

Revenue accounting has evolved from a manual process to one controlled by IT, and using sampling to determine revenues paid to an airline. With continued development in IT, revenue accounting is now faster and more accurate, and vendors can offer totally outsourced and on-line systems.

IT options for revenue accounting

Revue accounting (RA) has a reputation for being a technically daunting process. Revenue accounting systems (RASs) are designed to capture, analyse, process, bill and report revenue. To achieve this, RASs must link with other airline systems, as well as communicate with other airlines.

RASs must be upgraded to keep pace as passenger itineraries and pricing options become more complex. Increased system complexity limits the solution options available to an airline.

Large airlines often own and maintain in-house systems, similar to the ownership and development of reservation systems, because they have had to solve their needs.

Airlines were often wary of third-party providers, but the last decade has seen vendor systems replacing airline systems. Technological developments drove this because airlines were unable to keep pace with industry developments.

Development of electronic ticketing (e-ticketing), complex interline billing requirements, codeshares, alliances, intricate fare-rules and the need for immediate management reporting increased the complexity of RA.

Technological demands and reporting requirements have enhanced the RA process. Newer systems provide airlines with accuracy and control never previously possible, and protect them from revenue loss. These and other developments have enabled RA to become a more integrated part of the airlines' reporting structure.

Revenue accounting process

Primarily RASs process and manage all the individual flight coupons that airlines receive, both paper and electronic. This is the basic building block of RA. When a passenger checks in, their

first coupon is captured as data, a process called primary coupon uplift (PCU).

PCU is important because only the first coupon in any ticket sequence has a revenue value. All other coupons are only used to invoice the PCU holder if the passenger travels on another airline. An airline cannot invoice the PCU holder if an airline loses a coupon. Carriers invoice the PCU holder for their portion of the fare. This is calculated using accepted pro-ration techniques, or by applying a special pro-rate agreement (SPA) agreed between airlines.

SPAs are used to enhance interline travel and are lower than normal pro-rates. Interline travel is the use of two or more carriers to reach a final destination. The invoice is processed through an International Airline and Transport Association (IATA) clearing house where the claim is logged. Generally, the money that an airline is owed offsets the money it owes, and the clearing house's function is to reconcile the differences.

The volume of interline travel makes coupon processing a slow task. Airlines use sample billing, dependent on data integrity of another airline, to resolve this. Sampling uses a data sub-set, about 10-15% of total billing volume, to ensure that the sampled revenue agrees with the expected revenue. If the sample is within a pre-determined range the average revenue is applied to each coupon. While there is potential for missed revenue, it is equal to both airlines. With non-sampling every ticket is checked, making it a slower procedure, which is used where data are questionable or pro-rates are poorly structured.

After each month the RA system reports revenue, which includes tickets held by other carriers. RASs include this revenue, even though it takes several weeks for the revenue to be received and for the ticket to be processed. Settlement can take some time, so RASs make

revenue projections based on available data. "The reporting time varies depending on the system that is used. The same applies for the reporting accuracy," says A.T. Srinivasan, general manager sales and marketing for The Mercator Group. "Mercator's RAPID system reports five days after month end, and the reporting accuracy varies upward from 98.5%. This is a high level, and resolves the issue of airlines having to wait until the second month to gain an accurate picture of revenue." Older systems achieve about 75-80% reporting accuracy for the first month, rising above 96% in the second month. This means an airline will wait for over two months to find out how much money it earned.

Revenue protection

RASs perform audits on coupons to determine rule compliance. If a rule has been violated, RASs flag it to determine if an agency debit memo (ADM) should be raised. ADMs are the difference between revenue received and revenue required for the itinerary to occur in the way it did. For example, if a passenger does not complete a minimum stay rule and returns early, the agency may be charged the difference between the restricted and unrestricted fare. Most airlines waive many ADMs either out of goodwill or because it is unclear whether the passenger or the agent was at fault. ADMs provide revenue where obvious violations occur.

