

The past 10 years has seen a large number of developments in passenger sales technology that have transformed the cost of the entire passenger sales process. Developments in cost reductions and improved generation continue. Each step of the passenger sales process is examined.

Cost savings & revenue gains in passenger sales

The past decade has seen the introduction of many new technologies and systems that have led to large changes in the entire passenger sales process, from initial forecasting to revenue accounting. These changes offer new approaches to fare structures and pricing, yield management, sales channels, ticketing, and overbooking policies and load factors, but they also provide operators with a range of options to realise savings and generate more revenues. Many of these changes, savings and additional revenue-generating possibilities have resulted from the opportunities offered by the internet, electronic ticketing (e-ticketing), airlines' websites and direct selling.

The savings are realised from: increased direct selling and reduced travel agents' commissions; reduced distribution and global distribution system (GDS) fees; lower investment in hardware and systems; lower operating costs; reduced paper ticket issuing costs; and lower general administration and labour costs.

Airlines have also found and developed new ways to generate revenue, including: higher load factors; improved yields or at least some reduction in the decline in yields; increased and improved customer loyalty; reduction in revenue leakage and improvement in revenue integrity; e-commerce and increased upselling; and the generation of ancillary revenues.

These cost savings and opportunities for extra revenue generation come from every stage of the passenger sales process, and are examined below.

Market forecasting

The first stage in the sales process is market forecasting, analysing competitors' fares and gaining market intelligence in order to determine its schedule and frequencies, aircraft size and type, cabin classes and fares.

An airline will therefore need to analyse the competitive factors on each route in its network to determine the traffic volumes, demand and yields it can expect. These competitive factors include competitors' schedules, traffic volumes, and fares, as well as customers' buying behaviour in each of the airline's markets.

"This schedule optimisation process is complex, and it is simply impossible to do manually," says Jim Barlow, senior vice president of passenger solutions at Sabre Airline Solutions. "Not only does all this market analysis require large volumes of data, but it has to be done prior to entering a market for the first time. It also requires a constant feedback process to analyse the revenue, yields and passenger loads generated on each route for particular schedules and fares so that they can be optimised. The best schedule and fare optimisation is achieved by using sophisticated algorithms and software specifically designed for this task."

A few airlines have performed this process themselves, but there are several products available to airlines for this first important stage. Sabre offers airlines its AirFlight forecasting product as one of several modules available for the entire passenger sales process. It also offers airlines the data for market sizes and

passenger volumes, traffic patterns, fares and yields, price elasticities of customers in each market and other important information required to complete the process. An alternative is for airlines to sub-contract the entire process to Sabre.

Other market forecasting and analysis products come from Lufthansa Systems. It offers the ProfitLine/Yield Origin and Destination (O&D) Forecaster, which Lufthansa Systems claims generates accurate predictions of traffic volumes and revenue potential.

While these forecasting products are based on algorithms and the processes generally have to be automated, some manual input is required when non-regular or abnormal market situations arise that affect demand. Examples are major sporting events or special holidays. Lufthansa Systems has developed a special event module for the O&D Forecaster, which takes into account the impact of such occasions on passenger demand.

Lufthansa Systems has also developed the Market-Sensitive O&D Forecasting Module to determine the number of quality-oriented and price-sensitive passengers on each route and market. This module also allows airlines to define their main competitor on every O&D city-pair on its route network. The airline can then improve the quality of its own forecasts with the additional data of competitors' fares.

Distribution

The next stage in the sales process is

The progression to increased on-line selling has made it possible for airlines to make large reductions in staff numbers employed in call and reservation centres. The parallel development of e-ticketing has brought further savings.

airline distribution, which has clearly changed from the time when virtually all sales were made through two main points of sale: travel agents via the GDSs; and airline call centres and ticket offices. Sales are now additionally made via three new channels: airline websites which allow direct selling; independent websites and on-line travel agents; and 'emerging GDSs'. This development has been made possible by the internet and the development of websites, and has enabled the three main objectives of reducing GDS fees, travel agents' commissions and the size of airline call centres.

