



Topical Report

Airline Business Models



Analyses of the European air transport market

Airline Business Models

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1 Scope of document

In the last years the airline industry has changed tremendously. Since the middle of the -90s, new kinds of airline, e.g. low cost carriers, have emerged on different markets. Additionally, we have seen an increasing number of mergers, take-overs, and different types of alliances, also across business models. While it used to be rather clear which business model provided what kind of service, hybrid carriers have appeared lately, again increasing the number of choices for the customer. Thus, the distinction between the different business models has changed and is no longer as clear. These aspects are reason enough to analyse the specificities of different business models and what might be influencing factors for change in these models.

Following this introduction, chapter 2 provides the definitions of the different ideal-type business models and their specificities, also including the hybrid model. Based on this, a chapter follows on the development of different business models of passenger airlines over the last ten years in Europe. The five most important countries in terms of flight volumes are considered in more detail before at the end the presence of these airlines at certain airports is shown. The relationship between airport type and business model is discussed. In the next chapter, current trends of consolidation in the whole aviation industry will be presented, and how it affects the different business models. Finally, the paper ends with an overview of what change in trends might be possible concerning the different business models. The emphasis there will be placed on different perspectives for low cost airlines in particular.

2 Definition of Airline Business Models

2.1 Regulatory Background

In civil aviation in the field of commercial air transport, a distinction was usually made between comprehensively regulated scheduled traffic and non-scheduled traffic meeting occasional transport requirements. The bilateral air service agreements between countries granted entry and exit rights to scheduled traffic. However, non-scheduled traffic, which was only granted overflight rights and the right of technical landing, according to Article 5 of the Chicago Convention, was dependent on countries' unilateral granting or withdrawing of commercial traffic rights. Although, as time passed, a more liberal administrative practice with regard to the granting of these traffic rights for non-scheduled passenger traffic had emerged, non-scheduled airlines were neither allowed to sell their tickets individually and via CRS nor to carry any freight or mail. In the air service agreements, this was only allowed for scheduled traffic, which was subject to detailed regulations including fixed tariffs and the obligation of transport for the reason of common benefit. Non-scheduled traffic was not bound to these requirements, but at the same time it did not have sufficient planning security due to the lacking traffic rights. Meanwhile, the various business models have assimilated. On one hand, due to these minimal requirements, airlines have increased their activities in charter flights by founding subsidiaries; on the other hand, non-scheduled traffic has very much equalled scheduled traffic by serving certain (holiday) destinations on fixed weekdays during a flight plan period.

For air traffic in Europe the distinction between scheduled and non-scheduled traffic was abolished by the regulations according to the 3rd package in favour of the term "air service" (this term is referred to in Article 2 letters c and f, Article 7, and Article 10 of Council Regulation (EEC) No. 2408/92 of 23 July 1992 on access for Community air carriers to intra-Community air routes). Thus, according to Article 3 of the Council Regulation (EEC) No. 2408 of 23 July 1992, all traffic-related legal restrictions and according to article 10 all capacity-related limitations are abolished and both kinds of traffic are regulated equally. There only remains a distinction for the exceptional facts of Article 4 (Public Service Obligations) and Article 6 (new routes between regional airports).

For international air traffic departing from and heading to airports located outside the European Union, this borderline requiring bilateral agreements for non-scheduled traffic is still relevant.

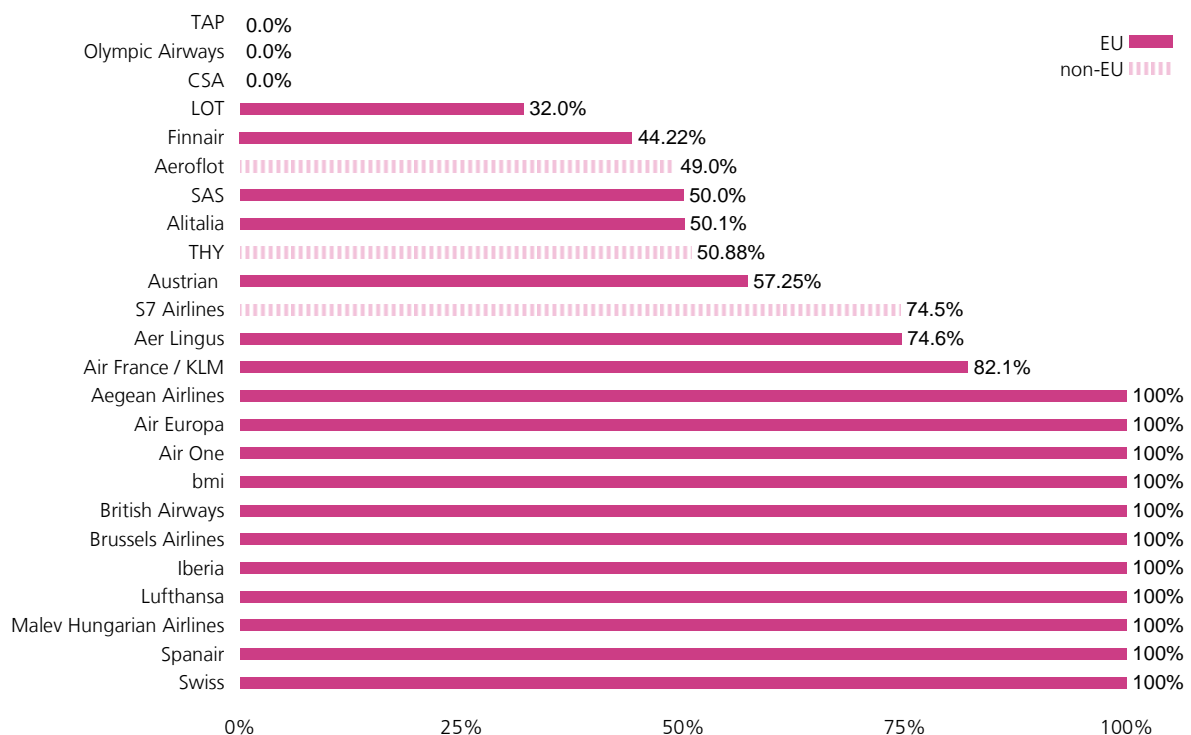
2.2 Full Service Network Carriers (FSNC)

A "legacy" or "full service network carrier" is an airline that focuses on providing a wide range of pre-flight and onboard services, including different service classes, and connecting flights. Since most FSNCs operate a hub-and-spoke model, this group of airlines are usually also referred to as hub-and-spoke airlines. In most European countries, the (former) national carrier operates

as an FSNC. Examples are Air France/KLM, Lufthansa, British Airways, Iberia, Austrian Airlines, LOT or the multi-national airline Scandinavian (SAS). While most of the former national carriers in larger EU countries are now either fully or at least to a major extent privatized, some (often smaller) EU countries still have significant interests in their respective national carriers. Figure 2-1 shows the degrees of privatization of the leading European FSNCs. Outside the EU, the number of different FSNCs and the respective ownership structures differ by country: The USA is the only country in which quite a significant number of independent, fully privatized FSNCs operate. In many African and Asian countries, in contrast, only one state-owned FSNC operates.

Figure 2-1: TOP 25 FSNCs in terms of seats per week in Europe – Degrees of Privatization

Source: Ascend Database, Airline Websites, Airline Annual Accounts



Remarks: Spanair's parent company, SAS, is partly public (50%).

Apart from (former) national carriers, there are additional, independently owned and operated FSNCs in some of the larger EU countries. Some of the most prominent examples are British Midland and Virgin Atlantic (UK), Air One (Italy), Spanair and Air Europa (Spain) and Aegean Airlines (Greece). Virgin Atlantic, however, is not really a network carrier as it focuses on long haul flights out of London and Manchester only. In Germany, the only noteworthy FSNC besides Lufthansa used to be BA's subsidiary Deutsche BA (later sold to private investors and renamed dba) which had operated a dense intra-German network until it was taken over by hybrid carrier Air Berlin in 2006.

FSNCs are characterized by the following aspects:

Fleet: Different aircraft types, from small regional feeder aircraft to B747/B777/ A340/A380 long range widebody aircraft

Geographical network range: Domestic, European and worldwide flights (some smaller FSNCs, however, stick to Europe) with focus on the respective home country

Network structure: Hub-and-spoke network (feeder flights from the respective hubs), often complemented by selected decentralised non-hub flights

Schedules: wide range of O&D's (origin & destinations) offered via the respective hub, high frequencies

Service range: 2-4 service classes, dedicated services in business and first class

Pricing: complex yield management, price discrimination

There are various commercial and legal reasons for airlines to use hub-and-spoke networks. As the number of O&Ds offered rises, load factors do the same, yielding lower unit costs per passenger (economies of density). If higher demand justifies the use of larger equipment, unit costs per seat decline (economies of scale). This phenomenon explains why the largest aircraft, Boeing 747 and Airbus 380, mainly fly between hubs where traffic volumes tend to be extremely high. In addition, economies of scope can be achieved through the centralised provision of e.g. maintenance facilities, personnel and back up aircraft at the hub. From a marketing and strategic view, the bundling and reallocation of incoming and outgoing airline passengers at the hub airport enables the airlines to serve significantly more O&D markets with a given amount of flights. In addition, hub carriers tend to gain market power on their respective hubs, allowing them to reduce competition and to charge so-called hub premiums, i.e. higher fares for passengers originating from the hub than for transfer passengers and for passengers on similar routes that do not include the carrier's hub. In Europe, this aspect is of special relevance as capacity constraints at the largest hubs and the established slot allocation mechanisms (grandfather rights) hamper the entrance of new carriers additionally.

The main downsides of the hub-and-spoke philosophy are the complexity of connecting flights in tight time frames, high capacity utilization during the peaks of arriving and departing flights and consequent delays. As point-to-point demand between most destinations all over the world is usually low, however, hubbing is the only way airline services can be offered between most O&Ds. Legal reasons for the implementation of hub-and-spoke networks in the past, finally, were strict bilateral air service agreements (ASAs), in which only one or a few airports in each signing country were designated as landing points. Between the EU member states and many countries in Africa, Asia, the Middle East and South America, strict bilateral ASAs are still common.

2.3 Low Cost Carriers (LCC)

Low cost carriers (LCC) focus on cost reduction in order to implement a price leadership strategy on the markets they serve. Table 2-1 shows which strategic measures lead to the reduction of which unit cost categories.

Table 2-1: Cost-cutting strategies by LCCs

Source: DLR

Cost category	Fleet		In-flight Service			Network		Marketing + PR		H.R.
Unit Cost Category (costs per passenger kilometre)	Homogenous Fleet	Young fleet	High-density seating, fewer galleys and toilets	No free meals and drinks, lounges and FFP's	No seat reservations	Use of smaller airports	No interlining, no flight connections	Focus on direct sales	"low prices sell themselves", aggressive PR	Variable remunerations, low hierarchies...
Maintenance	X	X	X							
Fuel		X	X			X				
Staff	X	X	X				X			X
Airport Costs			X		X	X	X			
ATC costs			X							
In-flight service				X						
Capital and leasing	X		X		X	X	X			
Marketing / Sales			X			X		X	X	
Overheads	X		X	X	X		X			X

The use of a young and homogenous fleet of medium-sized aircraft (usually Boeing 737-700/800 or Airbus 319/320) usually leads to a reduction of fuel, maintenance, staff, overheads and – if large orders at discounted prices are placed – capital costs. High-density seating leads to lower unit costs of all categories, as fixed costs (incl. ATC costs) can be attributed to more seats and passengers. Only variable in-flight seating costs (and some fuel costs) increase when more passengers are onboard. Ground times and delays are reduced by serving smaller, uncongested airports and by focussing on point-to-point flights, without any connections, enabling an LCC to maximize the number of daily block hours and thus aircraft utilization (see figure 2-2).

Figure 2-2: Daily usage of short-haul aircraft (in 2007)

Source: DLR calculations using data provided by Ascend Worldwide Ltd.

