Freight has been regarded as incremental revenue and so a secondary consideration in airline revenue departments. Systems are now becoming available that combine passenger and freight revenue. These allow aircraft revenue to be maximised, while also saving airline costs.

Efficiencies in linking cargo & passenger revenue systems

Passenger and cargo systems can be disparate, with airlines often using incompatible systems that are unable to communicate with each other to any degree. The majority of investment is focused on developing passenger revenue system technology, with freight often an afterthought

With increased attention on the total revenue generation potential of each aircraft, benefits can be gained from employing systems that integrate the revenue generation streams.

The benefits to airlines from doing this include improved revenue reporting and management, increased efficiencies and maximised revenue for each flight. Technology developments enable an airline to manage these processes at significantly lower cost than was previously possible, transferring further benefit to an airline's operation. Many carriers, by ignoring the cargo process or paying it little attention, are allowing significant revenue volumes to be eroded.

Cargo & passenger relations

Airlines invest substantial amounts of money in passenger revenue systems. From reservations to revenue management and revenue accounting, airlines are constantly developing or exploring new ways of managing this part of their business. Investment is continual as airlines seek to capture as much revenue as possible.

Cargo is often attributed a lesser priority, receiving less investment, although some carriers have always seen cargo as strategically vital to their operation. Cathay Pacific, for example, gains 25% of its revenue from cargo operations. However, US carriers' cargo revenue is lower: United's cargo operation accounts for 9% of its total revenues; American's accounts for 5%, and Continental's is 2%. With such a wide variation it is easy to see why airlines often see cargo as a secondary operation, and use it to make a revenue contribution, once the passenger contribution has been fully exploited.

A changed approach would allow airlines to improve their performance in capturing and managing the total revenue streams from the passenger and cargo areas.

One carrier examining the benefits of enhanced cargo and passenger platforms is Royal Brunei. "Cargo is an important factor for us in any route evaluation we perform," says Ashendra Liyanage, manager fleet and route planning at Royal Brunei Airlines. "We examine the total revenue opportunity during the evaluation phase. Cargo complements our passenger volumes and helps keep the profitability dynamic on many of our sectors. Consequently, we are investigating how we can manage the two better. This would enable us to optimise our network-wide revenue generation potential. We recognise that cargo and passengers should be a complementary process, both in the transportation and management context. The systems we have provide us with a good understanding of our business but we are always looking to improve on this."

Gaining an understanding of cargo and passenger relationships generally requires integrating the IT systems within each department, or investing in new technology if they are incompatible. "Airlines need to invest in intelligent tools to manage their business operations," says Dave Brown, senior director for business management and strategy at SITA. "Determining the business opportunities that exist, both now and in the future, is vital and has often been neglected. Proactive decisions are becoming more valuable. Airlines need to anticipate issues and change to meet them, not have change forced upon them. The use of tools, especially ones that give greater visibility to the core business processes, is always a wise investment."

IT companies have placed considerable resources into development of integrated passenger and cargo revenue accounting (RA) systems. Many airlines have been unable to perform the same process as they lack the required depth of resources for research and development (R&D).

Passenger & cargo systems

There are two major components within the cargo and passenger area that can be combined: the reservations and flight management process; and the RA procedures.

RA options are already offered by vendors, where the RA functions for cargo are incorporated into the airline's overall RA processes. This is a well established area, and the major benefits open to an airline are generally in the reduction of cost, removal of duplicated processes and accurate revenue

capture/billing of the airway bills. The integration of the cargo and passenger reservations processes is more intricate, but can enhance the revenue generation on a per-flight basis.

Airlines can sometimes ignore the contribution that cargo makes to overall profitability, often selecting aircraft purely from a passenger operation viewpoint, but others take a more holistic view. "When evaluating our new long-haul fleet purchases the cargo dimension was a significant factor," says Liyanage. "Several aircraft would have satisfied our requirements on a purely passenger and cost level, but we were sacrificing too much revenue through displaced cargo. Maximised revenue generation is our primary target, and we are balancing the requirements of both these revenue streams to ensure we get there."

Managing the relationship between passenger demands and cargo is a highly complex area, and one which is only beginning to be addressed. This technology is still embryonic, and has not been used by many airlines despite the obvious benefits it provides. Some airlines have begun to embrace the obvious benefits that can be secured, including Sri Lankan Airlines.

