

## New alliance catalyst?

Some of the major carriers are again contemplating alliances as a means to industry rationalisation.

In the US, United and US Airways, which is in Chapter 11 bankruptcy, have proposed an alliance, currently being scrutinised by the DoT. In response, Northwest, Continental and Delta are planning a marketing alliance, in effect an expansion of the existing NW/CO cooperation agreement that has been in place since 1998. Meanwhile, KLM has embarked on the latest stage of its search for a European partner, engaging in talks with Air France.

This proposed combination of these five airlines (and also, by implication, Alitalia) will meet strong opposition from the regulators and be dismissed with a yawn by seasoned industry observers. But is there a commercial logic behind the vision?

First of all, there would be two different types of alliances within this combination.

In the US domestic market, proponents of the codeshare agreement argue that they offer a competitive alternative to online direct or online connecting on many city pairs. The same argument does not work for KLM and Air France in the intra-European market, simply because of the lack of connecting traffic in this sector.

On the Atlantic, the model would be KLM/Northwest, a fully integrated and immunised alliance with revenue/cost pooling, joint marketing and no duplication of facilities, etc. Air France and Delta are moving towards emulating this operation, with Delta's hub at Atlanta in the south of the US complementing Northwest's hubs at Minneapolis and Detroit in the north.

With transatlantic traffic still languishing (overall volumes this summer are about 15% down on a year ago), KLM/Air France cooperation should give them a competitive edge, in that their joint share of sixth freedom intercontinental traffic would be boosted to about 40% of the European hub total. This is more twice as much as Lufthansa or BA. The link-up might well act as a catalyst for restructuring of the second-tier European flag-carriers by squeezing them out of the intercontinental sector (and perhaps reinforcing BA's strategy of focusing on direct long-haul business).

Which brings us to the subject of the analysis that dominates this issue of Aviation Strategy - "What is the future of the European flag-carrier?" (see pages 2-15).

Based partly on his experiences at Sabena and Swissair, Hubert Horan has produced an original, rigorous and insightful critique of the outmoded flag-carrier model, and poses the key strategic questions for the future. Comments and questions to the author and/or *Aviation Strategy* are very welcome.

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# What is the future of the European flag-carrier?

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European aviation is beginning a process of major restructuring. Serious flaws have developed in the traditional European flag-carrier business model, and the competitive landscape of 2005 will likely look quite different than that of 1995. As in the US, the future viability of the industry's dominant business model and its major airlines has been openly questioned.

Discussions of airline business models, demand segmentation and traffic flows can sometimes seem a bit dry and academic. The data and analysis presented here were originally developed in 2000, by the management of two mid-sized flag-carriers whose existing strategy was clearly unworkable and whose survival was highly uncertain. This article addresses a set of questions faced by every European carrier struggling to establish a basis for sustainable future profits, including:

- *What drives competition between the major European carriers?*
- *Why have some European hubs been more profitable than others?*
- *What caused the industry-wide profit collapse of the late 90s?*
- *Are the industry's problems largely cyclical, or is the economic logic underlying the traditional flag-carrier business model obsolete?*
- *Is the economic logic underlying new entrant business models powerful enough to threaten the survival of the flag-carriers?*
- *What new business models would give flag-carriers the greatest chance of surviving the coming industry shakeout?*

## The challenge facing Swissair and Sabena in 2000

In 1999, Swissair had a minus 4% profit margin while Sabena had a minus 6% margin, after having earned small profits in the previous two years. These declines mirrored downward profit trends among airlines across Europe. Both airlines were financially healthy, in the sense of having strong positive cash flow, easily meeting all

current obligations, and having much of their networks earning fully allocated profits. Although no national airline in Western Europe had ever failed before, both carriers were destroyed and liquidated within eighteen months.

In 1997, the Swissair Board abandoned its previous airline-based strategy that utilised alliances with major intercontinental carriers (Delta, Singapore) and other middle-tier European flag-carriers (Austrian, Sabena, SAS) to augment the scope of Swissair's brand and Zurich-based network. The new SAir Group conglomerate strategy (code-named "Hunter") withdrew assets from Swissair and invested them in service businesses (catering, IT) and smaller European airlines where SAir Group could exercise full control. The Network, Marketing and Financial management of Swissair and Sabena was combined in 1999 although there was no plan to merge brands or operations. Swissair-Sabena management remained completely separate from the management of the SAir Group holding company, and had no responsibility for any of the other newly acquired carriers.

Network Management for Swissair and Sabena knew that the both carriers were in a highly vulnerable position, given the industry-wide profit declines, the increasing vulnerability of all mid-sized flag-carriers, and the obvious failure of the SAir Group's fleet and outside business investments. In 2000, Network Management undertook a major, internal study to evaluate whether either Swissair or Sabena could survive in the long-term and to recommend specific changes and actions that would give the greatest chance of a competitive and financial turnaround.

The study assumed (heroically, as it turned out) that the airlines could somehow be reorganised independently of the SAir Group conglomerate investments, and focused strictly on the issues facing Swissair, Sabena and the other large airlines across Europe.

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# Aviation Strategy

## Analysis

### The classic "flag-carrier" business model

The two classic European airline business models were the "flag-carrier" model, which was designed to operate at a large scale and serve a very broad range of potential customers, and the "Charter airline" model, designed to only serve a specific, narrow demand segment. The flag-carrier model, best represented by Lufthansa's Frankfurt hub

based network, has six key features:

- Domination of travel demand from the carrier's Home Market
- Service to multiple, diverse demand segments (business/leisure, domestic/intra-Europe/Intercontinental, Home Market/Sixth Freedom) to maximise total travel volumes
- US-style hub operations in order to maximise connecting traffic
- A mixture of different aircraft sizes in order to maximise frequencies and hub connections
- Significant marketing infrastructure (such as worldwide sales and distribution) and systems complexity (yield management, airport operations) to efficiently serve the diverse markets
- Rapid growth in order to capture "natural" (exogenous) demand growth and to exploit hub scheduling and operating scale economies

Charter carriers aggregated demand via specialized pricing, packaging and distribution, and organised operations around larger single-class aircraft with lower unit costs, and only served O&D markets that fit into this approach.

### All flag-carriers imitated Frankfurt

The central strategy question for European airlines as late as 1995 was scheduled versus charter. Almost 100% of scheduled capacity followed the "flag-carrier" model and pursued every logical source of demand in order to maximise traffic volumes and scale. The central position of the flag-carrier model was originally driven by aeropollitical factors but actually increased after

Departures per day		Total	Intercon			Total	Intercon
<b>1Q2000</b>							
<b>First</b>	LHR—BA	265	54		ORY-AF	211	2
<b>Division</b>	FRA—LH	377	46		ORY-IJW	101	7
<b>Hubs</b>	CDG—AF	339	50		LIS-TP	87	4
<b>55% ASKs</b>	AMS—KL	366	43	<b>Third</b>	BCN-IB	109	1
	LGW—BA	183	21	<b>Division</b>	LTN-U2	48	0
	ZRH—SR	247	23	<b>9% ASKs</b>	STN-FR	46	0
	MAD—IB	151	13	(only	HEL-AY	135	3
<b>Second</b>	MXP—AZ	192	12	selected	BUD-MA	41	2
<b>Division</b>	BRU—SN	234	14	Hubs	WAW-LO	52	3
<b>Hubs</b>	CPH—SK	286	9	shown)	MAN-BA	88	2
<b>36% ASKs</b>	FCO—AZ	190	3		BSL-LXSR	89	1
	VIE—OS	175	7		LYS-AF	83	0
	MUC—LH	220	5		NCE-FU	77	0
	ARN-SK	265	2				

markets liberalised in the early 90s. Hubs from Warsaw to Lisbon expanded service to long-haul destinations, expanded airports to handle complex hub operations and rescheduled their networks to maximise connection opportunities. Smaller markets produced smaller airlines, but they all followed the same basic business model that Lufthansa used at Frankfurt.

In a heterogeneous marketplace, it is unnatural for any one business model to become the overwhelming standard, and it should be possible for multiple, overlapping business models to successfully serve different segments. European demand has always been extremely fragmented due to national markets, widely varying disposable income levels and market sizes, strong distinctions between leisure and business destinations, and wide disparities in transport alternatives.

To date, experimentation with new business models has been almost exclusively driven by new entrants. Airlines such as Ryanair are attempting to develop new leisure oriented markets (Stansted to Ancona or Biarritz) outside of the traditional Charter model, while easyJet and others are developing more business-oriented O&Ds while avoiding the comprehensive scope and infrastructure intensity of the traditional flag-carrier model.

### Airline business models are based on demand, not costs

Airlines can choose to serve multiple, diverse traffic flows or to concentrate on a narrow set of market segments. Cost structures must then be

carefully tailored to the target market, but it is dangerous to segment airlines on the basis of concepts such as "low-cost". There is no such thing as a "high cost" business model. Classic charter carriers avoid many of the branding, CRS, and hub airport costs that British Airways and KLM must bear, but as a result they cannot efficiently serve more diverse scheduled markets or scale their operations to a large network size. Ryanair's approach achieves low costs on Stansted-Ireland routes but would be uncompetitive on Heathrow-Austria routes. Airlines under any business model will fail if they add too much capacity relative to their target markets, or cannot keep costs in line with what those markets will pay for the service.

### **Three segments within the "flag-carrier" business model**

The 2000 Swissair-Sabena study argued that industry profit trends were best explained by the performance of individual hubs, not by overall corporate results. The roles and profit potential of hubs at Gatwick, Orly, Munich and Geneva were substantially different from their owner's hubs at Heathrow, Charles de Gaulle, Frankfurt or Zurich. In 2000, the 14 largest hubs accounted for 91% of all of the capacity operated the entire scheduled European industry. The industry's "First Division"-the top four hubs (British Airways at Heathrow, Lufthansa at Frankfurt, Air France at Charles DeGaulle and KLM at Schipol) alone accounted for 55% of scheduled industry capacity. The ten "Second Division" hubs each operated 175-275 daily flights under the hub carrier's code.

Many of the 9% of scheduled ASKs in the Third Division are also tied to the flag-carrier model, including smaller national carriers with much more limited networks (Finnair, Aer Lingus, Malev, TAP), and secondary hubs of larger carriers (BA at Manchester, IB at Barcelona, AF at Orly, Crossair at Basel), designed to maximise Home Country coverage. But this Third group also includes new entrants following different models, including domestic-focused hubs (AOM-Air Liberte at Orly, Deutsche BA), and the satellite London operations (easyJet at Luton, Ryanair at Stansted). In 2000, these new entrants were still a tiny percentage of scheduled industry capacity.

### **First Division Hubs have a huge market size advantage**

There is a marked difference in the size of the local revenue base between the four First Division Hubs and the ten Second Division Hubs. The Charles de Gaulle market is three times larger than Zurich, Brussels or Munich, while Heathrow is six times larger, and these gaps would be even larger if one considered total London/Paris demand instead of the airport level demand. This size advantage of the ASK capacity operated by the First Division hubs mirrors the differences in the underlying revenue bases. This is in marked contrast to the US hub environment where origin-market size gaps between the top tier hubs (Atlanta, Dallas, Chicago) and second tier hubs (Houston, Denver, Minneapolis, Pittsburgh, Philadelphia) are much smaller. This also explains why new entrants using 150-seat aircraft have had success developing networks of large O&D markets ex-London, and much less success at Brussels, Munich or similar cities.

The First Division offers two to three times more Intercontinental departures than Second Division hubs, even though levels of intra-Europe service are broadly similar. SAS at Copenhagen had roughly the same number of short-haul flights as British Airways at Heathrow. Second Division carriers would have to quadruple ASKs in order to match the size and scale of the First Division.

### **Flag-carrier hub profitability fell by over \$1bn in 1999**

One cannot evaluate competitive performance or strategic issues without reference to relative profitability. The table on page 5 includes Swissair estimates of the operating profitability of the 14 hubs in its competitive set. These reflect educated guesswork based on public financial information that may not break out airline and non-airline results in a consistent manner and should be used with some caution. Detailed public yield and cost data are not publicly available and thus European airlines cannot easily estimate their competitor's route and hub profitability as US airlines can.