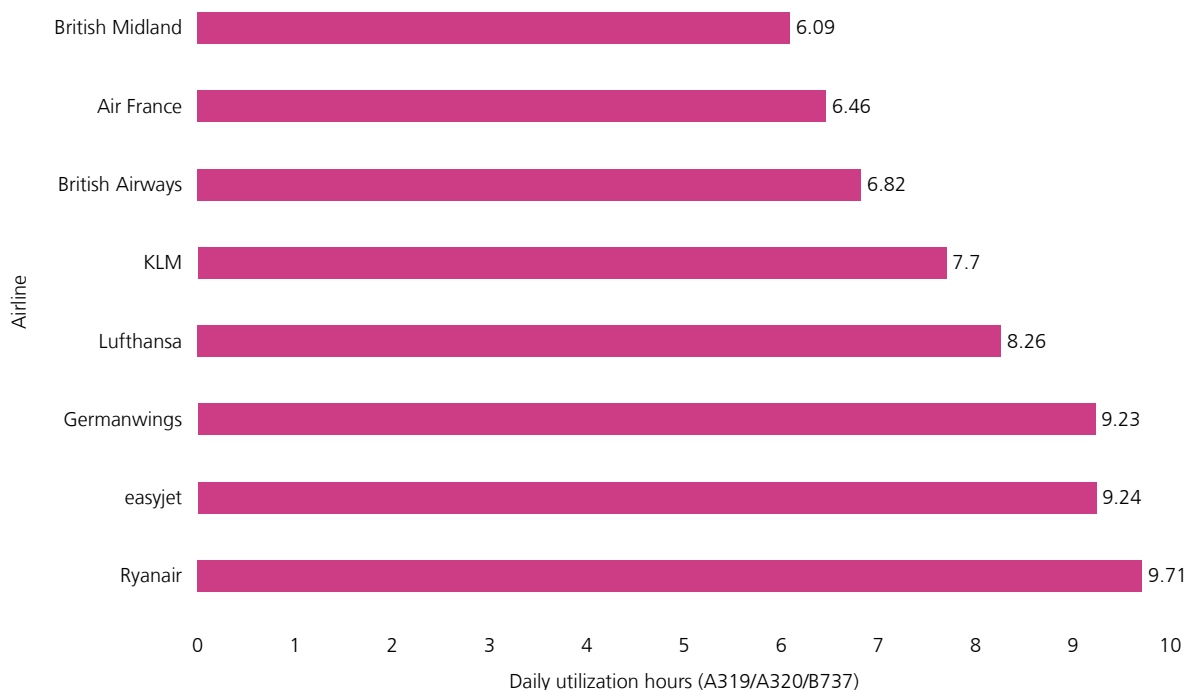
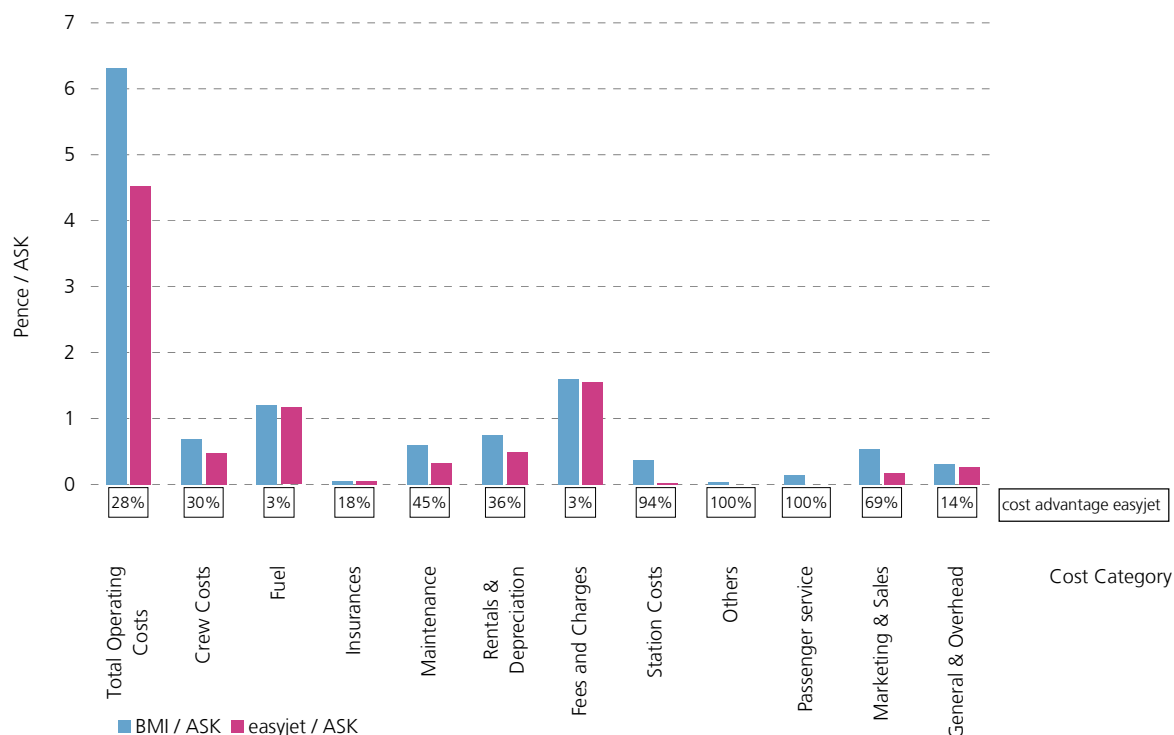


Figure 2-3: Cost comparison of EasyJet and bmi British Midland (2006)

Source: DLR calculations based on CAA data. EasyJet and bmi are comparable as both airlines focus on intra-European traffic mainly.



The “free seating”- philosophy may also be quoted in this context, since it encourages passengers to board quickly and thus also helps to avoid delays. Apart from the lack of congestion, small airports usually charge lower fees than the established ones and are more willing to co-finance the promotion of new routes. Finally, unit costs are reduced by directly selling tickets online, by implementing a high density seating configuration, and by eliminating all kinds of free inflight services, such as catering, onboard entertainment and newspapers. Figure 2-3 gives a cost comparison between EasyJet and bmi British Midland.

On the sales and demand side, the pricing policy of the low cost carriers is usually very dynamic, with heavy discounts for tickets booked long in advance, which leads to the generation of new demand from low-yield passengers and heavy bargainers who would not have flown otherwise. Also, LCCs earn ancillary revenues by selling other products and services both onboard and on their websites, which include fees for check-in luggage and for credit card payments.

However, not all low-cost carriers have implemented all of the above aspects. EasyJet (UK), for example, is among those LCCs that do operate from a few large hubs (Amsterdam, Madrid, Munich, Paris CDG...) and that appear in CRS. Germanwings (Germany) is one of the few LCCs to have introduced a frequent flyer programme, although passengers have to pay a registration fee which is intended to cover the administrative costs caused by the programme. Fly Be (UK) and Intersky (Austria) have transferred elements of the Low Cost philosophy to the regional market. Ryanair (Ireland) and Wizz Air (Hungary/Bulgaria) are the purest LCCs in Europe, as they mainly use smaller airports and even charge baggage handling fees. Air Berlin (Germany), today Germany's second largest carrier, operates a business model that contains typical elements of both FSNCs, LCCs and charter carriers. Thus, Air Berlin will be referred to as an example of a hybrid carrier and discussed in chapter 2.

While LCCs initially focussed on short-haul services, they have since extended their networks to medium-haul services. The main reasons for this development can be regarded as both increasing competition on the established routes and new ASAs between Europe and third countries. Both Ryanair and EasyJet, for instance, immediately started flights from various points in Western Europe to Morocco after the new Aviation agreement between the EU and Morocco had become effective.

This is one example of the positive impacts that LCCs (in deregulated markets) can have on competition and thus on consumer benefit. Generally, increasing competition and declining prices could be observed on virtually all routes and city pairs offered by LCCs. In addition, the presence of Low Cost carriers at uncongested regional airports can boost the respective regional economies and – in some cases – help a region maintain or boost the air services. The latter aspect can be the case when a region's primary airport suffers under capacity constraints and thus has no further growth potential. Examples are the Rhine/Ruhr region in Germany and the London area, where significant growth of secondary airports (Cologne, Dortmund, Weeze,

Stansted, Luton) helped to partially compensate capacity constraints at Dusseldorf and Gatwick/Heathrow respectively. From an environmental perspective, LCCs, although they represent enormous absolute growth of the aviation sector, stand for relatively low CO₂ emissions per revenue passenger kilometre (RPK) as they tend to operate more modern and fuel efficient aircraft equipped with more seats than their established competitors.¹

2.4 Holiday Carriers

Holiday or leisure carriers are airlines that focus on the transportation of tourists. In the past, the term “charter airline” was widely used to describe these airlines as most holiday flights were then not sold directly by the airline to the passengers but were included in charter packages offered by tour operators. Nowadays, however, many holiday flights are operated as scheduled, albeit often seasonal services.

Like LCCs, leisure carriers achieve low costs per seat mile in focusing on direct point-to-point flights using homogenous fleets of medium to large aircraft with high-density seating. However, leisure carriers usually offer full tourist class onboard services (meals, non-alcoholic drinks, in-flight entertainment on shared video screens, newspapers and magazines, toys for children). The main differences between LCCs and leisure carriers can be observed in the fields of network and yield management. While the yield management of LCCs follows an increasing price curve, leisure carriers generally charge average cost prices, complemented by seasonal surcharges or discounts and by occasional promotional fares. As holidaymakers usually stay one week or longer at their destinations, a temporal concentration of demand to a certain destination on few flights per week is usually accepted, while LCCs usually offer at least daily frequencies on most routes. Furthermore, most leisure travellers are prepared to cover longer distances to their departure airport, allowing the airlines to spatially concentrate passenger flows on flights from few departure airports. A couple of airlines focusing on ethnical traffic, for example from Germany to Turkey, operate in a similar way.

2.5 Regional Carriers

Regional airlines, also called commuter airlines or feeder airlines, generally use smaller aircraft with 20-100 seats and restrict their flight routes to a geographically limited area. While some regional carriers operate independently and focus on decentralised point-to-point flights between smaller airports, others work as feeder airlines for FSNCs and connect their partner airline’s hub with regional airports in the hinterland. An example for the first group is VLM from Belgium, which operates 50-seaters on services between the Benelux countries, Germany and the UK. A typical feeder airline is Eurowings (Germany), which flies on behalf of (and using the brand of) Lufthansa from Frankfurt and Munich, and on additional decentralised routes from a

¹ These manifold impacts of the emergence of Low Cost Carriers have already been discussed in various studies (e.g. European Parliament: The consequences of the growing European Low-Cost airline sector. Brussels 2007).

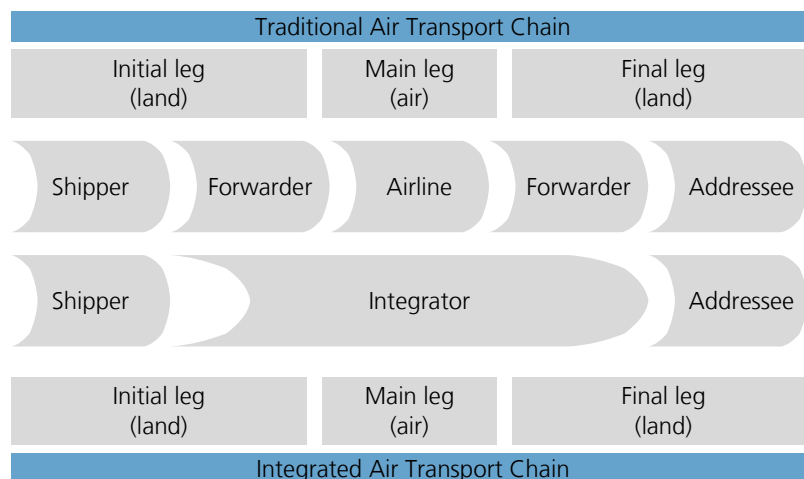
couple of secondary German airports. In France, the largest regional airlines, Régional Airlines and Brit Air, are both subsidiaries of Air France. Because of the use of smaller aircraft, unit costs of regional airlines are usually significantly higher than those of FSNCs, LCCs and holiday carriers.

2.6 Traditional Freight Carriers

In the air cargo market, the traditional air cargo chain has to be distinguished from the integrated one. In the traditional air cargo chain, cargo airlines usually cooperate closely with freight forwarders who buy cargo capacity from the airline and organize pick-up and delivery services on the ground. There are the following groups of cargo airlines (source: Deutsche Verkehrsbank 2001): Cargo-carrying passenger airlines like British Midland or CSA do not operate cargo aircraft, but market their belly cargo capacities actively. They operate an FSNC business model and gain additional revenues from the cargo segment. Combination airlines, some of which have founded subsidiaries for the cargo business, employ both passenger and all-cargo or combi aircraft. Examples are British Airways, Air France and Lufthansa. The third group are all-cargo airlines that operate scheduled or charter services on their own account. One of the largest carriers to be mentioned here is Luxembourg-based Cargolux which operates more than a dozen Boeing 747-400F aircraft on worldwide scheduled flights. Unlike passenger flights, all cargo flights by combination and all-cargo airlines are usually unidirectional, accounting for international trade flows. Thus, the possession of fifth-and-higher-freedom traffic rights allowing an airline to operate between foreign countries is crucial for the success of cargo airlines. The fourth group is represented by independent airlines that fly as contract carriers for other airlines and integrators on ACMI (Aircraft, Crew, Maintenance and Insurance) contracts.