"Sri Lankan adopted the Mercator system as we identified a business need," says Peter Hill, chief executive officer at Sri Lankan. "Leveraging this technology makes our operation more efficient, enabling us to make greater use of cargo capacity. We will also be totally transparent to customers who see their cargo progress from origin to destination. It manages the entire supply chain from reservations to delivery, offering sophisticated capacity management, pricing and net rating, cargo handling, revenue planning, and management information."

Future developments for decision support tools involve the integration of disparate systems *(see Cost reductions and efficiency gains from IT integration, Aircraft Commerce, April/May 2003, page 33)*. Many IT vendors are now evaluating the benefits of an integrated system that values revenue contribution from both passengers and cargo. Moreover, some vendors are considering providing systems that discriminate between passengers and cargo, based on which provides the highest revenue contribution. Using a contribution value approach could lead an airline to deny boarding to a passenger and load cargo instead.

Depending on the product, cargo can carry a higher value per kilogram than passengers. Also, cargo does not require dedicated attention. The benefit of monitoring total revenue generation can be provided using an example of a passenger flying from London to Sydney via the Asia Pacific. During discount periods the price for a flight can reduce to $200 per sector. Taking the average IATA passenger weight of 83kg and adding 25kg for luggage shows that the airline must carry a total weight of 108kg, equating to a revenue of $1.85 per kg. Cargo to the Asia Pacific, depending on its perishability, is charged at $2.50-$3.50 per kg.

Including the cargo dimension into the revenue management processes would enable airlines to make decisions on respective values, and discriminate accordingly. While a quick examination suggests that at certain times cargo is more valuable than leisure travellers, it is also uni-directional.

Revenue reporting

The second component that influences this area is the capture and management of the generated revenue streams during the RA process.

Airlines invest significant sums into the passenger section of revenue accounting. Less money is invested in the cargo operation, despite the significant revenue volume it can contribute. Some airlines have seen the value of integrating these two revenue accounting processes, realising additional value.

"The airlines that responded to this opportunity early on have reaped considerable benefit," says A.T. Srinivasan, vice president sales & marketing for the Emirates Group. "Interlining of cargo is very prevalent among airlines, but the use of good recording systems is less so. Cargo, like a passenger, is pro-rated to determine value for each carrier, but how does the carrier know that what it is being paid is correct? Standard IATA rules apply, but rules cannot protect a carrier if its systems do not record the transactions correctly. Mercator has found, in working with our clients, that there is considerable revenue potential to be gained from using advanced reporting systems."

Revenue occurs because the airway bill, cargo's equivalent of a passenger ticket, is incorrectly processed or wrong assumptions are made about pro-ration mechanisms. Greater use of data streams and analysis of all airway bills would reduce this, just as increased automation has reduced it for the passenger sector.

Although revenue from freight is treated by some as incremental revenue, it accounts for up to 25% of total revenue for some airlines. When analysed, cargo in some parts of the globe even be shown to have a higher revenue per unit of weight than heavily discounted passenger fares. Some revenue management processes are being developed that could discriminate between high value freight and lower value passengers.

Reservation developments

Passenger computer reservation systems (CRS) have evolved to meet airline needs, from Frequent Flier to electronic ticketing. Cargo, by comparison, has always lagged behind.

The booking, tracking and management of cargo is often rudimentary because airlines have never been forced into making changes. Passengers are able to book travel via multiple methods, and their access to inventory is absolute and pricing is determined based on forecast total demand. Cargo bookings are registered in a tracking system, from where a shipping document and inventory code are assigned.

Cargo relies on freight forwarders to act as the interface with the airline on the customer's behalf, and the rate is generally the same. The first kilogram of cargo costs as much as the last. No assumptions are made about underlying demand or displacement theory; a cornerstone for passenger revenue management. This occurs because cargo can sit on the tarmac for several days before it is loaded, reinforcing its role as supplementary revenue instead of primary revenue.

Merging these systems could provide revenue opportunities to an airline. For example, if the cargo system knew the flight was forecast to have a small passenger load, cheaper cargo rates could be offered to ensure the sale of the airline's capacity, generating additional revenue. While this is difficult because cargo is not sold in the same method as a passenger seat, the principles are similar. Established flight management methods could be adopted to maximise total revenue potential.

