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Current Issues

Consolidation in air transport: in sight at last?

- After the most turbulent phase in the history of the air transport industry, growth will resume in the sector in 2004 and 2005. Over the two years, air traffic volume world-wide is set to increase by approx. 6% p.a. on average. Air transport has good prospects of remaining a growth sector in the long term, too. In the next 20 years expansion will probably average more than 4% p.a. By 2025, air traffic volume will have increased to about 2 ½ times the present level.
- International air traffic is governed by a large number of bilateral agreements between individual countries and their airlines. These restrictive pacts prevent free market access. External growth – through mergers, for example – has also been blocked so far by clauses that make a carrier's traffic rights dependent on the nationality of its ownership. Many loss-making airlines are still state-subsidised. All this prevents unprofitable companies from exiting the market.
- In view of the persistently high excess capacities, we welcome steps by the European Commission to establish, with the USA, an aviation area that is largely open to competition. If the clauses on national ownership were also relaxed or lifted, this would remove obstacles to the consolidation needed in the industry. In the long term the number of global, independent carriers in Europe could fall from the present twelve to three or four.

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Privatisation and regulation of German airports

- The privatisation of German airports is called for and urgently required. This will pave the way to include private capital and management know-how more strongly and to increase the productivity of the airports. Depending on the individual case, both the inclusion of strategic investors and IPOs are appropriate options.
- Productivity gains will depend on the quality of regulation, however, so the present regulatory system must be improved (re-regulation). Especially for hubs (Frankfurt and Munich), an incentive-oriented *ex ante* regulation ought to be implemented and market participants should be included in the shaping of the rules. For the smaller international airports, *ex post* regulation (monitoring) is more appropriate.
- A single, lean national regulatory authority with good management know-how should take over the relevant competences from the states. It is important that re-regulation take place before privatisation in order to reduce the regulatory risk and therefore risk premiums for private investors. The upshot would be an increase in the proceeds from the sale of the airports.

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The study is based on information as of March, 2004.

Consolidation in air transport: in sight at last?

The international air transport industry has come through the most turbulent phase of its history since world war II. The sector was severely shaken in the last two years by four main factors: the September 2001 terror attacks in the USA, the conflicts and wars in the Near and Middle East, the outbreak of the respiratory disease Sars and – as gloomy backdrop to these events – the continuing eakness of the world economy. All links in the air transport value chain were hit. The airlines were confronted with a slump in demand from business and private travellers alike and had to reduce capacities considerably. Makers of civil aircraft felt the chill when orders were cancelled on a huge scale. And airport operators suffered from falling capacity utilisation, lower revenue from airport charges, and dwindling passenger spending.

This article looks first at the current situation and the medium and long-term prospects for the air transport sector, concentrating mainly on the airlines. It then analyses and assesses two important trends in the industry, namely the growing importance of strategic alliances and low-cost carriers. Finally, it examines aspects of current competition policy. The report focuses on passenger services.

1. Current situation, medium and long-term prospects

The cumulation of events cited above hit the global air transport industry very badly. In the past there have been phases of falling or stagnating demand, such as those triggered by the two oil crises or the 1990-91 Gulf war. But recent conditions have been different in that several damaging events coincided or followed on each other's heels. Some figures illustrate the negative consequences. Measured in revenue passenger-kilometres (RPKs), the traffic volume registered by the member airlines in the International Air Transport Association (IATA) fell by over 6% between 2001 and 2003. Passenger numbers contracted by more than 5% in the same period.¹ In both cases, steeper declines were registered on domestic flights, though last year these fared better than international services. In 2002 the flights most severely affected were those within North America (RPKs: -6.8%) and to North America (RPKs: -2%).² Asia on the other hand chalked up strong gains both in domestic flights (RPKs: +5.1%) and as region of destination for international flights (+5.8%). In 2003, however, the Asian-Pacific region suffered heavily owing to the outbreak of Sars. North America probably still saw a marked decline, too, while traffic volume in Europe stabilised.

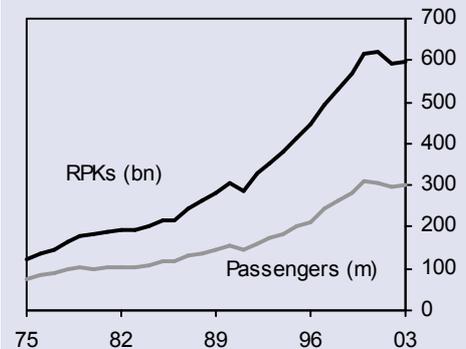
The regional differences are reflected in passenger figures at the major airports. In 2002 numbers at Asian airports expanded strongly, whereas many US airports were among the losers (see charts on p. 6). In 2003, though, most Asian airports saw a huge fall in passenger numbers due to Sars. At Hong Kong airport, for instance, they were down by one-quarter in the first ten months of the year compared with a year earlier.³

¹ IATA members account for 91% of global traffic volume (RPKs) and 83% of passengers on scheduled services. See IATA, "World Air Transport Statistics", 2003.

² In domestic flights, North America makes up nearly 50% of total scheduled RPKs world-wide.

³ For data on passenger numbers at airports see www.airports.org.

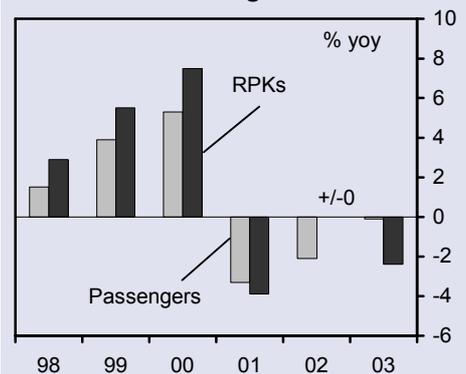
Passenger numbers and RPKs of AEA airlines on scheduled flights



2003: provisional figures

Source: AEA

Passenger numbers and RPKs on world scheduled flights

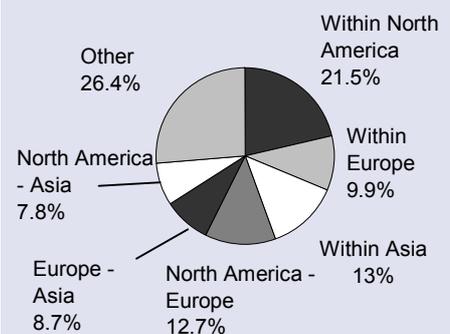


2003: provisional figures

Source: IATA

Major traffic flows between regions, 2002

% of total scheduled RPKs



Source: IATA



Huge losses at airlines

More serious than the impact on the traffic data, however, are the financial effects of the crisis on the airlines: IATA estimates that the industry's losses in the years 2001-2003 add up to around USD 30-35 bn. The drop in demand was not the only factor; higher costs were also to blame. They included higher insurance premiums and other outlays on security and safety; these rose by USD 5 bn in 2002. Airport charges and those for flight traffic control also increased.

Massive capacity adjustments and cost-cutting programmes were unable to prevent losses. According to IATA, some 400,000 jobs were slashed in the sector as a whole. Steep wage cuts of up to 10% were negotiated with trade unions, especially in the USA. It was particularly necessary there, as the US airlines suffered the most severe financial losses. As widely publicised, two large US airlines, United and US Airways, filed for protection under Chapter 11 of the American bankruptcy code, from which they have, to date, still not been discharged.

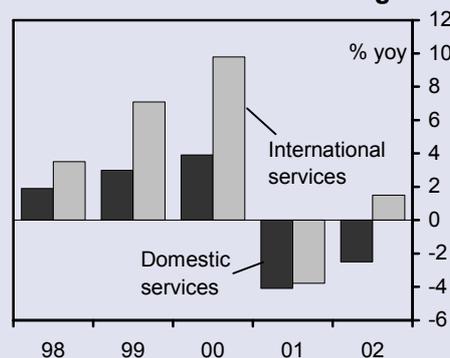
Capacity adjustments affected the deployment of aircraft. Recently, some 1,500 planes were mothballed, most of them in dry, desert regions. This is a substantial proportion (over 14%) of the IATA members' entire 10,500-strong jet fleet. The airlines' relatively quick response to the fall in demand enabled them to hike the seat load factor on scheduled services by 2.4 percentage points in 2002 to 71.7%. In the first ten months of 2003 this measure of capacity utilisation was at a similar level, despite the fact that utilisation on flights within and to Asia collapsed briefly during the most critical phase of the Sars outbreak. Nonetheless, the seat load factor was probably below break-even level in 2003, for the third time in a row.

An explanatory note: The aviation industry can generally adjust supply only very slowly to sudden fluctuations in demand as airlines are obliged to maintain scheduled services even if very few seats are filled. Moreover, airlines usually base their supply on peak loads. Since demand varies greatly according to the time of day (e.g. there is a preference for morning and evening flights) and the purpose of the journey (business trip or vacation), the industry has a tendency to build up excess capacities. Given that fixed costs in air transport are high and variable costs extremely low, it is crucial that airlines optimise their organisational and sales activities to push up the seat load factor.⁴ Owing to the excess capacities – which are rigid owing to various market exit barriers (see chapters 2 and 3) – and the cutthroat competition to which they contribute, airline returns are chronically low. This is particularly the case in comparison with other links of the value chain in air transport that are often effectively a monopoly (e.g. air traffic control, computer reservation systems, ground handling).⁵

Resumption of growth in 2004 and 2005

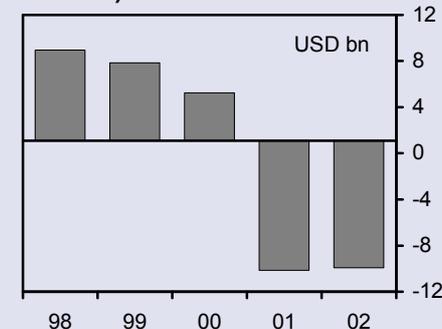
There is substantial evidence that air transport is going to resume growth in 2004 and 2005. In recent weeks and months industry organisations such as IATA, the Association of European Airlines

RPKs on world scheduled flights



Source: IATA

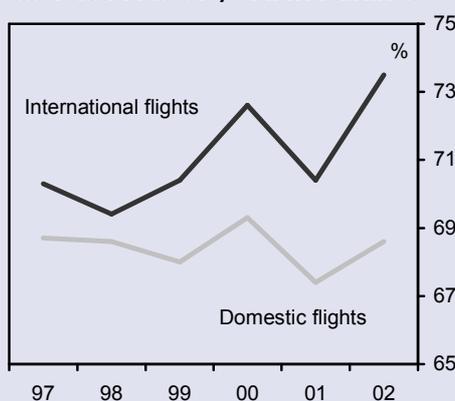
Profits & losses of IATA airlines*)



*) Profit or loss after tax, not adjusted for exchange-rate effects

Source: IATA

Seat load factor*) of IATA airlines



*) Seats sold as a percentage of available seats

Source: IATA

⁴ See Pompl, "Luftverkehr", 2002, or Kummer, S. and M. Schnell, "Verkehrswirtschaftliche Bewertung der Allianzbildung im Luftverkehr", in: DVWG, Schriftenreihe B 246 "Europäischer Luftverkehr – wem nützen strategische Allianzen?", 2002.