Figure 2-4: Traditional versus integrated air cargo chain

Source: DLR



2.7 Integrators

Unlike traditional cargo airlines that hardly offer any ground services and mainly focus on selling air transport capacities to forwarders, integrators offer comprehensive door-to-door services to

shippers and thus control all aspects of the sales channel and the transportation process. While traditional cargo carriers and forwarders transport virtually all kinds of products, integrators concentrate on time-definite services for documents and smaller goods of up to 31.5 kg. To guarantee worldwide deliveries in short, pre-defined (often overnight) time frames, integrators operate hub-and-spoke networks consisting of primary and secondary hubs in each world region. To secure overnight deliveries between the most important regions, nightly hubbing is a crucial element of an integrator's business model. The main players are DHL, FedEx, TNT and UPS which all offer worldwide services using their respective in-house and contract airlines.

2.8 Hybrid Carriers

Not least because the aviation market is a very dynamic one, a growing number of airlines, especially the smaller ones, are looking for market niches and thus adopting business models that do not exactly fit the typical business models described above. Air Berlin is a carrier that has changed its business model from a holiday to a hybrid one.

To reduce its dependency on Germany's largest, vertically integrated tour operators, Air Berlin - up to the mid-Nineties still an all-charter carrier - started to sell seats only on its leisure routes before its competitors did and soon became one of Germany's largest leisure airlines. To further expand and to become less dependent on the seasonal demand peaks and lows in the leisure market, Air Berlin introduced its "City Shuttle" (now called Euroshuttle) low cost services from various airports in Germany to key destinations like London, Rome, Milan, Vienna and Zürich in 2002. In 2006 and 2007, Air Berlin acquired dba and LTU and thus added both a dense intra-German network and a variety of long haul services mainly catering for tourists to its route map. Unlike other low cost carriers, Air Berlin offers connecting flights at its hubs in Berlin, Düsseldorf, Nuremberg and Palma de Mallorca and a full range of services including in-flight meals and drinks, newspapers, assigned seating and a frequent flyer program.

Another example for a hybrid-type carrier is Aer Lingus. As an Oneworld alliance member, the former Irish flag carrier used to offer a full-service product both on flight from Dublin and Shannon to Europe and on transatlantic services to the U.S. Increased competition on both markets, however, led to heavy losses which eventually resulted in a drastic and so far financially successful redesign of the airline's business model. Aer Lingus now offers low-cost services from Dublin to major European airports which – at the same time – feed the carrier's full-service, two-class long-haul flights to North America.

Some cargo airlines have started to also offer passenger flights using convertible "Quick Change" aircraft. TNT Airways is one example. The Liège-based carrier uses one Boeing 737-300QC aircraft for passenger charters, allowing the airline to maximise aircraft utilization as integrated cargo flights usually take place at night, while passengers prefer to fly during the day. French Europe Airpost (now sold to Air Contractors and rebranded as ASL) offered similar kind

of services in operating Boeing 737s during the night for La Poste (France) and during the day for various passenger charters.

Finally, some regional carriers have adopted an LCC business model at least when it comes to yield management and pricing. To give some examples, DHC Dash 8 operators Fly Be (UK) and Intersky (Austria) both promote their regional services in emphasizing very low base fares.

3 Quantification and Market Share Development 1998 – 2008

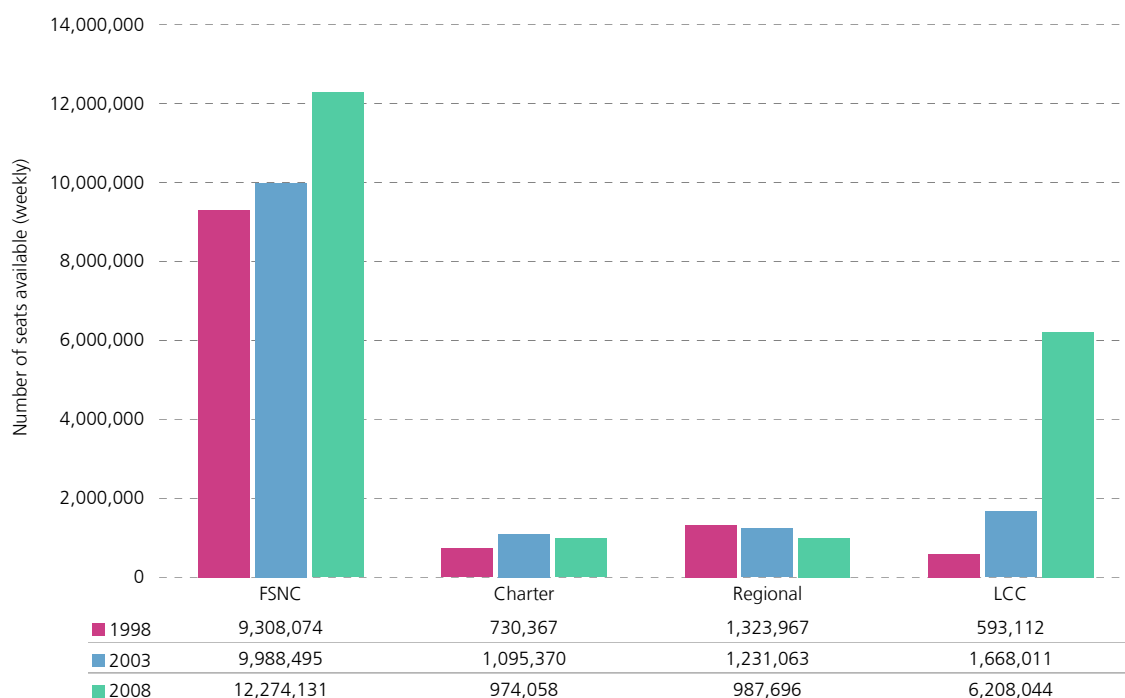
Following the definition of the different business models, a quantitative overview will be given in this chapter. To be brief, we will concentrate on just three separate years, while giving an overview of ten years. The year 2003 is not only the middle of this decadal time frame but also the first year of recovery after the economic downturn and the 9/11 and SARS effects in 2001/02. Following this interruption of the upwards trend in the overall aviation industry, the rapidly emerging LCC business model was seen. We will concentrate on passenger data because only this is of interest for a comparison of the different business models. We will concentrate on supply data in order not to change the style of presentation too frequently.

3.1 Market Supply in Seats Offered

The following figure shows the number of seats per week supplied by the different business models during the last 10 years within geographical Europe².

Figure 3-1: Market supply by various business models within geographical Europe (number of available seats per week)

Source: OAG



² Including EU-27 and Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Croatia, Faroe Islands, FYROM, Georgia, Gibraltar, Moldova, Monaco, Montenegro, Norway, European part of the Russian Federation, Serbia, Slovenia, Switzerland, Turkey, Ukraine

The overall growth of the industry is obvious, but it differs for the individual business models. Comparing the number of seats supplied by the different business models might lead to a distorted impression; in particular the regional carriers might be underestimated because their performance in terms of frequency is higher than shown in the graph above due to the fact that their average aircraft scale is smaller as mentioned above. However, during this decade the average aircraft scale of these airlines increased since they more frequently operated jet aircraft instead of smaller turbo-props. The FSNC aircraft scale is the most sophisticated one, covering the whole range of seat demand (130 to 400) in their fleets. The airline industry shows a growth rate of 71% for this decade, but not all business models were similarly competitive. Due to the negative or slower growth in the years 2001 and 2002, the growth rate in the first five years was 17% - far smaller than in the second five years (46%). It is interesting to observe that the increase in seat supply tremendously exceeds the growth of occupancy (71% compared to 50%) which is a better indicator for the change in choices made by passengers. This is due to higher growth rates for long haul services over many years and the overall increase in the average aircraft scale. In the following, each business model will be described in more detail.

The growth rate (32%) with respect to seats supplied by the FSNCs during this decade is below the average of all passenger-carrying airlines (71%), but it is still in the positive range. The other two established business models, the holiday and the regional airlines, show negative growth rates, at least in the second five year period (-12% and -20% respectively). In the first five-year period, the holiday market – being less dependent on business cycles – still achieved a tremendous growth of 50%. The driver of the overall increase was the booming LCC sector. Starting at a base significantly below the holiday carriers, they tripled almost every 5 years. The growth rate of the first five year period of 181% was even topped by a growth rate of 272% in the following five years. This is due to the fact that this business model was implemented in several countries after the economic downturn. This tremendous growth rate boosts the development of the entire industry. The reason for their success is the approach of initially replacing non-hub services of regional airline with their services, whereby regional airlines are finally left to solely concentrate on hub-feeder services. In a second step, the LCCs compete with holiday carriers and FSNCs by operating in direct or parallel competition. For the holiday carriers, this leads to a decline in the market,³ whereas the FSNCs still maintain positive growth rate due to their long-haul services.

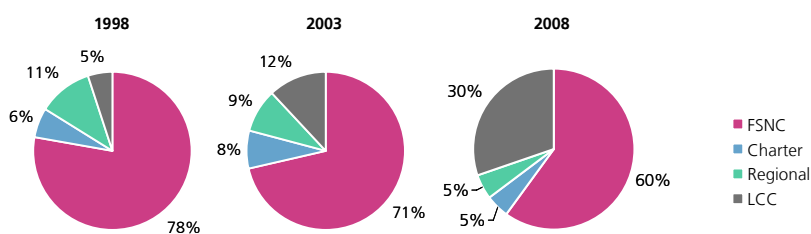


Figure 3-2: Market Share Development (various business models within geographical Europe)

Source: OAG

³ The data of holiday carriers are to be applied cautiously, due to some irregularities with respect to the coverage of the data supplied by OAG.

In diagram 3-2, the changing market share of the relevant business models are shown as an abstract from the overall growth of the aviation industry. This reveals the tremendous growth of the LCCs, which developed independently of the overall growth of the industry. When the LCCs started operation in Europe, it was often questioned whether they would gain a considerable market share in the future, and one quarter, or even one third of the market was assumed to be a potential figure. Within a short time they passed the 30% threshold in terms of seat capacity – the market share of frequencies currently amounting to 26%. We will have a look at individual countries in order to analyse the development there. Probably, the extent of non-hub services is the reason for the considerable growth rate.

The share of the holiday services decreased too, although the overall number of seats supplied increased during the 10 years. It cannot yet be foreseen whether there will be sustainable market shares for all business models, or whether there will be a market niche for carriers in the holiday market and for regional services.

3.2 Market Supply per Country

Following the overview of the European market there will be a short analysis of the five most important countries regarding flight volumes within Europe. It may be possible to identify early trends in some countries which will later become relevant for many others.

The **UK** market can be considered to be a model for further development, since LCCs started there and thus have their longest tradition there. Like the U.S. on the global scale, the United Kingdom can be considered to be a certain benchmark for the other European countries on the European scale.

The development of the most important business model, the FSNC, turns out to be different from the European one by showing a reduction of -2.5% of the total number of seats, which corresponds to a reduction of -13% of the flights during the 10 years. This indicates that the number of seats per aircraft increased during this period of time. On the other hand, the capacity increase by LCCs exceeds that of the European LCCs by achieving an increase of nearly 280% of the seats in the first five years alone, and a further 155% in the second five years. In 1998, the LCC market share was bigger than in the European market (8%). With these growth rates, the LCC market share arrived at 44% compared to 30% in Europe in 2008. If the UK market were taken as a benchmark for Europe, it could however be seen that holiday carriers, and also the regional carriers, remain in the market. For example, there is a niche market of Scottish services which probably will remain in the hands of regional airlines.