"We implement strategies to manage the total revenue stream on each flight," says Srinivasan. "Airlines can no longer ignore the contribution that cargo makes to their bottom line, and they need to start investing in systems to bring them up to date. Linking the systems is a great idea, because you can really begin to explore the overall revenue impact. For example, if an airline knows that demand for a certain period, both cargo and revenue, is high it can respond accordingly, and maximise revenue. It is a logical evolution of existing revenue management concepts, and the technologies are now available for this to occur." Both Qantas and Singapore Airlines have adopted new cargo systems, indicating that airlines are indeed looking to maximise the potential in this area.

Additional benefits

An upgraded cargo system has additional benefits that can justify implementation. Advanced reservation systems and practices would allow improved customer relations, including a more exact timeframe for carriage.

Perishable goods are loaded as priority, and non-perishable ones are loaded on a 'space-available' basis. Shippers also know when their goods are being transported, rather than the current method of first available flight.

Improved tracking has an interesting side benefit for airlines themselves. A European passenger airline's current system results in it losing track of cargo containers. Consequently, it can only account for 70% of its LD-3 containers at any one time, while the remainder are sitting in unknown locations at various airports or freight terminals. Larger widebody aircraft can carry 30-44 LD-3 containers, with at least three times this number required to be held by the airline to allow continuous operation. For a fleet of 10 widebodies, for example, an airline might have more than 400 containers, of which 120 (30%) are potentially missing at a given time. The cost of each container is about $2,500, equating to $300,000. Tracking these types of wastage areas are beneficial by-products of an upgraded system approach.

Airline passenger systems are able to link to most systems, especially if airlines employ an open architecture approach or use new generation reservation systems. Linking passenger and cargo systems would therefore be a straightforward development, providing that the cargo system is sufficiently advanced.

Developing integrated passenger and cargo systems also requires the use of advanced revenue capturing and reporting systems. It is pointless to invest in systems that maximise revenue opportunities if airlines then fail to capture the revenue due to poor business processes at the revenue reporting and auditing level.

The ratio of investment by airlines into passenger revenue management systems and freight revenue management systems is high. Some airlines have integrated the two processes, and repead considerable benefit. Some of these benefits are accrued from advanced reporting systems.

Revenue accounting

Aircraft Commerce examined passenger revenue accounting *(see IT options for revenue accounting, Aircraft Commerce, June/July 2003, page 33).* The processes used in the processing and management of passenger revenue are equally applicable to cargo revenue.

"While the procedures and the processes vary, the fundamental issues that passenger and cargo operators seek to resolve are the same," says P.V. Srikanth, vice president of marketing at Kale Consultants. "Airlines want to capture their revenue, ensure it is pro-rated correctly and guard against violations or revenue leakage. These requirements are identical, regardless of operational division. Airlines require a system that is designed as a complementary module to an existing RA solution. An airline is able to gain the same type of control over its cargo function it currently enjoys with its passenger function using this approach."

Despite the obvious benefits, many airlines continue to use separate systems, thereby duplicating their costs, or to use no system at all. Separate systems act as a cost multiplier, and are a drain on airlines' resources. With the drive for airlines to remove non-core operations, outsourcing revenue accounting is becoming more logical for both divisions.

Most providers of RA systems offer modular solutions to manage the cargo function, integrating seamlessly with the passenger module. "Any system needs to meet several criteria," explains Srikanth. "It must minimise the costs associated with undercharging, overpaying and foreign exchange exposure. It must shorten the time span to billing, thus increasing cash flow. It should also provide complete validation and control of incoming data, timely and accurate batch processing and fully automated pro-ration functionality. Finally, it must serve as a management information tool, allowing the airline management to take informed decisions." Joining the two processes would enable airlines to gain a greater understanding of their two largest revenue streams, while simultaneously reducing costs.

Cost reduction

The major incentive for airlines to move to new systems is the cost efficiencies they gain. While improved revenue is also a benefit, it cannot be valued to the same quantitative level as reduced costs. The cost structure of most systems makes the adoption of a vendor platform a cheaper alternative, because fixed departmental and R&D costs are removed. Systems are generally costed on a per-passenger basis, so they adjust to market conditions. Cargo is costed along a similar transaction method. The two greatest cost benefits are the transfer of fixed to variable cost and the removal of duplicated IT processes. One of the cheapest methods is the use of an Application Service Provider (ASP) system. With an ASP approach an airline is 'hosted' by the IT provider, removing the need for them to invest in hardware or systems. The airline just pays a monthly fee. Airlines that have followed this approach include Olympic Airways, Air Tahiti Nui and Great Plains Airlines.

