

Will Europe really rationalise?

Observers of the European aviation scene might be experiencing a sense of déjà vu - a deepening recession, flag-carriers in trouble, appeals for state aid, national interest arguments, EC enquiries. Yet there are important differences between the situation today and the crisis of the early 90s.

Back then, flummoxed by a combination of liberalisation and a severe market downturn, a large majority of the European scheduled airline industry supported, explicitly or implicitly, the need for state aid for failing flag-carriers. Only BA and KLM strongly opposed the concept. However, there were two different groups of state aid applicants:

- The continental Euro-majors - Air France, Iberia, Alitalia - which needed large injections of state funds, they claimed, to implement the turn-around plans that would enable them to compete with the threat from the US mega-carriers. (Lufthansa, itself in dire financial straits in the early 90s, kept a low profile on the issue and was helped out by its government with its pension fund problem.)
- The Euro-minors from Europe's small and/or peripheral countries - Sabena, Olympic, TAP, Aer Lingus - whose political owners found it inconceivable that their states could live without a flag-carrier with intercontinental reach.

But today Lufthansa and Air France have overtaken BA and KLM in terms of financial results; Iberia is majority privatised and under strong management; Alitalia is still a problem but is part-privatised and about to join SkyTeam. So, in contrast to the early 90s, there is no lobby at the moment from the airline establishment for new state aid.

Indeed, BA's recent letter to Competition Commissioner Monti, in which it strongly opposed any assistance for Sabena and argued that any such intervention would postpone the overdue rationalisation of the industry, probably reflects the view of all the Euro-majors.

What in practice does European rationalisation imply? At the most basic level, it means that the Euro-minors will have to find themselves a genuine niche or disappear. The catastrophe of the SAir Qualiflyer strategy has finally proved that it impossible to create an artificial market base in order to compete with the Euro-majors.

What was not addressed in the last round of state aid and associated turn-around plans was the question of the Euro-minors' long-haul operations. Generally these are very loss-making for a combination of reasons - low yields associated with VFR or leisure traffic, seasonality, often expensive new A340s, [cont. page 2]

We have combined the July and August issues to cover the summer holiday period. We will probably make this combination permanent, but current subscribers will have their subscriptions extended by a month.

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no economies of scale, expensive and excessive crews, low brand awareness abroad, little distribution power, etc.. They are just not a commercial proposition.

Yet national political pressure against rationalisation of these routes will be intense. Olympic, if it pulls off the long-hauls as part of its restructuring and sale to an investor, will be accused of abandoning Onassis's dream and betraying the Greek Diaspora in New York and Melbourne; Sabena's unions will bewail the fact that it will be reduced to the status of feeding an intercontinental partner at

Brussels (American Airlines?); Portuguese politicians will emphasise the need to maintain links to the former colonies; the Irish will raise the spectre of being taken over by the British.

The table above summarises the scale of the long-haul rationalisation challenge. About 31% of the AEA traffic on the North Atlantic is carried by airlines other than the big four. Some of these carriers, in order to survive, will have to downsize into intra-Europe specialists feeding intercontinental passengers to the Majors at their hubs. Others like SAS and Finnair may have found a niche in point-to-point operations which can generate yield premiums; Iberia should have a competitive advantage in the South Atlantic market.

The situation of Swissair and Alitalia is more complicated. Swissair has to concentrate on rebuilding its brand, which is a lot more difficult than losing it, and coolly assess whether there is sufficient Swiss-based, high yield traffic for it to continue as an independent operator.

Alitalia appears to be thinking previously unthinkable thoughts about its long-haul operation (see "Could AZ live as AF's junior partner?", May 2001). It will create a joint

STRUCTURE OF THE EUROPEAN LONG-HAULS

	N. Atlantic		Other long-hauls		
	Pax (m)	Share	Pax (m)	Share	
BA	7078	30%	Air France	5541	22%
Lufthansa	3295	14%	BA	5371	21%
Air France	2829	12%	Lufthansa	4441	18%
KLM	2759	12%	KLM	3295	13%
Euro-majors	15961	69%	Euro-majors	18648	75%
Swissair	1587	7%	Iberia	1594	6%
Alitalia	1341	6%	Swissair	1526	6%
Aer Lingus	905	4%	Alitalia	1229	5%
Sabena	902	4%	TAP	583	2%
Iberia	873	4%	SAS	444	2%
SAS	683	3%	Austrian	339	1%
Austrian	309	1%	Finnair	257	1%
Olympic	260	1%	Sabena	225	1%
Finnair	208	1%	Olympic	138	1%
TAP	184	1%	Others	6335	25%
Others	7252	31%			
Total	23213	100%	Total	24983	100%

Source: AEA Note. Data refers to 1999

venture company with Air France, which will coordinate and manage all flights behind and beyond France and Italy. In other words, Alitalia must be considering streamlining its own disparate and loss-making long-hauls and feeding its passengers to Air France's mostly profitable intercontinental flights at the CDG hub.

A stern EC?

To facilitate this rationalisation the EC will have to stake a firm line on further state aid, either direct or circuitous. EC officials are looking stern but the politics are convoluted.

It is unclear if "one time, last time" is legally enforceable. Does it mean that any second round of state aid will be automatically refused, regardless of the merits of the case and despite the precedents set by Air France and Iberia in the mid 90s?

The "rational investor criterion" sounds fine in principle but is nebulous in practice. Equating a rational investment decision with one made by a private sector company - as Sabena will attempt to argue - is dubious. Who now regards the investment decisions made by SAir's former management as being rational?

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Ryanair, just too good a negotiator

At the core of Ryanair's strategy is its airport policy. Ryanair has discovered two vital bits of information: first, that despite received wisdom there is excess airport capacity in Europe and, second, that secondary airports are willing to pay airlines to come to them.

An important insight into Ryanair therefore emerges from the agreement reached with Brussels South Charleroi Airport (BSCA) whereby Ryanair will establish its first continental European hub there and will commit to the airport for at least 15 years.

The deal has caused another aviation controversy in Belgium, this time over the extent of the incentives Ryanair managed to achieve.

According to a leaked "master agreement" between the two parties, Ryanair will pay extremely low landing and handling charges to BSCA, that are strictly based on the number of departing passengers. In addition, BSCA will pay Ryanair's expenses for local crew hiring and training, and crew hotel and subsistence costs during the establishment and development of the airline's base at BSCA. Moreover, BSCA will pay Ryanair to promote the airline's new routes out of Charleroi.

Landing and handling charges will each start at €1 per departing passenger in 2001, creep up to €1.13 in 2006 and culminate at €1.30 in 2010.

Hotel and subsistence costs during the start-up phase totalling €250,000 will be paid to Ryanair in monthly instalments of around €20,000.

The hiring and training of pilots and cabin crew for the new routes to be operated from Charleroi is costed at €768,000, to be paid to Ryanair in four quarterly instalments.

For each new route opened from BSCA, Ryanair will receive a one-time incentive of €160,000, up to three routes for each aircraft based at Charleroi (ie, 12 payments). The money will be paid in two instalments over two seasons.

Marketing financial support given by BSCA to promote Ryanair services from Charleroi will be channelled through a joint venture. BSCA will pay

Ryanair up to €4 per departing passenger. This payment is meant to reflect a 50/50 sharing with Ryanair of the costs of marketing the new services. In the table below we have conservatively assumed €2 per passenger, in effect negating the landing and handling charges.

BSCA also commits to providing Ryanair with office space free of charge and hangar space at minimal cost.

There is, however, a long-term commitment for Ryanair, and it will be forced to repay the incentives if it pulls out or downsizes within the 15-year period. On the other hand, BSCA seems to be willing to compensate Ryanair if other, unspecified things go wrong with the Charleroi operation: "The Walloon Region and/or BSCA undertake to indemnify Ryanair against any losses (including loss of profits) incurred as a result of such reasonable expectations not being met, unless the exercise by the Walloon Region and/or BSCA of their regulatory powers shall have been dictated by EU, ICAO or other international law requirements".

Finally, as if just to prove what a tough negotiator it is, Ryanair has had a clause inserted to the effect that it can claim for €4,000 of office equipment expenditure. That might be regarded as pushing things too far.

ELEMENTS OF THE BSCA AGREEMENT

Ryanair's payments to BSCA		(Euros)	
		<i>Assumptions</i>	
Landing fees	1,000,000	Annual pax	1,000,000
Handling fees	1,000,000	New routes	12
Total	2,000,000		
BSCA's payments to Ryanair		<i>Unit fees or costs</i>	
Marketing fees	2,000,000	Landing fees/pax	1.00
Hotel costs	250,000	Handling fees/pax	1.00
New route payment	1,920,000	Marketing contribution/pax	2.00
Recruitment payment	768,000	Hotel costs/year	250,000
Office costs	250,000	Payment/new route	160,000
Hangar costs	250,000	Recruitment/training (one off)	768,000
Total	5,438,000	Office costs(est)	250,000
		Hangar (est)	250,000
Net benefit	3,438,000		

Boeing refines its Sonic Cruiser message

Boeing was quite convincing in presenting its new concept aircraft, the Sonic Cruiser, at the Paris Air Show. A roll-call of big airlines have made nice noises about the plane and Boeing is much encouraged by this display of enthusiasm. There is no doubt Boeing is trying to launch something, even if it turns out to be not quite what it seems.

The airlines are bound to be interested. The Sonic Cruiser, flying at 40,000 feet and 95% the speed of sound offers interesting possibilities. John Roundhill, vice-president for marketing of the new aircraft, claims it will be 15% to 20% faster than today's jets. Not only would it cut one hour off an Atlantic crossing, and up to two and a half hours off a long transpacific route, such as Los Angeles-Singapore, its speed could also be used to squeeze more round-trip journeys into a day, thereby increasing productivity. Its 9,000 nm range will enable more non-stop flights and allow departure times to be set later to tap demand.

The earliest entry into service would be 2006, but it is more likely to be 2008. A launch decision is expected before the end of next year, introducing, according to Roundhill, "the potential to radically change the way the world flies". The biggest hurdle to overcome in making that possible will be convincing airlines of Boeing's claim that this aircraft can fly economically at just under the speed of sound. As the laws of aerodynamics would normally make the extra speed disproportionately expensive, Boeing must have some technical advance up its sleeve. After all, it claims that fuel consumption will be "similar to today's aircraft".

Boeing forecasts that the air travel market is fragmenting over the Pacific the way it has seen it doing across the Atlantic. As bilateral air traffic agreements become more liberal, Boeing thinks passengers will increasingly demand to fly direct rather than through a hub airport to reach their destination. As evidence of fragmentation, it points out that in 1987 there was only one service from Chicago to Europe, a TWA 747, compared with 22 767 and 777 services today. Airbus's traffic analysts respond this is an exaggeration of the fragmentation trend since it considers only US-

based airlines. Had the European carriers been factored into the equation, that would have shown lots of fragmentation even in 1987.

