P2P	No transfer
9	Air Belgium	KF	Active	2018	Belgium	Eurasia	New AOC	-	Bag, Meal, Entertain.	Prem. Eco; Bus	P2P	No transfer
10	World Airways	WO	Planned	2019	USA	Americas	New AOC	-	n/a	n/a	n/a	n/a
Market reacher												
11	Icelandic Airlines	LL	Ceased	1960	Iceland	Atlantic (N)	New LH routes	-	n/a	-	P2P	In own network
12	People Express	PE	Ceased	1983	USA	Atlantic (N)	New LH routes	-	n/a	Prem. Eco	P2P	No transfer
13	AirAsia X ⁷	D7	Active	2007	Malaysia	Australasia	New AOC	AirAsia	None	Bus	P2P	In group network
14	Viva Macau	ZG	Ceased	2006	China	Australasia	New LH routes	-	n/a	Prem. Eco	P2P	No transfer
15	GOL	G3	Active	2008	Brazil	Americas	New LH routes	-	Meal	Prem. Eco	P2P	No transfer
16	Iceland Express	HC	Ceased	2010	Iceland	Atlantic (N)	New LH routes	-	n/a	Bus	P2P	No transfer

¹ Distinction of routes between Europe and North America (Atlantic North (N)), Middle America (Atlantic (M)) and South America (Atlantic (S))

² AOC = Air Operator Certificate; LH = long-haul

³ Services included beyond hand luggage in lowest available fare on long-haul route; n/a = information not available

⁴ Beyond economy compartment; Prem. Eco = Premium Economy compartment; Bus = Business compartment

⁵ P2P = point-to-point; HS = hub-and-spoke

⁶ Despite initial plans, operations never started.

⁷ Further subsidiaries are Thai AirAsia X and Indonesia AirAsia X. Due to their close linkage, they are not considered separately here.

17	Norwegian LH ¹	DU	Active	2012	Norway	Atlantic (N); Eurasia	New AOC	Norwegian Group	WiFi	Prem. Eco	P2P	In group network
18	Cebu Pacific	5J	Active	2013	Philippines	Asia; Australasia	New LH routes	-	None	-	P2P	In alliance network
19	Azul	AD	Active	2014	Brazil	Americas; Atlantic (S)	New LH routes	-	Meal	Prem. Eco; Bus	HS	In own network
20	Beijing Capital Airlines	JD	Active	2015	China	Australasia; Eurasia	New LH routes	Hainan Airlines	Meal	Bus	P2P	In own network
21	WOW Air	WW	Ceased	2015	Iceland	Atlantic (N)	New LH routes	-	None	Prem. Eco	HS	In own network
22	WestJet	WS	Active	2016	Canada	Americas; Atlantic (N)	New LH routes	-	None	Prem. Eco	HS	In own network
23	JetBlue	B6	Planned	2020	USA	Atlantic (N)	New LH routes	-	n/a	Prem. Eco	HS	In own & partner network
Cost crusher												
24	Jetstar Airways	JQ	Active	2010	Australia	Australasia	New LH routes	Qantas Airways	None	Bus	P2P	In group & partner network
25	Scoot	TR	Active	2012	Singapore	Australasia	New AOC	Singapore Airlines	None	Prem. Eco; Bus	P2P	In group & partner network
26	Rouge ²	n/a	Active	2012	Canada	Americas; Atlantic (N)	New AOC	Air Canada	None	Prem. Eco	P2P	In group network
27	Eurowings	EW	Active	2015	Germany	Atlantic (N&M); Eurasia	New LH routes	Lufthansa Group	Entertain.	Prem. Eco; Bus	P2P	In own & partner network
28	Jin Air	LY	Active	2015	Korea	Australasia; Transpacific	New LH routes	Korean Air	Bag & Meal	Prem. Eco	P2P	No transfer
29	Level ³	>1	Active	2017	Spain	Atlantic (N)	New AOC	IAG	None	Prem. Eco	P2P	In group network
30	Citilink	QG	Active	2018	Indonesia	Asia; Eurasia	New LH routes	Garuda	n/a	Prem. Eco	P2P	No transfer
31	Joon	JN	Ceased	2018	France	Eurasia; Atlantic (S)	New LH routes	Air France-KLM	Drinks & Entertain.	Prem. Eco; Bus	P2P	In group network

Source: Industry and company annual reports (compiled by authors)

¹ Norwegian Long Haul jointly considered with subsidiaries Norwegian Air International, Norwegian Air UK, and Norwegian Air Argentina.

