A MAGAZINE FOR AIRLINE EXECUTIVES 2007 Issue No. 2

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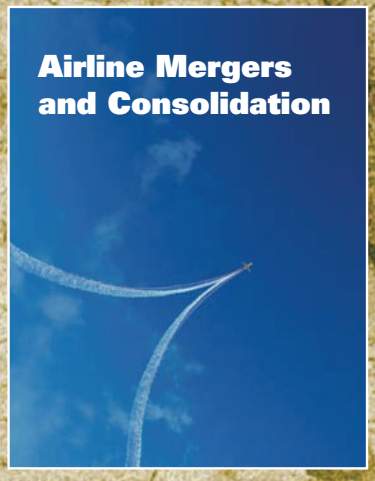
A Conversation with Abdul Wahab Teffaha, Secretary General Arab Air Carriers Organization.

Special Section



INSIDE

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Analyze This

Competitive intelligence, robust tools and knowledgeable analysts are three necessary components successful airlines should use in effective decision making.

By Khaled Al-Eisawi | *Ascend* Contributor

During the last two decades, competitive data has become a key component of the decision-making process in the airline industry. Many airlines developed sophisticated processes to make both tactical and strategic decisions based on objective assessments of the competitive landscape. With the rise of low-cost carriers and alternative distribution channels, visibility into the competitive landscape has changed significantly, and the traditional competitive data and tools are no longer sufficient. What are these traditional competitive data and tools? And what are airlines doing to overcome the new challenges?

Airline competitive data can be categorized into two categories: supply and demand. Competitive supply data informs airlines about the products their competitors offer and at what price. One common example is schedule data, which includes information such as destinations, flight frequencies and timings, and equipment types. This information is relatively easy to acquire and is available from several suppliers. Airlines and third-party providers have developed tools to analyze and report on competitive schedule information. Analyses that prove important from a competitive perspective include:

- Competitors' schedule strengths and weaknesses,
- Network and hub structure,
- Block times,
- Passenger misconnections,
- Codeshares.

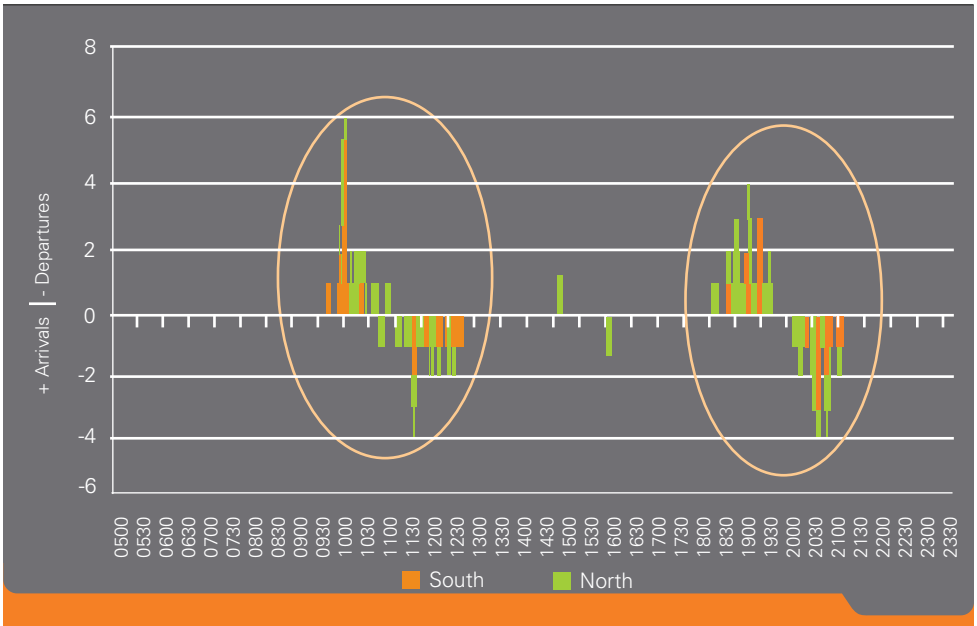
In addition to airlines, several aviation entities such as airports, civil aviation authorities and tourism agencies, have developed an increased interest in airline schedule data and the tools available to analyze these schedules.

Another way to look at competitive data is whether it is historical or forward looking. Schedule information is primarily forward looking. Historical schedule information tends to be reported by carriers at a high level along with their traffic and financial statistics. In addition, some airline associations and civil aviation authorities collect schedule-based statistics such as available seat kilometers and make them available to their subscribers or constituents.