Still, Roundhill predicts rapid growth of services from east and west coast American directly to the likes of Seoul, Beijing, and Guangzhou, in addition to traditional hubs such as Tokyo and Hong Kong. He notes that the share of 747 flights to and from Tokyo's Narita international airport has fallen from around 90% to well under half, reflecting the fact that proportionately fewer passengers are using the airport as an Asian hub, because of the growth of point-to-point services.

When he presents the sonic cruiser, Roundhill talks about the first configuration being anywhere between 100 and 300 seats, leaving himself plenty of leeway, but his charts place it smack in the 200 to 250 seats bracket. He also remarks that the company is exploring other offerings in the same part of the market.

The same niche?

This is about the only point at which the Boeing view and that of Airbus link up. The way Noel Forgeard, chief executive of Airbus SAS (Société aux Actions Simplifiée, legally formed in July month out of the old Airbus Industrie GIE consortium), sees it, both groups are looking at the same market niche. This is the 200 to 250-seater slot occupied at the moment by two ageing models, the A300 and the 767.

Airbus has been talking to airlines about how to serve this niche. As Forgeard sees it, the airlines are weighing up size, range, speed, economy and noise when it comes to defining what they would like. He thinks Boeing has refined that all down to one factor, speed, which Airbus calculates, predictably, will make the Sonic Cruiser 35% thirstier than aircraft flying at Mach 85. He says the feedback Airbus gets is that the airlines are most interested in getting a new plane with operating costs 10-15% lower than present offerings. "We will have ideas for this segment," he says, but suggests they might be four years away. So the next Boeing/Airbus battle might be speed against economy in the mid-size category.

The role of lessors in a recession

Airbus was able to announce orders for 150-plus aircraft at the Paris Air Show compared to three 777s from Boeing. But most of Airbus's orders came from ILFC, which highlights the importance of the operating lessors as the recession deepens.

Unfortunately, there seems to be a stream of bad news about the state of the main economies and the airline sector. In the US both load factors and yields continue to deteriorate badly while in Europe scheduled traffic growth turned slightly negative in April. Asia, having struggled out of its regional crisis, now looks as if it will implode again. And pilots unions at a range of carriers have chosen this time to become militant.

The industry's leading guru on jet supply and demand, Ed Greenslet of ESG, has just produced his annual outlook. It is reassuringly depressing.

ESG now sees the global surplus rising from 600 jet units in 2000 to just under 1,500 in 2003. This overcapacity is the equivalent of almost 9% of supply, which is not too far away from the surplus figure calculated in the depths of the early 90s recession - 10%. In short there are too many aircraft scheduled for delivery over the next few years, about 1,200-1,400 a year during 2001-03 or 800-1,000 if one excludes the regional jets.

But among these deliveries are about 200 jets a year designated for the operating leasing companies, and which one might think are likely candidates for deferral. This happened on a substantial scale in the last recession mainly because

	Total Orders	Sch. delivery 2001	Sch. delivery 2002	Sch. delivery 2003
AWAS	3	3	0	0
Boullioun	56	6	8	12
CIT	99	5	14	21
Debis	32	0	0	6
GATX	5	2	2	1
Gecas	403	33	66	72
ILFC	721	45	85	105
Pembroke	21	7	8	6
SALE	32	1	3	10
TOTAL	1372	102	186	233

Source: ACAS

Type	Orders	Sch. delivery 2001	Sch. delivery 2002	Sch. delivery 2003
717	21	7	8	6
737	313	47	56	61
747	7	1	2	4
757	4	1	1	2
767	17	13	4	0
777	69	7	13	12
Boeing	431	76	84	85
A318	64	0	2	5
A319	158	15	28	28
A320	317	7	30	46
A321	97	1	10	15
A330	122	3	20	20
A340	13	0	2	4
A380	20	0	0	0
Airbus	791	26	92	118
Bombardier CRJ	50	0	10	10
Embraer 170	50	0	0	10
Dornier 728JET	50	0	0	10
TOTAL	1372	102	186	233

Source: ACAS Note: 2001= second half of year

GPA, over-exposed and under-financed, collapsed. The two mega-lessors, ILFC and Gecas, are today totally financially sound, indeed have much better credit ratings than the manufacturers and their airline customers. The smaller lessors might be feeling less comfortable though - hence the recent M&A activity in this sector.

It would appear that the mega-lessors have the strength to pass off the pain of this recession on to the manufacturers. ILFC and Gecas together account for 22% of Boeing's backlog and 38% of Airbus's backlog, which puts them in a very strong negotiating position, especially with Airbus. They are also supposed to have made very good deals with the manufacturers on progress payments, more like 5% than 25% for the interim payments up to delivery.

If there is a substantial level of deferral activity on the part of the lessors, this should mitigate the impact of the recession on the airline industry. They will in effect be acting as a shock-absorber, preventing supply and demand diverging as much as they otherwise would have done.

The future for air cargo

The establishment of separate cargo subsidiaries, greater cooperation with alliances, vertical integration with forwarders and a relocation of cargo operations to secondary airports - these are the key trends in the air cargo business identified by DVB*.

Closer links will develop between the members of air cargo alliances as the trend towards the formation of independent air cargo companies, achieved through a hive-off of cargo operations, gathers momentum. Lufthansa has created Lufthansa Cargo and has announced plans to acquire a 49% share stake in SAS Cargo. Iberia has also stated its intention to form an independent air cargo company. JAL plans to establish a separate company but only for the purpose of marketing freight capacity. Northwest has formed NWA Cargo which will be responsible for freighter operations and the marketing of the belly holds of NWA's passenger aircraft. Singapore Airlines Cargo gained its own AOC earlier this year.

It is interesting to calculate the scale of the role alliances could play in air cargo transportation if all member airlines co-operated closely. Close on 57 % of total FTKT is already produced by member airlines of the five alliances (including Qualifyer) and airlines linked to these alliances. Star enjoys the most significant potential, oneworld ranks second followed by SkyTeam and Wings.

An increasing number of passenger airlines will decide to market their overall cargo capacity to another airline rather than to customers on their own account. By selling capacity to a cargo-focused passenger airline or - even better - to a combination airline, handling and marketing costs can be saved. The attraction to the buying airline lies in the advantages of a broader network and the prospect of achieving handling and marketing cost savings.

The forwarders

In global terms even the largest freight

forwarders hold no more than small market shares, although they account for considerable shares of their home markets. Recent years have seen an increase in merger activity, hence an increase in concentration. This trend will continue, the latest development among large forwarders being cross-continent co-operation. Some large forwarders have been acquired by integrators in the latter's quest to increase product portfolios.

What, therefore, does the future hold for small and medium-sized freight forwarders? Such firms are currently confronted with the creation, through M &A activity, of large/global players with the international capabilities that airline partnership programmes will favour. The choice that small and medium sized companies face is to specialise in niche markets or co-operate with their peer group. In Germany, air cargo forwarders have started to co-operate in joint ventures such as "Challenge," "Future" and "Iglu". Such co-operation can pave the way for significant expansion, particularly if the participants utilise common production standards and a joint brand-name.

Airline/ forwarder relationship

Some of the major airlines have, in the past, attempted to approach shippers directly. Freight forwarders, unsurprisingly, have viewed this development with concern. Airlines believed that the freight forwarders, capitalising on the bargaining power derived from consolidation, have succeeded in passing on most of the downward pressure on revenues. Certain airlines have established closer relationships with the shippers by setting up key account management and/or logistics management operations.

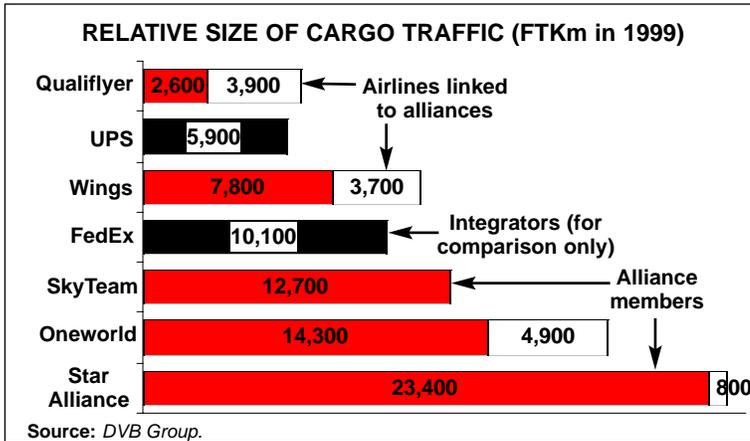
A major problem for the airlines, however, is that their experience in organising pick-up, delivery and other services related to air cargo transportation is, for the most part, distinctly limited. A few airlines have gone so

*"The Global Air Cargo Industry", a report authored by Dr Borislav Bjelicic of DVB VerkehrsBank Industrial Research

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far as to acquire stakes in freight forwarding companies. In the event, the debate about the airlines' direct sales approach has cooled as a result of closer co-operation between the warring parties through partnership programmes.

Lufthansa Cargo has launched the Business Partnership Programme designed to incentivise freight forwarders that contract substantial airfreight volumes with the airline. With the advent of partnership programmes, airlines and forwarders could conceivably agree to approach shippers jointly, particularly when shippers require global logistics solutions.

Some air cargo forwarders have taken steps towards vertical integration; examples are Emery Worldwide and BAX Global. Panalpina, Eagle Global Logistics (EGL) and Danzas have all commenced their own dedicated freighter services on international routes.

In the wake of the creation of a few air cargo alliances in the airline industry and a few global forwarders, the forging of strong vertical links between airline alliances and freight forwarders appears inevitable. Lufthansa Cargo is already closely linked to Deutsche Post World Net which has acquired various forwarding companies including Danzas (Switzerland), ASG (Sweden) and AEI Air Express International (USA). Deutsche Post World Net is also the majority shareholder in DHL International.

Integrators

By expanding into heavier consignments and offering value-added services (i.e. logis-

tics), the integrators have started to attack freight forwarders in their traditional field. Such developments have been largely shrugged aside by freight forwarders who have taken the view that the international transportation of heavy consignments requires considerable expertise in respect of customs clearance procedures. The forwarders have also argued that because consignments vary so much in

size and weight it is difficult to achieve economies of scale in terms of trans-shipment activities. Forwarders should be concerned, however, because integrators such as UPS and FedEx clearly harbour ambitions to become global players in the heavy cargo business.

UPS recently acquired Fritz Companies, a large US-based forwarder, and last year acquired Challenge Air, a major air cargo carrier that serves the Latin American market. Nor should it be forgotten that the integrators are more advanced in the use of EDI technologies for the management and control of shipment flows than most forwarders. Last year FedEx acquired American Freightways, a prominent player in the LTL trucking business. With the benefit of other acquisitions, FedEx has now built up a strong ground handling system for heavy cargo in the US.

An interesting development in the wake of the deregulation of many countries' postal markets is that former postal administrations have been transformed into management-led companies with ambitious designs to recapture the market shares lost to integrators' parcel services. Canada Post Corporation was ahead of this development when it acquired Purolator Courier System. Dutch Post acquired TNT Worldwide Express and now operates under the name TPG (TNT Post Group) while German Post has acquired a majority stake in DHL International. Both companies are intent on achieving global market status. German Post, having also acquired some major forwarder enterprises, currently represents a

much more serious rival to UPS and FedEx than TNT Post Group. German Post also enjoys a good working relationship with Lufthansa Cargo.