If an ASP option is used, costs can be further reduced by removing maintenance requirements from within the airline structure. "The ASP option is proving increasingly popular with airlines," says Srinivasan. "The cost savings gained from using a host system, combined with continual updating, place this option to the forefront of potential solutions."

The other cost benefit that occurs is the reduction in maintenance and hardware costs when the two systems are merged. Airlines only require one system, not two. While they will not experience a 50% cost reduction due to the resource imbalance of the passenger division, they can still gain significant benefit, which includes the savings incurred through ownership costs. For example, an airline would only require one server not two. Running one larger system, however, must be contrasted against running two smaller ones to determine the total cost benefit; sometimes economies of scale do not apply.

Return on investment

Integrating technology platforms has significant payback if executed properly. However, to justify any project the return on investment (ROI) must be significant and quick. In the recent SITA IT trends survey, 45% of respondents signalled that cost reduction was the primary initiative behind any IT investment. The majority of IT initiatives are driven by a need to provide a return to the airline as quickly as possible. Most IT strategy is based on a three-year horizon, so any IT system needs to give an acceptable ROI by the end of that period.

"Deciding up-front how value is going to be measured is critical," says David Brown, partner and head of IT at Newburn Consulting. "You have to be very clear about what you want to achieve before you initiate a project,

One major incentive of combining passenger and freight revenue management and accounting systems is the savings generated, while improved revenue is another.

otherwise it will be difficult to measure the value afterwards. Care has to be taken to ensure that the benefits can be realised, and it is always good practice to separate out the tangible benefits like staff reductions and maintenance cost savings, since these can be measured. Benefits have to be covered in the initial business case, and the project partners must deliver what was promised. Scoping the project is vital so the airline knows what benefit it can expect and when the project will achieve its breakeven threshold and start paying for itself."

Measuring ROI can be difficult if the project was incorrectly analysed at initiation. If costs are identified accurately the benefits gained from completion of the project can be measured using standard formulae. Efficiencies are offset against the project value to determine what level of return can be expected, and if this differs from the predicted level. One area that must be managed is cost deliverables. For example, a project that promises a headcount reduction but simply moves the staff to another department has not delivered the savings promised. This is a common complaint about early outsourcing projects.

Project scope

One of the major problems that occur when any IT system is enlarged or integrated with another system is the drain on resources. Unidentified problems can seriously endanger the value of any project, despite its compelling commercial value. "Having a full understanding of the project's scope is fundamental to establishing confidence that all major risks have been eliminated," says Brown. "You can only influence and eliminate risk at the beginning of a project. If risks and problems are only identified once a project starts, costs begin to escalate as processes must be altered or developed to respond. This also delays implementation.

"The biggest risks in combining systems are unforeseen, either because new problems have arisen. This raises the issue of whether new problems have arisen, or because the project was not scoped properly. Over-ambition is a key risk area, and should always be considered when a complex project is required. Phased introduction and pilot schemes are always a good way managing this area," continues Brown.

IT Limitations

While the arguments supporting a merged system approach are sound, care has to be taken that existing infrastructure is capable of supporting the new processes. For example, implementing cargo and passenger ASP approaches without investing in upgraded communication lines will result in slow delivery of data. Full analysis of the benefits and drawbacks of all options is required prior to any decision being made. Airlines should not assume that IT can assist them in all of their efficiency drives. For example, instituting an IT system that saves 15 minutes per day for a department of 32 people is pointless if it is still necessary to employ all 32 people. All that has been achieved is letting them finish work 15 minutes early. An airline cannot benefit from the cumulative saving of one person per day.

The poor performance of IT projects that were designed to improve performance is often caused by poor planning and consideration of all variables. The infrastructure to which any system must be linked needs to be examined to ensure that the promised performance and benefits can be delivered. Linking cargo and revenue accounting provides significant benefit, and has been performed on many occasions. The leading companies in this process, Kale and Mercator, have sufficient experience to ensure that all issues are identified prior to implementation, and the benefits that airlines can gain are delivered.

Summary

Passenger and cargo divisions need to have higher levels of integration and co-operation, which will be of great benefit to the airlines. While reservation and management of revenue generation is still in embryonic form, the use of RM functions is an immediate area of integration.

Maintaining dual cost structures is inefficient, as is using outdated cargo accounting processes when more streamlined options exist. Carriers invest large sums of money to manage passenger revenue. Investing in systems that also manage cargo equally is the next obvious step airlines should investigate. AC