Another component of the competitive product offering is fares. Many airlines that distribute their products through global distribution systems file their fares with the Airline Tariff Publishing Company, or ATPCO. Participating airlines can subscribe to receive competitive fare information. Airline fares tend to be quite complicated as a result of the volume of fares that can be filed by an airline for a particular market and the numerous fare rules. As a result, third-party providers developed tools to help airlines understand and track competitive fares. These tools, such as the *Sabre*® *AirPrice*™ fares management system, enable analysts to understand their own airline's position with respect to the competition and take appropriate proactive and reactive actions.

On the demand side, marketing information data tapes, or MIDT, stood out as one of the most comprehensive and valuable airline data sources for competitive intelligence. MIDT contains booking transactions made by travel agencies connected to the major GDSs. It has been marketed since 1987 and has gained tremendous popularity since then.

Hub Analysis Based on Schedule Information



Airline schedule information can be used to analyze the hub structure of a carrier and depict directional banks and how well they connect.

Different flavors of the data are available including historical and forward-looking data as well as daily, weekly and monthly data. Forward-looking data includes bookings made in a historical month for travel later in that month or subsequent months. It can be invaluable in understanding booking curves and the impact of schedule and fare changes on bookings made for future travel. Post-departure data includes bookings flown in a particular month.

As with many other airline data sources, several third-party providers developed tools to cleanse MIDT and provide easy-to-understand, customizable reports. The raw booking data provided by GDSs is not quite useable since it contains the entire booking history. Typically, raw bookings are cleansed from duplicates and cancellations. Auxiliary data, such as schedule information, is merged in, the segment streams are put together and trip-break rules are applied to create origin-and-destination data. Trip-break rules can vary by provider, but some of the more common ones include:

- Breaking the itinerary at any station with a layover greater than a particular threshold (The threshold can be different between domestic and international connections.),
- Breaking round-trip itineraries or itineraries with revisited stations,
- Breaking circuitous routes.

MIDT does not contain fares or personal information. Reporting tools, such as the *Sabre® WiseVision™ Data Analysis Suite*, enable analysts to dissect the data and generate reports to facilitate decision making.

MIDT has traditionally been used by two functional areas in an airline:

1. Sales and marketing. The primary value of MIDT in this area is its ability to provide detailed insight into the performance of travel agencies. In particular, an airline can see how much sales a travel agency is producing for them versus their competition. The airline's share gap can also be contrasted against the quality of its product and that of its competitors. All of this information is extremely useful for setting sales targets and refining incentives and overrides. The sales force in the field can also use this information to focus its effort on underperforming agencies and building new relationships with key agencies.
2. Network planning. The value of MIDT for network planning stems from the fact that it is a global O&D source of demand data. MIDT contains a lot of details including departure and arrival times and dates, flight numbers, connecting points, connecting times, and segment carriers. Some of the applications of MIDT in this field include:

- Understanding time-of-day and day-of-week preferences,
- Analyzing passenger preference for type of service (nonstop versus connecting service, equipment type),
- Analyzing service patterns and schedule connectivity in an O&D by carrier,
- Estimating market share by carrier,
- Estimating true O&D market sizes,
- Decomposing traffic on flight legs into the O&Ds it belongs to.

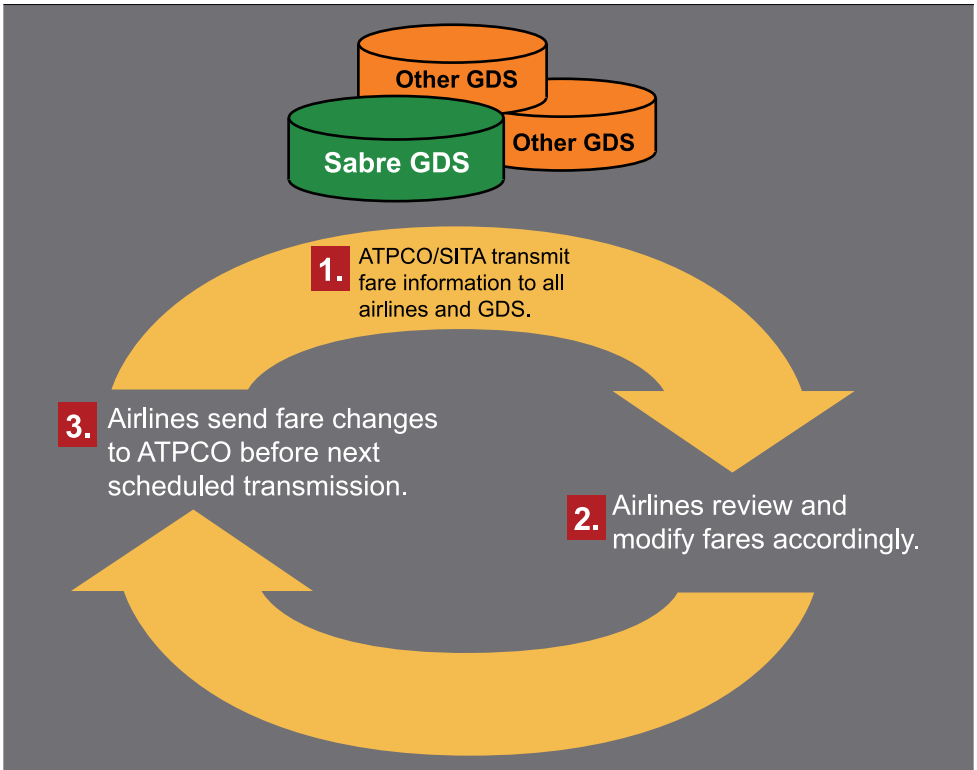
Some of the limitations of MIDT data include:

- Mostly, but not totally, global, MIDT data captures bookings made by travel agents connected to the major GDSs. The penetration of major GDSs in some areas of the world is not very high; therefore, MIDT data is missing significant booking volumes from these countries.
- Carrier penetration rates are different depending on the carrier distribution strategy.
- Many low-cost carriers are missing.
- With carriers promoting direct distribution channels, there has been a downward drift in the percentage of traffic booked by agencies and hence visible in MIDT.
- Regional representation varies widely depending on the market penetration by GDSs.

The airline industry has been creative in overcoming the new challenges in the availability and comprehensiveness of competitive data. Gaining visibility into the supply side of low-cost carriers and online distribution is relatively easier than the demand side. On the supply side, Web scraping has proven to be an effective method used to collect schedule and fare data for carriers that are invisible in other data sources. Such data is collected on a forward-looking basis; however, if collected continuously, a historical database can be built easily. Algorithms have also been developed to analyze the Web-scraped data and assist with pricing and revenue management. For example, an airline can use current data scraped from its competitors' Web sites to decide whether to make inventory modifications based on competitors' available fares. Specifically, business rules can be defined to determine conditions for matching fares for a number of seats, undercut the competition for a number of seats, or do nothing. The *Sabre Airline Solutions®* consulting practice pioneered the application of such techniques with some of its customers and drove up to 30 percent improvement in revenue per available seat kilometer in the target markets.

On the other hand, demand poses two challenges: one with traffic and the other with average fares. Total traffic, including direct and GDS bookings, can be estimated by reconciling GDS bookings against industry data sources. This reconciliation can be used to estimate MIDT penetration rates and subsequently apply those penetration rates at the O&D level to estimate O&D traffic.

Airline Fare Management Process



Many airlines that distribute their products through global distribution systems file their fares with the Airline Tariff Publishing Company, or ATPCO. Participating airlines can subscribe to receive competitive fare information.

Industry data sources are numerous and come at different aggregation levels. Very few of these data sources are at the O&D level. The main premise in reconciling MIDT data with industry data sources to estimate penetration rates is to build a hierarchy where the most detailed data sources are used first. For example, segment statistics are more detailed than airport statistics and should be used first when available. A measurement mechanism has to be used to compare aggregate statistics based on the estimated data to the reported industry data at multiple levels. For instance, carrier revenue passenger miles statistics based on estimated data can be compared to carrier-reported statistics. Similarly, estimated airport enplanements can be compared to airport enplanements reported by airports or civil aviation authorities. These comparisons provide measures of accuracy of the estimated data and can be used to refine the adjustment process. Keeping in mind that the ultimate estimate is at the O&D level and with very little actual O&D data, it is hard to have a direct measure of accuracy of the O&D demand estimates.

The adjustment methodology described pertains to a logical and systematic way of "truing up" MIDT data. The question that presents itself is what do airlines do for low-cost carriers that are completely (or almost completely) absent from MIDT? The key to estimating their traffic is to know their schedules — specifically the markets they serve and the capacities they offer in these markets. Forecasting models can be used to construct an O&D network for these carriers. While most LCCs operate simple point-to-point networks, some carry a significant amount of connecting traffic, albeit almost entirely on their metal. Aggregate traffic data for these carriers can be collected and reconciled with other aggregate industry traffic data to estimate traffic flow on the carrier's built itineraries. A quality of service index-scoring methodology can be used to allocate the traffic in a way that puts more traffic on nonstops compared to the connecting itineraries. The QSI factors driving this allocation can be calibrated and tweaked to achieve the highest possible accuracy.

