

AIRCRAFT AND ENGINE MANUFACTURERS

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The discussions of the manufacturers panel were split into two parts: first, a review and consolidation of the forecasts submitted by each participant in advance of the workshop and, second, consideration of the underlying issues, assumptions, and methodologies employed in making these forecasts.

Forecasts

The panel's consensus was that worldwide passenger traffic would grow at an average annual rate of 4.9 percent over the next 15 years. At this rate, traffic

would more than double by 2009. Agreement on this figure was quite close. Discarding the one high and one low extremes, the remaining 19 estimates fell within the narrow range of 4.3 to 5.5 percent (Figure 1).

The average load factor was predicted by the panel to increase from 67 percent today to 69 percent by the end of the period, contributing to increased aircraft productivity and consequently lowering the demand for new aircraft.

The averages of the panelists' 15-year forecasts of deliveries of turboprop and small jet (fewer than 69 seats) aircraft were 4,000 deliveries and 1,800 retirements, a net fleet growth of 2,200 (Figure 2).

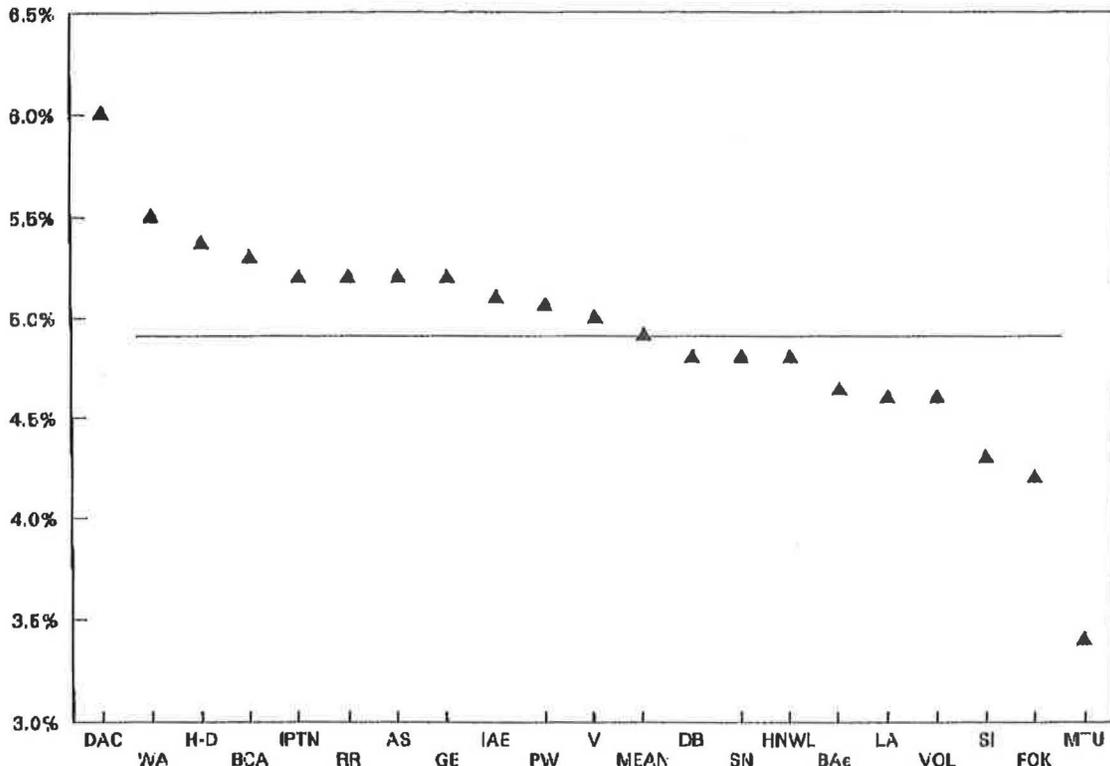


FIGURE 1 Forecasts of 15-year worldwide traffic growth (dispersion around the mean of 4.9%).

