There are more than 3,600 late 1970s and 1980s narrowbodies in operation, and many have now reached the age for possible replacement. Although the A320 family and 737NG are the main replacement options, the new generation large regional jets may be an attractive alternative.

Replacement options for 80- to 150-seat jets

Several types of older-generation narrowbodies are in operation, including the: Fokker 70/100; BAE 146 & Avro RJ family; DC-9 family; MD-80/-90; and 737-300/-400/-500. More than 3,600 of these aircraft are in operation, some of which have been flying for up to 30 years. Some are prime candidates for replacement, but airlines have limited options from which to choose.

Three groups of aircraft are suitable replacement candidates: the 737NG and A320 families, which are clearly suitable replacements for most of the old-generation types; and the E-170/-190 series, which could serve as a replacement for some smaller old-generation narrowbodies. Some new-generation, large regional jets (RJs) are already replacing BAe 146s, Avro RJs and Fokker 70s/100s.

The CRJ-900 comprises a fourth group, but it is only suitable to replace the smallest of old-generation narrowbodies.

Old-generation aircraft are still being operated in large numbers, however, so airlines must consider whether it is worth continuing with them, or if a saving in total operating costs be made by replacing them with new equipment.

Size categories

Old generation narrowbodies and their replacement candidates fall into six categories: 79 to 85 seats; 98 to 100 seats; 107 to 109 seats; 124 to 128 seats; 143 to 153 seats; and 162 to 185 seats. Each is summarised by old aircraft types, their main operators and numbers, and their replacement candidates *(see table, page 38)*. There are no old-generation aircraft in the largest seat category, but since the replacement candidates offer increased seat capacity, their economics should be considered.

Old-generation aircraft

The aircraft in each seat size category, their fleet sizes and largest operators are summarised *(see table, page 38)*. There are more than 3,600 of these aircraft in service.

The 79- to 85-seat group comprises the fewest aircraft with just 190 in operation, and the 98- to 100-seat group 287. These two groups include only large RJs, with the exception of the DC-9-30.

The three groups of larger airliner-sized jets include more aircraft. There are almost 600 107- to 109-seat aircraft in operation, about 1,000 124- to 128-seat aircraft, and about 1,600 143- to 153-seat aircraft.

This implies that the replacement market for the new-generation large regional jets (RJs), including the E-190/-195 and CRJ-900, is limited to about 500 aircraft. For aircraft larger than 106 seats the replacement market comprises up to 3,000 aircraft. Most will be from the A320 and 737NG families, although some will be replaced by the E-190/1-95, and possibly the Bombardier C series, if launched.

Scope clauses of regional airlines affiliated to major carriers are gradually being relaxed. Major airlines are transferring some services operated by the smaller jetliners to their affiliates, which will increase the market for large RJs, while at the same time diminishing the sales potential of types like the A318 and 737-600.

New-generation aircraft

The A320 family offers seat capacity of between 107 and 185 seats. The A318, A319 and A320 are direct replacement candidates for three of the different seat-size categories. The 737NG also provides four aircraft with a similar seat capacity of 108 to 180 seats, and offers three that can replace aircraft of the same size.

The E-175/-190/-195 have 82, 98 and 108 seats, and so can replace aircraft with the same number of seats.

The CRJ-900 has 84 seats, so it is similar in capacity to the E-175. Both are potential replacements for 79- to 85-seat aircraft *(see table, page 38)*.

The 98-seat E-190 is in the same size category as the BAe 146-300, Avro RJ 100 and DC-9-30 *(see table, page 38)*. While the E-190 can potentially replace these older types, it is also a replacement candidate for types like the 737-500.

The E-195, 737-600 and A318 are all direct replacement candidates for the three 107- to 109-seat aircraft.

The 737-700 and A319 are direct replacement candidates for the DC-9-50 and 737-300, while the A320 is closest in size to the 737-400, MD-80 and MD-90. The 737-800/-900 and A321 could also replace these types, while offering greater seat capacity. Some airlines may also replace jetliner aircraft with smaller types.

Replacement rationale

Replacement of older aircraft is justified by several factors, including operating economics, traffic volumes and market development.

The old, large RJs like the Avro RJ or BAE 146, may be retired or replaced as a result of market development. Most of these aircraft in the US are operated by North American and European airlines. Scope clauses have kept the fleet sizes of these aircraft small, however. In other cases, low-density routes in Europe have been the preserve of major carriers, and relatively few routes have been operated by their regional subsidiaries.