Figure 3-3: Market supply in number of weekly seats offered by several business models originating from the United Kingdom

Source: OAG

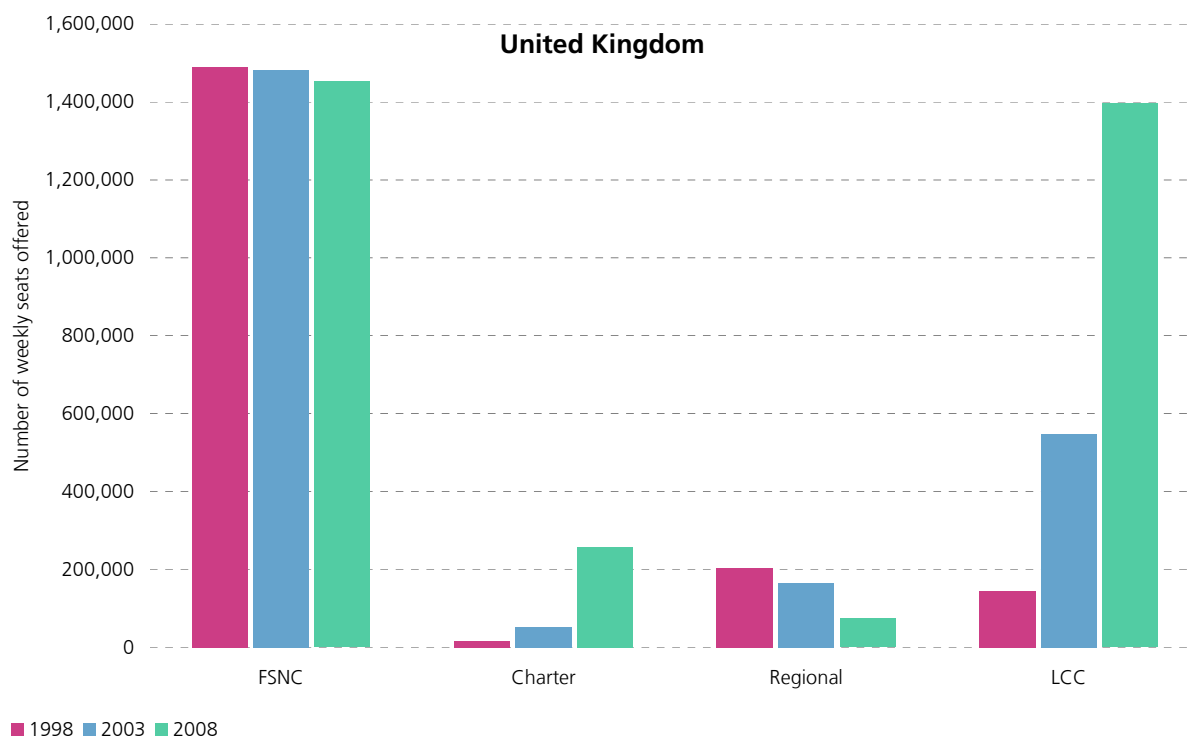
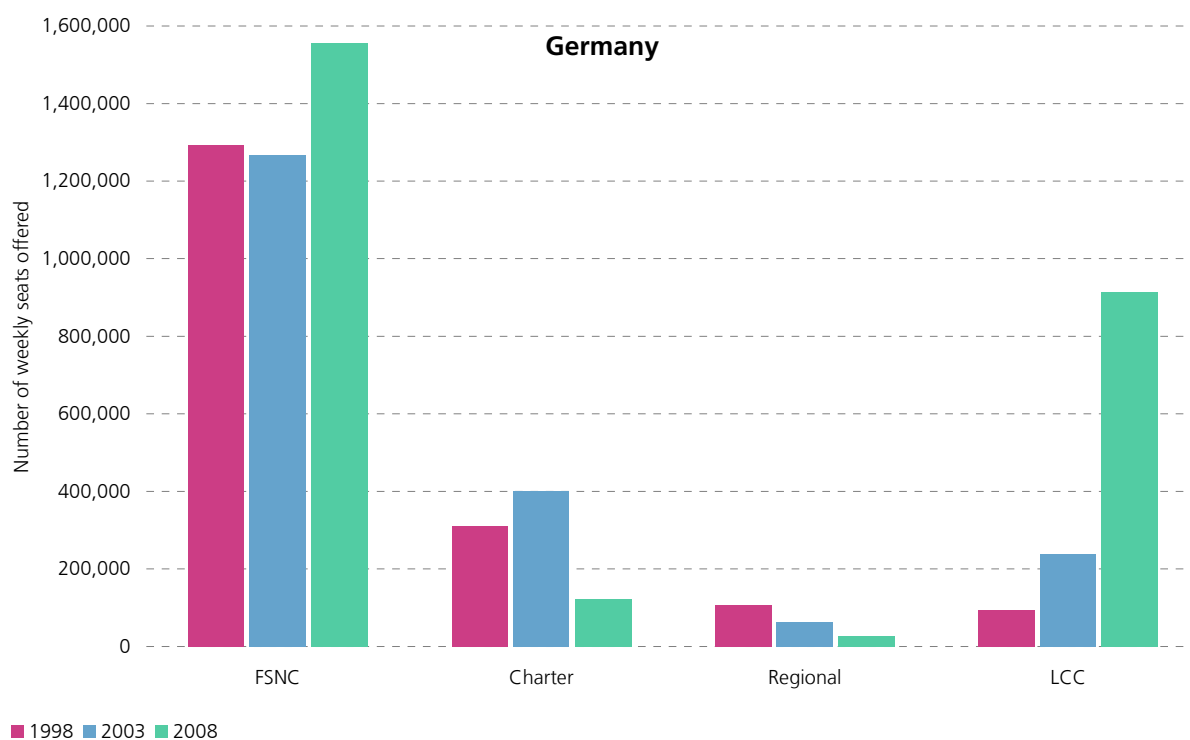


Figure 3-4: Market supply in number of weekly seats offered by several business models originating from Germany

Source: OAG



The different business models in **Germany** developed in a more comparable way than those of the EU on average. The growth rates of the FSNCs are lower than in the European market (20% compared to 32% during the ten years). The growth of the FSNCs is due to the two-hub policy with many intercontinental flights from Frankfurt and Munich. The starting level of LCCs is quite low in Germany when compared to the United Kingdom – in 1998 flights were mainly offered by a British LCC. In 2003 German LCCs started operation. Initially, these carriers replaced many routes operated by regional airlines. This is the reason why these airlines are marked by a steady decline. In 2008 many LCCs originating from different European countries serve the German market. Also one domestic carrier, DBA, has changed its business model, initially operating as an FSNC, and now as a LCC owned by Air Berlin. Currently, it holds a total of 35% market share of all seats supplied.

The **Spanish** and **French** markets show certain similarities. Both countries have a centralized economic structure, concentrating on the national capital. They both have a comparable development of the supply of FSNCs mainly driven by the home carrier's development. Air France and Iberia both hold – in contrast to British Airways – relatively high domestic market shares. They also both hold relatively high regional market shares, although the trend is developing differently in each country. In both countries, the LCC market emerged relatively late. In France, especially in the first five years, the LCC growth rate was 19.5% based on the number of seats, but only 75% on the number of frequencies, and then moved towards a growth rate of 318%. However, the total number of seats is still less than half of those supplied in Spain or Germany. This is totally different in the Spanish market: the LCCs were practically non-existent in 1998; then they grew by a factor of 6.3 in the first five, and by a factor of 7.2 in the second five years. With a percentage of 38% they even gained a slightly bigger market share than they currently hold in Germany. It seems that there was a tremendous "sleeping demand". In contrast to the French market, several domestic LCCs are also operating now. It is questionable what will happen in the domestic market when the AVE train increases supply; a development which was previously experienced in France when the TGV trains were implemented.

Figure 3-5: Market supply in number of weekly seats offered by several business models originating from Spain

Source: OAG

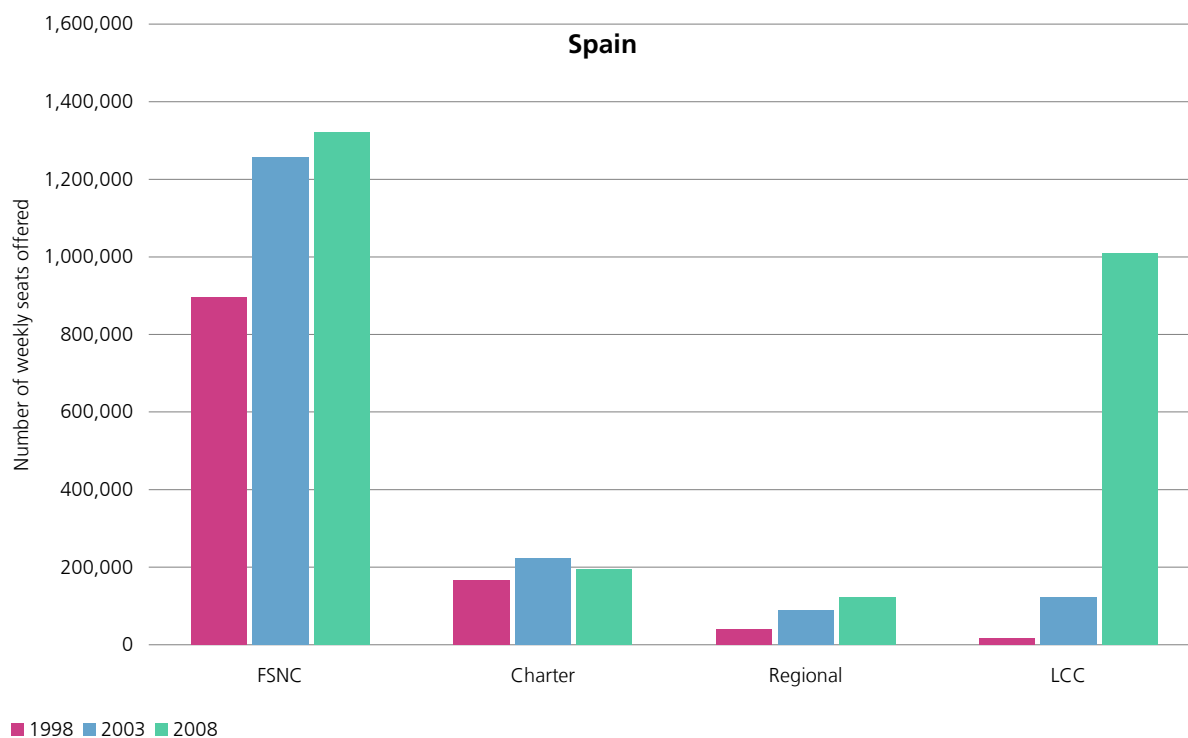


Figure 3-6: Market supply in number of weekly seats offered by several business models originating from France

Source: OAG

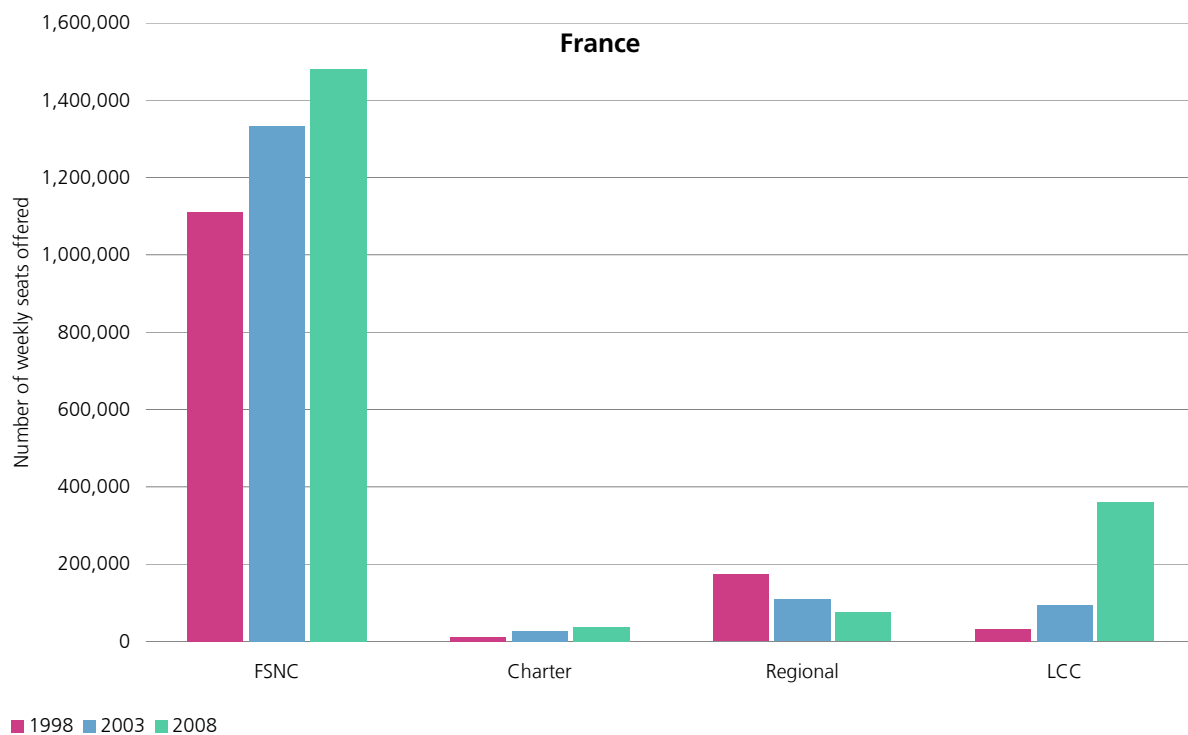
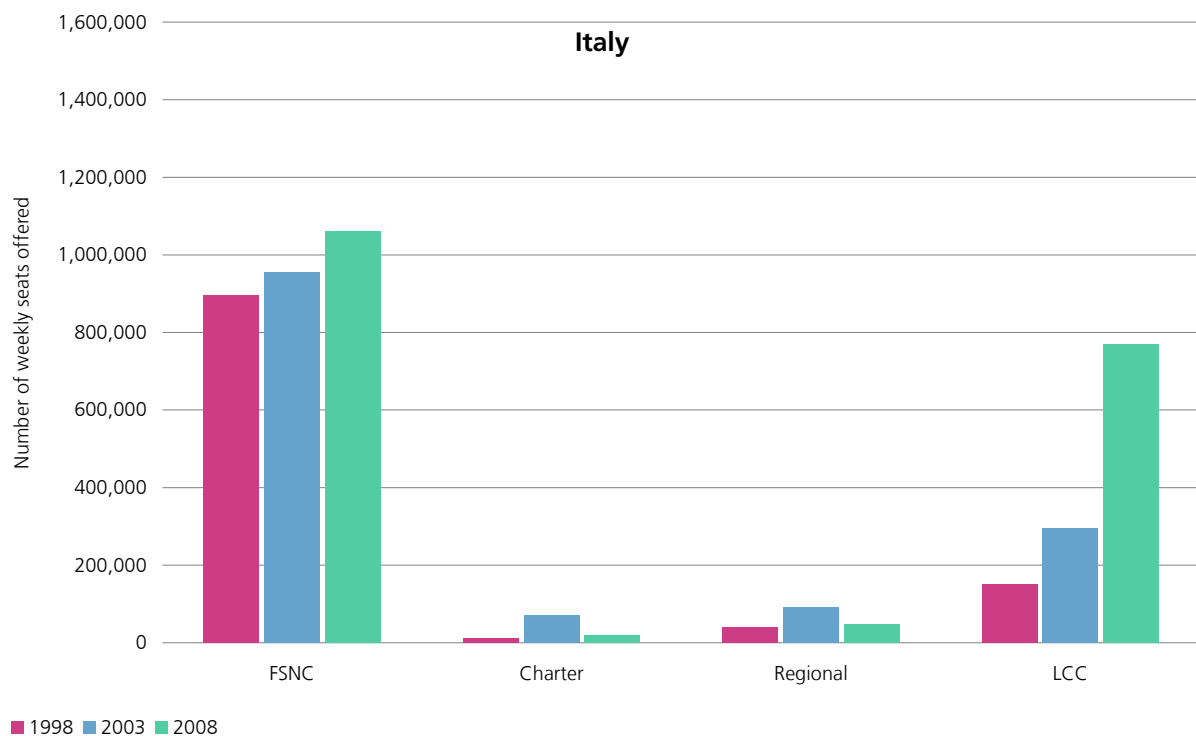


