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**LEISURE TRAVEL MARKET POTENTIAL  
FOR A HIGH SPEED CIVIL TRANSPORT**

Houston B. Smith

A second-generation supersonic airliner, known as the High Speed Civil Transport (HSCT), is now on the drawing boards to replace mid-life Concorde and to expand into longer-range markets beginning early next century. Passenger interviews conducted in May 1994 at Schiphol Airport in Amsterdam, Netherlands, evaluated the largely unknown habits and attitudes of specifically leisure travelers, expected to be a significant segment of a successful HSCT market. In addition to establishing value of time, ticket purchasing habits, and general airline traveling attitudes of leisure travelers, results also indicate that HSCT marketers may have to dispel lingering Concorde stereotypes to win public acceptance.

In 1976, a joint venture between the British and French governments introduced the mach 2, 100-seat Concorde to public service (Relman, 1994). It was the lone survivor in a challenge to revolutionize commercial air travel. The Soviet Tupolev Tu-144 flew, but was a technical failure; the American entry, the Boeing 2707, was killed in Congress without funding before it got off the ground (Morgan, 1990). Initial orders for Concorde totaled 74 aircraft from 16 airlines, but only a fraction of those were built. In particular, concerns about cost in an already depressed marketplace and heavy opposition to landing rights in the United States contributed to a limited production (Owen, 1982).

As of 1994, a fleet of 13 Concorde remain in operation with British Airways and Air France, and are expected to provide service until around 2005 (Relman, 1994). Although Concorde never established itself as a great commercial success, due largely to high maintenance and operating costs (Banks, 1990; Rosen & Williams, 1993), it has vastly expanded technical understanding of supersonic transport (SST) operations. This experience will undoubtedly aid developers of future generations of SSTs.

**HSCT BASELINE SPECIFICATIONS**

Baseline specifications for a second-generation aircraft, known generally as the High Speed Civil Transport, or HSCT, have evolved into a mach 2.4 aircraft carrying roughly 250 to 300 passengers up to 5,500 nm (10,200 km), and costing \$10 billion to \$15

billion to develop; the European baseline differs significantly on speed, specifying a much slower mach 2.05 (Banks, 1990; Collard, 1992; "Hasty decisions," 1993; "Questions on HSCT," 1990; Ott, 1990b).

HSCT will provide accommodations and service comparable to future subsonic aircraft in a three-class seating arrangement (Woolsey, 1993), and will require 20-25% more efficient aircraft structures and approximately 30% more efficient aerodynamic performance than Concorde (Daly, 1993; Shifrin, 1990). Also, it likely will be required to comply with the Federal Aviation Administration (FAA) Federal Aviation Regulations (FAR) Part 36 Stage 3 noise rules, requiring a reduction in noise by about 20 decibels, or about 75%, from Concorde levels (Rosen & Williams, 1993). The International Civil Aviation Organization (ICAO) Chapter III noise rules are comparable (Thame, 1992). Undoubtedly, HSCT also will have to achieve acceptable performance in engine emissions and other potent environmental areas as well.

**DEVELOPMENT OBSTACLES**

In addition to the immediate technical hurdles that HSCT designers face, international politics and competing technologies guarantee future obstacles. The staggering cost and high risk involved in such a venture almost surely mean a multi-company, and likely multi-national, effort (Collard, 1992). Technology transfer and antitrust discussions become increasingly pertinent (Ott, 1990a; Woolsey, 1993). And newly emerging

information technologies, such as videoconferencing as a substitute for travel, will certainly make their impact felt in the air transportation business (Hughes, 1993).

Also currently under investigation is a super-jumbo airliner, intended for high-density, slot-restricted markets—coincidentally, many of the same routes targeted by HSCT. Since the super-jumbo is estimated to cost about the same as HSCT, and because effectively the same companies are involved in consortia to evaluate and develop both programs, it is very unlikely that both projects will be undertaken simultaneously (Daly, 1994; Smith, 1993).

#### MARKET POTENTIAL OVERVIEW

Researchers are quite optimistic that technical obstacles can be overcome, that HSCT will meet acceptable environmental criteria and that all this may be accomplished in a reasonable time frame. Even so, is the timing right? Will the airlines subscribe? Is there a niche for HSCT in the marketplace?