Some airlines are also collaborating on their data needs and establishing community models for sharing data. One of these models is to pool internal O&D demand data of the member carriers (after removing all sensitive information) and share the combined data among those carriers. Airlines' internal data is generally quite accurate and, if combined with other industry data, can contribute significantly to the improved accuracy of demand estimates. *Sabre Airline Solutions* has established such data bureaus with several carriers in the Middle East.

Competitive average fares are even more challenging than traffic estimates but are as valuable for market and network studies. Similar to MIDT, several GDSs offer aggregate airline ticket data with itinerary details and ticket value information. The data can be processed into O&D itineraries and can be a valuable source for competitive average fares by market and carrier. However, ticket coupon number, or TCN, data has the same limitations as MIDT in terms of market penetration and may have additional challenges with the invisibility of private fares. Nonetheless, carriers that are well represented in MIDT data will have good sample sizes in TCN data that allow for robust estimates of average fares. Yield curves (average yield versus distance) can be constructed at different levels to fill in the gaps.

Several attempts have been made to take a totally different approach for global demand estimation. One of these approaches uses gravity models to link passenger demand to demographic and economic statistics. Such models can be relatively accurate at estimating propensity to travel under theoretically "rational and steady-state" conditions. While such conditions are hard to define, many agree that the airline environment is so complex and dynamic and, hence, presents significant challenges to the accuracy of such models. The interactions and potential confounding effects between demand, fares and capacities in addition to the demographic, economic and geopolitical factors make it quite challenging to estimate intrinsic demand.

With all of these challenges, the airline industry continues to be creative and analytical. Data, tools and knowledgeable analysts are the three ingredients to successful decision making. Competitive data adds a lot of value, and the decision makers and analysts who capitalize on such intelligence will always be ahead. Airlines will continue to find new ways to collect competitive information and develop techniques to best utilize such information.

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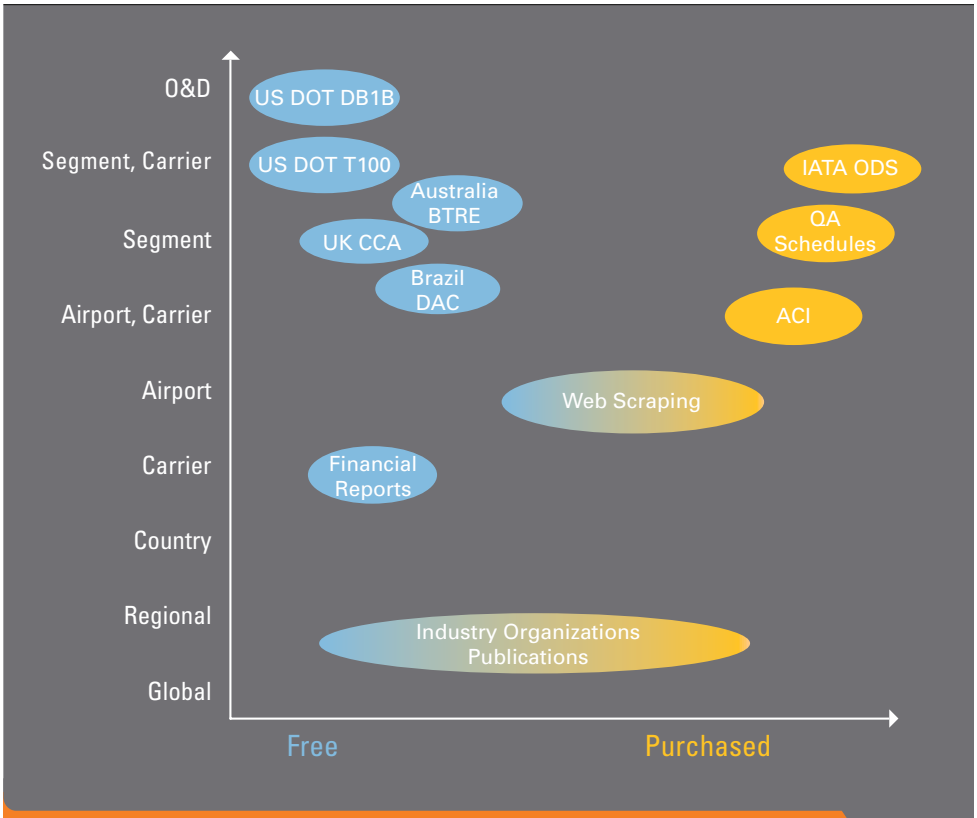
Example of Industry Data Sources



Airline industry data comes at different levels of aggregation. For example, the U.S. Department of Transportation DB1 is at the origin-and-destination level while the Australia BTRE data is at the segment level. Some industry data sources are available free of charge, while others must be purchased.