With many US major carriers in financial trouble, and all airlines facing more competition and depressed passenger yields, pilot unions have begun to relax scope clauses and major carriers

SUMMARY OF OLD- AND NEW-GENERATION NARROWBODY AIRCRAFT

79- to 85-seat aircraft

Old-generation Aircraft types	Two-class seats	Fleet size	Major operators	New-generation aircraft types	Two-class seats
Fokker 70	79	43	KLM Cityhopper	CRJ-900	84
BAE 146-200	85	70	City Jet	E-175	82
Avro RJ85	85	77	Mesaba, LH Cityline		

98- to 100-seat aircraft

Old-generation Aircraft types	Two-class seats	Fleet size	Major operators	New-generation aircraft types	Two-class seats
BAE 146-300	100	42	Eurowings	E-190	98
Avro RJ100	100	63	BA Connect, Swiss		
DC-9-30	99	182	Northwest		

107- to 109-seat aircraft

Old-generation Aircraft types	Two-class seats	Fleet size	Major operators	New-generation aircraft types	Two-class seats
Fokker 100	107	169	KLM Cityhopper	E-195	108
DC-9-40	109	39	Northwest	A318	107
737-500	108	375	United, Continental	737-600	108

124- to 128-seat aircraft

Old-generation Aircraft types	Two-class seats	Fleet size	Major operators	New-generation aircraft types	Two-class seats
737-300	128	950	Southwest, United	737-700	128
DC-9-50	125	48	Northwest	A319	124

143- to 153-seat aircraft

Old-generation Aircraft types	Two-class seats	Fleet size	Major operators	New-generation aircraft types	Two-class seats
MD-80	143	1,042	American, Delta	A320	150
MD-90	153	105	Saudia		
737-400	146	451	Alaska, USAirways		

162- to 185-seat aircraft

New-generation aircraft types	Two-class seats
737-800	162
737-900	180
A321	185

are transferring operations on lower-density routes to regional subsidiaries.

These have lower pilot, flight attendant and mechanic salary scales. The large RJs have lower operating costs than small airliners of equal size. The regional carriers can therefore provide the same level of service at lower seat rates, and are more likely to add large, new-generation RJs, such as the CRJ-900 and E-170/-190 series, to their fleets as they expand their networks. Development will diminish the market potential for the smaller variants of the A320 and 737NG families.

Northwest has plans to form a new regional subsidiary that will operate large RJs. These have altered several times as negotiations with pilot unions have met with problems. One possible outcome is that the regional operator will be able to use up to 95 RJs with a nominal 90-seat capacity, but configured with 76 seats to replace Northwest's Avro RJ85s, and some of its ageing DC-9s.

Increased competition may also lead airlines to downsize when replacing some of their jetliners with smaller ones or the larger new-generation RJ models. There is, however, no need to replace most 737-300/-400/-500s or MD-80s.

Besides giving direct savings in fuel and maintenance costs, new-generation aircraft are also expected to operate at higher rates of utilisation. Aircraft will complete a greater number of flight cycles (FC) per year, and so achieve higher available seat-mile (ASM) productivity.

Older aircraft may suffer from lower rates of utilisation due to poorer rates of technical reliability and longer turn times between flights. Some old-generation aircraft, such as the BAE 146 and Avro RJ, also have low cruising speeds that further limit their ASM productivity.

Another concern for a few carriers is the limited range of old-generation aircraft. For example, Flybe's long-standing plans to provide long-haul services to Europe have been constrained by its BAe 146 fleet. The range of new-generation types makes more routes possible without payload limitations. jetBlue, for example, will use its E-190s on routes flown by its A320s to increase frequency and stimulate demand.

Technical and spare-part support is another concern for older aircraft, as their numbers decrease. This may lead to instability in the price of components, or problems with issues such as engineering support and overall maintenance costs.

Replacement economics

The economics and total trip operating cost per seat of these six groups of aircraft have been analysed using a representative route on a short-haul network: Paris Charles de Gaulle-Rome Fiumicino (CDG to FCO). This has a tracked distance of 654nm; with 85% annual winds it experiences a small headwind of 2 knots, and so has a still air distance of 656nm.