Some studies show that a significant follow-on and expanded market to Concorde does indeed exist. For example, passenger traffic on long-haul routes worldwide, where HSCT will operate, tripled between 1975 and 1990 (Adine, 1990). Forecasts show continuing growth in these markets at approximately 5% each year (Collard, 1992), and expect traffic on flights longer than 2,500 nm (4,630 km) to exceed 300,000 passengers per day in the year 2000 and 600,000 per day by 2015 (Rosen & Williams, 1993; Woolsey, 1993). In addition to increasing numbers of travelers, route segments also are growing longer. By 2005, estimates show that about half of these long-range flights will be longer than 10 hours (Collard, 1992).

According to a preliminary study by British Aerospace, a minimum production of between 400 and 500 aircraft from a single supplier would be required for acceptable economic return (Shifrin, 1990). Boeing and McDonnell Douglas, among others, foresee markets that would support between 200 to 400 aircraft as early as 2005 (Adine, 1990; Armstrong, 1990; Rosen & Williams, 1993); the Society of Japanese Aerospace Companies (SJAC) estimates higher, at about 700 to 800 aircraft (Kandebo, 1991); and Aerospatiale expects an eventual fleet of between 500 and 1,000 aircraft (Collard, 1992). Although varying considerably, these figures suggest that

a sufficient market may exist by the time HSCT is ready to enter service—optimistically, as early as 2005 (Daly, 1993).

#### STATEMENT OF PROBLEM

Unfortunately, current research is not clear on specific passenger tendencies. General assessments indicate a willingness to pay a surcharge of around 10% to 20% to fly supersonically (Rosen & Williams, 1993). However, projections of possible future market share for HSCT seem to assume that leisure passengers will choose their flights in much the same manner as do business travelers—based largely on added cost versus passenger value of time. While the value of business travelers' time is comparatively objective and more easily established, there is a surprising lack of specific data on leisure traveler value of time, or even substantiation (although it is likely) on whether this factor is indeed the most significant influence in leisure travel selection.

It is quite possible, then, that other important influencing factors, in addition to value of time, guide the leisure travelers' decision-making process. And, although the segment of the total potential HSCT market that will consist of leisure travelers is not clearly known, it might be reasonable to assume, based on the sample of this study, that approximately one-third will consist of leisure traffic—a significant and largely unknown group.

#### PURPOSE OF STUDY

Although much attention has been given to general market assessment for HSCT, little light has been shed so far on specifically leisure-oriented travelers. The purpose of this study was to evaluate leisure travel habits and attitudes, and identify major factors that influence leisure travelers in their selection and purchase of airline tickets. Additionally, data obtained from primarily business travelers were compared with data obtained from primarily leisure travelers to establish any differences between the two groups.

#### METHOD

##### Subjects

Study participants were 150 adult airport visitors and passengers awaiting departure, or arriving on selected flights at Schiphol Airport in Amsterdam, Netherlands. Schiphol, Europe's fifth largest—ranked by passenger volume—and fastest growing airport ("European

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airports," 1994) was chosen for its large cross-section of international travelers, large number of long-range international flights, minimal expected language barrier difficulties (the survey was conducted only in English) and other logistical considerations.

Subjects were selected from a mixture of departing and arriving passengers on flights representing a variety of short-range (less than three hours scheduled flying time), medium-range (three to six hours) and long-range (more than six hours) destination and origination points, as permitted by airport officials and flight timings. As many subjects as possible from each selected flight were approached for participation in the study.

A total of 213 people were approached, of whom 41 declined to participate and 22 had not flown recently. Because recent flying experience (at least once in the previous 24 months) was desired, these prospective subjects were dismissed. Of those who declined to participate, in only three cases was this due to a language difficulty.

The sample was split approximately in half by sex (52% male, 48% female) and by arriving (43%) and departing (53%) passengers (3% of the subjects were non-passengers). Leisure travelers made up 53% of the sample and business travelers made up 33% (for comparison, subjects were designated as business or leisure travelers if the majority of their flights during the last 12 months were for primarily one or the other purpose). The remaining 14% of the sample flew an equal number of times for both business and leisure. Participants were selected mostly from long-range flights (likely candidates for an HSCT market), representing 59% of the sample. An additional 25% of the participants were arriving or departing on medium-range flights and 13% on short-range flights. Again, 3% were non-passengers.

#### **Instrument**

A questionnaire designed to be orally administered during a personal interview was used to assess leisure travel habits and attitudes on HSCT. It addressed general and leisure travel attitude and experience, potentially acceptable HSCT ticket premiums and general demographic information, containing mostly objective, multiple-answer questions. Printed cards containing a

large-print list of response choices were provided to the subjects for clarification on certain questions (specifically, questions 3, 4, 5, 6, 10 and 12).