⁵ See, for example, Klingenberg, Ch., "Marktorientierung im europäischen Air Traffic Management – die Sicht der Airline", presentation at the symposium on "Marktorientierung im ATM" of Technische Universität Berlin, 2002.

(AEA) and the German Airports Association (ADV) have already registered increases – some quite strong – in RPKs and numbers of flights⁶. IATA expects total scheduled passenger numbers to climb by 5% this year and close to 6% in 2005. Growth rates will probably be lower than this in domestic services and higher on international routes. Owing to the larger rise in international traffic (with longer routes), traffic volume measured in RPKs should expand more strongly. In the Asian and trans-Pacific markets the highest growth rates will probably come in passenger numbers (2004: 14% and 9.4% respectively; 2005: 10.6% and 8.9%).⁷ It is to be hoped that bird flu does not have a negative effect in this region.

The main reasons for the predicted increase are: the emergent recovery of the global economy; a basis effect, especially in the Asian market; the heavy pressure on airfares; and the larger range of services, due especially to the greater number of flights offered by low-cost carriers. Airline returns should improve if expansion of capacities lags that of demand, resulting in an increase in the seat load factor. The anticipated rise in passenger figures must not be achieved by setting fares so low that they do not cover costs. There is no guarantee, though, that this will not happen as low-cost carriers make further inroads into the market and competition in the industry increases. Both aspects are examined later in this article. But, all in all, the massive cost-cutting programmes of many airlines and their increased flexibility in designing their range of services should bear fruit in the coming years.

A growth industry in the long term, too

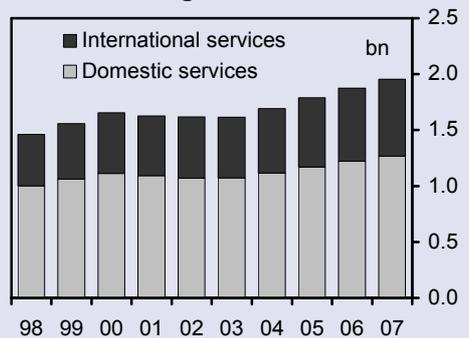
RPK growth in global air transport, by region*)

Services from	Services to					
	Africa	Asia	Europe	Middle East	Latin America	North America
Africa	5.3	4.8	5.1	5.3	7.4	6.5
Asia-Pacific		5.9	5.6	5.7	5.7	5.3
Europe			4.5	5.9	5.6	5.0
Middle East				5.0	-	6.4
Latin America					7.3	5.1
North America						4.1

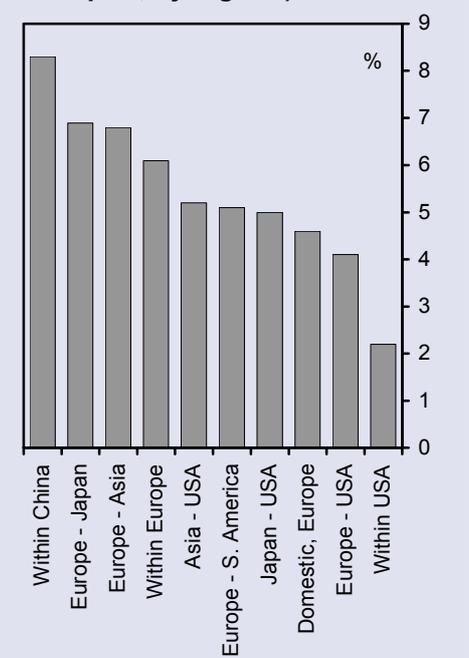
*) Average percentage growth rate 2002-2022
Source: Boeing

Medium to long-term forecasts for the air transport sector point to sustained high growth. Over the period 2000 to 2020, the aircraft manufacturer Airbus expects global air traffic volume (RPKs) to increase at an average annual rate of 4.7%. It predicts that above-average rates will be registered in domestic flights within China and on Europe-Asia and Europe-Japan routes.⁸ Boeing is more optimistic: Airbus's rival as maker of civil aircraft anticipates RPK growth of 5.1% p.a. between 2003 and 2022.⁹ By 2025, air traffic

Passenger numbers on world scheduled flights



RPK growth in global air transport, by region*)



⁶ For up-to-date figures on air transport see www.iata.org, www.aea.be or www.adv-net.org.

⁷ See IATA, "Global Passenger Prospects 2003-2007", 2003.

⁸ See Airbus, "Global Market Forecast 2001-2020", 2002.

⁹ See Boeing, "Current Market Outlook", 2003.



volume will have increased to about 2 ½ times the present level. This implies that, as in the past decades, air traffic will rise much more strongly than the global economy as a whole.

The chief factors pointing to sustained high growth of air traffic are, on the demand side, the enormous catch-up potential of highly-populated countries (Asia, Eastern Europe) as regards personal mobility, coupled with the expected growth of household incomes there. On top of that, the increasing globalisation and trade-related integration of countries and regions are stimulating the international division of labour. This provides a tangible impetus to both private and business travel. The argument that there is ground to be made up is supported by the fact that 13% of the world population currently accounts for roughly two-thirds of global air traffic.

On the supply side, the main argument for an increase in air traffic is an expected gradual opening of the market. By promoting competition, this should lead to greater efficiency in airline “production” and ultimately to falling airfares. Market penetration by the no-frills airlines in all three of the world’s major air transport markets and the growing competition in other links of the air-transport value chain are also helping to keep airfares under pressure. Besides, a larger proportion of the population, also in the newly industrialising countries, will in future be able to afford air travel. The use of larger aircraft (Airbus A380) will expand capacities by raising the average number of passengers per flight. Greater use of former military airbases for civil aviation will also increase capacity; the most prominent example in Germany is the airport at Hahn. Finally, greater efficiency in air traffic control will ease existing bottlenecks at major airports and in airspace.

Standardised air traffic management to enlarge capacities

In view of the bottlenecks in air traffic control, the proposals of the European Commission for a single European system are to be welcomed.¹⁰ According to IATA, charges for air navigation services are 62% higher in Europe than in the USA. At present, Europe’s air traffic control is made up of the individual national systems, which means that Europe’s airspace is a patchwork of separate cells, some of which are very small.¹¹ Frequent flight delays are one consequence of this fragmentation. It is estimated that around half of all delays are due to inefficient traffic management. A main aim of the EU is therefore to reduce congestion in the air and at airports (e.g. shorter separation distances between aircraft) – which is doubtless essential in view of the expected growth of air traffic. Also, fuel consumption could be reduced by 6-12% (holding patterns lead to 350,000 avoidable flight hours in Europe), and the safety of Europe’s air transport system is to be further improved. Important elements of the proposals for achieving these goals are: standardisation of the air traffic management systems, definition of air traffic control zones on the basis of operation efficiency rather than national borders, and the introduction of new technologies (Galileo).

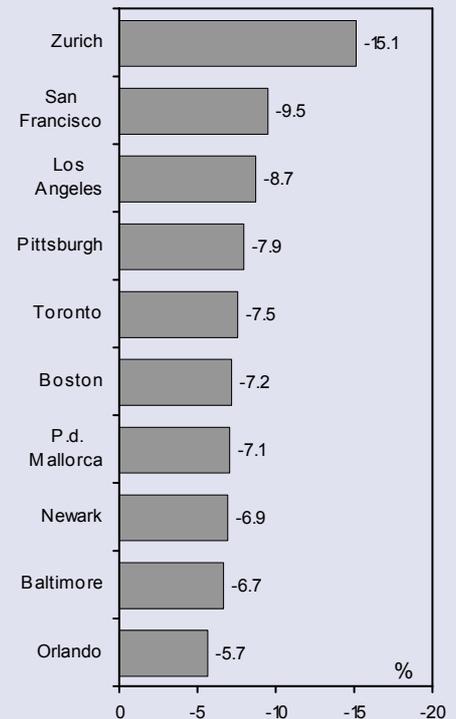
The lack of a “single European sky” in a single European market now looks anachronistic. EU efforts to unify the airspace over

¹⁰ See European Commission, “A single European sky – broadening horizons for air travel”, 2002.

¹¹ According to Pompl (2002) there are currently 49 air traffic control centres in Europe using 31 different computer systems with 22 different operating systems and 30 different programming languages.

Top 10 airports with the strongest decline in passenger numbers*)

Decline 2002 vs 2001

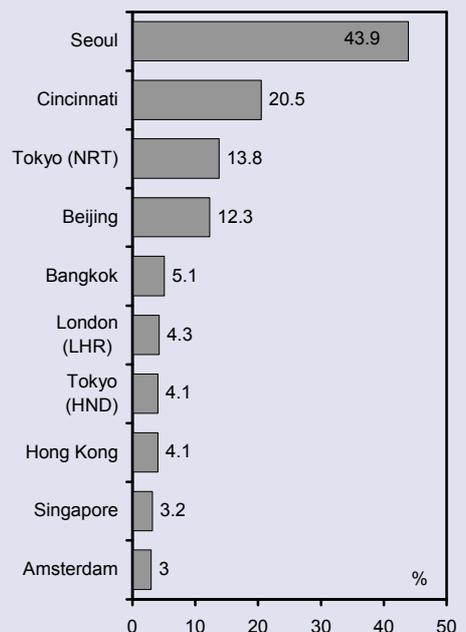


*) Selected from the world's 50 largest airports

Sources: Airports Council International, IATA

Top 10 airports with the strongest growth in passenger numbers*)

Growth 2002 vs 2001



*) Selected from the world's 50 largest airports

Sources: Airports Council International, IATA

Europe should proceed as quickly as possible. National interests must not be allowed to obstruct a harmonised, EU-wide air traffic management system that could boost efficiency enormously. According to the EU timetable, the end of 2004 is the deadline for the introduction of a “single sky” framework.