"Revenue protection is a vital function of any RAS," says Srinivasan. "We have three checks: fare, refund, and sales reported auditing. We have found that refund and sales reported are two vital areas of revenue protection, since airlines can often protect more money there than with fare auditing. Refund checking is vital, because agents may not correctly apply refund fees, or may not



refund their commission even though they are refunding the booking. A similar issue applies with reported sales. Generally agents have a set reporting cycle, either fortnightly or monthly. If an agent reports 80-90% of sales for a particular month, and reports the rest in a later month an airline will never know. This allows an agent to earn interest from the airline's money. This can be prevented if all coupons are processed, which modern systems can handle. Revenue protection should form a significant part of any airline's RA strategy."

Some older systems audit coupons based on a sample method, with only certain sectors analysed. Older systems cannot audit all coupons. One major European flag carrier does not check any of its tickets for fare violation, since its system is unable to cope with the volume. The cost of checking outweighs the revenue it will receive.

Data requirements

RASs can report revenue a few days after month end. Multiple data sets are required to ensure accuracy. RASs track each airline booking, including those made on other airlines by taking data from Central Reservation Systems (CRS), for direct airline bookings; Global Distribution Systems (GDS), for agency bookings; ticket coupon number (TCN), for future bookings; and Bank Settlement Plan (BSP) for revenue received. Details are transferred to the RAS when a booking is made.

An airline can refine the accuracy of this process by managing data received. Newer RASs can have high accuracy, because they process larger data volumes and manage more data inputs. "Getting

good data inputs is key to accuracy," says Bob Rittenberry, director of finance products for Sabre Airline Solutions. "Data are added to the system as soon as they are updated. BSP data are limited because they are typically only available when sales are reported. CRS and GDS ticket data can be updated within hours after issuance. We can pick up GDS ticketing and bookings within 48 hours by using TCN. By the time the passenger boards a flight the processing of their journey has been completed. Most airlines close between three and six days after month end. The actual time is driven by the airline's operational approach and level of comfort with data integrity, which drives the accuracy of reporting. Revenue can be reported whenever the airline requires, with correct data, and this can even be a weekly process if required."

Systems

Because processing volume is high, most new systems rely on new-generation platforms. Mercator uses an Oracle framework, as does Kale. SITA employs an AS400 system and is currently evaluating migration to a UNIX platform. Some processes have been truncated to improve reporting speed, including fare-auditing and revenue integrity checks.

New systems have the processing capacity to handle large data volumes. Updating systems in the past few years has increased the potential of RASs. "The systems built in the '70s and '80s could handle coupon uplift, pro-ration, and some auditing; generally their processing limits were quickly reached," says Ulrik Methler, manager passenger revenue

Airlines are in the position of not being able to claim revenue owed for carrying passengers up to eight weeks after departure. Modern revenue accounting systems provide accuracy of about 97% in assessing revenue earned and about five days after closure. They can also report revenue after each flight has departed. This is as close to real time as is possible to get.

accounting at Lufthansa Systems. "A benefit of newer systems is the integrated solution option. This incorporates the system within the airline's greater IT framework. This alone provides significant benefit to an airline, because as automation and integration increase productivity grows. Airlines need to be looking at using the RAS to support their decision making and ensure revenue integrity. This is a prime issue when evaluating options."

Evaluating a RAS is a multi-step process, understanding many of the user's requirements. RASs are often seen as a cost centre, so cost reduction is a primary selling point. "Carriers initially focus on cost-reduction when moving from an in-house solution to a vendor," says Dave Brown, senior director of business management and strategy at SITA. "Cost reduction involves the removal of research and development cost, technical support, and information technology infrastructure/updates, as well as license fees. There is also a benefit of moving to a newer system. Carriers get better visibility of their revenue situation. They can see where they are gaining or losing revenue, and the areas in the business processes that require enhancing. This is valuable for an airline, and may be overlooked. These new systems provide airlines a better understanding of their business."

Vendor options

RASs can be divided into two groups: airline systems, and vendor systems.

Most airline systems are not offered commercially. Scandinavian Airlines markets its system, as did Swissair prior to closure. The appeal of an airline system is limited because the volume of users is low, and research and development may be limited.

The major vendors involved in RA are Kale, Lufthansa Systems, Mercator, Sabre Airline Solutions and SITA.

Mercator, part of the Emirates group, is based in Dubai and has over 25 customers who use RAPID. Mercator has invested significantly in R&D and offers high levels of usability. Mercator's system closes after each flight has departed, allowing the system to report on a daily per-flight basis if required. RAPID closes the revenue month within 5 days, and has an initial accuracy rate above 98%.