The questionnaire itself was developed using the Delphi method, using smoothing inputs from a group of experts on the subject, including individuals who were: (a) currently working directly on market assessment aspects of an HSCT; (b) familiar with HSCT, possessing an additional background in aviation market assessment in general; and (c) faculty and fellow students at Embry-Riddle Aeronautical University. Content validity was additionally verified by advising faculty members of Embry-Riddle Aeronautical University. Although a specific reliability tool was not available for evaluating this instrument, a split-half type analysis was applied by dividing the total sample into two comparable halves. Analysis on several questions (selected randomly) produced satisfactory correlations.

#### **Procedures**

Interview procedures were designed to solicit specific leisure travel habits and attitudes on HSCT, without bias introduced by the initial request to participate in the study, instructions given by the interviewer, or the questionnaire itself. A standard introduction and format for interviewing subjects was used to minimize interviewer-induced bias. A screening question also was used to eliminate subjects who had no recent travel experience.

The survey was conducted on May 21, 1994, by a team of four interviewers. A tentative operations schedule was reviewed before the interview day, and a basic plan to maximize the efficiency of the team's efforts was developed. Each prospective participant was approached and given a brief introduction on the identity of the team and the research objective. Those declining were thanked and tallied. Those willing to participate were additionally asked the screening question to ensure that they had flown commercially relatively recently. Those failing the screening were thanked, dismissed, and tallied; those passing were given the questionnaire orally.

#### **Limitations**

A large potential for HSCT exists in various areas of the world outside Europe; subjects in this study may or may not share common attitudes with other potential

HSCT customers. Also, sample size was limited by fiscal and time restrictions, somewhat reducing the chance to validate and generalize specific results. Finally, data for ticket premiums was not normalized, which might suggest that a larger sample was required. Nevertheless, results compare favorably to previously collected data.

## RESULTS AND DISCUSSION

### Overall Responses

In general, responses to ticket premium questions were comparable to previous findings (for example, Rosen & Williams, 1993). Of all flights flown by study participants in the 12 months before the study, about two-thirds (67%) were primarily for business purposes, and about one-third (32%) were primarily for leisure purposes, giving some indication of the leisure segment's relative portion of the overall market. Other points of note were:

- Subjects or their spouses paid for their airline tickets most of the time (77%).
- To reduce travel time by 30%, 41% of the subjects were not willing to pay any extra, but 20% would pay more than 15% extra. The arithmetic mean fell approximately midway between 5% and 10% extra.
- To reduce travel time by 50%, 27% of the subjects were not willing to pay any extra, but 36% would pay more than 15% extra, and 19% would pay more than 20% extra. The arithmetic mean fell approximately midway between 10% and 15% extra.
- When purchasing leisure tickets, lowest fare was the most important influence by a fairly large margin, followed by quality of in-flight service and shortest travel time. The least important factors specified were type of airplane (No. 8), frequent flyer benefits (No. 7) and past experience with an airline (No. 6).
- Most subjects indicated that they enjoy traveling on a commercial airliner (64%) and most want to get to their destination quickly (77%).
- 34% of the participants consider travel time to be lost time, but 41% indicated that travel time is not lost time.
- 48% felt that most of their travel time is from waiting, transferring, and so on, and 33% said that most of their travel time is from the actual flying time.
- Most subjects thought that HSCT will be a success

(47% said limited success; 31% said great success); only 7% thought HSCT will be a failure.

### Business versus Leisure Travelers

Subjects were designated as business or leisure travelers if the majority of their flights during the last 12 months were primarily for one or the other purpose. In most cases, the two groups responded similarly. Differences of note are:

- Business travelers said they are more tolerant of delays when traveling for business (59%), and less tolerant when traveling for leisure (26%). Leisure travelers said they are more tolerant of delays when traveling for leisure (46%), and less tolerant when traveling for business (26%).
- Business travelers made up 33% of the sample and accounted for 71% of total recent flights. Leisure travelers constituted more than half the sample (53%), but accounted for less than one-fifth (18%) of the total recent flights.
- Business travelers who participated flew, on average, more than 16 flights each in the year before the study, compared with an average of around only two-and-a-half flights each during the same period for the leisure travelers who participated.