Impediments to air traffic growth

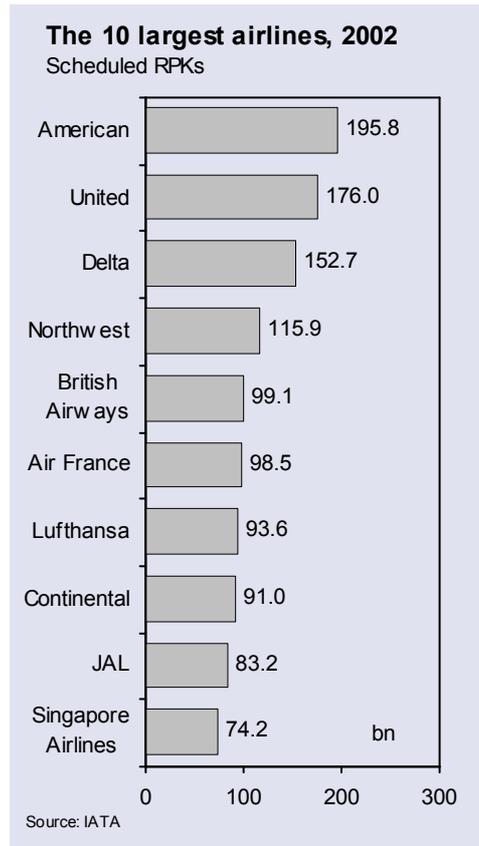
There are, of course, also some factors that argue against the high air traffic growth rates predicted by Airbus and Boeing. Above all, there are signs of growing saturation in major markets, especially within the USA. As regards demand, it can be argued that, in a virtually networked world, business and private travel becomes less necessary; assessments of the effect of the digital economy on the air transport sector differ, however (some conclude it will produce an increase, others a decrease). On the supply side it is to be feared that, in the long run, permanently higher fuel prices, rising expenditure on flight safety and security, or fiscal costs (for ecological reasons, for example) might counteract any benefits of market-opening in the sector and lead to rising fares. The necessary expansion of major airports, especially at the large hubs, may be delayed by public resistance, and this would reduce the potential for growth of air traffic. Finally, it is conceivable that, in small, polycentric regions, other means of transport, especially trains, may replace aircraft. In Central Europe this could happen on a large scale in the medium to long term if the national rail networks are opened to more competition; but such substitution would then free up capacity at the airports, say for intercontinental flights. Since September 11, 2001 at the latest, terror attacks aimed at air transport facilities or tourism have become a very pertinent factor for both supply and demand. The probability of such external shocks has definitely risen in recent years. It is to be hoped that, over time, the problem of international terrorism can be defused.

All in all, we consider the forecasts of Airbus and Boeing to be too optimistic rather than too pessimistic. The Airbus forecast would mean only a marginal decline in growth compared with the 1990s, and the Boeing forecast implies no weakening of growth at all. For over 50 years, though, average growth of air traffic has consistently fallen from decade to decade.

2. Mega trend: growing importance of strategic alliances and low-cost carriers

For some years, airlines with no (or only small) mutual cross-holdings have been teaming up world-wide. As a rule, these strategic alliances have grown out of bilateral partnerships that were joined, over time, by further airlines. They have become immensely important. In 2002 the big three – Star Alliance, One World and Sky Team – already had a combined share of 55% in total RPKs of all IATA airlines.

These alliances were born mainly out of the need to cope with the restrictions on competition in air transport. A multitude of bilateral agreements between individual countries makes it difficult for airlines to start operating in other regions as they do not have the necessary traffic rights. External growth – through mergers, for example – has also been blocked so far by clauses that make a carrier’s traffic rights dependent on the nationality of its ownership (see chapter 3). Airlines thus continue to face high hurdles to both internal and external growth. The economies of scale and synergies



Period	Average growth p.a. %
1950-1960	14.5
1960-1970	13.5
1970-1980	10.9
1980-1990	5.7
1990-2000	4.8
2000-2020 (Airbus)	4.7
2003-2022 (Boeing)	5.1

Sources: ICAO, Airbus, Boeing



that expansion or mergers can bring – and which other sectors have long enjoyed – are almost precluded in aviation.¹²

The airlines have made a virtue out of necessity and obtained access to foreign markets by teaming up with other companies. The main aim of the strategic alliances, which are built around large airlines from the major air transport markets, is to offer customers the largest possible network of routes, with direct flights and convenient connections. Passengers have then only to make arrangements with one company. The alliances of the big players are joined by smaller companies that concentrate on regional services; these act as feeders for the large hubs and transport passengers from the hubs to the peripheral regions. Strategic alliances are thus a means of extending and deepening networks. The more the partners' networks complement each other, the greater the positive network effects. The alliances aim to ensure a high proportion of connecting flights to and from the major hubs served by the partners (hub-and-spoke networks).

Pros and cons of strategic alliances

The cooperation in flight operations is based on code sharing. This means an airline offers a flight under a flight number of its own but the flight is actually operated by a partner.¹³ Code sharing has the advantage of enlarging an airline's flight network or increasing the frequency of the flights it offers. Market share can be increased without incurring additional costs for operating the flights. Market access is widened, extending beyond the rights permitted in bilateral agreements. Code share partners provide each other with passengers, which increases the seat load factor.

Depending on the depth of integration to be achieved through a strategic alliance, the partners will cooperate in various areas: coordination of flight timetables; access to partners' hubs, terminals, gates or lounges; cooperation in marketing and distribution (shared use of computer reservation systems); pricing; administration; procurement; mutual recognition of frequent flyer programmes (thus promoting customer loyalty, especially in the more profitable business travel segment); shared provision of ground services, handling, maintenance or catering; shared training of personnel; coordination of aircraft fleets etc. This means there can be synergy effects on both the revenue and the cost side. Strategic alliances bring economies of scale, scope and density.

The relevant transaction costs should not be underestimated, however: they can rise exponentially, the larger and more complex an alliance becomes. Differences in corporate culture are potentially another disadvantage as they may lead to friction between the partners. If alliance members face financial problems, there may be a risk that they will exit the market, which would reduce the benefits of the network. All in all, though, it is generally agreed that strategic alliances have more advantages for the members than disadvantages. An assessment of alliances from the point of view of competition policy is given in chapter 3.

At present, it looks as if there is no room for another truly global alliance alongside the existing three. The main reason is that there

Structural data on the strategic airline alliances

December 2003

Star Alliance

Formed	1997
Members	15
Destination countries	128
Destination airports	700
Revenue passenger-kilometres (bn, RPKs, 2002)	640.4
IATA market share (2002)	24%
Passengers carried (m, intl. flights only, 2002)	122.9
Tonne-kilometres performed (m, intl. flights only, 2002)	68.0
Employees, '000 (2002)	277.6

Sources: Star Alliance, IATA

One World

Formed	1999
Members	9
Destination countries	136
Destination airports	573
Revenue passenger-kilometres (bn, RPKs, 2002)	485.7
IATA market share (2002)	18%
Passengers carried (m, intl. flights only, 2002)	86.4
Tonne-kilometres performed (m, intl. flights only, 2002)	43.7
Employees, '000 (2002)	243.8

Sources: One World, IATA

Sky Team

Formed	2000
Members	6
Destination countries	114
Destination airports	512
Revenue passenger-kilometres (bn, RPKs, 2002)	338.8
IATA market share (2002)	13%
Passengers carried (m, intl. flights only, 2002)	57.3
Tonne-kilometres performed (m, intl. flights only, 2002)	32.3
Employees, '000 (2002)	176.2

Sources: Sky Team, IATA

¹² For information on the role of strategic alliances in air transport see the articles in DVWG, B 246, "Europäischer Luftverkehr - wem nützen die strategischen Allianzen?", 2002.

¹³ For example, Lufthansa offers flights, with Lufthansa flight numbers, from Frankfurt to Valencia, passing through Madrid; the flights are operated by the Spanish partner, Spanair, via its Madrid hub.

is no strong partner left in the important European market. The old continent's predominant airlines, Lufthansa, British Airways and Air France, are already tied into alliances. Regional partnerships, though, are naturally not ruled out. On the whole, strategic alliances can be seen as a stage on the road to stronger capital ties between airlines. A flurry of mergers seems likely as soon as the legal restrictions are eased (see chapter 3).

Concentration at international hubs

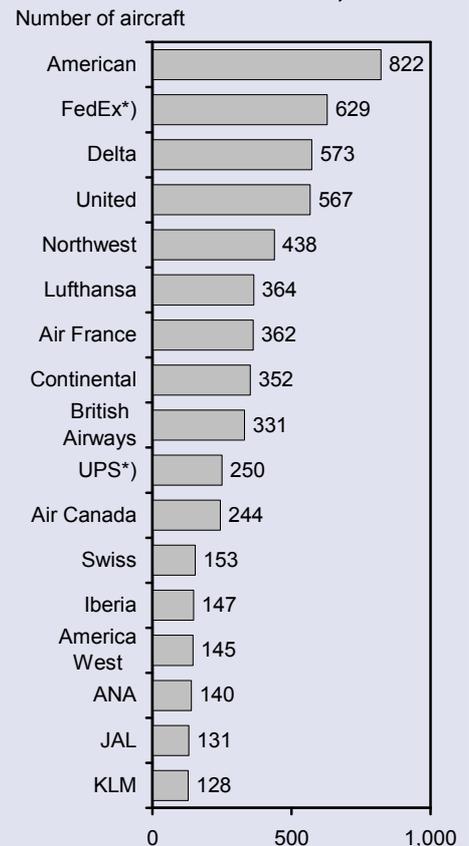
The alliances' flight operations will probably continue to concentrate heavily on the large international hubs. This goes particularly for Europe and Asia (i.e. for flights between the two regions), where there are relatively few large suitable airports. In addition, the population and business activity in many countries are relatively heavily concentrated in large cities (in Singapore, Hong Kong, South Korea, Australia, New Zealand; France and the UK also fall into this category). Point-to-point flights, on the other hand, look set to become increasingly important on routes to North America as the polycentric USA have a large number of big airports with sufficient market volume. The starting point in Europe or Asia is likely to be a hub.¹⁴

For aircraft manufacturers, this would mean that in future there will be a tendency to deploy large aircrafts between the hubs in Asia and Europe and on routes from Europe and Asia to the large cities in the USA (e.g. New York, Los Angeles, Chicago). On routes between Europe or Asia and smaller North American cities, though, medium-sized jets may also be used for point-to-point flights. This is suggested by the fact that no US airline has yet ordered an Airbus A380, an aircraft that is predestined for heavily frequented routes between large hubs. In Asia and Europe there is already quite strong demand for this large jetliner, which can seat 555 or more passengers and is to enter service in 2006. Also, Boeing – whose customers are mainly US airlines – is counting on increasing numbers of point-to-point flights in its plans for production of the 7E7 Dreamliner (which will carry 200-250 passengers).¹⁵ Demand for both new aircraft types will probably be sufficiently high, we believe, in view of the greater efficiency they are said to offer.