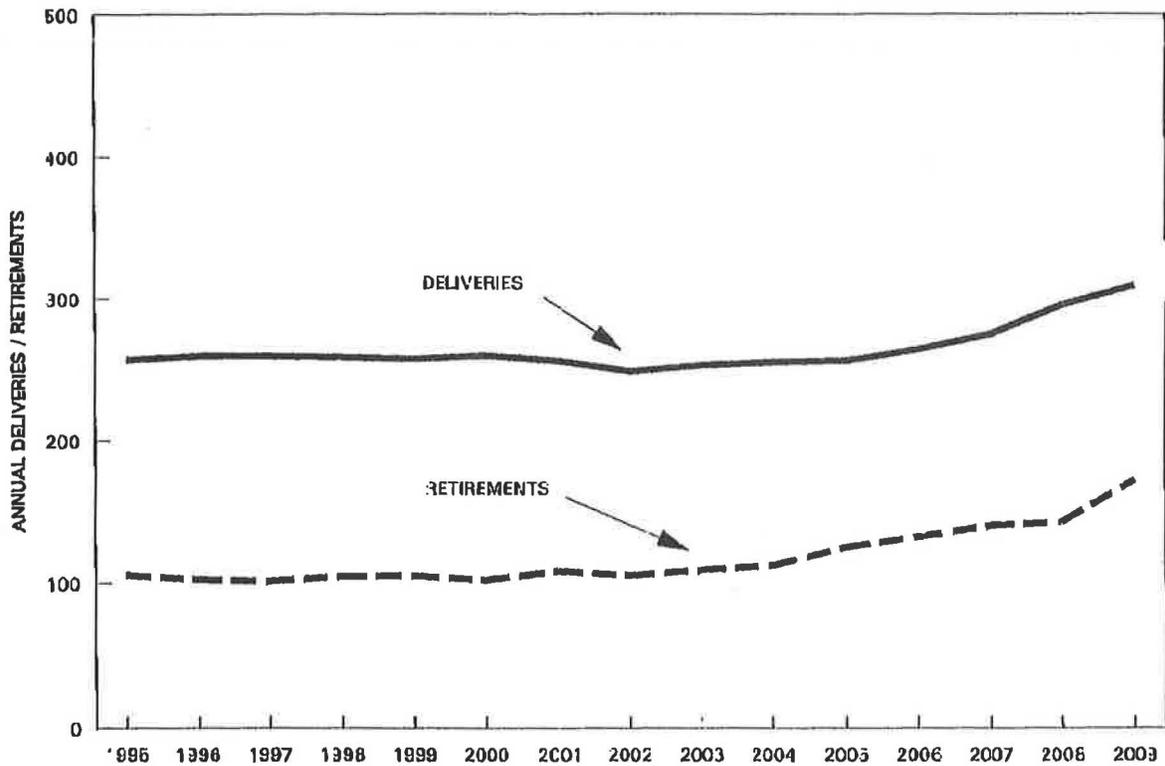


FIGURE 2 Turboprop and 50- to 69-seat jet passenger aircraft (average of delivery and retirement forecasts).