## CONCLUSIONS

The study generally validated previous research addressing the premiums that passengers indicate they are willing to pay to fly supersonically. Also, those who fly primarily for business and those who fly primarily for leisure share similar attitudes toward their specific leisure traveling habits. The significance of the leisure traveler as a potential customer for HSCT is probably somewhat less than expected at the inception of this study. However, the overall leisure market, including the large group of primarily business travelers who also fly for leisure, is certainly an important part of the whole, and invites further examination.

Regarding leisure traveling habits, those factors that are most important to prospective HSCT passengers were identified. Specifically, these results suggest that ticket price is the most important factor overall when airline tickets are purchased for leisure travel, and that quality of in-flight service and shortest travel time were close behind. This finding could be understood to imply that

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HSCT might not be selected over the lower ticket costs of slower conventional airliners (all other factors being equal). However, the concept of traveling time today is judged only by distance (how far) and route (how direct), because all airliners fly at effectively the same speed. Perhaps, simply the availability of a supersonic alternative in the marketplace will rearrange the importance of these factors. Finally, although the data collected produced no real surprises, an interesting perception was clearly evident throughout the evolution of this study. Any new supersonic airliner will be perceived, at least to some degree, as a descendant of Concorde. Currently no other reference exists except Concorde, and public comparisons and assumptions evidently begin there. This situation is

not necessarily negative, but some of the stumbling blocks of public opinion that greeted Concorde might resurface to confront HSCT.

The environmental concerns that helped derail the first supersonic airliner, for example, are completely unfounded with the second generation. Indeed, meeting acceptable environmental criteria is fundamental in current HSCT development work. Yet reservations about noise and pollution still remain in the minds of many. If HSCT is to be accessible to and accepted by the general flying public—and to be economically viable, it is generally agreed that it must be—a focused education and awareness campaign surely lies ahead for HSCT marketers.□

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#### REFERENCES

- Adine, J. (1990, March). Next, the super-Concorde. *World Press Review*, p. 70.
- Armstrong, S. (1990, August 14). In the wings: Faster supersonics. *Christian Science Monitor*, p. 12.
- Banks, H. (1990, November 12). Son of Concorde. *Forbes*, pp. 156-160.
- Collard, D. (1992, January). Supersonic transport in the 21st century. *ICAO Journal*, 8-9.
- Daly, K. (1993, December 15-21). BAe pleads for more supersonic funding ... as USA probes HSCT financing. *Flight International*, p. 10.
- Daly, K. (1994, January 26-February 1). Concorde successor could follow NLA. *Flight International*, p. 5.
- European airports ranked by passenger volume. (1994, April 6-12). *Flight International*, p. 17.
- Hasty decisions. (1993, December 15-21). *Flight International*, p. 3.
- Hughes, D. (1993, February 8). Videoconferencing may cut travel. *Aviation Week and Space Technology*, p. 31.
- Kandebo, S. W. (1991, September 30). Japanese narrow SST options, focus on mach 2-2.5 aircraft. *Aviation Week and Space Technology*, p. 73.
- Morgan, L. (1990, November). Faster is better. *Flying*, pp. 140-141.
- Ott, J. (1990a, May 28). Airframe manufacturers to explore HSCT development. *Aviation Week and Space Technology*, pp. 114-115.
- Ott, J. (1990b, June 18). Researchers seek technologies for quiet, environmentally safe SST. *Aviation Week and Space Technology*, pp. 94-98.
- Owen, K. (1982). *Concorde: New shape in the sky*. London: Jane's.
- Questions on HSCT. (1990, May 28). *Aviation Week and Space Technology*, p. 9.
- Relman, P. (1994, March). Concorde silver jubilee: Mach 2 marks 25 years. *Air International*, 46, 120-124.
- Rosen, R., & Williams, L. J. (1993, February/March). The rebirth of supersonic transport. *Technology Review*, pp. 22-29.
- Shifrin, C. A. (1990, May 14). Britain and France begin Concorde follow-on study. *Aviation Week and Space Technology*,

pp. 24-26.

Smith, H. B. (1993). *High speed civil transport: Is the world ready for a new SST?* Unpublished manuscript, Embry-Riddle Aeronautical University, European Division.

Thame, C. (1992, August). European environmental studies focus on impact of engine emissions. *ICAO Journal*, pp. 7-10.

Woolsey, J. P. (1993, August). A boost for the HSCT? *Air Transport World*, pp. 57-59.□