Low-cost carriers continue triumphant advance

Everyone is talking about the growing importance of low-fare airlines as means of air transport. The concept originated in the USA, where Southwest Airlines first put it into practice in the mid-1970s. In Europe, no-frills airlines began to play a role from the mid-1990s, initially in the UK and Ireland. Since then, though, the trend has also spread to continental Europe. Besides the long-established companies such as Ryanair or easyJet there are now about 30 airlines that can be classed as low-cost carriers.¹⁶ From 1999 to 2003 the number of seats on offer soared 400%. Capacity in the German market jumped fivefold in 2002 alone.¹⁷ The growth of these airlines will continue. Forecasts indicate that by 2010 their market share, as a percentage of passengers on intra-European flights, may climb from just under 10% at present to around 20-25%. Much

Total fleet of IATA airlines, 2002

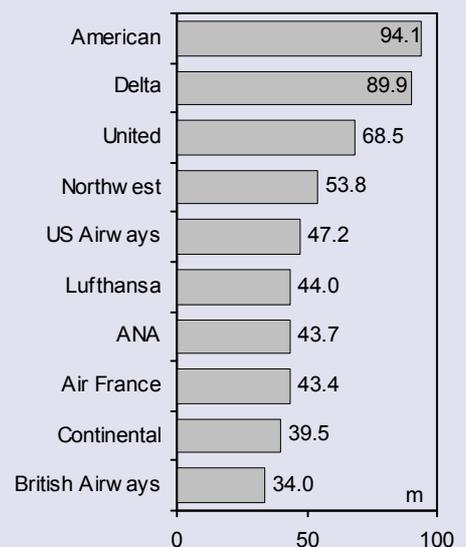


*) Air freight companies

Source: IATA

The 10 largest airlines, 2002

Scheduled passengers carried



Source: IATA

¹⁴ In 2002 half of the 50 largest airports in the world were in North America (24 in the USA plus Toronto airport); see chart on p. 12

¹⁵ See the title stories in Business Week and Fortune comparing Airbus and Boeing, both on November 10, 2003.

¹⁶ There is no generally valid definition of a low-cost carrier. A list of the airlines can be found at www.lcc24.com.

¹⁷ See AEA, "Yearbook 2003", 2003.



of the growth in the no-frills sector did not detract from the established airlines as the low fares generated additional demand. The number of low-cost carriers is now also rising in the Asian-Pacific region (e.g. Air Asia, Bangkok Air, Pacific Blue Airlines, Freedom Air).

Unlike the established network airlines, low-cost carriers serve large to medium-sized cities on a purely point-to-point basis; transfer passengers play practically no role. Nor do they offer intercontinental flights. They target price-conscious business and private travellers. The airlines achieve cost advantages in a variety of ways. There is no free in-flight service, no seat reservation, no frequent-flyer programmes, no customer lounges, no choice of class etc. Distribution is mainly via the internet, with correspondingly low costs, meaning that the airlines can save considerably on ground staff. Wages are generally lower than those of the established airlines, or working hours are longer. The fleet consists mostly of aircraft of a single type in order to obtain synergy effects in maintenance and the training of personnel. In addition, the aircraft are in service longer owing to the very short time spent on the ground. Tighter seating increases the planes' capacity. Low-cost carriers adjust their fares according to the number of seats still available on a flight, pricing the outward and return flights separately.¹⁸ Despite cheaper fares, the breakeven load factor for a no-frills carrier is very low (55% at Ryanair, according to the company itself).

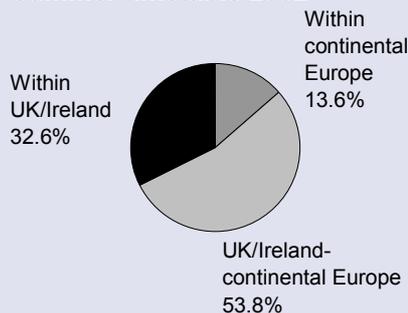
The companies' negotiations with airports on the latter's charges are particularly important. Since low-fare carriers frequently have considerable market clout in dealing with regional airports – which often have free capacities – some have been able to negotiate extremely low charges. In a recent case, the European Commission investigated whether Ryanair benefited from illegal state aid as the low charges at Charleroi airport in Belgium were subsidised by the state. The decision went against Ryanair. The company now has to repay part of the subsidy.

Consolidation in the low-cost segment inevitable

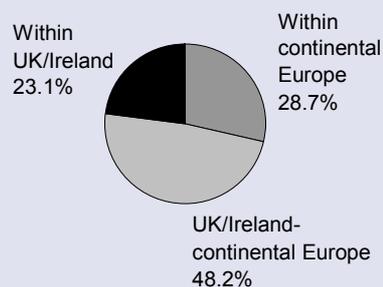
Two trends seem likely to determine the future of the low-cost carriers. First, there is now high potential demand for discount products in air transport, as in other sectors. But demand growth is set to decline going forward. Second, the capacities of low-cost carriers are currently expanding at exorbitant rates. EasyJet and Ryanair, for instance, have each placed a huge order for 250 aircraft (including options) with Airbus and Boeing, respectively. These orders are the largest ever in the history of civil aviation. There are bound to be excess capacities in this segment soon – if this is not already the case. The no-frills airlines have to compete not only with each other but also with the full-service providers and with other forms of transport. Excess capacities will therefore keep prices permanently under pressure for a long time to come. This makes it doubtful that many companies will in fact manage to continue their success story. In our opinion, consolidation is inevitable in this market. Probably just a handful of independent low-fare airlines will remain in Europe in the long run. But low-cost carriers will certainly retain their place in the air transport sector.

Regional focus of low-cost-carriers*)

Summer timetable 2002



Summer timetable 2003

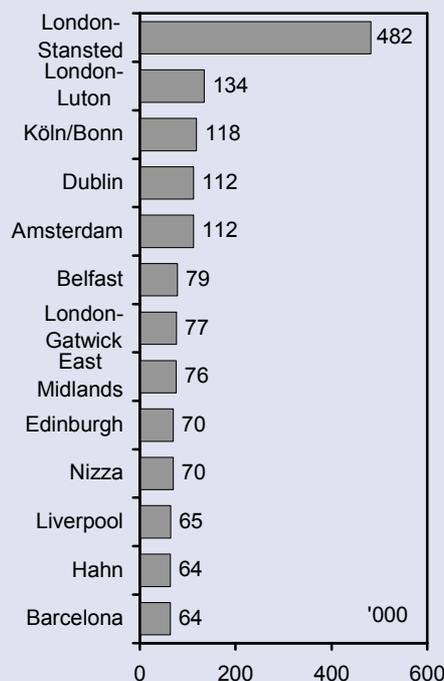


*) As percentages of weekly available seats

Source: AEA

Major airports for low-cost carriers in Europe, 2002

Weekly available seats



Source: AEA

¹⁸ See Pompl, "Luftverkehr", 2002 or Schneiderbauer, D., "Die Entwicklung des Airline-Marktes – neue Geschäftsmodelle und Perspektiven", presentation at the 6th Frankfurt Symposium Passage, 2003.

3. Current developments in competition-related policy

Competition in international air transport is traditionally based on hundreds of bilateral agreements between individual countries and their airlines. These agreements grant various “freedoms of the air” (see box), mostly to the national flag carriers and usually on a reciprocal basis. They lay down which airline is permitted to fly, how often and with what capacity, to which airport in the other country. Without these agreements, access to foreign markets was closed and competition therefore precluded. It was not possible to offer additional flights.

The first efforts to liberalise air traffic came in the late 1970s in the USA. The market there was gradually opened to competition, but only on domestic services. In the EU, the single market for air transport was created in 1997. EU airlines are permitted to serve any route within the Union if they have the necessary takeoff and landing rights (slots) at the airports. In traffic to and from third countries, however, the bilateral agreements concluded by the individual EU member states remain valid.

Competition in air transport is also still restricted, and distorted, by the fact that the rights granted to an airline depend on the nationality of its ownership, and by the still very large government stakes in some airlines. The clauses on the nationality of airline ownership have prevented mergers in the air transport industry as a purchased airline loses its traffic rights if it is taken over by a foreign rival. This rule still hampers consolidation in the sector. In the link-up between Air France and KLM – the first large merger of this kind – KLM retains its traffic rights because the new holding company, “Air France-KLM”, which is mainly French-owned, will hold only 49% of the voting rights in KLM; the other 51% will remain in Dutch hands. The flight operations of Air France and KLM will continue separately. The new company has to give up 94 takeoff and landing rights on certain European and transatlantic routes (out of a total of around 2,400 slots daily). This is intended to give other airlines easier access to the airports at Paris and Amsterdam for competitive reasons.

In addition, many airlines have been state-owned and benefited from subsidies. This has prevented the market exit of airlines that are in fact unprofitable, and has thus hindered a shakeout of the sector.

Prospect of open skies between USA and EU?

As mentioned above, the air transport markets within the USA and within the EU have been liberalised. The USA and the EU are now moving towards opening the airspace between them.

A decision of the European Court of Justice in November 2002 on a question of principle provided the legal impetus. The Court ruled that the bilateral agreements concluded by eight EU member states to regulate air traffic with the USA were not compatible with European law. Besides faulting the agreements on other points, it said they discriminated against companies from other countries.

Parallel to this turn of events, the European Commission offered to represent the member countries in negotiations with selected third countries. In June 2003 the Transport Council of EU ministers granted the Commission the mandate to negotiate with the USA on

Growth of demand for cheap flights is likely to decline

- 1. First freedom:** The right of an airline of one country to fly over the territory of another country without landing.
- 2. Second freedom:** The right of an airline of one country to land in another country for non-commercial purposes (refuelling, change of crew) without emplaning or deplaning passengers, freight or mail.
- 3. Third freedom:** The right of an airline to land in another country and deplane passengers, freight and mail coming from the airline's own country.
- 4. Fourth freedom:** The right of an airline to take on passengers, freight and mail in another country and carry them to its own country.
- 5. Fifth freedom:** The right of an airline to carry passengers, freight and mail between two other countries providing the flight originates or terminates in its own country.
- 6. Sixth freedom:** The right of an airline to take on passengers, freight and mail and carry them between two countries via its own country.
- 7. Seventh freedom:** The right of an airline to carry passengers, freight and mail between two countries without going via its own country.
- 8. Eighth freedom:** The right of an airline to carry passengers, freight and mail between two points within a country which is not its own country (cabotage).



an “open aviation area” between the two areas.¹⁹ The Commission also has a mandate to negotiate with third countries on a revision of agreements that contravene Community law. This applies particularly to the clauses relating to national ownership. The objective of the EU is to enable all licensed EU air carriers to offer flights from anywhere within the EU to third countries with which corresponding agreements have been concluded, if the individual airline has a base in the relevant EU country of origin. This would mean, for example, that Germany’s Lufthansa could fly from Amsterdam to New York if it had a base in the Netherlands (traffic rights would depend on the airline base, not on ownership and control of the airline company).²⁰ These decisions are important steps towards opening the market. In February 2004 the European Commission announced that it would seek a mandate to negotiate with countries in the western Balkans. These countries are to be integrated into a European common aviation area. Negotiations with further countries, including Turkey, Australia, Japan and China, are to follow.