² Air Canada Rouge flights are sold under Air Canada code (AC).

³ Level uses different AOCs, e.g. Iberia (IB), Openskies (EC) or Level France (LV).

Table 3: Network carrier response strategies to handle the LHLC business model.

Response strategy		Assessment for network carrier (incl. cost crusher)	
		Strategy long-term effectiveness	Firm mobility barriers
Avoid	Extend current performance trajectory	<ul style="list-style-type: none"> Moderate; risk of refraining from a growing market segment 	<ul style="list-style-type: none"> Low; ability to utilize core competencies and brand reputation
	Reposition into a niche	<ul style="list-style-type: none"> Low; shrinking strategy that implies substantial reductions in firm size 	<ul style="list-style-type: none"> Moderate-high; contradicts carriers' self-conceptions and stakeholder expectations
Accept	Pursue LHLC business model in autonomous unit	<ul style="list-style-type: none"> Moderate-high; enables participation in a growing market 	<ul style="list-style-type: none"> Moderate; creates trade-off between separation and integration of organizational units
	Cooperate with or acquire LHLC partners	<ul style="list-style-type: none"> Moderate; fast access to expertise, resources and competitiveness on specific markets or routes 	<ul style="list-style-type: none"> Low-moderate; creates costs to integrate operations/sales/etc. logics and to ensure a consistent customer experience
Embrace	Create a hybrid business model for the long-haul market	<ul style="list-style-type: none"> High; ability to redefine long-haul air travel through an innovative recombination of business model components 	<ul style="list-style-type: none"> Moderate-high; inertia to adjust business model components and risk of undermining customers' brand perception

Table 4: Development of operational metrics as indication of network carriers' response strategy on long-haul EU-NA routes, 2012-2019¹⁵.

Response strategy	Proposed operational metric	Selected carrier	2012	2013	2014	2015	2016	2017	2018	2019
Extend current performance trajectory	% premium seats ¹⁶ of total long-haul seat capacity per carrier	FY	10.8%	14.7%	14.9%	19.2%	21.9%	22.7%	22.3%	24.1%
		UA	15.4%	15.9%	16.1%	16.0%	17.1%	16.9%	26.3%	43.4%
		\bar{x} LHLCs	12.9%	11.8%	10.4%	10.6%	13.8%	15.7%	9.9%	29.8%
Reposition into a niche	% seat capacity on routes > 7,000 km of total long-haul seat capacity per carrier	AA	37.5%	42.2%	46.0%	46.8%	41.4%	42.8%	43.6%	47.3%
		SK	50.0%	50.6%	51.3%	58.4%	61.4%	64.4%	63.3%	62.3%
		\bar{x} LHLCs	44.5%	13.5%	43.2%	40.5%	40.0%	42.0%	44.9%	49.0%
Pursue LHLC business model in autonomous unit	# seat capacity on network carrier's cost crusher subsidiary (<i>in '000</i>)	EC, LV	-	-	-	-	19	25	136	374
		EW	-	-	-	-	402	1181	1294	5936
Cooperate with or acquire LHLC partners	# seat capacity on network - LHLC carrier codeshare flights (<i>in '000</i>)	WS - EK ¹⁷	-	-	-	-	310	398	371	420
		EK - B6 ¹⁷	-	47	262	339	358	356	606	659
Create a hybrid business model for the long-haul market	# network carriers with basic economy (no checked bag) fare	n/a	-	-	-	-	-	3 ¹⁸	14 ¹⁹	14

Source: OAG database; Infare database; own research

¹⁵ EU-NA traffic area as defined by OAG.

