

CHAPTER

EVOLVING BUSINESS MODELS

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Introduction

Unlike neo-classical theory, evolutionary economics consider competition as a dynamic process where the so-called unique ‘steady state equilibrium’ does not exist; on the contrary, the economy is understood to be in a constant state of flux as multiple equilibria are reached temporarily only to be subsequently disturbed by a combination of exogenous and endogenous factors to the macro- and micro-economic system (Papatheodorou, 2000). Over the last seventy years since the end of the Second World War, business dynamics in the air transport sector are notably characterised by this evolutionary process. In addition to the Schumpeterian ‘creative destruction’, which is apparent in technical innovation concerning primarily aircraft engineering and passenger service systems, the evolving business models in the air transport sectors are structurally intertwined with both exogenous and endogenous systemic changes. The former are largely related to the gradual development of international tourism since the early 1960s and the opening up of the airline and subsequently of the airport market a few decades later; the latter concern competition dynamics within a liberal environment and the emergence of business model differentiation and specialisation followed by a gradual blurring to maximise market share.

In a nutshell, the early years after the Second World War were dominated by flag carriers, occasionally heavily subsidised, operating scheduled point-to-point services in a highly regulated business environment (at both national and international levels) out and into state-owned airports almost exclusively depending on aeronautical revenue. Subsequently, charter airlines entered the foreground in the 1960s to cover leisure needs on a seasonal basis. Thus, by the mid-1970s the first wave of airline business model differentiation was complete. Since then, airline deregulation/liberalisation first in the USA in 1978 and then in Europe between 1988 and 1997 (that emerged because of growing public dissatisfaction over high air fares and low service quality) led to notable market entry and a second wave of airline specialisation where in addition to the two previous models (gradually redefined as Full Service Network Carriers – FSNCs operating scheduled services over a hub-and-spoke network usually in the context of strategic alliances; and leisure airlines offering predominantly seasonal services to holiday destinations), three others were added: Low Cost Carriers (LCCs) or Low Fare Airlines (LFAs as they prefer to identify themselves from a customer-centric point of view) are the major ‘success story’ of the post liberalisation period offering a basic, very competitively priced scheduled service usually out of regional airports on a point-to-point basis; while at the same time, all-business class carriers and regional airlines (which are not recognised by all analysts as a separate business model) also emerged in the market. Soon after the opening-up of the airline market, the public- sector mentality characterising the great majority of airports until the early 1990s started receding. Gradual commercialisation (emphasising non-aeronautical revenue) and steps towards privatisation redefined the airline – airport relationship and rendered competition dynamics meaningful in the sector, thus leading to the first wave of specialisation into hub airports servicing FSNCs; regional bases/satellite airports servicing LCCs but also leisure, all-business class and regional airlines; and spokes/peripheral airports willing to serve all but usually ending up with few services predominantly from LCCs but also from leisure and regional airlines – only occasionally from FSNCs.

Finally, corporate rivalry in the last ten years and the willingness to capture an increasing market share led to gradual business convergence à la Hotelling (1929) using differentiation and specialisation at other levels. Differences between FSNCs and LCCs become gradually blurred as each of them has incorporated characteristics of the other in its business model, while the very existence of leisure carriers as a separate business model is questioned. All business-class carriers still exist but often battered by recession and other factors; while regional carriers usually try to secure their financial viability as affiliates of FSNC. In this environment of airline business model convergence, the main differentiator seems to be distance, i.e. short-haul where many carriers now offer a service closer to the LCC original concept and long-haul where the concept of “frills” is often still valid despite the entry of LCCs into this sector too. Airport business model convergence seems to take place by a small time lag, as hub airports become increasingly interested in serving LCCs. Thus, the main differentiation now occurs not at an airport but at a terminal level as different airport services are provided to different airline customers based on the latter’s profile. Interestingly, this whole idea of convergence steps beyond the micro level as airlines gradually develop themselves into ‘travel supermarkets’ (due to their emphasis on ancillary revenue deriving from sources very different to their core product) while airport terminals become major shopping malls. In fact, the very emergence of the airport-city (also known as aerotropolis) highlights the role of airports as concession managers and creates interesting (both synergistic but also antagonistic) dynamics with the neighbouring destinations. On these grounds, one should also acknowledge the very role of the triangular relationship among airlines, airports and destination authorities.

The remainder of this chapter discusses in detail the evolutionary journey outlined above. First, the chapter highlights the business environment before the opening-up of the airline market. Then, it presents major developments in the post-liberalisation period essentially focusing on business model specialisation. Subsequently, the chapter analyses the very issue of convergence at both airline and airport business models and continues by elaborating on the role of airport cities and the triangular relationship. The final section summarises and concludes.