GDSs accounted for a high volume of sales because they provided airlines with comprehensive global reach to thousands of travel agents. They had poor quality, green-screen booking windows, however, and had limited ability to sell additional products for airlines. GDSs charged airlines fees that averaged \$8 per segment, and so could charge a total of \$24 or \$32 for a booking that involved three or four flight segments. Moreover, the old technology front-end screens meant that travel agents only used one type of GDS, which limited airlines' ability to distribute their available seat inventory. In addition to the segment fees charged by GDSs to airlines, travel agents also deducted commissions of up to 10% for each booking.

The development of the internet paved the way for on-line sales, directly through airlines' websites and indirectly through travel agents' websites. This has since been enhanced and made more attractive to buyers and travellers with the advent of e-ticketing.

On-line selling has given airlines the leverage to reduce commissions paid to travel agents and to negotiate lower GDS segment fees. Travel agents' commissions have fallen to 1% or even zero in many cases, and GDS fees are now down to \$2.50-3.50 per segment. Many airlines in the Asia Pacific and the Middle East still rely on travel agents, and commissions are still at 7-9%. This is because these airlines still make relatively few sales through their websites.

The main benefit of on-line sales channels has been to reduce the staff numbers needed by airlines in their call centres and ticket offices. The sales processes have been simplified with more user-friendly screens on airline systems.



Airline websites also benefit from gathering customer relationship management (CRM) data. This is information relating to the profile of each customer, such as how often they travel, their favourite destinations, cabin classes and buying behaviour. When used well it can give airlines more marketing control over specific customers.

Airline websites only account for a higher portion of sales in their home markets, not overseas. Moreover, the majority of business travellers and corporations still use travel agents as a buying channel, so GDSs continue to have an important function. Many GDS providers also provide or host airline reservation systems, with the two interconnecting. GDSs have become more sophisticated in recent years, and graphical user interfaces make them easier for travel agents to use. This, combined with front-end sales windows, allows travel agents to provide buyers with information from several GDSs, which means increased global coverage and distribution for airlines, since travel agents no longer favour a single GDS over others. GDSs now allow retailing and merchandising to be offered on behalf of airlines, and some are also starting to offer e-commerce capabilities, thereby allowing GDSs to harvest valuable CRM data and information for their airline subscribers.

'New entrant' GDSs use the internet and multi-GDS capability to provide travel agents with schedule, seat

availability and fare information for the individual airlines that subscribe to them. New-entrant GDSs charge fees of \$2-3 per booking, similar to the fees charged by traditional GDSs for each segment.

Reservations & inventory

The third stage in the passenger sales process is reservations, inventory and ticketing. This takes booking and purchasing requests from the five main distribution and sales channels and provides information on available seat inventory in the particular cabin class of the flight being requested, the fare available at the time of the request, and makes the reservation and issues a ticket. This is at the same time the reservation is made when the buyer uses an on-line portal. The reservation can be held and ticketed later when the buyer uses the traditional methods of contacting the airline call centre or visiting a travel agent.

The inventory system controls the availability of seats at specific fares for a particular flight. These controls are automatically set by the revenue management (RM) module of the airline's system or element of the sales process. These controls and fares ultimately come from research and data gained by the market forecasting stage of the sales process.

The reservations, inventory and ticketing process is done either manually or automatically depending on the sales



channel being used by the buyer. The reduction in sales made through airline call centres and ticket offices due to on-line sales has allowed airlines to reduce staff numbers. E-ticketing has also allowed airlines to dispense with issuing paper tickets, thereby saving the cost of printing tickets and buying postage, as well as reducing administration and staff.

The additional benefit of e-ticketing and selling through airline websites is that e-commerce and ancillary revenue capability is now possible. Harvesting CRM data is also enhanced and sales data can also be used for frequent flyer programmes (FFPs) for airlines' regular customers.