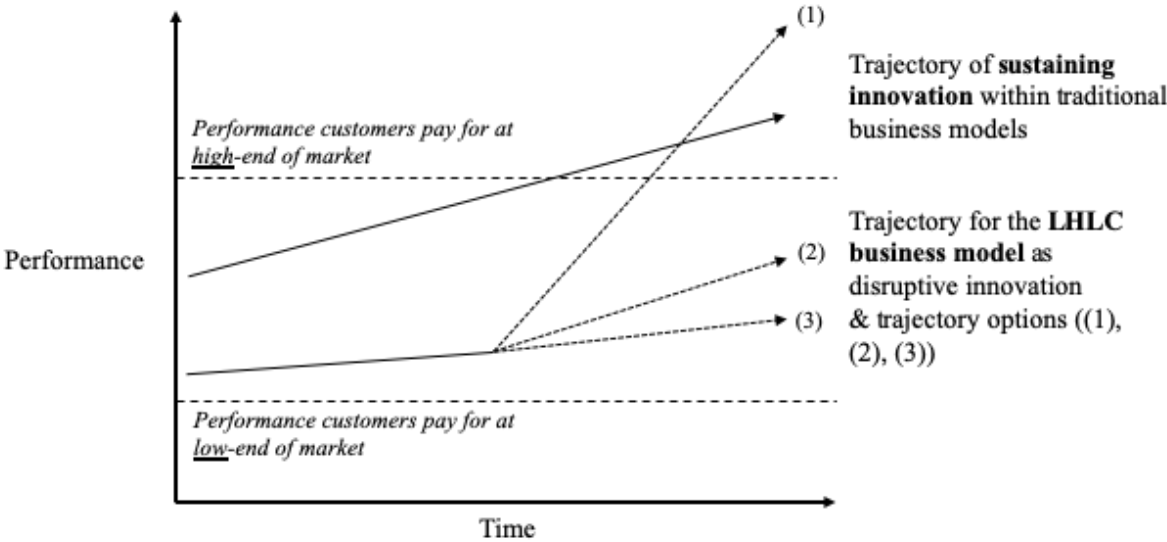
¹⁶ Comprises seats in first, business and premium economy compartments.

¹⁷ Marketing carrier

¹⁸ New in 2017: EI, FI, SK

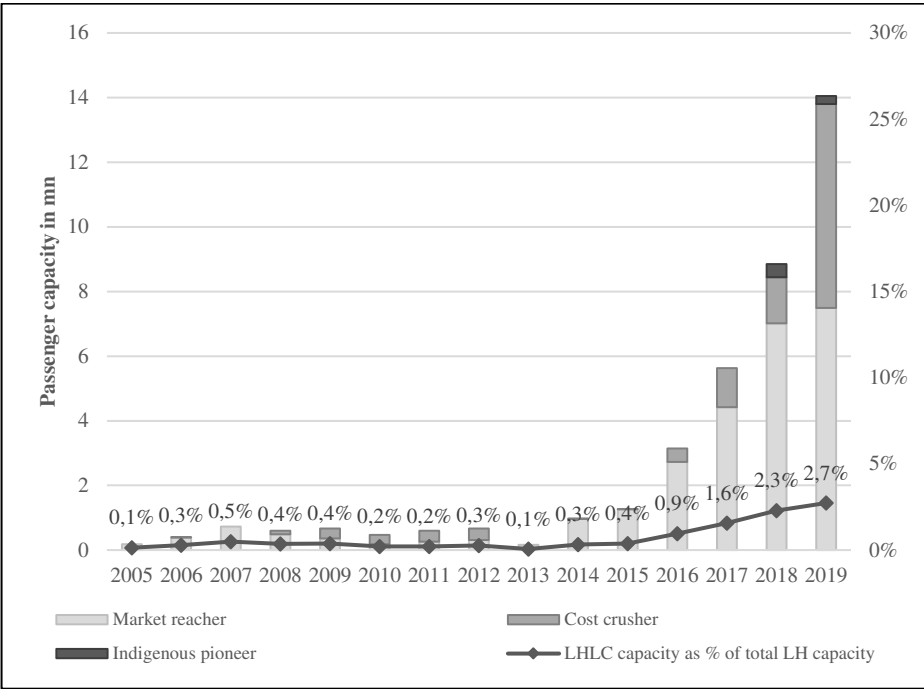
¹⁹ New in 2018: AA, AF, AC, AZ, BA, DL, FN, IB, LH, LX, OS, UA, VS

Figure 1: (Potential) Performance trajectories of innovations in long-haul air travel.



Adapted from Christensen (2018).

Figure 2: Low-cost seat capacity by LHLC type on long-haul EU-NA routes, 2005 - 2019²⁰.



Source: OAG database

²⁰ Operating carrier capacity, excluding capacity from Rouge (included in Air Canada capacity); EU-NA traffic area as defined by OAG.