Business Models before the Opening-up of the Airline Market

In the aftermath of the Second World War and until the deregulation/liberalisation of the airline market between the late 1970s and mid-1990s in much of the Western world, traditional scheduled carriers dominated the business scene. These carriers offered a typical three-class service (i.e. first, business and economy class) where different fare levels were largely justified by service quality disparities in in-flight catering, seat pitch and ground handling services (Doganis, 2005; 2010). In many cases, these airlines operated as national flag carriers acting as government agencies. Due to their ownership status and importance for connectivity and accessibility of even remoter regions in a country, governmental support in the form of subsidies and/or tax-exemption motives became the norm. Moreover, many routes were developed for political rather than commercial reasons; hence, the airline network configuration was heavily influenced by government decisions (Papatheodorou, 2002). Traditional carriers also became active in cargo services. The first cargo flight was in 1910 between Albany to New York. In fact, air cargo had played a key role in international trade, aid and relief operations. Many traditional carriers used and still use large wide-body aircraft with carrying capacity exceeding 80 tons mainly for long haul routes; medium wide-bodied aircraft (40 to 80 tons), and standard bodies aircrafts (<45 tons) for regional express services (Wensveen, 2007; Morrell, 2011).

The development of international tourism in Europe and the chase of Florida sun by Americans residing in the northern USA states led to the gradual rise of charter, non-scheduled airlines in the 1960s. These airlines emphasised on leisure passengers, offering services usually as part of ‘packaged holidays’ featured by tour operators with whom charter airlines mostly in Europe often entered into vertical business relationships (Papatheodorou, 2002). Leisure passengers were interested in direct, reliable flights with low fares and hence charter airlines were not seeking to compete on high service quality with traditional carriers. Destinations in the European Mediterranean Region became popular thanks to charter airlines. Due to their dependence on sunlust operations characterised by high seasonality, operating off-season was a challenge for charter airlines. To increase aircraft utilisation and avoid extremely low load factors during winter, their aircraft were usually leased to airlines serving areas facing reverse seasonality, for instance in the Caribbean and Australia. Later, the gradual development of the winter-sports market enabled European charter airlines also to serve winter destinations such as those in the Alps (Doganis, 2005; 2010).

Because of the heavy airline regulation prevailing in this period, traditional carriers were protected by barriers to market entry, capacity- and fare-setting constraints. At an international level protectionism took the form of restrictive bilateral agreements. In the beginning, charter airlines faced more traffic restrictions compared to scheduled carriers, but these were later relaxed (DLR, 2008). Nevertheless, non-scheduled carriers were not allowed to distribute their tickets individually (via their city ticket office and/or call centre) or via Computer Reservation Systems (CRS); moreover, they were not allowed to carry freight or mail either. Scheduled and charter carriers in Europe became equally treated only after the implementation of Council Regulation (EEC) No. 2408/92 which abolished all related traffic, capacity and pricing legal restrictions.

In fact, and although the air transport sector was one the first to be regulated, it was also one of the first to be deregulated (Dempsey & Goetz, 1992). Initial considerations on market failure led to regulation; however, the inflexible and over-regulated airline business environment often resulted in passenger dissatisfaction due to poor value-for-money thus setting the fundamentals for a change in the civil aviation regime (Borenstein, 1992). In fact, the very assumption behind deregulation was that new airlines entering the market would provide more variety of choice in flight services and lower fares (Smeth, et al., 2007). Moreover, and per the European Commission (COM (96) 514), the aim of liberalization was ‘the gradual creation of a truly single market based upon the freedom to provide services throughout the Community in accordance with a single set of rules’. Unlike the USA where the market was almost instantly deregulated in 1978, the liberalisation process in Europe was step-wise and implemented in three Packages. The First, adopted in 1987, relaxed the restrictions of the bilateral framework and allowed a number of smaller airlines to enter some of the important intra-Community routes. The Second Package, agreed in 1990, relaxed restrictions on fifth freedom services; eased restrictions on multiple designation of airlines on particular routes; and introduced the element of ‘double disapproval’ for fares. The Third Package was introduced in 1993, but due to the economic recession at the time the pace accelerated in 1995 and 1996 (EC,1996a). The Third Package was based on three interrelated pillars: the first offered free market entry and exit in the European Common Aviation Area (ECAA) by including full cabotage rights from 1997 onwards; the second extended pricing freedom; and the third pillar established harmonised licencing and certificates for airworthiness procedures.

Finally, and during this first period under consideration (i.e. up to the opening-up of the airline market) and leaving aside infrastructural projects, commercial developments in airports were rather limited. In their greatest majority, airports operated as government

agencies based on a public-sector mentality that saw no real role for commercialisation and non-aeronautical revenue (Graham, 2014). As many traditional airlines were also owned by their respective states at the time an indirect vertical business relationship developed between airlines and airports. This meant, among others, that aeronautical charges were not necessarily set by market criteria but chiefly determined by political decisions. As both traditional scheduled carriers and charter airlines operated a point-to-point network, airports were distinguished mainly in terms of size rather than in terms of differing business models and networks.