Figure 3-7: Market supply in number of weekly seats offered by several business models originating from Italy

Source: OAG

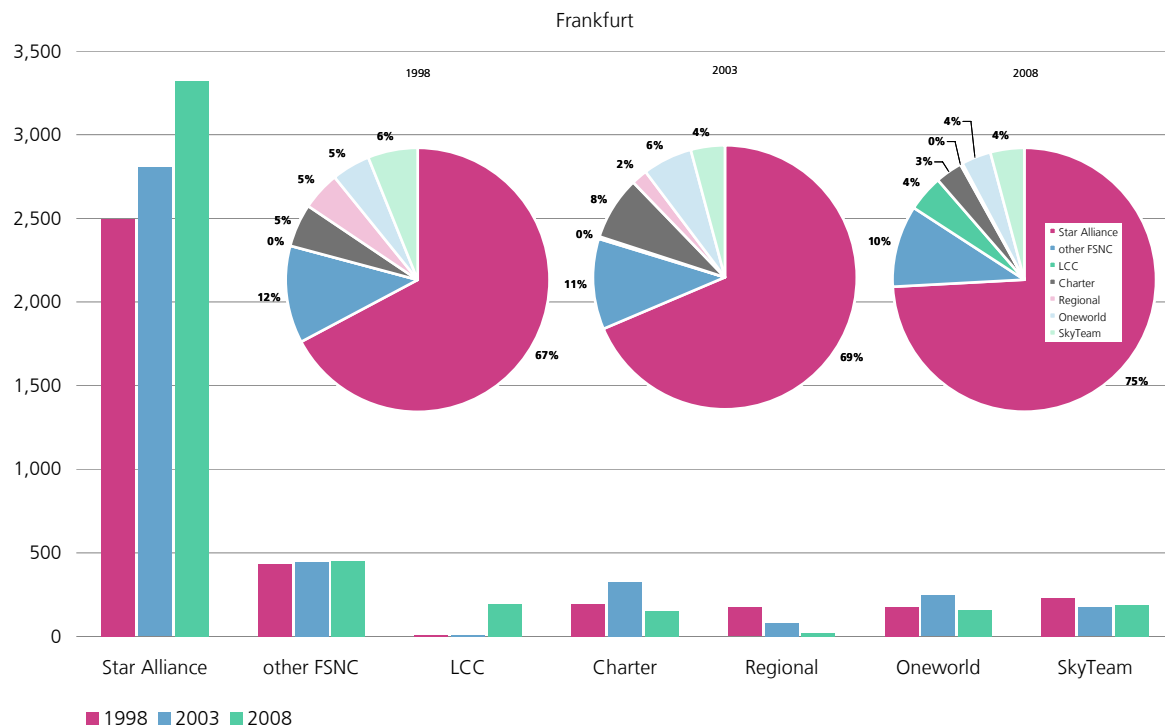


The **Italian** market shows certain similarities with the previous ones but also several differences. For years, this country has had a rather weak national FSNC; the decadal overall growth rate for this business model is only 18%. The regional airline market does not show a clear trend. In the first five years there was tremendous growth (more than double on the supply), then a decrease to nearly half on the number of seats supplied. The LCCs show a below EU average growth rate, but this is only due to the high starting level. The Italian starting level is even higher than the British level (151 compared to 144 thousand seats in 1998). This is remarkable for a country whose aviation policy is considerably different to that of a North European country. Thus, the market share started at a level of 14%, approaching the level in France which was reached ten years later (18%). The current market share in Italy ranges two places behind the UK (41%). In no other European country there are more airports served by LCCs than in Italy.

3.3 Development at Different Airports – Hub vs. Secondary Airports

Figure 3-8: Market Share Development with respect to Airline Business Models at Frankfurt-Main Airport (in terms of weekly take-offs)

Source: OAG

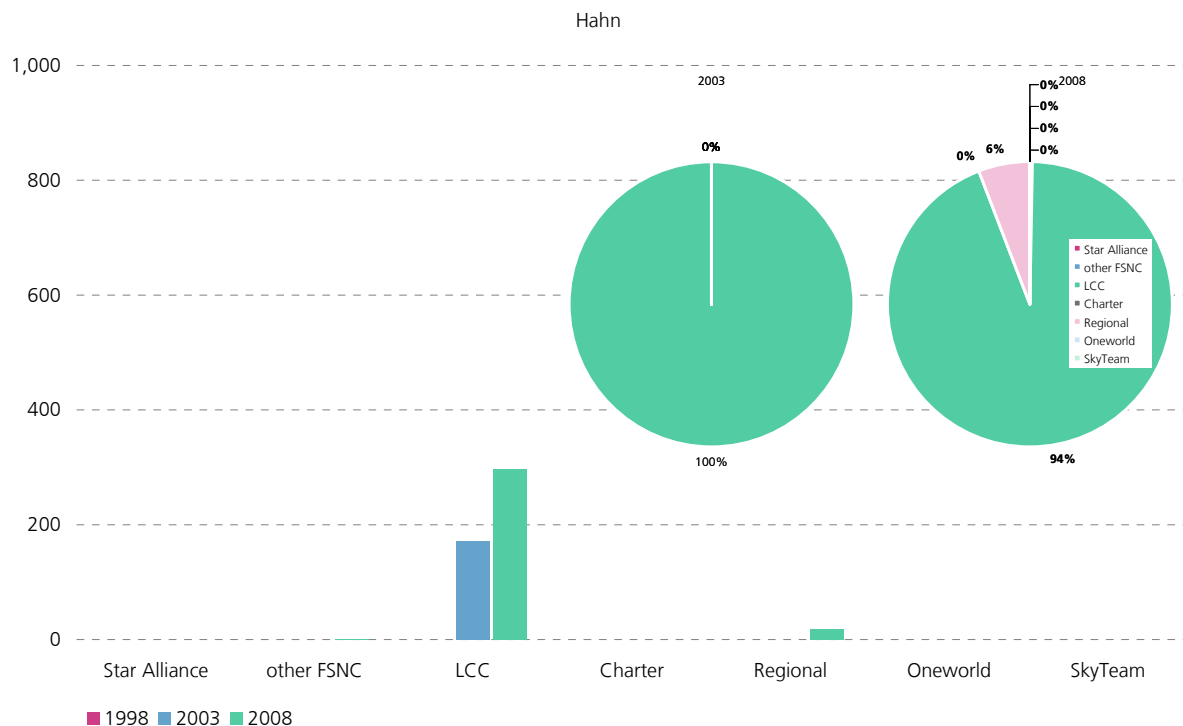


The two German airports shown in the previous and in the next graph are more or less located in the same region and compete for the same kind of passengers. But Hahn airport, (also called Frankfurt-Hahn by the operating airline), is rather difficult to reach and is far away from the densely populated Rhine-Main area. Although there is a good supply of LCCs compared to other airports, the figures show that Hahn cannot compete directly with the number of passengers frequenting Frankfurt-Main airport. At both airports, the markets are very concentrated: Frankfurt-Main with the leading alliance guided by the home-base carrier Lufthansa, Hahn with Ryanair. Although Frankfurt-Main airport is still suffering from its capacity constraints, it is obvious that Star Alliance has been able to increase its market share, which is amazing since this should not happen due to the slot allocation rules. One reason could be the integration of further carriers into the alliance; however the number of flights performed by the non-allied carriers did not decrease during these years. However, all competing alliances decreased their operations. According to the business models, there is almost no competition between Frankfurt and Hahn; the amount of LCC flights in Frankfurt is still rather limited. In some cases, LCCs came into this market by means of the European Commission, who have accepted certain merger or alliance cases under the condition of opening the market for competitors (see next chapter).

Obviously, Hahn is still dominated by one business model and mainly by only one carrier, although there are currently a few regional services. The dominance would decrease, if the cargo flights were included, because Hahn serves as a cargo hub for Aeroflot too. Anyway, it is at least not the lack of available slots that prevents other airlines from starting operation there. However, this seems to be the case at Frankfurt-Main airport.

Figure 3-9: Market Share Development with respect to Airline Business Models at Hahn Airport (in terms of weekly take-offs)

Source: OAG



The dominance in London-Heathrow is much lower than in Frankfurt. The main reason is that the second biggest carrier in Heathrow is British Midland, a member of Star Alliance, and the third biggest, Virgin Atlantic, is an independent carrier. It is amazing that there is nearly no change of market share nor small increases in movements within a time frame of ten years – the whole market situation seems to be very stable. Besides the market entry barriers caused by lack of capacity, market exit barriers exist too. This is even more interesting when taking into consideration that Heathrow seems to be currently the only European airport where secondary slot trading is tolerated. But this allowance seems to have no remarkable effect on the market share. As far as one knows, mainly members of the Oneworld Alliance purchased slots. However the increase in this alliance's market share remained smaller than that of Star Alliance in Frankfurt. In contrast to Heathrow, the graph of the market shares in figure 3-11 does not show the tremendous growth of flights at London Stansted airport, which is the home base of Europe's biggest LCC, Ryanair, which is also one of Europe's fastest growing airlines within this time span. Here it is also obvious that this LCC has grown at the expense of the regional airlines, which ten years ago had more flights than the LCC. There seems to be no market niche for this business model in the London market.