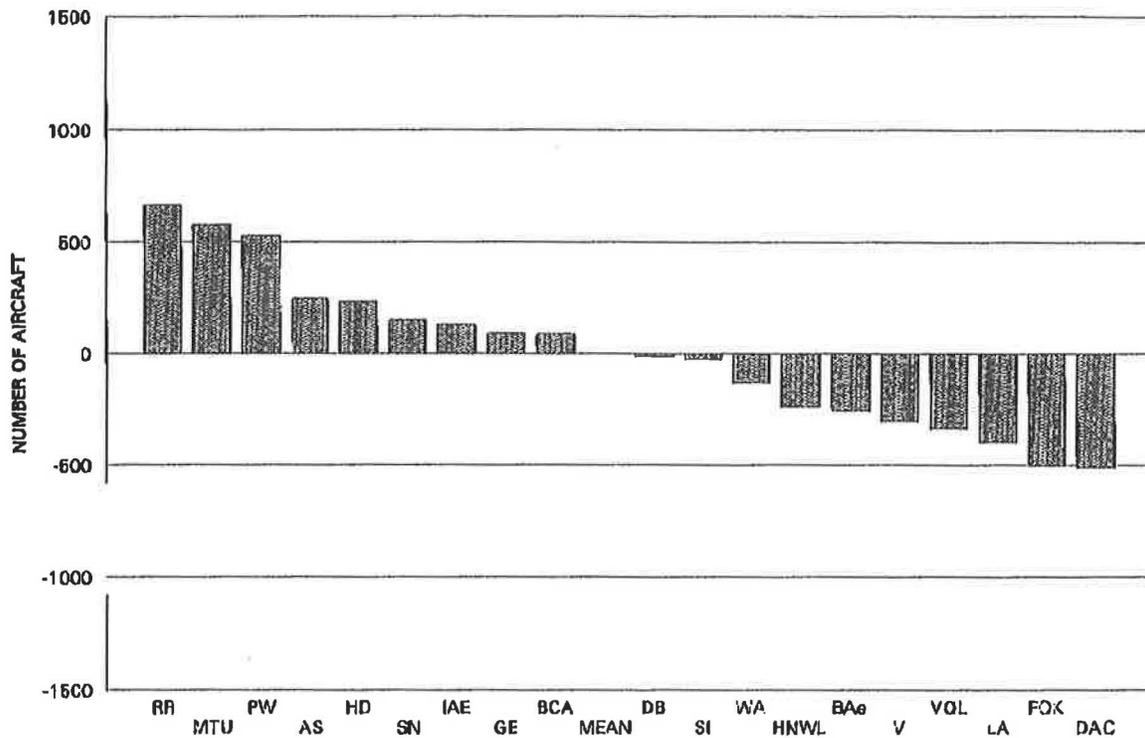


FIGURE 3 Retirement forecasts of passenger jet transports with more than 70 seats (dispersion around the mean 15-year total of 3,700).

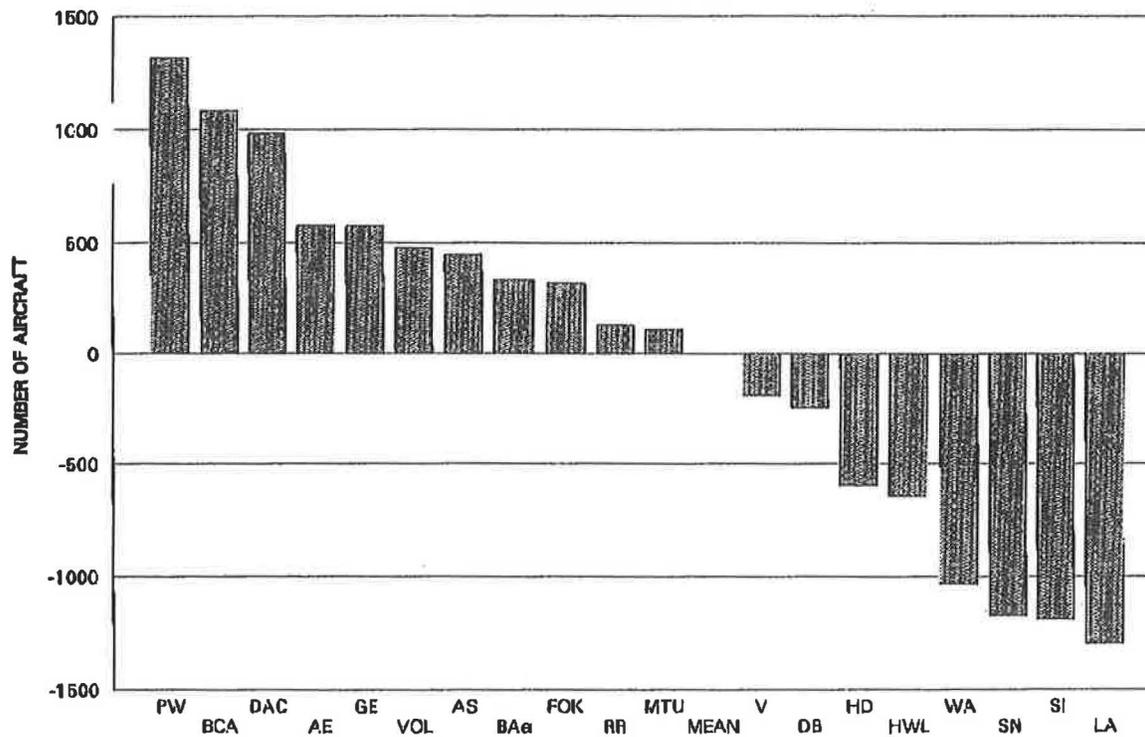


FIGURE 4 Delivery forecasts of passenger jet transports with more than 70 seats (dispersion around the mean 15-year total of 8,450).