Kale Consultants, based in Mumbai, India, has over 25 airlines using its REVERA™ solution. REVERA™ reports revenue within five days of month end, dependent on data availability from other systems. Kale is examining the demand for daily and weekly revenue reporting, and may introduce this in the near term.

Lufthansa Systems offer SIRAX, which is used by Lufthansa, Condor, CityLine and Eurowings. Designed for Lufthansa it offers a scalable solution to airlines, as evidenced by its use among the members of the Lufthansa group and, most recently, STA Travel.

SITA, the leading provider of IT-neutral systems, has over 20 clients including Frontier, a low-cost-carrier. Like other vendors, SITA's client base is global, allowing it to adapt to regional requirements.

Sabre has nine customers, and is finalising several more. Sabre's improving popularity is partially driven by the hosting services it offers.

All the vendor systems are broadly similar. While the user interface is different, the underlying business principles are shared. A sizeable advantage of vendor systems is the investment volume available for R&D, and the exposure to different airlines' business practices. Mercator's Srinivasan explains: "The underlying RA processes are a given. Airlines need to determine what their business needs are and how this can be delivered by an RA system. RASs must protect the airline from lost revenue. An airline needs to determine its current and future needs, and how it wants to structure its business. Systems should support the business decisions,

they should not dictate timeframes. Flexibility is key to any system."

Future developments

IT development has hastened system obsolescence, as evidenced by Lufthansa Systems' replacement of early 1990s' technology with late 1990s' technology with SIRAX. The expiry life of any IT system is no longer measured in decades, and carriers are looking to systems that can be constantly upgraded.

One area growing in appeal is the use of an application service provider (ASP) for RA. With ASP, the client is hosted by a vendor, with the client only paying a monthly fee. Access is via secure internet connection, with the customer having control over all business processes. The popularity of ASP has increased significantly, with all vendors offering the system to positive market response. "The development of ASP is significant, and many carriers are seeking to use this delivery method," says Rittenberry. "Six of our nine customers have selected the ASP option. This allows the airline to get the latest technology, without having to pay license fees; maintain hardware and software, or have dedicated technicians. Smaller clients can source the latest technology without large start-up investment."

All RA vendors offer ASP, and it is a primary delivery method that airlines should evaluate when reviewing their RA needs. One benefit is that it can be scaled to suit an airline's size, making it an attractive option for smaller airlines. "ASP is attractive, especially to tier-4 airlines. Minimal investment is required

Airlines in the Lufthansa Group use Lufthansa Systems' revenue accounting system; SIRAX. SIRAX is scalable to any airline size.

and they get an effective system with high usability," says Brown. "Many airlines are pursuing this path, because the benefits are substantial. A vendor also benefits, because complexity is reduced. A single version is offered to clients, instead of customised versions. This reduces vendors' maintenance costs."

"As a customer, the ASP concept had great appeal," says Mary-ellen Thiets, revenue accounting manager for US-based Great Plains Airlines. "No software or hardware costs are incurred, access is via the internet, and the security is very high. We are comfortable with the ASP approach because it allows us to limit our IT exposure and remove non-core business functions. We did not compromise our business processes by moving to ASP. We control all management report functions and data output, and they are fully flexible to our needs."

ASPs' popularity with carriers is set to continue, because it allows them to secure efficient processes at minimal cost. "Our previous processes were manually oriented; the introduction of eMergo (Sabre's ASP) has enabled us to secure significant efficiencies in the way our work is produced," says Thiets. "Being a smaller carrier we required something that could be scaled to our requirements, both in an operational and cost sense. Great Plains uses several Sabre Airline Solutions platforms and the synergy that we were able to derive from this was a benefit to us. The benefit of systems integration was a great plus, and one that supported our business model."

Outsourcing

While ASP is gaining in popularity vendors also offer outsourcing solutions. Outsourcing moves the entire RA process from the airline, thereby reducing the cost. The usual problem of outsourcing, namely high cost associated with any modification, is not present in RA, making this option attractive.

Olympic Airways and Air Tahiti Nui have outsourced their processes to Mercator. This makes sense for an airline, because ticket processing and data procedures are not a core function.