Business Models in the aftermath of Liberalisation: The Phase of Specialisation

Traditional carriers continued played a very significant role in the post liberalisation period. While the early years of the market opening-up were characterised by enthusiastic new market entry, consolidation eventually prevailed as many ventures proved financially unsustainable. Illustratively, in 1978 there were 15 major airlines in the USA, while in 1988 there were only 8 with a joint market share of 91.7%, proving that the market had turned into a solid oligopoly (Smeth, et al., 2007). Moreover, in the post 1978 business environment, traditional carriers in the USA replaced their previous point-to point network with a hub-and-spoke system, as major airlines established hub bases recording incoming and outgoing traffic from feeder routes to smaller airports, i.e. the spokes (Smeth, et al., 2007). This system allowed carriers to achieve higher load factors while keeping the connectivity at the same level, i.e. serving the same number of airports. Moreover, network economies allowed the introduction of new spokes at very low marginal costs. In this way, traditional carriers were transformed into network carriers offering a full service (as opposed to LCCs discussed later); hence the acronym FSNCs. Some examples of FSNCs are British Airways, Lufthansa, and Air France – KLM in Europe; and American Airlines, United Airlines and Delta Airlines in the USA.

Hubbing proved a successful market entry deterrent in many cases and the construction of «fortress hubs» in Europe restricted competition, particularly in the absence of alternative airports nearby (Dobruszkes, 2009). Dempsey & Goetz (1992) quote that in 1989 the US General Accounting Office found that fares in hub airport characterised by a monopoly or at best a duopoly were 27% higher than the competitive benchmark. Moreover, Polk and Bilotkach (2013) argue that large hub airports have local monopoly features; hence, they need to be regulated to prevent abuse of their dominant position in the market. In addition, the future of the home carrier and its hub airport become structurally interdependent characterised by asset-specific investments from both sides. Not surprisingly, airports may end up bearing a higher level of risk due to the inherently sunk nature of their infrastructure: while an airline can always redirect its services to another airport, the latter is spatially fixed. Hence, hub airports often require FSNCs to partly fund their infrastructure, e.g. in the context of joint ventures as is the case of Munich Airport Terminal Two where the local airport collaborated with Lufthansa. In any case, it should be also acknowledged that hub airports do face competition from other hub airports for transit passengers. This may lead to a ‘war of hubs’ especially in cases where sixth freedom carriers vertically associated with hub airports (e.g. as both being state-owned) follow aggressive expansionary strategies: the ‘Big Three’ carriers in the Middle East (i.e. Emirates, Etihad and Qatar Airways) and their hub airports are a notable example. Conversely, a highly congested hub airport can also affect the network strategy of FSNCs (Elhedhli and Hu, 2005) leading to de-hubbing (Redondi et al., 2012) and/or new traffic opportunities to less congested airports. This phenomenon is mitigated in the case of multi-hub airlines, e.g. Lufthansa Group’s Frankfurt, Munich, Zurich, and Vienna airports that can reroute their traffic to another hub airport.

In addition to operating a hub-and-spoke network based on a high frequency of conveniently scheduled regular flights, FSNCs tend to follow complex revenue management practices based on price discrimination. In Europe, this is also related to the fact that further to market liberalisation, the great majority of FSNCs were eventually privatised; thus, using sophisticated revenue management techniques to ensure profitability became of much greater importance. FSNCs also provide a wide range of pre-flight and on-board services, including different service classes. Moreover, and to capitalise on their extensive network, FSNCs put emphasis on building loyalty schemes, the well-known Frequent Flyer Programmes (FFPs), which raise switching costs to other carriers. The value of FFPs was greatly enhanced in the 1990s by the establishment of strategic airline alliances, which streamline collaboration of carriers on fares, marketing and capacity especially when granted antitrust immunity and as a second-best solution to cross-country mergers and acquisitions, which until today prove difficult due to international regulatory constraints (Papatheodorou and Iatrou, 2008). Leick and Wensveen (2014) argue that the success of the first alliance between Northwest and KLM in the early 1990s led to the subsequent creation of the three major global alliances, which exist until today i.e. Star Alliance, Oneworld and SkyTeam. These alliances are nowadays truly global and aim at creating a seamless network for participating carriers around the globe. Illustratively, in September 2016 Star Alliance served 1,203 destinations in 192 countries; SkyTeam served 1,050 destinations in 177 countries; and Oneworld served 966 destinations in 161 countries (Flight Airline Business, 2016).