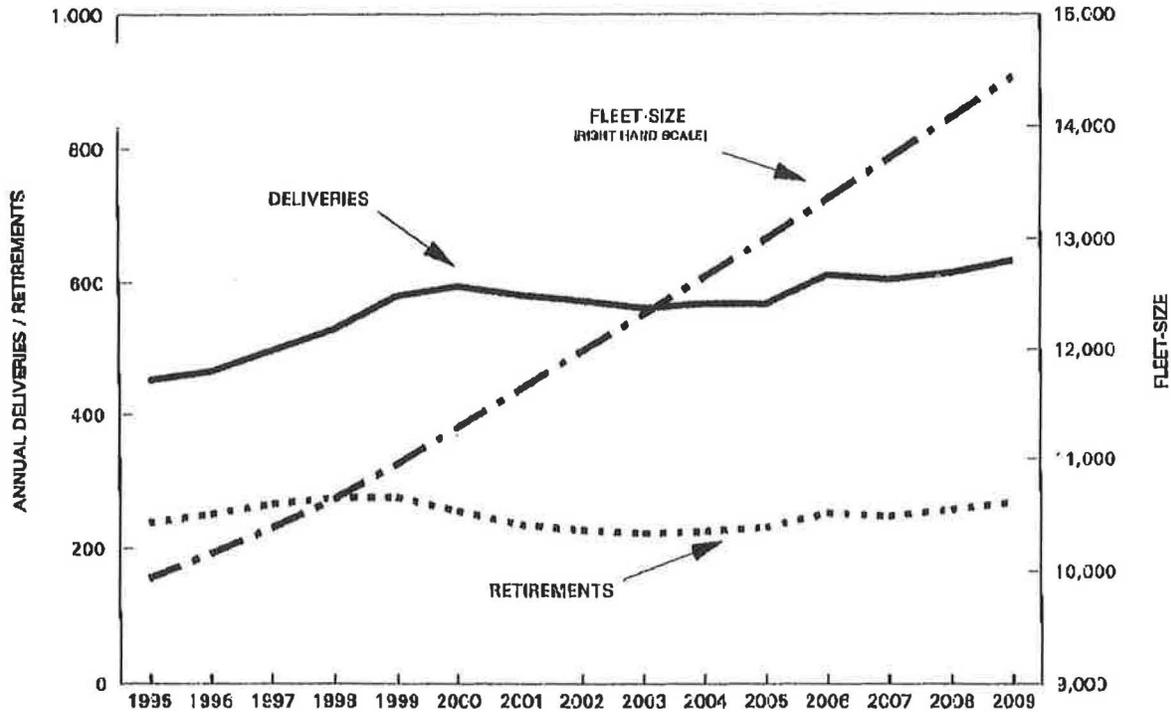


FIGURE 5 Average deliveries, retirements, and fleet sizes of passenger jet transports with more than 70 seats.

The passenger jet fleet was predicted to grow by 4,800 (reaching a fleet total of 15,000 aircraft) with consensus forecasts of 8,500 deliveries and 3,700 retirements (Figures 3, 4, and 5).

Over a 15-year period this equates to some 560 aircraft deliveries per year, an increase of 12 percent compared to the average delivery rate of the past 15 years (notwithstanding the record levels recorded in the early 1990s).

As noted in the 1993 TRB Future of Aviation Workshop report, the aircraft retirements forecast is the component in which forecasters generally have the least confidence due to the shortage of historical data. Most analyses are age-related, with life-extension options (such as hush-kitting and reengining) superimposed to adjust the accuracy of the profile. While this approach seems logical, actual events have proved to be somewhat illogical in many instances. This leads to the problem of how to treat the large number of aircraft which should (logically) have been retired but are still operating or parked ready to reenter the active fleet if and when required. It will be interesting to see what actually transpires because this will no doubt form the basis for calculations by panelists at future biennial TRB aviation forecast workshops.

Qualitative Issues

While providing a consensus view of predicted fleet dynamics, numbers are only part of the story. The assumptions and expectations used to calculate individual forecasts were varied, and the panel spent most of its time exploring qualitative issues. Although historical data and correlations are important pointers to the future, the panel also had to consider the likelihood of change. For instance, how much longer will the assumed relationship between GNP and traffic demand, which is based on experience, remain valid? The starting point proposed to panelists before the workshop began was to identify the most influential issues in the short and long term, including an indication of the difficulty of assessing their impact. Table 1 and 2 display the results of rating these issues. Not surprisingly, the most important issues were often considered the most difficult to deal with.