The integrators, all of which use airline capacity, are important customers for many airlines, so much so that some airlines and integrators have concluded blocked space agreements. Under such agreements cargo capacity on freighters is shared between the partners of the agreement.

Another interesting development is the co-operation between FedEx and the US Postal Service. FedEx will provide the airport-to-airport movement of containers holding USPS priority and first-class mail from August 2001. In return, FedEx can install more than 10,000 drop-boxes at post offices in 120 US metropolitan areas.

Airports

Competition for air cargo among European airlines in home markets is intense; witness the rivalry between Air France and Lufthansa Cargo. Air cargo that originates in Germany is trucked by Air France to Paris for onward carriage, while Lufthansa Cargo offers trucking connections to Frankfurt for air cargo that originates in France. One reason for this is that passenger airlines have reduced their cargo capacity through offering greater flight frequency with smaller aircraft. Nor do all cargo consignments fit into the holds of passenger aircraft.

Air France has also opened a trucking terminal at Hahn airport, a former USAF air-base outside Frankfurt, which has been successfully converted into a commercial airport. Air cargo shipments originating in Germany are collected and consolidated in Hahn and then trucked to Paris for onward transportation. Railways can be utilised for feeder services but this is only a practical alternative if direct rail access to the airport's cargo area is available and the price is competitive in comparison with trucking.

Passenger hub airports still predominate in the cargo business, but problems for airlines operating freighters into these airports lie ahead. Night curfew restrictions already exist, and there is mounting demand for a

complete ban on night-time operations. The controversy over plans to increase the capacity of Frankfurt/Main's international airport is a sign of the times. In the event, the government of Hessen has agreed on a compromise born of a mediation process which, in essence, stipulates that a new landing strip will be built, the quid pro quo being a ban on aircraft operations during the night. Unsurprisingly, charter airlines and the air cargo industry are opposing this decision.

Integrators, which are not dependent on passenger aircraft movements, have tended to concentrate on remote airports where no night curfew restrictions exist. That is not to say that the integrators have escaped completely. TNT has moved from Cologne to Liège, Belgium, while DHL has been confronted with the Belgian Government's plans to limit night-time aircraft movements at Brussels airport which serves as DHL's main European hub. With more and more of Europe's former military air-ports being converted for commercial use, alternatives would appear to be in sight.

In Germany, airports such as Hahn, Lahr, Parchim, Laarbruch and some others are striving to attract air cargo business. In France, Chateauroux and Vatry fall into the same category. In Belgium, Ostende and Liège have succeeded in wooing business from air cargo operators. There is little chance, however, that all these airports will develop into important air cargo centres. The need to operate aircraft at any time of the day or night (24-hour airport access) is vital but is by no means the only facility required by air cargo operators.

Such airports also need adequate space for ground handling facilities, excellent access to highway/railway systems, an adequately sized and skilled labour force and a high degree of reliability in respect of weather conditions and air traffic control. They also need adequate runway systems to facilitate large freighters will fill loads. Ideally, a cargo airport should be situated relatively close to one of the major economic regions where the scale of inbound and outbound traffic serves to make hub operations more attractive.

There are several reasons why major combination airlines, irrespective of the night

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noise restrictions, should consider splitting freighter and passenger aircraft operations. Air cargo traffic can be expected to triple over the next 20 years, and this growth in itself should pave the way for a separation of freighter and passenger aircraft operations.

The combination airlines concentrate have to on maximising passenger load factors, and so air cargo capacity will therefore remains tight on many routes, a factor that will be exacerbated by any further restrictions on cabin baggage size. Even now, cargo shipments are occasionally left behind when passenger figures exceed the forecast.

Differentiation of air cargo services also lends itself to a split between freighter and passenger aircraft operations. Many combination airlines already offer time-definite services in respect of air cargo shipments. These services usually cover express cargo, standard air cargo and special cargo such as horses, perishables and oversized cargo. Combination airlines could choose to confine passenger aircraft cargo to express shipments which would be subject to quick ground handling at the hub airport.

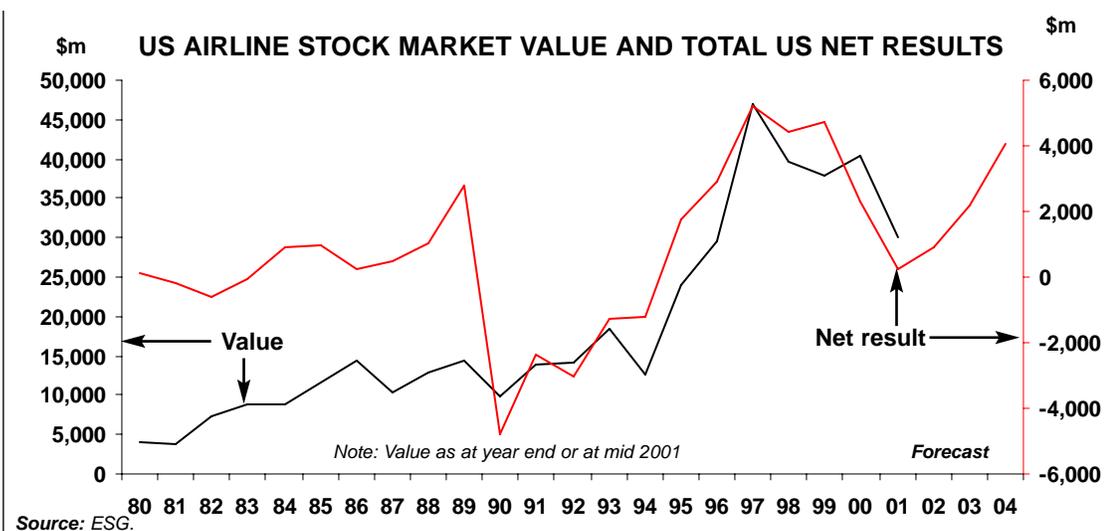
What has become apparent is that airports dedicated to freighter movement and

air cargo handling are set to play an increasingly important role in the air cargo transport industry. If Europe's major international airports impose a ban on aircraft operations during the night, combination airlines will have to consider reducing or even giving up their air cargo activities. Another option is to reschedule freighter movements to those airports that offer 24-hour access. Combination airlines might choose to switch certain freighter operations from night to day, particularly if airport capacity during the day is increased, but it will not be possible to switch all freighters because the industry's logistics systems are often based on overnight transportation. There are pros and cons to a switch of freighter movements from combination airports to pure air cargo airports.

One of the disadvantages relates to the investment that would be required in new air cargo facilities. Meanwhile, existing facilities would become obsolete. Another disadvantage is that a second road feeder service would need to be established. On the other hand, the alternative airports may choose to levy very attractive airport charges.

This chart, compiled from ESG data, tracks the performance of the US airline stockmarket values against profitability. It would suggest that the stockmarket is not yet reflecting the precipitous decline in profits expected this year.

However, it is interesting to note that airlines have actually outperformed the S&P in 15 of the last 28 years, as well as being a markedly cyclical stock. In peak airline markets these stocks have beaten the market by more than ten percentage points.



Virgin's airlines: What's real, what's hype?

Virgin Atlantic enjoys a generally favourable high-profile in the British popular press; the other Virgin aviation interests receive a great deal of coverage as well. But what is the reality of Sir Richard Branson's aviation empire?

The latest available accounts for Virgin Atlantic Ltd - the airline plus Virgin Holidays (a tour operator) and Virgin Aviation Services (a freight handler) - are for the year to April 2000. These represent the legal minimum information required in the UK. Figures for the year to April 2001 will not be available until late this year.

Turnover was 19% up on 1998/99 at £1.27bn but operating profit dropped by 55% to £47m from £104m. Then the company took an exceptional charge of £41m relating to "payments to staff and certain directors....as a consequence of the investment by Singapore Airlines". The highest paid director, presumably Sir Richard, received payments of £3.5m in this year.

As a result of the exceptional charge, pre-tax profit for Virgin Atlantic plummeted to £4.1m from £98.7m in the previous year.

However, Virgin Atlantic's balance sheet improved from 1999, when there were negative shareholders' funds of £9m, to a positive balance of £105m. This was due to the injection of £100m of additional capital, in the form of preference shares, £49m from SIA and £51m from Virgin itself. However, Virgin Atlantic's balance sheet is still heavily leveraged with a net debt/equity ratio of about 80:20. For comparison, its 49% shareholder SIA has a net asset value of some S\$12bn (£4.6bn).

SIA paid £550m for its 49% stake in Virgin Atlantic (excluding the £49m capital injection), which would indicate a generous p/e ratio of 28/1 (after stripping out the exceptional cost). SIA's interest in Virgin Atlantic is, however, not so much in its recent performance as about the future value of its Heathrow slots, especially the

transatlantic ones.

There is no official indication from Virgin as to the airline's financial performance for the 2000/01 year. However, unofficially, a result better than the pre-extraordinary £45m of 1999/2000 is mooted. If so, the result will have been achieved in adverse trading conditions.

First, the surge in fuel prices must have had a sharp impact on a fleet that contained 11 747-200s with an average age of 23 years.

Second, Virgin Atlantic remains very heavily exposed to the North Atlantic, despite the investment in new routes. Overcapacity started to emerge in this market in 2000 and the supply/demand balance has deteriorated this year, and business class yields have come under intense downward pressure. In the year to April 2000, 68% of Virgin Atlantic's sales were made in the UK and a further 26% were made in North America.

Third, Virgin has launched a series of new services which will probably have not matured to profitability yet. These include Shanghai, Delhi, Capetown and Las Vegas, and the Johannesburg service will have been which have impacted by local difficulties. The Indian routes, operated under a codeshare agreement with Air India, are apparently suffering from Indian government interference on fares.

At the inauguration of Virgin's Toronto service in June, Sir Richard conceded that the strength of the competition - not just from Air Canada and BA but also from Canadian charter carriers operating into the same London airport, Gatwick, as Virgin - would mean that the carrier might not break even for two or three years.