There are several providers of reservations, inventory hosting and ticketing systems, including Amadeus, Sabre and Mercator. Mercator, a subsidiary of Emirates, now offers integrated sales and reservation systems as one of its main product areas. Mercator will soon start marketing its Jupiter I product, which will offer a combined reservations, CRM, passenger check-in and handling, and revenue accounting system. Its MARS product is the reservations module of Jupiter I.

Sabre is best known for its Sabre GDS product, which can be interfaced with its AirMax reservations product. Like Mercator, Sabre now offers an integrated product that combines several modules. Sabresonic is a single product that hosts reservations, inventory, ticketing and check-in for an airline.

Revenue management

The RM module provides controls for the inventory system to determine the number of available seats at each fare. In

addition to setting a range of fares, fare classes and prices for each cabin class, RM is also programmed with fare rules and restrictions, contains data relating to special promotions and their availability, and sets the airline's overbooking and load factor policy.

RM is a specialised process. Several major airlines have developed their own in-house RM capabilities, but there are a few specialist providers of RM systems and modules that airlines can interface with the rest of their sales processes. These include Pros, Lufthansa Systems, and Air RM.

"RM takes data from market forecasting to set fares and fare rules," says Barlow. "Manual intervention is sometimes required when setting fares and the parameters that determine their availability to get the highest possible revenue and yield mix. We offer AirPrice, which sets fares, and interfaces with our AirFlight forecasting and AirMax reservations products."

RM has not provided any significant cost savings with developments over the past 10 years, and systems have in fact become more expensive in many ways, because of their increased complexity, designed to enhance yields and revenues. RM modules can cost an airline \$3-5 million, and will also have the continual running costs.

Low-cost airlines do not have complex fare rules, and also have single-class products. Moreover, they do not try to get fares with discrete differences between them, or try to calculate elasticity of demand. RM systems for low-cost styles of operation should therefore be cheaper. Specialist providers of low-cost airline RM systems include Navitaire.

CRM data can be used to upsell good and products to passengers right up to the boarding process if well used and the right systems are in place.

Frequent Flyer Programmes

In addition to revenue management, several other processes are linked in to reservations, inventory and ticketing that operate in parallel. These are FFPs, e-commerce, and ancillary revenues.

FFPs comprise a database of bookings and reservations made by each customer that is registered with the airline. On their own these data are used to inform the reservations and ticketing module when a customer can redeem their FFP points for a complimentary or discounted reservation. This requires data from the RM module in terms of availability rules, additional charges and the cabin class in which the customer is allowed to travel.

FFPs do not provide any cost savings, but they do enhance revenues by keeping the loyalty of passengers who frequently buy high-yield fares. This is because these passengers are rewarded with high points for buying high fares, while low fares offer few or no points.

Amadeus's Award Calendar product allows frequent flyers to make themselves complimentary or discounted bookings, by providing the dates of travel for which bookings can be made, and allowing the ticketing process to be made automatically. This reduces the number of staff needed at call centres.

CRM & passenger loyalty

CRM is the process of gaining and storing information and data about individual customers that allows more intelligent marketing. Although this incurs, rather than saves, costs in the sales process, the objective is to enhance the airline's selling power.

The first level of data in CRM is the customer's personal information such as name, contact details, age, profession and place of work. The second level of data covers their previous buying behaviour with the airline, including information on: the flights and routes taken, including those most often flown; airports used; cabin class and fares; total revenue generated for the airline; FFP status and points; previous complaints or problems; particular preferences such as meals, drinks or seats; and purchasing methods.

The objective is to use this information for a targeted marketing strategy to provide a personalised service that should ultimately increase a



Self-service check-in kiosks bring the combined benefits of savings in ground handling staff, faster check-in and improved customer satisfaction.

passenger's loyalty.