Throughout the period under consideration, air freight remained an important revenue source for many FSNCs for high value commodities (e.g. high-tech products, capital equipment) and shock sensitive goods (e.g. chemicals, gold) that need fast, reliable and secure transportation. Unlike the all-cargo carriers such as Cargolux that operate a dedicated fleet of freighter aircraft and the integrators such as DHL that provide a comprehensive door-to-door service, most FSNCs that participate in the cargo market rely either on the belly cargo or the combination model. Belly cargo carriers are passenger airlines that carry cargo in the holds of their aircraft to generate additional revenue. Similarly, combination carriers (e.g. All Nippon Airways) operate combi-aircraft, i.e. multi-compartment aircraft, designed with additional freight capacity and, in some cases air freighters. They also have the flexibility to shift from belly capacity to freighter capacity depending on the cargo demand. Combination carriers serve a wide range of destinations since they usually operate on a hub and spoke network (Morrell, 2011). The competitive dynamics in cargo operations pushed carriers to sign commercial agreements usually on a route-by-route basis and form alliances (such as WOW and SkyTeam Cargo); the latter, however, have not proved as successful as in the case of passenger traffic (Morrell, 2011).

While the transformation of traditional carriers into FSNCs is a case of mild business model evolution, the real market disruption in the post-liberalisation environment was brought by Low Fare Airlines (LFAs) also better known as Low Cost Carriers (LCCs). Southwest was the very first LCC worldwide commencing operations in Texas back in 1971. The LCC model, however, became popular in Europe from the mid-1990s onwards and then spread to become a global phenomenon. LCCs offer a basic service without ‘frills’ charging lower price than FSNCs. Some of them were new entrants (e.g. easyJet), some were the outcome of radical business transformation (e.g. Ryanair), while others were founded by FSNCs (e.g. Buzz). Leisure passengers are frequent users of LCCs without being at the same time loyal to a specific LCC. Furthermore, several previously off-track areas (from a tourism perspective) were popularised thanks to LCCs; Carcassonne in France served by Ryanair is a good example (Palaskas et al., 2006). In contrast to charter carriers, LCC serve a variety of destinations with diverse profiles ranging from city breaks in mainland Europe (e.g. Barcelona) to summer holiday islands (e.g. Rhodes).

To improve their value-for-money and effectively compete on price rather than service quality, LCCs aim to actively reduce the unit cost of their operations. Therefore, they use a single aircraft type with a single class, very dense seat configuration and offer all services apart from the flight itself (such as seat selection, airport check-in, checked baggage, in-flight catering, and entertainment as well as other on-board services) at an additional cost. Moreover, LCCs sell direct predominantly on the Internet without relying on Global Distribution Systems (GDSs) and often outsource non-core activities to third parties. Thus, LCCs focus on ‘low fares, no frills’ and depend heavily on ancillary revenue relying on a revenue management model that does not only comprise the flight per se (as is the case with FSNCs) but other services too. Interestingly, though, in the first few years of their operation LCCs did not provide cargo services as they believed that the complications arising from entering the logistics supply chain outweighed any potential benefits.

In essence, therefore, LCCs focus on short haul, point-to-point flights bypassing hub airports to avoid high airport taxes, slot constraints and often unavoidable (due to congestion) terminal delays that extend their turnaround time and decrease the aircraft utilisation. For the converse reasons, they prefer to use satellite and/or secondary airports due to the short turnaround times, the availability of slots and the low risk of delays, but most importantly due to the low airport taxes/charges. Such airports, on the other hand, rely heavily on LCCs. There are cases where the LCCs’ cooperation with certain airports proved mutually beneficial as in the example of Ryanair and Brussels Charleroi Airport (Barbot, 2006). To attract LCCs satellite and/or secondary airports are willing to reduce airport taxes/charges or even offer subsidies, which in some cases are on the borderline of being characterised as illegal state aid (Papatheodorou, 2003; Barbot, 2006; Fichert and Klopheus, 2011; Wittman, 2014; Nunez-Sanchez, 2015). In retrospect, LCCs did affect positively passenger traffic in secondary airports (Graham and Dennis, 2007; Barrett, 2004). If many of these airports were not served by LCCs, their traffic would be quite low or they would be ‘hedgehog airports’ relying only on charter flights and characterised by acute seasonality. Therefore, LCCs do benefit secondary airports and the wider regions; not necessarily on a per-capita basis but primarily due to the sheer scale of newly generated traffic (Choo and Oum, 2013; Papatheodorou and Lei, 2006; Lei and Papatheodorou, 2010).