The first issue involves the flight and block times and fuel burn of all the aircraft on this route. Cruise speeds differ: the BAe 146 and Avro RJ have flight times of 109 to 113 minutes; while all other aircraft are about 10 minutes faster, with flight times of 99 to 104 minutes. A taxi time of 20 minutes was used for all.

Flight and block times therefore influence aircraft utilisations, and consequently ASM productivity. All old-generation aircraft are assumed to generate 1,500FC per year, and new-generation aircraft 1,650FC per year.

This results in the new aircraft generating higher ASMs per year than older types in the same size category.

The flight and block times and fuel burns for the aircraft are summarised *(see tables, pages 40 & 42)*. Fuel price is taken as $1.60 per USG. This high price exaggerates the difference in fuel efficiencies between old- and new-generation aircraft. Fuel prices are unlikely to fall in the short-term.

Taking each size group in turn, the CRJ-900 had the lowest burn of 868 USG and the E-175 a fuel burn of 951 USG, compared with 1,050 USG for the Fokker 70, which is the most fuel-efficient of the older aircraft. Both the BAE 146-200 and Avro RJ85 burn more than 1,300 USG *(see table, page 40)*. High fuel prices exaggerate these differences, with the BAE 146's fuel cost being about $800 higher than the CRJ-900's, or about $10 per available seat.

In the second size group, the E-190's fuel burn is at least $500 lower than that of the BAE 146-300 and Avro RJ100 *(see table, page 40)*.

In the third largest group of 107- to 109-seat aircraft, there are both large RJs and smaller jetliners. In the case of old-generation aircraft, the Fokker 100 burns 10% less than the 737-500, and 25% less than the DC-9-40. The heavy 737-600 burns about 6% more than the 737-500, and 17% more than the A318 and the Fokker 100. The E-195 has the lowest fuel burn of just 1,040 USG, which is 10% less than the A318 and 23% less than the 737-600. This gives the E-195 a $200 saving over the A318, and a $500 saving over the 737-600, illustrating the greater efficiency of large RJs over small jetliners *(see table, page 40)*.

In the 124- to 128-seat group the 737-700 and A319 offer fuel burn savings equal to $30-420 over the 737-300 and DC-9-50 *(see table, page 42)*. Operators of the 737-300 do not save fuel by replacing it with the -700, while the A319 offers a small reduction.

In the 143- to 153-seat group, the A320 is the only candidate to replace the MD-80, MD-90 and 737-400. Although the A320 is heavier, it burns 6.4-15% less fuel, saving up to $170.

In the 162- to 185-seat category, the 737-800 and A321 have similar burns to the 737-400 and MD-80, while the -900ER burns about $200-300 more fuel *(see table, page 42)*.

Maintenance cost

Maintenance costs have been used to compare new- and old-generation aircraft. New-generation aircraft obviously benefit from a maintenance 'honeymoon' in their early years of operation because major maintenance events will not occur for several years. Assessing reserves for first and second engine shop visits, heavy checks and major component removals will give a true picture of total maintenance costs. In this analysis, new aircraft's maintenance costs are calculated for engine reserves up to the second removal and reserves for the first heavy base check.

The degree to which maintenance costs are a problem for old-generation aircraft varies by aircraft type. The MD-80's maintenance costs differ little from those of new-generation aircraft. It has a durable airframe, engine shop visits are relatively cheap and there is a good supply of components on the used market. Most old types, however, have high and increasing maintenance costs.

All new-generation aircraft have maintenance computers that provide fault codes for automatic analysis by line mechanics and the operator's maintenance control personnel. This delivers savings in line maintenance over old-generation aircraft.

Engine-related maintenance costs are another area where savings can be made. The first main difference is the longer on-wing intervals between shop visits achieved by the engines powering the new aircraft. The CF34-8E powering the

SUMMARY OF OLD- AND NEW-GENERATION NARROWBODY AIRCRAFT

79- to 85-seat aircraft

Aircraft types	Fokker 70	BAE 146-200	Avro RJ85	CRJ 900	E-175
Flight time	102	109	111	99	100
Fuel burn USG	1,050	1,370	1,334	868	951
Fuel cost $	1,680	2,192	2,134	1,389	1,522
Maintenance cost $	1,512	1,508	1,471	1,000	1,035
Other cash costs $	938	997	1,008	937	936
Total cash costs $	3,893	4,441	4,358	3,073	3,247
Lease rental $/mth	65,000	55,000	65,000	165,000	175,000
Total trip cost $	4,413	4,881	4,878	4,273	4,520
Trip cost/seat $	56	57	57	51	55