In 1999 the profitability of these 14 hubs fell by over \$1bn (a 45% decline) from 97-98 levels, a downward trend that continued in 2000 and accelerated in 2001. More importantly, there is a structural profit gap between the First and

### FLAG CARRIER HUB PROFITABILITY

		Hub ASK Capacity Rank/ Index (FRA=100)	Estimated 97-98 hub Op Profit	Estimated 97-98 hub Op Margin	Estimated 99 hub Op Profit
First Division hubs <b>55% ASKs</b>	LHR—BA	1—125	\$750 m	5-7%	\$150m
	FRA—LH	2—100	\$550 m	7-9%	\$500m
	CDG—AF	3—92	\$300 m	3-5%	\$500m
	AMS—KL	4—82	\$400 m	3-5%	\$100m
	<b>Subtotal</b>		<b>\$2.0 bn</b>	<b>-4%</b>	<b>\$1.3 bn</b>
Second Division hubs <b>36% ASKs</b>	LGW—BA	5—46	\$75 m	2-4%	(\$25m)
	ZRH—SR	6—41	\$75m	2-4%	0
	MAD—IB	7—36	\$100 m	3-5%	\$50m
	MXP—AZ	8—34	\$75 m	2-4%	(\$25m)
	BRU—SN	9—29	\$50 m	0-2%	(\$25m)
	CPH—SK	10—22	\$75 m	3-5%	\$25m
	FCO—AZ	11—18	\$50 m	2-4%	0
	VIE—OS	12—17	\$50 m	2-4%	0
	MUC—LH	13—17	\$50 m	1-3%	\$25m
	ARN - SK	14-14	\$0 m	(1)-1%	0
<b>Subtotal</b>		<b>\$0.6 bn</b>	<b>-2%</b>	<b>\$0.1 bn</b>	

The total European flag-carrier sector grew capacity roughly 7-8% per year in the late 90s, with the smaller, weaker carriers actually growing faster than the larger, more profitable ones. The four largest First Division airlines grew at an overall average of 7%, although BA and KLM slammed the brakes on growth

Second division hubs. In the "good years" of 97-98, the top four hubs operated 61% of the capacity of this group but earned 77% of the profits, a full two margin points better on average. As overall industry financial performance declined, Second Division profits declined much more rapidly, falling 85% in 1999 versus an estimated 35% decline for the First Division. Size matters. There is no evidence in this timeframe of any smaller flag-carrier hub earning more profits than any significantly larger one.

While an obvious point, it is worth noting that 2-4% operating margins in the "good years" of a business cycle usually indicates that an industry has extremely serious structural problems and could not support new capital inflows without major restructuring.

#### Overcapacity and the industry profit collapse of the late 90s

The tendency of airlines to expand capacity much faster than the growth in the revenue base can be observed throughout the industry's history, and was the primary driver of the major decline in flag-carrier profits in the late 90s. Following the forecasting approaches of the aircraft manufacturers and many consultants, many European airlines assumed that exogenous demand for their services was growing at rate several times faster than GDP growth, and rapidly expanded their fleets in order to capture the new demand and resulting scale economies faster than their competitors.

in 1999. These four airlines accounted for three-quarters of the industry's overall expansion. In their rush to emulate the Frankfurt hub (and to narrow Frankfurt's size and network scope advantages) the Second and Third Division carriers grew 12-13%, but still failed to close the size gap versus the First Division.

It is unclear whether any managers at these carriers actually believed that their core business revenue base was likely to grow at these rates, and many airlines seemed to be focusing on traffic volume and market share instead of revenue or profits. As seen in the table below, Intercon traffic grew in line with seat growth, while intra-European traffic growth lagged slightly behind. However, Intercon traffic growth was almost exactly offset by 7-8% real yield declines - the added seats were only filled by cutting prices. The real yield declines were almost (but not quite) as bad on the short-haul network. While capacity grew roughly 35% in this period, industry-wide revenues (adjusted for inflation) barely grew at all. While there were isolated cases of profitable growth (Air France's hub development at CDG), in the vast majority of cases this expansion

	1996	1997	1998	1999
<b>European GDP growth</b>	<b>1.5%</b>	<b>2.4%</b>	<b>2.6%</b>	<b>2.0%</b>
<i>AEA INTERCON</i>				
ASK growth	8.7%	10.5%	6.4%	8.0%
RPK growth	8.1%	7.5%	7.6%	8.7%
<b>Real RASK growth</b>	<b>(8.2%)</b>	<b>(5.5%)</b>	<b>(6.7%)</b>	<b>(8.5%)</b>
<i>AEA INTRA-EUROPE</i>				
ASK growth	6.4%	7.7%	10.0%	5.5%
RPK growth	7.3%	5.3%	7.9%	5.8%
<b>Real RASK growth</b>	<b>(6.8%)</b>	<b>(6.8%)</b>	<b>(3.8%)</b>	<b>(4.6%)</b>



did nothing except destroy corporate value.

**Flag-carrier revenue and competition is driven by Intercon markets**

64% of all revenue originating or terminating in Europe in 2000 was long-haul, while only 25% came from cross-border short-haul markets. The remaining 11% was from domestic, intra-Scandinavia or UK-Ireland markets which the top 14 hubs only serve on a very limited basis. Competition between the top 14 hubs is dominated by the dynamics of Intercon markets. 32% of the total flag-carrier revenue base comes from Intercon markets that have no nonstop service. Many of these markets (Berlin-Los Angeles, Lyon-Tokyo, Sao Paulo-Copenhagen) have good single-carrier one-stop service from five or more competing European hubs plus alliance or inter-line service via non-European carriers. Long-haul markets with nonstop service (another 32% of the total revenue base) will still face significant competition from hubs offering connecting service, given the price sensitivity of these markets, and the relatively small elapsed time penalty.

Given the power of hubs, intra-Europe non-stop markets tend towards stable one or two carrier markets. On short sectors, connecting alternatives cannot compete without very deep price-cutting. Intra-Europe O&Ds that do not have non-stop service, where passengers must connect (Bari-Paris, Stavanger-Rome) are insignificant to the larger competitive picture. In the US, narrow-body must-connect markets account for over a third of the domestic market, while in Europe the thousands of O&Ds in this category only account for 3% of the total revenue base.

% of total Revenue base by O&D category	All markets	O&Ds with nonstop service	Connect-only O&Ds
Total	100%	65%	35%
Intercontinental	64%	32%	32%
Europe cross-border	25%	21%	3%
Domestic	11%	11%	0%

**Hub profitability depends on limiting low-yield connect traffic**

79% of all traffic served by the top 13 hubs originated or terminated in the hub carrier's Home Market, 68% at the hub city, and 11% on connecting domestic services such as Hamburg-

Frankfurt on Lufthansa or Toulouse-Charles DeGaulle on Air France. Average yields on Home Market connect flows are generally similar to Hub nonstop levels, Swissair yields on connecting Geneva/Basel traffic were actually higher than nonstop Zurich yields at comparable stage lengths. Yield penalties on Sixth Freedom markets averaged 15-20% for Swissair and 20-30% for Sabena.

Hub profitability requires a strong mix of Home Market traffic

relative to lower-yielding Sixth Freedom traffic. Three hubs which had the misfortune of being located in smaller national markets - Amsterdam, Zurich and Brussels---had extremely high percentages of lower-yielding Sixth Freedom traffic, and are especially exposed to revenue downturns due to industry-wide over-capacity. Excess capacity has a dis-

Sixth Freedom Traffic as % of Total Hub Traffic (1999)	
LHR—BA	18%
FRA—LH	27%
CDG—AF	20%
AMS—KL	<b>44%</b>
LGW—BA	15%
ZRH—SR	<b>34%</b>
MAD—IB	7%
MPX—AZ	13%
BRU—SN	<b>36%</b>
CPH—SK	9%
FCO—AZ	2%
VIE—OS	24%
MUC—LH	11%
Average of 13 hubs	<b>21%</b>

proportionately greater impact on Sixth Freedom markets. Carriers can avoid price wars in Home Country business markets such as Paris-Frankfurt, by filling empty seats with Miami-Frankfurt or Paris-Bangkok passengers instead.

**Second Division hubs cannot compete for Intercon traffic**

Second Division hubs with long-haul networks face a daunting challenge. Intercontinental wide-bodies can feed huge volumes of traffic on their existing shorthaul flights, rapidly increasing the scale economies of their hubs, and significantly improving the scope of their network to the levels business customers demand. But by competing directly with Frankfurt, Paris and Amsterdam for this traffic, they end up with an unsustainable mix of Sixth Freedom connecting traffic, and the expansion needed to maximise network competitiveness disproportionately trashes their own rev-

venue base. None of the Second Division hubs operating in 2000 could match the Intercon market share of the First Division hubs, and none of the Second Division Intercon operations were profitable in the late 90s. Traditional flag-carriers such as Austrian and SAS who had recognised this dilemma and backed away from direct competition with Frankfurt and Paris remained frustrated by the inability to exploit the growth and scale economies of the major widebody operators.

As the table (right) indicates, the ability to attract Sixth Freedom Intercon traffic is a direct function of the number of Intercon departures offered. With the exception of Amsterdam, every hub's share of Sixth Freedom traffic matched (within 1-2 points) its share of Intercon departures. Amsterdam's unusual strength reflects decades of leadership in this segment, but its yields and profits suffered due to industry-wide overcapacity. No one in the Second Division has been unusually successful in attracting connecting flows to their hub

### How many Intercon hubs can Europe support?

The Swissair/Sabena study argued that all 14 hubs were viable and sustainable, but not if they followed the traditional flag-carrier business model and developed networks similar to and directly competitive with Frankfurt and Paris. A carrier could operate longhaul from a European hub with a level of departures competitive with Frankfurt and Paris, or maintain a very limited service strictly supported by the local market similar to Austrian at Vienna or Alitalia's downsized network at Rome, but there was no viable "in-between" strategy.

The number of viable flag-carrier model Intercon Hubs is limited by the total pool of traffic from cities without non-stop service and the number of strong, immunised alliance with domestic US carriers. The North Atlantic accounts for 54% of the total longhaul market ex-Europe, and 20% of the US market can only be served in conjunction with an alliance partner. British Airways at Heathrow could clearly compete without an alliance partner (albeit at a slight disadvantage) as the larger UK-US market can support more direct service, but no continental hub could remain in the First Division without fully integrating North Atlantic networks with an immunised US

	Share of Intercon Departures (Winter 99-00)	Share of Intercon Sixth Freedom Connect Traffic (MIDT 99)
LHR—BA	18%	17%
FRA—LH	15%	18%
CDG—AF	17%	14%
AMS—KL	14%	23%
<b>First Division</b>	<b>64%</b>	<b>72%</b>
LGW—BA	7%	6%
ZRH—SR	8%	7%
MAD—IB	4%	3%
MXP—AZ	4%	2%
BRU—SN	5%	5%
CPH—SK	3%	1%
FCO—AZ	2%	2%
VIE—OS	2%	1%
MUC—LH	1%	0%
<b>Second Division</b>	<b>36%</b>	<b>28%</b>

partner.

While many observers at the time were expressing doubts, the study argued that there was no question about the ability of the market to support four large Intercon hubs, including Amsterdam. KLM's smaller Home Market would always limit its potential profitability (relative to Paris or Frankfurt), but its decades of experience with hub and alliance management and other factors provided offsetting strengths, and it would clearly benefit from the inevitable shakeout of Sixth Freedom capacity. There is no apparent need for consolidation within the First Division and any alliance or merger between these four hubs would have a huge impact on industry-wide competition. A merged British Airways-KLM would have had 45% of the Sixth Freedom Intercon market in 2000, more than double the share of Paris or Frankfurt.

The study argued that there was at least the possibility that the market could support a fifth Intercon hub, although this was by no means certain. 27% of the observed Sixth Freedom traffic already used Second Division hubs; a viable fifth flag-carrier hub would need to achieve a 10-15% share. More importantly, it needed to have a strong, immunised alliance with a US carrier (that was not allied with any of the four larger hubs) and achieve the same (or better) Sixth Freedom yields as the four larger hubs.

