Airline reservation systems are still structured around a silo approach to booking engines, pricing rules, and CRM. New reservation technologies aim to interface these so that sales channels can identify individual passengers and target them with specific fares & products.

New technologies for reservations & ticketing

While the technology of airline reservation and ticketing systems has progressed a lot over the past 10-12 years, airlines are still lagging behind other major forms of retail in terms of targeting individual customers. Airline reservation systems are still structured around a silo approach to booking engines, fare and pricing rules, and customer relationship management (CRM). These are not interfaced or merged with each other, so airline sales channels are unable to identify individual customers, target them, and offer them ancillary products and fares based on their previous buying behaviour. This contrasts with major on-line retailers, in particular Amazon.com, which uses various technologies to identify customers and target them by offering products according to their previous purchases.

Airline reservation systems providers are now offering products that use smart and predictive technologies to identify and better target individual customers. These new technologies identify individuals by their name, e-mail address, telephone number or frequent flyer number. One technique is for an airline to offer different fares at the same time to different individuals logging on to their websites, or enquiring through other sales channels, and making a reservation for the same flight in the same cabin class. Different people will have different buying behaviour and reactions to the same fare. These new technologies could also be used to offer prospective buyers different ancillary products and services according to their previous buying history. Some passengers like to pay extra for exit-row or aisle seats, while others like business-class lounge access or upgrades to premium cabins. Others may only express occasional interest in car hire or travel insurance.

Reservation technologies

Amadeus is one supplier of reservation systems that has used smart or predictive technologies to look at a person's buying behaviour. "We have analysed airline websites, and while many ask for the person's frequent flyer number when they log on, none use a person's previous buying behaviour to predict what they may be interested in buying," says Denis Lacroix, vice president of product development at Amadeus.

Airline revenue generating systems store data that relate to individual customers for the purposes of CRM. This includes name, address, various other personal details and previous flight and purchase history. These data are mainly held for frequent flyer programmes, and are rarely used for other purposes.

One possible use that has emerged in recent years is to use the data for more effective marketing of ancillary products. CRM systems do not store data on what ancillary products passengers have bought. CRM data and information relating to previous buying history could be used to target individuals with specific ancillary products, rather than blanket-targeting all buyers that log onto the airline's website, or make purchases through other sales channels, such as call centres and travel agents.

"CRM data should be extended to include the ancillary products that have been bought in the past. There are several other potential uses for CRM data, and one of these is targeting with individual fares," continues Lacroix. "Another potential use is to improve customer service by keeping a record of passengers whose baggage has been lost. Airlines could use these records to compensate passengers, but this cannot be done because the different silos of information in the system are not interfaced. With the right technology, airlines could provide passengers with an apology by e-mail, provide a small refund or give some sort of concession or upgrade. What they actually offer depends on the relative importance of the passenger in terms of their previous buying history, which would come from the CRM database, and would be decided by a rules engine.

"A second example of improving customer service is when passengers miss connecting flights," continues Lacroix. "Each will have to be re-scheduled onto new connections. CRM data could be used to determine which passengers get priority treatment and upgrades."

Traditional airline reservation systems have been based around passenger name record (PNR) data. This information has a lot of data relating to the schedules the person has selected, the fare and booking class, extras and ancillary products they have paid for, frequent flyer numbers, and personal details. "The new philosophy of reservation systems is to use this to build a customer profile, and progress from a frequent flyer programme to a living document each time a customer makes contact with the airline," says Alessandro Cianmino, vice president of Europe at Sabre Airline Solutions. "The philosophy that we adopted two years ago is to use the reservation platform as a CRM platform, so that all the information gathered during the reservation process can be used to build the customer profile, and predict what they are likely to be interested in buying in the future. This is through not just the airline's website, but also every customer touch point and sales channel an airline has, like call centres, check-in agents and self-service kiosks.

