PART II OTHER PERSPECTIVES

SUMMARY

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This summary focuses on the major themes raised by the speakers from outside the airline industry. Much of the discussion involved social, economic, and technological trends that could result in structural changes in the way we use the aviation system -- that is, changes that could greatly reduce the usefulness of forecast models using historical trends. While many of these topics and ideas might be vital to understanding long-term forces in demand and supply of aviation, they are not easily incorporated into traditional forecasting approaches. The subjects presented were:

- changes in social values and life styles -- Marilyn Block, The Naisbitt Group;
- demographic and industrial shifts in where people live and how they work across different parts of the country and within given metropolitan regions -- John Kasarda, University of North Carolina;
- recent shifts in the economic structure of the aviation industry -- Steven Morrison, The Brookings Institution;
- economic risk assessment techniques as a systematic way to address uncertainty in long-term forecasts -- Richard Mudge, Apogee Research;
- Evolving long-term, worldwide trends in the environment and energy fields -- James MacKenzie, World Resources Institute; and
- technological developments that could revolutionize how aviation services are provided -- John White, National Aeronautics and Space Administration.

The key theme developed by most speakers was the need to see the public as customers. In other words, it is important to incorporate more elements of market research into forecasting since consumer attitudes affect almost every aspect of demand forecasts for aviation services and how these services will be supplied.

For example, airlines and aircraft manufacturers already incorporate some of these forces into their forecasting efforts -- manufacturers on a long-term scale and airlines on a generally much shorter time horizon.

Social trends and values are hard to identify with any certainty until they have become well established. Data to predict these changes are necessarily soft in nature and subject to individual interpretation. Further, even if identified correctly, it may not be clear how to incorporate their implications into traditional forecasting models. Development of alternative scenarios may be one approach that could ultimately lead to parameter changes. For example:

1. The trend toward public concern with environmental problems implies (a) greater unrest concerning aircraft noise, which in turn, could impose (b) increased capacity constraints for many busy airports, leading to (c) the need for larger aircraft and requiring (d) new airport terminals with somewhat different configurations.
2. Capacity constraints could also limit market entry, thus (a) leading to higher airline fares with (b) greater profits for airlines and perhaps larger revenues for airports but (c) reduced air travel as well.
3. Similarly, airlines might be forced to convert to Stage 3 aircraft more rapidly, a step that would also (a) increase financial pressures on the industry as existing aircraft are retired earlier than planned, leading to (b) higher fares, and (c) reduced travel.

As a result of such a series of hypotheses, it might be wise to incorporate larger aircraft sizes and higher fares into a series of alternative long-term forecasts.

Demographic changes -- including the size, age, and family structure of the population -- affect the overall magnitude of demand for air travel and its geographic distribution. New geographic structures of metropolitan regions (the decreased importance of central cities as job centers, for example) will also affect the quality and cost of airport access, with implications for airports serving the metropolitan area. Shifts in industrial

structure -- perhaps toward greater internationalization of service industries -- will change the need for air travel. Some of these shifts might be examined through micro-scale studies of shifts of industrial and demographic structure within certain regions that may be ahead of national trends.

Environmental and energy trends -- the greenhouse effect and rising sea levels, for example -- could have far reaching influences on life styles as well as on demographic and industrial bases. In general, however, their direct effect on aviation appears relatively limited, as they may result in higher fuel prices.

Technological change has always been a key characteristic of the aviation industry. While the scale of some of the changes now under development is striking, the financial and organizational role played by the government may make it easier to predict the speed with which they will occur.

Probabilistic techniques (such as economic risk assessment) offer one approach to incorporating these socio-economic and technological changes into existing forecasting techniques. By recognizing uncertainty, and analyzing these techniques it may be possible to incorporate uncertainty directly and explicitly in the modeling process.

The extent to which these long-term forces are folded into aviation forecasts depends to a large degree on the time frame for the forecast. One-year forecasts, such as those used by many airlines, are probably less in need of greater sophistication. Five- or ten-year forecasts represent a middle ground where there is a need to recognize changes in economic and industrial structures of the industry and to extrapolate current demographic and social trends. If, however, strategic forecasts -- those of twenty years or more -- are to be of use in airport planning or long-term public investment decisions (such as the next NAS Plan) ways must be found to consider these forces in a systematic way.