Figure 3-10: Market Share Development with respect to Airline Business Models at London Heathrow Airport (in terms of weekly take-offs)

Source: OAG

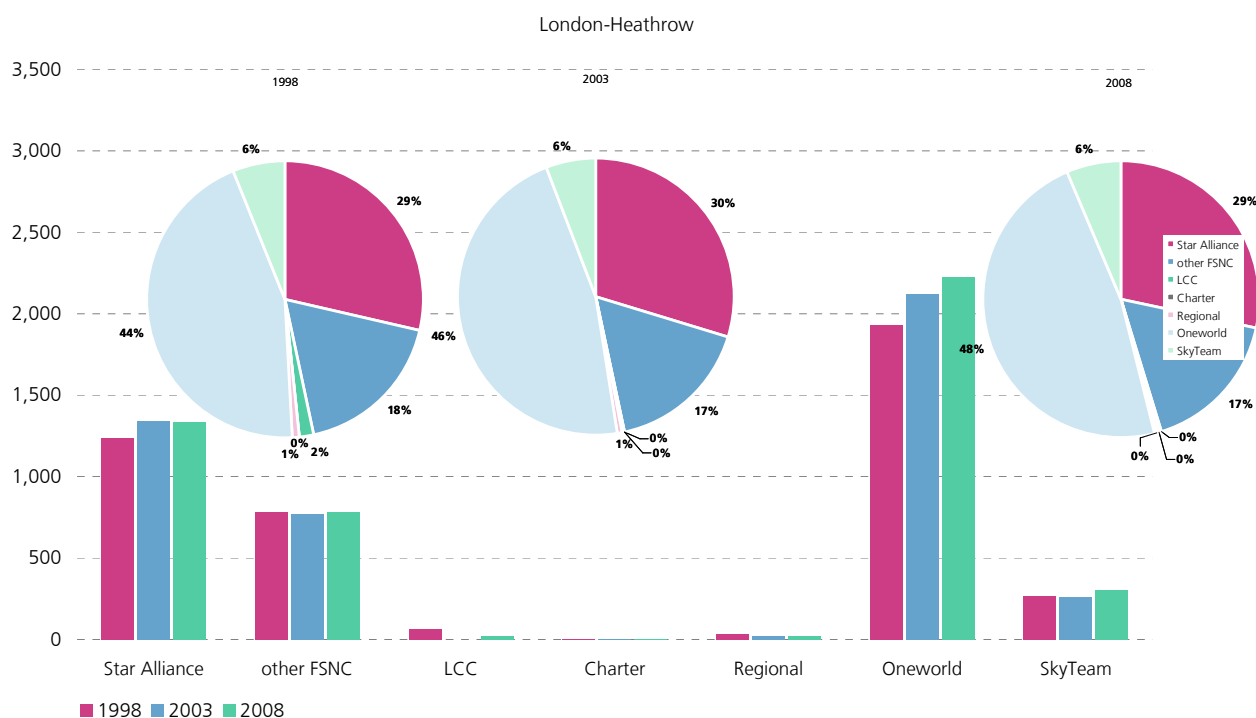
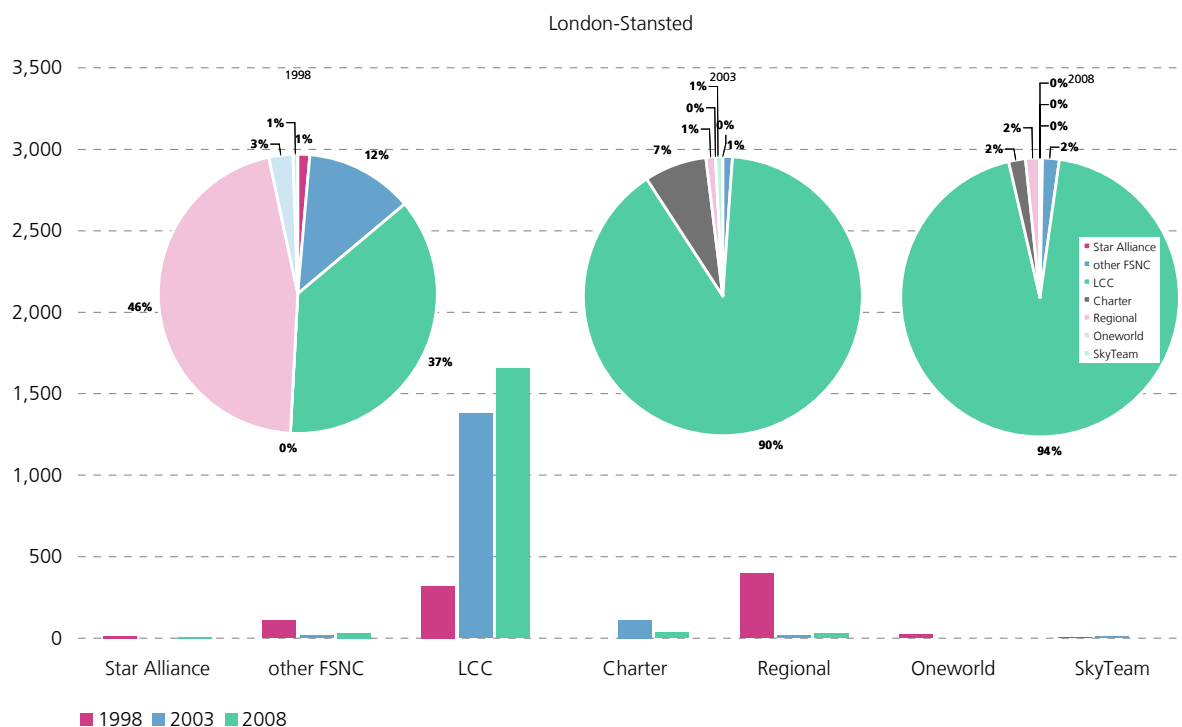


Figure 3-11: Market Share Development with respect to Airline Business Models at London-Stansted Airport (in terms of weekly take-offs)

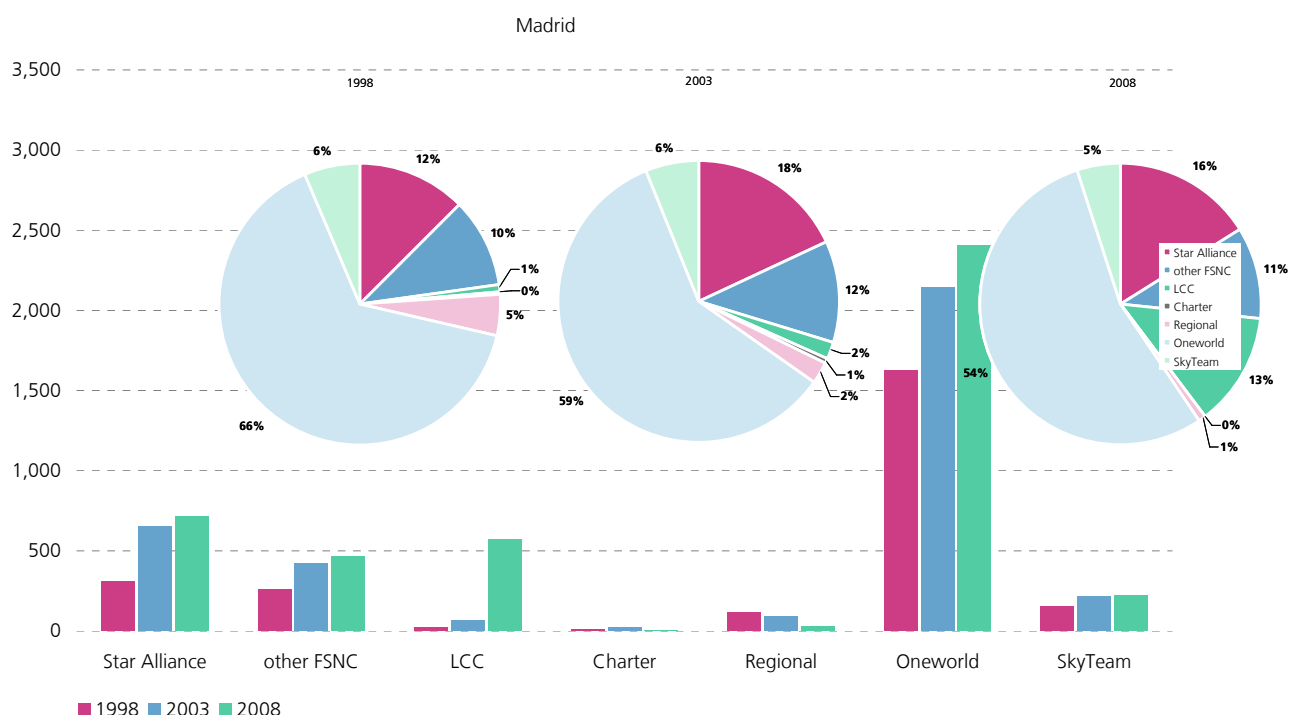
Source: OAG



It can be generalized that those airports being served by LCCs are even more at risk of being dominated by one carrier than the hub airports. But this is mainly the case with LCCs like Ryanair. They open up routes to non-congested airports, where they often manage to get start-up support as a first mover. Most other LCCs serve secondary airports too, but these are usually airports already served by other airlines. The airports suffer from the fact that their investments are risky because the airline has nearly no sunk costs at the airport, their switching costs are extremely low. In most cases an airline has to bear certain investment costs at an airport, but Ryanair limits these costs by working mainly with hired people of the airport. Thus, the airline boosts the regional structure but the sustainability of this boost is questionable.

Figure 3-12: Market Share Development with respect to Airline Business Models at Madrid Airport (in terms of weekly take-offs)

Source: OAG



In figure 3-12, the situation of a non-congested hub is shown. Another difference with regard to the other hub examples presented so far is that in Madrid until this year there was no neighbouring competing secondary airport. In 2008 this has changed through the recent opening of the airport Ciudad de Real south of Madrid. So far all business models serving Madrid were forced to use Madrid-Barajas airport. Also in contrast to the other hubs, all business models here, apart from the regional airlines, were able to increase their number of flights. But the leading alliance at the airport was not able to increase its market share during these years. It decreased slightly although the number of flights have increased. It is obvious that this is mainly due to the tremendous increase of flights performed by LCCs. There are several reasons for this; one is the above mentioned creation of Spanish LCCs serving the Spanish capital. Another reason is the fact that the two leading European LCCs, EasyJet and Ryanair, have both stationed several aircraft in Madrid, turning it into one of their bases. Especially in the

case of Ryanair this is surprising because it contradicts their common policy of solely operating at secondary airports, in particular using only secondary airports as a base. Certainly, the new airport, located south of Madrid, will affect this strategy.

4 Consolidation on Different Markets

Recent years showed consolidation within the business models and in certain cases also across business models. Beforehand there were a lot of market entries following liberalisation of the aviation market. In this chapter we will first look at the historical background of the fragmented airline industry in the EU, followed by a short overview of the liberalisation in the EU aviation sector. Since then, cross-border mergers of FSNCs have become possible. As already mentioned above, a further effect of the liberalisation was the appearance of the LCCs, which especially led to a lot of market entries, but in the last years, consolidation also played an important role.

4.1 The Fragmented EU FSNC Airline Industry (historical background)

Historically, traffic rights were recorded in the bilateral air service agreements every country had to sign with all other countries they wanted to trade with. These traffic rights could be used mainly by airlines of the two signatory countries; exceptions existed only for airlines using so-called fifth freedom rights, flying from the home country via an intermediate country to the end destination in a third country. With the increasing range of aircraft, less intermediate points were necessary and the importance of fifth freedom traffic was reduced considerably.

One result of this situation was the hindrance of cross border mergers. The potential for consolidation was therefore limited; the way to achieve economic efficiency was hindered. A further result was a fragmented FSNC airline industry. Every country needed its own FSNC; their market structure was identified by national monopolies. The only exception was SAS being the national carrier of Sweden, Norway and Denmark. Market structure of the EU FSNC airline industry has not developed in terms of economic efficiency, but was constrained by the nationality restrictions in bilateral agreements. The result was a fragmented market with 28 FSNCs, every country having its own FSNC, only Great Britain having three FSNCs with British Airways, Virgin Atlantic and BMI. This situation did not exclude mergers, but they appeared only within the national framework as shown by the examples of the merger between BEA and BOAC to form British Airways and then their take-over of British Caledonian and the take-over of UTA by Air France. But these were clear exceptions.

4.2 Liberalisation in the EU Aviation Sector and its Consequences for Concentration

The liberalisation of the EU internal market in 1993, including the cabotage rights since 1997, changed these limitations. For routes within the 27 Member States of the EU, traffic rights are free, the nationality of the ownership of an airline does not matter any longer. The restrictions for cross-border ownership within the EU have now been removed to a wide extent. In external

relations, traffic rights are now granted to these Community carriers, instead of to nationally owned air carriers. As a consequence, the industry has possibilities to overcome the fragmentation and to restructure in accordance with principles of economic efficiency. On the other hand, for the achievement of the aims of the Treaty, Article 3 (1) (g) gives the Community the objective of instituting a system ensuring that competition in the internal market is not distorted.

Merger control is intended to monitor emerging economic power, if this position is gained by a merger of companies rather than by internal growth. On the European juridical level, this control of concentration between companies is regulated by Council Regulation (EC) No 139/2004 of 20 January 2004⁴, the EC Merger Regulation. It is intended to safeguard competition within the EU and to submit mergers which have an impact on the common market to the central supervision by the Commission. Mergers, acquisition of control and the creation of joint ventures which considerably impair the effective competition in the common market, or in a substantial part of it, do not comply with the common market.

EU merger control law, as a Community-wide uniform law-regime, is only relevant for concentrations with a Community dimension. Thereby, the combined aggregate turnover of all undertakings is taken as criteria for Community-wide relevance. The principle of exclusiveness is still valid with respect to national merger control law where, according to Article 21 (2) of Regulation 139/2004, solely the Commission is in charge of controlling mergers which might affect the common market. Regardless of particular jurisdiction situations according to Articles 9, 21 (4) and 22 of Regulation 139/2004, double control is avoided.

In order to eliminate potential competition concerns, the companies involved - according to common practice - can propose modifications to the foreseen merger by accepting remedies. To ensure compliance with these commitments, the Commission may attach conditions and obligations to its decision. Examples of these can be: release of slots at airports mainly frequented by the companies involved or participation in Frequent Flyer Programmes.