Entirely free market access is the goal

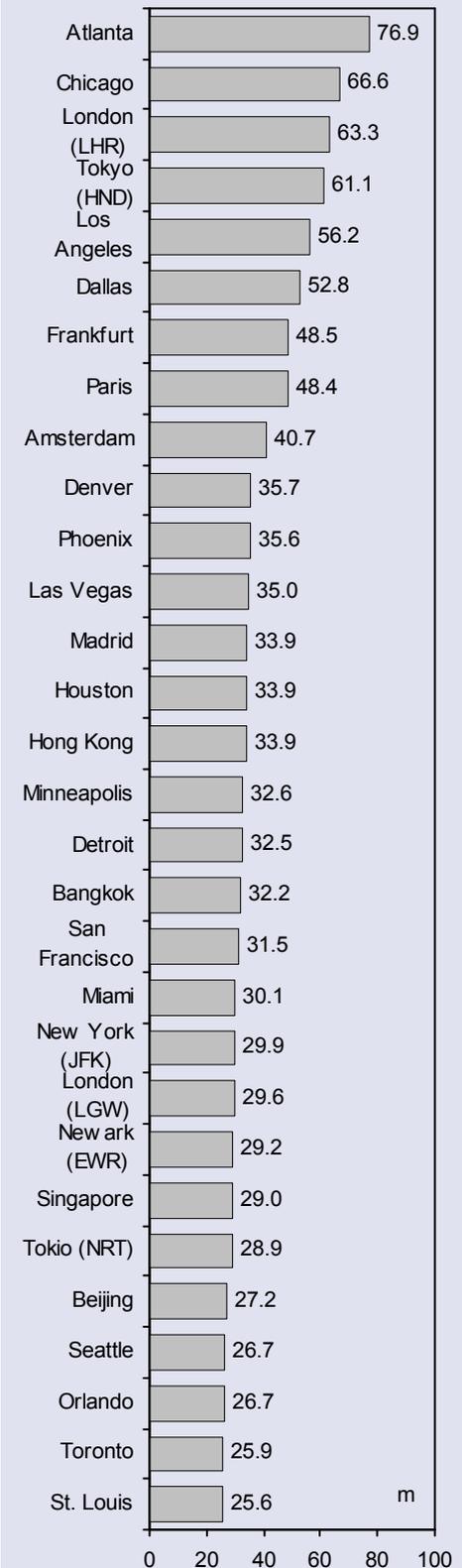
The negotiations between the EU and the USA on a common aviation area are in progress. The goal of the European Commission is to establish between the USA and the EU free market access for the airlines of the two territories, with no restrictions on routes, capacities or flight frequency. There are also to be standard rules governing airfares, competition rules, safety and security. This would probably lead to a greater range of services and lower fares on the important North Atlantic routes.

It remains to be seen whether the USA will agree soon to a broad liberalisation of air traffic between the EU and the USA. The latest round of talks, at the end of February, did not bring any progress as the USA was not yet prepared to grant European airlines extensive access to the US market. The USA is now negotiating with an equal partner, whereas before it was able to wield some market clout when dealing with just individual EU member countries. Airlines from the EU stand to benefit more from an open aviation area. However, the very fact that negotiations have started has already got things moving in international air transport policy.

Global open skies: a vision of the future

A competition-friendly arrangement between the USA and the EU would provide a model for similar agreements in the future. Restrictive, anti-competitive bilateral agreements could be gradually replaced by multilateral agreements (e.g. between groups of countries). Global open skies are still just a vision of the future. But multilateral agreements would facilitate progress in this direction. They would strengthen competition in international air transport – benefiting the consumer through lower airfares and a greater choice of services. If the clauses on national ownership were also relaxed or lifted, this would remove obstacles to the much needed consolidation in the industry. Airlines could merge more easily, and loss-makers really would exit the market. For this to happen, governments would have to further reduce their holdings in national airlines and stop regarding them as national status symbols. Privatisation is what is needed, not nannying by the state. The

The world's 30 largest airports, 2002: passengers



Source: Airports Council International

¹⁹ The bilateral agreements are to be adapted to Community law and remain in force until replaced by EU legislation.

²⁰ See European Commission, “Towards a coherent external policy for aviation: recent developments”, 2003.

countries that participate could save themselves subsidies running into billions: in the past, these have mostly evaporated with no effect and have only distorted competition in the air transport sector. The bloated industry would become lean and healthy. In the medium to long term the number of global, independent carriers in Europe could shrink from twelve at present to three or four. The merger between Air France and KLM, mentioned above, is a first step along this road.

In our opinion, countries that have so far had positive experience with a more open air transport market should resolutely continue along the outlined path towards more competition. Global market opening is, of course, more likely to be achieved in decades rather than years. But, little by little, it should be generally realised that in a global industry such as air transport it is no longer appropriate to regulate market access through bilateral agreements.

In less developed countries, though, politicians will probably seek to protect their national airlines from competition by blocking access to their markets. This is understandable from the perspective of the countries and airlines concerned, as many of the airlines are still very young and do not have the financial and technical resources to withstand the full force of entirely deregulated competition. Such behaviour preserves surplus capacities, however.

Global market opening is, at most, a long-term goal

Reduction of technical obstacles to competition

In addition to the administrative and political constraints resulting from the bilateral agreements, a number of technical market barriers also hinder competition in the air transport sector. Mainly to blame are capacity bottlenecks in infrastructure. Slots – the precisely scheduled spaces of time for take-off or landing at an airport – are an extremely scarce good, especially at the large international hubs. Since the alliances channel their flights via these hubs, bottlenecks are frequent. They are not evenly spread throughout the day, but are more pronounced in the morning and evening as these times are particularly attractive for business travellers. In addition, people choose international flights according to the desired time of arrival in the country of destination, which is generally in the morning. This aggravates the shortage of capacity at certain times of day.

Up to now, the way in which slots have been allocated gives considerable protection to the rights of incumbent slot-holders. Once an airline holds slots, it is generally reallocated the same rights in the next period. In the EU this grandfathering is subject to certain conditions. An airline is only reallocated its take-off and landing rights if it has used 80% of them in the previous period. If not, it must (in line with the use-or-lose rule) surrender the unused slots to a pool on which newcomers – potential competitors – can draw in accordance with certain criteria. New slots created by enlarging the infrastructure (extension of the airport) are also assigned to this pool. The use-or-lose rule is intended to prevent airlines from hoarding slots just to keep rivals out of an airport.

Method of slot allocation protects incumbents' rights

Scope for more competition in award of slots

The present method of awarding slots is to be criticised on grounds of efficiency. It does not ensure, for example, that slots go to the airlines that are prepared to pay most (allocative inefficiency). Similarly, there is too little incentive to use slots during peak traffic times for flights with as many passengers as possible in order to make more productive use of the scarce good (economic inefficiency). And grandfathering is a major obstacle to market access for potential rivals (competitive inefficiency). Finally, the

Obvious inefficiencies in the allocation of slots



airport operators – who would be in the best position to overcome the scarcity of slots over the medium to long term, by expanding capacities – have limited incentive to do so, as they do not receive the revenues from the allocation of the slots (infrastructural inefficiency).²¹

In the medium to long run these inefficiencies could be alleviated by awarding slots on a competitive basis. Possibilities that are being discussed include a time limit on grandfathered slots, slot trading – with slots possibly being auctioned – and the introduction of slot pricing based on the level of utilisation of airport capacity (higher prices at peak load times). The London airports have levied different charges for different times since the 1970s. This peak-load pricing has dispersed airline demand, leading to a more even utilisation of the capacities and reducing the number of flights with low slot productivity. These proposals for allocating slots on a competitive basis – which will not be treated in more detail here – certainly have practical weaknesses. At an auction, for instance, companies with strong finances could elbow their (small) competitors out of the market by placing high bids. Likewise, a time limit on slots would be counter to the planning horizon of airlines, which is generally longer term. But such problems could be overcome with suitable regulatory measures.

Strategic alliances from a competition perspective

The strategic alliances' growing penetration of the air transport market raises questions about their significance as regards competition.²² The increased cooperation among the airlines has much the same effect as concentration in the sector. The advantages for consumers (primarily through a better range of services) have to be weighed up against the constraints the alliances place on competition (market access barriers for potential rivals, possibly a narrower choice for passengers). It is necessary to examine the effects on competition at different levels.

If the infrastructure at an airport is used predominantly by strategic alliances this leads to market access barriers. An alliance can, for example, secure for itself the use of all gates at a lucrative terminal either by concluding appropriate agreements or by taking a stake in the airport. One such case is the new terminal at Munich airport – partly financed by Lufthansa – which is reserved for members of Star Alliance. Also, alliances seek to direct as much traffic as possible via their hubs, leading to congestion at these airports. Such bottlenecks, which are the result of the dominant position of the alliance members, help to keep other airlines out of the market (e.g. through a shortage of slots).

Competition is impeded in other ways, too: by frequent flyer programmes, for example. In practice, these are not so much directed against existing competitors; they are used rather to block access for potential rivals. Newcomers without such a programme to secure customer loyalty are particularly likely to feel repercussions on demand from business travellers. Much the same applies to access to computer reservation systems (CRS). These are often

Competitive allocation of slots could bring higher productivity

In effect, airline alliances increase concentration in the industry

Competition impeded by strategic alliances in many ways

²¹ See Ewers, H.-J. et al., "Möglichkeiten der besseren Nutzung von Zeitnischen auf Flughäfen (Slots) in Deutschland und der EU", 2001.

²² See Ehmer, H., "Globale Allianzen von Fluggesellschaften und ihre Auswirkungen auf die Bundesrepublik Deutschland", Laaser, C.-F., "Vor- und Nachteile globaler Allianzen im Luftverkehr – die Sicht des Instituts für Weltwirtschaft Kiel", Stehmann, O., "Varianten und Grenzen globaler Allianzen aus Sicht der europäischen Wettbewerbspolitik". All these articles appeared in DVWG, B 246, "Europäischer Luftverkehr – wem nutzen die strategischen Allianzen?", 2002.

provided by airlines, alliances or affiliated companies. In such cases there is a danger that flights of the alliance will be displayed in a prime position in the CRS, and thus receive more custom. There are EU regulations, however, that demand non-discriminatory access to CRS for all airlines. The flights of all carriers must be shown in a neutral manner.