By the early 2000s, the airline environment in the Western world had polarised around the two business models discussed above, i.e. the evolving FSNC and the nascent yet powerful LCC model. Because of this gradual polarisation, charter airlines (now better known as leisure carriers) felt unsurmountable pressure as on the one hand they could not deliver the service quality and convenience of FSNC while on the other they found it very difficult to effectively compete on price and seat-only, one-way ticket flexibility of LCC (Papatheodorou, 2002). Many US charter carriers collapsed (Doganis, 2010) while in Europe the great majority of those that survived either sought comfort in vertical integration with large tour operators such as Thomson and subsequently TUI or transformed themselves usually into LCCs (Dobruszkes et al, 2016).

Two other airline business models are also worth discussing. Premium or business-class-only airlines may be regarded as the opposite of LCCs focusing solely on business passengers. They fly only on long haul routes to and from central airports like the FSNCs although major satellite airports (such as London Luton) may also be chosen to avoid congestion. These airlines offer a similar service quality to the business class of FSNCs, but have a higher unit cost since they do not operate a hub-and-spoke network to take advantage of scale and network economies. Eos, MaxJet and Silverjet, first appeared in 2007, offering point-to-point connection on the London - New York route, which is very popular among business

passengers and reached a traffic peak during that period (Claussen and O'Higgins, 2010). The 2,000 premium seats offered per day generated \$1.4 billion in 2007 to the airlines serving this route (O'Connell, 2007 cited in Claussen and O'Higgins, 2010). The three premium carriers had a combined market share of 21% (Avery, 2007 cited in Claussen and O'Higgins, 2010) on that route. Nonetheless, the initial success of these airlines proved short-lived as all of them eventually ceased operations. Financial problems in a period of unprecedented economic recession (that started in 2008) in conjunction with weak schedules, high fares, low utilisation and the growing market acceptance of private jets were some of the reasons why these airlines did not survive. Regent Air and MGM Grand Air that operated a similar model in the 1980s went bankrupt for similar reasons (Kuchta, 2006 cited in Claussen and O'Higgins, 2010).

Nevertheless, the all-business class model is still deemed viable by some investors at least (Claussen and O'Higgins, 2010). A recently established company operating this model is La Compagnie. This has daily services between New York/Newark (EWR) to Paris (CDG) and London (LTN) operating with two Boeing 757-200 aircraft. The company focuses on upmarket entertainment, in-flight catering, customer service, on-ground operations and facilities and exhibits an environmentally friendly behaviour. A FFP is also provided to further steer passenger choice. Another interesting element of La Compagnie is its cooperation with Icelandair in aircraft maintenance. Yet and despite an average load factor above 77% on the London-New York route, the airline suspended this operation in Summer 2016 quoting the forthcoming Brexit as the main reason; at the same time, it increased the frequency on Paris-New York route where loads were already exceeding 80% (La Compagnie, 2016). In general, airlines that follow this business model have the flexibility to amend their operations at short notice, since business passengers do not usually book their tickets very early in advance; moreover, the frequency as well as the schedule of their operations is such that changes can be rapidly implemented.

Regional airlines are part of the last (but not least) business model to consider. Interestingly, this model originally appeared when the market was still regulated in both the USA and Europe. Nonetheless, the very focus of FSNCs on hub-and-spoke operations gave a new impetus to regional airlines. Using turbo-props or small regional jets, some of them specialised as providers of commuter or feeder services to FSNCs often engaging in horizontal business relationships if not integration with them; such agreements allowed regional airlines to use the name and livery of FSNCs, but also to further participate in regular flight plans and appear in GDSs (Smeth, et al., 2007). Other regional airlines decided to offer stand-alone, point-to-point services on routes that could not be profitably served by FSNCs or LCCs whose fleet structure was unsuitable for certain smaller scale operations. Among others, regional airlines specialised on state subsidised routes known as Essential Air Services in the USA and Public Service Obligations in Europe. For all these reasons, regional airlines may be perceived as being part of a separate model of growing importance; illustratively, while the European Regional Airlines Association had only five founding airline members in 1980, it currently has about 200 members including 22 airports and 52 airlines (European Regions Airline Association, 2016).

All five business models did play a significant role in reshaping the airline-business relationship. In fact, from a period where scale of traffic was the main if not the only differentiator among airports, the post liberalisation period gave rise to different airport models based on the type of airline operations sought. As discussed, FSNCs focused on the creation of major hubs while LCCs set their own alternative bases and empowered satellite, regional and peripheral airports. Airlines associated with the remaining three business models usually sought similar airports to LCCs. Irrespectively, however, of their

specialisation, the great majority of airports in the post-liberalisation period actively pursued commercialisation by increasingly focusing on the generation of non-aeronautical revenue (Koo et al., 2016). The end of duty-free sales in intra-EU flights in 1999 did have a negative effect on many airports (Lei and Papatheodorou, 2010) but many of them ever since became more aggressive and effective in concessions management with notable outcomes (Graham, 2014). In certain cases, commercialisation was accompanied by privatisation bringing the previously dominating public sector mentality in airports to an end. In Europe, this process was initiated in Britain with the privatisation of BAA in 1987 but subsequently moved forwards across the Continent: for example, Act 13/2010 modernised the management of Spanish airports by transforming AENA to Aena Aeropuertos that became a public-private entity in 2015 (Nunez-Sanchez, 2015). In 2010, 74% of the publicly owned European airports operated as corporatized entities, while another 20% were private or public-private partnerships (ACI-Europe, 2010). The phased liberalisation of ground handling services in the European Union introduced in 1997 with Directive 96/67/EC and the continuous consultation on slot allocation (European Commission, 1996b) are also in line with this mindset change.