References

- Adner, R., 2002. When are technologies disruptive? A demand-based view of the emergence of competition. *Strategic Management Journal*, 23(8), 667–688.
- Airbus. 2020. News Releases. 2 Feb 2020: <https://www.airbus.com/search.news.html?tags=products-and-solutions%3Acommercial-aircraft%2Fa320-family%2Fa321xlr&tagLogicChoice=OR>
- Alamdari, F., Fagan, S., 2017. Impact of the adherence to the original low-cost model on the profitability of low-cost airlines. In *Low Cost Carriers* (pp. 73–88). Routledge.
- Albers, S., Heuermann, C., 2013. Competitive Dynamics across Industries: An Analysis of Inter-industry Competition in German Passenger Transportation. *Schmalenbach Business Review (SBR)* 65, 431–453.
- Albers, S., Heuermann, C., Koch, B. 2010. Internationalization strategies of EU and Asia-Pacific low fare airlines. *Journal of Air Transport Management*, 16(5):,244-250.
- Atallah, S., Hotle, S. L., Mumbower, S., 2018. The evolution of low-cost Carrier operational strategies pre-and post-recession. *Journal of Air Transport Management*, 73, 87–94.
- Bießlich, P., Wegmann, K., Lütjens, K., Gollnick, V., 2018. A hierarchical metamodeling approach for airline costs. *Journal of Air Transport Management* 71, 193–200.
- Binggeli, U., & Weber, M. 2013. Distance Runners. *Airline Business*, 29(6), 48-49.
- Borenstein, S., 2017. The evolution of US airline competition. In *Low Cost Carriers* (pp. 1–31). Routledge.
- CAPA Center for Aviation, 2019. LCCs: global market share gains led by emerging markets. 20 Apr, 2018, <https://centreforaviation.com/analysis/reports/lccs-global-market-share-gains-led-by-emerging-markets-459927>
- Castillo-Manzano, J.I., López-Valpuesta, L., 2014. Living “up in the air”: Meeting the frequent flyer passenger. *Journal of Air Transport Management* 40, 48–55.
- Charitou, C.D., Markides, C.C., 2003. Responses to disruptive strategic innovation. *MIT Sloan Management Review*, 44(2), 55–63.
- Christensen, C.M. 1997. *The Innovator’s Dilemma*. Boston: Harvard Business Review Press.
- Christensen, C.M., Johnson, M.W., Rigby, D.K., 2002. Foundations for growth: How to identify and build disruptive new businesses. *MIT Sloan Management Review* 43(3), 22–31.
- Christensen, C.M. Raynor, M., 2003. *The Innovator’s Solution*. Boston: Harvard Business School Press.
- Christensen, C.M., 2006. The ongoing process of building a theory of disruption. *Journal of Product Innovation Management*, 23, 39–55.
- Christensen, C.M., McDonald, R., Altman, E. J., Palmer J. E., 2018. Disruptive Innovation: An Intellectual History and Directions for Future Research. *Journal of Management Studies* 55(7), 1043–1078.
- Corbo, L., 2016. In search of business model configurations that work: Lessons from the hybridization of Air Berlin and JetBlue. *Journal of Air Transport Management* 64 (Part B), 139–150.