As a result of the cooperation among airlines, competition at airline level is being replaced by competition among alliances. Competition is virtually non-existent among partners in the same alliance. The greater the parallels between the networks of the individual members, the greater the constraints on competition. When complementary networks are linked, the implications for competition are smaller as such alliances lead to increased supply and a reduction in costs due to the exploitation of economies of scale, scope and density. The primary objective of parallel alliances, however, can be to thin out parallel services in order to reduce competition on specific routes. The difficulty in investigating alliances in practice is to determine which type of cooperation is involved, as global strategic alliances generally have elements of both.

For the passenger the decisive thing is how many airlines or alliances there are to choose from on the route that he or she wants to fly. In the past, strategic alliances have led to a monopoly on some routes. More often, though, the number of services offered on an individual route has increased. Prices on these oligopoly routes have also tended to fall. Both trends have been strengthened in recent years by the rapid advance of the low-cost carriers. It has sharpened the competition on price considerably. Since the cheap airlines do not offer intercontinental flights, however, they have mainly influenced competition on flights within a continent or region.

Competition on intercontinental flights is increasingly concentrated among the alliances. Here, too, there has been a rise in the proportion of routes served by two or more airlines.

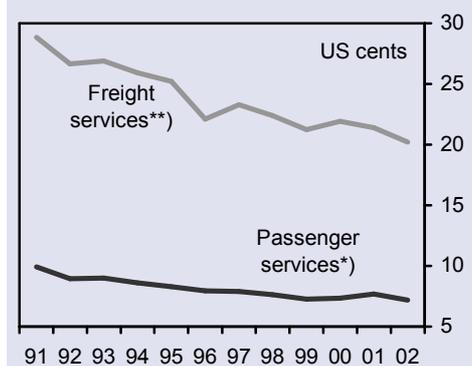
Means of increasing competition

Since strategic alliances inhibit competition in some ways, their approval by the cartel authorities is subject to certain conditions. On routes where a strategic alliance has a monopoly and thus controls the market, potential rivals must be allowed market access in order to increase competition. The airlines in the alliance concerned may, for example, have to make some of their slots available to newcomers or allow easier access to the terminal capacities they have been claiming for themselves. Another means would be to get alliances to open their frequent flyer programmes to potential rivals in some suitable way, or to have them sell a certain quota of their flight capacities. The aforementioned merger between Air France and KLM received the go-ahead from the European Commission only on these conditions (they had to surrender certain slots, etc.). Generally speaking, market tests can be conducted to determine for certain routes whether there are any rival airlines that would take up surrendered slots.

In practice, the results of any assessment of the influence of strategic alliances on competition depend on the individual case in question. Besides, strategic alliances are not permanent groupings; the number of members and their influence on the relevant market can change quickly. In our opinion, a competition policy requiring that slots and traffic rights be freely accessible to all competitors and allocated according to a non-discriminatory, efficient procedure would have a disciplinary effect on the airlines and strategic

Competition among alliances instead of airlines

Returns of European airlines



*) US cents/RPK

***) US cents/CTK (CTK = cargo tonne-kilometres)

Source: AEA

Potential newcomers limit abuse of market-controlling position

alliances; the potential market access of newcomers would limit abuse of any market-controlling position. All in all, strategic alliances that fulfil the conditions designed to reduce their restrictive effect on competition are to be welcomed. For customers, they provide added value in the form of a greater range of services, at lower prices. And for the airlines involved, they are a means of achieving synergy effects. Since it has not been possible for airlines to merge owing to the restrictive clauses regarding the nationality of the owners, strategic alliances are a more than acceptable second-best solution.

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Privatisation and regulation of German airports

1. Public sector is owner of German airports

Most scheduled and charter air traffic in Germany is handled by 18 international airports which alone served over 136 m passengers in 2002. In many cases, the public sector is the sole owner of these airports; at least, however, it has majority ownership. Public-sector owners are the regional authorities (municipalities and local communities), the individual states and the federal government.

Technical standards at German airports are high. Almost all of them can be reached easily by road or rail. There are hardly any capacity bottlenecks, only at Frankfurt Airport there is a major congestion problem and there are no capacities for take-off and landing left there. At peak times in the morning and in the evening, however, the Dusseldorf and Berlin-Tegel Airports also suffer from capacity constraints. This has been exacerbated by the fact that the elimination of constraints is often made more difficult by environmental and acceptance problems.

Airports can be divided into the categories function and catchment area:

Primary airports have a hub function. In Germany, the two biggest airports, Frankfurt and Munich, operate a hub system.

Secondary airports are ones which have an attractive catchment area¹, are in the schedules of hub airlines and whose hub systems provide scheduled flights to European destinations on a large scale. They include e.g. the airports in Dusseldorf, Hamburg, Berlin-Tegel and Stuttgart.

Tertiary airports are smaller and in many cases, they are integrated into an international route network only by Lufthansa. Examples are the airports in Dresden, Leipzig, Saarbrueck, Muenster and Nuremberg.

Quartary airports are former military and regional airports, which are mainly used by low-cost carriers.

Privatisation called for

Thanks to user financing via airline charges and their private-sector legal structure, German airports have escaped the worst excesses of public ownership. However, they have been subject to strong influence from the political side. From the business and macroeconomic point of view, this leads to doubtful management and investment decisions, which ultimately have to be financed by higher airport user fees. The airport sector is increasingly marked by dynamic international growth and strong competition. For this reason there is a risk that innovation potential will not be exploited and investment decisions will not be efficiency oriented unless airport management is taken over by the private sector to an increasing extent and attention is focussed on earnings.

From the point of view of a market economy, privatisation is in most cases the best approach for airports going forward (as in other infrastructure sectors).² It has to be taken into consideration, however, that airports may have market power, i.e. that they are able

¹ in terms of local population density and average income.

² See e.g. Brenck, A.: Privatisierungsmodelle für die Deutsche Bundesbahn, in: Allemeyer, W. et al., Privatisierung des Schienenverkehrs, 1993.

Public sector almost 100% owner of German airports

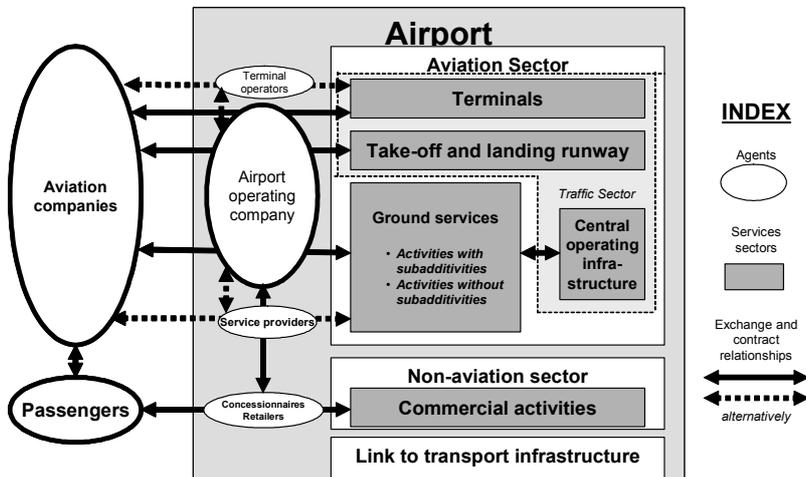
Airport	Owner	Share	Passengers 2002
		%	m
Primary airports			
Frankfurt	Hesse	32.10%	48.5
(Fraport)	Widely spread	29.00%	
	Local authorities	20.50%	
	Federal governm.	18.40%	
Munich	Bavaria	51.00%	23.2
	Federal governm.	26.00%	
	Munich	23.00%	
Secondary airports			
Dusseldorf	Dusseldorf	50.00%	14.7
	HOCHTIEF Airport GmbH	30.00%	
	Aer Rianta	20.00%	
Berlin	Berlin	37.00%	12.2
	Brandenburg	37.00%	
	Federal governm.	26.00%	
Hamburg	Hamburg	60.00%	8.9
	HOCHTIEF Airport GmbH / Aer Rianta	40.00%	
Stuttgart	Baden-Wuerttemberg	50.00%	
	Stuttgart	50.00%	
Cologne/Bonn	Cologne	31.10%	5.4
	Federal governm.	31.00%	
	North Rhine-Westfalia	31.00%	
	Local authorities	7.00%	
Tertiary airports			
Hanover	Lower Saxony	35.00%	4.8
	Hanover	35.00%	
	Fraport AG / Norddeutsche Landesbank	30.00%	
Nuremberg	Bavaria	50.00%	
	Nuremberg	50.00%	
Leipzig/Halle	Saxony	60.50%	2
	Saxony-Anhalt	17.80%	
	Leipzig	11.00%	
	Local authorities	10.70%	
Bremen	Bremen	100%	17
Dresden	Saxony	74.90%	15
	Dresden	20.90%	
	Local authorities	4.20%	
Muenster/Osnabrueck	Local authorities	100.00%	15
Dortmund	Dortmund	26.00%	1
	Public utilities	74.00%	
Erfurt	Thuringia	95.00%	0.4
	Erfurt	5.00%	
Hahn	Fraport AG	74.90%	15
	Rhineland-Palat.	25.10%	
Saarbrueck	Fraport AG	51.00%	0.5
	Saarland	48.00%	
	Saarbrueck	100%	

Sources: ADV Stat, Cumulated monthly figures; Hahn Airport Information, press releases



to influence the market price strongly. This causes the problem of excessive market prices and thus welfare losses. In such cases, the potential efficiency gains of privatisation depend on the quality of regulation.³ Airports do not necessarily have strong market power and – as the international experience outlined in Section 4 shows – adequate regulation systems could be implemented. One way or the other, German airports ought to be privatised.

From the point of view of a market economy airports ought to be privatised



Current regulation needs to be revised

Pursuant to § 43 of the Air Transport Licensing Regulation (Luftverkehrszulassungsordnung; LuftVZO), German airport fees for take-off and landing, terminal use and the parking of aircraft require the permission of the respective state authorities. They have to ensure that the fees are in line with the principles of cost-covering, public transport policy and appropriateness. Regulation is thus based on the cost-plus principle. This raises the problem that incentives for cost-cutting are limited. Furthermore, the federal states are both owners and regulators of airports, which is a conflict of interest. On the one hand, this conflict is marked by the fact that owners are interested in additional revenues and thus relatively high prices. On the other, high prices may create negative welfare effects.