"This means that all sales channels need to identify the person when they make initial contact. A call centre, for example, would use a person's phone number," continues Cianmino. "This

The technology to identify individual customers when they make initial contact and then target them with specific fares and products according to the their past buying behaviour has to be applied across all sales channels if airlines are to provide a seamless service.

technology would allow airlines to build up large amounts of information and profiles about people that frequently use their service. The reservation platform then becomes a CRM platform, and the airline's selling behaviour depends on the customer's profile. For example, someone who has frequently asked for lounge-access upgrades in the past, can be specifically targeted when they log on to the airline's website. Those that have not asked for lounge access can have the option, but are asked more discreetly. Taking it a step further, the specific passenger can be asked again about their interest in lounge access during check-in, especially if their flight is delayed."

Smart reservations

Amadeus and Sabre have developed new technologies so airlines have the ability to target customers individually. Amadeus is developing a 'Dynamic Webstore', and has a launch customer that will start using the system in 2010. Sabre has developed a dynamic reservation system called 'Sabresonic Customer Sales and Service'.

"A dynamic system has to be able to define a value for each of the airline's customers that come through any of its sales channels and touch points," explains Cianmino. "The value assigned is defined by each airline, but will include data such as the frequency of travel, the average spend at each purchase, the value of the more recent purchases or within a defined period, and other definitions. The frequent flyer bands or classes for categorising passengers are currently primitive, and need to be improved to provide a value to each customer.

"For example, the new Sabresonic system applies value to each customer when there is a delay and two flights miss their connection," continues Cianmino. "In this case, passengers need to be redirected to new flights, and an assigned passenger value allows the airline to prioritise which ones are redirected first. The Sabresonic Customer Sales and Service system starts with the most valuable passengers, and assigns them to the best available flights and schedules. The least valuable get the worst schedules. The system can be tailored to match the product and services more closely with the customer's needs. We started deploying this system in 2008, and our customers include Vietnam Airlines, jetBlue, WestJet and Volaris. Generating ancillary revenues was the most important issue in specific customer targeting for jetBlue, since these account for 15-20% of its revenues."

Amadeus's 'Dynamic Webstore' can modify the passenger booking process according to the passenger's previous buying behaviour. Therefore, if a person shows interest in going to Spain, the system will suggest other destinations in Spain and Portugal, and indicate the fares that are available and the cost of ancillary products, such as hotels.

"Merchandising on the Dynamic Webstore system can also be automated according to a passenger's buying behaviour," says Lacroix. "For example, car hire can be offered to someone buying an extended ticket to Dallas, but not to someone buying a day return to Paris. This contrasts with many airline websites that are static. The ancillary products and merchandising are there, but the buyer has to search for each one themselves."

Airlines to date have not really conducted tests to understand how individual customers behave in buying terms when visiting airline websites. "Airlines can analyse what big retailers do," says Lacroix. "Retailers use lots of techniques, such as AB testing, to see how customers behave when buying. In the case of an airline, a customer may buy a seat first and carbon offsetting second. Another may buy the other way round. Once these, and other techniques, have been used, airline sales channels can be tailored to increase passenger revenues and customer satisfaction. The layout and design of customer websites is as important as the way in which food is presented on shelves in supermarkets.

"Our Dynamic Webstore interfaces CRM data, the purchaser's activity on the website, and the website content; which can include special offers or particular ancillary products," continues Lacroix.

Besides the merging or interfacing of several silos, new reservation technologies that can predict a customer's buying behaviour and target them individually require rules engines, which decide, for example, what to offer passengers if their luggage is lost. "The rules engine therefore has to access data and information in three silos of data, including CRM and reservations. Various merchandising techniques can be adopted, not only on a website, but also across all types of sales channels. While the internet accounts for some of the largest shares of airline sales, the number of calls to airline call centres has not decreased that much. Airlines will want to use the same technology for all channels," says Lacroix.

The Amadeus Dynamic Webstore is also able to detect a person's location,which Lacroix says is relatively easy to do. Websites already use this to determine what language is displayed to the user. The location can also be used to determine what fares are made available. The Dynamic Webstore can now also detect the nationality of the person logging from CRM data. This can be used by airlines to determine what fares or products to offer.