CRM systems require large databases, and are not only interfaced with FFPs, but also ancillary revenue generating modules. This allows particular flights to be packaged with certain ancillary revenue products such as hotels, car hire or insurance for particular categories of customers.

"CRM systems also have to be interfaced with check-in and departure control systems," explains Paul Highway, director of IT sales at Amadeus. "This is because maintaining passenger loyalty involves the ability to recognise customers as they arrive for flights. High-value customers can be given preferential treatment at this stage, such as providing them with particular seats on the aircraft. It also presents an opportunity to gain ancillary revenues, for example when the passenger has not arranged travel insurance or made a hotel booking."

Sabre also provides a passenger loyalty module called Sabresonic Traveller Loyalty, which feeds into the distribution and check-in modules.

CRM and passenger loyalty is one of four main product areas for Mercator. Its CRM product, CRIS, runs a loyalty programme that accumulates FFP data and processes customers. CRIS is integrated with an airline's reservation system. It is also a module of Jupiter I. Not only does it perform typical passenger loyalty functions, but it also analyses the yield of each transaction and its contribution to the airline's top line.

Mercator has also recently developed a system for uploading onto a tablet computer the CRM and passenger loyalty data for all passengers checked in for a particular flight. This information can be

taken onto the aircraft by the purser so that specific treatment can be given to high-value customers during the flight.

Check-in & passenger handling

Check-in and passenger handling has to be interfaced with the CRM and passenger loyalty module or system. It also has to be linked to the reservations, inventory and ticketing module or systems. E-ticketing has made this easier.

Developments in check-in and passenger handling are responsible for some of the most recent reductions in airline costs, as well as improved customer service.

Modern check-in systems now also allow passengers to select seats, print their own boarding passes in advance, carry out self-service check-in at the airport and drop baggage. Not only do all of these products and services make it possible for airlines to make large reductions in staff numbers, it also reduces passengers' airport transit times and so improves their satisfaction.

Check-in goes together with passenger boarding control. This will interface with the reservation and check-in systems so that a reconciliation can be made automatically between the names of those passengers booked on a flight, those that have checked in, and those that have boarded. E-ticketing allows the status of a passenger to be automatically and instantaneously changed as they board the flight. This has a link to revenue accounting.

An example of the savings that modern check-in systems have made possible is Air New Zealand's system, whereby passengers without hold luggage can bypass the check-in counters and go

straight to the departure lounge. The use of a barcode from a printed boarding pass or FFP membership card recognises the passenger as having checked in for the flight and boarded the aircraft. This results in very few check-in staff, no check-in counters, and boarding of passengers performed by the flightcrew.

Check-in and passenger handling is another of Mercator's main product areas, covered by its MACS product. Mercator's new Jupiter I product will allow reservation and check-in data to be collated and analysed dynamically, so that valuable revenue and yield data can be audited and analysed.

Revenue accounting

Like check-in and passenger handling, revenue accounting is a stage in the sales process that has made it possible for airlines to achieve large reductions in staff numbers.

Revenue accounting involves matching sales, check-in and passenger-boarding data. The fare paid by a passenger is a liability that the airline may have to refund until the passenger has flown. Since airlines have several types of sales points that can include thousands of travel agents, the first objective of revenue accounting is to retrieve revenue from all points of sale after a passenger has flown. Fares are also complicated by a plethora of taxes and tariffs, so revenue accounting involves a complex audit process, which takes into account interline agreements and currency exchanges and fluctuations.

Revenue accounting was a laborious and manual process when paper tickets were still being issued. It was also slow, labour intensive, and prone to errors that allowed a high level of revenue leakage. The use of e-tickets has allowed revenue accounting to become automated and more accurate. In fact, it will be possible to get 100% accuracy once 100% e-ticketing is in place.

The ability to automate revenue accounting, and its electronic nature, mean that less labour is required, and that it can also be outsourced.