### Could Swissair survive as Europe's fifth flag-carrier Intercon hub?

It was readily accepted that Sabena had no business expanding its Intercon network, and the

decision to double Sabena's long-haul fleet from 10 to 20 aircraft (imposed by SAir Group in 1997 when effective control was acquired) needed to be totally reversed. None of the aircraft added had operated profitably. It was argued that Sabena could profitably support perhaps 8 to 12 long-haul aircraft, (the pre-SAir Group level) limited to large destinations such as New York and Boston, American Airlines hubs, and traditional markets in Francophone Africa. As will be discussed below, Sabena had a clear opportunity to abandon its Frankfurt-like approach, and to restructure along a "City Network" business model approach.

Swissair's dilemma was much more difficult, as both growth and contraction seemed highly unattractive. The size of the Swiss market and the limitations of Zurich airport precluded any expansion towards the size of the First Division networks, but all evidence suggested that competitiveness would decline rapidly if Intercon service were cut back to a smaller scale. But 55% of all Swissair revenue came from Intercon traffic (versus 30% for Sabena) and Intercon was a huge percentage of Swissair's asset and marketing base. Swissair operated 36 longhaul aircraft and only seven of these aircraft were operating unprofitably in 2000 and all but one was clearly cash positive. Swissair had a reputation for service quality that allowed it to compete successfully for higher-yield Sixth Freedom traffic against carriers with larger networks. In fact, the value of Swissair's brand almost exclusively came from its ability to shift revenue share in competitive markets outside Europe. Swissair was respected within Europe, but (adjusted for stage length) its short-haul yields were exactly comparable to those of Sabena or Crossair, somewhat less famous brands.

The study concluded that there was no logical basis for arguing that Swissair could survive long-term and earn reasonable returns, even if all of the conglomerate financial problems external to the airline could somehow be solved. If one were starting from a clean sheet of paper, one would never invest in a global hub based in Switzerland. The recommended approach, however, was to maintain Swissair's 1999 level of Intercon operation and continue to try to compete directly with the First Division hubs, making maximum use of Swissair's brand equity and service reputation.

Given the current profit squeeze and industry overcapacity, any expansion not clearly profitable would be cancelled, including the nine A340-600 aircraft on order which were much too large for Swissair's markets. The A340-600 decision had been driven by conglomerate objectives (development of the aircraft leasing company) and without any reference to whether the aircraft could be operated profitably on the Swissair network. Under 2000 conditions, introduction of the A340-600s would have reduced Swissair profitability by over \$72m per year. Profit recovery would depend on a rapid shakeout of other unprofitable Second Division Intercon capacity - not only a downsizing at Brussels, but also Gatwick and Malpensa, gauge reduction at Heathrow, and no new expansion at Copenhagen or Munich. It would also require strengthening the alliance with American Airlines to the level achieved with the previous alliance with Delta. Any BA-KLM merger, or US-UK open skies leading to a fully immunised BA-AA alliance would have destroyed the prospects for this approach.

The alternative most in line with the changing competitive situation was to downsize to a predominately short-haul network. This would have required the elimination of over 25 widebodies and replacing at least 20 of Swissair's A320s with smaller aircraft due the loss of longhaul feed. It would have eliminated 80% of the jobs under the current Swissair pilot contract. The risks of such radical downsizing were huge and no airline in history had ever gone through a restructuring remotely similar. All current operations were cash positive yet any restructuring would have immediately drained cash and required massive new investment. While survival as the smallest of Europe's First Division global hubs was highly uncertain, and many critical requirements were outside Swissair's control, this was the company's least risky near-term option.

### **The new SWISS Intercon strategy (2002)**

Of course SAir Group refused to restructure any of its failed conglomerate investments and collapsed in 2001. SWISS became the successor company to Swissair, using the Crossair corporate structure, and acquired all of Swissair's route authorities and other network operating assets. As SWISS was not required to compensate the previous owners of these assets (the SAir Group



creditors) it had the unusual freedom to establish whatever fleet or network mix it wanted.

The new owners of SWISS invested \$2.5bn of new capital in a business plan whose centrepiece was an "in-between" size Intercon strategy. Zurich Intercon capacity was cut roughly 25 % (to a level similar to what Alitalia operated at Malpensa in 2000), and the historic Swissair brand name was abandoned. While they had the options of using their lower cost structure as the basis for maintaining Swissair's full Intercon network, pursuing a predominately shorthaul network based on regional aircraft, or a lower cost approach based on a narrower set of target markets, they chose instead to invest in a 26 aircraft long-haul strategy.

Thus the new owners of SWISS rejected all three of the major findings of the 2000 Swissair/Sabena study - that a shorthaul regional aircraft based strategy was the best "clean sheet of paper" approach; that the largest feasible network and the strongest brand would be critical if one chose to continue to battle First Division hubs; and that an "in-between" Intercon network was the worst of all worlds, and was the least likely to achieve sustainable profits. Whether this alternative strategy can earn returns for the new investors is currently being tested in the marketplace.

### A new City Network strategy for Brussels

The plan developed for Brussels abandoned key elements of the flag-carrier model, including the emphasis on rapid Intercon traffic growth and Sixth Freedom connecting traffic. Brussels is a large O&D market-similar in size to Rome, Milan, Munich, Zurich and a bit larger than Copenhagen and Vienna. The study argued that Brussels (and the other Second Division cities) were fully capable of supporting large levels of airline service, just not global hubs.

Of the 70 European cities Sabena and DAT served in 2001, 50 had fewer than 50 local Brussels passengers per day each way, and only six markets had more than 100 local passengers. Thus an airline pursuing a Southwest or Ryanair type strategy of serving markets that can fill 150 seat aircraft would have difficulty developing a large network. The high cost of short-haul flights at Brussels-National Airport would make it difficult to profitably sustain the low fares that would be

Number of destinations with local Brussels demand (passengers per day, each way, MIDT)						
>150	100-149	75-99	50-74	35-49	20-34	<20
1	5	6	8	14	16	20

required to significantly stimulate new demand, and Brussels' appeal as a purely leisure destination is limited. Virgin Express has been unable to make money with its small route network. Ryanair's limited network is based at Charleroi (where its airport costs are essentially zero) and has not focused on traditional business destinations.

The recommended City Network business model, builds a high frequency network for these business destinations with a mixed, largely regional jet fleet, targeting a very small average gauge (75-90 seats) that reduces total ASKs. Under 2000-01 market conditions, the study argued that Brussels could have supported 240-280 flights, depending on the exact competitive situation. Seat capacity serving Sixth Freedom traffic would be drastically reduced, along with the marketing and sales infrastructure serving these diverse but low-yield markets. Long-haul and mainline narrowbody aircraft would be limited to markets that can be profitably operated with strong reliance on local traffic (London, Malaga, New York, francophone Africa). Global connectivity would have been provided in conjunction with alliance partners (Swissair and American). Revenue would still be optimised with a hub schedule, but depeaking the existing Intercon-oriented Sabena schedule would have provided utilisation gains enough to fund six or seven additional aircraft worth of flying.

### Sabena - no chance to change direction

While Sabena management accepted the City Network recommendations, and worked actively to cut back longhaul flying and to significantly expand regional jet flying, it was unable to implement the change in strategy. Sabena had grown at an annual rate of 22% between 1997 and 2000 - three times faster than the ruinous AEA 7% average rate that had destroyed billions in corporate value across Europe. The SAir Group strategy for Sabena was to focus on intra-Europe connect traffic, even though this was only 3% of industry revenue, and this traffic had no particular reason to choose Brussels over other, larger hubs. SAir Group's 1997 decisions to reck-

lessly over-expand, and to simultaneously replace Sabena's entire fleet with aircraft much too large for its markets created impossible financial burdens and the company collapsed by the end of 2001.

In addition to doubling the long-haul fleet, SAir Group disposed of Sabena's fleet of 32 Boeing 737s, (most of which were less than ten years old) replacing them with larger A320s. This would have increased the average gauge of Sabena's overall narrowbody operation from 98 to 116 seats per departure, comparable to the level Air France operates in a local market three times the size of Brussels, where it also has 50 long-haul widebodies a day feeding connecting traffic onto those seats. The A320 is obviously a fine aircraft, it was just totally inappropriate for Sabena's markets. They would have increased annual costs by over \$100m (since they are newer and larger aircraft) and would have been totally dependent on incremental Sixth Freedom traffic (on top of an already bloated base) to cover those costs. Because Airbus could not deliver this added capacity fast enough, SAir Group added wetlease capacity from Virgin Express and CityBird at rates over \$35m per year higher than Sabena's own costs, under unbreakable multi-year contracts, which accelerated the cash drain and subsidised otherwise unsustainable competitors.

It would have been relatively simple to shift from Sabena's 1998 fleet and network position to a City Network type strategy, but there was no way to quickly reverse the financial burdens of the SAir Group changes (fleet and wetlease obligations, massive pilot retaining, overcapacity and yield declines, etc.). Press comment at the time Sabena shut down tended to focus on longstanding issues such as brand image, or Belgian social costs and industrial relations, but these factors had almost nothing to do with the immediate causes of its failure.

While Sabena's short-term profit outlook in 2000 was worse than Swissair's, this was largely a function of the fleet and wetlease problems. SAir Group had made disastrous aircraft invest-

ments at both airlines, but they hit the Sabena P&L two years sooner. If one assumed these obligations could be restructured, and one looked out to the European airline environment of 2005 or 2010, the study suggested that it was more likely that one could operate a profitable City Network airline in Brussels than to make money in Zurich as the number five Global Hub in Europe.

While the 2000 Swissair/Sabena study argued that the Brussels market could support a large local-service airline, investors have been highly reluctant to step forward, and SN Brussels, the successor carrier remains under-capitalised. As Sabena was not reorganised in an orderly manner, a large chunk of its previous revenue base was lost to foreign airlines, perhaps fatally undermining the potential opportunity. Or perhaps investors simply do not believe that any European airlines except the First Division global hubs and UK-based new entrants can justify new private investment.

### Three viable European airline business models for 2005

The central strategic question for European airline in 2005 is whether to pursue all possible sources of demand (global, domestic, short-haul European, mixed business and leisure) in order to maximise traffic volumes. If one does, one must incur much higher marketing infrastructure and operating complexity costs. These costs can only be offset by the scale economies of 747s and Frankfurt-type hubs, which can only be realised by carriers with large, sustainable Intercon networks. The limited base of higher-yielding Home Market Intercon traffic suggests that only Heathrow, Charles de Gaulle, Frankfurt and Amsterdam can survive as Global Hubs, and thus only British Airways, Air France, Lufthansa and KLM have the possibility of pursuing a multiple demand segment strategy.

Long-haul service outside these hubs will survive only when the local market can fill at least half of the seats and local business travelers contribute a strong share of total revenue. But these carriers cannot follow the classic flag-carrier approach, as they can no longer assume domination of Home Market traffic except at the hub airport. British Airways has already lost a major chunk of UK traffic not firmly tied to Heathrow. Ryanair and easyJet have begun their attack on

	AF-CDG	120
<b>Average</b>	<b>BRU after Airbus plan</b>	<b>116</b>
<b>seats per</b>	SR-ZRH	113
<b>intra-Europe</b>	BA-LGW	110
<b>departure</b>	OS-VIE	101
<b>under hub</b>	<b>BRU 1998 actual</b>	<b>98</b>
<b>carrier's code</b>	KL-AMS	93
<b>(summer 00)</b>	LH-MUC	87
	<b>BRU City Network plan</b>	<b>85</b>

the German market, and easyJet and Buzz are preparing attacks on France.

Any European network that cannot enjoy the scale economies of a Global Hub must target a much narrower market segment, eliminate all costs not directly serving that target market, and achieve short-haul operating costs much lower than current British Airways or KLM levels. While the restructuring process may be long and painful, it is unclear how any other hub can earn acceptable returns while continuing to follow a traditional flag-carrier approach. Two alternative business models offer shareholders greater potential. The City Network approach outlined earlier targets local intra-European business demand and drastically reduces capacity and operating costs by downsizing into smaller gauge, largely regional fleets. The Big O&D model uses a standardised fleet of larger (737/A320 type) single-class aircraft and then targets only those O&D markets large enough to fill these aircraft.