98- to 100-seat aircraft

Aircraft types	BAE 146-300	Avro RJ100	DC-9-30	E-190
Flight time	100	100	99	99
Fuel burn USG	1,436	1,433	1,381	1,101
Fuel cost $	2,298	2,293	2,210	1,762
Maintenance cost $	1,555	1,471	1,677	1,079
Other cash costs $	1,099	1,080	994	1,014
Total cash costs $	4,651	4,544	4,583	3,561
Lease rental $/mth	60,000	80,000	35,000	210,000
Total trip cost $	5,131	5,184	4,863	5,088
Trip cost/seat $	51	52	49	52

107- to 109-seat aircraft

Aircraft types	Fokker 100	DC-9-40	737-500	E-195	737-600	A318
Flight time	102	99	104	100	101	99
Fuel burn USG	1,143	1,516	1,268	1,154	1,350	1,150
Fuel cost $	1,829	2,426	2,029	1,846	2,160	1,840
Maintenance cost $	1,512	1,723	1,973	1,076	1,343	1,453
Other cash costs $	1,081	1,068	1,176	1,070	1,078	1,062
Total cash costs $	4,101	4,890	4,853	3,668	4,256	4,034
Lease rental $/mth	90,000	40,000	110,000	234,000	255,000	275,000
Total trip cost $	4,821	5,210	5,733	5,370	6,111	6,034
Trip cost/seat $	45	48	53	50	57	56

E-170, for example, is expected to have average on-wing intervals of about 12,000 engine flight cycles (EFC). A similar interval should be achieved for the CF34-8E powering the CRJ 900. This will be equal to about 18,000 engine flight hours (EFH) on the route being analysed. The CF34-10E powering the E-190/-195 is expected to achieve even longer intervals of 15,000EFC, equal to about 23,000EFH.

The E-170/-190 will also have a heavy check interval of 20,000FC, equal to 10-12 years of operation. The C check interval will be 6,000FH and the A check interval 600FH. This compares to 4,000-4,500FH and 19,000FH for the C checks and D check on the 737-500-300, as an example.

These differences in base check intervals are one area where the E-170/-190 will achieve lower maintenance costs than the aircraft it will replace.

As well as longer on-wing intervals than engines powering older RJs, the CF34-10E has lower shop visit costs and life limited parts (LLP) reserves than its competitors powering the A319/319 and 737-600/-700: the CFM56-5B, CFM56-7B, PW6000 and V.2500.

The 737-600 and A318 are both expected to have lower line- and base-related maintenance costs than the 737-500 due to improved fault reporting and maintenance programmes with longer check intervals. New-generation aircraft should also have lower non-routine ratios, and so lower base-check costs when they reach maturity.

Overall, the E-190, 737-600 and A318 are calculated to have mature maintenance costs for the trip of $1,076, $1,343 and $1,453. This compares to trip costs of $1,973 for the 737-500, $1,723 for the DC-9-40 and $1,512 for the Fokker 100 *(see table, this page)*.

For 124- seat to 128-seat aircraft, the maintenance cost advantages of the 737-700 and A319 are similar to those of the 107-seat to 109-seat group. In this case the 737-700 and A31 are calculated to have maintenance costs per trip of $1,363 and $1,453 compared to $1,973 for the 737-300 and $1,846 for the DC-9-50 *(see table, page 42)*.

On this basis, the trip maintenance costs of the A320 are $265-500 lower than those of the MD-80, MD-90 and 737-400 *(see table, page 42)*.

The 737-800, 737-900ER and A321 have trip maintenance costs of $1,383, $1,459 and $1,601 respectively. These are marginally higher than their smaller family members, but also several hundred dollars lower than the MD-80, MD-90 and 737-400 that they might replace.

Crew Salary

Flightcrew salaries can be based on aircraft size or gross weight. In the case of regional aircraft, flightcrew salary scales will be lower in regional partners than in the major carriers. This makes it more economic to operate the large RJs in regional airlines. The large RJs are also likely to have lower pilot salary scales than mainline jets of the same size.

