

INFRASTRUCTURE

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The infrastructure panel focused its discussion on seven issues:

- Capital,
- Technology,
- Institutions,
- Economics,
- Industry,
- Environmental impacts, and
- Infrastructure.

Capital

The availability of capital for airport rehabilitation and expansion is likely to be a function of airport size. For the largest 100 to 150 airports in the Nation, access to capital will generally not be a problem, except for very large projects. Midsize commercial service airports are likely to face serious capital shortages, and the smallest commercial service airports (nonprimary airports) will face very severe economic and financial difficulties. The availability of capital for the all but the largest sites will depend, in part on the future of the Airport Improvement Program (AIP).

Other factors influencing access to capital are the role and effects of tax exempt bonds. These bonds, while creating a pool of capital, perversely drive

out all forms of private investment which do not have the ability to compete with these instruments. The overall effect may be to impede access to markets.

For the air navigation system, access to capital is already a problem. Failures of aging equipment are causing short-term capacity reductions, and constraints on capital are slowing needed capacity enhancements. Lower than needed investments over a long period mean that a major program of investment is needed. This investment is being slowed by the lack of progress on institutional change.

Technology

Four types of technology were discussed:

- New air navigation systems (ANS),
- New large aircraft,
- Common-use terminal facilities, and
- Intermodal transportation systems.

With respect to new ANS technologies, particularly GPS, many capacity-enhancing technologies are ready for application but delayed in implementation by institutional and capital constraints. Human factors will also be a constraint on the capacity of the ANS system,

particularly in the transition from a labor-intensive to a computer-based system. Some technologies originally promoted for their capacity enhancement potential have, after implementation, been shown to provide gains in safety as well.

New large aircraft may provide capacity gains in a limited number of very large markets, but they are also likely to create a new set of traffic peaking and landside capacity problems.

Common-use airline terminal facilities and ticketing equipment can provide capacity increases, but the use of these facilities and equipment is constrained by airline competition, traditions, and the nature of airline-airport contracts. Common-use ticketing equipment has been used at several international airports with success.

Although the benefit of linking other intercity transportation modes has been demonstrated in Europe, large investments would be required to achieve multimodal integration in most U.S. markets.

Institutions

Institutional change is the key to improving capacity. Institutional change is defined as fundamental changes to organization structure, ownership or financing. Without institutional change, the benefits of technology enhancements will not be fully realized. The changes needed include changes in ANS organization and procedures, greater access to capital, and revision of the tax treatment of airport investment to create a level playing field between public and private capital.

The maturity of aviation in the North American market suggests that price and cost pressures will continue, and there may be a need to revise airport marketing strategies, including market differentiation between airports in multi-airport regions.

Economics

The need for improved, market-focused economic mechanisms to enable better use of existing airport infrastructure is a recurring theme whenever a cross-section of the aviation community gathers. The conundrum is that there are two roles for market pricing mechanisms: 1) to allocate scarce resources, and 2) to provide signals on where and how much to expand. While the first role is valid for airports, the second is not. Environmental and land-use constraints will limit growth even in the face of strong market indications of the need for new facilities.

Governments frequently exacerbate capacity problems by acting contrary to need. There is a tendency to scatter a little money around to everyone, sustaining airports of limited value while not promoting sufficient capacity where it is needed.

Aviation Industry

Aviation industry trends have an impact on demand in several ways. Dehubbing through the spread of direct services on long, thin routes will dampen growth at hubs, stimulate growth in smaller markets, and cause localized capacity problems (gates primarily) in some smaller markets. Business aviation will continue to grow but at a slow rate. Personal and light general aviation will likely continue to decline. Overall, general aviation growth will be negligible. Congestion at urban general aviation airports, already a problem in some places, is likely to worsen.

Environmental Impacts

Although the industry as a whole has made significant environmental gains, continued public pressure for noise abatement will mean that further reduction in aircraft noise levels will be necessary. Public perceptions that technology can go substantially farther in reducing noise and emissions is becoming a problem in itself as absolute technological boundaries are neared. Air quality at airports is a significant public issue that is likely to become an even larger problem in the future.

Overall, environmental issues will continue to be a constraint for large airport projects and for airports experiencing major changes in activity levels.

Infrastructure

The interplay of the factors enumerated above has major implications for aviation infrastructure. Increasing gate space and terminal building capacity at airports requires that existing terminal space be better used through common-use systems and ticketless travel. More effective security systems must be incorporated in airport terminal design. Until they are, any attempt to increase the level of security with the facilities and equipment now in use will dramatically reduce airport capacity.

The current trend to expand airport concession areas does not inherently decrease capacity, but it may improve passenger flow by better distribution of demand

within terminal buildings. While multiple uses of airport terminals are desirable, there are limits to which the efficiency of movement can be improved.

Summary

The key points emerging from the deliberations of the infrastructure panel deliberations were:

- In the short term, airport capacity will not be a constraint to growth except at a few high-density airports.
- ANS capacity is already a constraint and likely to be more so in the future.
- Institutional factors are limiting capacity enhancement in the ANS and at airports.
- Airports and airlines will become more specialized in today's maturing market.

With the issues identified in this paper, the Infrastructure Panel proposed its own set of forecasts as summarized in Appendix A.

Comparison of the Panel numbers with the FAA draft forecasts indicates that:

- The panel was more conservative for domestic and international enplanement growth;
- The panel felt that growth in commercial operations would more closely follow growth in enplanements than the FAA forecasts (i.e., that there would not be such a dramatic change in average load as implied in the FAA forecasts); and
- For noncommercial operations, short-term declines will be less than the FAA indicates and long-term growth will also be less.