Three market approaches have emerged to date within the Big O&D sector. Big O&D carriers focusing on more traditional O&Ds (easyJet, Go, Ryanair in Dublin-regional UK markets), have the opportunity to exploit existing demand, which (as in the Ireland-regional UK case) may never be profitable or strategic for incumbent flag-carriers. Ryanair has already begun to develop a new segment with an air-only service to southern European leisure oriented destinations that have had little airline service in the past. Charter carriers have always focused on Big O&D markets, but are facing increased competition for leisure travellers and several are considering expanding into

markets that not based on tour packaging.

### These Business Models cannot be combined

Any sustainable airline must have lower costs than the flag-carriers of years past. But low cost is only one of the keys to sustainable profits, not an end in itself. Cost efficiency is driven by different factors under each model, and in each case certain costs must be added in order to generate critical revenue streams. An unfocused all-things-to-all-people management mentality is a major cause of inefficiency. Without strategic clarity, managers cannot agree on which costs key to competitiveness and survival and which costs add very little value.

Because different costs play different strategic roles in each case, airlines cannot mix-and-match elements of these models. The management approach of one model always undermines the unique cost discipline or market focus needed to succeed with the second model. The discipline and skills needed to ruthlessly eliminate complexity and infrastructure costs in a City Network or Big O&D approach cannot also serve the diverse customer requirements of a Sixth Freedom hub. The focus on scale economies and complex automated tools that are key to Global Hubs cannot be readily applied to narrow local markets. Managers at Global Hub and City Network must carefully limit discretionary low-yield traffic to off-peak "fill-up" capacity, while managers at Big O&D carriers must build their marketing and capacity plans around these markets. Airline hubs,

	<b>Driver of Low Costs</b>	<b>Costs needed to generate higher revenue</b>
<b>Global Hub</b>	<ul style="list-style-type: none"> <li>• Very low costs per ASK (widebodies, mainline jets, long stage lengths)</li> <li>• Scale economies from very large home market revenue base and large Intercon traffic flows</li> </ul>	<ul style="list-style-type: none"> <li>• Intercon sixth freedom revenue must cover higher airport, marketing and distribution costs</li> <li>• Costs of added services, premium products must be covered by higher fares</li> </ul>
<b>City Network</b>	<ul style="list-style-type: none"> <li>• Very low aircraft costs per departure (regional aircraft)</li> <li>• Reduced complexity and infrastructure costs (hubs, marketing and distribution) relative to flag-carrier levels</li> </ul>	<ul style="list-style-type: none"> <li>• Local customers must pay for quality schedule at expensive airport—must have large local revenue base and must achieve local market RASK premium</li> </ul>
<b>Big O&amp;D</b>	<ul style="list-style-type: none"> <li>• Low aircraft costs per ASK (standardised fleet of all-coach mainline jets at high utilisation)</li> <li>• Extreme minimisation of complexity and infrastructure costs</li> <li>• Very low airport costs</li> </ul>	<ul style="list-style-type: none"> <li>• Must develop new, discretionary revenue via combination of clever marketing and lower pricing</li> <li>• Each city pair must be large enough to fill larger gauge aircraft</li> </ul>

brands and companies must be rigidly linked to a single business model. It is certainly possible for shareholders to own different airlines in different sectors (with separate operations and bottom line accountability) as with the original British Airways-Go or current Lufthansa-Eurowings structure. It would also be possible for independent airlines to combine or jointly operate certain support functions, and this could be an important source of needed cost savings.

### **City Networks target existing traffic but have limited growth potential**

The City Network model is designed to serve already existing demand for (relatively high priced) air service at (relatively high cost) major airports. This minimises market development costs but means that this model offers very limited traffic growth potential. Any carrier pursuing this model must abandon the rapid growth/scale economy thinking at the heart of the traditional flag-carrier model. Natural growth of the higher-yielding short-haul business revenue base is probably less than 2% per year, with no growth potential until the overcapacity of the late 90s has been worked off.

Only markets as large as the Second Division hub cities can support the multiple-frequency networks needed to make this approach work. City Networks at smaller cities (Geneva, Hamburg, Barcelona) are easily overwhelmed by large jet capacity from competitor hubs, and it is much more difficult to build the customer loyalty and competitive presence needed to maximise revenue performance.

This approach offers none of the glamour of a rapidly growing longhaul flag-carrier network, but that is not one of the options in a market like Brussels, Vienna or Rome. The City Network model offers an opportunity to make money the boring, old fashion way - by keeping costs in line with a more limited and stable revenue base, and maximising the satisfaction of local business travelers with a strong, reliable schedule.

### **The Big O&D model generates new demand but has difficult limitations**

The biggest challenge facing Big O&D carriers is simply finding enough Big O&D markets that can fill large, growing fleets of 150-seat jets. Many of these markets are totally new, or were very poorly served by the traditional flag-carriers

in the past. There are certainly large markets out there, but outside of London, they appear to be widely dispersed, may be slow to develop, and are not always situated near low-cost airports.

The growth potential of the Big O&D sector is further limited by difficult cost and competitive trade-offs. Carriers focusing on more traditional business oriented O&Ds (easyJet in Geneva-Amsterdam), must somehow establish a very strong price and cost advantage and stimulate much greater traffic volumes than the flag-carriers ever experienced, despite either serving higher cost airports or training the market to use less familiar alternative airports.

Development of new destinations, such as Ryanair's services to airports such as Carcassonne or Pescara avoids direct competition, but will require rock-bottom costs. These new services will take customers from charter carriers, who may in turn move into more of these air-only leisure markets. While domestic O&Ds can be large, the small number of O&Ds in each country and high airport costs has prevented new entrants from achieving large, sustainable price and cost advantages. Given the inability of most Big O&D model new entrants to achieve profitability (Debonair, Virgin Express, Deutsche BA, Air Europa, etc) the challenge of these trade-offs should not be underestimated.

Despite superficial similarities, the European Big O&D model is *not* the classic Southwest Airlines model. Southwest pursues mainstream domestic business markets, with typical domestic aircraft on frequent schedules, so long as those markets are not at megahubs where the incumbent carrier would have overwhelming advantages. European start-ups must develop totally new markets (Luton, Charleroi, Treviso, etc) with much larger gauge narrowbodies than the flag-carriers use. America has many hundreds of non-hub local markets with existing local demand that can support multiple 737 frequencies. With the exception of London (and possibly Paris) no European city appears able to support more than a handful of high-demand non-hub routes. Southwest serves large traditional airports convenient for business travelers (Los Angeles, Phoenix, Detroit, St. Louis), while costs at the comparable European airports (Vienna, Zurich, Brussels) preclude Southwest type low costs. Investors looking for Big O&D new entrants to replicate Southwest's financial record - 25 years

of double-digit growth at industry leading margins-will probably be disappointed.

The Big O&D model seems ill suited to capture much Second Division flag-carrier traffic, despite the financial and competitive vulnerability of these hubs. Big O&D carriers have failed to establish profitable operations to date in markets such as Brussels or Munich, and there is less reason to think they could succeed in cities such as Milan, or Vienna. While easyJet had clearly reduced the profits Swissair and British Airways had previously enjoyed on the London-Switzerland route, both incumbents remained profitable, and isolated easyJet services to Switzerland posed no threat to Swissair's core Zurich hub or Swiss Home Market position. The subsequent collapse of Sabena and Swissair has not led to major Big O&D expansion in Belgium or Switzerland.

### **Second Division hubs have not moved away from the flag-carrier model**

There is little evidence that the Second Division profit collapse that began in 1998 will be reversed, yet no carrier in the second tier has fully abandoned the flag-carrier thinking of the last twenty years. Each carrier has made positive moves, but none has coherently unified fleet, capacity growth, market focus, infrastructure cost and productivity improvements into a credible strategy.

Austrian long ago abandoned any global pretensions but still operates at a very high average gauge for the Vienna market (101 in 2000) and has had difficulties shifting from a 150-seat main-line jet to a Tyrolean/regional jet based focus. SAS has reformed its capital structure and strengthened its Scandinavian Home Market position but has also spent heavily on increasing its already excessive narrowbody gauge and restoring Intercon capacity that it had previously decided was uncompetitive. Alitalia has come to grips with the inability of Italian airports to compete as Global Hubs, but has yet to realign its fleet or operating costs with a new strategy.

The only European hub currently following a City Network type approach is Lufthansa at Munich, where it operates only four long-haul flights, a heavy mix of regional aircraft, and achieves a European (cross-border) average 82 seats per aircraft, in line with the size of the local market (average seats on domestic German

routes are slightly higher). 89% of the traffic Lufthansa carried at Munich in 1999 was German Home Market traffic. While the Munich hub may have been originally conceived with son-of-Frankfurt global ambitions, Lufthansa has sensibly avoided network shifts that would reduce the competitiveness of its major hub, while keeping Munich focused on profits, not glamorous routes and big aircraft.

While all of the second tier carriers face daunting political and industrial obstacles to serious restructuring, none have demonstrated the type of willingness British Airways and KLM have shown to take major action to address obvious problems of cost and overcapacity. The core, irreplaceable asset of each Second Division carrier is its historical Home Market revenue base, and its strong distribution and airport positions. The longer these carriers wait to bring capacity and infrastructure costs in line with the revenue potential of that core business, the greater the danger that the core will be irreparably damaged.

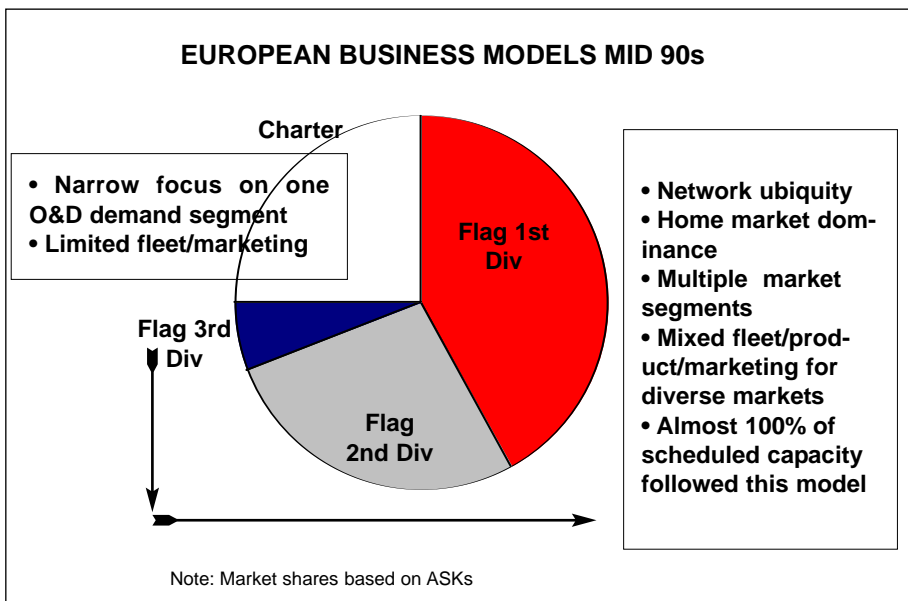
### **Alliances cannot save the Second Division carriers**

While alliance membership may offer useful benefits to Second Division carriers, there is no evidence as yet that it addresses their strategic and financial problems in any meaningful way. Under certain conditions, alliances can strengthen an already secure network base, but they do not work in all markets, and they cannot turn a weak, marginal network into a profitable one.

The only alliances that have been big wins for both sets of shareholders are the immunised North Atlantic pairings, where two airlines with strong, sustainable "Home Continent" networks linked their hubs to capture competitive traffic flows they could not otherwise serve. There are no meaningful short-haul network synergies achievable from an alliance between two European hubs with heavily overlapping routes. Incremental traffic captured by the Swissair-Sabena alliance was negligible. Alliances might serve to further dominate flows and increase yields between the two Home Markets, but the competition authorities might not accept this as a major benefit.