- Daft, J., Albers, S., 2012. A profitability analysis of low-cost long-haul flight operations. *Journal of Air Transport Management* 19, 49–54.
- Daft, J., Albers, S., 2013. A conceptual framework for measuring airline business model convergence. *Journal of Air Transport Management* 28, 47–54.
- Daft, J., Albers, S., 2015. An empirical analysis of airline business model convergence. *Journal of Air Transport Management* 28, 47–54.
- De Poret, M., O'Connell, J.F., Warnock-Smith, D., 2015. The economic viability of long-haul low cost operations: Evidence from the transatlantic market. *Journal of Air Transport Management* 42, 272–281.
- Dobruszkes, F., Givoni, M., Vowles, T., 2017. Hello major airports, goodbye regional airports? Recent changes in European and US low-cost airline airport choice. *Journal of Air Transport Management*. 59, 50–62.
- Douglas, I., 2010. Long-haul market entry by value-based airlines: dual business models support product innovation. *World Review of Intermodal Transportation Research* 3(3), 202–214.
- Fageda, X., Suau-Sanchez, P., Mason, K.J., 2015. The evolving low-cost business model: Network implications of fare bundling and connecting flights in Europe. *Journal of Air Transport Management* 42, 289–296.
- Furr, N., Snow, D., 2013. The Prius Approach: How hybrid technologies help companies survive disruption and shape the future. *Harvard Business Review* 93(11), 103–109.
- Francis, G., Dennis, N., Ison, S., Humphreys, I., 2007. The transferability of the low-cost model to long-haul airline operations. *Tourism Management* 28, 391–398.
- Gittell, J. H., von Nordenflycht, A., Kochan, T. A., 2004. Mutual Gains or Zero Sum? Labor Relations and Firm Performance in the Airline Industry. *Industrial and Labor Relations Review*, 57(2), 163–180.
- Górecka, A., Horák, T., 2014, Ineffective but Reasonable - Why do European Airlines Operate Short-haul Flights?; paper presented at the International Conference on Logistics & Sustainable Transport, Celje, Slovenia.
- Graham, B., Vowles, T.M., 2006. Carriers within carriers: A strategic response to low-cost airline competition. *Transport Reviews* 26(1), 105–126.
- Guttentag, D., 2015. Airbnb: disruptive innovation and the rise of an informal tourism accommodation sector, *Current Issues in Tourism*, 18:12, 1192–1217
- Hazledine, T., 2011. Legacy carriers fight back: Pricing and product differentiation in modern airline marketing. *Journal of Air Transport Management* 17(2), 130–135.
- Heffernan, D., 2019. Can JetBlue Challenge The Transatlantic Airline Alliances? *Forbes Online*, 2 Oct, 2019, <https://www.forbes.com/sites/davidheffernan1/2019/04/24/can-jetblue-challenge-the-transatlantic-airline-alliances/>
- Hofmann, K., 2017. Eurowings to install long-haul, business-class cabin. *Air Transport World Online*, 20 Apr, 2018, <http://atwonline.com/aircraft-interiors/eurowings-install-long-haul-business-class-cabin>
- Hunt, J., Truong, D., 2019. Low-fare flights across the Atlantic: Impact of low-cost, long-haul trans-Atlantic flights on passenger choice of Carrier. *Journal of Air Transport Management* 75, 170–184.

- Jean, D., Lohmann, G., 2016. Revisiting the airline business model spectrum: The influence of post global financial crisis and airline mergers in the US (2011-2013). *Research in Transportation & Business Management* 21, 76-83.
- Jiang, H., 2013. Service quality of low-cost long-haul airlines – The case of Jetstar Airways and AirAsia X. *Journal of Air Transport Management* 26, 20–24.
- King, A. A., Baatartogtokh, B., 2015. How Useful Is the Theory of Disruptive Innovation? *MIT Sloan Management Review* 57(1), 77–90.
- Klein, K., Albers, S., Allroggen, F., & Malina, R. 2015. Serving vs. settling: What drives the establishment of low-cost carriers' foreign bases? *Transportation Research Part A: Policy and Practice* 79, 17-30.
- Linz, M., 2012. Scenarios for the aviation industry: A Delphi-based analysis for 2025. *Journal of Air Transport Management* 22, 28–35.
- Maertens, S., 2015. The new Eurowings flights from Germany. German Aerospace Center – Institute for Air Transport and Airport Research, Working Paper.
- Marx, M., Gans, J.S., Hsu, D.H., 2014. Dynamic commercialization strategies for disruptive technologies: Evidence from the speech recognition industry. *Management Science* 60, 3103–3123.
- Mascarenhas, B., Aaker, D. A., 1989. Mobility barriers and strategic groups. *Strategic Management Journal*, 10(5), 475–485.
- Mason, K.J., Morrison, W.G., 2008. Towards a means of consistently comparing airline business models with an application to the 'low cost' airline sector. *Research in Transportation Economics* 24, 75–84.
- McGee, J., Thomas, H., 1986. Strategic groups: theory, research and taxonomy. *Strategic management journal*, 7(2), 141–160.
- Merkert, R., Hensher, D.A., 2011. The impact of strategic management and fleet planning on airline efficiency—A random effects Tobit model based on DEA efficiency scores. *Transportation Research Part A: Policy and Practice* 45(7), 686–695.
- Moir, L., Lohmann, G., 2018. A quantitative means of comparing competitive advantage among airlines with heterogeneous business models: Analysis of U.S. airlines. *Journal of Air Transport Management* 69, 72–82.
- Moores, V., 2018. Virgin Atlantic rolls out competitive response to long-haul LCCs, *Air Transport World Online*. 2 Sep 2019, <https://atwonline.com/aircraft-interiors/virgin-atlantic-rolls-out-competitive-response-long-haul-lccs>
- Moreira, M.E., O'Connell, J.F., Williams, G., 2011. The Viability of Long-Haul, Low Cost Business Models. *Journal of Air Transport Studies* 2(1), 69–91.
- Morrell, P., 2008. Can long-haul low-cost airlines be successful? *Research in Transportation Economics* 24, 61–67.
- Murthi, B. P. S., Rasheed, A. A., Goll, I., 2013. An Empirical Analysis of Strategic Groups in the Airline Industry using Latent Class Regression. *Managerial and Decision Economics*, 34, 59–73.
- Pearson, J., Merkert, R., 2014. Airlines-within-airlines: A business model moving East. *Journal of Air Transport Management* 38, 21–26.