Economic Growth and New Technology

Economic growth (together with its impact on air travel demand) and the technologies to enable legislative

TABLE 1 IMPORTANT ISSUES DETERMINING FUTURE AIRCRAFT DELIVERIES

1ST FIVE YEARS

	RAW	WEIGHTED
• Economic Recovery and Growth : Linkage to Traffic Demand	13	53
• Re-Engining and Hush-Kitting	14	37
• Availability and / or Affordability of Capital	13	36
• Order Cancellations / Delivery Deferrals	9	26
• Environmental Legislation - Noise and Emissions	7	25

LAST TEN YEARS

	RAW	WEIGHTED
• Economic Recovery and Growth : Linkage to Traffic Demand	13	55
• Congestion as a Growth Constraint	14	36
• Eastern Europe, C.I.S., P.R.C.	14	36
• Availability and/or Affordability of Capital	9	30
• Hub and Spoke versus Point to Point	8	27

TABLE 2 DIFFICULT ISSUES TO FORECAST

1ST FIVE YEARS

	RAW	WEIGHTED
• Eastern Europe, C.I.S., P.R.C.	13	43
• Economic Recovery and Growth : Linkage to Traffic Demand	10	43
• Yield Management / Pricing Policies	11	35
• Order Cancellations / Delivery Deferrals	8	28
• Availability and/or Affordability of Capital	8	22

LAST TEN YEARS

	RAW	WEIGHTED
• Eastern Europe, C.I.S., P.R.C.	15	56
• Congestion as a Growth Constraint	11	36
• Economic Recovery and Growth : Linkage to Traffic Demand	8	28
• Globalisation of Airlines	9	25
• Hub and Spoke versus Point to Point	9	25

deadlines relating to noise, air pollution, and safety were judged to be the most important issues in the short term.

Congestion

Over the longer term, the panel's major concern was congestion, which could limit aircraft movements, add cost, and induce frustrated travelers to seek alternative modes of transportation and communication. The effects of congestion can already be seen in the trend of major carriers to transfer routes to affiliates, thereby

stimulating demand for small aircraft. Witness the emergence of the regional-jet market and the consequent increase of flight frequencies both in and out of hubs and on point-to-point routes between smaller centers of population. Clearly, congestion could influence the small-jet and turboprop aircraft segments.

Emerging Markets

Uncertainty about the future development of commercial aviation systems in Eastern Europe, the CIS, and

mainland China ranked high as an issue because of its influence on the demand for aircraft. Views on rates of demand growth, the mix of indigenous vs. western equipment (particularly in the CIS), geopolitical stability, and so on are not easy to formulate, let alone meld into a consensus. The panel felt this will become a major influence on demand after the turn of the century, by which time some of the doubts and questions may be easier to answer.

Environmental Concerns

The subject of the environment received a great deal of attention. The panel was concerned that the aviation industry may have failed to communicate effectively how much progress has been made over the past few years and consequently be leaving itself open to criticism. Environmental legislation, even stricter than that already in place or in the pipeline, may be just around the corner, waiting to ambush the industry. The bottom line is the effect that compliance with environmental regulations will have on cost, which would translate into increased fares, thus depressing travel demand and reducing the need for new aircraft products. Moreover, the uncertainty and risk of future legislative or regulatory actions diminishes the attractiveness of an aircraft as an asset, and hence its financeability.

Fragmentation

The panel highlighted fragmentation on long-range routes as a significant phenomenon affecting aircraft size. A prime example is the supplanting of B747s by B767s on transatlantic routes. The opening of new long-haul routes using smaller aircraft suggests that a degree of fragmentation might occur, but it is difficult to assess how large it might be.

Purpose of Travel

The changing balance of business and leisure travel will have an effect on yield. Analysis indicates that yield on the London-New York route is falling about one percent per year due to rise in the share of leisure travel. In the United States twenty years ago the split was 80 percent business, 20 percent leisure. Today it is 50:50.

Final Comment

The view of the manufacturers' panel was positive with respect to overall growth in the demand for travel and new aircraft, with the latter being boosted by hitherto unseen levels of aircraft retirements. The panel recognized that the impacts of the trends cited here are not easy to assess until we have the benefit of hindsight. Some things never change.