Full intra-European alliances (including joint sales and FFPs) can shift longhaul traffic but this tends to be in one direction only, with the Global Hub operator gaining share from the junior part-





thinking, refocus on one new business model, and ruthlessly manage costs in line with the chosen business model. The available hub markets and demand segments have long been defined; the challenge is establishing costs within the revenue base these customers are willing to pay. Consultants may peddle simple formulas for higher profits, (imitate Southwest's fleet utilisation) just as they have in the past (imitate Frankfurt's hub connectivity). But this review of industry economics, and the recent history of hub profitability and fleet, alliance and capacity growth decisions suggests that the most successful of the former flag-carriers in the coming decade will be the ones who most successfully restructure their costs.

ner's Home Market. It is completely sensible for SAS and Alitalia to abandon any Intercon capacity not largely serving local Scandinavian or Italian demand. But it is extremely difficult to design a pooling mechanism that will ensure that the benefits of diverting local revenue to Frankfurt or Paris will be shared equally by both the junior and senior partners. Air France can connect every important Italian airport to Charles de Gaulle without Alitalia's help. While it makes sense for Air France to compensate Alitalia for incentivising its customers to fly via Paris instead of Frankfurt or Amsterdam, it is unclear how such payments could be large enough to cover Alitalia's upcoming restructuring costs or guarantee the withdrawal of its competitive long-haul flying.

Cost and management synergies could be significant but require common ownership and control (as between Swissair and Sabena) and cannot be seriously exploited under an arms-length alliance. The consolidation of systems and functions that would drive meaningful savings requires loss of direct control and other risks that independent owners and managers rarely find acceptable.

### **The future depends on strategic clarity and cost management**

With rare exceptions, European flag-carriers have never earned the cost of capital in liberal competitive environments. To do so in the future will require that carriers make a major cultural/paradigm shift away from flag-carrier

The success new entrants such as Ryanair and easyJet have achieved to date largely reflects the fact that they began operations with both strategic clarity and extraordinary cost discipline, and none of the cost burdens of obsolete business models. But outside London, the Big O&D sector will face the challenge of developing new demand and new markets, as this model is not a direct substitute for the existing networks at hubs such as Amsterdam, Zurich or Milan.

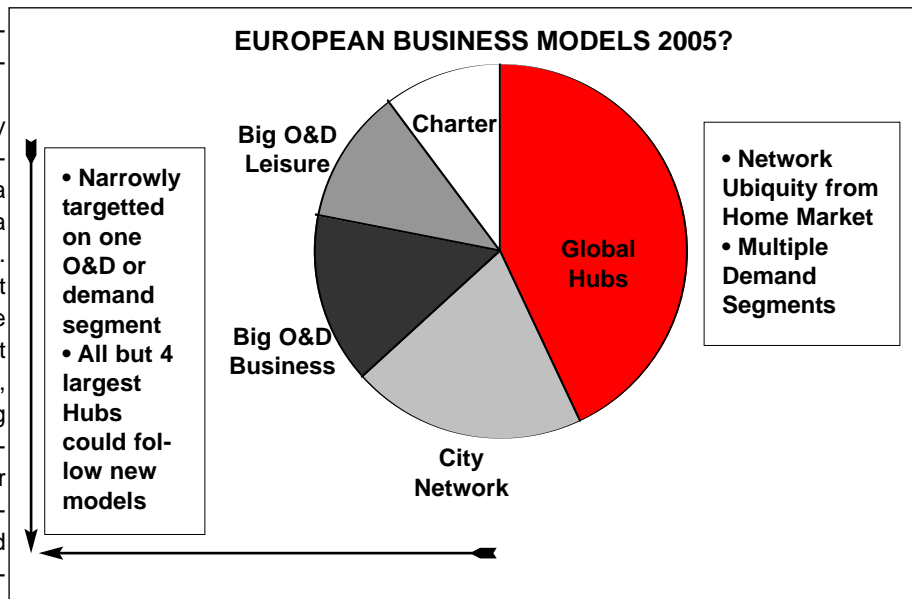
Simple across-the-board cuts will not provide the cost savings the former flag-carriers require. In addition to addressing long-recognised cost problems such as airport charges and operating workrules, carriers must rethink the pieces of their network that are not part of their core Global or City Network hubs (such as the non-Heathrow parts of British Airways) that were marginal contributors in a protected flag-carrier world but are now the prime target of new entrants. Carriers must rethink their traditional approaches to fleet and capacity planning, as the fastest way to undermine profitability is a major fleet investment inappropriate for the airline's markets. Despite recent problems at many carriers, these investments tend to receive very little outside scrutiny, and many assume that "fleet renewal" is always a profitable thing to do. Carriers must rethink their basic corporate structures and their need for independence and autonomy. A carrier must control its core network hub, and the safety of its operation, but any other function can be questioned. Alliances should also be rethought, as

many existing agreements fail to provide meaningful, measurable shareholder benefits.

Many existing airlines are financially weak, but European demand is inherently complex and fragmented, and a more efficient industry may still have a large number of operators and brands. Mergers for mergers sake rarely benefit shareholders, and often make it more difficult to address cost problems. But as Swissair and Sabena demonstrated, meaningful savings from consolidating management and key systems are possible without merging brands or unionised operating groups. New, innovative approaches to combining and managing airline functions could produce major productivity gains, but this will require challenging both longstanding flag-carrier cross-border ownership and control constraints, and much local political and bureaucratic resistance.

### The role of judicial reorganisation

At one level the destruction of Swissair and Sabena would seem to be an aberration, and one certainly expects that this level of financial mismanagement and willful disregard for basic airline economics will never be seen again. But it has been proven that if a European airline has a serious competitive/financial problem and refuses to restructure its bad investments, it can fail. More importantly, if badly run airlines go bust, the service will not necessarily be replaced by other better run carriers, and the assets will not necessarily be moved to more productive uses. There was a tremendous amount of economic value within both Swissair and Sabena but most of that value was simply destroyed when they shut down. Industry efficiency has been seriously reduced, unless one believes that it would be impossible for anyone, under any business model, to operate a profitable airline network in Brussels or Zurich.



That would only be true if there was also no justification for airline networks in cities such as Milan, Copenhagen, Madrid or Munich.

Letting badly run airlines undergo Chapter 11-type judicial reorganisation can serve the public interest in the US because the bankruptcy laws there ensure that airlines with viable core networks are not prematurely destroyed, and they provide an imperfect but largely workable mechanism for reallocating assets to more productive uses while protecting creditor rights and facilitating new investment. European bankruptcy laws are highly similar to US law on paper, but appear totally ineffective in the case of large airlines. Aeropolitical constraints would have blocked any foreign company from attempting to take over the existing Swissair or Sabena positions. Slot control mechanisms make it impossible to establish a hub network position without acquiring all of the liabilities of the failing company. Judicial reorganisation could accelerate the restructuring needed at many flag-carriers. Without an effective restructuring process, billions of asset value and tens of thousands of viable jobs may be needlessly destroyed.

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### Boeing and Airbus: Backlog quality?

This year Airbus can claim that it has at least caught up with Boeing on all the main measures of civil airliner manufacturing - orders, deliveries and backlog (see Aviation Strategy, July/August, "Airshow jousting". One lingering issue is the quality of the backlogs.

The tables on these pages come from ACAS data on firm, commercial backlogs for the two manufacturers as at the end of July. Airbus out-backlogs Boeing by 264 units, which focuses even more attention on the upcoming 120-unit 737-700 versus A319

decision from easyJet.

Other potential upcoming orders include: bmi (737s or A320s); Virgin Blue (737s or A320s); China Eastern (A320s); Air France (777s); Emirates (777s); China Airlines (A330s or 777s); and Australian Airlines (767s).

Some observations on the backlogs:

- Some 622 units or 41% of the Airbus backlog is committed to operating lessors, compared to 324 units or 26% for Boeing. This has implications for both delivery positions

#### BOEING'S FIRM BACKLOG

	717	737	747	757	767	777	TOTAL
ILFC		136	5	0	0	43	184
Southwest		113					113
Ryanair		105					105
GECAS		60	1	0	1	15	77
Undisclosed		27	4		27	12	70
Continental		56	0	11	0	0	67
Delta		61	0	0	0	5	66
American		41	0	3	9	4	57
CASC		37	1			0	38
WestJet		28					28
SIA			6			21	27
JAL			3			23	26
Midwest Express	25						25
CIT Leasing		23		1			24
Garuda		18				6	24
Varig		14			6	4	24
Airtran	21						21
ANA					6	14	20
Northwest				17			17
American Trans Air		12		4			16
easyJet		16					16
Korean Air		12	2			2	16
Boullioun		13					13
Air France		0	2			10	12
Pembroke Capital	12	0					12
Royal Air Maroc		11					11
Alaska Airlines		10					10
Others (40 operators)	2	63	27	5	5	36	138
<b>TOTAL</b>	<b>60</b>	<b>856</b>	<b>51</b>	<b>41</b>	<b>54</b>	<b>195</b>	<b>1257</b>

*Source: ACAS*

# Aviation Strategy

## Analysis

and the lease rates of Airbus equipment relative to Boeing.

- Airbus's exposure to the more financially troubled of the US Majors (US Airways, United and America West) is considerable: it has 109 units on order from these carriers whereas Boeing has none. Boeing does, however, have a mysterious 70 "undis-

closed" aircraft.

- Boeing dominates the low-cost carrier market. It has 262 737s on order for Southwest, Ryanair, WestJet and easyJet, equivalent to 21% of its backlog. Airbus, so far, has only won orders from JetBlue - 57 A320s, or 4% of its backlog.

### AIRBUS'S FIRM BACKLOG

	A600F	A310	A318	A319	A320	A321	A330	A340	A380	Total
ILFC			20	87	105	56	52	13	10	343
GECAS			30	15	39	16	18			118
Northwest				34	9		36			79
UPS	66									66
CIT leasing			4	9	28	6	15			62
JetBlue					57					57
United				23	25					48
Air France			15	1	5	1	6		10	38
SAA				11	15			12		38
US Airways				3	21	13	1			38
Emirates							7	6	22	35
British Airways			6	6	16	4				32
debis				9	14	8				31
SALE				3	23	4				30
Lufthansa								14	15	29
Iberia					14	10		4		28
Boullioun				10	12	4				26
China Eastern					20			5		25
Qantas							13		12	25
America West			15	2	6					23
TACA				5	17					22
LanChile					15			3		18
TAM				10	8					18
SIA								7	10	17
Virgin Atlantic								10	6	16
Asiana						8	6			14
SAS						9	4			13
SWISS								13		13
Frontier			5	7						12
GATX Capital					12					12
Qatar					6		5			11
Alitalia				10						10
Federal Express									10	10
Others (40 operators)	3	5	13	20	57	30	21	15	0	164
<b>TOTAL</b>	<b>69</b>	<b>5</b>	<b>108</b>	<b>265</b>	<b>524</b>	<b>169</b>	<b>184</b>	<b>102</b>	<b>95</b>	<b>1521</b>

Source: ACAS

## Low cost carriers and airports: a productive relationship?

The relationship between airports and airlines is often challenging. Airports are often portrayed by the stock market as monopoly businesses and "regulated utilities", this contrasts sharply to analysts' portrayal of the airline business. Airports are long-term stock market plays, personified by strong margins, steady growth and reliable dividends. Airlines are at best trading stocks, low margin and not for the faint-hearted investor.

Airline managers often accuse airport managers of being unresponsive and slow to react to their needs. The airline industry's current problems have heightened the tension between airlines and airports, for example, British Airways has accused BAA that, in its spending plans submitted to the UK CAA (which regulates the airports' pricing), it has exaggerated future capital expenditure requirements by more than a £1bn.

If the traditional relationship between airports and airlines wasn't already strained enough, the emergence of low cost carriers (LCCs) has added a new dimension. Some airports have embraced LCCs, while others have shown no interest. Following American Airlines announcement that it is to effectively "de-hub" its airport operation, and as other carriers adopt a downsizing approach, airports have been forced to spend more time evaluating the LCC option.

Airports and airlines that have retained some level of government ownership, have, in general, been the least welcoming to the LCCs. After all, for the incumbent airline the LCC is obviously a threat and the airport can justify not encouraging their entry on the basis that their contribution to the airports' bottom line will be negligible. The fact that Ryanair has not entered either the Spanish or Portuguese markets is recognition that it has been unable to negotiate special deals from their airports.

The LCC business model requires airports to change their product offering. There are several elements to this, both operational and in a change of business approach. Operationally, LCCs require the following of airports:

- Fast turnarounds, usually with a target of 20

minutes or under.