The value of the brand

However, Sir Richard insisted that great advantages would accrue to the Virgin

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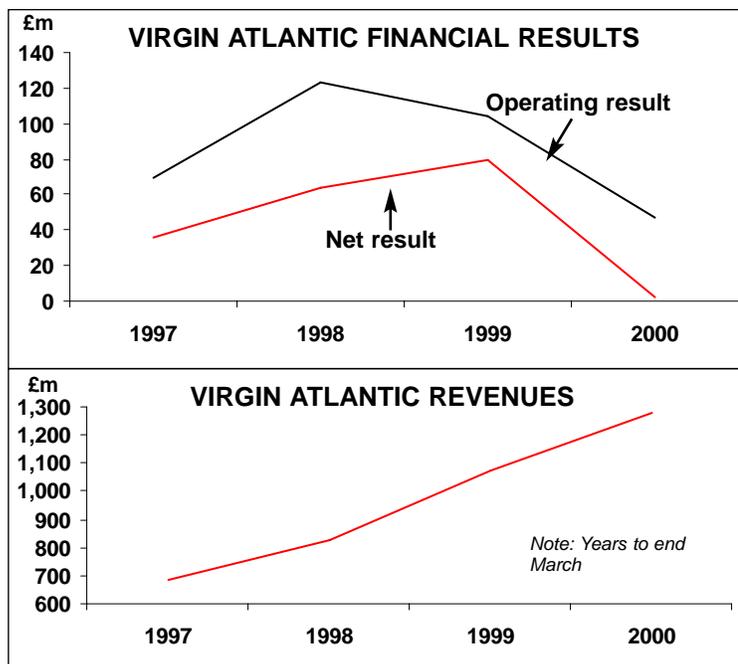
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Group from the introduction of the Virgin brand to the Canadian market. The brand is central to Sir Richard's business thinking. He is dismissive of conventional financial analysts who fail to recognise that his balance sheets contain hidden brand assets; this was the stated cause of his rapid disillusionment with the stockmarket when Virgin was listed briefly in the late 80s.

The brand can be leveraged in various ways. It is a way of drawing in capital and technical expertise which then can be branded into, for example, Virgin Mobile, Virgin Cola, Virgin One (financial services), with the Virgin Group taking disproportionately high shares in comparison to its capital input. The brand also has in the past enhanced asset values when, notably, Virgin Music was sold to EMI at a hefty premium in order to provide desperately needed funds for other parts of the empire. In the UK the Virgin sign is ubiquitous. But it is interesting to note that the Virgin brand can be maintained after Sir Richard has sold out all his interests - examples are Virgin Radio and Virgin Sun.

The problem with brands is that you have to believe in them: value takes a long time to create but can dissipate very quickly. Unfortunately, Virgin's brand in the UK (and it is still essentially a British rather than a global brand) has been devalued in recent times. Attaching the Virgin name to mobile phones or soft drinks has added nothing to the basic product, and consumers know this. More worryingly, the foray into the train sector has not been a success: the product is mediocre, passengers have been incandescent about the ontime performance (admittedly much of which is the fault of the rail infrastructure), and politicians, previously supportive of Virgin, have been disillusioned.

Under the leadership of MD Steve Ridgway, and previously Syd Pennington, Virgin Atlantic's own particular brand has remained impressive, and the airline continues to win travel trade and passenger awards (OAG Airline of the year 2001). But Virgin Express's market perception is very poor. The collateral damage for Virgin Atlantic has been limited, but the opportunity of introducing a new market of continental



European travellers to Virgin's long-haul services has been lost. And there is little real synergy between Virgin Atlantic and the other Virgin enterprises - Virgin Megastores, for example, do not sell airline tickets.

Then there is the issue of Sir Richard himself, so closely identified with his empire and Virgin Atlantic in particular. There are two viewpoints: one, he is a charismatic, anti-establishment, amusing, dynamic entrepreneur; two, he is a manipulative, evasive exhibitionist. Neither version of course fully describes his complex character, but it is fair to say that the positive image he projected up to a couple of years ago has been deflated recently, notably by an unflattering biography by Tom Bower.

Virgin Atlantic's uniqueness

Virgin Atlantic is unique in that it is a European long-haul carrier without national flag-carrier status. It projects a dual image: of being a low-cost carrier and being a very upmarket business airline. The bargain image traces back to its start-up in 1984 when it offered £99 return fares to New York, but its profits have been built on its business-class product, following the move of this flight from Gatwick to Heathrow in 1991. The Upper Class product genuinely did rev-

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VIRGIN ATLANTIC ROUTES

LHR	LGW
Newark	Boston
JFK	Orlando
Los Angeles	Newark
San Francisco	Barbados
Washington	St. Lucia
Chicago	Antigua
Johannesburg	Toronto
Capetown	
Tokyo	
Hong Kong	
San Francisco	
Shanghai	
Delhi	
Athens	
Lagos	

olutionise business travel, offering space akin to First Class, a lounge bar, attentive but informal service, ice cream with the movies, shiatsu massage and so on. On the ground Virgin's limousine service and the Virgin Clubhouse at Heathrow were vastly superior to anything provided by the competition.

Service competition since then has intensified, with BA's flatbeds now representing the ultimate in business class comfort. Virgin has responded by installing its own fully reclining seats on aircraft operating to New York, San Francisco and Chicago. Another Virgin innovation - Mid-Class, a spacious economy seat introduced in 1994 - has now been emulated by BA with its super-economy product.

Virgin Atlantic's route development sought to duplicate the success of the New York route by targetting BA's most profitable long-haul services - Tokyo, Hong Kong, Johannesburg, for example. Lagos in Nigeria was inaugurated in July, a route that desperately needs more business-class capacity, in fact just more capacity. It has also expanded rapidly on leisure-orientated services like Miami and the Caribbean. The leisure services are generally operated out of Gatwick while business or mixed flights go from Heathrow.

As a non-flag-carrier Virgin Atlantic has not only to battle the competition but also the bilateral system. This involves a lot of polemics and an overlong anti-BA campaign

based on accusations of dirty tricks back in the early 90s (it is often forgotten that the law suit claiming treble damages against BA was dismissed by the US courts).

In negotiating for international rights and arguing its aeropolitical case Virgin Atlantic is usually vociferous and quite effective. Barry Humphries, a highly-rated airline economist and bilateral negotiator, was brought into the airline by Sir Richard from the UK CAA in 1996.

However, the UK-US "open skies" negotiations pose a particular challenge for Virgin. On the one hand, it has declared itself time and time again to be a strong proponent of deregulation and free markets; on the other, the prospect of any opening up of Heathrow to other US majors is horrifying given that LHR-JFK, where it has a 25% share, is by some way its most profitable route. So it virulently opposes the BA/AA alliance, overtly of the grounds of the anti-competitive effects of such a link-up, but also because of its natural desire to preserve its market share. In reality it has usually taken a similar lobbying position to BA in Bermuda 2 talks.

In PR terms Virgin's message is persuasive: Sir Richard says he wants genuine deregulation, which means domestic cabotage rights for European carriers in the US, right of investment in US domestic carriers and an end to the Fly America programme. Whether or not Virgin is really interested in operating in the US domestic market (probably not as it had a chance to get into the JetBlue project, which it seems to have turned down) is irrelevant; what is important is that Virgin can rely on the US negotiators to reject these conditions on principle, and hence postpone the introduction of the US-UK open skies.

Disconcertingly for Virgin, BA now looks as it may accept "open skies" and LHR slot give-ups in return for approval for the BA/AA alliance. Sir Richard's response is to announce that he has decided that the EC should be negotiating such agreements in the context of the TCAA.

Virgin has dallied with the idea of expanding into medium haul services. Two years ago it applied for the London-Moscow

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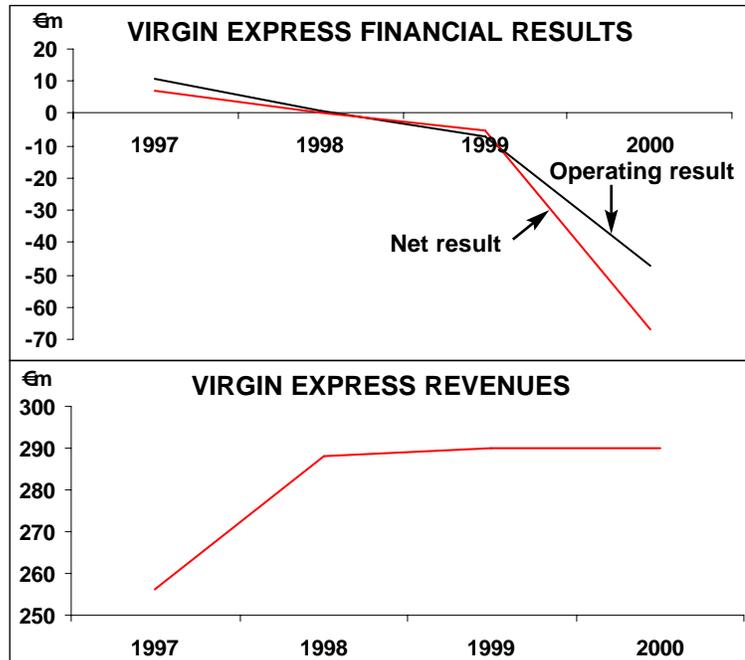
licence in competition with British Midland, but was rejected partly because it did not have suitable equipment available. Its A321 service, London Heathrow- Athens, is looking like more of an anomaly with the rapid growth of easyJet's low-cost London Luton-Athens service on this very price-sensitive route. When or if Olympic is restructured with the aid of an airline investor this route could be rationalised, with the Greek airline operating the European sector and feeding long-haul passengers to Virgin Atlantic. Virgin Atlantic is a minor partner in the Axon consortium which has been recommended by CSFB to the Greek government as the preferred investor in Olympic.

The Virgin Express disaster

Virgin Express was set up in 1996 and 41% of the company was floated the following year, the only part of the Virgin empire that is stockmarket listed. In contrast to Ryanair and easyJet, its low cost rivals, the share performance has been disastrous - launched at €17, the share now languishes at around €1.

The strategy was deeply flawed. Basing the carrier at Brussels meant that the airline was locked into high labour costs and inflexible work rules. The main route was to London Heathrow with Virgin Express operating as a sort of franchisee for Sabena whose LHR slots were in effect leased to Virgin. The product was at best confused - Sabena sold and managed the business-class seats on the 737s while Virgin was in charge of the back of the aircraft - at worst unreliable and of poor quality. An attempt was made to schedule the flight to connect with Virgin Atlantic but little connecting traffic was achieved. Part of the operation was shifted to Ireland, put up for sale then closed down. The fleet has been halved to 11 units and deliveries from Gecas deferred, probably permanently.

Despite reporting a net loss of €65m for 2000, the company officially remains optimistic about breaking-even this year. In reality though, it is unlikely that the Virgin Express/Sabena agreement on Brussels-Heathrow will survive the rescue plan for the



Belgian flag-carrier, leaving Virgin Express operating from Zaventem competing with Ryanair operating from Charleroi - an unequal struggle.

Perhaps Virgin Blue in Australia will do better than Virgin Express (or Virgin Sun, a tour operator/charter carrier, which was sold off to First Choice early this year). Virgin Blue has produced a marginal operating profit in the first seven months of its operation, but the net loss since its incorporation to the end of March 2001 come to A\$11m (US\$7m). Australian observers point out that this period excludes the really vicious fare wars that took place in the Australian market culminating in the demise of Impulse. Virgin Blue will probably end up in some form of anti-Qantas alliance with Ansett.

Inevitably, Sir Richard has promoted the idea of Virgin entering the Corporate Jet market, following in the wake of BA, United and Delta, with a new venture named Virgin JetSet. So far though this amounts to a meeting with Bombardier about future orders for the 19-seat Global Express jet.

The future

So what is Virgin's future in the aviation industry?

Virgin Express looks very sickly, but its

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Briefing

assets might be transferred to Australia where Virgin Blue will probably ally with Ansett (and SIA). New ventures such as Virgin Canada, an idea floated by Sir Richard, are probably non-starters.