Moving to an outsource option allows the airline to secure an end-to-end service, while securing efficiencies within

Olympic Airways is one carrier that has completely outsourced its revenue accounting process to Mercator. One major saving is its reduction in labour cost.

its own structure. Labour savings and R&D efficiencies are two major areas where airlines can benefit. The two largest vendors, Mercator and Kale, can secure highly proficient IT skills at a low labour rate. This benefit, driven by their bases being outside Europe, allows competitive pricing. Outsourcing RA is a way of limiting the investment.

Cost

Cost can be calculated on two levels: investment cost: how much is required for a new RAS; and opportunity cost: the cost of not having modern processes.

Opportunity cost can be measured in areas such as revenue protection, improved efficiency, and enhanced management reporting structures.

The benefits a modern RAS can produce are measurable and would be part of any credible business case. Cost reduction is the other area of benefit. If an airline chooses either the outsourcing or ASP option, it is able to reduce overhead and infrastructure cost, reduce R&D investment and remove hardware and software that requires maintenance.

Vendors can offer flexible pricing options. Srinivasan explains: "Pricing is dependent on what option a client selects. Licensing, ASP, and outsourcing all carry different cost bases, so the pricing economics vary. All airlines are under considerable cost pressure, and the final investment amount is determined by the business needs and existing market situation. Tailoring a product to a client's needs is a vital part of the calculation. Vendors are able to secure economies of scale that individual airlines cannot match."

Vendors structure their cost base around passengers boarded. The cost to the airline therefore varies with the volume of passengers so that overhead burden is not as high.

Moving from a fixed cost base to a flexible cost base provides an airline with immediate savings. ASPs are often priced as a monthly fee, irrespective of passenger volume. This is partly driven by the maintenance costs that the host must cover. Kale offers flexible costing methods, often based on the user requirements. Kale, like all other vendors, structures the cost system to reflect the operating economics of the customer.



System replacement

Replacing a RAS is a difficult decision, both on business and technical levels. As stated earlier, the business decision is often driven by cost, and it is increasingly being driven by benefit. There are technical challenges when moving to a new RAS, because existing data must be migrated to the new system. This can involve significant risk in the potential loss of data and revenue.

"Carriers need to be very clear about the complexities that will be generated when embarking on a new RAS," says Methler. "RASs feed all the management systems, and they have sensitive links to other systems. Migrating data is a risky process. We offer three migration options: immediate cut-over, where the data is moved to the new system over a 1-2 week period; parallel, where the old and new systems run in tandem for a period while data is migrated; and layered, where systems and data are moved over in clusters, allowing close management of critical functions. The layered approach is the most popular among our clients and the one that we recommend."

The migration of a RAS is resource hungry, both for work-hours and technical requirements. "Significant planning must occur before migrating to a new system," says Brown. "Mistakes in the implementation process could lose the airline significant revenue sums, because tickets are missed or poorly pro-rated. Vendors must be willing to adjust their systems to the airlines' requirements and transfer knowledge for the system to be a success. Areas like training and support groups help increase the independence of the carrier and are highly important in the success of any system."

Summary

Airlines are unique in that they are unable to claim the money they are owed until a passenger travels. Therefore an airline incurs the cost of transporting a passenger up to eight weeks before it receives the attendant money. Visibility in revenue earned is therefore valuable.

RA systems are critical to the management of this process, otherwise airlines could lose millions of dollars. The accuracy of revenue capture and interline reconciliation is vital to ensure that an airline is paid all the revenues it is owed, and to check that it is correctly managing its outward billing. The management of the billing and reconciliation process is vital to ensure that all revenue is accounted for. Providers of RASs have devoted significant amounts of R&D into the accuracy and speed of their products.

These vendors now offer solutions that are more advanced than most airlines' native systems. With an accuracy rate in excess of 97% five days after closure, the new RASs are very efficient.

This is compounded by their ability to report revenue whenever an airline requires it, with some systems offering the option of reporting revenue after each flight has departed. This is as close to real time as it is possible to get.

More airlines are selecting the ASP approach to resolve their RA requirements, thereby reducing their fixed costs. ASP has proven popular with many airlines, and is set to become the preferred delivery mechanism, especially for smaller carriers. A primary requirement for any airline selecting an RA system is determining the scale that is required, and selecting a system that can be scaled to individual needs. **AC**