- Short walking distances from the terminal to the aircraft, LCCs don't like to use airbridges, but board passengers using the aircraft's own internal steps. Thus, there is no requirement for the airport to build airbridges or provide bussing.
- Flexible pre-boarding zones.
- Efficient operations which minimise delays (ATC, taxi time and holding), and
- To positively encourage passengers to proceed airside thereby minimising passenger induced delays.

The change in airport business mind set needed by the LCC requires airports to offer:

- A movement away from the historical fixed rate card system of airport charges to a more flexible *a la carte* approach. This requires the airport to provide a menu of charges and the airline only pays for services chosen. To keep charges down by offering more functional passenger terminals.
- Commit to understanding how the LCC business model is achieved, primarily through the simplification of functions.
- Offer long-term or even lifetime contracts.
- Encourage airlines to conduct their own ground handling.

Some airport groups, with multiple airport ownership, have been able to adopt an encouraging approach to LCC operation at some airports whilst keeping other airports LCC free. For example, Fraport has been able to develop Frankfurt-Hahn into a highly successful LCC base, with Ryanair currently serving 11 destinations from the airport.

What a LCC does bring is growth. In 1997, Frankfurt-Hahn handled 20,000 passengers. In 2002, Dr. Wilhelm Bender, CEO of Fraport AG, estimates that Hahn will handle 1.2m passengers and that this number will double in 2003.

The table on page 19 shows a number of European airports that thanks mainly to LCCs were able to report above average passenger traffic growth rates in the year 2000. The average growth rate for all ACI Europe airports in the year 2000 was 7.9%.

In the UK, BAA positively encouraged LCC



### EUROPEAN AIRPORTS WITH LCC EXPOSURE

Airport	Passengers handled ('000)	Increase over 1999
London Stansted	11,875	25.6%
Malaga	9,437	10.8%
Nice	9,392	8.4%
Geneva	7,764	11.5%
London Luton	6,173	17.5%
Alicante	6,010	11.9%
Turin	2,802	12.8%
Liverpool	1,987	51.9%
Glasgow Prestwick	905	28.1%
Frankfurt Hahn	368	174.4%

Source: ACI

Hodgkinson, Chief Executive of BAA, was in favour of LCCs. He acknowledged that at Stansted, LCCs benefit from discounts and rebates on new routes and on meeting growth targets. However, in time these discounts and rebates are expected to be recovered.

Hodgkinson also said that on a like-for-like basis, passengers travelling on LCCs had a greater spend per head on food at Stansted (no free

operations out of its London Stansted airport. Under-utilised in the mid-90s, Stansted has, thanks to Ryanair, go and Buzz become the UK's fastest growing airport with annual growth of 15% in the year to March 31st 2002, which compares to a fall of 2.2% in passenger numbers for the seven airports in the BAA portfolio. By 2012, BAA is forecasting that Stansted will be handling 35 million passengers, up from the 14 million passengers handled in the last financial year.

The UK has led the way in Europe in the LCC sector. Over 100 destinations are now served by LCCs from UK airports, and BAA has now embraced the LCC sector wholeheartedly. Satellite 3 at Stansted will be built for Ryanair, and with no airbridges will cost 60% less than the original design with airbridges. Further savings can be made, as LCCs provide no interlining or connecting flights, so airports do not need to provide costly interconnecting baggage systems.

Are LCCs bad news for airports? Arguably not, and the way that the publicly quoted and financially astute BAA has encouraged their growth not just at Stansted, but increasingly at London Gatwick as well, would seem to suggest that there is a place for LCCs. easyJet has been a godsend for BAA at Gatwick, given British Airways decision to place less emphasis on the airport.

One argument is that LCCs are efficient users of airports. LCCs aim to achieve high all year round passenger load factors. easyJet check-in times for passengers without baggage average eight seconds. At London Luton, there are 60 check-in desks and easyJet uses 20 of them, yet accounts for 60% of the passengers at the airport.

Airports unwilling to entertain the idea of LCCs argue that although LCCs may bring growth it is, in effect, unprofitable growth. An argument put forward recently by Mike

food is of course available on LCCs) than at either Gatwick or Heathrow. Also, because many passengers travelling on LCCs are on three/four day city breaks, they are more likely to arrive at the airport by car and therefore use the airport car parks.

JP Morgan analyst, Andrew Lobbenberg, estimates that in revenue terms, one full service passenger is worth about two LCC passengers. He cites Fraport as an example where at Hahn, Ryanair pays €4.25 per departing passenger and no landing fee. At Frankfurt/Main a 737 operator would be expected to pay € 13 per departing passenger plus a landing fee of approximately €1.75 per departing passenger.

Some airports have been so keen to secure LCC operations that they have linked their landing charges to fare levels. If only able to sell a ticket at the lowest available fare, the LCC pays less to the airport in terms of a passenger handling charge than for a passenger in a higher fare bracket.

A danger for airports that believe that they will be able to increase charges to LCCs in time, as introductory fees unwind, is that airlines can always move elsewhere. This is typified by Ryanair, which given its business model of flying to secondary and tertiary airports has more scope to move in and out of certain markets. Ryanair, for example, has ceased operations to Kristestad, Lamezia and Rimini following arguments with airport management about fees.

Home to the pioneer of LCCs in Europe, Ryanair, Dublin Airport has benefited very little from Ryanair's recent 25% a year growth rates. Ryanair has taken its growth elsewhere, initially at London Stansted and more recently to Brussels Charleroi, Frankfurt Hahn and Glasgow Prestwick. Dublin has been too slow to reap the early LCC rewards - airports have noticed.

# Aviation Strategy

## Databases

	Group revenue US\$m	Group costs US\$m	Group op. profit US\$m	Group net profit US\$m	Operating margin	Net margin	Total ASK m	Total RPK m	Load factor	Total pax. 000s	Group employees
<b>Alaska</b>											
Year 2000	2,177	2,198	-20.6	-70	-0.9%	-3.2%	27,834	19,277	69.3%	13,512	9,940
Apr-Jun 01	579	568	11.3	4.7	2.0%	0.8%	7,528	5,289	70.3%	3,692	10,966
Jul-Sep 01	583.4	570.6	12.8	25.3	2.2%	4.3%	7,536	5,351	71.0%	3,741	10,826
Oct-Dec 01	462.2	558.6	-96.4	-36.4	-20.9%	-7.9%	6,622	4,389	66.4%	3,025	10,500
Year 2001	2,141	2,263	-121.8	-39.5	-5.7%	-1.8%	28,837	19,712	68.4%	13,668	10,742
Jan-Mar 02	497	548	-51.4	-34.4	-10.3%	-6.9%	7,189	4,791	66.6%	3,193	
Apr-Jun 02	477	480	-2.2	-2.5	-0.5%	-0.5%					
<b>American</b>											
Year 2000	19,703	18,322	1,381	813	7.0%	4.1%	258,951	187,507	72.4%	86,239	99,610
Apr-Jun 01	4,838	5,586	-748	-494	-15.5%	-10.2%	66,007	47,484	71.9%	21,488	128,300
Jul-Sep 01	4,816	5,374	-558	-414	-11.6%	-8.6%	62,676	45,315	72.3%	20,123	127,200
Oct-Dec 01	3,804	4,952	-1148	-798	-30.2%	-21.0%	54,907	35,580	64.8%		109,300
Year 2001	18,963	20,823	-1,860	-1,762	-9.8%	-9.3%	161,030	176,143	69.4%	61,287	102,093
Jan-Mar 02	4,136	4,865	-729	-575	-17.6%	-13.9%	64,515	44,766			
Apr-Jun 02	4,479	5,080	-601	-495	-13.4%	-11.1%	70,724	53,125	71.4%		100,100
<b>America West</b>											
Year 2000	2,344	2,357	-12,637	7,679	-539.1%	327.6%	43,580	30,741	70.5%	19,950	13,869
Apr-Jun 01	587	641	-54	-42	-9.2%	-7.2%	11,098	8,367	75.5%	5,294	13,971
Jul-Sep 01	491	590	-99	-32	-20.2%	-6.5%	10,774	7,973	74.0%	5,034	13,633
Oct-Dec 01	400	538	-138	-61	-34.5%	-15.3%	9,477	6,492	68.5%	4,144	
Year 2001	2,066	2,380	-316	-148	-15.3%	-7.2%	42,709	30,696	71.9%	19,576	13,827
Jan-Mar 02	460	583	-123	-358	-26.7%	-77.8%	9,780	6,859	70.1%	4,303	
Apr-Jun 02	533	534	-1	-15	-0.2%	-2.8%	11,024	8,351	75.8%	5,080	
<b>Continental</b>											
Year 2000	9,899	9,170	729	342	7.4%	3.5%	134,718	100,283	74.4%	45,139	45,072
Apr-Jun 01	2,556	2,419	137	42	5.4%	1.6%	36,713	27,443	74.8%	12,256	
Jul-Sep 01	2,223	2,136	87	3	3.9%	0.1%	35,395	26,086	73.7%	11,254	
Oct-Dec 01	1,738	1,895	-157	-149	-9.0%	-8.6%	29,321	20,554	70.1%	9,508	
Year 2001	8,969	9,119	-150	-95	-1.7%	-1.1%	135,962	98,393	72.4%	44,238	45,166
Jan-Mar 02	1,993	2,180	-187	-166	-9.4%	-8.3%	30,498	22,582	74.0%	10,057	
Apr-Jun 02	2,192	2,307	-115	-139	-5.2%	-6.3%	33,108	24,922	74.6%		
<b>Delta</b>											
Year 2000	16,741	15,104	1,637	828	9.8%	4.9%	236,665	173,453	73.1%	105,591	79,584
Apr-Jun 01	3,776	3,890	-114	-90	-3.0%	-2.4%	61,538	44,784	72.8%	28,130	82,500
Jul-Sep 01	3,398	3,649	-251	-259	-7.4%	-7.6%	60,719	43,260	71.3%	26,441	83,500
Oct-Dec 01	2,863	3,457	-594	-734	-20.7%	-25.6%	51,460	32,798	63.7%		
Year 2001	13,879	15,124	-1,245	-1,216	-9.0%	-8.8%	237,914	163,693	68.8%	104,943	77,654
Jan-Mar 02	3,103	3,538	-435	-397	-14.0%	-12.8%	54,298	37,384	68.9%	24,618	
Apr-Jun 02	3,474	3,601	-127	-186	-3.7%	-5.4%	60,709	42,355	73.4%	27,427	75,700
<b>Northwest</b>											
Year 2000	11,240	10,671	569	256	5.1%	2.3%	171,789	127,298	76.6%	56,836	53,131
Apr-Jun 01	2,715	2,751	-36	-55	-1.3%	-2.0%	42,217	32,887	77.9%		
Jul-Sep 01	2,594	2,749	-155	19	-6.0%	0.7%	41,871	31,753	75.8%		
Oct-Dec 01	1,985	2,426	-441	-216	-22.2%	-10.9%	33,985	23,620	69.5%		
Year 2001	9,905	10,773	-868	-423	-8.8%	-4.3%	158,284	117,682	74.3%	54,056	50,309
Jan-Mar 02	2,180	2,376	-196	-171	-9.0%	-7.8%	35,022	26,611	76.0%	11,899	
Apr-Jun 02	2,406	2,452	-46	-93	-1.9%	-3.9%	39,848	29,902	78.9%		46,260
<b>Southwest</b>											
Year 2000	5,650	4,628	1,021	603	18.1%	10.7%	96,463	67,961	70.5%	72,568	28,752
Apr-Jun 01	1,554	1,263	291	176	18.7%	11.3%	26,430	18,970	71.8%	17,527	30,369
Jul-Sep 01	1,335	1,242	93	151	7.0%	11.3%	26,217	18,121	69.1%	16,208	30,946
Oct-Dec 01	1,238	1,201	37	64	3.0%	5.2%	26,888	17,343	64.5%	14,996	31,580
Year 2001	5,555	4,924	631	511	11.4%	9.2%	105,079	71,604	68.1%	64,447	31,014
Jan-Mar 02	1,257	1,207	49	21	3.9%	1.7%	26,586	16,726	62.9%	14,463	
Apr-Jun 02	1,473	1,284	189	102	12.8%	6.9%	29,074	20,314	69.9%	16,772	33,149
<b>United</b>											
Year 2000	19,351	18,685	666	96	3.4%	0.5%	282,276	204,188	72.3%	83,853	100,976
Apr-Jun 01	4,658	5,011	-353	-292	-7.6%	-6.3%	71,928	52,652	73.2%	21,331	98,000
Jul-Sep 01	4,107	4,819	-712	-542	-17.3%	-13.2%	69,233	50,610	73.1%	19,815	95,900
Oct-Dec 01	2,949	3,835	-886	-308	-30.0%	-10.4%	56,421	38,140	67.6%	15,450	79,300
Year 2001	16,138	18,481	-2,343	-2,145	-14.5%	-13.3%	265,291	187,701	70.8%	75,457	96,142
Jan-Mar 02	3,288	3,999	-711	-510	-21.6%	-15.5%	55,056	39,761	72.2%	15,361	
Apr-Jun 02	3,793	4,278	-485	-341	-12.8%	-9.0%	60,315	44,896	74.4%	17,501	79,800
<b>US Airways</b>											
Year 2000	9,268	9,322	-54	-269	-0.6%	-2.9%	106,999	75,358	70.4%	59,772	45,228
Jan-Mar 01	2,241	2,469	-228	-171	-10.2%	-7.6%	27,752	18,372	66.2%	14,193	44,077
Apr-Jun 01	2,493	2,473	20	-24	0.8%	-1.0%	29,395	21,693	73.8%	16,582	44,673
Jul-Sep 01	1,989	2,739	-750	-766	-37.7%	-38.5%	27,609	19,619	71.1%	14,188	42,723
Oct-Dec 01	1,554	2,101	-547	-906	-35.2%	-58.3%	22,640	14,308	63.2%	11,151	35,232
Year 2001	8,288	9,355	-1,067	-1,969	-12.9%	-23.8%	107,347	73,944	68.9%	56,114	43,846
Jan-Mar 02	1,709	2,079	-370	-269	-21.7%	-15.7%	22,495	15,419	68.5%	11,825	
Apr-Jun 02	1,903	2,078	-175	-248	-9.2%	-13.0%	23,516	17,658	75.1%	13,000	