As for Virgin Atlantic, much depends on what is happening in the other parts of the complex and opaque Virgin financial web of offshore companies and family trusts. According to analyses in *The Economist* and elsewhere, Virgin Atlantic has in recent years acted as a cash-cow for other parts of the Virgin empire (and its fleets has regularly been used as collateral for loans for other Virgin businesses). Almost all the SIA cash went to stave off a financial crisis in the megastores.

If another urgent need for cash emerges, the sale of the remaining 51% of Virgin Atlantic to UK-based interests amicable to SIA is a possibility (SIA's chief executive Dr C.K. Cheong and two other SIA directors sit on the 10-man board of Virgin Atlantic). Then SIA would have achieved its aim of winning transatlantic flying rights. It would also become the most important Star member at Heathrow ahead of Lufthansa and bmi.

Finally, it is also worth considering Virgin

VIRGIN ATLANTIC'S FLEET PLANS

	Current fleet	Orders (options)
747-200B	11	-
747-400	10	3
A321	1	-
A340	10	10 (8)
A380	-	6 (6)
TOTAL	32	19 (14)

Source: ACAS

Atlantic's capital commitments. Its orderbook now consists of three 747-400s (in addition to two just delivered), 10 A340-600s (plus 8 options) and six A380s (plus six options). The total value of the orderbook therefore works out at somewhere between \$3bn and \$5bn (depending on whether the options are taken). In addition, rumours are circulating about Virgin's strong interest in Boeing's Sonic Cruiser.

In its early days Virgin Atlantic's success was built on leasing fairly elderly 747s and refurbishing them so well that the passengers thought they were new. But today the fact is that a company with a book net worth of about \$140m and last reported net profits of \$6m has a potential capital commitment of \$5bn or maybe more. Conventional financial analysts would be raising their eyebrows.

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The cross-functional airline challenge

Once airline managers have become proficient at processes, they then have to tackle cross-functional activities. This is McKinsey's analysis of the challenge.

By their very nature many airline activities are well suited to be run using a strong process orientation, as they are linked to specific deadlines or to the calendar, with clearly specified end products. Network planning, scheduling, crew planning, crew assignment, maintenance planning, revenue management, and account planning are all processes that must deliver a specific end product at a specific point in time. The process nature of airlines is typically reflected in their organisational structure, and many organisational units are defined in a way that they optimally cover a specific process. As well, the skills and competencies to solve complex function-related issues reside within the corresponding organisational unit. Many processes can count on sophisticated IT support to handle large amounts of data, automate tasks, carry out simulations and to optimise profitability.

Other activities, that are not recurring and not linked to a pre-defined deadline, are often carried out as projects: the evaluation of new product configurations, the development of a new distribution channel or loyalty schemes, new fleet evaluations, major network redesigns, etc.

Then there is a third, crucial type of activity that cuts across core processes and functions: the cross-functional processes. Given the high level of specialisation within different processes or functions, organisational units tend to work in relative isolation from the rest of the airline, focussed on their parameters and their objectives. Over time, cross-functional management has become more and more a senior management task, with many issues to be resolved through hierarchy instead through well-working cross-functional processes.

Six cross-functional processes can be defined that are of potentially high value to an airline (see diagram on page 16).

Marketing strategy process

What airlines normally label "marketing" is in

most cases one single "P" (Promotion) from the classical "4Ps" of the marketing mix (Product, Price, Place, Promotion). "Strategic marketing" typically includes brand building and general advertising activities, as well as a Frequent Flyer Program, while "tactical marketing" is more specific market or route promotion to stimulate demand when load factors are low. The 4Ps are spread across at least 4 or 5 processes, such as fleet planning, network planning and product management (Product), sales (Place, i.e., the management of the distribution channels) and pricing. Each of these processes or departments considers customers from a different angle:

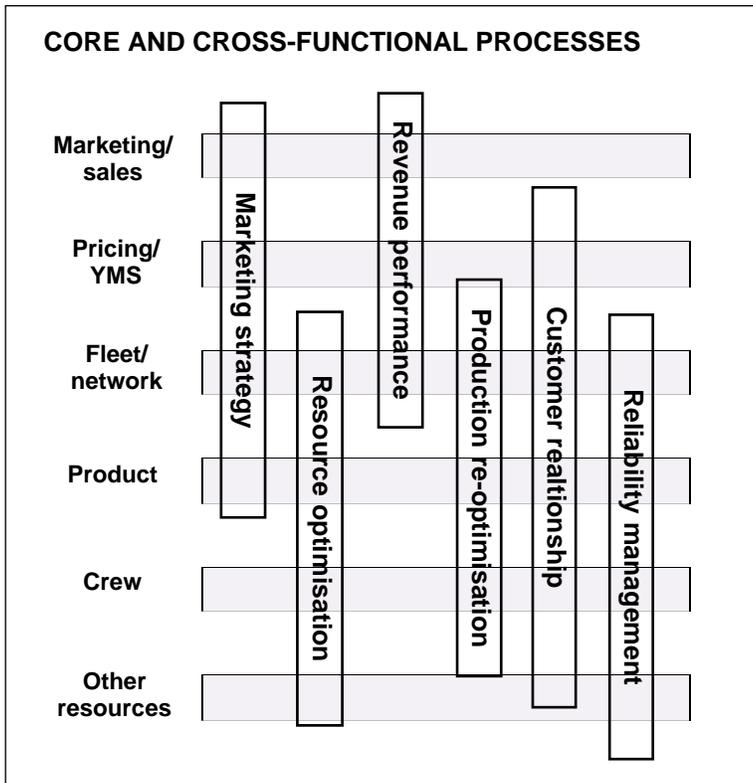
- For network planning, customers are simply heads along specific O/Ds with average yields attached to them
- Product management will think along the classic short-haul vs. long-haul and compartment dimensions
- For sales the customers might well be the intermediaries (as opposed to the end consumers)
- "Marketing" departments typically segment customers according to accrued miles. More sophisticated marketing departments might well have advanced segmentations along all possible socio-demographic or behavioural attributes, but these are typically stand-alone considerations with no or limited impact on the rest of the airline.

One could argue that dealing with the 4Ps is ultimately about airline strategy and this should be a senior management task. This is true - the marketing strategy process is not a replacement for an airline's strategy process, the way to set frame conditions in terms of overall positioning, growth, network and fleet strategy, alliance and consolidation strategy, etc. or, in other words, the structural aspects and the "hardware". But the marketing strategy can and should play a pivotal role with respect to the strategy process. It can:

- Provide substantial input to the strategy process, bringing in a more fundamental view of customer segments, including a clear picture of customer segments' needs, attractiveness (size, growth, profitability) and competitive position
- Link strategy, marketing and sales activities, as well as some of the product elements, i.e.,

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Management



convert strategy into marketing actions, focus the organization on its key priorities, and integrate and balance marketing and sales activities across functions and geographical boundaries (or, to put it differently, to provide the "software"). For this a well-structured and disciplined cross-functional process with a clear end product, an integrated marketing and sales plan, is needed. This plan should be the basic vehicle for creating a common language and spell out joint understanding of the marketing mix, segment by segment, and detail activities in all relevant areas.

Revenue performance management process

Airlines typically manage performance through two management processes:

- Regular reviews of the performance of all routes and their contribution to overall network profitability: this is usually done several weeks (if not months) after the schedule has been flown, and very often measures concerning the schedule take time to implement.
- Regular screening of advanced bookings to spot areas of weakness in the way revenues are developing vs. the budget: this is the way sales and marketing decide on additional revenue-gen-

erating measures, which in most cases will be price-based promotions.

Very often there is a disconnection between these two processes, not only in terms of timing (one dealing with past performance, the other dealing with future revenues), but also in terms of measuring performance and the types of actions that are considered. In particular, measuring revenue performance is not an obvious task: route-based profitability considers revenue performance is sufficient if allocated costs are covered, the sales organization works with indices based on the previous year's revenues.

In a really cross-functional revenue performance process all revenue-influencing departments would be involved, i.e., scheduling (current schedule management), sales, marketing, pricing, and revenue management, working with both past and prospective performance indicators reflecting the absolute revenue performance market by market (i.e., O/D by O/D). They would jointly consider the full set of possible actions to deliver the most effective answer to a revenue *opportunity* (as opposed to pricing promotions just in the event of revenue *problems*), based on a clear, fact-based diagnostic showing why a specific market is performing below its absolute achievable performance (given the structural conditions, and based on comparison with other comparable markets). Then the full range of revenue-enhancing actions should be considered: price increases or decreases, capacity adjustments, regular channel actions, tactical promotions, availability of specific booking classes, etc. should be developed, quantified, and run in a coordinated way. This would imply a change in mindset about the way revenues are steered, a disciplined and analytic approach, and the creation of a jointly agreed fact base (see "Who is responsible for revenue?" *Aviation Strategy*, April 2001).

Resource optimisation process

Although IT and algorithm advancements have been substantial in the past few years, the resource optimisation process of airlines, i.e., the optimal matching of resources such as aircraft, crews, and maintenance to a schedule, is still largely a sequential process: network planning develops a schedule, fleet types are assigned to the schedule, scheduling performs the aircraft rotations, crew planning the crew rotations, crew assignment assign names to the crew rotations,

and so on. Of course there are some feedback loops in the overall processes, but essentially all these processes and the associated IT tools optimise their specific end products, which are then handed over for further optimisation along other dimensions in another process. In this sequential approach every upstream process will limit the degrees of freedom in optimisation of the processes following. Ideally, all these processes should be run as one single process so that the global optimum can be found (as opposed to local optima). Although, from an IT point of view, this still represents a long-term vision, there are some areas where simultaneous optimisation can work:

- Fleet assignment models work optimally in junction with schedule profitability models, with quick iterations among schedule and fleet

- Fixing the schedule timing too rigidly can limit fleet assignment and rotation possibilities: working with "time windows" for the schedule (i.e., flight ABC to leave between 8:00 and 8:10) and fixing the times driven by optimal fleet assignment and aircraft rotation solution can save up to 1% of direct operating and spill costs, according to simulations performed by MIT, GERAD and a major US airline

- Integrating fleet assignment with crew rotation planning can provide benefits of about 3% of total operating, spill and crew costs, according to tests by MIT and a major US airline

- Integrating maintenance planning, aircraft routing and through assignment can also lead to cost savings

Most of these systems are still in the test phase, but it probably will not be long before they are used, with quite significant impact on the overall process. This implies that the network planning and scheduling process will have to be linked much more strongly to resource planning and optimisation processes, with clear synchronization points, full data compatibility and simultaneous optimisation.

Production re-optimisation process

Increasing volatility of demand and a trend towards shorter-term booking behaviour are putting the traditional planning philosophy under pressure: to try to forecast demand 9-12 months in advance as accurately as possible and to expect minor deviations as execution approaches has some clear limits. A new planning paradigm is emerging, which essentially acknowledges the

fact that planning uncertainty is high, and processes have to be designed to be flexible in the short term to adjust to real market demand.