Business Models in Maturing Liberal Markets: The Phase of Convergence

In his seminal 1929 paper, Harold Hotelling used a linear city model to show that producers may rationally use a minimum product differentiation strategy to capture as large a market share as possible (Hotelling, 1929). Such competition dynamics are also apparent in the air transport sector, as in the recent post-liberalisation years, business models in air transport have gradually converged.

When the world economy entered recession in 2001, it became apparent that unlike FSNCs, LCCs had a robust business model that equipped them (if properly managed) to survive irrespectively of the business cycle stage. As FSNC recorded major losses and faced severe financial problems, many of them engaged in active cost reduction strategies involving flight and cabin crew; fleet planning and scheduling; as well as passenger ground (e.g. check-in) and on-board (i.e. inflight catering) services. Consequently, the business models of FSNCs and LCCs are not as diverse as in the first post-liberalisation years since increased competition led to a reconfiguration of their operations. FSNCs adopted some elements of the easily copied strategy of LCCs or created an LCC division within their group. Porter (1980) argues that the motives for airline group diversification are closely related to strategic market positioning and growth. For instance, the Emirates Group responded to the threat of Air Arabia by supporting flydubai in its establishment stage (Redpath et al., 2016). FSNCs adopted less complicated yield management, improved their aircraft utilisation, unbundled services (Leick and Wensveen, 2014) and put greater emphasis on ancillary revenue just like LCCs do: illustratively, United Airlines generated almost \$6.2 billion from selling ancillary services to its passengers (Sorensen, 2016).

In the meantime, LCCs also adopted FSNCs practices giving rise to the so-called hybrid LCC business model. A hybrid LCC may be member of an alliance (e.g. Value Alliance consisting of eight LCCs; Air Berlin being part of Oneworld) or use a mix of short and long haul aircraft types (e.g. Aer Lingus). In addition, the emphasis on single class cabin configuration was put aside with the selective introduction of a business class (e.g. Jazeera Airways). Hybrid airlines also offer a wide range of airport and on-board services to divert business passengers' demand away from FSNCs. In other words, the new business model added 'frills'. easyJet and Ryanair implemented allocated seating across their network and AirAsia X offers lie-flat seats. Moreover, LCCs such as easyJet and Ryanair have decided to partner with GDSs in addition to selling direct. Furthermore, new developments have shown LCCs (such as

Norwegian) offering a FFP: this is very important since the FFP is the third determinant for selecting an airline after price and schedule. For business passengers, the existence of a loyalty scheme is ranked even higher than competitive pricing (Borenstein, 1992). Some LCCs have also modestly engaged in cargo operations with B737 or A319/320 that have 0.5-1 tonne cargo capacity; they also sell space to forwarders as is the case of AirAsia X (Morrell, 2011).

In addition, and although none of the major European LCCs (i.e. Ryanair, easyjet, Wizz Air and Norwegian) has signed a code sharing agreement, such a practice has been adopted by other LCCs such as Virgin Australia which is codeshare partner with Etihad, i.e. a major FSNC, despite differences in service quality. Several LCCs have also started flying from or into primary airports. For instance, Ryanair flies from Athens International Airport and Barcelona El Prat, while Aer Lingus (now part of IAG) has kept its valuable slots at London Heathrow. Some LCCs are also stepping beyond short and medium haul routes aiming at long haul ones by relying on wide-body aircraft. Wensveen and Leick (2009) claim that LCLH flights have a different cost structure compared to short-haul routes due to the different set of operational and marketing aspects. Whyte and Lohmann (2015) argue that the actual flight management concerns (i.e. cruising speed and altitude, approaches, fuel burn and aircraft weight) are more critical for long haul flights and delays can prove an impediment to the LCLH concept. Still, some of these concerns may be overcome by an appropriate choice of aircraft and revenue management techniques. Moreover, operating a LCLH flight does not necessarily mean that a primary airport will be used. Frequency, network aspects such as the possible lack of feeder flights, target groups and in-flight services are aspects that the LCLH should take under consideration to succeed. In the past, People Express, Zoom airlines and Laker Airways attempted to offer 'no frills long haul flights', but the venture ended up in failure (Shaw, 2007; Whyte and Lohmann, 2015). AirAsia X operated in 2009 for a short period on the route Kuala Lumpur to London and Paris (Daft and Albers, 2012). Other cases, however, prove the potential viability of the Low-Cost Long-Haul (LCLH) concept. Norwegian currently operates on the north Atlantic route connecting London Gatwick to several USA cities; Ryanair operates a medium haul 5-hour flight from London Stansted to Ponta Delgada Azores; and AirAsia X serves the Kuala Lumpur-to-Sydney route. Still, no LCLH airline has entered the Australia-EU open skies market (Whyte and Lohmann, 2015). The ultra-long haul routes (i.e. over 12 hours of flight) can be very tiring for passengers; therefore, a certain level of frills and service quality may be required. On these grounds, it may be argued that in this stage of airline business model convergence, distance remains the last resort of differentiation: while the difference between FSNCs and LCCs in short-haul flights has been significantly blurred, the LCLH model is only nascent while the ultra-long-haul routes are until now served only by FSNCs.