Note: Annual figures may not add up to sum of interim results due to adjustments and consolidation. 1 ASM = 1.6093 ASK.

# Aviation Strategy

## Databases

	Group revenue US\$m	Group costs US\$m	Group op. profit US\$m	Group net profit US\$m	Operating margin	Net margin	Total ASK m	Total RPK m	Load factor	Total pax. 000s	Group employees
<b>Air France</b>											
Year 2000/01	11,148	10,746	402	382	3.6%	3.4%	119,562	93,355	78.1%	42,400	52,310
Apr-Jun 01	3,113	2,887	226		7.3%		32,266	25,515	79.0%		
Jul-Sep 01	2,959	2,895	64		2.2%		31,738	25,481	79.2%		
Oct-Dec 01	2,682	2,785	-103	-121	-3.8%	-4.5%	30,070	20,907	70.6%		
Jan-Mar 02	2,667	2,647	20	1	0.7%	0.0%	29,703	22,925	77.2%		
Year 2001/02	11,234	11,017	217	141	1.9%	1.3%	123,777	94,828	76.6%		
Apr-Jun 02	3,074						31,687	24,435	77.1%		
<b>Alitalia</b>											
Jul-Dec 00	2,553	2,753	-200	-209	-7.8%	-8.2%	32,735	24,534	74.9%		
Year 2000	4,968	5,210	-242	-236	-4.9%	-4.8%	57,483	41,433	72.1%	26,700	23,478
Jan-Jun 01	2,348	2,504	-156	-228	-6.6%	-9.7%	26,437	18,953	71.7%	12,565	24,023
Jul-Dec 01	2,397	2,503	-106	-590	-4.4%	-24.6%	24,944	17,423	69.8%	12,204	
Year 2001	4,745	5,007	-262	-818	-5.5%	-17.2%	51,392	36,391	70.8%	24,737	23,667
<b>BA</b>											
Year 2000/01	13,700	13,139	561	189	4.1%	1.4%	162,824	116,674	71.7%	44,462	62,844
Apr-Jun 01	3,277	3,206	71	37	2.2%	1.1%	40,980	28,646	69.9%	11,293	58,989
Jul-Sep 01	3,219	3,116	103	33	3.2%	1.0%	39,629	29,297	73.9%	11,306	59,902
Oct-Dec 01	2,616	2,882	-266	-205	-10.2%	-7.8%	35,449	23,106	65.2%	8,574	55,758
Jan-Mar 02	2,842	2,908	-66	-63	-2.3%	-2.2%	34,998	25,221	72.1%	8,831	
Year 2001/02	12,138	12,298	-160	-207	-1.3%	-1.7%	151,046	106,270	70.4%	40,004	
Apr-Jun 02	3,127	2,886	241	61	7.7%	2.0%	35,020	24,679	70.5%	9,665	52,926
<b>Iberia</b>											
Year 2000	4,136	4,075	61	188	1.5%	4.5%	54,120	40,049	73.8%	24,500	26,814
Year 2001	4,240	4,236	4	45	0.1%	1.1%		41,297	70.8%	24,930	
<b>KLM</b>											
Year 2000/01	6,319	6,068	251	70	4.0%	1.1%	75,222	60,047	79.8%	16,100	30,253
Apr-Jun 01	1,507	1,487	20	17	1.3%	1.1%	19,231	15,200	79.0%		27,211
Jul-Sep 01	1,679	1,596	83	24	4.9%	1.4%	19,554	16,049	82.1%		28,911
Oct-Dec 01	1,291	1,358	-67	-82	-5.2%	-6.4%	17,030	12,483	73.3%		27,738
Jan-Mar 02	1,302	1,414	-112	-97	-8.6%	-7.5%	16,473	13,215	79.9%		
Year 2001/02	5,933	6,018	-85	-141	-1.4%	-2.4%	72,228	56,947	78.7%		33,265
Apr-Jun 02	1,639	1,599	40	11	2.4%	0.7%	18,041	14,326	79.4%		34,366
<b>Lufthansa</b>											
Year 2000	14,014	12,648	1,366	635	9.7%	4.5%	123,801	92,160	74.4%	47,000	69,523
Apr-Jun 01	4,119	4,045	74	41	1.8%	1.0%	30,658	22,930	74.8%	12,236	85,771
Jul-Sep 01	4,188	4,027	161	96	3.8%	2.3%	32,454	24,546	75.6%	12,692	83,447
Oct-Dec 01	3,437	3,674					28,293	18,854	67.4%	9,873	
Year 2001	14,966	14,948	18	-530	0.1%	-3.5%	126,400	90,389	71.5%	45,710	87,975
Jan-Mar 02	3,556	3,513	43	-165	1.2%	-4.6%	26,757		71.0%	9,700	
Apr-Jun 02							30,344			11,300	
<b>SAS</b>											
Year 2000	5,185	4,853	332	233	6.4%	4.5%	33,782	22,647	67.0%	23,240	22,698
Jan-Mar 01	1,183	1,175	8	2	0.7%	0.1691%	8,558	5,286	61.8%	5,482	29,985
Apr-Jun 01	1,345	1,329	16	18	1.2%	1.3%	9,144	6,227	68.1%	6,279	30,499
Jul-Sep 01	1,199	1,220	-21	-20	-1.8%	-1.7%	9,629	6,498	67.5%	6,463	30,896
Oct-Dec 01	1,208	1,316	-108	-108	-8.9%	-8.9%	8,509	5,097	59.9%	5,300	
Year 2001	4,984	5,093	-109	-103	-2.2%	-2.1%	35,521	22,956	64.6%	23,060	22,656
Jan-Mar 02	1,392	1,534	-142	-133	-10.2%	-9.6%	8,228	5,229	63.1%	5,091	
Apr-Jun 02	1,888	1,545	343	102	18.2%	5.4%	8,773	6,240	71.1%	6,034	
<b>Ryanair</b>											
Year 2000/01	442	338	104	95	23.5%	21.5%	6,657	4,656	69.9%	7,000	1,476
Apr-Jun 01	132	107	25	21	18.9%	15.9%				2,400	
Jul-Sep 01	168	105	63	58	37.5%	34.5%			84.0%	2,900	
Oct-Dec 01	122	97	25	26	20.5%	21.3%			79.0%	2,700	
Jan-Mar 02	220	165	55	50	25.0%	22.7%					
Year 2001/02	642	474	168	155	26.2%	24.1%			81.0%	11,900	1,547
Apr-Jun 02	189	153	47	40	24.9%	21.2%			83.0%	3,540	
<b>easyJet</b>											
Sep 00-Mar 01	210	225	-15	-15	-7.1%	-7.1%			80.6%	3,200	
Apr-Sep 01	314	273	41	41	13.1%	13.1%				3,915	
Year 2000/01	513	455	58	54	11.3%	10.5%	7,003	5,903	83.0%	7,115	1,632
Sep-Mar 02	285	279	6	1	2.1%	0.4%			84.2%	4,300	

Note: Annual figures may not add up to sum of interim results due to adjustments and consolidation. 1 ASM = 1.6093 ASK.