This does not mean that production should not be optimised for each sub-season based on the best possible aggregated demand forecasts: this is and will remain important, as capacities are (still) needed to steer booking class availability in modern revenue management systems, so it is still important to be in the market (i.e., in the CRSs) early on with the best possible estimate of the right product (i.e., right capacity). On the other hand, airlines should be ready to re-optimize production on an ongoing basis (e.g., through capacity down or upgrades), as soon as deviations from the basic plan are detected. And this should be a very normal, standard process and not an operational nightmare!

Demand-Driven Dispatch or Dynamic Aircraft Reassignment are IT tools that can systematically screen for and execute aircraft swaps based on revenue management forecasts. Fleet commonality is a great enabler here, as some of the typical crew implications can be substantially reduced (in other words, cockpit and most cabin crews will still be flying to the assigned destination, but they will know the size of the aircraft only at the very last moment. Only a small number of flight attendants need to be flexible and need to fly to the destinations where the large planes are flying). Bottom-line benefits in the range of 1% of revenues can be expected, depending on variability in demand, but also on fleet mix: a balanced mix of smaller, medium and larger aircraft (e.g., A319, A320, A321) is required to be able to re-adjust capacities. If the fleet is composed of, say, 90% of A320 and only a small number of A319 and A321, even the best Demand-Driven Dispatch algorithm will not be able to capture benefits.

Reliability management process

Delays and cancellations are major causes of customer dissatisfaction, but also a significant cost block for airlines, both in terms of cash out (to pay hotels, re-bookings, etc.) and loss of future revenues due to loss of goodwill. Airlines reacted to last year's major problems by launching task forces to fix the problem, which is now better under control. This might have been an overreaction, with reliability improvements achieved at very high cost, e.g. by adding a large

number of aircraft as operational reserve and to "relax" aircraft rotations. Again, reliability management is a cross-functional (in this case even cross-company) process touching a dozen operational as well as planning processes. The objective of the process is to create the most economical level of punctuality by acting both on structural and on operational factors:

- Schedule structure and aircraft rotations, especially in a hub environment, have an impact on punctuality. But network planners do not have the tools to optimise them, nor do they normally care about what really happened when the schedule they planned was effectively flown (except for its profitability). If punctuality problems arise, the typical "easy way out" is to increase ground times across the board or other similar, non-specific or localised measures. Using simulation tools that can actually simulate flying a schedule and that use statistical and historical deviations from the plan, network planners can identify critical areas in their schedule where problems tend to accumulate (i.e., critical connections, or critical rotations). This insight would enable a better, targeted intervention into ground or block times and rotations, fixing the problem at a much lower cost.
- Operational factors are equally important. During an aircraft turnaround dozens of processes run in parallel or sequentially: de-boarding, baggage unloading, cargo unloading, cabin cleaning, catering handling, refuelling, crew changes, cargo loading, baggage loading, boarding, etc. The ability to monitor these processes in real time and to quickly spot problems can significantly reduce reaction times. Even more important, during the day an Operations Control Centre will already know exactly how much delay has been accumulated in which part of the network and what kind of external factors might have a further influence. From this information an airline should be able to forecast, a few hours in advance, how critical the next wave in the hub is likely to be, so that the necessary actions can be taken (e.g., dispatch more people to the transfer desk or to the gates, identify the most critical connections and set priorities for the ground handling staff, etc.). And this task is non-obvious, as it implies strong cross-company collaboration, which must be laid out in the Service Level Agreements, and include IT integration, providing real-time event notification and display.

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CRM process

Understanding among industry players about what CRM really is and does can be quite divergent; unfortunately, in many cases is understood as just an IT issue. While IT can play a key enabling role, CRM is first and foremost a cross-functional process. Pulling all possible customer data into a data warehouse and running data mining programs will not make the difference, it is only a piece of the puzzle. Even if the data are effectively used to run targeted campaigns based on behaviour, potential and permission of customers, this taps only into one part of the total potential.

A more comprehensive view of CRM should include the management of the multiple contact points with a customer during his full experience, before and during the booking process, during and after the travel execution. There are a large number of actions and decisions that need to be taken by frontline staff in different functions at different contact points, and many different ways to tailor the customer interface of electronic channels.

Implications for senior managers

Getting better in cross-functional management could become a competitive advantage and significantly contribute to the bottom-line (although it must be clear that this is not a substitute of a sound strategy, and of good cost and market positions). However, if the basis is sound, moving along this path might require some more fundamental thinking on some issues:

- How should the business system be configured? Which processes exist, what is the underlying planning and optimisation philosophy, and what flexibility is embedded in the processes?
- How should the appropriate organisational behaviour be fostered in order to reward cross-functional collaboration without compromising on functional excellence?
- What kind of information would be needed to get the required transparency to efficiently support the processes and key decisions (e.g., key performance indicators, visibility of trade-offs, etc.)?
- How should the key management processes support the right decision making, and what is the appropriate organisational level to take what type of decision?

Aviation Strategy

Value trends

NARROWBODY AND REGIONAL JET CURRENT VALUES

	New	5 years old	10 years old	20 years old		New	5 years old	10 years old
A318	31.4				BAe146-200			9.4
A319(IGW)	35.8	28.8			RJ70	22.2	15.3	
A320-200(IGW)	42.9	34.0	24.8		RJ85	22.3	16.7	
A321-200 (LGW)	50.3				RJ100	23.4	17.8	
717-200	50.3				CRJ100	19.4	14.9	
727-200Adv	26.7				CRJ200	19.8	15.5	
737-200Adv				2.6	CRJ200LR	21.4		
737-300(IGW)				3.4	CRJ700	22.1		
737-400(IGW)		27.8	21.8					
737-500		22.6	16.8		Emb135	13.7		
737-600	33.6				Emb140	15.8		
737-700	36.4				Emb145	17.1	12.9	
737-800	44.6							
737-900	47.2				Do 328JET	12.3		
757-200	50.3	40.3	30.2					
757-200ER	55.6	44.9	34.3		F100		12.7	8.5
757-300	60.7							
DC-9-30				3.2				
DC-9.50				3.1				
MD-82			14.0	8.9				
MD-83		21.2	17.5					
MD-88		21.8	18.3					
MD-90		23.8						

Source: AVAC

Notes: As assessed at end-April
2001; mid-range values for all types

AIRCRAFT AND ASSET VALUATIONS

Contact Paul Leighton at AVAC (Aircraft Value Analysis Company)

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Aviation Strategy

Macro-trends

EUROPEAN SCHEDULED TRAFFIC

	Intra-Europe			North Atlantic			Europe-Far East			Total long-haul			Total international		
	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 %
1993	137.8	79.8	57.9	145.1	102.0	70.3	96.3	68.1	70.7	319.1	223.7	70.1	479.7	318.0	66.3
1994	144.7	87.7	60.6	150.3	108.8	72.4	102.8	76.1	74.0	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	73.0	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	72.0
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
Apr 01	18.5	12.1	65.4	19.7	14.8	75.1	11.1	8.5	76.2	42.6	32.5	76.2	64.5	46.8	72.7
Ann. chng	7.6%	6.5%	-0.7	1.3%	-4.1%	-4.2	-2.8%	-4.9%	-1.6	0.4%	-2.4%	-2.2	2.7%	-0.2%	-2.1
Jan-Apr 01	68.9	40.9	59.3	71.9	51.1	71.1	44.6	34.7	77.7	163.4	122.3	74.9	245.2	171.7	70.0
Ann. chng	4.5%	6.2%	1.0	1.7%	-0.1%	-1.3	-2.5%	-1.1%	1.1	0.2%	0.5%	0.2	1.6%	1.8%	0.1

Source: AEA.

US MAJORS' SCHEDULED TRAFFIC

	Domestic			North Atlantic			Pacific			Latin America			Total international		
	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 %
1993	867.7	538.5	62.1	140.3	97.0	69.2	112.5	79.7	70.8	55.8	32.5	58.2	308.7	209.2	67.8
1994	886.9	575.6	64.9	136.1	99.5	73.0	107.3	78.2	72.9	56.8	35.2	62.0	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	63.0	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	64.0	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										380.9	289.9	76.1
Mar 01	88.2	64.5	73.1										32.3	24.7	76.7
Ann. chng	-0.5%	-1.2%	-0.4										6.8%	5.4%	-1.1
Jan-Mar 01	254.8	171.2	67.2										92.8	66.4	71.6
Ann. chng	0.2%	-0.3%	-0.3										6.5%	6.2%	-0.2

Note: US Majors = American, Alaska, Am. West, Continental, Delta, NWA, Southwest, TWA, United, USAir. Source: Airlines, ESG.

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	3,361	70.8	4.9	7.2	5.6	6.0	5.3	6.5
*2001	2,079	1,414	68.0	2,879	2,028	70.4	4,958	3,442	69.4	3.7	1.7	4.9	2.9	4.4	2.4
*2002	2,146	1,463	68.2	3,007	2,122	70.6	5,154	3,587	69.6	3.2	3.5	4.5	4.7	4.0	4.2
*2003	2,237	1,533	68.7	3,176	2,258	71.1	5,413	3,794	70.1	4.2	4.9	5.6	6.3	5.0	5.8
*2004	2,344	1,607	68.7	3,373	2,398	71.1	5,717	4,007	70.1	3.7	4.8	6.2	6.2	5.6	5.6

Note: * = Forecast; ICAO traffic includes charters. Source: Airline Monitor, January 2001.

DEMAND TRENDS (1990=100)

	Real GDP					Real exports					Real imports				
	US	UK	Germany	France	Japan	US	UK	Germany	France	Japan	US	UK	Germany	France	Japan
1993	105	100	100	101	105	117	107	106	109	112	117	104	108	101	96
1994	109	103	103	104	106	126	117	115	115	117	131	110	117	107	104
1995	111	106	105	106	107	137	126	122	123	123	141	115	124	113	119
1996	114	108	107	107	111	152	135	128	128	126	155	124	127	116	132
1997	118	112	110	109	112	172	146	142	142	138	177	135	136	123	132
1998	122	115	113	112	109	173	150	152	150	135	196	144	147	133	121
1999	127	117	114	115	111	179	150	155	153	135	220	151	152	136	122
2000	134	121	117	119	114	198	162	174	172	153	250	164	166	153	139
*2001	138	124	121	122	116	216	173	191	188	162	272	176	179	165	148

Note: * = Forecast; Real = inflation adjusted. Source: OECD Economic Outlook, December 2000.