First partial privatisations and new regulatory approaches in Germany

In Germany, three international airports have been partially privatised so far:⁴

Dusseldorf: Following the dramatic fire at Dusseldorf Airport (in 1996), the government of North Rhine-Westphalia sold its 50% stake to a consortium comprising HOCHTIEF Airport and Aer Rianta, part of Ireland's state-owned airport authority, for EUR 180 m. For the strategic investor, the acquisition was i.a. conditional upon making the airport fully operational again within a short period. The project involved investment of EUR 389 m, and the new terminal B was opened after a two-and-a-half year construction period.

Services provided by an airport

Link to transport infrastructure: connection with individual and public transport, e.g. road and rail transport, parking areas and cabstands.

Runway system: runways for take-offs and landing, parking areas, taxiways and apron.

Terminals: buildings with docking stations for aircraft (gates); customs, immigration, health check and security services, and usually also check-in of passengers.

Ground services: handling services; ground-based: e.g. luggage transport and check-in; air-based: e.g. maintenance, flight operation and security tasks.

Central operating infrastructure: airport facilities which are required by ground services, e.g. refilling plants and baggage-handling systems.

Aviation sector: all activities and services of the airport which are prerequisites for actual air traffic operations or support them (take-off and landing runway system, terminals, ground services and central operating infrastructure).

Non-aviation sector: provision of various goods and services which are not required for air transport. These include e.g. retail shops, hotels, car rentals etc. As goods and services in the non-aviation sector are mainly bought by passengers, the two areas aviation and non-aviation have to be regarded as complementary.

³ See Vickers, J. and G. Yarrow, Economic Perspectives on Privatisation, in: Journal of Economic Perspectives, No. 2, 1991.

⁴ Via stakes of Frankfurt Airport in the Hanover and Saarbrueck Airports, indirectly also partial private-sector ownership.

Hamburg: In 2000, Hamburg followed the Dusseldorf example and sold a minority stake of 49% (initially 36%) in Hamburg Airport for EUR 270 m to the consortium of HOCHTIEF Airport and Aer Rianta.

Frankfurt: After the transformation of its legal form into Fraport AG, Frankfurt Airport was partially privatised in 2001. Under a capital increase, roughly 29% of the shares were floated on the stock exchange.

The regulation of Dusseldorf Airport continues to be based on the cost-plus principle. In April 2000 the Ministry of Transport of North Rhine-Westphalia granted permission for the 7.1% increase in landing and passenger fees which had been asked for by the airport operator. This led to a protracted legal battle between airport and airlines as the latter considered the price increases excessive and presumed monopoly rents. In the partial privatisation of Dusseldorf Airport within a short period the regulation issue was obviously neglected.

In Hamburg, by contrast, partial privatisation and a new regulatory system were implemented in parallel.⁵ The Hamburg regulations are the result of intensive negotiations between airports, airlines and the public sector. In the framework of this internal market solution called corporatist regulation, the parties agreed to give up the cost-plus principle and to implement price-cap regulation. For a five-year period, price caps have been fixed and laid down in a contract under public-law. As the new regulation leads to productivity gains, the airport operator is able to achieve higher returns during the respective regulation period. The new system will thus create stronger incentives than the previous cost-plus regulation. However, airlines also benefit from this type of regulation as an effective price regulation leads to a reduction of airport fees. One year after the partial privatisation in Frankfurt, a model was implemented there which has strong parallels to the regulatory approach in Hamburg.

Although first experience with the corporatist airport regulation also meant to learn the hard way,⁶ airports and carriers affected have in general been satisfied with the results achieved so far.

2. Current developments and challenges

The German air traffic sector is a growth market – like the air transport industry as a whole. The strong increase in passenger figures and the growing importance of the non-aviation sector have led to substantial sales increases of roughly 10% on average p.a. This area comprises all non-core business activities which do not contribute directly to the operation and support of air transport. The major share of sales in the commercial aviation industry is generated by retail shops and service providers at airports. As they offer corresponding properties for rent, airport operators are the main beneficiaries of this development.

This has a major impact on regulatory practice; lower charges for the use of the airport's traffic areas could lead to an increase in passenger figures and thus push up sales in commercial aviation.

⁵ See Niemeier, H.-M., Regulation of Airports: The Case of Hamburg Airport – A View from the Perspective of Regional Policy, in: Journal of Air Transport Management, No. 1, 2002.

⁶ In the Regulation agreement on Hamburg Airport it was decided to implement a sliding scale mechanism which transfers incalculable demand risks to the airlines and makes possible a more efficient risk allocation from a macroeconomic point of view. However, it was "forgotten" to take account of (and thus regulate) the risk of falling passenger numbers in the agreement, so renewed negotiations were required later.

Dusseldorf example shows: privatisation of German airports should be accompanied by re-regulation

Hamburg Airport: price caps have been set

Positive experience with market internal (corporatistic) regulation

Increase in passenger figures in Germany and world-wide



Thus, airports also benefit from a reduction of fees in the aviation sector, which provides the services required for air traffic. For this reason a regulation of airport user charges may under special circumstances even become obsolete.⁷

Hub airports faced with international competition

Taking a closer look at the market potential of airports, it is helpful to distinguish between two types of passenger: origin & destination

Rank		Hub	Transfer	2001/2000	Index
2001	2000		passengers from Germany		
1	1	Frankfurt	2,073,050	-4.00%	157
2	2	Munich	809,812	13.50%	604
3	3	Amsterdam	454,323	-18.50%	262
4	4	London	452,636	-16.40%	130
5	5	Paris	448,712	6.60%	322
6	6	Zurich	365,232	-6.60%	218
7	8	Copenhagen	324,810	2.10%	180
8	7	Brussels	277,105	-26.30%	946
9	9	Milan	209,375	-4.20%	410
10	12	Madrid	167,610	28.60%	529
11	10	Vienna	162,595	8.40%	330
12	11	Istanbul	136,946	0.70%	713
13	14	Barcelona	98,915	36.90%	355
14	13	Dusseldorf	92,428	-3.80%	96
15	15	Rome	56,966	-26.20%	148

Source: Arbeitsgemeinschaft Deutscher Verkehrsflughäfen, annual statistics 2001

(O&D) passengers and transfer passengers. For O&D passengers, the airport is either an origin or a destination airport. Transfer passengers use airports only for stopping over and connecting to another flight, however. The share of transfer passengers is highest at hubs. Hub airports are an arrangement by which one or several airlines gather passengers who have the same final destination at one airport before they are flown to their actual destination. Almost all established scheduled airlines concentrate their flights into hub airports. Lufthansa's major hub is Frankfurt Airport. However, Munich Airport is also increasingly being used for this purpose.

For O&D passengers, there are hardly any possibilities of using other airports. For this reason they are most affected by increases in airport charges, which are transferred to them via the airlines. The situation of transfer passengers is different: if airport charges increase at the hub and ticket prices go up subsequently, transfer passengers have the possibility of choosing other airlines which serve the same connection from different, less expensive hubs. The German hubs at Frankfurt and Munich in connection with Lufthansa and Star Alliance face with competition especially from the European hubs of the other large alliances – i.e. London Heathrow (British Airways/One World), Paris CDG (Air France/Sky Team) and Amsterdam (KLM and Northwest) but also from smaller airports such as Milan (Alitalia). For example, this has led to eight different routes with different airlines for daily flights from Berlin to New York. However, even within alliances hubs are in some cases faced with

Increasing importance of non-aviation sales at airport

International share of non-aviation revenues in total sales

Sales	1990	2000
Aviation sector	70	49
Non-aviation sector	30	51

Source: Brunekreeft/Neuscheler 2003

O&D passengers can hardly use other airports than hubs

⁷ This presupposes that airport traffic is below capacity, however.

competition, e.g. Munich and Vienna for the Star Alliance routes to Southeast Europe.

Competition between hub airports is also reflected in their fee structures. Thus it has become common practice at hubs to cut fees for transfer passengers and increase those for O&D passengers. The only European hubs without price differentiations are the airports in Madrid, Milan and Rome. From an economic point of view, such price differentiation gives no reason for concern and is even beneficial with regard to the covering of infrastructure costs. These developments ought to make clear to German (economic) policymakers that German airport hubs are faced with international competition and that higher efficiency is thus of major importance. Reforms will have to be implemented in airport privatisation and regulation to improve Germany's competitive position.

The international airport sector has been marked by a transformation from public-sector operators to profit-oriented companies; this is often accompanied by airport privatisations. The new (private-sector) owners are to an increasing extent companies operating internationally, such as the largest British airport operator BAA plc., TBI plc., Macquarie Airports Group from Australia, and HOCHTIEF Airport GmbH from Germany.

3. Quaternary airports: new market participants

Another major development in the European airport sector is the market entry and growth of low-cost carriers. They have created a new kind of demand for airports with substantially lower charges and correspondingly less service. It is mainly met by former military or regional airports, which gear the strategy of their offer strictly to the needs of low-cost carriers. Examples of quaternary airports in Germany are Hahn Airport, Lubeck Airport, Niederrhein Airport and Altenburg Nobitz Airport. Examples in other countries are Charleroi (located south of Brussels), Torp (close to Oslo) and Skavsta Stockholm.

Quaternary airports usually do not require regulation: due to the large number of airports in Germany, their catchment areas overlap relatively strongly, which strengthens (actual and potential) competition between airports. Quaternary airports entering the market are in many cases faced with the greater problem of cost-covering. If quaternary airports actually generate high income, the overly high returns may be assessed as pioneer gains and seen as compensation for the risk associated with market entry. In addition, quaternary airports have a particularly high exposure to a small number of airlines, e.g. a low-cost carrier. This strengthens the negotiating position of the airlines and may lead to agreements of low airport charges (in some cases also in long-term contracts). Furthermore, it must be taken into consideration that airport regulation always incurs costs which, in the case of small quaternary airports, will exceed the potential advantages.

A more important economic-policy task is to ban subsidies to quaternary airports. Such subsidies, which are in some cases granted by regional authorities directly or indirectly lead in most cases to competitive distortions on the airport market. A privatisation of publicly owned quaternary airports together with a prohibition of subsidies is thus a recommendable economic-policy strategy.