- Porter, M.E., 1980. *Competitive Strategy: Techniques for Analyzing Industries and Competitors*. Free Press, New York.
- Poulaki, I., Katsoni, V. 2020. Current Trends in Air Services Distribution Channel Strategy: Evolution Through Digital Transformation, in: V. Katsoni, T. Spyriadis (Eds.), *Cultural and Tourism Innovation in the Digital Era*, Springer, Cham, pp. 257-267.
- Ramón-Rodríguez, A B., Moreno-Izquierdo, L., Perles-Ribes, J. F., 2011. Growth and internationalisation strategies in the airline industry. *Journal of Air Transport Management*, 17(2), 110–115.
- Raynor, M.E., 2011. *The Innovator's Manifesto: Deliberate Disruption for Transformational Growth*. New York: Crown Business.
- Reals, Kerry., 2019. Air France-KLM to close Joon affiliate, signs cabin crew labor deal. *Air Transport World Online*, 20 Sep 2019, <https://atwonline.com/airlines/air-france-klm-close-joon-affiliate-signs-cabin-crew-labor-deal>
- Sandström, C., Magnusson, M., Jörnmark, J., 2009. Exploring Factors Influencing Incumbents' Response to Disruptive Innovation. *Creativity and Innovation Management*, 18(1), 8–15.
- Schmidt, G. M., Druehl, C. T., 2008. When Is a Disruptive Innovation Disruptive? *The Journal of Product Innovation Management*, 25, 347–369.
- Shaw, S., 2016. *Airline marketing and management*. Routledge.
- Sorenson, J. 2019. *The 2019 CarTrawler Yearbook on Ancillary Revenue*, edited by Lucas, E. Shorewood, WI: IdeaWorksCompany
- Soyk, C., Ringbeck, J., Spinler, S., 2017. Long-haul low cost airlines: Characteristics of the business model and sustainability of its cost advantages. *Transportation Research Part A: Policy and Practice* 106, 215–234.
- Soyk, C., Ringbeck, J., Spinler, S., 2018. Revenue characteristics of long-haul low cost carriers (LCCs) and differences to full-service network carriers (FSNCs). *Transportation Research Part E: Logistics and Transportation Review* 112, 47–65.
- Wensveen, J.G., Leick, R., 2009. The long-haul low-cost carrier: A unique business model. *Journal of Air Transport Management* 15, 127–133.
- Whyte, R., Lohmann, G., 2015a. Low-cost long-haul carriers: A hypothetical analysis of a 'Kangaroo route'. *Case Studies on Transport Policy* 3(2), 159–165.
- Whyte, R., Lohmann, G., 2015b. The carrier-within-a-carrier strategy: An analysis of Jetstar. *Journal of Air Transport Management* 42, 141–148.
- Wilken, D., Berster, P., Gelhausen, M.C., 2016. Analysis of demand structures on intercontinental routes to and from Europe with a view to identifying potential for new low-cost services. *Journal of Air Transport Management* 56, 79–90.
- Winter, S.R., 2019, Government Seat Pitch Regulation of Commercial Airlines: A Multi-Study of Consumer Perceptions. *Collegiate Aviation Review International* 37(2), 1-15.
- Zajac, E.J., Bazerman, M.H., 1991. Blind Spots in Industry and Competitor Analysis: Implications of Interfirm (Mis)Perceptions for Strategic Decisions. *Academy of Management Review* 16, 37–56.