Aviation Strategy

Macro-trends

FINANCIAL TRENDS (1990=100)

	Inflation (1990=100)					Exchange rates (against US\$)						LIBOR 6 month Euro-\$	
	US	UK	Germany	France	Japan	UK	Germ.	France	Switz.	Euro**	Japan		
1993	111	109	114	108	106	1992	0.570	1.562	5.294	1.406	0.773	126.7	3.84%
1994	113	109	117	110	107	1993	0.666	1.653	5.662	1.477	0.854	111.2	3.36%
1995	117	112	119	112	107	1994	0.653	1.623	5.552	1.367	0.843	102.2	5.06%
1996	120	114	121	113	107	1995	0.634	1.433	4.991	1.182	0.765	94.1	6.12%
1997	122	117	123	114	108	1996	0.641	1.505	5.116	1.236	0.788	108.8	4.48%
1998	123	120	124	115	109	1997	0.611	1.734	5.836	1.451	0.884	121.1	5.85%
1999	125	122	126	116	108	1998	0.603	1.759	5.898	1.450	0.896	130.8	5.51%***
2000	128	124	127	117	107	1999	0.621	1.938	6.498	1.587	1.010	103.3	5.92%***
*2001	131	127	128	119	107	2000	0.603	2.119	7.108	1.658	0.923	118.1	5.36%***
						June 2001	0.707	2.311	7.751	1.798	0.846	124.3	3.59***

Note: * = Forecast. Source: OECD Economic Outlook, December 2000. **Euro rate quoted from January 1999 onwards. 1990-1998 historical rates quote ECU. *** = \$ LIBOR BBA London interbank fixing six month rate.

AIRCRAFT AVAILABLE FOR SALE OR LEASE

	Old narrowbodies	Old widebodies	Total old	New narrowbodies	New widebodies	Total new	TOTAL
1988	126	34	160	16	1	17	177
1989	216	38	254	42	2	44	298
1990	380	77	457	74	14	88	545
1991	457	129	586	114	27	141	727
1992	433	138	571	75	15	90	661
1993	370	195	565	103	37	140	705
1994	267	182	449	61	23	84	533
1995	238	157	395	49	29	78	473
1996	124	101	225	32	22	54	279
1997	162	104	266	54	13	67	333
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-Jan	288	150	438	172	43	215	651
2001-Feb	298	155	453	152	46	198	651
2001-Mar	345	144	489	164	47	211	700
2001-Apr	326	130	456	184	61	245	701
2001-May	371	140	511	210	61	271	782

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.

JET AND TUROPROP ORDERS

	Date	Buyer	Order	Price	Delivery	Other information/engines
Airbus	June 18	Air France	10 A380s			
	June 18	ILFC	5 A380s and 5 A380Fs			
	June 18	Jet Blue	30 A320s			
	June 18	ILFC	21 A330-200s, 80 A320s			
Boeing	June 20	JAL	3 777-200ERs	\$525m	2003-06	DC-10 replacement
Bombardier	June 18	Tyrolean	2 Q400s		2002+	
	June 29	Wideroe	3 Q400s		2001-02	Plus 5 options
Embraer	June 19	Chautauqua	28 Emb 140s		2002+	Plus 25 options
	June 19	Trans State AL	10 Emb 140s			Plus 25 options
Fairchild	June 18	CSA	8 728 JETs	\$230m	2003-06	
	June 18	Grupo Invest Blue	1 328 JET			
	June 18	Air Namibia	3 328 JETs		2001	

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

Aviation Strategy

Micro-trends

	Group revenue	Group costs	Group operating profit	Group net profit	Total ASK	Total RPK	Load factor	Group rev. per total ASK	Group costs per total ASK	Total pax.	Total ATK	Total RTK	Load factor	Group employees
	US\$m	US\$m	US\$m	US\$m	m	m	%	Cents	Cents	000s	m	m	%	
American*														
Jul-Sep 99	4,629	4,603	547	279	67,972.2	48,792.9	71.8	6.88	6.26					
Oct-Dec 99	4,477	4,206	271	280	65,751.2	44,328.2	67.4	6.81	6.41					98,700
Jan-Mar 00	4,577	4,365	212	132	64,392.8	43,478.4	67.5	7.11	6.78					104,500
Apr-Jun 00	5,011	4,494	517	321	67,000.4	50,538.7	75.4	7.48	6.71					105,900
Jul-Sep 00	5,256	4,684	572	313	66,654.0	50,828.1	76.3	7.89	7.03					107,500
Oct-Dec 00	4,859	4,779	80	47	63,562.5	44,318.5	69.7	7.64	7.52					107,500
Jan-Mar 01	4,760	4,743	17	-43	62,725.7	42,590.7	67.9	7.59	7.56					108,900
America West														
Jul-Sep 99	553	511	41	22	10,522.9	7,502.8	71.3	5.26	4.86	4,896				
Oct-Dec 99	569	532	37	29	10,594.0	7,307.8	69.0	5.37	5.02	4,822				11,575
Jan-Mar 00	563	552	11	15	10,440.8	6,960.5	66.7	5.39	5.29	4,612				12,024
Apr-Jun 00	618	570	48	33	10,979.8	8,091.7	73.7	5.63	5.19	5,206				12,158
Jul-Sep 00	591	591	0	1	11,079.9	8,088.3	73.0	5.33	5.33	5,178				
Oct-Dec 00	573	654	-81	-47	11,133.1	7,616.8	68.4	5.15	5.87	4,958				
Jan-Mar 01	587	612	-25	-13	11,355.2	7,857.8	69.2	5.17	5.39	5,104				
Continental														
Jul-Sep 99	2,283	2,071	21	110	34,711.0	26,380.3	76.0	6.58	5.97	11,922				
Oct-Dec 99	2,158	2,073	85	33	33,771.2	24,094.4	71.3	6.39	6.14	11,347				
Jan-Mar 00	2,277	2,223	54	14	33,710.2	24,143.0	71.6	6.75	6.59	11,201				
Apr-Jun 00	2,571	2,292	279	149	34,406.9	26,534.0	77.1	7.47	6.66	12,084				
Jul-Sep 00	2,622	2,368	254	135	35,978.0	27,881.1	77.5	7.29	6.58	12,155				
Oct-Dec 00	2,429	2,332	97	44	34,454.0	24,685.1	71.6	7.05	6.77	11,456				
Jan-Mar 01	2,451	2,375	76	9	34,533.9	24,322.9	70.4	7.10	6.88	11,220				
Delta														
Jul-Sep 99	3,877	3,527	350	352	60,710.8	45,528.3	75.0	6.39	5.81	27,183		5,258.2		72,300
Oct-Dec 99	3,713	3,705	8	352	58,265.1	40,495.3	69.5	6.37	6.36	25,739				
Jan-Mar 00	3,960	3,605	355	223	57,093.8	39,404.4	69.0	6.94	6.31	25,093				72,300
Apr-Jun 00	4,439	3,863	606	460	59,753.4	46,509.8	77.8	7.48	6.46	28,333				73,800
Jul-Sep 00	4,325	3,827	498	127	61,319.9	47,076.5	76.8	7.05	6.24	27,378				
Oct-Dec 00	4,017	3,839	178	18	58,655.8	40,527.0	69.1	6.85	6.54	24,919				
Jan-Mar 01	3,842	3,957	-115	-133	60,714.1	40,690.6	67.0	6.33	6.52	26,932				
Northwest														
Jul-Sep 99	2,843	2,472	370	180	43,194.5	33,562.1	77.7	6.58	5.73					
Oct-Dec 99	2,555	2,461	94	29	39,228.3	28,618.2	73.0	6.51	6.27					
Jan-Mar 00	2,570	2,573	-3	3	39,486.0	28,627.4	72.5	6.51	6.52					
Apr-Jun 00	2,927	2,675	252	115	42,049.6	33,523.5	79.7	6.96	6.36					
Jul-Sep 00	3,178	2,824	354	207	44,379.9	35,353.1	79.7	7.16	6.36					
Oct-Dec 00	2,740	2,774	-34	-69	40,417.6	29,850.1	73.9	6.78	6.86					
Jan-Mar 01	2,611	2,847	-236	-171	40,211.6	29,394.7	73.1	6.49	7.08					
Southwest														
Jul-Sep 99	1,235	1,029	206	127	21,903.8	15,464.0	70.6	5.64	4.70	14,932				
Oct-Dec 99	1,204	1,050	154	94	22,360.7	15,047.8	67.3	5.38	4.70	14,818				27,653
Jan-Mar 00	1,243	1,057	155	74	22,773.8	15,210.2	66.8	5.46	4.77	14,389				27,911
Apr-Jun 00	1,461	1,146	315	191	23,724.3	17,624.9	74.3	6.16	4.83	16,501				
Jul-Sep 00	1,479	1,179	300	184	24,638.0	17,650.8	71.6	6.00	4.79	16,501				
Oct-Dec 00	1,467	1,216	251	155	25,267.5	17,443.2	69.0	5.81	4.81	16,287				
Jan-Mar 01	1,429	1,218	210	121	25,512.2	17,169.7	67.3	5.60	4.77	15,716				29,563
TWA														
Jul-Sep 99	876	935	-59	-54	15,188.0	11,524.3	75.9	5.76	6.16	6,928	1,957.0	1,248.6	63.8	20,982
Oct-Dec 99	809	913	-104	-76	14,501.6	9,687.1	66.8	5.58	6.30	6,038				
Jan-Mar 00	954	939	15	-4	15,465.4	11,607.0	75.1	6.17	6.07	7,020				
Apr-Jun 00	973	984	-11	-35	15,928.0	12,316.3	77.3	6.00	4.79	7,211				
Jul-Sep 00														
Oct-Dec 00														
Jan-Mar 01														
United														
Jul-Sep 99	4,845	4,226	619	359	74,043.0	55,628.0	75.1	6.54	5.71	23,765				96,700
Oct-Dec 99	4,480	4,286	194	129	70,715.9	49,172.2	69.5	6.34	6.06	21,536				96,600
Jan-Mar 00	4,546	4,294	252	-99	68,421.1	46,683.5	68.2	6.64	6.28	20,141				96,100
Apr-Jun 00	5,109	4,504	605	408	70,913.5	53,624.8	75.6	7.20	6.35	22,412				98,300
Jul-Sep 00	4,905	4,946	-41	-116	72,495.7	54,049.9	74.6	6.77	6.82	21,458				99,700
Oct-Dec 00	4,792	4,955	-163	-71	70,550.1	49,897.9	70.7	6.79	7.02	20,590				99,100
Jan-Mar 01	4,424	4,815	-391	-313	67,741.4	46,267.7	68.3	6.53	7.11	18,860				98,600
US Airways														
Jul-Sep 99	2,102	2,213	-111	-85	23,006.6	17,205.6	71.7	8.76	9.22	13,984				40,613
Oct-Dec 99	2,135	2,256	-121	-81	24,705.9	16,714.2	67.6	8.64	9.13	14,075				41,636
Jan-Mar 00	2,098	2,237	-139	-218	24,250.3	15,568.7	64.2	8.65	9.22	12,804				42,727
Apr-Jun 00	2,433	2,285	168	80	26,171.9	19,557.4	74.7	9.30	8.65	15,554				42,653
Jul-Sep 00	2,381	2,376	5	-30	28,452.4	20,726.2	72.8	8.37	8.35	15,809				44,026
Oct-Dec 00	2,347	2,428	-81	-98	28,275.4	19,590.0	69.3	8.30	8.59	15,605				43,467
Jan-Mar 01	2,241	2,469	-228	-171	27,752.4	18,372.1	66.2	8.07	8.90	14,193				44,077
ANA														
Jul-Sep 99	4,541	4,329	212	146	44,156.0	29,032.0	65.7	10.28	9.80	21,970				
Oct-Dec 99	SIX MONTH FIGURES													
Jan-Mar 00	5,591	5,842	-251	6	49,646.9	31,844.9	64.1	11.26	11.77	27,430				
Apr-Jun 00	SIX MONTH FIGURES													
Jul-Sep 00	5,288	4,793	495	359	47,586.3	31,753.1	66.7	11.11	10.07	24,958				
Oct-Dec 00														
Jan-Mar 01														
Cathay Pacific														
Jul-Sep 99	SIX MONTH FIGURES													
Oct-Dec 99	1,989	1,658	331	133	29,313.0	22,167.9	75.6	6.79	5.66		5,600.0			
Jan-Mar 00	SIX MONTH FIGURES													
Apr-Jun 00	2,070	1,765	305	285	29,839.0	22,588.1	75.7	6.94	5.92		5,483.0			
Jul-Sep 00	SIX MONTH FIGURES													
Oct-Dec 00	2,356	1,983	373	382	32,070.0	24,586.6	76.7	7.35	6.13		6,147.0			
Jan-Mar 01														
JAL														
Jul-Sep 99	TWELVE MONTH FIGURES													
Oct-Dec 99														
Jan-Mar 00	14,665	14,254	411	181	126,282.4	88,478.5	70.1	11.61	11.29	37,247	18,856.7	12,738.0	67.6	
Apr-Jun 00														
Jul-Sep 00														
Oct-Dec 00														
Jan-Mar 01														

Note: Figures may not add up due to rounding. 1 ASM = 1.6093 ASK. *Airline group only.