4.3 Trend towards cross-border Mergers of FSNCs

Once the liberalisation was achieved, it enabled the airline industry to evolve an optimised structure according to economic efficiency criteria. As far as intra EU services are concerned, there are no longer any obstacles for mergers and acquisitions. However, mergers and acquisitions are still very difficult for those carriers having a bigger network outside the European Union, because these routes are still partly under the regime of bilaterals with the old ownership regulation. In the long run, this problem will further diminish as more bilateral agreements are brought into conformity with Community law either by Horizontal Agreements

⁴ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:024:0001:0022:EN:PDF>

negotiated by the Commission or through bilateral negotiations by Member States where the national ownership right is shifted to a Community ownership right. Today, markets accounting for approx. 70% of extra-EU traffic have already accepted the Community right of ownership.

Lots of airlines bypassed this problem through different forms of cooperation which provide synergy effects without losing the traffic rights of the companies involved. They extended their network first via code-sharing; then they formed alliances going beyond the extension of the network including other services. We can assume that there is an integration line with a code-sharing agreement at one end of the line leading through multiple code-sharing, pooling agreements, strategic alliances, joint ventures, partial ownership, full ownership with the remaining brand name and on to a full integration via an acquisition at the other end. With each step there will be a reduction of competition and independency of the partners; but concentration would be only at one end of this line.

In the aftermath of the economic and non-economic effects at the beginning of this century – the economic downturn starting in 2000, the 9/11 terrorist attacks and SARS – pressure for consolidation increased. Up to 2007, only two merger cases took advantage of the synergy effects foreseen by consolidation, Air France / KLM in 2003/04 and Lufthansa / Swiss in 2005. The main reason might be the aforementioned problems especially concerning third country traffic rights. The following graph shows the case of Air France – KLM: this complicated structure had to be set up to guarantee that a minimum of 50% of shares were owned by nationals of each country in order to maintain third country traffic rights linked to the nationality clause in the bilateral agreements. Such a complicated ownership structure cannot be a goal to pursue. This means that in all relevant bilateral air service agreements, the ownership or nationality clause has to be replaced by the so-called "EU ownership" -principle. These costs of negotiations have to be added to the cost of the merger. They are actually external costs for the airlines because they are part of the adaptation of the bilateral air service agreements. The more

plurilateral agreements the EU negotiates, replacing the national ownership clause with a Community ownership clause, the further these costs will be reduced.

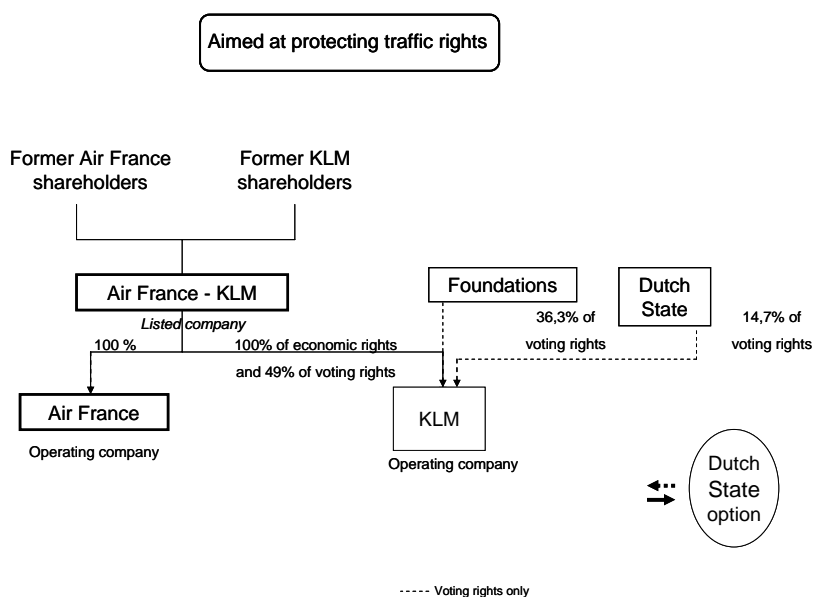


Figure 4-1: Planned three-year transitional shareholding structure

Source: Iatrou, Kostas, Oretti, Mauro, Airline Choices for the Future, Ashgate 2008, p.53 (reproduced schema)

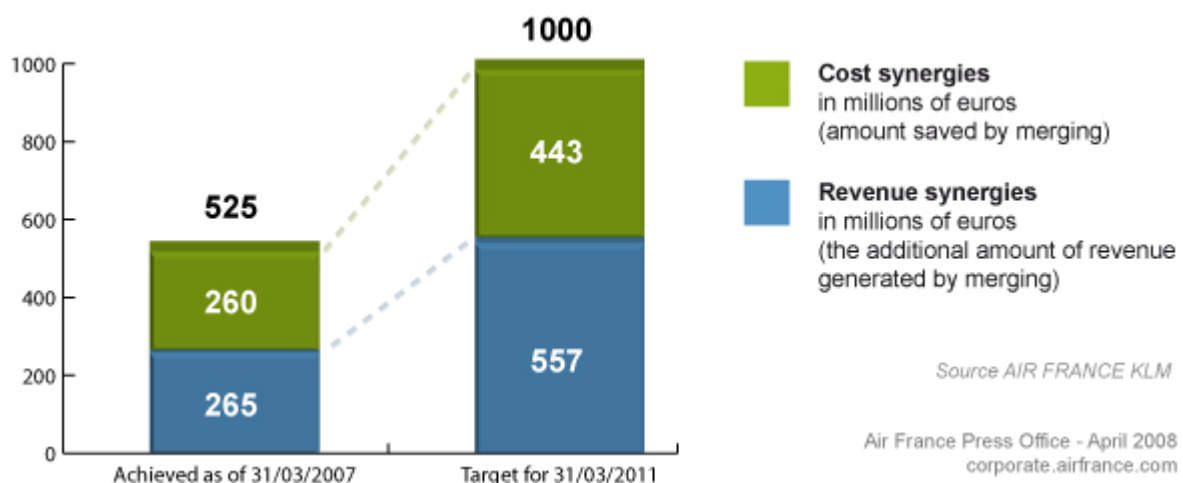
The above mentioned synergy effects have to overcome the transaction costs of a merger. Within business models, several analytical and empirical studies have shown that the economies of scale, scope and density are limited and reached at a relatively early stage. However in the case of the Air France KLM Group this carrier indicates a rather high level of cost synergies, as figure 4-2 shows. But it is also very clear that the revenue effect exceeds the cost synergy effect, especially in that the growth potential for the next years is greater for these revenues than for the cost synergies. Together they consist of, according the source of Air France KLM:

- the optimisation of networks based on two powerful hubs,
- a more effective redeployment of passenger and cargo activities,
- an expanded offering of aircraft maintenance services,
- cost savings in purchasing, sales distribution and IT applications.

Together with the smoother service resulting from the optimisation of the hub services, there is also a lock-in effect used by the airlines offering frequent flyer programs to its customers. They have now become so powerful that they are seen as a market entry barrier by the EU.⁵ The passengers paying an above-average yield are especially targeted by the network optimisation as well as by these programs because they have by far the highest influence on the airline's profitability. It has to be taken into consideration that the information on the forecast of synergy effects is given as information for shareholders showing a bright potential future for the airline. It is also questionable how far these effects are achievable only via mergers or via alliances, which were the main drivers for efficiency increases in the last years.

Figure 4-2: Synergy effects of the Air France KLM Group

Source: Air France/KLM⁶



⁵ Commission decision of 16 January 1996, Official Journal of the European Union, L 54, 5.3.1996, p. 28

⁶ <http://corporate.airfrance.com/en/strategy/air-france-klm/air-france-klm-a-global-leader-in-air-transport/a-strategy-of-complementarity-generating-synergies/index.html>

Mergers beyond the borders of the EU are not yet possible, though the Commission intends to negotiate with the U.S. to weaken the strict ownership regulation on both sides of the Atlantic. The minority investment (19%) of the U.S. LCC Jet Blue by Lufthansa is a starting point.

Though there have so far only been two cases of concentration within the FSNC business model in Europe (Air France/KLM and Lufthansa/Swiss), it is foreseeable that this will change. Lufthansa has decided to acquire both Brussels Airlines and BMI. A number of other mergers are in discussion, e.g. BA and Iberia or Lufthansa and Austrian Airlines. The case of Alitalia is currently pending and there are rumours about further mid-size airlines thinking of this as a possible way forward. In most cases, they seek participation of one of the three major EU carriers belonging to a global alliance. In the case of Alitalia it is to avoid final market exit, whereas in most of the other cases the economic situation is not yet as dramatic. Very interesting will be cases where participation will lead to a change of alliance membership. So participation can develop into a tool to weaken a competing alliance. The takeover of KLM by Air France, for example, led to the end of the Wings Alliance.

4.4 The different Phases of the LCC Industry: Market Entry and Consolidation

In contrast to the FSNC market, the LCC market showed very dynamic development. After the deregulation of the European common aviation market in 1993, and of cabotage services in 1997, a large number of LCCs entered the market. Some of these airlines were new entrants, like EasyJet, others were already flying and developed out of another business model. For example Ryanair originally operated as a regional airline and several LCCs were founded by one of the FSNCs, like bmibaby of BMI. This was not necessarily in the airline's home market, e.g. Finnair's daughter company Flynordic flying mainly in Sweden (later taken over by Norwegian). Finally some LCCs were founded by holiday carriers like HLX, which was founded by Hapag-Lloyd Flug (later merged with the parent to become TUIfly). Most of these new founded airlines mainly developed out of their home market. However, the two biggest LCCs have bases all over Europe. Another two exceptions are Wizzair operating out of several Eastern European countries and SkyEurope out of the four bases Bratislava, Vienna, Prague, and Kosice.

These airlines first led to a deconcentration of the market. Though lots of them have chosen to fly preferentially on monopoly routes, they have still intensified competition. On the one hand they offer a kind of parallel service, e.g. London-Stansted to Rome-Ciampino instead of London-Heathrow to Rome-Fiumicino, in other cases they offer direct services where it was previously only possible to fly via a hub. Entry barriers are especially low at the secondary airports. At some of these airports, particularly those having had no or nearly no scheduled services before, these carriers were even welcomed with start-up help.

Some of these new entrants have been extremely successful with the LCC business model, but it is a mixed story. Many LCCs have never made any profit. As in other open markets, the first wave of market entries may be followed by a wave of consolidation once the market segment becomes more mature. While presenting the hybrid business model (chapter 2.8), we have already seen some elements of concentration in the specific market of LCCs and holiday carriers. The market shares of these carriers are somewhat smaller, so these developments attract less attention. The national interest with all its prestige is also considerably smaller. If competition authorities are involved then it is normally only the relevant national one. Concentration, especially in the business model of LCCs, is obvious, but it is not the “bloody battle” as announced by one of its managers. It is interesting to observe that the concentration trend here goes partially beyond the limits of the different business models, whereas especially those carriers which were created as a reaction to new developments in the industry tend to become victims of concentration processes.

The subsidiaries were specially founded to answer the new intensity of competition from this field. Also, not all of these subsidiaries can be seen as a success story and after several market entries some market exits occurred. But also in this business model, several exits were performed as takeovers and these takeovers were not limited to companies of the same business model. A remarkable case was the takeover of Air UK by KLM in 1999. Air UK was a regional carrier with some larger aircraft, mainly having aircraft in the 100-seater class. A part of this airline was separated off and started in 2000 as a “premium LCC” named Buzz operating from London Heathrow. The other part provided a feeder service under the name of KLM UK to KLM’s hub in Amsterdam. Instead of concentration, this was a kind of “deconcentration”. Where the feeder service was rather successful, Buzz remained weak and was finally taken over by Ryanair in 2003. So far, three business models have participated in this process. A similar development was seen with Go, a subsidiary of British Airways which was taken over by EasyJet in 2002. In 2007 EasyJet also took over GB Airways which had a franchise agreement with British Airways – again an example of concentration across two business models. However, these have been the only cases so far where the two biggest LCCs participated actively in the concentration process. A further example of a subsidiary participating in the consolidation process can probably be seen in Spain: Clickair as a subsidiary of the FSNC Iberia (20% of the shares, but 80% of the economic rights) intends to merge with the so far independent LCC Vueling.

Another type of takeover occurred in Italy. Volare Airlines had to file for bankruptcy in 2004, but was able to recover. However, in 2006 the company was taken over by the Italian FSNC Alitalia to compete against the large number of foreign LCCs in its home market. However, compared to other LCCs in the Italian market they are still rather small.

Another kind of concentration occurred in Germany with the merger of HLX and Hapag-Lloyd Flug in 2007. HLX was a specific LCC whereas Hapag-Lloyd Flug was a typical holiday carrier, both already in the TUI holding. The more Hapag-Lloyd Flug sold seat-only tickets, the less

obvious the differentiation between the carriers was. Though HLX was younger, established only in 2002, it was much more successful, so they had to take over management of the new company Tuifly. The case of Air Berlin taking over first DBA, then LTU and attempting to take over Condor, too, was already described above.