At the same time, the airports responded to the changing airline environment by adapting their infrastructure to the new needs and often changing their ownership structure (Efthymiou et al, 2016). High sunk costs of infrastructure combined with low marginal costs of processing extra passengers, forced airports to increase their passenger scale and diversify their travellers' profile by attracting both FSNCs and LCCs (Starkie, 2012; Francis et al., 2003). Farmaki and Papatheodorou (2015) claim that many airports previously dependent on leisure carriers now consider targeting LCCs to mitigate seasonality. Moreover, increased airline competition and the risk of airline bankruptcies, may affect hub airports that are dependent on a single operator. When Malév Airlines went bankrupt, Budapest airport lost almost a quarter of its scheduled flights with negative implications for business travellers (Bilotkach et al, 2014). The gap of Malév was filled by Ryanair and Wizz Air who offered a solid traffic solution to Budapest airport. Thereupon, many airports want to decrease their

dependence from specific airlines and seek to diversify their customers by serving both FSNCs and LCCs to secure their airside and landside investment (Koo et al., 2016).

Still, and from a customer's point of view the major challenge to consider is that the airport facilities used by FSNCs and LCCs are usually different service- and cost-wise. According to the IATA Airport Development Reference Manual (2015), space requirements for the same level of service differ depending on the dwell time (i.e. the typical length of time passengers stay in an area waiting for service) and the number of passengers. An airport can have the same level of service (A-F), but with different space requirements since for e.g. C service level the baggage check-in queue space is 1.4 m² and the hold rooms (i.e. without baggage) space is only 1 m² per passenger. Since LCCs travellers usually have cabin bags only and self-check in, the space requirements are only 1.4 m² for A level of service or 1 m² for C level or 0.6 for E level of service. Therefore, and following a strategy like brand proliferation (Scherer and Ross, 1990) hub airports invest in Low Cost Terminals (LCT) designated only for LCCs. The LCT building cost is much lower compared to the cost of a terminal designed for hub-and-spoke operations (Kazda and Caves, 2015). This is because LCTs are linear and rely on finger piers that are more economical to build and bear lower baggage handling system costs. LCT operating costs are also 30-40% lower (O'Connell, 2007). The LCTs have usually electronic kiosks that speed up the check-in process and reduce the dwell time and space requirements and since the LCC emphasize rapid turnarounds for their aircraft, space requirements are even more limited (De Neufville et al, 2013); therefore, offering a LCT to a LCC is cheaper. In fact, this strategy has been successfully followed by airports such as Milan Malpensa (where Terminal 1 is built for hub-and-spoke operations and Terminal 2 for LCCs) and Bordeaux. Conversely, the purpose-built Terminal 2 at Munich Airport to serve Lufthansa's hub-and-spoke operations, freed up space in Terminal 1 for use by other airlines including LCCs. Having the above in mind, it may be argued that from an era of airport specialisation in the early post-liberalisation years, we are now moving into a period of airport model convergence where differentiation and specialisation is now achieved at a terminal level.

Emerging Trends in Airline and Airport Business Models: Stepping Beyond the Core Product

At present, the current trend in business model convergence at both airline and airport levels shows no signs of receding. On the contrary, stepping beyond the core product to exploit synergies and complementarities with other activities seems to have become a priority for most air transport market participants. Having realised the potential of ancillary revenue from flight-related activities (e.g. baggage check-in fees and inflight catering sales) LCCs but also increasingly FSNCs transform themselves into proper 'travel supermarkets' selling on their website not only tickets for their flights but also complementary travel services such as accommodation, travel insurance and car rental usually in collaboration with large online travel agents, such as booking.com. In this way, airlines capitalise on the popularity of their website as well as on their overall brand recognition and reputation to boost revenue and thus counter by the sheer scale of sales the negative impact of competition on profit margins.