Privatisation of European airports

Airport	Private ownership	Share
Vienna	Widely spread	60%
Brussels (BIAC)	Widely spread	36%
Zurich (Unique)	Widely spread	51%
Frankfurt (Fraport)	Widely spread	29%
Dusseldorf	HOCHTIEF Aiport/Aer Rianta	50%
Hamburg	HOCHTIEF Aiport/Aer Rianta	40%
Copenhagen	Widely spread	66.20%
Athens	Consortium Lead- management: HOCHTIEF Airport	45%
Rome (AdR)	Leonardo Holdings	51.20%
	Macquarie Airports Group	44.80%
Venice (Save)	Avio North East	20%
	Urvait Service	10%
	Cardine Bank Spa	3%
Naples	Edizione Holding SpA	24.39%
	IMI Investimenti SpA	12.40%
	other	12.21%
Turin	BAA Italia	65%
	Interporto Campano S.p.A.	5%
	SEA S.p.A.	5%
Oslo Torp	Vestfold Flyplass Invest	13.50%
Stockholm Skavsta	TBI plc	90.10%
Istanbul International Terminal	Tepe Construction Industry Co Inc. AKFEN Construction Tourism and Trade Inc.	100%
	Vienna International Airport	
London Heathrow, Gatwick, Stansted, Glasgow, Edinburgh, Aberdeen	BAA plc	100%
Birmingham International Airport Operations Ltd	Macquarie Airports Group Aer Rianta	24.1% 24.1%
	Employee Share Trust	2.8%
London Luton Airport Operations Ltd	TBI plc Bechtel Enterprises UK Ltd	71.4% 28.6%
Belfast International Airport Ltd	TBI plc	100%
Newcastle	Copenhagen Airports S/A	49%
London City	Dermot Desmond	100%

Source: TU Berlin



4. Positive international experience with airport privatisations

The United Kingdom and Australia may serve as a model for the privatisation and re-regulation of German airports. In these countries airport policy is strictly oriented to the objective of welfare gains. However, different paths have been chosen with regard to the scale and type of privatisation and regulation. In the UK, the three large London airports Heathrow, Gatwick, and Stansted were fully privatised as an airport system via an IPO in 1987. Further major airports (with the exception of Manchester) have been sold to strategic investors (100%). The public sector – in most cases regional authorities – have continued to be the sole owner or at least stakeholder of the smaller airports. In Australia, however, long-term concessions (for periods of at least 50 years) for the operation of the 22 major airports have been awarded to strategic investors.

In both countries, institutions with national responsibility are in charge of airport regulation. In the UK, the regulatory institution for the aviation sector, the Civil Aviation Authority (CAA), has taken over this task; in Australia, the Australian Competition and Consumer Commission (ACCC), a cross-sector monopolies commission, is in charge. Regulation systems were already worked out and implemented before privatisation and have been adjusted since then in view of the current developments and in line with experience.

In the UK, there are four airports (Heathrow, Gatwick, Stansted and Manchester) with a strict *ex ante* regulation according to the price-cap principle, which does not only cover the transport sector but also non-aviation activities (single-till regime).⁸

By contrast, the major airports in Australia have been subject to a monitoring system (*ex post* regulation) since 2002, under which a price-cap regulation according to the dual-till method sets in only after apparent abuse in supply. Smaller airports in Australia are usually unregulated.

5. Recommendations for German airport policy: privatisation and re-regulation

The chief target of German airport policy ought to be the privatisation of all international airports. In the event of the smaller tertiary airports, a sale of company stakes to strategic investors can be recommended. This form of sale incurs relatively low (transaction) costs. Furthermore, strategic investors may provide know-how for airport operation.

For larger airports, however, the sale of company stakes at the stock exchange offers advantages. This procedure ensures strong transparency and increases the number of investors. However, companies involved in airport operations may also raise large capital sums as strategic investors by tapping (investment) banks and (infrastructure) funds as stakeholders or capital providers.

Whether a full-scale privatisation is more appropriate than the sale of a majority stake depends on the respective framework conditions. Problems regarding planning and approval procedures might be solved more easily by integrating the corresponding public-sector authorities via a minority stake. A privatisation programme should be co-ordinated to avoid the concentration of German airport operations in the hands of a few investors. This is especially true for

Different forms of privatisation in the UK and Australia

Competences in the hands of national regulatory institutions

No uniform trend in the shaping of regulation systems apparent

Sale of smaller airports to strategic investors makes sense

For the privatisation of larger airports, IPOs are also an option

⁸ A distinction is made between single and dual-till method. While in the single-till method prices both in the aviation and non-aviation sectors are regulated, price regulation according to the dual-till principle is limited to the aviation sector.

airports with overlapping catchment areas (in particular Cologne-Bonn, Dusseldorf and Dortmund) as a concentration in few hands would constrain competition between airports.

Privatisation presupposes re-regulation

Besides the form of privatisation, the form of regulation is crucial for the success of privatisation. As outlined above, the current regulatory practice offers little incentives for the cost-efficient operation of airports.

Airport privatisation ought to be preceded by a reform of airport regulation (re-regulation), so that the new regulation system is well known at the time of the sale to private investors. This reduces the regulatory risk and gives a better idea of earnings opportunities for private investors; this reduction leads to lower risk premiums for investors and increases the privatisation proceeds which may be generated by the sale of airports.

Which airports should be subject to *ex ante* regulation?

As outlined above, quaternary airports should not be regulated for the time being. With regard to the smallest international airports, the tertiary airports, as well, it is doubtful whether the benefits of an *ex ante* regulation exceed its costs. In line with regulatory practice in Australia, monitoring should be sufficient as a rule. This means that the regulatory authority supervises the airport's approach to pricing and intervenes only in the event of exceedingly high charges. This is a soft form of regulation incurring limited regulation costs all in all.

Both primary and secondary airports are marked by limited market power on the one hand and incentives on the other to leave pricing scopes unexploited. In overlapping catchment areas, competition between airports arises, e.g. between Dusseldorf und Cologne-Bonn. In addition, especially primary airports compete for transfer passengers. Both factors reduce the potential market power of airports. Furthermore, the increasing importance of the non-aviation sector at airports with restraints to limited capacity creates incentives to leave pricing scope in the traffic sector unexploited. Nevertheless, the potential welfare losses in the event of exploiting the market power of primary and secondary airports argue for *ex ante* regulation of the supply side.

Who should regulate?

Airport regulation is complex, so – in line with international experience – a central, national regulatory authority ought to be set up in which regulatory know-how is concentrated. The co-existence of regulatory institutions in the federal states is expensive and inefficient. In Germany, this would require a transfer of regulatory responsibility from the Länder (state) to the federal level.

An interesting option would be to transfer this task to the Regulatory Authority for Telecommunications and Posts (RegTP), which has so far been responsible only for the postal and telecommunications sectors and in the future probably also the energy sector. Thus a regulatory authority for network sectors would be installed – reflecting the proposals of the monopolies commission.

Such a sector-independent authority has the advantage that regulatory competence may be used more effectively and the risk of regulatory capture is reduced, which means that the interests of the regulator are tacitly brought in line with those of the monopolist.

First re-regulation, then privatisation: reduction of regulatory risk and increase in sales proceeds

Monitoring of tertiary airports sufficient

Primary and secondary airports ought to remain subject to *ex ante* regulation

Transfer of regulatory responsibility to central national institution



Airport regulation ought to imply the implementation of a large number of detailed provisions whose shape has a major impact on the regulation result. For this reason the regulator ought to have comprehensive information on the airports and the related corporate data. This has to be achieved by setting disclosure and accounting standards for airports. This would ensure a better comparability between airports and thus facilitate the implementation of a benchmarking system.

Which regulatory procedure is appropriate for Germany's primary and secondary airports?

There is no consensus among experts on the precise details of an appropriate regulation *ex ante* of airports; international experience does not give any indications of the superiority of a particular system, either.

On the assumption of strong cost-cutting potential – as in the case of the so far publicly owned airports in Germany – a price-cap regulation ought to be applied. The more investment required, the more elements of a cost-plus regulation have to be included, however. In practice, the two procedures tend to converge. The shape of the critical details may thus be more essential to the success of the regulation of an airport than the choice between the above-mentioned procedures.

The same applies in general to the decision between the single and the dual-till principle. It should be noted, however, that the British CAA, which has lots of experience in airport regulation, gives preference to the dual-till method.

Market participants should be included in regulation

In the airport sector, the market participants (airports and airlines) ought to be integrated in the shaping of the rules of the regulation system whenever possible. Due to the complexity of airport regulation and the large number of potential specifications, their market experience can help to develop appropriate solutions. Airports and carriers could thus be allowed to replace a system drafted by the regulating authority by an internally negotiated solution before the regulator's system is implemented.⁹ Although a corporatist solution of this type in the energy sector has been criticised by the monopolies commission and is to be succeeded by *ex ante* regulation in line with the plans of the federal government, the negative experience in the energy sector cannot be transferred to the airport sector. Airports have less potential for market clout than power grid operators, and there are much more common interests of the market participants.¹⁰

Nevertheless, a constructive dialogue with market participants should not weaken the position of the regulatory authority. Here, it has to be taken into account that the competences of a regulatory authority do not necessarily have to be correlated to its size. The number of staff in the future national institution should not exceed the number of employees which have so far been in charge of this task in the states.

Accounting and disclosure standards are prerequisites for efficient regulation

Success of airport regulation requires specification of critical details

Negative experience with corporatistic regulation in the energy sector not transferable to airport sector

Strong but lean institution required to ensure efficient regulation

⁹ As a matter of fact, the regulator must be given the right to reject such a market solution if there is a suspicion that individual market participants (e.g. airlines newly entering the market) are discriminated against or airlines operate as a cartel, putting passengers at a disadvantage.

¹⁰ Lower charges in the aviation sector at least have the advantage for the airport that revenues in the non-aviation sector will rise.

If a longer-term transition period is required until the new regulatory institution fulfils its task, the corporatist approach based on the model of Hamburg Airport could make a short-term re-regulation possible and thus pave the way for privatisations.

Corporatistic solutions based on the Hamburg example could accelerate privatisation

6. Conclusion

The privatisation of German airports is overdue. From the point of view of a market economy, the public-sector ownership of airports does not make sense. The new challenges in the airline industry increase the necessity of including private-sector management know-how. Depending on the individual case, both the inclusion of strategic investors and IPOs may be appropriate options for privatisation.

However, productivity gains depend on the quality of regulation, so the current regulatory system must be improved (re-regulation). A single, lean national authority with good management know-how should take over the relevant competences from the states. While quaternary airports should not be regulated at all and tertiary airports should only be subject to monitoring (*ex post* regulation), *ex ante* regulation ought to be maintained at the larger (primary and secondary) airports. Here, it would make sense to include the market participants in the shaping of the rules. In general, these recommendations also apply to other European countries. Europe-wide framework conditions should ensure a level playing-field for airports and ban subsidies in single countries.

It is important that re-regulation take place before or in parallel to privatisation in order to reduce the regulatory risk and thus risk premiums for private investors. The upshot would be an increase in the proceeds from the sale of the airports.

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