Aviation Strategy

Micro-trends

	Group revenue	Group costs	Group operating profit	Group net profit	Total ASK	Total RPK	Load factor	Group rev. per total ASK	Group costs per total ASK	Total pax.	Total ATK	Total RTK	Load factor	Group employees
	US\$m	US\$m	US\$m	US\$m	m	m	%	Cents	Cents	000s	m	m	%	
Korean Air														
Jul-Sep 99	TWELVE MONTH FIGURES													
Oct-Dec 99	4,340	4,177	163	232	49,516.0	36,693.0	74.0	8.76	8.44	20,564	7,827	5,995	78.2	
Jan-Mar 00														
Apr-Jun 00														
Jul-Sep 00														
Oct-Dec 00														
Jan-Mar 01														
Malaysian														
Jul-Sep 99	TWELVE MONTH FIGURES													
Oct-Dec 99	2,148	1,652	496	-67	48,906.0	34,930.0	71.4	4.39	3.38		7,531.5	4,853.4	64.4	
Jan-Mar 00														
Apr-Jun 00														
Jul-Sep 00														
Oct-Dec 00														
Jan-Mar 01														
Singapore														
Jul-Sep 99	2,577	2,259	317	346	43,145.7	32,288.3	74.8	5.97	5.24	6,752	8,251.9	5,852.7	70.9	
Oct-Dec 99	SIX MONTH FIGURES													
Jan-Mar 00	2,459	2,203	256	439	44,582.6	33,430.1	75.0	5.51	4.94	7,030	8,665.8	6,185.7	71.4	
Apr-Jun 00	SIX MONTH FIGURES													
Jul-Sep 00	2,864	2,438	426	668	46,477.5	36,136.6	77.8	6.16	5.25	7,584	8,950.0	6,524.6	72.9	
Oct-Dec 00	SIX MONTH FIGURES													
Jan-Mar 01	2,635	2,317	318	209	46,170.5	34,981.8	75.8	5.71	5.02	7,416	9,084.0	6,460.4	71.1	
Thai Airways														
Jul-Sep 99	2,858	2,695	163	136	51,788.0	37,642.0	72.7	5.52	5.20	16,331	7,309.0	5,097.0	69.7	
Oct-Dec 99	TWELVE MONTH FIGURES													
Jan-Mar 00				108	55,517.0	41,347.0	74.5			17,700	7,752.0	5,469.0	70.6	
Apr-Jun 00														
Jul-Sep 00														
Oct-Dec 00														
Jan-Mar 01														
Air France														
Jul-Sep 99	5,249	4,889	360	316	56,934.0	43,896.0	77.1	9.22	8.59	20,600				
Oct-Dec 99	SIX MONTH FIGURES													
Jan-Mar 00	4,831	4,430	401	41	55,508.0	41,650.0	75.0	8.70	7.98	19,200				
Apr-Jun 00	SIX MONTH FIGURES													
Jul-Sep 00	5,506	5,132	374	385	60,088.0	48,464.0	80.7	9.16	8.54					
Oct-Dec 00	SIX MONTH FIGURES													
Jan-Mar 01	4,981	4,988	-7	-25	59,100.5	44,622.2	75.5	8.42	8.43					
Alitalia														
Jul-Sep 99	SIX MONTH FIGURES													
Oct-Dec 99	2,225	2,254	-29	-15	24,747.8	16,898.8	68.3	8.99	9.11	11,693	3,464.8	2,404.5	69.4	
Jan-Mar 00	SIX MONTH FIGURES													
Apr-Jun 00	2,553	2,753	-200	-209	32,735.2	24,534.2	74.9	7.80	8.41					
Jul-Sep 00														
Oct-Dec 00														
Jan-Mar 01														
BA														
Jul-Sep 99	3,933	3,742	191	49	47,465.0	35,873.0	75.6	8.29	7.88	12,983	6,690.0	4,689.0	70.1	65,607
Oct-Dec 99	3,473	3,476	-3	-112	45,347.0	30,192.0	66.6	7.66	7.67	11,084	6,469.0	4,270.0	66.1	65,800
Jan-Mar 00	3,097	3,281	-184	-247	44,533.0	29,328.0	65.9	6.95	7.37	10,778	6,253.0	4,041.0	64.6	64,874
Apr-Jun 00	3,488	3,342	146	-85	44,826.0	32,295.0	72.0	7.78	7.46	11,633	6,475.0	4,407.0	68.1	61,411
Jul-Sep 00	3,673	3,293	380	197	45,333.0	35,093.0	77.4	8.10	7.26	12,615	6,608.0	4,741.0	71.7	62,793
Oct-Dec 00	3,328	3,212	116	84	42,347.0	29,008.0	68.5	7.86	7.58	10,493	6,230.0	4,128.0	66.3	62,831
Jan-Mar 01	3,048	3,136	-88	-111	40,018.0	26,800.0	67.0	7.62	7.84	9,721	5,883.0	3,711.0	63.1	62,425
Iberia														
Jul-Sep 99	TWELVE MONTH FIGURES													
Oct-Dec 99	3,712	3,659	53	179	50,227.6	34,606.8	68.9	7.39	7.28	21,877				
Jan-Mar 00														
Apr-Jun 00														
Jul-Sep 00														
Oct-Dec 00														
Jan-Mar 01														
KLM														
Jul-Sep 99	1,731	1,596	135	32	19,630.0	16,083.0	81.9	8.81	8.13		3,352.0	2,640.0	78.8	35,226
Oct-Dec 99	1,450	1,479	-29	-17	19,014.0	14,434.0	75.9	7.63	7.78		3,280.0	2,550.0	77.7	35,128
Jan-Mar 00	1,361	1,436	-75	-142	18,627.0	14,084.0	75.6	7.31	7.71		3,238.0	2,453.0	75.8	35,348
Apr-Jun 00	1,600	1,509	91	39	18,730.0	15,149.0	80.9	8.54	8.06		3,276.0	2,549.0	77.8	27,267
Jul-Sep 00	1,615	1,445	170	100	19,386.0	16,378.0	84.5	8.33	7.45		3,359.0	2,703.0	80.5	26,447
Oct-Dec 00	1,617	1,574	43	4	19,050.0	14,715.0	77.2	8.49	8.26		3,316.0	2,618.0	78.9	26,349
Jan-Mar 01	1,360	1,422	-62	-77	18,056.0	13,805.0	76.4	7.53	7.88		3,230.0	2,471.0	76.5	26,538
Lufthansa***														
Jul-Sep 99	4,049	3,677	382	184	31,335.0	23,866.0	76.2	12.92	11.73	11,891	5,699.0	4,142.0	72.7	
Oct-Dec 99	3,398	2,964	434	378	29,120.0	20,313.0	69.8	11.67	10.18	10,807	5,503.0	3,930.0	71.4	66,207
Jan-Mar 00	2,831	2,742	89	11	28,599.0	19,781.0	69.2	9.90	9.59	10,355	5,422.0	3,751.0	69.2	67,489
Apr-Jun 00	3,346	3,123	223	400	31,865.0	24,405.0	76.6	10.50	9.80	12,249	5,988.0	4,338.0	72.4	
Jul-Sep 00	3,375	2,993	382	182	32,654.0	25,878.0	79.2	10.33	9.17	12,849	6,156.0	4,536.0	73.7	
Oct-Dec 00	3,750	3,148	602	10	30,682.0	22,096.0	72.0	12.22	10.26	11,547	5,997.0	4,293.0	71.6	69,523
Jan-Mar 01	3,222	3,202	20	-80	30,223.0	21,232.0	70.3	10.66	10.59	10,903	5,781.0	3,953.0	68.4	72,279
SAS														
Jul-Sep 99	1,173	1,150	23	12*	8,450.0	5,667.0	67.1	13.88	13.61	5,589				27,589
Oct-Dec 99	1,210	1,083	127	138*	8,227.0	5,210.0	63.3	14.71	13.16	5,536				27,201
Jan-Mar 00	1,145	1,179	-34	-33*	8,253.0	4,992.0	60.5	13.87	14.24	5,314				28,060
Apr-Jun 00	1,289	1,176	113	112*	8,492.0	6,004.0	70.7	15.18	13.85	6,236				28,295
Jul-Sep 00	1,122	1,070	52	33*	8,496.0	6,155.0	72.4	13.21	12.59	5,943				28,485
Oct-Dec 00	1,310	1,131	179	174*	8,541.0	5,492.0	64.3	15.34	13.24	5,747				27,767
Jan-Mar 01	1,183	1,175	8	2*	8,558.0	5,286.0	61.8	13.82	13.73	5,482				29,985
Swissair**														
Jul-Sep 99	SIX MONTH FIGURES													
Oct-Dec 99	2,344	2,272	72	125	21,934.0	16,839.0	76.8	10.69	10.36	6,081				
Jan-Mar 00	SIX MONTH FIGURES													
Apr-Jun 00	1,916	2,006	-90	2	25,476.0	18,241.0	71.6	7.52	7.87	9,162	3,972.8	2,719.6	68.5	
Jul-Sep 00	SIX MONTH FIGURES													
Oct-Dec 00	2,179	2,069	110	-1,650	23,540.0	17,677.0	75.1	9.27	8.79	5,890	4,296.2	3,007.4	70.0	
Jan-Mar 01														

Note: Figures may not add up due to rounding. 1 ASM = 1.6093 ASK. *Pre-tax. **SAirlines' figures apart from net profit, which is SAirGroup. ***Excludes Condor from 1998 onwards. 4Q+ data are on IAS basis.

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