Revenue accounting costs 3-4 cents per transaction when sub-contracted to a third party. An airline processing about one million passengers per month would have a cost of \$30,000-40,000. This means that at least five to eight staff have

A high rate of e-ticketing and on-line sales allows most revenue accounting transactions to be done automatically, as well as reduce the incidence of revenue leakage.

to be removed from the department to justify outsourcing. Most revenue accounting departments have 40 to 80 people, and most would not be required if revenue accounting were outsourced.

Revenue accounting is now also a faster process. Under the old manual system, revenue information would be available three or four months after a flight, but now accurate data can be provided at the end of each working day or even after a few hours.

Having real-time revenue data, passenger yields, and load factors for each flight within a few hours allows the information to be used by an airline's commercial departments to adjust schedules, capacity and fares in a short time period. It is further possible to match these data with aircraft operating cost information.

Providers of revenue accounting products and third-party services are Mercator with Rapid, Sabre with Sabre Quasar, and Kale Consulting with REVERA.

Revenue leakage

One function of modern revenue accounting systems is to reduce revenue leakage, which can come from several sources.

These include revenue accounting errors made in auditing and reconciling taxes and tariffs, calculating miscellaneous charges related to ancillary revenues, apportioning interline fares, and making refunds.

Several levels of revenue leakage arise due to incorrect bookings and ticketings. The first of these relates to airlines having a high level of no-shows, for example when travel agents make bookings that are never ticketed. The airline's reservation system still holds the seat, which consequently flies empty. A second cause of no-shows is duplicate bookings for the same passenger, usually by travel agents. No-shows are also caused by travel agents fabricating bookings and ticketings, or by late cancellations that give the airline little opportunity to re-sell the seat.

Another cause of no-shows is the use of incorrect fare rules and classes by travel agents to circumvent the correct ones. This type of error often goes undetected. Finally, a major cause of leakage is charges for items such as



passenger upgrades or excess baggage not being made or being incorrectly applied at departure.

No-shows make it hard for airlines to optimise their overbooking policies. This means they have to accept a wide variation in no-shows and suffer a high level of empty seats and lost revenue.

There are several systems in the market that help airlines narrow down the variation in no-shows. Lufthansa Systems offers its Revenue Integrity Suite, which has three core elements. The first is the Flight Firming Tool which analyses ticketing time limits on an airline's bookings with the objective of cancelling unticketed bookings with enough time for seats to be re-sold. Lufthansa Systems claims that up to 50,000 unticketed bookings can be released each day for an international network carrier. The system also checks for fictitious names and bookings so that these can also be cancelled.

The second core is DupeCheck, which finds duplicate bookings and eliminates them. Suspicious bookings, such as those with unrealistic connection times, are also cancelled, thereby allowing tens of thousands of fake bookings to be identified.

Calidris is another provider of revenue integrity software and systems. Its Calidris Booking Integrity (CBI) product is used by Emirates and British Airways. "Emirates started with CBI in 2005 because it was having a lot of

problems with no-shows. These have now dropped by more than 50%," says Magnus Oskarsson, chief executive officer at Calidris. "Emirates has increased its load factor by 4% on high-demand flights as a result, which means eight or more passengers per flight given its average aircraft size. Our CBI system analyses duplicate and fake bookings so these can be cancelled, freeing seats for re-sale. It also sends cancellation messages to non-ticketed bookings with a time allowance of a few days to make the ticketing before cancelling it if it is not confirmed. These problems occur because travel agencies still behave badly in many parts of the world. CBI therefore profiles all travel agents used by the airline so that those making the highest percentages of fake or duplicate bookings can be identified. Travel agents also sometimes use fake ticketing numbers when making fake bookings, but CBI can detect these."

Oskarsson estimates that by reducing these revenue leakages it is possible to improve revenue by an average of Euro 1.50 per passenger, which accumulates to several million Euros per year for many airlines. "We charge a monthly fee for using our system, which is a fraction of the revenue we save for the airline, and there are no up-front investments required," says Oskarsson. **AC**

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