In this analysis, however, salaries for the two flightcrew have been assumed to be equal for all aircraft in the same size group. This would artificially put the large RJs at a disadvantage in the case of some airlines' operations. These salaries have been escalated by 25% to account for crew-related costs such as training, subsistence, transport and allowances.

Annual employment costs of $97,000 to $172,500 have been used for a complement of two flightcrew for the six different size groups. Pilots are assumed to achieve 650FH per year, meaning that about five crews must be employed per aircraft. Flightcrew costs differ for all aircraft types in the same size group because of variations in cruising speeds that affect aircraft utilisation.

Flight attendant costs are mainly determined by numbers required and seat capacity. The four smallest groups of aircraft are all assumed to have four flight attendants, the MD-80, MD-90, 737-400 and A320 five, the 737-800 six, and the 737-900ER and A321 seven.

All flight attendants are assumed to have an annual salary of $27,000, which is escalated by 10% to account for additional costs of employment. Annual productivity is taken to be 750FH per year, generating a requirement for more than four crews per aircraft.

Finance charge

Lease or depreciation rates for the Fokker 70, BAe146-200/-300, Avro RJ 85/100, DC-9, MD-80/-90 and 737-300/400/500 will vary, according to ownership, degree of depreciation and Stage 3 modification status. Finance charges are zero for some aircraft that have been owned by their operators for an extended period. Market lease rates for all aircraft were used in this analysis, however *(see tables, pages 40 & 42).*

Older types generally have higher cash operating costs than new ones, but low financing charges or lease rentals. While new aircraft benefit from lower cash-operating costs they do have higher lease rentals, so they must achieve overall lower total operating costs to have an advantage in fuel and maintenance costs over their old-generation counterparts.

Some old-generation aircraft have sufficiently low cash-operating costs to keep them competitive. For example, SAS says that the combined maintenance and fuel costs of its large fleet of MD-80s are low enough, when compared to potential replacement candidates with inevitably high lease rentals, for it to modify and continue operating its MD-80s. They are more likely to be replaced by aircraft that succeed the 737NG and A320.

Airlines operating older types must also consider the shrinking supply of new-generation aircraft, which has firmed and increased lease rates. They may therefore consider modification and life-enhancement programmes for other older types. Aviation Partners Boeing has, for example, certificated the Blended Winglet modification for the 737-300. It is not yet available for the -400 or -500. The total block fuel saving benefit for a 737-300 is up to 4.5%.

Economic analysis

The total trip costs analysed for these aircraft include fuel, maintenance, flightcrew, flight attendant and catering costs, and lease charges. The catering charge is assumed to be $3 per seat due to the nature of a short-haul sector.

Navigation and landing fees have been ignored to simplify the analysis, although they may play an important role in Europe where the charge is related to aircraft's weight. The total cash-operating costs, cash-operating costs per seat, finance costs per seat and total trip costs per seat for aircraft types are shown *(see tables, pages 40 and 42).*

79- to 85-seat aircraft

The CRJ-900 has the lowest total trip costs per seat of $51. The E-175 has a cost of $55 per seat, which is close to that of the old-generation aircraft *(see table, page 40).* Both these aircraft have lower overall costs than the three older types. This is explained by the significant savings the CRJ900 and E-175 deliver in fuel and maintenance. The BAE 146 and Avro RJ in particular have high fuel and maintenance costs.

98- to 100-seat aircraft

All four aircraft in this group have trip costs per seat of $49-52 *(see table, page 40).* The E-190 overcomes its high lease rental with its lower fuel burn and maintenance efficiency. While a replacement aircraft will not offer large savings, it will provide better reliability, superior cabin comfort, and a maintenance honeymoon instead of rising maintenance costs.