Likewise, airports gradually step beyond their initial focus on non-aeronautical revenue from typical terminal activities (e.g. duty-free shops) to become proper concession managers at a wider level. The rapid expansion of airport-centric commercial development is now leading to airports with a city-like environment. The terminal which is the spatial and functional core of the airport is now transformed into an urban central square lead to the creation of an airport city. This may set the fundamentals for the subsequent creation of an aerotropolis consisting of 'an airport city core and extensive outlying areas of aviation-oriented businesses and their associated residential developments' (Kasarda, 2008:13). In other words, an

aerotropolis is an airport- integrated urban economic region. Some examples of this evolving model are Incheon Airport, Dubai, Hong Kong International Airport and Kuala Lumpur. According to Kasarda (2008), an aerotropolis influences economically the surrounding area of the airport. The constant growth in passenger and cargo traffic and the need for non-aeronautical revenues, in combination with the commercial sector's pursuit of affordable accessible land and the high interest of landside businesses act as catalysts for the emerge of airport cities (Ashfold et al, 2011).

A nice terminal can improve the airport experience which can be a determining factor for transit passengers when choosing an airline and its hub. Airport cities are attractive locations for regional and international corporate headquarters, conference and exhibition centres among others. Moreover, airport cities offer a variety of services. For instance, Frankfurt international Airport has an airport clinic serving more than 36,000 patients per year (Kasarda, 2014). Xia and Li (2006) identify six major characteristics of an airport city. The airport is undoubtedly the core, which subsequently exercises agglomeration forces, i.e. the airport city attracts industries, service providers and workers who may also become interested in residing in the airport vicinity. In addition, industries are spatially spread according to different intensities of utilisation. Travelling time to and from the airport is also an important characteristic since airport proximity affects business flows and goods transit. Finally, global accessibility related to the extensiveness of the air transport network, and the technological pre-eminence are major characteristics of airport cities. Some fundamental growth factors of airport cities are land availability; improved surface transportation access and intermodality (Efthymiou and Papatheodorou, 2015); growing passenger demand; airport revenue needs and the site-specific commercial real estate opportunities (Kasarda, 2014). It should be noted that all airport cities are based around hub airports and serve mainly FSNCs. Nevertheless, the existence of LCTs is noted in some airport cities (e.g. KLIA 2 at Kuala Lumpur International Airport) proving that the latter can accommodate different passengers and different airlines at the same time.

The main challenges faced by an airport city and an aerotropolis are land use and congruence with their wider environment. Few airport cities were planned and many emerged in a largely organic and rather uncoordinated manner. Traffic congestion, availability of land, parking shortages, inefficient multi-modal ground transit systems and safety concerns are only some of the issues that need to be resolved should an airport be designed as an airport city in advance. Furthermore, all the involved stakeholders and especially the local community should have a synergetic relation aiming at improving the position of the region and achieving the broader goal of sound international competitiveness (Ashfold et al, 2011). In fact, the traditional love-and-hate relationship between airlines and airports should now explicitly consider the role of local community and destination authorities in a proper triangular setting where risk sharing is of essence to resolve conflict and generate a business outcome which is beneficial to all. This is because of such a relationship may be bruised by the 'lethal quartet', involving *white elephants* where extensive airport investment in grandiose infrastructure to establish an airport city and an aerotropolis is never fully recovered to the detriment of investors and the environment; the *winner's curse* where airports and/or tourism destination authorities thirsty for improved accessibility and large inbound traffic flows end up outbidding their peers by offering FSNCs and LCCs too preferential terms to benefit sustainably in the longer term; *free riding* and *coordination failure* as local tourism service suppliers may have second thoughts when asked to assist financially regional airports and/or local tourism destination authorities to attract LCCs; and the previously discussed spatial, market and temporal risk of airports and destination authorities as a result of strategic partnerships with a single airline operator either a FSNC or a LCC (Papatheodorou, 2016).

Conclusion

This chapter discussed the evolution of airline and airport business models in the post Second World War period. Starting from a period of heavy regulation, which seriously constrained competition dynamics, both sectors now operate in a relatively liberal environment at least in many parts of the world. Further to a period of intense differentiation and specialisation in the aftermath of market liberalisation, airline and airport business models are now characterised by greater convergence as participants in both sectors aim at maximising their market exposure. In this context, concepts such as travel supermarket and aerotropolis have become part of the contemporary air transport business environment. Interestingly, all these recent developments result in complex relationships, which involve new stakeholders (e.g. destination authorities, tourism service providers, online travel agents) and hence raise not only the prospects of higher returns but also of new risks. For this reason, skilful and enlightened negotiators are needed to build trust on rational business terms and make such complex relationships evolve from a transactional to a relational and even possibly a transformational level.

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