# Aviation Strategy

## Databases

		Group revenue US\$m	Group costs US\$m	Group op. profit US\$m	Group net profit US\$m	Operating margin	Net margin	Total ASK m	Total RPK m	Load factor	Total pax. 000s	Group employees
<b>ANA</b>	Apr-Sep 00	5,228	4,793	495	359	9.5%	6.9%	47,586	31,753	66.7%	24,958	
	Oct 00-Mar 01	5,376	5,186	190	-486	3.5%	-9.0%	46,278	29,168	63.0%	24,471	
	<b>Year 2000/01</b>	<b>10,914</b>	<b>10,629</b>	<b>285</b>	<b>-137</b>	<b>2.6%</b>	<b>-1.3%</b>	<b>85,994</b>	<b>58,710</b>	<b>68.3%</b>	<b>43,700</b>	<b>14,303</b>
	Apr-Sep 01	5,168	4,811	357	136	6.9%	2.6%	45,756	30,790	67.3%	25,876	
	Oct 01-Mar 02											
	<b>Year 2001/02</b>	<b>9,714</b>	<b>9,529</b>	<b>185</b>	<b>-76</b>	<b>1.9%</b>	<b>-0.8%</b>	<b>87,908</b>	<b>57,904</b>	<b>64.7%</b>	<b>49,306</b>	
<b>Cathay Pacific</b>	Jan-Jun 00	2,070	1,765	305	285	14.7%	13.8%	29,839	22,588	75.7%	5,483	
	Jul-Dec 00	2,356	1,983	373	382	15.8%	16.2%	32,070	24,587	76.7%	6,147	
	<b>Year 2000</b>	<b>4,431</b>	<b>3,752</b>	<b>679</b>	<b>642</b>	<b>15.3%</b>	<b>14.5%</b>	<b>61,909</b>	<b>47,153</b>	<b>76.2%</b>	<b>11,860</b>	<b>14,293</b>
	Jan-Jun 01	2,031	1,898	133	170	6.5%	8.4%	32,419	23,309	71.9%	5,936	
	Jul-Dec 01	1,871	1,897	-26	-86	-1.4%	-4.6%	30,371	21,497	70.8%	5,378	
	<b>Year 2001</b>	<b>3,902</b>	<b>3,795</b>	<b>107</b>	<b>84</b>	<b>2.7%</b>	<b>2.2%</b>	<b>62,790</b>	<b>44,792</b>	<b>71.3%</b>	<b>11,270</b>	<b>15,391</b>
	Jan-Jun 02	1,989	1,753	235	181	11.8%	9.1%	29,537		78.1%		14,300
<b>JAL</b>	<b>Year 1999/00</b>	<b>14,442</b>	<b>14,039</b>	<b>403</b>	<b>177</b>	<b>2.8%</b>	<b>1.2%</b>	<b>119,971</b>	<b>88,479</b>	<b>70.2%</b>	<b>37,200</b>	<b>18,974</b>
	Apr-Sep 00											
	Oct 00-Mar 01							54,859	40,462	73.8%	16,724	
	<b>Year 2000/01</b>	<b>13,740</b>	<b>13,106</b>	<b>634</b>	<b>331</b>	<b>4.6%</b>	<b>2.4%</b>	<b>129,435</b>	<b>95,264</b>	<b>73.6%</b>	<b>38,700</b>	<b>17,514</b>
<b>Korean Air</b>	<b>Year 2000</b>	<b>4,916</b>	<b>4,896</b>	<b>20</b>	<b>-409</b>	<b>0.4%</b>	<b>-8.3%</b>	<b>55,824</b>	<b>40,606</b>	<b>72.7%</b>	<b>22,070</b>	<b>16,000</b>
	<b>Year 2001</b>	<b>4,309</b>	<b>4,468</b>	<b>-159</b>	<b>-448</b>	<b>-3.7%</b>	<b>-10.4%</b>					
	Jan - Mar 02	1,113	1,060	54	23	4.9%	2.1%	13,409	9,799	73.1%	5,399	
<b>Malaysian</b>	<b>Year 1999/00</b>	<b>2,148</b>	<b>2,120</b>	<b>28</b>	<b>-68</b>	<b>1.3%</b>	<b>-3.2%</b>	<b>48,158</b>	<b>34,930</b>	<b>71.3%</b>	<b>15,370</b>	<b>21,687</b>
	<b>Year 2000/01</b>	<b>2,357</b>	<b>2,178</b>	<b>179</b>	<b>-351</b>	<b>7.6%</b>	<b>-14.9%</b>	<b>52,329</b>	<b>39,142</b>	<b>74.8%</b>	<b>16,590</b>	<b>21,518</b>
<b>Qantas</b>	<b>Year 1999/00</b>	<b>5,710</b>	<b>5,162</b>	<b>548</b>	<b>324</b>	<b>9.6%</b>	<b>5.7%</b>	<b>85,033</b>	<b>64,149</b>	<b>75.4%</b>	<b>20,490</b>	<b>29,217</b>
	Jul-Dec 00	2,745	2,492	224	142	8.2%	5.2%	46,060	35,451	77.0%	11,175	31,382
	<b>Year 2000/01</b>	<b>5,473</b>	<b>5,099</b>	<b>374</b>	<b>223</b>	<b>6.8%</b>	<b>4.1%</b>	<b>92,943</b>	<b>70,540</b>	<b>75.9%</b>	<b>22,150</b>	<b>31,632</b>
	Jul-Dec 01	3,050	2,904	125	84	4.1%	2.8%	48,484	37,262	76.9%	13,335	32,361
	<b>Year 2001/02</b>	<b>6,133</b>	<b>5,785</b>	<b>348</b>	<b>232</b>	<b>5.7%</b>	<b>3.8%</b>	<b>95,944</b>	<b>75,134</b>	<b>78.3%</b>	<b>27,128</b>	<b>33,044</b>
<b>Singapore</b>	Apr-Sep 00	2,864	2,438	426	668	14.9%	23.3%	46,478	36,137	77.8%	7,584	
	Oct 00-Mar 01	2,635	2,317	318	209	12.1%	7.9%	46,171	34,982	75.8%	7,416	
	<b>Year 2000/01</b>	<b>5,729</b>	<b>4,954</b>	<b>775</b>	<b>892</b>	<b>13.5%</b>	<b>15.6%</b>	<b>92,648</b>	<b>71,118</b>	<b>76.8%</b>	<b>15,000</b>	<b>14,254</b>
	Apr-Sep 01	2,592	2,329	263	90	10.1%	3.5%	48,058	36,091	75.1%		
	Oct 01-Mar 02	2,807	2,508	299		10.7%		46,501	33,904			
	<b>Year 2001/02</b>	<b>5,399</b>	<b>4,837</b>	<b>562</b>	<b>395</b>	<b>10.4%</b>	<b>7.3%</b>	<b>94,559</b>	<b>69,995</b>	<b>74.0%</b>	<b>14,765</b>	

Note: Annual figures may not add up to sum of interim results due to adjustments and consolidation. 1 ASM = 1.6093 ASK.

### JET AND TURBOPROP ORDERS

	Date	Buyer	Order	Price	Delivery	Other information/engines
<b>Airbus</b>	July 16	Fedex	10 A380Fs		2008	plus 10 options
	July 4	Air New Zealand	10 A320s		Oct 03	plus 20 options
	Aug 14	Middle East A/L	6 A321s		1H03	IAE V2533
<b>Boeing</b>	Aug 26	Copa Airlines	4 737-700 2 737-800	325m	Oct 03	CFM56-7

Note: Prices in US\$. Only firm orders from identifiable airlines/lessors are included. Source: Manufacturers.

### MoUs and LoIs

	Date	Buyer	Order	Price	Delivery	Other information/engines
<b>Airbus</b>	July 22	KLM (LoI)	6 A330-200s		2005	plus 18 options
	July 31	Lufthansa (MoU)	10 A330-300s		2004	

# Aviation Strategy

## Databases

### EUROPEAN SCHEDULED TRAFFIC

	Intra-Europe			North Atlantic			Europe-Far East			Total long-haul			Total Int'l		
	ASK bn	RPK bn	LF %	ASK bn	RPK bn	LF %	ASK bn	RPK bn	LF %	ASK bn	RPK bn	LF %	ASK bn	RPK bn	LF %
1994	144.7	87.7	60.6	150.3	108.8	72.4	102.8	76.1	74	334.0	243.6	72.9	503.7	346.7	68.8
1995	154.8	94.9	61.3	154.1	117.6	76.3	111.1	81.1	73	362.6	269.5	74.3	532.8	373.7	70.1
1996	165.1	100.8	61.1	163.9	126.4	77.1	121.1	88.8	73.3	391.9	292.8	74.7	583.5	410.9	70.4
1997	174.8	110.9	63.4	176.5	138.2	78.3	130.4	96.9	74.3	419.0	320.5	76.5	621.9	450.2	72.4
1998	188.3	120.3	63.9	194.2	149.7	77.1	135.4	100.6	74.3	453.6	344.2	75.9	673.2	484.8	72
1999	200.0	124.9	62.5	218.9	166.5	76.1	134.5	103.1	76.7	492.3	371.0	75.4	727.2	519.5	71.4
2000	208.2	132.8	63.8	229.9	179.4	78.1	137.8	108.0	78.3	508.9	396.5	77.9	755.0	555.2	73.5
2001	212.9	133.4	62.7	217.6	161.3	74.1	131.7	100.9	76.6	492.2	372.6	75.7	743.3	530.5	71.4
Jun-02	17.5	12.4	70.9	16.8	14.5	86.5	10.8	8.6	79.6	38.7	31.3	80.9	59.1	45.6	77.2
Ann. chng	-10.9%	-7.8%	2.4	-19.2%	-18.6%	0.7	-8.0%	-2.6%	4.2	-12.1%	-13.1%	-0.9	-11.8%	-11.6%	0.2
Jan-Jun 02	95.8	62.1	64.8	89.1	70.5	79.1	62.8	50.5	80.5	220.3	172.6	78.4	332.5	245.7	73.9
Ann. chng	-12.8%	-8.1%	3.3	-22.0%	-17.2%	4.5	-9.1%	-5.0%	3.5	-13.5%	-10.6%	2.5	-13.4%	-10.1%	2.7

Source: AEA

### US MAJORS' SCHEDULED TRAFFIC

	Domestic			North Atlantic			Pacific			Latin America			Total Int'l		
	ASK bn	RPK bn	LF %	ASK bn	RPK bn	LF %	ASK bn	RPK bn	LF %	ASK bn	RPK bn	LF %	ASK bn	RPK bn	LF %
1994	886.9	575.6	64.9	136.1	99.5	73.0	107.3	78.2	72.9	56.8	35.2	62	300.3	212.9	70.9
1995	900.4	591.4	65.7	130.4	98.5	75.6	114.3	83.7	73.2	62.1	39.1	63	306.7	221.3	72.1
1996	925.7	634.4	68.5	132.6	101.9	76.8	118.0	89.2	75.6	66.1	42.3	64	316.7	233.3	73.7
1997	953.3	663.7	69.6	138.1	108.9	78.9	122.0	91.2	74.7	71.3	46.4	65.1	331.2	246.5	74.4
1998	960.8	678.8	70.7	150.5	117.8	78.3	112.7	82.5	73.2	83.5	52.4	62.8	346.7	252.7	72.9
1999	1,007.3	707.5	70.2	164.2	128.2	78.1	113.2	84.7	74.8	81.3	54.3	66.8	358.7	267.2	74.5
2000	1,033.5	740.1	71.6	178.9	141.4	79.0	127.7	97.7	76.5	83.0	57.6	69.4	380.9	289.9	76.1
2001	1,025.4	712.2	69.5	173.7	128.8	74.2	120.1	88.0	73.3	83.4	56.9	68.2	377.2	273.7	72.6
Jul-02	89.3	68.1	76.3	15.0	12.7	84.3	9.3	7.4	80.1	7.4	5.5	74.4	31.7	25.6	80.8
Ann. chng	-7.2%	-7.1%	0.1	-11.7%	-10.6%	1.0	-18.2%	-18.5%	0.3	0.8	-3.4%	-3.3	-11.2%	-11.6%	0.4
Jan-Jul 02	573.3	410.7	71.6	90.5	71.9	79.5	58.3	47.7	81.8	49.9	34.4	68.9	198.8	154.0	77.5
Ann. chng	-9.6%	-8.7%	0.7	-15.3%	-12.8%	2.3	-22.1%	-15.9%	6.0	-1.8%	-4.5%	-2	-14.5%	-12.1%	2.2

Note: US Majors = Aloha, Alaska, American, Am. West, American Transair, Continental, Cont. Micronesia, Delta, Hawaiian JetBlue, Midwest Express, Northwest, Southwest, United and US Airways Source: ATA

### ICAO WORLD TRAFFIC AND ESG FORECAST

	Domestic			International			Total			Domestic growth rate		International growth rate		Total growth rate	
	ASK bn	RPK bn	LF %	ASK bn	RPK bn	LF %	ASK bn	RPK bn	LF %	ASK %	RPK %	ASK %	RPK %	ASK %	RPK %
1993	1,349	855	63.3	1,785	1,205	67.5	3,135	2,060	65.7	3.4	2.0	4.4	4.8	3.9	3.6
1994	1,410	922	65.3	1,909	1,320	69.1	3,318	2,240	67.5	4.6	7.9	6.9	9.4	5.9	8.8
1995	1,468	970	66.1	2,070	1,444	69.8	3,537	2,414	68.3	4.1	5.4	8.5	9.4	6.6	7.8
1996	1,540	1,043	67.7	2,211	1,559	70.5	3,751	2,602	79.4	4.9	7.4	6.8	8.0	6.0	7.8
1997	1,584	1,089	68.8	2,346	1,672	71.3	3,930	2,763	70.3	2.9	4.5	6.1	7.2	4.8	6.1
1998	1,638	1,147	70.0	2,428	1,709	70.4	4,067	2,856	70.3	3.4	5.2	3.5	2.2	3.4	3.4
1999	1,911	1,297	67.9	2,600	1,858	71.5	4,512	3,157	70.0	5.4	5.0	5.7	7.4	5.6	6.4
2000	2,005	1,392	69.4	2,745	1,969	71.8	4,750	3,390	70.8	4.9	7.2	5.6	6.0	5.3	6.5
*2001							4,698	3,262	69.4					-1.1	-3.9
*2002							4,607	3,294	71.1					-1.9	0.4
*2003							4,903	3,584	73.1					6.4	9.4
*2004							5,154	3,8819	74.1					5.1	6.6

Note: \* = Forecast; ICAO traffic includes charters. Source: Airline Monitor, June 2002

### AIRCRAFT AVAILABLE FOR SALE OR LEASE

	Old narrowbodies	Old widebodies	Total old	New narrowbodies	New widebodies	Total new	Total
	1997	162	104	266	54	13	67
1998	187	125	312	67	55	122	434
1999	243	134	377	101	53	154	531
2000	302	172	474	160	42	202	676
2001	368	188	556	291	101	392	948
2002-June	358	170	528	289	95	384	912

Source: BACK Notes: As at end year; Old narrowbodies = 707, DC8, DC9, 727, 737-100/200, F28, BAC 1-11, Caravelle; Old widebodies = L1011, DC10, 747-100/200, A300B4; New narrowbodies = 737-300+, 757, A320 types, BAe 146, F100, RJ; New widebodies = 747-300+, 767, 777, A600, A310, A330, A340.



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