In this case, the E-190 is also a candidate to replace the smaller mainline

SUMMARY OF OLD- AND NEW-GENERATION NARROWBODY AIRCRAFT

124- to 128-seat aircraft

Aircraft types	DC-9-50	737-300	737-700	A319
Flight time	107	103	101	99
Fuel burn USG	1,576	1,334	1,390	1,315
Fuel cost $	2,522	2,134	2,224	2,104
Maintenance cost $	1,846	1,973	1,363	1,453
Other cash costs $	1,199	1,229	1,168	1,143
Total cash costs $	5,191	4,952	4,371	4,328
Lease rental $/mth	45,000	140,000	325,000	325,000
Total trip cost $	5,551	6,072	6,734	6,691
Trip cost/seat $	44	47	53	54

143- to 153-seat aircraft

Aircraft types	MD-80	737-400	MD-90	A320
Flight time	98	95	99	104
Fuel burn USG	1,543	1,427	1,403	1,314
Fuel cost $	2,469	2,283	2,245	2,102
Maintenance cost $	1,687	1,928	1,845	1,563
Other cash costs $	1,318	1,304	1,393	1,346
Total cash costs $	5,045	5,077	5,023	4,561
Lease rental $/mth	75,000	160,000	175,000	380,000
Total trip cost $	5,645	6,357	6,423	7,325
Trip cost/seat $	39	44	42	49

162- to 185-seat aircraft

Aircraft types	737-800	737-900	A321
Flight time	101	101	99
Fuel burn USG	1,468	1,650	1,571
Fuel cost $	2,349	2,640	2,514
Maintenance cost $	1,383	1,459	1,601
Other cash costs $	1,499	1,632	1,629
Total cash costs $	4,744	5,065	5,188
Lease rental $/mth	370,000	390,000	415,000
Total trip cost $	7,435	7,901	8,206
Trip cost/seat $	46	44	44

jet types such as the DC-9-30, as well as the Fokker 100 and 737-500 in the next largest group of aircraft. Its total trip cost per seat is equal to the 737-500, but $7 per seat higher than the Fokker 100.

106- to 109-seat aircraft

This group includes the E-195, 737-600 and A318 as replacement candidates for the 737-500, DC-9-30/-40 and Fokker. The E-195, 737-600 and A318 have been analysed with equal pilot salaries, although the E-195 may be able to operate in regional subsidiaries with lower pilot salary scales.

In this case, the E-195 offers lower trip costs per seat than the 737-500, but they are still higher than those of the Fokker 100, which benefits from a low lease rate and stable cash operating costs.

Unsurprisingly, because of its lower fuel, maintenance and lease rental costs, the E-195 has lower trip costs per seat than the 737-600 and A318. The E-195's advantage will be increased if it is able to operate in a regional subsidiary with lower flightcrew, flight attendant and mechanic salary scales.

The 737-600 and A318 have marginally higher trip costs per seat than the 737-500, but $10 more per seat than the Fokker 100. This implies that demand for the E-195 could be high.

124- to 128-seat aircraft

The 737-700 and A319 have total trip costs per seat of $53 and $54 *(see table, this page)*, which is $6 more than the 737-300 and $10 more than the DC-9-50. The main concern here is the 737-300, since there are few DC-9-50s in operation. The 737-300's overall cost is lower because its fuel and maintenance are only $400-500 more than the 737-700's or A318's, while its lease rate is less than half that of the new aircraft. This implies that it is too early to consider replacing 737-300s, of which the oldest is only 21 years of age, and there are several hundred young examples.

143- to 153-seat aircraft

The A320 has the highest total trip cost per seat *(see table, this page)*. Like the 737-300, the maintenance and fuel burn costs of the 737-400 and MD-80 allow them to remain competitive. At SAS the efficiencies of new aircraft are not enough to justify replacing the MD-80. Most MD-80s and 737-400s remain with their original operators, while most A320s are being ordered to satisfy traffic growth, rather than to replace aircraft.

162- to 185-seat aircraft

The 737-800, 737-900ER and A321 have total trip costs that are up to $900 more than the A320's, and $900-1,700 more than the 737-400's *(see table, this page)*. These large types have similar trip costs per seat to the 737-400, but can only be justified when an operator experiences high traffic growth rates and firm passenger yields, in markets such as China or India.

Discussion

New-generation aircraft clearly have the advantage of lower cash-operating costs. The analysis here uses maintenance costs that are close to mature charges, but the aircraft will of course benefit from lower maintenance in their early years.

Many operators will gradually replace old types with new, despite increased lease rentals and finance charges.

One clear conclusion that can be made is that large RJs and the E-190/-195 have an advantage over old and new jetliners with the same number of seats, and old-generation RJs such as the BAE 146 and Avro RJ. The market for large RJs will thus be more than just equal to the replacement of old RJs, but also include replacement of types like the Fokker 100, DC-9, 737-200 and 737-500, as well as traffic growth. AC