SITA's smart phone technology allows customers to make reservations using a smart phone. This avoids the need to use a computer to log on to an airline website, call an airline call centre or visit a travel agent. This technology includes geolocalisation which can recognise a user's location and so target them with only relevant booking information.

Dynamic fares

Along with targeting specific customers, there are also developments in setting fares and prices in real time. "We started upgrading our fares and pricing platforms in 2005, and developed our fares analytics capabilities," says Brian Cook, vice president of airline and passenger solutions at SITA. "We did this by developing our 'Airfare Insight' and 'Total Fares Management' systems that aggregate all fares in the market in real time, so that airlines react to new fares introduced by competitors, and make pricing and fare availability decisions in real time," says Cook. "With previous systems it used to take three weeks to define a new fare and its associated rules. We have developed a system to combine the AirFare Insight and AirFare Distribution more quickly and introduce the new fare in a much shorter time.

"The system works by bringing the competitor's pricing data very quickly to the pricing analyst, who can then use it with the new analysis tool," continues Cook. "Prior to the internet, fares were decided manually, and were published in ATPCO. Fares are now displayed through multiple channels, so a dynamic system is required. Besides defining new fares, airlines also need to know what the response to new fares will be, so we have included this capability in the system. The technology enables the airline to optimise fares by tracking competitors pricing strategies and yield management to understand what they are selling, and to respond to this. An example is where an airline spots an opportunity to raise fares while still retaining a price advantage. The system also reduces the time it takes an airline to bring a new fare to market.

This ensures that the SITA system provides all the information related to making a decision about a new fare, pricing and rules in advance. It also simplifies and speeds up the business. The pre-requisite requirement for any fares and distribution management process must be to make complexity simpler and faster. The new generation of fares management technology allows an airline to improve the speed of decision making, automate competitor analysis, automate distribution to the GDS, provide very high data loads, for pricing, and deliver in-built diagnostics for pricing and date which resolves queries that might otherwise lose a valuable initiative.

Mobile reservations

SITA is also investing $120 million in revamping its reservation systems, and using service-orientated architecture to enable more flexibility to improve customer service. This includes bringing greater marketing and merchandising capability across all distribution and sales channels. "One area where we have introduced new reservations technology, and opened a new sales and distribution channel for airlines, is through smart phones," says Cook. "This new mobility service allows a customer to log onto an airline website, and so avoid having to be at a desk and computer, telephone an airline call centre or visit a travel agent. The smart phone has been developed to recognise the person by their telephone number, and their physical location. Clearly it is difficult to manually type in an airline's web address and all other details pertinent to a reservation on a smart phone, so we have made it easier to use than a conventional internet log-on. The important thing to realise is that it is not an airline's website that is used. Once the reservation is made, the details and electronic boarding pass are sent back to the phone.

"This mobile reservation technology combines several technologies: geolocalisation; smart technology; and links to the airline's frequent flyer and CRM programmes," continues Cook.

"Geolocalisation is the ability to identify the geographic location of the user of the device and to use that information to deliver targeted information and services. For example, if you are using a smart phone, like an iPhone, and you access the Malaysia Airlines mobile service, geolocation services identify where you are physically located, and delivers appropriate information to you. So, if you are trying to book a flight and you are standing in London, it will assume that you want to depart from London. The screen will therefore pre-fill the departure city as London. If you are trying to find a Malaysian Airlines ticket office it will show you the offices located in and near to London.

"Smart technology and Smartphones," continues Cook "are phones that allow PC-like functionality. That is, internet access, e-mail and satellite positioning. Major operating systems include Blackberry, the iPhone and Windows Mobile. All of these are supported by Malaysia Airlines's flymas.mobi service.

"Geolocalisation and and smart technology can also be used by passengers to request upgrades and purchase ancillary products. All this means a buyer can make a reservation while they are mobile. This has been made possible by combining CRM, frequent flyer programmes and reservations, and deploying them with smart technology. We have recently launched this product with Malaysia Airlines."

AC