4.5 Concentration in the Business Model of Regional Airlines

The business model of regional airlines shows a very specific concentration process. In this market we have to distinguish concentration via takeovers from those via integration into another airline, though legally they remain independent. Over the years there have been lots of independent regional carriers entering the market, but most of them were either unsuccessful and left the market or they were taken over by bigger players. These were either legal takeovers or takeovers in the sense that the acquired carriers were flying only for the acquiring carrier. These bigger players were very often the national FSNC or their direct subsidiaries. In most cases they then also flew in the colours of the national FSNC. In most cases the concentration process remains within the borders of the country, either offering an increased number of feeder flights to the national hub or some hub-bypassing services in the name of the national FSNC. Exceptions to this development are Air UK being purchased by KLM (as mentioned already), Air Dolomiti, an Italian regional airline being purchased by Lufthansa and connecting the Italian market with the hub in Munich, and Blue1 of Finland being purchased by SAS, feeding into its hubs, but also offering independent services.

To overcome the risk to survival for an independent regional carrier it can be helpful to find a niche of no interest to the national FSNC. Such a niche can be an island service for a specific customer group as OLT provides in northern Germany. Apart from that they have not enough market power to compete with an FSNC or LCC should one become interested in one of these services. But that does not always have to be contrary to consumers' interests. Most customers of these regional airlines' services are business travellers and in most cases have a close relationship to the national FSNC via their frequent flyer program. Only if the regional carrier flies for the FSNC can they collect miles on these routes too. It is possible to remain independent and to buy into such a program, but this is rather expensive.

4.6 Competition Assessment of Past Mergers

In the two FSNC merger cases, the competition authorities approved the mergers. In contrast, the merger between the hybrid carrier Aer Lingus and the LCC Ryanair was not allowed. So the authorities play a considerable role in the concentration process. The focus of control lies on those relevant markets (= route markets) where the overlapping network leads to a significant reduction of competition – in most cases this is concentrated on the routes between the two home markets. In most situations, the EU competition authorities gave a conditional acceptance that the cooperating airlines had to open market access, especially at airports with capacity

constraints. So these carriers were asked to concede a limited number of slots if there was a newcomer on one of the concerned markets.

Though this is a very good opportunity to enter a market which would otherwise be incontestable, this opening-up of a market has not been successful in all cases. In the case of Frankfurt – Copenhagen, no other airline has so far shown interest in opening services on this route. In the case of Frankfurt – Zurich, Air Berlin – being already present at both ends of the route – opened operation five times daily on this route, but closed it again due to lack of profitability. No other newcomer has shown interest. Finally, on the route Frankfurt – Vienna, Adria Airways of Slovenia opened a competing service to the joint venture of Lufthansa and AUA. After a while, Adria Airways followed Austrian Airlines to enter Star Alliance – so again competition was reduced. Then this route was taken over by FlyNiki, an LCC from Austria affiliated with Air Berlin. These examples show that slots might not be the only market barrier hindering competition.

Finally we can conclude that consolidation takes place but that it might only harm competition in minor cases. In several cases it can even be stated that competition intensity might increase through consolidation. This especially happens when weaker carriers merge to become stronger in face of the bigger established carriers. One example for this might be the proposed merger of Vueling and Clickair to compete against the two biggest LCCs Ryanair and EasyJet. Even if there is further consolidation in the LCC sector, the increase in competition between these airlines still remains more important. Enough competition will probably remain on the market for the efficiency gains of the different merger cases to bring further benefits for customers.

5 Changing Trends of Different Business Models

In this chapter, the focus lies on those business models where the current developments give cause to suspect a break in trend. It is somewhat speculative because only the very first signs are to be seen.

5.1 Influence of Air Service Agreements

Horizontal agreements, i.e. air service agreements concluded by the European Commission on behalf of its Member States, open new possibilities for air carriers as these agreements permit EU airlines to fly from any point within the EU to the respective contractual state. One possibility arising from horizontal agreements is facilitated consolidation in the airline market. With the increasing number of destinations that can be served under horizontal agreements, European airlines are not bound by nationality clauses that governed traffic rights in the past and led to a sub-optimal industry structure with many small airlines that were not able to offer customers the kind of broad network that the market requires. Also, on the cost side, it is perceived that economies of scale in some areas could be achieved by airline mergers.

However, immediately after the conclusion of horizontal agreements, most airlines are widely cautious in exercising the new freedom. Most prominently, low cost carriers like Ryanair or EasyJet make use of the extended traffic rights by offering services between several EU Member States and Morocco. Network carriers seem to be mostly reluctant in using the new traffic rights, as their strategy is focussed on concentrating traffic at the main hubs. The only new intercontinental service by an EU airline started immediately after the conclusion of the EU-US Open Skies agreement was Air France's service on the route London Heathrow - Los Angeles.

One example of the changes to airline business models in the course of the EU-US Open Skies agreement is the foundation of Open Skies and the purchase of L'Avion by British Airways. With these transactions, the traditional full service network carrier entered the market for point-to-point premium services over the Atlantic, detached from its own hub operations in London. The management intends to expand services beyond the existing link between Paris and New York and provide services from Amsterdam, Brussels, Frankfurt and Milan to New York.

Besides these developments in the premium end of the market, plans for new low cost services have also emerged. In early 2007, Ryanair announced plans to enter the transatlantic market by the end of the decade. The initial plan, as outlined by Ryanair's CEO Michael O'Leary, foresees linking Ryanair's bases across Europe with smaller airports in the United States, such as Providence, New York-Islip or Baltimore. The service is planned to offer two classes and should feature innovative in-flight amenities to increase ancillary revenues. Further details concerning aircraft types or the start date of operations are not yet known to the public.

5.2 Direct Flights vs. Transfers in the Low Cost Sector

A relatively new phenomenon that can be observed in the low cost carrier market is the provision of transfer services. In the past, low cost flights were only offered as point-to-point services without offering flight connections. However, a significant number of passengers have combined two low cost flight segments for a transfer itinerary of their own. At some major low cost airports, even campers can be seen in the terminal buildings, staying overnight and waiting for their do-it-yourself connections.

However, in the US, the low cost airline pioneer Southwest Airlines has been offering through-ticketing and through-baggage handling for connecting flights for several years now. Although the flight schedule of Southwest is not optimised for offering connections, the vast number of flights and high frequencies at several stations such as Las Vegas or Chicago Midway naturally generates the opportunity to sell also transfer itineraries. This could also apply for many European low cost carriers that have grown considerably at major bases such as Stansted, Gatwick, Cologne or Hahn. In Germany, the airports of Berlin and Cologne/Bonn now offer web-based platforms which assist passengers to combine low cost flights and offer services such as check-in counters on the arrival levels and transfer insurances. Also Germanwings offers low cost transfer flights and with those city pairs, which they are not allowed to fly directly such as London-Moscow via Cologne, thus increasing revenues and load factors. Nevertheless, in many instances, passengers are required to claim their baggage at the transfer airport and to re-check-in for their onward flight. Not only for this reason is it likely that the low cost transfer business model will remain a niche market. Also, if sufficient demand on a city pair can be identified, it is likely that direct flights will be offered. Moreover, in many cases it is likely that the price differential between the services of traditional full service network carriers and low cost carriers will be relatively small and therefore the low cost transfer model less attractive to passengers.

5.3 Holiday Carriers → LCCs and vice versa

In the past, the holiday carriers were officially called charter airlines. The business model consisted of flights for tourist companies who offered package tours including a flight. In the seventies, these companies tried to transfer parts of the risk of not filling these aircraft to the airline. Some airlines reacted by selling the remaining seats as a special "seat only" offer, which at this time was legally a kind of grey market. Since 1993, these carriers have lost the title of charter airline within the EU and they have all become scheduled carriers. One might argue that this was the birth of the LCCs, because these carriers had a significantly lower cost base than the established FSNCs. However it was different to the current LCC business model because in most cases they sold only the remaining seats.

Since the beginning of this century, however, the situation has changed. The first LCCs entered the market and started to compete more and more directly with the holiday carriers. More and more people started to unbundle the package and to book each service separately. The holiday

carriers still had the disadvantage of high seasonality, so several of them started to offer special low cost flights during the week, while continuing as holiday carriers at weekends. Some LCCs then reacted by starting to fly not only for end customers but also for tourist companies, selling a part of the plane to them. This led to the aforementioned hybrid model and as a next step led to concentration across the limits of their own business model as already described in the case of Air Berlin or TUIfly. The question remains as to whether there is room in the long run for a further differentiation in both business models or if they will become one. Even in the length of the journey they overlap more and more when one sees that, for example, Ryanair already has several services to the Canary Islands. It might even be thinkable that the long distance charter flights could be the cue for LCCs to offer long-haul services.

5.4 LCCs → Long-haul

Although some experts claim that the low cost carrier business model could be transferred to the long-haul market, we question this because some key elements of the LCC strategy either cannot be implemented on long-haul routes (higher daily fleet utilisation, lower personnel costs in avoiding hotel accommodation), or they are of relatively less importance considering the different cost structure in the long-haul market. Discounted airport fees and the abandonment of amenities such as lounges, for instance, have a much smaller impact on the total cost of long-haul flights compared to fuel, personnel and capital costs which are widely independent from the business model chosen. In table 5-1, the fields marked in red show successful cost-cutting strategies in the short-haul market that cannot be transferred to the long-haul sector. Cost-cutting options marked with an X in brackets could be implemented in the long-haul sector, but would hardly be accepted by all passengers expecting at least a certain level of service quality on long-haul flights. The degree of stimulation of latent demand of low-yield passengers through aggressive pricing is likely to be lower than in the short-haul market as long distance flights can hardly be undertaken on weekends and thus require the passenger to take leave.

Thus, not very surprisingly, nearly all LCC ventures in the long-haul sector have remained without success. The first airline offering no-frills transatlantic service was Freddie Laker's Laker Airways, which operated its famous "Skytrain" service between London and New York City during the late 1970s until it was priced out of the market by the established competitors. The latest bankruptcies in this sector are Oasis Hong Kong, an airline connecting Hong Kong with London and Vancouver using B747, and British-Canadian airline Zoom, which connected various cities in the UK with New York and a handful of Canadian airports.

The only carriers still offering a kind of long-haul low cost product from Europe are the Irish company Aer Lingus, a former FSNC which benefits from high point-to-point demand between Ireland and some US destinations, and former charter carriers such as Air Berlin/LTU, Condor, FlyGlobespan, Thomsonfly and Thomas Cook. In Asia and Australia, LCCs flying long-haul are Air Asia X and Jetstar.

Table 5-1: Cost cutting strategies in the market for long-haul low-cost flights

Source: DLR

Cost category	Fleet		In-flight Service			Network		Marketing PR		+ H.R.
	Homogenous Fleet	Young fleet	High-density seating, fewer galleys and toilets	No free meals and drinks, lounges and FFP's	No seat reservations	Use of smaller airports	No interlining, no flight connections	Focus on direct sales	"low prices sell themselves", aggressive PR	
Unit Cost Category (costs per passenger kilometre)										
Maintenance	X	X	(X)							
Fuel		X	(X)							
Staff	X	X	(X)				X			X
Airport Costs			(X)		(X)	X	X			
ATC costs			(X)							
In-flight service				(X)						
Capital and leasing	X		(X)							
Marketing / Sales			(X)			X		X		
Overheads	X		(X)	X	X		X			X

6 Conclusion

In the past, different types of airline business models could be clearly separated from each other. However, this has changed in recent years partly due to the concentration process and partly to reaction caused by competitive pressure. It was the intention of this analysis to throw some light into potential further developments of the industry. At least it can be concluded that in future the distinction of different business models will remain less clear. Competition continues to have its effect on the market developing further ideas and providing the best product in the interest of the consumer. An important prerequisite to attract new investors with innovative business models in the air transport industry is the contestability of the air transport market. In this regard, it is an important regulatory requirement to avoid market entry barriers and safeguard fair competition. Within such a market environment, it is likely that new business models, be it complete innovations or the creative combination of existing elements, can flourish and enhance overall social welfare.

7 Annex

7.1 Abbreviations

ASA	Air Service Agreement
ASK	Available Seat Kilometre
ATC	Air Traffic Control
AVE	Alta Velocidad Española (Spanish high speed train system)
DLR	Deutsches Zentrum für Luft- und Raumfahrt e.V. (German Aerospace Center)
FSNC	Full Service Network Carrier
LCC	Low Cost Carrier
O&D	Origin and Destination
PR	Public Relations
RPK	Revenue Passenger Kilometre
TGV	Train à grande vitesse (French high speed train system)

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DLR at a glance

DLR is Germany's national research center for aeronautics and space. Its extensive research and development work in Aeronautics, Space, Transportation and Energy is integrated into national and international cooperative ventures. As Germany's space agency, DLR has been given responsibility for the forward planning and the implementation of the German space program by the German federal government as well as for the international representation of German interests. Furthermore, Germany's largest project-management agency is also part of DLR.

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